YE22
EUROPE
2022 / 2023

Registered
ISO 9001:2015 / ISO 14001:2015

WORLD CLASS PRODUCT OF KOREA
세계일류상품

CUTTING TOOLS

HOLEMAKING THREADING MILLING TOOLING SYSTEM

www.yg1.kr

YG-1 CO., LTD.

Guide Line to Icons

YG-1 CO., LTD.

GUIDE LINE TO ICONS

Tool Material

CBN	Cubic Boron Nitride
CARBIDE	Carbide
HSS PM	YG-1 Premium Powder Metallurgy HSS
PM 60	Powder Metallurgy HSS
HSS Co8	8% Cobalt HSS
HSS-E	5% Cobalt HSS
HSS	High Speed Steel

Standard of Tools

YG STD	YG-1 Standard
DIN 327, DIN 844, DIN 1889, DIN 333, DIN 1869/1, DIN 1870/1, DIN 371/376, DIN 37, DIN 1 7	Number of DIN Standard

No. of Flute

2, 3, 3&4, 4-6

Cutting Condition

- Milling
- Drills
- Reamers
- Countersinks
- Taps

Helix Angle

30°, 30°	End mills
30°, N 20~30°	Drills
R40, R45	Taps
LH7°, LH45°	Reamers

The Type of Shank

PLAIN, DIN 6535HA	Plain shank (with DIN Standard)
FLAT, DIN 6535HB	Flat shank (with DIN Standard)
1 ~ 5	Range of Morse Taper Shank

Tolerance of Radius

R ±0.005, R ±0.01	Tolerance of Ball Radius ±0.005, ±0.01 mm
R ±0.010, R ±0.015	Tolerance of Corner Radius ±0.005, ±0.015 mm

Tolerance of Dimension

m7, h8	Tolerance of Outside Diameter
h7, h8	Tolerance of Shank Diameter

Point Angle

120°, 135°, 140°, 180°

Chamfer Angle

15°, 45° — Reamers

O.D. Tolerance of Reamer

H7 — DIN 1420 for H7 Reamed Hole

GUIDE LINE TO ICONS

Surface Treatment

BLUE	YG-1 Blue-Coating
AlTiN	Aluminum Titanium Nitride Coating
X-Coating	YG-1 X-Coating
Z-Coating	YG-1 Z-Coating
Y-Coating	YG-1 Y-Coating
Diamond	Diamond Coating
TiAlN	Titanium Aluminum Nitride Coating
DLC	Diamond-Like Carbon Coating
Uncoated	Non-coated
Hardslick	TiAlN + WC/C Coating
TiN	Titanium Nitride Coating
TiCN	Titanium Carbon Nitride Coating
Homo	Steam Tempered (Black Oxide finish)
Bright	Bright Finish

Chamfer Lead Acc. to DIN2197

I/II/III I/III	Set of Hand Taps
LON	Long Chamfer Lead for Nut Tap
	Form B (with Gun-nose and Chamfer Lead 4~5 Thread)
C	Form C (Chamfer Lead 2~3 Thread)
	Form E (Chamfer Lead 1.5~2 Thread)

Class of Thread

6H 6H 1 6H 7 H

Thread Angle

60°

The Type of Periphery

NR	Roughing - Coarse
WR	Roughing - Aluminium
NF	Roughing & Finishing
HR	Roughing - Fine

Coolant Supply Pressure

45 bar	Internal Coolant Suppy at 45 bar average pressure
20 bar	Internal Coolant Suppy at 20 bar average pressure

Working Material

Material groups GS	Steels with good machinability Rm<850N/mm²
Material groups VG	Heat treated and heat-resistant steels 850N/mm² ≤Rm≤ 1,200N/mm²
Material groups HR	High alloyed steels Rm>1,200N/mm²
Material groups VA	Stainless steels
Material groups NW	Carbon steels with low contents of alloys Rm<700N/mm²
Material groups Ti	Titanium alloys
Material groups Ni	Nickel alloys
Material groups GV	Any material with at least 8~10% elongation
Material groups Al	Aluminum & Aluminum alloys
Material groups GG	Grey Cast Iron
Material groups Ms	Brass
Material groups MU	Multi-Purpose

TTING TOOLS

Certificate
of Registration

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ISO 9001:2015

Certificate
of Registration

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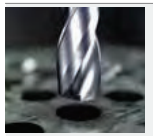
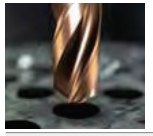
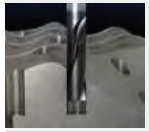
ISO 14001:2015

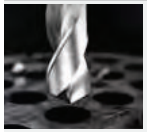
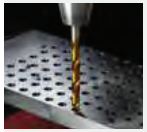
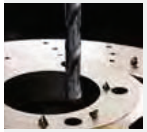
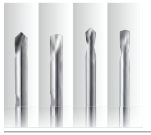
HOL MA IN TOOLS

1. N LISH 2. RMAN 3.FR NCH . ITALIAN . SPANISH 6. R SSIAN 7. POLISH . T R ISH

PROD CTS	D SCRIPTION	PA
1 i ON DRILLS CAR ID INS RTS HOLD RS 2 i- ne , a we h el are ohr hnei en 3 i- E , E E E E E E i- E 5 i-one rill on in er o e ar ro 6 Сверла i-ONE с твердосплавными сменными пластинами Wiertła i-ONE na wymienne płytki węglikowe 8 i-ONE DRILLS, DEĞİŞTİRİLEBİLİR KARBÜR UÇLU MATKAPLAR	igh er orman e E hangea le or eneral eel an a ron	A21
1 i DR AM DRILLS CAR ID INS RTS HOLD RS 2 i-DREAM DRILLS, HM-Wechselplatten 3 i- E - E E E E i- E 5 ro a i- ream, in er o e me al ro 6 Сверла i-DREAM с твердосплавными сменными пластинами WIERTŁA i-DREAM DRILL, PŁYTKI WĘGLIKOWE 8 i-DREAM DRILL, DEĞİŞTİRİLEBİLİR KARBÜR UÇLU MATKAPLAR	or eneral eel an ainle eel	A39
1 SOLID CAR ID DR AM DRILLS PRO ith ithout Coolant Holes 2 VHM DREAM DRILLS PRO BOHRER (mit und ohne Kühlkanäle) 3 E - E E a e e an arro age en ral , E on e en a ori i re rigera ione 5 BROCA DE METAL DURO DREAM DRILL PRO (SIN Y CON REFRIGERACIÓN) 6 Твердосплавные сверла Dream Drills Pro (с отверстиями для СОЖ и без) WIERTŁA WĘGLIKOWE DREAM-DRILL - Pro (Z CHŁODZENIEM LUB BEZ CHŁODZENIA WEW.) 8 SOLID KARBÜR DREAM DRILL PRO MATKAPLAR (içten su delikli ve su deliksiz)	For General Purpose 30 o 50 Extremely High hardness an ea re i an e e o YG-1 special Z-Coating technology	A 9
 1 SOLID CAR ID DR AM DRILLS N RAL ith ithout Coolant Holes 2 VHM-DREAM DRILLS-UNIVERSAL (mit und ohne Kühlkanäle) 3 E - E E n ral a e e an arro age en ral E E on e en a ori i re rigera ione 5 Brocas Dream de metal duro- General (con y sin agujeros de refrigeración) 6 Твердосплавные сверла DREAM DRILLS - GENERAL общего применения (с/без отверстий для СОЖ) WIERTŁA WĘGLIKOWE DREAM-DRILL - DO OGÓLNEGO ZASTOSOWANIA (Z CHŁODZENIEM LUB BEZ CHŁODZENIA WEW.) 8 SOLID KARBÜR DREAM DRILL MATKAPLAR-GENEL KULLANIM (İçten su delikli ve su deliksiz)	For General Purpose 30 o 50	A77
 1 SOLID CAR ID DR AM DRILLS HI H F D ith Coolant Holes 2 VHM Dream Drills - High Feed mit innerer Kühlmittelzufuhr (IK) 3 E ran e an e, E E a e arro age en ral PUNTE DREAM DRILLS AD ELEVATO AVANZAMENTO (Con fori di refrigerazione) 5 Dream Drills de carburo sólido, de alto avance con agujeros de refrigeración 6 ТВЕРДОСПЛАВНЫЕ СВЕРЛА DREAM DRILLS - HIGH FEED ДЛЯ ВЫСОКОЙ ПОДАЧИ (с отверстиями для СОЖ) Wiertła węglikowe Dream Drill – High Feed (z chłodzeniem wewnętrznym) 8 SOLID KARBÜR DREAM DRILL MATKAPLAR -YÜKSEK İLERLEMELİ MATKAPLAR (İçten su delikli)	1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill for Carbon Steels, Alloy Steels (up to HRc35) an a ron	A99
 1 SOLID CAR ID DR AM DRILLS FLAT OTTOM ith ithout Coolant Holes 2 ream rill - la h ohrer 3 E - , E E E E 5 Dream Drills de carburo sólido - Flat Bottom 6 ТВЕРДОСПЛАВНЫЕ СВЕРЛА DREAM DRILLS С ПЛОСКИМ ТОРЦЕМ Wiertła węglikowe Dream Drill – płaskie dno 8 SOLID KARBÜR DREAM DRILL MATKAPLAR -DÜZ AĞIZLI	or ole on ario ngle r a e	A1 7
1 SOLID CAR ID DR AM DRILLS INO ith Coolant Holes 2 VHM - DREAM DRILLS - INOX (mit Kühlkanälen) 3 DREAM DRILLS - FORETS CARBURE Spécial INOX (avec arrosage central) E E E on ori i re rigera ione 5 Brocas de metal duro- Inox (con agujeros de refrigeración) 6 Твердосплавные сверла DREAM DRILLS - INOX для нержавеющей стали, никелевых сплавов, титана (с отверстиями для СОЖ) WIERTŁA WĘGLIKOWE DREAM DRILL- INOX (Z CHŁODZENIEM WEWNĘTRZNYM) 8 SOLID KARBÜR DREAM DRILL PASLANMAZ ÇELİK MATKAPLARI (İçten su delikli)	or o gh a erial like Stainless Steels	A117
1 SOLID CAR ID DR AM DRILLS AL ith Coolant Holes 2 VHM - DREAM DRILLS - ALU (mit Kühlkanälen) 3 DREAM DRILLS - FORETS CARBURE Spécial ALU (avec arrosage central) E E on ori i re rigera ione 5 Brocas de metal duro- ALU(con agujeros de refrigeración) 6 Твердосплавные сверла DREAM DRILLS - ALU для алюминия (с отверстиями для СОЖ) WIERTŁA WĘGLIKOWE DREAM DRILL - ALU (Z CHŁODZENIEM WEWNĘTRZNYM) 8 SOLID KARBÜR DREAM DRILL ALUMINYUM MATKAPLARI (İçten su delikli)	For Aluminum and Aluminum Alloys	A129
1 SOLID CAR ID DR AM DRILLS M L T P ith Coolant Holes 2 VHM - DREAM DRILLS - MQL (mit Kühlkanälen) 3 DREAM DRILLS - FORETS CARBURE - Type MQL (avec arrosage central) PUNTE DREAM DRILL MQL (con fori per refrigerazione) 5 Brocas Dream de metal duro- Tipo MQL(con agujeros de refrigeración) 6 Твердосплавные сверла DREAM DRILLS - MQL для глубокого сверления (с отверстиями для СОЖ) WIERTŁA WĘGLIKOWE DREAM DRILL - TYP MQL (Z CHŁODZENIEM WEWNĘTRZNYM) 8 SOLID KARBÜR DREAM DRILL MQL MATKAPLAR (İçten su delikli)	Minimum Quantity Lubrication Drilling Deep Holes (10×D - 40×D)	A1 1

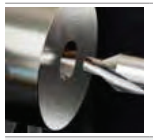
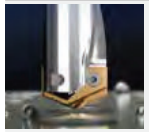
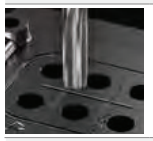
HOL MA IN TOOLS

1. N LISH 2. RMAN 3.FR NCH . ITALIAN . SPANISH 6. R SSIAN 7. POLISH . T R ISH

PROD CTS	D SCRIPTION	PA
1 SOLID CAR ID DR AM DRILLS for HI H HARD N D ST LS ithout Coolant Holes 2 VHM - DREAM DRILLS FÜR HOCHGEHÄRTETE STÄHLE 3 DREAM DRILLS - FORETS CARBURE pour ACIERS DURS E E E E 5 Brocas Dream de metal duro para aceros templados 6 Твердосплавные сверла DREAM DRILLS для закалённой стали WIERTŁA WĘGLIKOWE DREAM DRILL DO STALI UTWARDANYCH 8 SOLID KARBÜR DREAM DRILL SETLEŞTİRİLMİŞ ÇELİK MATKAPLARI	or igh ar ene eel 50 o 0	A1 9
 1 N RAL SOLID CAR ID DRILLS O R ST L N TH 2 UNIVERSELLE VHM - BOHRER (in Längen nach DIN 338 und DIN 1897) 3 E E age g n ral- E E E E E E E E E E E 5 ro a e me al ro, longi e ra ora, e n ar 6 Твердосплавные сверла общего применения, обычной длины и укороченные WIERTŁA WĘGLIKOWE DO OGÓLNEGO ZASTOSOWANIA 8 NORMAL ve KISA BOY KARBÜR GENEL KULLANIM MATKAPLARI	For General Purpose, 338 6539	A1 3
1 HSS PM M LTI 1 DRILLS 2 - -1 E 3 -1 - E - E -1 5 ro a in eri a o l i-1 6 Сверла MULTI-1 из порошковой быстрорежущей стали WIERTŁA MULTI-1 HSS-PM 8 HSS-PM MULTI-1 MATKAPLAR	remi m - rill For Wide Range of Applications Particularly Stainless Steels and i ani m	A161
 1 HSSCo HSS HPD STRAI HT SHAN DRILLS 2 PREMIUM-HSS HPD ZYLINDERSCHAFT BOHRER 3 FORETS HSS-PM Haute Performance cylindriques E 5 ro a o mango il n ri o 6 Сверла HPD с цилиндрическим хвостовиком из улучшенной быстрорежущей стали WIERTŁA PROSTE PREMIUM HSS DO OBRÓBKI PRECYZYJNEJ 8 PREMIUM HSS SİLİNDİRİK ŞAFTLI YÜKSEK PERFORMANS MATKAPLARI	igh re i ion rilling or eneral eel ainle eel	A171
1 HSS HSS OLD P DRILLS 2 - E 3 - , E E - 5 Brocas Acero rápido Gold-P 6 Сверла GOLD-P из быстрорежущей стали WIERTŁA GOLD-P HSS 8 HSS GOLD-P MATKAPLAR	ame er orman e a ll i - oa e rill	A191
 1 S P R HSS S P R P DRILLS 2 HSS BOHRER MIT ZYLINDERSCHAFT 3 FORETS HSS Cylindriques E E - 5 ro a mango il n ri o 6 Сверла SUPER-GP DRILLS из супер быстрорежущей стали WIERTŁA Z CHWYTEM PROSTYM HSS 8 HSS SUPER-GP SİLİNDİRİK DÜZ ŞAFTLI MATKAPLAR	All Applications egar le o a hining on i ion oo or oor	A2 9
1 HSS HSS HSSCo STRAI HT SHAN DRILLS 2 HSS BOHRER MIT ZYLINDERSCHAFT 3 FORETS HSS Cylindriques E 5 ro a mango il n ri o 6 Сверла из быстрорежущей стали с цилиндрическим хвостовиком WIERTŁA Z CHWYTEM PROSTYM HSS 8 HSS SİLİNDİRİK DÜZ ŞAFTLI MATKAPLAR	For General Purpose o o gh a erial	A21
1 HSS HSS MORS TAP R SHAN DRILLS 2 HSS BOHRER MIT MORSEKEGEL 3 E e e ne or e E E 5 Brocas HSS mango cónico 6 Сверла из быстрорежущей стали с хвостовиком конус Морзе WIERTŁA Z CHWYTEM MORSE HSS 8 HSS MORS KONİK ŞAFTLI MATKAPLAR	Morse Taper Shank Drills for Wide Applications	A267
 1 SOLID CAR ID HSSCo NC SPOTTIN DRILLS 2 VHM/HSS-Co8 - NC-ANBOHRER 3 FORETS CARBURE/HSSCo8 A POINTER NC PUNTE NC A CENTRARE IN MDI/HSSCo8 5 Brocas de metal duro/HSS Co8 para puntear 6 Твердосплавные центровочные сверла для станков с ЧПУ из быстрорежущей стали, с содержанием кобальта NAWIERTAKI WĘGLIKOWE/HSSCo8 8 SOLID KARBÜR/HSS (%8 Cobalt) NC PUNTA MATKAPLARI	or en ering an ham ering o ole	A279

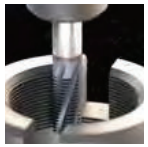
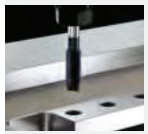
HOL MA IN TOOLS

1. N LISH 2. RMAN 3.FR NCH . ITALIAN . SPANISH 6. R SSIAN 7. POLISH . T R ISH

PROD CTS	D SCRIPTION	PA
 1 SOLID CAR ID HSS HSS C NT R DRILLS 2 VHM/HSS - ZENTRIERBOHRER 3 FORETS CARBURE/HSS à centrer PUNTE A CENTRARE MD/HSS 5 Brocas CARBURO/HSS de centrar 6 Твердосплавные центровочные сверла из быстрорежущей стали, с содержанием кобальта WIERTŁA WĘGLIKOWE/HSS CE NTRUJĄCE 8 SOLID KARBÜR/HSS PUNTA MATKAPLARI	For General Purpose	A2 7
 1 SPAD DRILLS INS RTS HOLD RS 2 - E E 3 E E - E E E - 5 Insertos de metall duro y HSS para taladrado 6 Сверла Spade со сменными твердосплавными пластинами из быстрорежущей стали WIERTŁA SKŁADANE WĘGLIKOWE I HSS-PM 8 KARBÜR ve HSS-PM DEĞİŞTİRİLEBİLİR UÇLU MATKAPLAR	or eneral a hine an rilling arge iame er onger ool i e an igh Productivity	A299
 1 CAR ID HSS HSS R AM RS 2 E E 3 E E 5 E aria ore 6 Развертки ROZWIERTAKI 8 RAYBALAR	ar i e a hine eamer an eamer HSS-E Chucking Reamers	A3 1
1 HSS HSSCo CO NT RSIN S 2 HSS SENKER 3 E E E 5 ellana ore oni o mango il n ri o 6 Зенкеры из быстрорежущей стали POGŁĘBIACZE HSS 8 HSS HAVŞA VE PAH TAKIMLARI	or e rring, ham ering an Countersinking	A 7
1 HSS CO NT R OR S 2 HSS-E FLACHSENKER 3 E E -E -E 5 Avellanadores tipo Allen HSS mango cilíndrico 6 Цековки из быстрорежущей стали POGŁĘBIACZE HSS-E 8 HSS-E KADEMELİ TAKIMLAR	or a hining rew ea ea	A 17

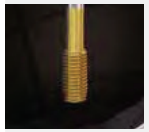
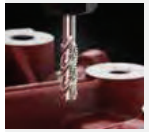
THR ADIN TOOLS

1. N LISH 2. RMAN 3.FR NCH . ITALIAN . SPANISH 6. R SSIAN 7. POLISH . T R ISH

PROD CTS	D SCRIPTION	PA
 1 SOLID CAR ID THR AD MILLS ith ithout Coolant Holes 2 VHM - GEWINDEFRÄSER (mit und ohne Kühlkanäle) 3 E E E E a e e an arro age en ral E E E E E on e en a ori i re rigera ione 5 Fresas de roscar de metal duro (con y sin agujeros de refrigeración) 6 Твердосплавные резьбофрезы (с/без отверстий для СОЖ) WĘGLIKOWE FREZY GWINTUJĄCE (Z I BEZ CHŁODZENIA WEWNĘTRZNEGO) 8 SOLID KARBÜR VİDA AÇMA FREZELERİ (Su delikli ve su deliksiz)	hrea ing arge iame er in High Quality aila le wi h ham er	31
1 HSS PM S NCHRO TAPS Spiral Flute Spiral Point Straight Flute Cold Forming 2 HSS_PM Synchro Gewindebohrer 3 Tarauds SYNCHRO HSS MASCHI SYNCHRO 5 MACHOS HSS-PM SYNCHRO 6 Метчики SYNCHRO с покрытием TIN/TICN из порошковой быстрорежущей стали для высокоскоростного нарезания резьбы GWINTOWNIKI SYNCHRO HSS 8 HSS SYNCHRO TİP KILAVUZLAR	For High Speed Tapping on igi a hine	
1 HSS PM PRIM TAPS Spiral Point Spiral Flute Tap 2 E E E E gera e- n rallgen e 3 E - En ree , E MACHO HSS-PM PRIME (Fori passanti e fori ciechi) 5 Machos PRIME HSS (tipo helicoidal con entrada corregida) 6 Метчики Prime из порошковой быстрорежущей стали HSS-PM(с винтовой подточкой, с винтовыми канавками) GWINTOWNIKI PRIME HSS 8 HSS PRIME KILAVUZLAR (Düz kanal eğik ağız bilemeli ve helis kanallı)	High and reliable performance on ario ile ma erial	63
1 HSS HSS PM COM O TAPS Spiral Point Spiral Flute Tap 2 E E E gera e- n rallgen e 3 - En ree , E MASCHI COMBO IN HSS (Fori passanti e fori ciechi) 5 Machos Combo HSS (tipo helicoidal con entrada corregida) 6 Метчики COMBO из быстрорежущей стали (с винтовой подточкой, с винтовыми канавками) GWINTOWNIKI COMBO HSS 8 HSS COMBO KILAVUZLAR (Düz kanal eğik ağız bilemeli ve helis kanallı)	For Multi Purpose Tapping	77
1 HSS HSS TAP N RAL 2 YG Gewindebohrer Universal 3 Taraud YG pour usage général MASCHI FORI CIECHI/FORI PASSANTI 5 MACHOS YG PARA USO GENERAL 6 Метчики YG из быстрорежущей стали для общего применения GWINTOWNIKI UNIWERSALNE 8 HSS YG GENEL KILAVUZLAR	Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation	127
 1 HSS HSS PM TAP ST L 2 HSS YG Gewindebohrer Stähle 3 Taraud YG HSS pour ACIERS 5 MACHOS HSS YG PARA ACERO 6 Метчики YG из быстрорежущей стали для обработки стали GWINTOWNIKI HSS DO STALI 8 HSS YG ÇELİK KILAVUZLARI	or eel a erial al o o her Long Chip Forming Materials	171
1 SOLID CAR ID HSS TAP HARD N D 2 HSS YG Geweindebohrer für gehärtete Stähle 3 Taraud YG HSS pour Aciers Trempés E E 5 MACHOS HSS YG PARA MATERIALES DE ALTA DUREZA 6 Метчики YG из быстрорежущей стали для закаленной стали GWINTOWNIKI HSS DO STALI ULEPSZONYCH CIEPLNIE 8 HSS YG SERTLEŞTİRİLMİŞ ÇELİK KILAVUZLARI	For Hardened Steels Applications o on rol he on in o and Red-glowing Chips	199
1 HSS HSS PM TAP INO 2 HSS YG Gewindebohrer INOX 3 Taraud YG HSS pour INOX E 5 MACHOS HSS YG PARA ACEROS INOXIDABLES 6 Метчики YG из быстрорежущей стали для обработки нержавеющей стали GWINTOWNIKI HSS DO STALI NIERDZEWNEJ 8 HSS YG PASLANMAZ ÇELİK KILAVUZLARI	or ainle eel wi h amellar, Irregular Chip Formation where he ing or e are igher	211

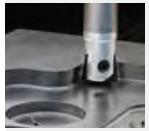
THR ADIN TOOLS

1. N LISH 2. RMAN 3.FR NCH . ITALIAN . SPANISH 6. R SSIAN 7. POLISH . T R ISH

PROD CTS	D SCRIPTION	PA
1 SOLID CAR ID HSS TAP CAST IRON 2 HSS YG Gewindebohrer Guss 3 Taraud YG HSS pour la FONTE E 5 MACHOS HSS YG PARA FUNDICIÓN 6 Метчики YG из быстрорежущей стали для обработки чугуна GWINTOWNIKI HSS DO ŻELIWA 8 HSS YG DÖKME DEMİR KILAVUZLARI	For Cast Iron or Similar Work a erial	23
1 HSS TAP AL 2 HSS YG TAP Aluminium 3 Taraud YG HSS pour ALU E 5 MACHOS HSS YG PARA ALUMINIO 6 Метчики YG из быстрорежущей стали для обработки алюминия GWINTOWNIKI HSS DO ALUMINIUM 8 HSS YG ALUMINYUM KILAVUZLARI	For long-chipping Aluminum Wrought Alloys with Large Chip lle o oi logging in he Threading Operations	2 7
1 HSS PM TAP Ti Ni 2 HSS YG Gewindebohrer Titan / Superlegierungen 3 Taraud YG HSS pour Titane E E E EE E E 5 MACHOS HSS YG PARA TITANIO Y ALEACIONES CON NIQUEL 6 Метчики YG из быстрорежущей стали для обработки никелевых и титановых сплавов GWINTOWNIKI HSS DO STOPÓW TYTANU I NIKLU 8 HSS YG TİTANYUM-NİKEL KILAVUZLARI	For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and hrea elie	261
 1 HSS HSS PM TAP FORMIN 2 HSS YG INNENGEWINDEFORMER 3 E E E 5 Machos HSS de laminación 6 Раскатники из быстрорежущей стали WYGNIATAKI Z HSS 8 HSS OVALAMA KILAVUZLARI	Tapping by Forming Soft Materials	277
1 HSS N T TAPS 2 E E E E 3 E E E 5 Machos HSS para roscado de tuercas 6 Гаечные метчики из быстрорежущей стали GWINTOWNIKI NAKRĘTKOWE HSS 8 HSS SOMUN KILAVUZLARI	Nut Tapping Machines	29
 1 HSS SCR W THR AD INS RT TAPS 2 HSS GEWINDEBOHRER FÜR GEWINDEDRAHTEINSÄTZE 3 E E E E 5 Machos HSS para insertos de roscas de tornillo (helicoil) 6 Метчики из быстрорежущей стали под резьбовые вставки GWINTOWNIKI EG HSS 8 HSS HELİCOİL KILAVUZLARI	Tapping STI Threads of Soft a erial	299
1 HSS HSS PIP TAPS 2 E E E 3 TARAYDS HSS POUR TUBE E 5 a ho ro a 6 Метчики из быстрорежущей стали для трубной резьбы GWINTOWNIKI RUROWE 8 HSS BORU KILAVUZLARI	Tapping Whitworth Pipe threads	3 7

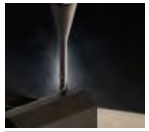
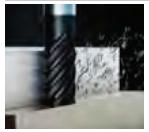
MILLIN TOOLS

1. N LISH 2. RMAN 3.FR NCH . ITALIAN . SPANISH 6. R SSIAN 7. POLISH . T R ISH

PROD CTS	D SCRIPTION	PA
1 C N ND MILLS 2 CBN - FRÄSER 3 E E E 5 re a 6 Концевые фрезы CBN из кубического нитрида бора FREZY CBN 8 CBN PARMAK FREZELER	i oron i ri e a hining High Hardened Steels up to HRc70 irror ini h	C33
 1 i mills CAR ID INS RT ND MILLS 2 i-Xmills, HM-WP - FRÄSER 3 i- mill , E E E E i- 5 i-Xmills, insertos metal duro para copiado 6 Фрезы i-Xmills с твердосплавными сменными пластинами PŁYTKI WĘGLIKOWE i-Xmills 8 i-Xmills, DEĞİŞTİRİLEBİLİR KARBÜR UÇLU PARMAK FREZE	Various Applications Type of Inserts Available or eneral eel , re- ar ene eel , igh ar ene eel , Stainless Steels and Graphite	C39
1 i SMART CAR ID MOD LAR H AD ND MILLS 2 i-Smart, Schaftfräser mit auswechselbaren VHM Schneidköpfen 3 i- , E E E E E E E i- 5 i- , i ema e re a o mo lar 6 Концевые фрезы i-SMART модульного типа Frezy i-SMART na wymienne płytki węglikowe 8 i-SMART - MODULER KARBÜR UÇLU PARMAK FREZE	or eneral eel , ar ene eel an a ron	C6
1 7 NANO SOLID CAR ID ND MILLS 2 X5070 NANO-VHM - FRÄSER 3 50 0 - E E E E -50 0 5 50 0, re a e me al ro nanograno 6 Концевые фрезы X5070 из нано-зернистого твердого сплава FREZY NANO WĘGLIKOWE X5070 8 X5070 NANO SOLID KARBÜR PARMAK FREZELER	or igh ar ene eel 5 o 0 High Speed Machining and Dry Cutting	C
1 Mill SOLID CAR ID ND MILLS 2 4G Mill VHM - FRÄSER 3 ill - E E E E 5 re a e me al ro ill 6 Твердосплавные концевые фрезы 4G Mill FREZY WĘGLIKOWE 4G 8 4G MILL SOLİD KARBÜR PARMAK FREZELER	High Speed Cutting for Pre-Hardened Steels up to HRc55	C1
1 POW R PRO SOLID CAR ID ND MILLS 2 X-POWER PRO VHM - FRÄSER 3 - E - E E E E - E 5 re a e me al ro - ower 6 Твердосплавные концевые фрезы X-POWER PRO FREZY WĘGLIKOWE X-POWER PRO 8 X-POWER PRO SOLID KARBÜR PARMAK FREZELER	or re- ar ene eel up to HRc55	C329
1 TitaNox POW R SOLID CAR ID ND MILLS 2 TitaNox-Power VHM Schaftfräser 3 i a o - E , E E E E - E 5 i a o - ower, re a e me al ro 6 Твердосплавные концевые фрезы TitaNox для обработки титана, инконеля и нержавеющей стали Frezy węglikowe TitaNox-POWER 8 TITANOX-POWER SOLID KARBÜR PARMAK FREZELER	High Speed Machining or E o i a erial : i ani m an ainle eel	C377
1 T POW R SOLID CAR ID HSS PM ND MILLS 2 JET - POWER VHM - FRÄSER 3 JET-POWER - FRAISE CARBURE FRESE JET-POWER 5 Fresas de metal duro Jet-Power 6 Фрезы JET-POWER из твердого сплава и порошковой быстрорежущей стали FREZY WĘGLIKOWE I HSS-PM JET POWER 8 JET-POWER SOLID KARBÜR ve HSS-PM PARMAK FREZELER	For Exotic materials like ainle eel , Nickel Alloys and Titanium	C393
1 7 PL S SOLID CAR ID ND MILLS 2 V7 Plus VHM CPH Schaftfräser 3 , E E E E 5 l , re a e me al ro 6 Концевые фрезы V7 PLUS из твердого сплава Frezy węglikowe V7 Plus 8 V7 PLUS- SOLID KARBUR PARMAK FREZELER	igh er orman e ar i e En ill or eel , a ron an ainle eel	C 1

MILLIN TOOLS

1. N LISH 2. RMAN 3.FR NCH . ITALIAN . SPANISH 6. R SSIAN 7. POLISH . T R ISH

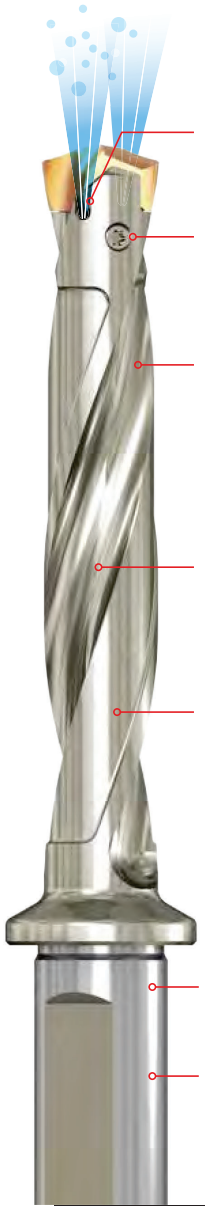
	PROD CTS	D SCRIPTION	PA
	1 AL POW R HPC SOLID CAR ID ND MILLS 2 Alu Power HPC VHM Fräser 3 - E - E E E E - E 5 E E E E 6 Концевые фрезы ALU-POWER HPC для обработки алюминиевых сплавов и цветных металлов FREZY WĘGLIKOWE ALU-POWER HPC 8 ALU-POWER HPC SOLID KARBÜR PARMAK FREZELER	or l mini m, l min m ie a , Non-ferrous Alloys and Plastics	C 1
	1 AL POW R SOLID CAR ID ND MILLS 2 ALU - POWER VHM - FRÄSER 3 - E - E E E E - E 5 Fresas de metal duro Alu-Power y HSS-PM 6 6. Фрезы ALU-POWER из твердого сплава и порошковой быстрорежущей стали FREZY WĘGLIKOWE I HSS-PM ALU-POWER 8 ALU-POWER SOLID KARBÜR ve HSS-PM PARMAK FREZELER	For Aluminium Alloys an ilen ing	C
	1 D POW R RAPHIT SOLID CAR ID ND MILLS 2 D - POWER Graphit VHM - FRÄSER 3 D-POWER graphite - FRAISE CARBURE E E - E E 5 Fresas de metal duro D-Power grafito 6 6. Твердосплавные концевые фрезы D-POWER для Графита (с алмазным покрытием) FREZY WĘGLIKOWE D-POWER GRAPHITE 8 D-POWER GRAFİT SOLID KARBÜR FREZELER	For Graphites	C 7
	1 CR S SOLID CAR ID ND MILLS 2 CRX S VHM - FRÄSER 3 - E E E E 5 re a e me al ro 6 6. Твердосплавные концевые фрезы CRX S FREZY WĘGLIKOWE CRX S 8 CRX S SOLID KARBÜR PARMAK FREZELER	oa e En ill for Copper	C 9
	1 2 SOLID CAR ID ND MILLS 2 K-2 VHM - FRÄSER 3 K-2 - FRAISE CARBURE FRESE K-2 5 Fresas de metal duro K-2 6 6. Твердосплавные концевые фрезы K2 FREZY WĘGLIKOWE K-2 8 K-2 SOLID KARBÜR PARMAK FREZELER	General Purpose Conventional or High Speed Milling Wet or Dry Cutting	C 7
	1 ONL ON COAT D PM6 ND MILLS 2 Only One, beschichtete Pulvermetall PM60 Schaftfräser 3 ONLY ONE, FRAISES PM60 REVÊTUES FRESE ONLY ONE IN PM60, RIVESTITE 5 Only One, Cortador de PM60 con recubrimiento 6 Концевые фрезы ONLY ONE из быстрорежущей стали PM60, с покрытием Pokrywane frezy PM60 z serii ONLY ONE 8 ONLY ONE KAPLAMALI HSS-PM60 FREZELER	er e ol ion o ar i e Chipping under Vibrations	C 3
	1 TAN POW R HSS PM ND MILLS 2 TANK - POWER HSS-PM - FRÄSER 3 TANK-POWER - FRAISES HSS-PM FRESE TANK-POWER IN HSS-PM 5 Fresas HSS-PM Tank-Power 6 Концевые фрезы TANK-POWER из порошковой быстрорежущей стали FREZY HSS-PM TANK-POWER 8 TANK-POWER HSS-PM PARMAK FREZELER	igh o ghne or ainle eel , Carbon steels and Alloy Steels for General Application, o ghing ini hing	C6
	1 N RAL HSS ND MILLS 2 HSS SCHAFTFRÄSER 3 E E E 5 re a 6 Концевые фрезы общего применения из быстрорежущей стали FREZY Z HSS 8 GENEL KULLANIM HSS PARMAK FREZELER	General Purpose oa ing aila le	C639
	1 HSS MILLIN C TT RS 2 HSS FRÄSER 3 E E E E 5 re a 6 Фрезы из быстрорежущей стали специального применения FREZY Z HSS 8 HSS FREZE KAFALARI	General Works. aila le o e ail, Woodruff Keyseat, - lo , i e illing er an HSS(8% Cobalt) Corner Rounding, hell En ill	C7 3

i ONE DRILLS

Reference page : p.A21 - p.A38

Micro Grain Carbide Inserts and Premium Tool Steel Holder with Coolant Holes

COST EFFICIENT HIGH PERFORMANCE EXCHANGEABLE DRILLING TOOLS



Internal cooling channel for higher drilling performance

Torx Plus Screw for clamping insert

Optimized flute shape for better chip evacuation

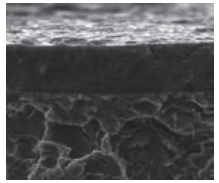
Nickel-plated Steel holder for corrosion resistance and wear resistance

Body Clearance for elimination of undesirable contact with work piece

Ground bright finished shank for more precise clamping

Cylindrical shank with a parallel flat according to ISO9766 Plain shank and Whistle notch shank are available on request

- **Secure & Quick clamping system**
- **Multi layered 'H'-coating**
  reduces the cracking and provides higher shear strength while achieving excellent oxidation resistance and hot hardness



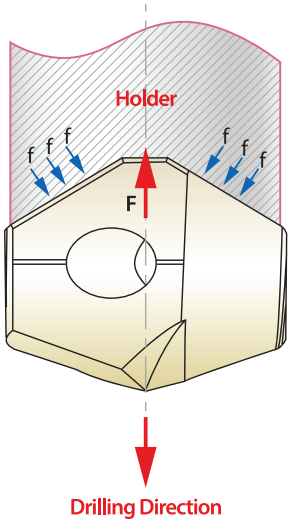
- **Optimized point geometry**
  of i-ONE Drills ensures centering ability and smoother cutting
- **Self Centering and Chip Breaking**
  by Radius Thinning
- **Ground Negative land**
  on cutting edge for Reliable Tool Life

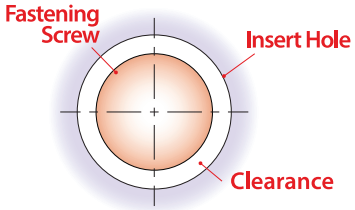
DREAM DRILLS

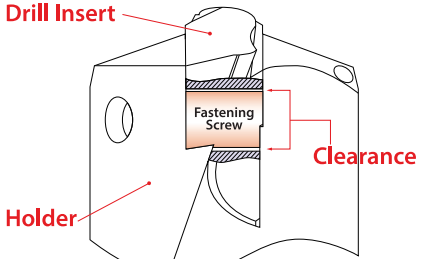
Reference page : p.A39 - p.A58

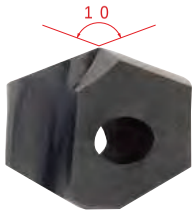
Stable Insert locking System

- V type locking system allowed for stabilized drilling
- Design that fastening screw doesn't touch insert to protect the insert locking system from the vibration during the drilling cycle









Self-Centering 140˚ Point & Helical Thinning

- Excellent Centering
- Minimized cutting resistance
- Design for maximum toughness, hardness and chip evacuation
- High penetration rate
- Reduced heat from cutting edge processing to allow long tool life
- Lower required torque and horsepower

DREAM DRILLS

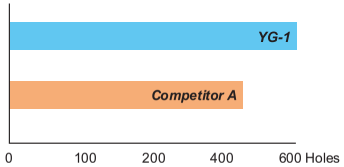
Reference page : p.A39 - p.A58

T ST I GENERAL

Cutting Condition

HOLD R	ZH14505020
INS RT	YB1A1450 / Ø14.5
Work Material	- ASTM : A36 - DIN : St37-2 - JIS : SS400
Cutting Speed	80 m/min
Feed	0.24 mm/rev.
Feedrate	421 mm/min.
RPM	1,756 rev./min.
Drilling	48.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

R S LT



▶ 1 Total Drilling 6 Holes

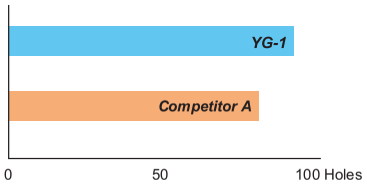
▶Competitor A Total Drilling 7 Holes

T ST II INOX

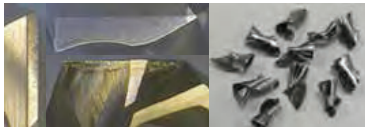
Cutting Condition

HOLD R	ZH14005020
INS RT	YB2C1400 / Ø14.0
Work Material	- AISI : 304 - DIN : X5CrNi189 - JIS : SUS304
Cutting Speed	55 m/min
Feed	0.15 mm/rev.
Feedrate	188 mm/min.
RPM	1,250 rev./min.
Drilling	50.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

R S LT



▶ 1 Total Drilling 1 Holes

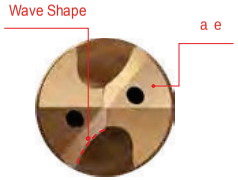


▶Competitor A Total Drilling Holes

DREAM DRILLS PRO

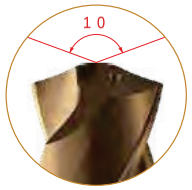
Reference page : p.A59 - p.A76

Performance Upgrade with Faster Cutting Speed



Wave Shape Cutting Edge

- Improve chip formation
- Low Cutting Force

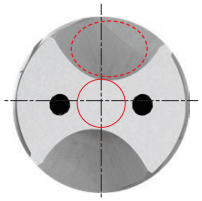


140 Degree Point Angle

- Provides edge strength and Exceptional tool life
- Good Self Centering
- Low Torque

Micro-grained Carbide

- Achieving Excellent Wear Resistance
- Maximum Tool Life and High Performance



Optimized wide flute design

The unique flute structure provides good surface finish, longer tool life and requires less cutting force

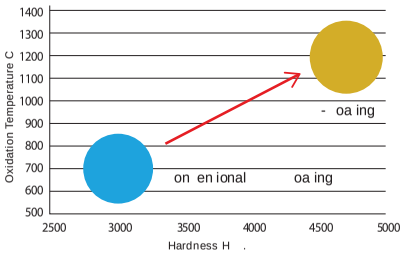
Helical Thinning

- Low Thrust
- Stable Torque
- Good Chip Breakage

Higher & Improved cutting conditions due to YG-1 Special Z-Coating Technology

(YG-1's Unique Silicon Based Coating: Nano-Layer Coating)

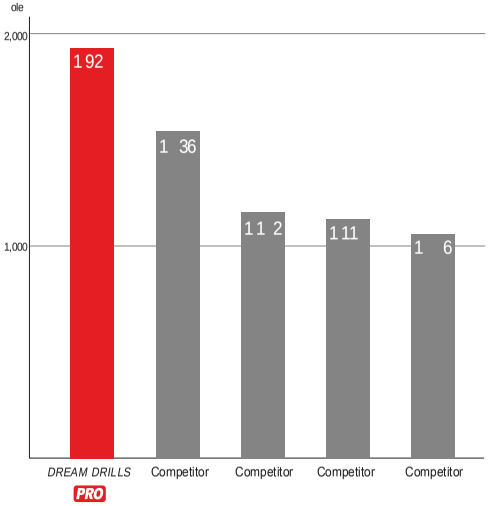
- Extremely High Hardness and Heat Resistance



DREAM DRILLS PRO

Reference page : p.A59 - p.A76

▶ SOLID CARBIDE DREAM DRILLS - PRO with Coolant Holes



Cutting Condition

Work Material	- DIN: 42CrMo4 - ANSI: 4140 - JIS: SCM440 Hardness: HRc30 (HB286)
O.D Si e	Ø10.0 (.3937 inch)
RPM	14,856 rev./min.
Cutting Speed	140 m/min.
Feed	0.30 mm/rev.
Drilling Depth	45.0 mm
Coolant	Internal Cooling (20 bar) Water Soluble (9% Emulsion)
Machine	Machining Center

DREAM DRILLS PRO — o al rilling 1,920 ole

Competitor A — o al rilling 1,536 ole

Competitor — o al rilling 1,152 ole

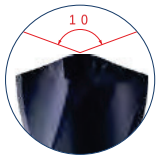
Competitor C — o al rilling 1,118 ole

Competitor D — o al rilling 1,056 ole

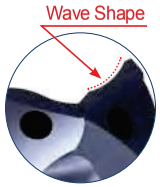
DREAM DRILLS GENERAL

Reference page : p.A77 - p.A98

Micro grained car ide for ear resistance and longer tool life

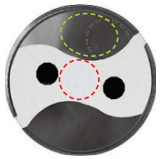


140 Degree Point Angle
for good centering and low thrust

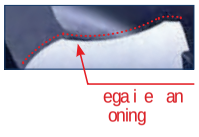


Wave shape Cutting Edge
will allow low thrust , stable torque and long tool life

Radius Thinning
for Self Centering and Chip Breaking



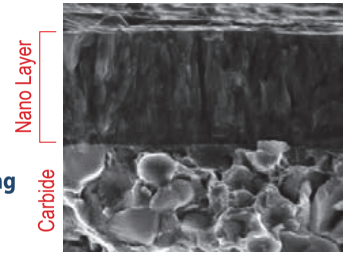
Optimized flute shape
for strength of drill and smooth chip evacuation



Negative land on the cutting edge
for Reliable Tool Life

TiAlN Coating (Upgraded **Ti**tanium **Al**uminum **N**itride : **nano-Layer coating)**

- Higher wear resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality



Special surface treatment after coating
to reduce friction and better chip flow.

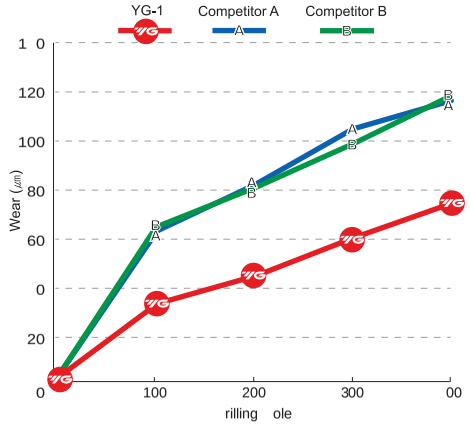
DREAM DRILLS GENERAL

Reference page : p.A77 - p.A98

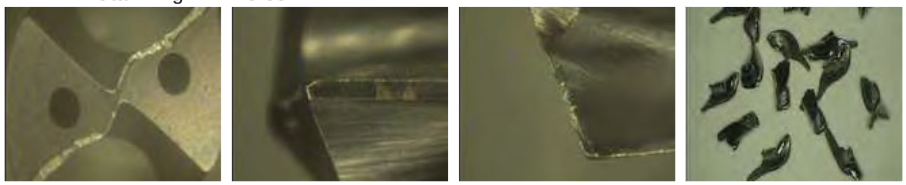
▶ SOLID CARBIDE DREAM DRILLS - GENERAL with Coolant Holes

Cutting Condition

Tool	DH408015 (Dream Drill with Coolant Holes)
Si e	Ø1.5 × 3 × 15 × 55
Work Material	- DIN : X40GrMoV51 - WR : 1.2344 - JIS : SKD61 (HRc30)
RPM	14,856 rev./min.
Feed	0.05 mm/rev.
Drilling Depth	7.5 mm
Coolant	Wet Cut

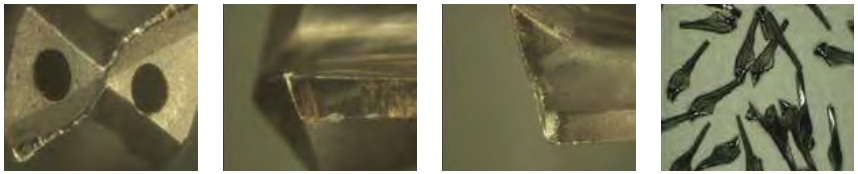


▶ 1 Totarilling Holes



▶ Competitor A Total Drilling Holes

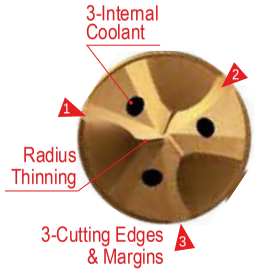
▶ Competitor Total Drilling Holes



DREAM DRILLS HIGH EED

Reference page : p.A99 - p.A106

1.5 ~ 2 times Faster in drilling compared to two flute carbide drills

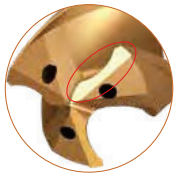


3-Cutting Edges & Margins

will allow high penetration rate, accurate holelocation and good surface finish

Radius Thinning for

Self Centering and Chip Breaking

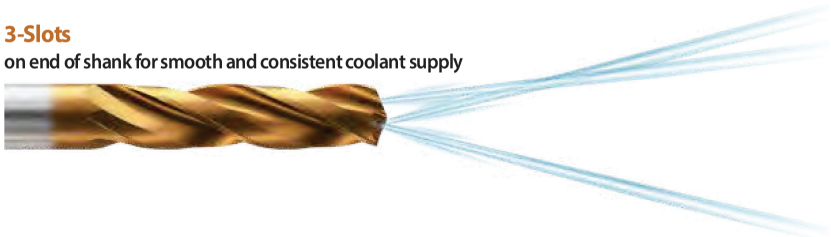


Ground Negative land

on cutting edge for Reliable Tool Life

3-Slots

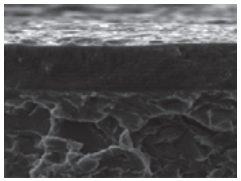
on end of shank for smooth and consistent coolant supply



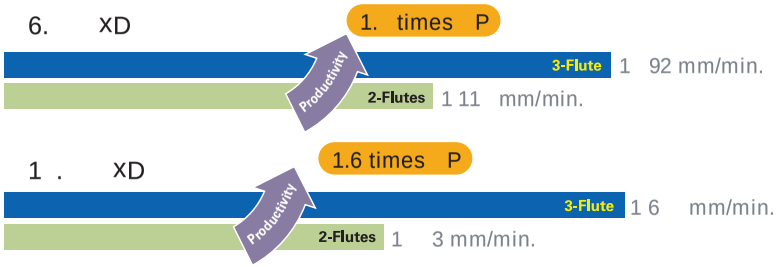
H - Coating

(Upgraded AlCrN-Based : **Multi-Layer coating**)

- Higher worn-out resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality



Producti ity Car on Steel



DREAM DRILLS HIGH EED

Reference page : p.A99 - p.A106

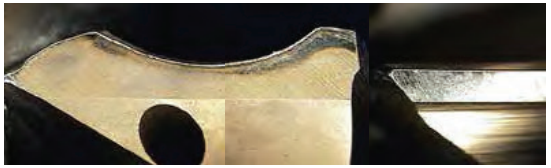
Dream Drills-High Feed offers 1.5 to 2 times higher feeding speed compared to conventional 2-flute drills. The unique flute design and exceptional surface finish promise extraordinary chip evacuation.

▶ SOLID CARBIDE DREAM DRILLS - HIGH FEED with Coolant Holes

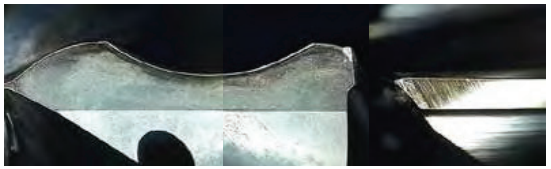
Cutting Condition

Tool	DGR495100 (Dream Drills High Feed)
Si e	Ø10 × Ø10 × 61 × 103
Work Material	- DIN : C45 - AISI : 1045 - JIS : S45C (HRc20)
RPM	3,200 rev./min.
Feed	0.5 mm/rev.
Drilling Depth	50 mm (5xD)
Drilling Method	Blind Hole
Coolant	Wet Cut
Machine	Machining Center

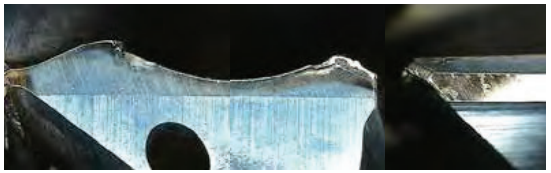
▶ 1 Total Drilling 33 Holes



▶ Competitor A Total Drilling 33 Holes

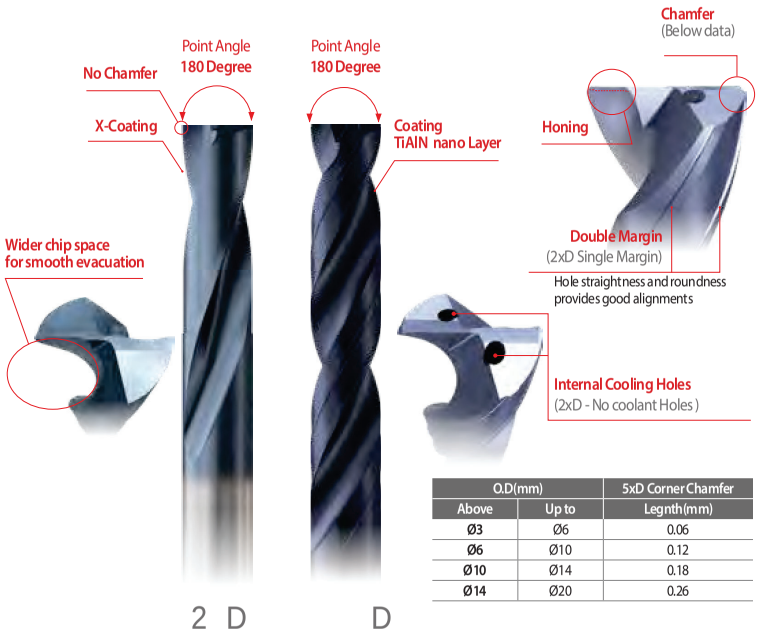


▶ Competitor Total Drilling 33 Holes



DREAM DRILLS LAT OTTOM

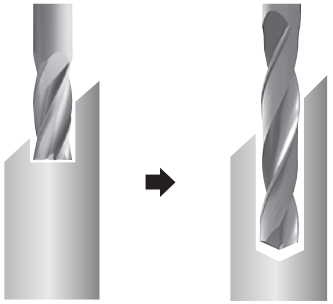
Reference page : p.A107 - p.A116



O.D(mm)		5xD Corner Chamfer
Above	Up to	Legnth(mm)
Ø3	Ø6	0.06
Ø6	Ø10	0.12
Ø10	Ø14	0.18
Ø14	Ø20	0.26

Only One Operation for Angled Surface

For angled surfaces, two operations are required to drill in a conventional Process



1st operation(End mill)
o n er oring o
make flat surface and
g i e hole

2nd operation(Drill)
Drilling to required depth of hole

For angled surfaces,
only one operation can complete
the drilling with Dream Drill Flat Bottom

One operation(Dream Drill Flat Bottom)
One Drill does it all
wi ho ing o h an en mill an a rill

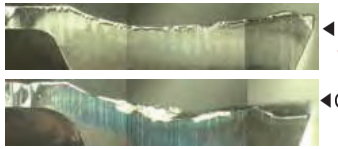
DREAM DRILLS LAT OTTOM

Reference page : p.A107 - p.A116

T ST I ▶ SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM without Coolant Holes

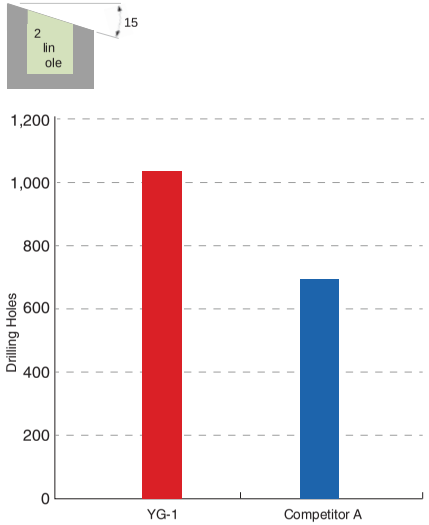
Cutting Condition

Drill Diameter mm	Ø6.0
Work Material	- DIN : C45 - AISI : 1045 - JIS : S45C (HRc20)
Cutting Speed	75.4 m/min
RPM	4,000 rev/min
Feed	0.1 mm/rev
Drilling Depth	12.0 mm (2XD) Blind Hole / without Pecking
Coolant	External Cooling Water Soluble (9% Emulsion)
Machine	Machining Center



◀ 1
Small Chipping

◀ Competitor A
Big Chipping



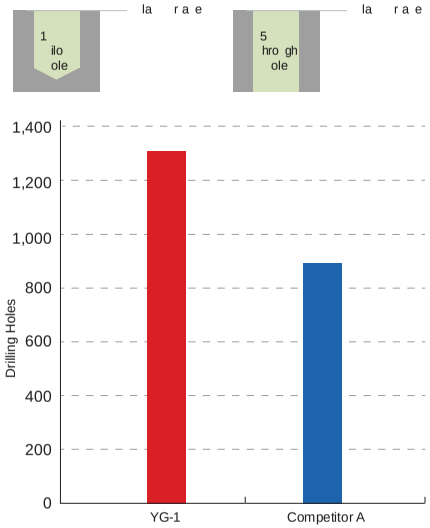
T ST II ▶ SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM with Coolant Holes

Cutting Condition

Drill Diameter mm	Ø6.0
Work Material	- DIN : 42CrMo4 - AISI : 4140 - JIS : SCM440 (HRc30)
Cutting Speed	100.0 m/min
RPM	5,300 rev/min
Feed	0.12 mm/rev
Drilling Depth	Pilot Drill- 6.0mm (1XD) Total depth- 30.0 mm (5XD) Through Hole / without Pecking
Coolant	Internal cooling / Water Soluble (9% Emulsion)
Machine	Machining Center/

◀ 1
Small Chipping

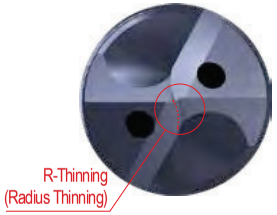
◀ Competitor A
Big Chipping



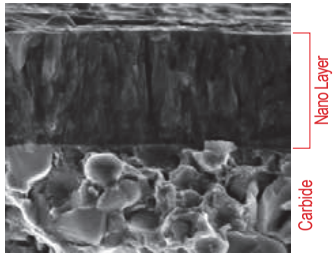
DREAM DRILLS INO

Reference page : p.A117 - p.A128

Special Flute geometry and Chip pocket to help Chip evacuation and proper Chip Curl.
strong rigidity from **Cutting Edge**
high Performance on Stainless Steel and pre hardend Steel



Positive Axial **Rake Angle** and cutting force,
with **R-Thinning** enhance centering and Chip Breaking.



TiAlN Coating
(Upgraded Titanium Aluminum Nitride : nano-Layer coating)
- Higher wear resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality

Special surface treatment after coating
to reduce friction and better chip flow.

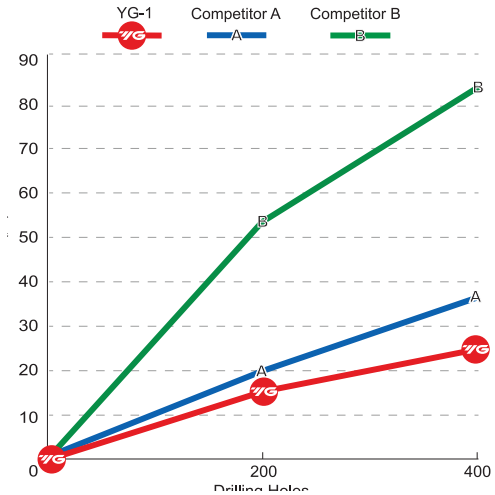
DREAM DRILLS INO

Reference page : p.A117 - p.A128

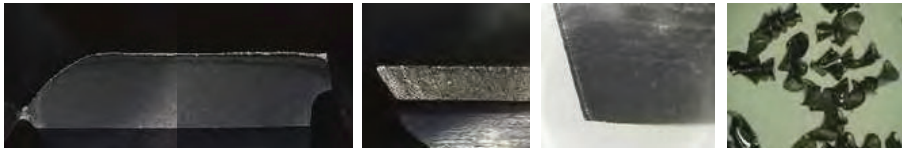
▶ SOLID CARBIDE DREAM DRILLS - INOX with Coolant Holes

Cutting Condition

Tool	DH452060 (DREAM DRILL-INOX)
Si e	Ø6 × Ø6 × 44 × 82
Work Material	- DIN : X5CrNi1810 (X4CrNi18-10) - WR : 1.4301 - JIS : SUS304
RPM	3,700 rev./min.
Feed	0.07 mm/rev.
Drilling Depth	24 mm
Coolant	Wet Cut



▶ 1 Total Drilling Holes



▶ Competitor A Total Drilling Holes

▶ Competitor Total Drilling Holes

DREAM DRILLS AL

Reference page : p.A129 - p.A140

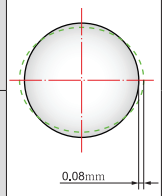
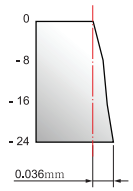
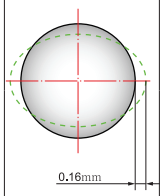
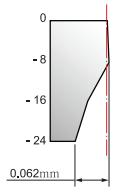
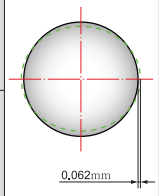
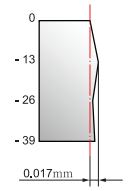
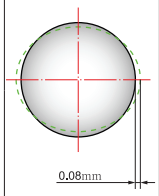
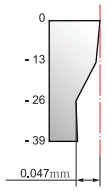
Design that optimized flute shape and geometry suitable **for Aluminum, Aluminum alloy.**

Optimized point thinning to prevent any **chip-clogging from chip welding.**

Polished flutes improve **chip control and evacuation.**

The Drilling of High Speed is possible while maintaining **the excellent surface roughness of workpiece.**

6. 1 . T ST Aluminum 6 61

CUTTING CONDITION	DR AM DRILL AL		COMP TITOR A	
	Roundness	Straightness	Roundness	Straightness
SI Ø 6.0 / Drilling Holes 1200 Holes				
SI Ø 10.0 / Drilling Holes 820 Holes				

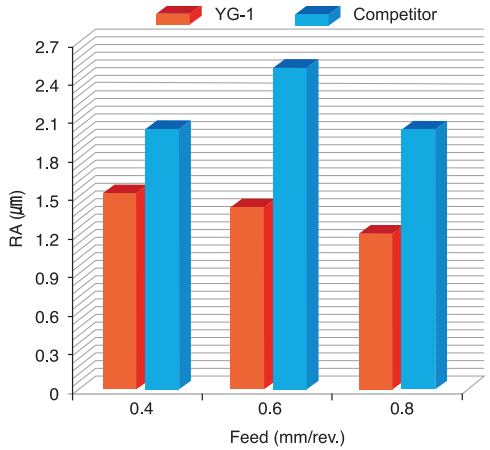
DREAM DRILLS AL

Reference page : p.A129 - p.A140

▶ SOLID CARBIDE DREAM DRILLS - ALU with Coolant Holes

Cutting Condition

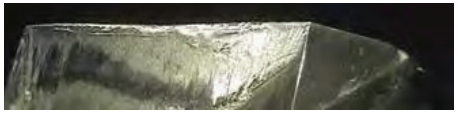
Tool	D5433100 (DREAM DRILLS-ALU)
Si e	Ø10.0×Ø10×61×103
Work Material	- DIN : AlMgSiCu - AISI : 6061 - JIS : A6061
RPM	6,367 rev./min.
Feed	0.4 ~ 0.8 mm/rev.
Drilling Depth	45 mm
Coolant	Wet Cut



Surface Roughness of Work Piece

▶ 1 Total Drilling 2 Holes

▶ Competitor Total Drilling 2 Holes



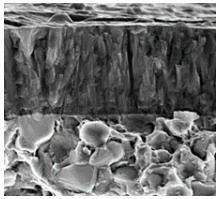
DREAM DRILLS M L TYPE

Reference page : p.A141 - p.A148

4-Facet point for good **centering capability**

Polished flute for enhanced **chip evacuation**

Optimized special **flutes** are ideal for removing chips and for productive drilling



Upgraded TiAlN nano Layer Full Coating

Compatible with the MQL (Minimum Quantity Lubrication) system.

- Reduction of Coolant related costs such as preparing, maintaining, disposal of emulsion
- Avoids additional efforts associated with part cleaining
- Allows for secure machining process ensuring predictable lubrication

Compare with Gun drills

- Used on conventional machining center **(MQL Drills)**
- **Higher productivity** than conventional HSS deep hole drills and Gun drills

- Size Range : Ø2~Ø25
- Drilling Depth : 25xD ~ over 100xD

* Need Gun drilling machine

- Size Range : Ø3~Ø14
- Drilling Depth : 10xD ~ 40xD

* Need enough machine stroke on machining center

DREAM DRILLS M L TYPE

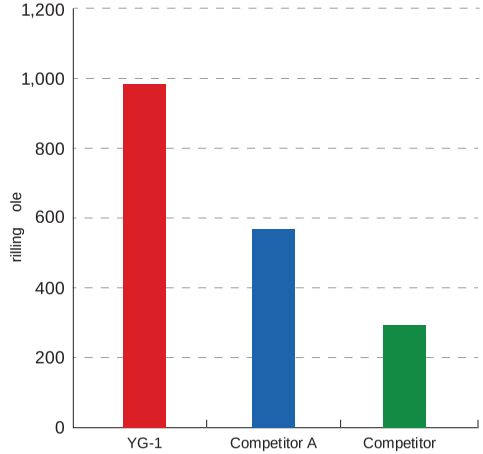
Reference page : p.A141 - p.A148

- Flute Shape and Point Shape allowing better chip evacuation in deep hole drilling
- Excellent Coating and Surface Treatment for better performance and chip evacuation

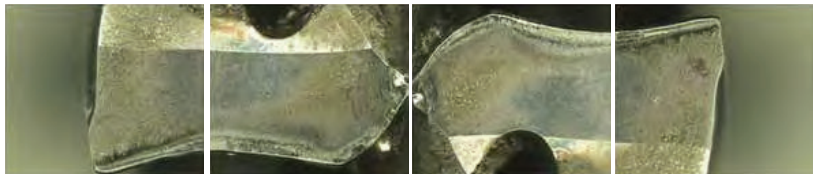
▶ SOLID CARBIDE DREAM DRILLS - MQL Type with Coolant Holes

Cutting Condition

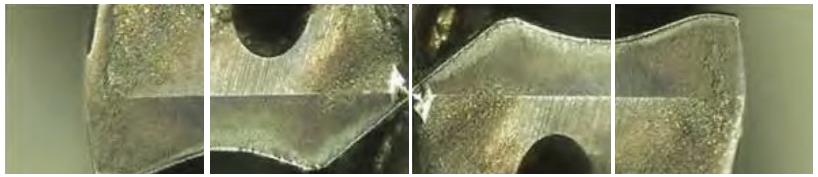
Tool	DH520060 (DREAM DRILL- MQL TYPE, 20×D)
Si e	Ø6×Ø6×138×193
Work Material	- DIN : C45 - WR : 1.0503 - JIS : S45C(HRc25)
RPM	3,528 rev./min.
Feed	0.19 mm/rev.
Drilling Depth	80 mm
Coolant	Oil Mist (MQL Techniques)



▶ 1 After Drilling 1 Holes



▶ Competitor A After Drilling 6 Holes



DREAM DRILLS HIGH HARDENED STEEL

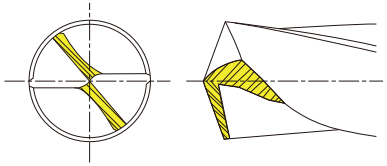
Reference page : p.A149 - p.A152

Low Helix

The low Helix angle maximizes tools' rigidity and stability with less deflection

Special Thinning (R+U Thinning)

Unique drill point geometry with special thinning
to minimize cutting workload,
axial thrust loading and heat generation.



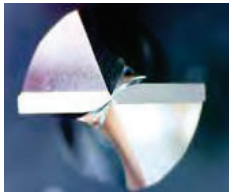
Coating

TiAlN nano coating combines high hardness with high thermal stability against oxidation,
allows machining the upper level of hardened steels HRc 50-70.

Polished Flutes

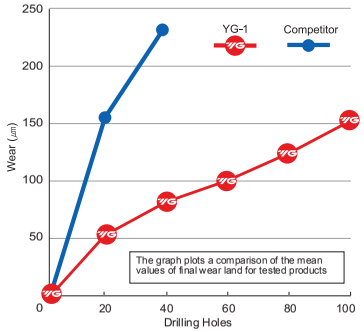
Polished flutes improve coating addition, with better chip control and evacuation.

Point Shape



Cutting Condition

Tool	DH500100 (Dream Drills for High Hardened Steels)
Si e	Ø10×Ø10×63×111
Work Material	- DIN : X155CrV-Mo12-1 - WR : 1.2379 - JIS : SKD11(HRc60)
RPM	380 rev./min..
Feed	0.04 mm/rev.
Drilling Depth	25 mm(2.5xD)
Coolant	Wet Cut

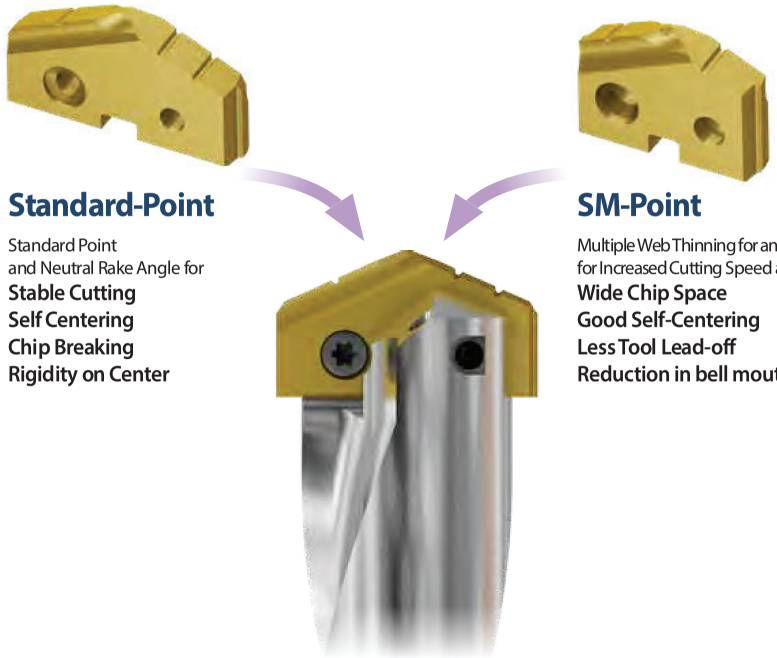


▶ 1 After Drilling 1 Holes

▶Competitor After Drilling Holes

SPADE DRILLS Standard SM Point

Reference page : p.A299 - p.A380

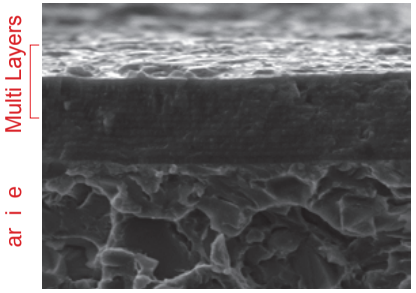


Standard-Point

Standard Point
and Neutral Rake Angle for
Stable Cutting
Self Centering
Chip Breaking
Rigidity on Center

SM-Point

Multiple Web Thinning for and Radius Back Face
for Increased Cutting Speed and Feed
Wide Chip Space
Good Self-Centering
Less Tool Lead-off
Reduction in bell mouthing



Multi layered 'H'-coating Micro Grain Carbide Insert

Outstanding Productivity & Reliability

H - Coating

(Upgraded AlCrN-Based : Multi-Layer coating)

- Higher worn-out resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality

M LTI DRILLS

Reference page : p.A161 - p.A170

Wide range of work materials;
Carbon Steels, Alloy Steels, Structural Steels, Hardened Steels(up to HRc45), Cast Iron, Stainless Steels, Aluminum and Titanium

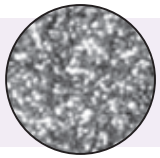
P M K N S

Point Shape to Maximize Self-centering

▶ Excellent positioning - bush is not necessary

Flute Design for the Best Chip Evacuation

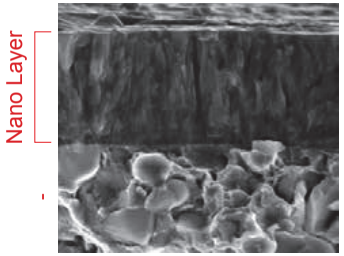
▶ Prevent chip clogging and reduce axial thrust



Premium Powder Material with Excellent Toughness

▶ Improve cutting edge strength with higher stability and rigidity

TiAlN Coating
(Upgraded Titanium Aluminum Nitride : nano-Layer coating)
- Higher wear resistance and Lower friction
- Higher Cutting Speed and Feed
- Improved drill Hole Quality

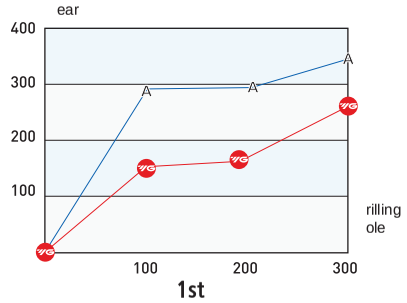


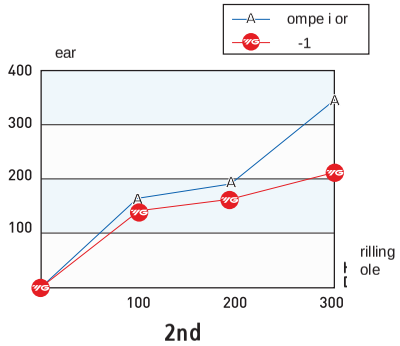
Special surface treatment after coating
to reduce friction and better chip flow.

M LTI DRILLS

Reference page : p.A161 - p.A170

T ST I Comparison of edge wear



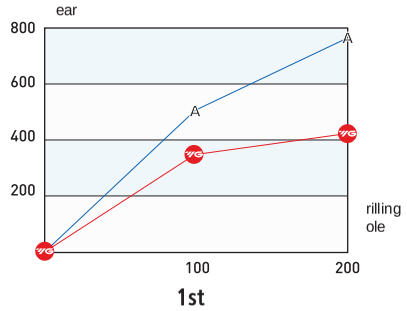


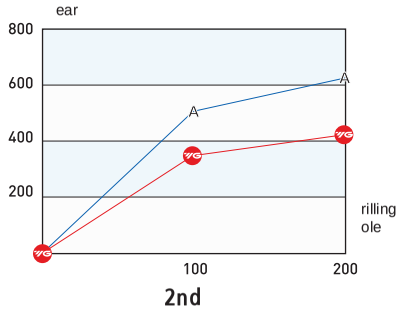
Cutting Condition

Work Material	- JIS : SUS316 - DIN : X3CrNiMo17-13-3 - WR : 1.4436

Drilling Depth	24mm
Total Drilling hole	300 Holes
RPM	600 rev./min.
Feed	110 mm/min.

T ST II Comparison of edge wear





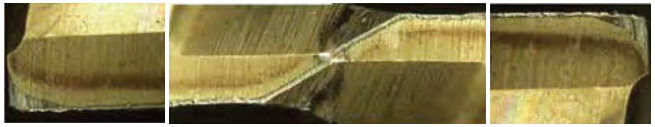
Cutting Condition

Work Material	- JIS : SKD11 - DIN : X155CrVMo12-1 - WR : 1.4436

Drilling Depth	24mm
Total Drilling hole	200 Holes
RPM	600 rev./min.
Feed	110 mm/min.

▶ 1

▶ Competitor



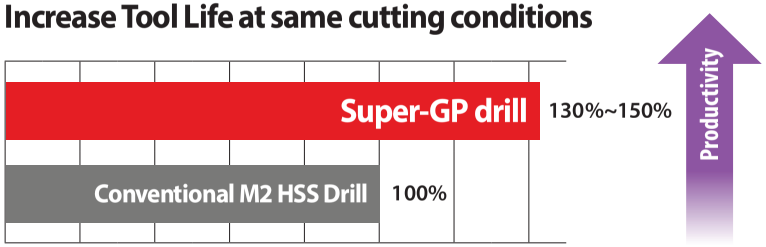
S PER GP DRILLS

Reference page : p.A209 - p.A214

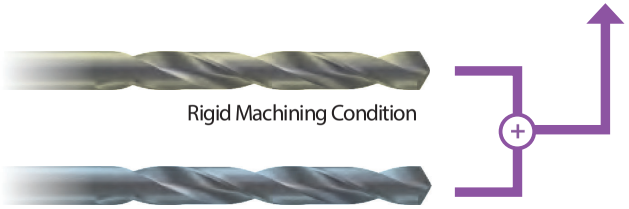
Super-GP drill was **designed** to **improve** the performance of the Conventional **HSS M2 drill.**

- Super HSS will Improve Toughness and Wear Resistance
- Rigid structure allows excellent performance for poor machining condition
- Minimized interference will reduce drilling force and friction
- Uniform helix angle will help chip formation and evacuation

Increase Tool Life at same cutting conditions



Just One-type of drill for all Applications
Regardless of Machining Conditions; Good or Poor

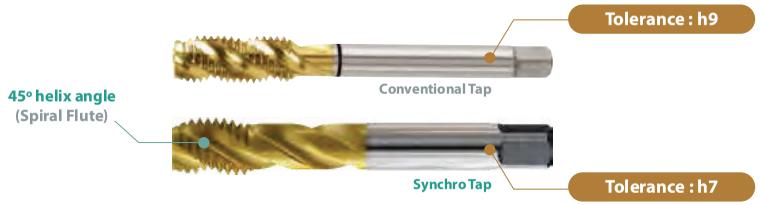


SYN HRO TAPS

Reference page : p.B55 - p.B62

FEATURES OF GEOMETRY

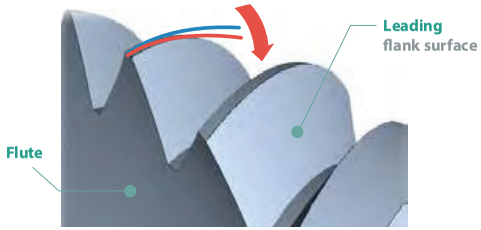
▶ Shorter thread length will reduce chip problems at higher speed tapping conditions



▶ Shank Tolerance 'h7' for precision clamping and rigid tapping

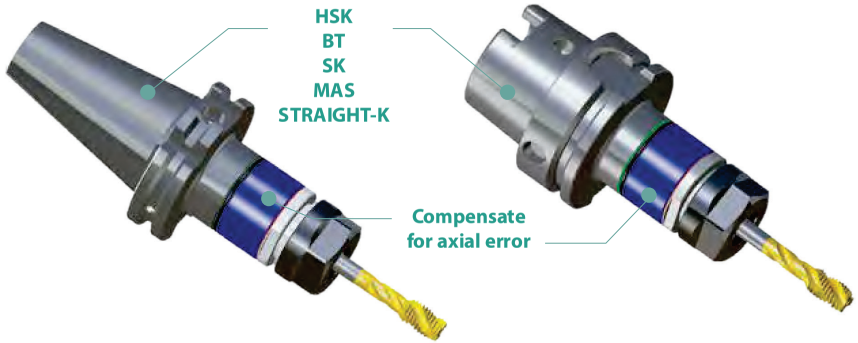
▶ More thread relief
allows high speed cutting

▶ HSS-PM (Powder Metallurgy)for
more reliable performance
and wear resistance



SYNCHRO TAPPING CHUCK (ER TYPE)

▶ When using Synchro taps, YG-1 strongly recommends SYNCHRO Tapping Chuck for the best thread quality and superior tool life

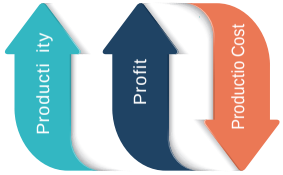


SYN HRO TAPS

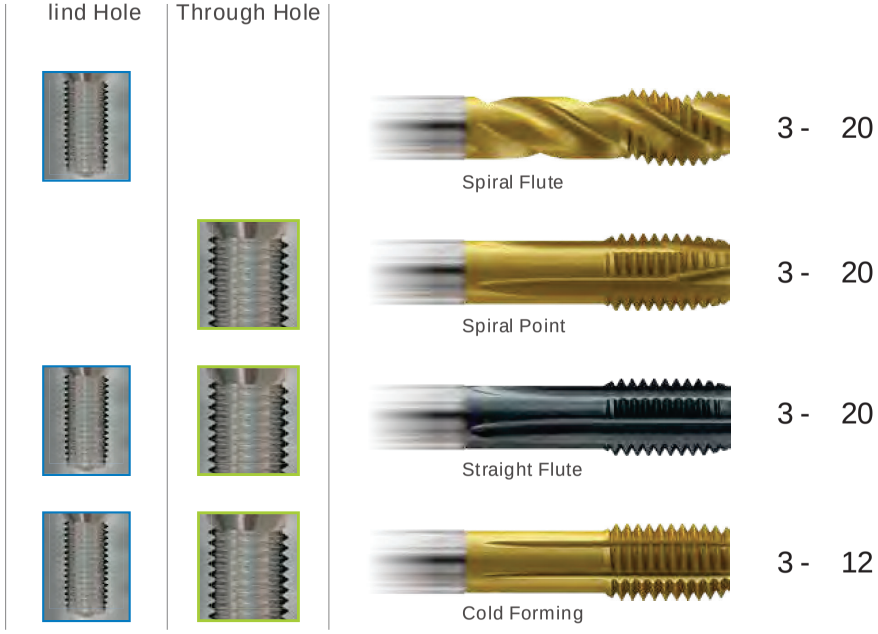
Reference page : p.B55 - p.B62

ADVANTAGES

▶ **PRODUCTIVITY**
Up to 3 times Faster
in tapping compared to conventional taps (General Steel)



▶ **4 kinds of taps are available**



SYN HRO TAPS

Reference page : p.B55 - p.B62

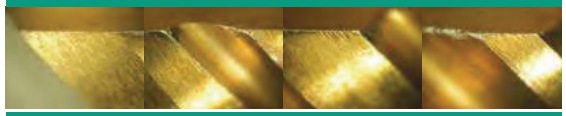
T ST I SPIRAL FLUTE

Cutting Condition

Tool	HSS-PM Synchro Spiral Flute Tap
Si e	M10×1.5
Work Material	- JIS : S45C(HRc35) - DIN : C45 - WR : 1.0503
Cutting Speed	30 m/min.
RPM	955 rev./min.
Feed	1.5 mm/rev.
Tapping Depth	25 mm
Tapping Method	Blind Hole Tapping
Coolant	Wet Cut
Machine	Machining Center

YG-1(Total Tapping 330 Holes)-Chamfer

Competitor A(Total Tapping 330 Holes)-Chamfer



YG-1(Total Tapping 330 Holes)-Thread

Competitor A(Total Tapping 330 Holes)-Thread

T ST II SPIRAL FLUTE

Cutting Condition

Tool	HSS-PM Synchro Spiral Flute Tap
Si e	M6×1.0
Work Material	- JIS : S45C(HRc35) - DIN : C45 - WR :1.0503
Cutting Speed	30 m/min.
RPM	1,592 rev./min.
Feed	1.0 mm/rev.
Tapping Depth	15 mm
Tapping Method	Blind Hole Tapping
Coolant	Wet Cut
Machine	Machining Center

YG-1(Total Tapping 490 Holes)-Chamfer

Competitor A(Total Tapping 490 Holes)-Chamfer

YG-1(Total Tapping 490 Holes)-Thread

Competitor A(Total Tapping 490 Holes)-Thread

PRIME TAPS

Reference page : p.B63 - p.B76

New Prime X-Coated Tap for CNC Machining on Various Ductile Materials

Special grinding process provides an unique geometry on spiral flute and spiral point taps to help control chip evacuation, preventing nest formation and enhance flute space.

FEATURES & BENEFITS

YG-1 Special Thread Structure

- **Reduction in torque, wear, and the risk of over feeding** as compared to conventional taps

Extra Short Threaded Body and Recess

- **Minimize bird nesting, reduced chipping, improved thread finish**

Spiral Flute Spiral Point

Optimized Edge Preparation

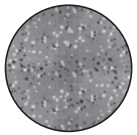
- **Consistent performance and process stability** o re en chipping

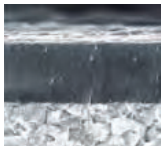
Optimized Flutes Geometry for Excellent Chip Flow

- **Increased tool life as a result of an optimum combination of material, geometry,** an oa ing whi h gi e Unrestricted chip flow

HSS-PM(Powder Metallurgy)Premium Taps

YG-1's High Performance Coating for high heat and wear resistance





YG-1's X-Coating

Powdered Metal Technology for tough-chipping resistance cutting for long tool life and reliable thread finish

Premium Cutting Edge Strength

- More controlled structure with high wear resistance
- Consistent performance and process stability with chipping resistance

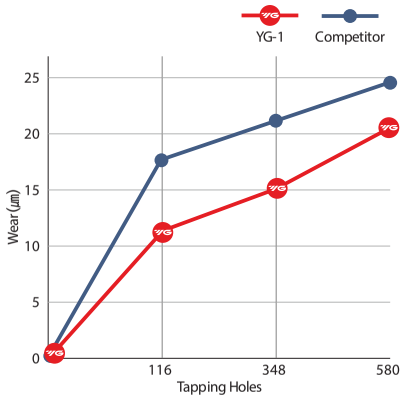
PRIME TAPS

Reference page : p.B63 - p.B76

T ST I SPIRAL FLUTE TAP (M4x0.7)

Cutting Condition

Tool	Spiral Flute Tap
Size	M4x0.7
Work Material	JIS: SCM440(HRc30) / DIN : 42CrMo4 / WR : 1.7225
RPM	2387 rev/min
Vc	30 m/min.
Feed	0.7 mm/rev.
Tap Drill Size	Ø3.3mm
Tapping depth	8mm
Tapping holes	580
Coolant	Wet Cut

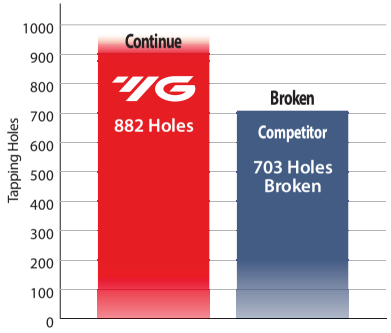


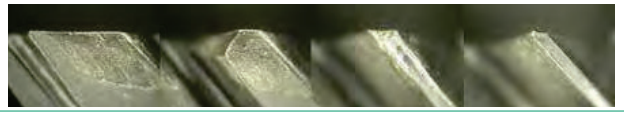
YG-1 (580 Holes)	
Competitor (580 Holes)	

T ST II SPIRAL FLUTE TAP (M6x1.0)

Cutting Condition

Tool	Spiral Flute Tap
Size	M6x1.0
Work Material	JIS: SUS316Ti / DIN : X6CrNiMoTi17-12-2 / WR : 1.4571
RPM	531 rev/min
Vc	10 m/min
Feed	1.0mm/rev.
Tap Drill Size	Ø5.1mm
Tapping depth	12.0mm
Tapping holes	YG-1: 882+α / Competitor : 703
Coolant	Wet Cut



YG-1 (882 Holes)	
Competitor (703 Holes, Broken)	

General Use for Various Materials

Combo Tap's geometry provides enough flute space resulting in smooth chip evacuation and therefore a continuous production process. Guarantee a high level of process reliability even under unfavorable conditions.

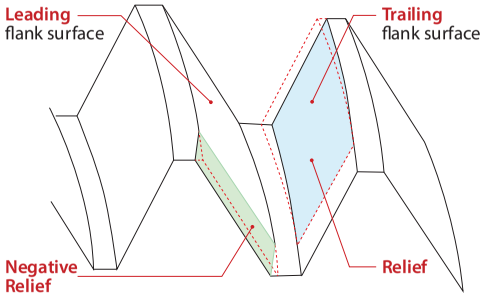
- ▶ For Steels, Stainless Steels, Cast Iron and Non-Ferrous Materials
- ▶ Prevents over & under feeding by its optimized flank geometry
- ▶ Constant threading quality preventing oversized threading

MULTI-PURPOSE

Bright Finish TiN

STAINLESS STEELS

Steam Oxide



- **Optimized** flank **geometry** to **prevent over & under feeding**
- Enables **smoother tapping** with better chip evacuation
- **Compensation** of cutting force, which reduces tap wear and extends tool life.

T ST I SPIRAL FLUTE

Cutting Condition

Tool	Combo Spiral Flute Tap
Si e	M8×1.25
Work Material	- JIS : S45C(HRc35) - DIN : C45 - WR : 1.0503
Tapping Depth	20mm
Coolant	Water Soluble Oil
c(Tapping Speed)	10m/min

Surface Roughness of Work Piece

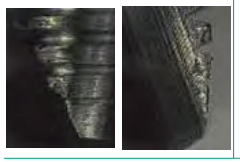
YG-1 Total Tapping 204 Holes	Competitor A Total Tapping 159 Holes	Competitor B Total Tapping 204 Holes

T ST II SPIRAL POINT

Cutting Condition

Tool	Combo Spiral Point Tap
Si e	M2×0.4
Work Material	JIS : S45C(HRc35) DIN : C45 WR : 1.0503
Tapping Depth	6mm
Coolant	Tapping Oil
c (Tapping Speed)	10m/min.

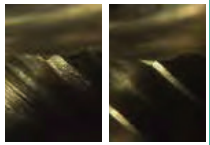
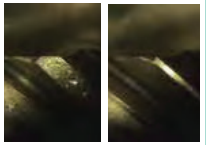
Surface Roughness of Work Piece

YG-1 Total Tapping 450 Holes	Competitor A Total Tapping 318 Holes	Competitor B Total Tapping 103 Holes
	Tool broke after tapping 318 hole	Tool broke after tapping 103 hole

T ST I SPIRAL FLUTE

Cutting Condition

Tool	Combo tap for Stainless Steels (TQ744246)
Si e	M4×0.7
Work Material	- JIS : SUS304 - DIN : X5CrNi18 10(X4 CrNi18-10) - WR : 1.4303
Tapping Depth	10mm
Coolant	Wet Cut
c (Tapping Speed)	8m/min.

YG-1 Total Tapping 170 Holes	Competitor A Total Tapping 170 Holes	Competitor B Total Tapping 83 Holes
		Tool broke after tapping 83 holes

T ST II SPIRAL FLUTE

Cutting Condition

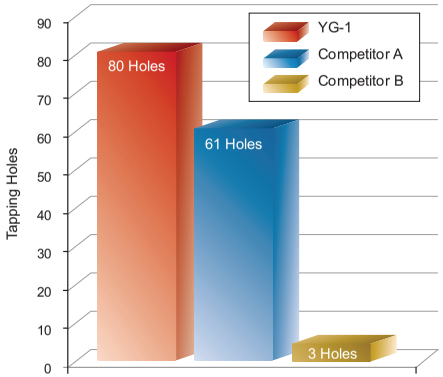
Tool	Combo tap for Stainless Steels (TQ744316)
Si e	M6×1.0
Work Material	- JIS : SUS304 - DIN : X5CrNi18 10(X4 CrNi18-10) - WR : 1.4303
Tapping Depth	15mm
Coolant	Wet Cut
c (Tapping Speed)	8m/min.

YG-1 Total Tapping 230 Holes	Competitor A Total Tapping 92 Holes	Competitor B Total Tapping 98 Holes
	Tool broke after tapping 92 hole	Tool broke after tapping 98 hole

YG TAP HARDENED

Reference page : p.B77 - p.B126

T ST I STRAIGHT FLUTE TAPS

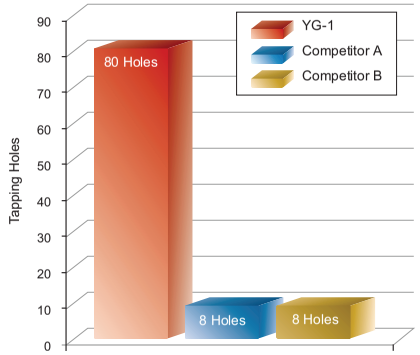


Cutting Condition

Tool	Straight flute tap
Si e	M6×1.0
Work Material	- JIS : SKD61 (HRc50) - DIN : X40GrMoV51(1.2344) - AISI : H13
R.P.M.	120 rev./min.
Feed	1.0 mm/rev.
Tapping Depth	9mm (1.5xD)
Coolant	Wet Cut

YG-1 Total Tapping 80 Holes	Competitor A Total Tapping 61 Holes	Competitor B Total Tapping 3 Holes
	Tool broke after tapping 61 holes	Tool broke after t apping 3 holes

T ST II STRAIGHT FLUTE TAPS



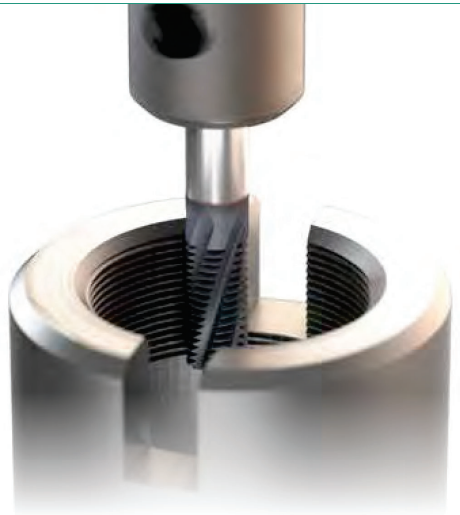
Cutting Condition

Tool	Straight flute tap
Si e	M6×1.0
Work Material	- JIS : SKD61 (HRc50) - DIN : X40GrMoV51(1.2344) - AISI : H13
R.P.M.	120 rev./min.
Feed	1.0 mm/rev.
Tapping Depth	9mm (1.5xD)
Coolant	Wet Cut

YG-1 Total Tapping 80 Holes	Competitor A Total Tapping 8 Holes	Competitor B Total Tapping 8 Holes
		Tool broke after tapping 8 holes

THREAD MILLS

Reference page : p.B31 - p.B54



A Thread mill can produce various thread diameters with the same pitch

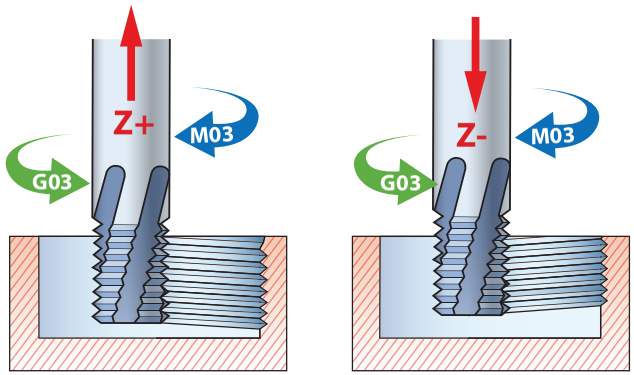
Disadvantage of tapping is that a different size tap is required for each size hole

One Thread mill for blind-holes and through-holes

Thanks to short chips, No chip problems with tapping No problems removing broken tools from the workpiece.

One Thread mill for right- and left-hand threads

Right-hand and left-hand threads can be produce with the same tooling just by adjusting CNC commands.



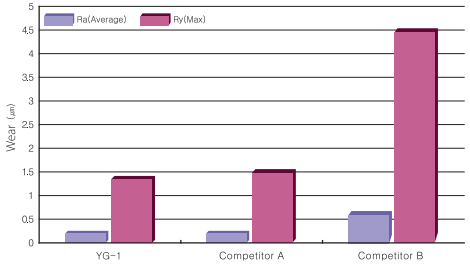
Right-hand thread left-hand thread

Higher Cutting Speed than tapping.
Higher Reliable Process than tapping, because of short chips.

Thread Milling takes much less torque than tapping

T ST I Total Milling Length : 240mm

Surface Roughness of Work Piece

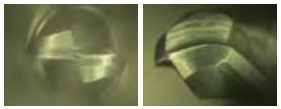


Cutting Condition (Ø1 x R0.5)

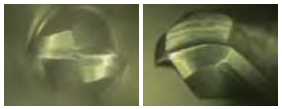
Tool	2Flute, CBN Ball Nose End mill
Si e	Ø1×Ø4×0.6×50
Work Material	- JIS : SKD11(HRc60) - DIN : X155CrV-Mo12-1 - WR : 1.2379
c m/min.	94.25
RPM re ./min.	30,000
Feed mm/min.	1,500
Milling Depth mm	0.01
Coolant	Oil Mist
Machine	Machining Center

Maximum Wear (μm)

YG CBN (19.611μm)



Competitor A (32.249μm)

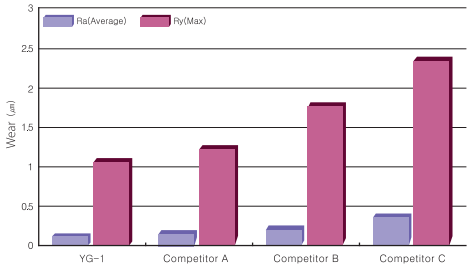


Competitor B

Tool was broken after
100 meter milling

T ST II Total Milling Length : 750mm

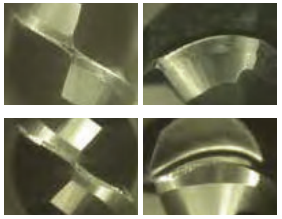
Surface Roughness of Work Piece



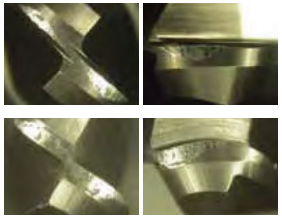
Cutting Condition (Ø2 x R1.0)

Tool	2Flute, CBN Ball Nose End mill
Si e	Ø2×Ø4×1.8×50
Work Material	- JIS : SKD11(HRc60) - DIN : X155CrV-Mo12-1 - WR : 1.2379
c m/min.	188.50
RPM re ./min.	30,000
Feed mm/min.	2,000
Milling Depth mm	0.01
Coolant	Oil Mist
Machine	Machining Center

Maximum Wear(μm)



YG CBN
57.630μm

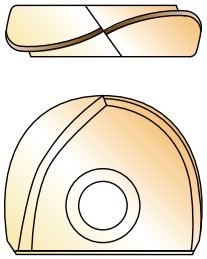


Competitor A
100.314μm

Competitor B
71.471μm

Competitor C
170.200μm

i-Xmill ALL INSERT

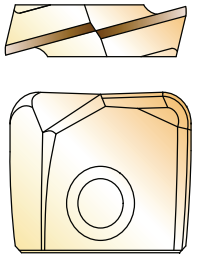


1. Helical end gash ("S" gash) geometry
- Low milling torque
- Prevents chattering
- Improves chip ejection
- Prolong tool life

2. Polished cutting edges
- Better wear resistance and tool life
- Improves repeatability in performance
- Improves surface roughness on work-piece
- Improves coating

3. Special coating
- Combine high hardness with high thermal stability against oxidation
- Superior wear resistance
- Faster feeds and speeds

i-Xmill ORNER RADI S INSERT



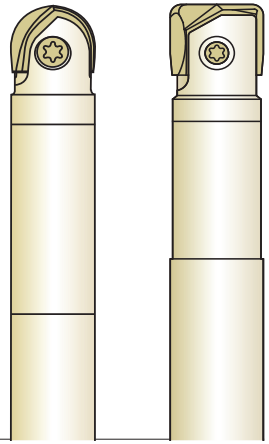
1. The optimized tool geometry achieves better reliability and reduces vibration and cutting load.
2. Corner radius insert can be used with the ball holder, but for a better precision in cutting. It is recommended to use the corner radius holder.
3. The various and wide cutting range allows machining in both roughing and finishing.
4. Special coating makes high hardness with high thermal stability against oxidation.

i-Xmill AR IDE HOLDER

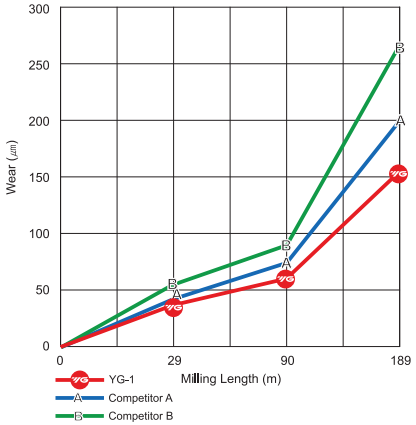
1. As rigid as a solid carbide end mill for stable machining with reduced vibration and enhanced finish
2. Allows a high quality of finishing even when machining the deeper part of a mold
3. Longer tool life than a steel holder
4. Shrink Fit Holding system can be applied
5. Upon request, the broken holder is able to be regenerated
6. Your carbide holder can be regenerated as YG-1 type upon request

i-Xmill STEEL HOLDER

1. Premium alloy steel with excellent strength
2. Precise shank tolerance (h6)
3. Nickel plated, to prevent corrosion and improve lubricity



T ST I *i*-Xmill Ball Nose



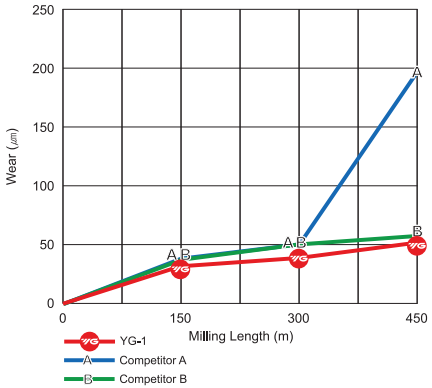
Cutting Condition (Side Cutting)

Tool	i-Xmill Ball (XMB120C160)
Si e	Ø16×R8.0
Work Material	- JIS : SKD61 (HRc50), - DIN : X40GrMoV51(1.2344) - AISI : H13

c m/min.	80.42
RPM re ./min.	1,600
Feed mm/min.	390
Feed per tooth mm/tooth	0.12

Milling Depth mm	Axial : 0.8 mm Radial : 1.6 mm
Coolant	Oil Mist
O erhang	YG-1, Competitor B : 48 / Competitor A : 56
Machine	Machining Center

T ST II *i*-Xmill Corner Radius



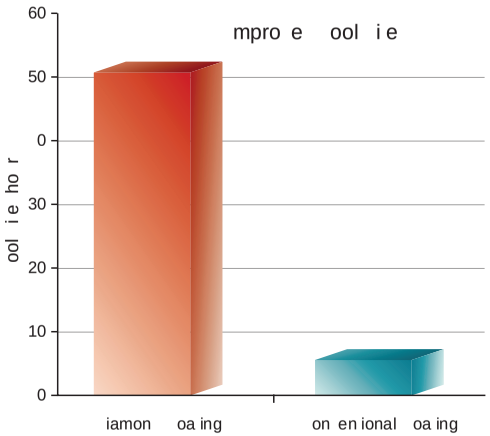
Cutting Condition (Side Cutting)

Tool	i-Xmill Corner Radius (XMR110A16020)
Si e	Ø16×R2.0
Work Material	- KS : KP4M (Mold steels HRc35) - DIN : 40CrMnNiMo8-6-4(1.2738) - AISI : P20+Ni

c m/min.	280
RPM re ./min.	5,570
Feed mm/min.	2,230
Feed per tooth mm/tooth	0.2

Milling Depth mm	Axial : 3.0 Radial : 0.2
Coolant	Oil Mist
O erhang	70
Machine	Machining Center

TEST III *i*-Xmill with Diamond Coating



Cutting Condition

Tool	i-Xmill Corner Radius (XMR110D17010)
Si e	Ø17 x R1.0
Work Material	Graphite
c m/min	320
RPM re ./min	6,000
Feed mm/min	2,800
Feed per tooth mm/tooth	0.23
Milling Depth mm	Axial : 0.2
Coolant	Air

Coating properties

This coating generation features a good crystalline structure. It protects tools perfectly against abrasive wear and is unsurpassed in graphite cutting.

Feature

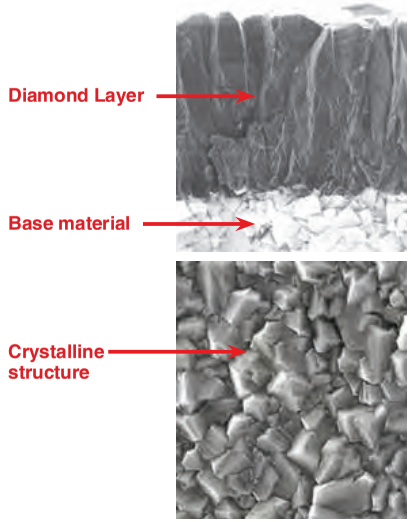
1. High Abrasive wear resistance.
2. Good Coefficient of friction.(against Al)
3. High Precision.

Advantages

Diamond coated i-Xmill possible to cut graphite workpieces with substantially greater speeds and in significantly better quality.

Applications

1. Precision-structured graphite electrodes.
2. Micro-Electromechanical Systems. (MEMS)
3. Printed Circuit Boards. (PCBs)
4. Ceramics (greens, sintered) Dental, machinery.



SMART M T E

Reference page : p.C65 ~ p.C84

Modular Type, Y-Coated Exchangeable Carbide Milling Heads for machining Pre-Hardened Steels

- Avoids expensive investments by using existing Copy Milling adaptor technology
- Proven performance transferred to cost effective modular system
- Optimal solution for large size or long reach Die&Mold applications

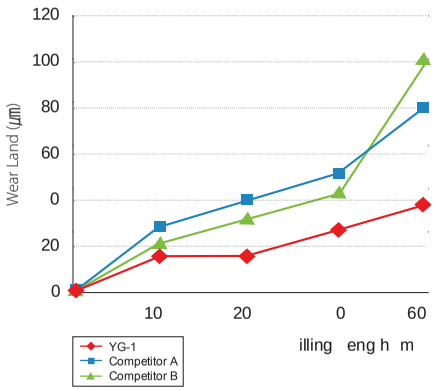
Seven different selections of modular heads fit in different holders.

Excellent flexibility by using copy milling coupling

SMART M T E

Reference page : p.C65 ~ p.C84

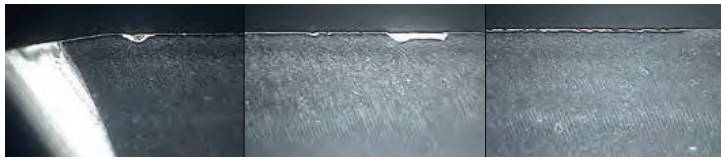
T ST Total Milling Length : 60m



Cutting Condition (Down & Side Cutting)

Tool	4Flute Corner Radius
Si e	Ø16 x R1.0
Work Material	- KP4M (HRc35) - AISI P20+Ni - DIN 1.2738 Improved
c m/min.	155.82
RPM re ./min.	3,100
Feed mm/min.	280
Feed per tooth mm/tooth	0.02
Milling Depth mm	Axial : 12 Radial : 0.8
O erhang mm	77
Coolant	Wet Cut
Machine	Machining Center

i-SMART

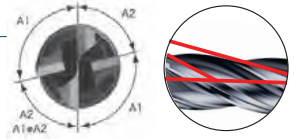


CompetitorA

CompetitorB

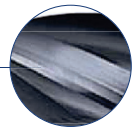
High Speed Cutting for Pre-Hardened Steels up to HRc55

Suitable for wide range of work material, specifically for increasing tool life
when machining pre-hardened materials, low hardness materials and cast iron, etc.
High speed cutting, dry and wet cut recommended together.



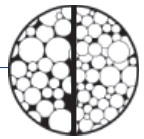
Unequal Index & Multiple Helix

4G Mills, 4 Flute Multiple Helix End Mills exclusively designed to reduce vibration
and also to achieve excellent chip evacuation



Optimal Edge Preparation

All 4G Mills products contain an Optimal Edge Preparation to
prevent chipping, also obtaining an excellent surface finish with
a longer tool life in High Speed Cutting



Ultra Micro Grain & Nano Grain Carbide

Premium Grade Carbide Substrate Materials
achieving exceptional wear resistance
making it possible for High Precision Machining

High Technology Y-Coating

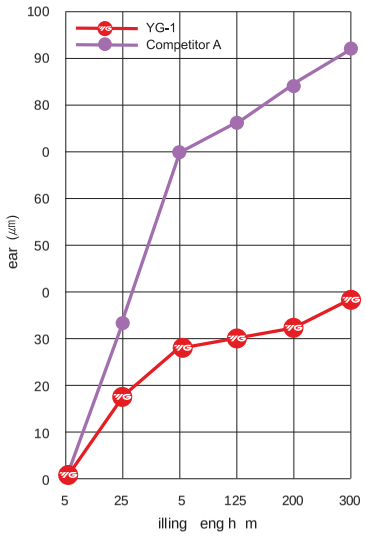
AlCr Based, YG-1`s High Technology
In-house coating for maximum tool life and high performance
Excellent quality coating developed by YG-1

Holds a Large Variety of Product Range for Multiple Use

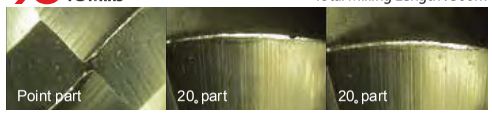
Large Variety of Products
For Several Different Applications with Different Size and Lengths

▶ Size : Ø0.03mm~Ø25.0mm

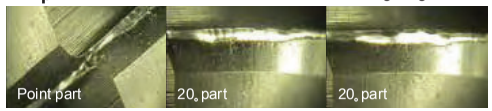
TEST Ⅰ - Ball Nose



4G Mills Total Milling Length : 300m



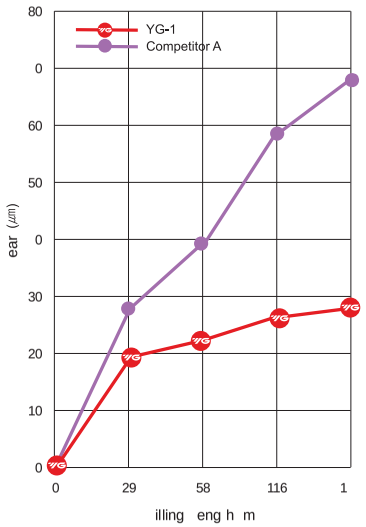
CompetitorA Total Milling Length : 300m



Cutting Condition (Profile Cutting)

Tool	2Flute, SEMD98060E
Si e	Ø6×6×12×90
Work Material	KP4M (HRc35 / DIN 1.2738 Improved)
c m/min.	130.061
RPM re ./min.	6,900
Feed mm/min.	830
Feed per tooth mm/tooth	0.060
Milling Depth mm	Axial: 0.2 / Radial : 1.2
Coolant	Oil Mist
O erhang mm	26
Machine	Machining Center

TEST Ⅱ - Corner Radius



4G Mills Total Milling Length : 174m

CompetitorA Total Milling Length : 174m

Cutting Condition (Down & Side Cutting)

Tool	4Flute, SEME0110005E
Si e	Ø10(R0.5)×10×25×100
Work Material	KP4M (HRc35 / DIN 1.2738 Improved)
c m/min.	51.522
RPM re ./min.	1,640
Feed mm/min.	180
Feed per tooth mm/tooth	0.027
Milling Depth mm	Axial : 25 / Radial : 0.5
Coolant	Oil Mist
O erhang mm	41
Machine	Machining Center

SPEED RO GHER E

Reference page : p.C145 ~ p.C328

Characteristics

- Unique flute design for excellent chip evacuation and vibration reduction.
- Optimal roughing tooth profile to reduce cutting forces.
- Special tool geometry for high feed rate and heavy cutting.
- Strong end tooth design for plunge and pocket milling.
- Custom engineered coating to allow long tool life and excellent chip evacuation.

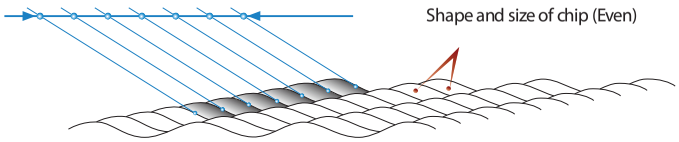
▶ L TE

▶ L TE

Chip Thickness and Shape

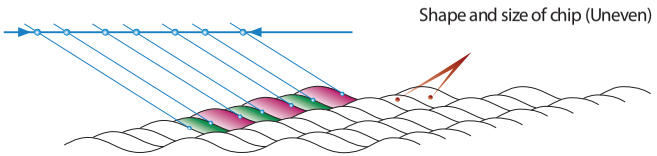
▶ **Conventional Roughing End Mills**

Even chip thickness and shape



▶ **X-SPEED Rougher**

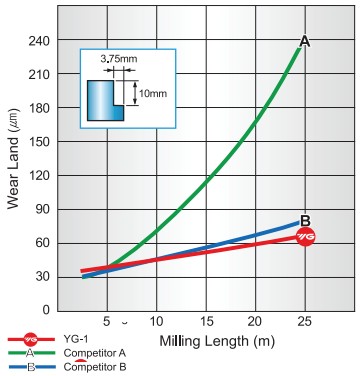
Uneven chip thickness and shape



SPEED RO GHER E

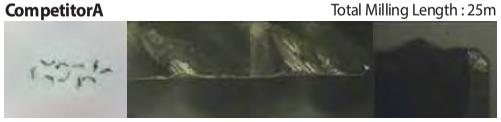
Reference page : p.C145 ~ p.C328

TEST I 4 Flute Multuple Helix



X-SPEED ROUGHER Total Milling Length : 25m

CompetitorA Total Milling Length : 25m



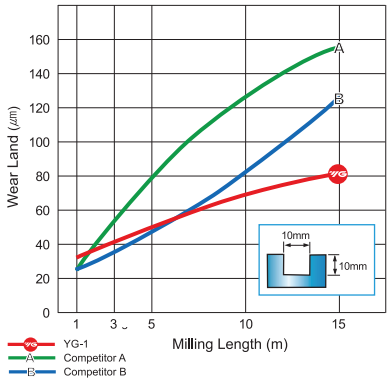
Competitor B Total Milling Length : 25m

Cutting Condition (Down & Side Cutting)

Si e	SP D RO H R	Ø10×10×15×72
	Competitor A	Ø10×10×20×72
	Competitor	Ø10×10×15×80
Work Material		- DIN : X40CrMoV51(1.2344) - JIS : SKD61 (HRc30) -AISI : H13

RPM re ./min.	5,000 (157.08 m/min)
Feed mm/min.	1,300
Coolant	Wet Cut
O erhang mm	32
Machine	Machining Center

TEST II 4 Flute Multuple Helix



X-SPEED ROUGHER Total Milling Length : 15m

CompetitorA Total Milling Length : 5m

CompetitorB Total Milling Length : 15m

Cutting Condition (Down & Side Cutting)

Si e	SP D RO H R	Ø10×10×15×72
	Competitor A	Ø10×10×20×72
	Competitor	Ø10×10×15×80
Work Material		- DIN : X40CrMoV51(1.2344) - JIS : SKD61 (HRc30) -AISI : H13

RPM re ./min.	4,000 (125.66 m/min)
Feed mm/min.	1,000
Coolant	Wet Cut
O erhang mm	32
Machine	Machining Center

PO ER PRO E

Reference page : p.C329 ~ p.C376

Performance Upgrade

- Achieved from several tests to apply the most optimal technology
- New coating, raw material, honing technology

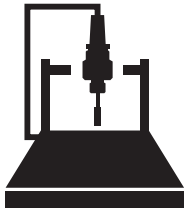
Work Material

- Pre-Hardened Steels up to HRc 55, and Cast Iron

P K

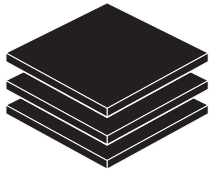
For Mold & Die Industries

- Plastic injection, die casting, military parts, automotive parts, electronic parts, etc.



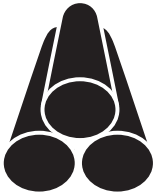
Honing

an e honing technology system made from YG-1



Coating

The optimal coating applied, chosen by several tests o i eren oa ing e hnologie



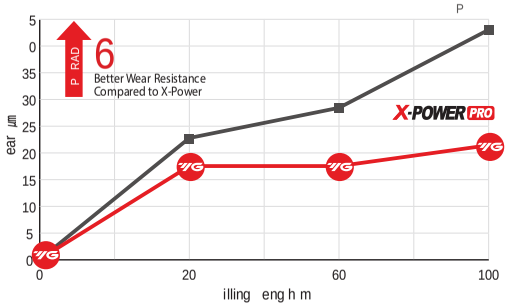
Ra Material

a e rom high performance raw material with better quality

PO ER PRO E

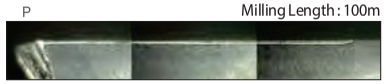
Reference page : p.C329 ~ p.C376

TEST I 2 Flute Square End mills



X-POWER PRO Milling Length : 100m

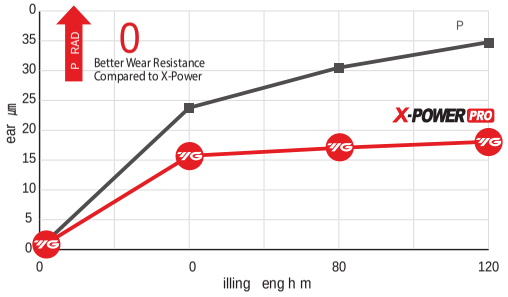
P Milling Length : 100m



Cutting Condition (Down & Side Cutting)

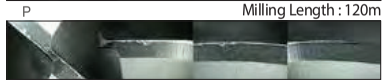
Tool	X-POWER PRO	P
Milling Length m	100	
Si e	Ø10.0 x Ø10.0 x 22 x 70	
Work Material	KP4M(HRc35)/ DIN 1.2311, ANSI P20+Ni	
c m/min.	63	
Feed mm/min.	300	
Milling Depth mm	Ap : 10, Ae : 0.5	
Coolant	Oil Mist	

TEST II 2 Flute Ball End mills



X-POWER PRO Milling Length : 120m

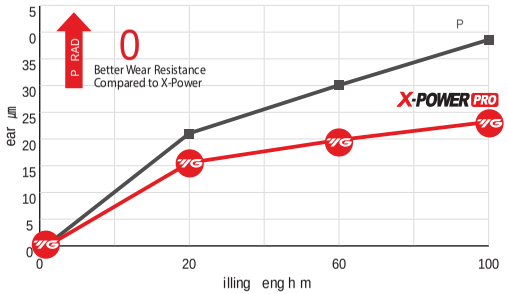
P Milling Length : 120m



Cutting Condition (Profile Cutting)

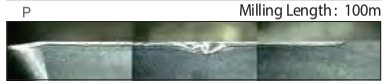
Tool	X-POWER PRO	P
Milling Length m	120	
Si e	Ø6.0 x Ø6.0 x 12 x 90	
Work Material	KP4M(HRc35)/ DIN 1.2311, ANSI P20+Ni	
c m/min.	130	
Feed mm/min.	830	
Milling Depth mm	Ap : 0.2, Ae : 1.2	
Coolant	Oil Mist	

TEST III 4 Flute Corner Radius End mills



X-POWER PRO Milling Length : 100m

P Milling Length : 100m



Cutting Condition (Down & Side Cutting)

Tool	X-POWER PRO	P
Milling Length m	100	
Si e	Ø10.0(R0.5) x Ø10.0 x 30 x 90	
Work Material	KP4M(HRc35)/ DIN 1.2311, ANSI P20+Ni	
c m/min.	52	
Feed mm/min.	180	
Milling Depth mm	Ap : 25, Ae : 0.5	
Coolant	il i	

T N PO ER E

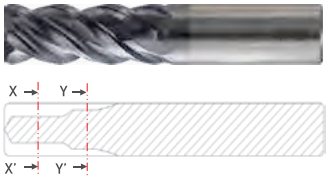
Reference page : p.C377 ~ p.C392

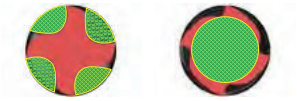
High Speed Machining for Exotic Materials: Titanium and Stainless Steels

- Excellent tools for Aerospace Industries, Energy & Power generations.
- For Roughing and Semi-finishing of universal use, also for Finishing difficult-to-machine materials.
- YG-1's advanced coating technology makes it possible to maintain an excellent Wear resistance, Oxidation resistance and better Thermal stability.

Offers a high performance metal removal rate with secured and chatter free machining in semi-finishing and finishing.

I Y-Coated Solid Carbide 4 Flute End Mills with Double Core



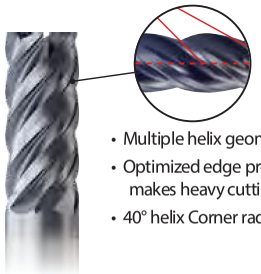


S CTION
xcellent chip e acuation

S CTION
Higher rigidity

- Double core geometry reduces tool deflection and improves dimensional stability.
- Optimized edge preparation protects chipping problems in high speed machining.
- Variable flute design brings out perfect performance in both slotting and side milling operations.

II Y-Coated Solid Carbide 5 Flute End Mills with Multiple helix & TiAlN Coated Solid Carbide Roughing



- Multiple helix geometry delivers silent cutting and reduces chattering.
- Optimized edge preparation increases tool life and makes heavy cutting possible.
- 40° helix Corner radius is available with optimal roughing tooth profile.

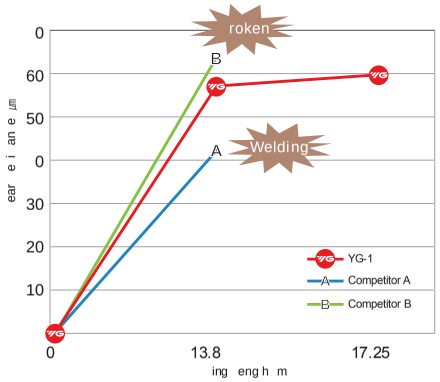
Coated / Flutes

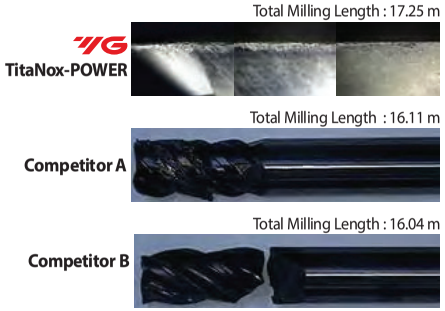
TiAlN Coated / Roughing

T N PO ER E

Reference page : p.C377 ~ p.C392

TEST I Y-Coated Solid Carbide 4 Flutes with Double Core End mills

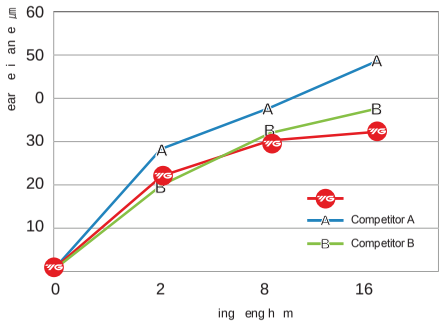


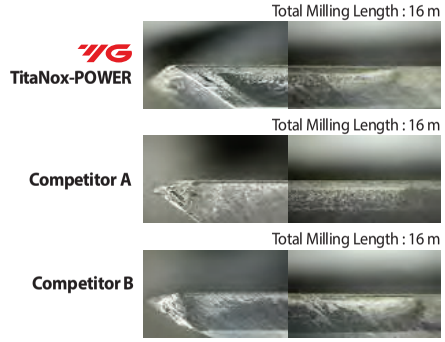


Cutting Condition (Slotting)

Tool	4Flute, with Double Core	Feed mm/min.	254
Si e	Ø12(R1) x Ø12 x 26 x 80	Feed per tooth mm/tooth	0.027
Work Material	DIN : TiAV6V4 (Titanium)	Coolant	Wet Cut
Cutting Depth mm	12 (Axial Depth)	O erhang mm	36
RPM re ./min.	1,591	Machine	Machining Center

TEST II Y-Coated Solid Carbide 5 Flutes End Mills





Cutting Condition (Down & Side Cutting)

Tool	5Flute	Feed mm/min.	398
Si e	Ø12 × Ø12 × 26 × 83	Milling Depth mm	Axial : 18 / Radial : 3.6
Work Material	DIN : TiAV6V4 (Titanium)	Coolant	Wet Cut
RPM re ./min	1,591	Machine	Machining Center

PL S E

Reference page : p.C415 ~ p.C440

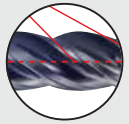
- Chatter and Harmonics Reduced for Improved Stability and Better Finishing
- Special Design of Flute Geometry for Optimal Chip Formation and Chip Evacuation
- Engineered Coating Technology to Reduced Wear and Increase Heat Resistance
- Enhanced Corner Geometry for Longer Tool Life

Unequal Index

Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Chip Evacuation with Better Surface Finish

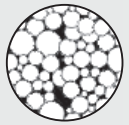
Corner Geometries

YG-1's High Performance Corner Geometries Including Corner Radius, applied for Longer Tool Life with Higher Cutting Speed and Heavy Cutting



Multiple Helix

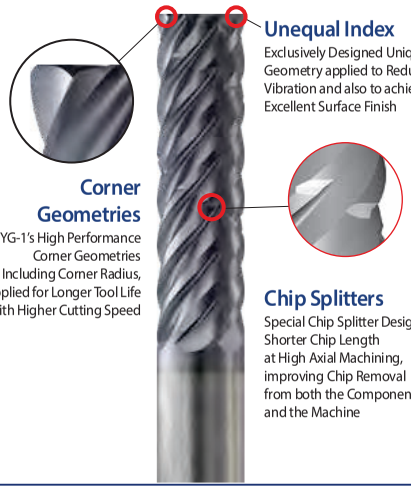
Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation Concluding Faster and Heavier Cutting making Higher Productivity



Ultra Micro grain Carbide

Premium Carbide Substrate
Achieving Exceptional Wear Resistance

6 FLUTE CHIP SPLITTER



Unequal Index

Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Surface Finish

Corner Geometries

YG-1's High Performance Corner Geometries Including Corner Radius, applied for Longer Tool Life with Higher Cutting Speed

Chip Splitters

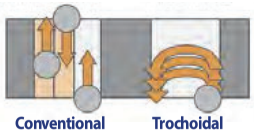
Special Chip Splitter Design Shorter Chip Length at High Axial Machining, improving Chip Removal from both the Component and the Machine

6 FLUTE END MILLS

The Best Chatter Free Tool For High Speed

- Unique geometry of the variable pitch provides the best chatter free tool for high speed and also trochoidal milling
- Several slot widths can be used with the same tool diameter in an efficient way
- Provides longer tool life and higher productivity on most materials
- Trochoidal milling is a programming technique applying a small radial width of cut with also higher cutting speed and feed per tooth

Trochoidal Milling performs better than conventional ways because it has..,

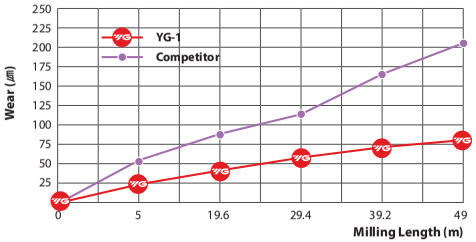


- Lower Cutting Force from smaller arc engagement
- Longer Tool Life from more flutes, and deeper cutting depth
- Higher Stability, Lower Vibration and Excellent Chip Evacuation

PL S E

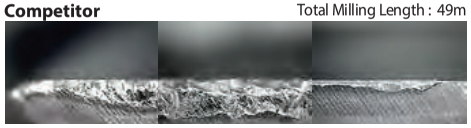
Reference page : p.C415 ~ p.C440

TEST I 4 Flute



YG V7 PLUS — Total Milling Length : 49m

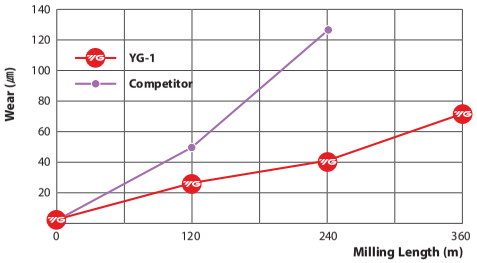
Competitor — Total Milling Length : 49m



Cutting Condition (Side Cutting)

Tool	V7 Plus	4Flute
Si e	Ø10 x Ø10 x 22 x 72	
Work Material	- JIS : S45C(HRc30) - DIN : C45 - WR : 1.0503	
c m/min.	230.09	
RPM re ./min.	7,324	
Feed mm/min.	1,464	
Feed per tooth mm/tooth	0.05	
Milling Depth mm	Axial : 10 / Radial : 3	
Coolant	Wet Cut	
O erhang mm	34	
Machine	Machining Center	

TEST II 6 Flute



YG V7 PLUS — Total Milling Length : 360m

Competitor — Total Milling Length : 300m

Cutting Condition (Trochoidal Cutting)

Tool	V7 Plus	6Flute
Si e	Ø12(R1) x Ø12 x 26 x 83	
Work Material	- JIS : S45C(HRc30) - DIN : C45 - WR : 1.0503	
c m/min.	278.67	
RPM re ./min.	7,392	
Feed mm/min.	7,495	
Feed per tooth mm/tooth	0.17	
Milling Depth mm	Axial : 24(2D) Radial : 0.6(0.05D)	
Coolant	Wet Cut	
O erhang mm	36	
Machine	Machining Center	

AL PO ER HP E

Reference page : p.C441 ~ p.C454

Available in a Wide Variety of Sizes and Corner Radii Ideal Symmetrical Shape

- 3-flute design "to the center" (all 3 flutes come to center)
- Designed with high spindle speeds in mind
- Highly effective in vertical ramping up to 20 degrees and step-over plunging applications

Specialized Design of Corner Gash

- Unique flute design and superior corner protection enhance both tool life and protection against catastrophic failure in high feed applications
- Polished flutes for excellent chip flow

Cylindrical Land

- Increased performance in a variety of cutting conditions
- Helps reduce vibration and chatter

Engineered Flute Design

- Effective chip evacuation at high feed rates
- with lower cutting forces than competitive products

DLC Diamond-Like Carbon

- Excels in hard aluminum and high speeds
- Provides edge strength and unsurpassed tool life

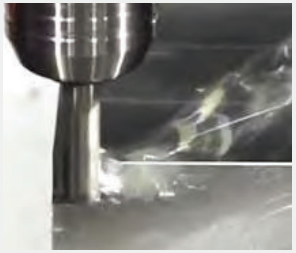
From Side Cuts to Rough Cuts to Aggressive Ramping, No One Withstands Extreme Radial Forces Better-or Longer.

▲ Rough Cutting

Ultra-micrograin carbide supplies the rigidity to keep the chips flying. Highly polished 3-flute design ensures they'll keep flying – cut after cut.

▲ Ramping

In steep, aggressive ramping conditions, the ALU-POWER HPC holds its own to resist the torsional stress from extreme helical output.



▲ Side cutting

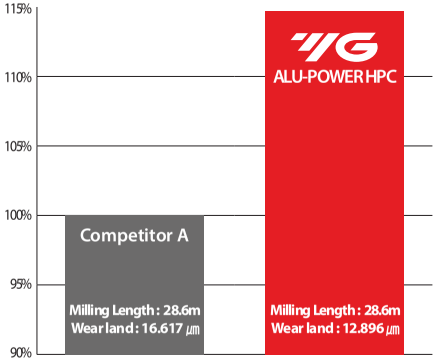
No one offers a cooler-running super high-speed End mill. While others melt down the materials they're cutting, ALU-POWER HPC keeps machining cool in aluminum and soft alloys, to boot.

AL PO ER HP E

Reference page : p.C441 ~ p.C454

TEST I Slotting Application

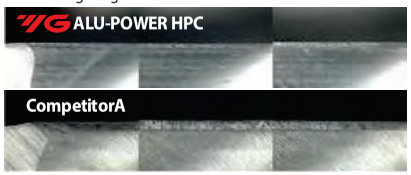
Ø1/2(R.090) 3 Flute Corner radius End Mill, Alu-Power HPC



Cutting Condition (Slotting)

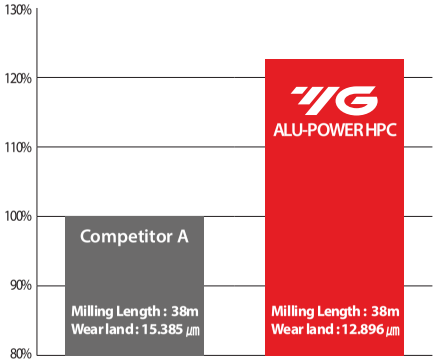
Tool	Ø1/2(R.090) x Ø1/2 x 1-1/4 x 3-1/2
Work Material	AL7075
R.P.M re ./min.	12,22
Feed mm/min.	5,588
Cutting Depth mm	Axial : 12.7
Coolant	Wet Cut (9% emulsion)
O erhang mm	8
Milling Method	Slotting
Machine	Machining Center

Total Milling Length : 38m



TEST II Pocketing Application

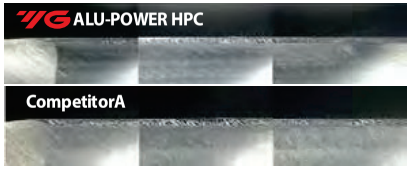
Ø1/2(R.090) 3 Flute Corner radius End Mill, Alu-Power HPC

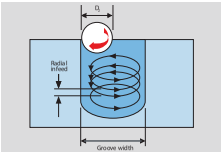


Cutting Condition (Pocketing)

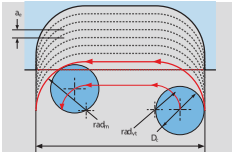
Tool	Ø1/2(R.090) x Ø1/2 x 1-1/4 x 3-1/2
Work Material	AL7075
R.P.M re ./min.	12,22
Feed mm/min.	5,588
Cutting Depth mm	Axial : 12.7 Radial : 12.2
Coolant	Wet Cut (9% emulsion)
O erhang mm	8
Milling Method	Pocketing
Machine	Machining Center

Total Milling Length : 38m

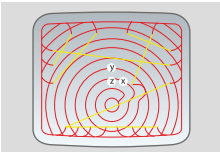




In trochoidal milling applications, the cutter follows a spiral path by moving radially as it rotates providing faster machining times, lower tooling costs and reduced loads on machine components.



Peel milling applications benefit from ALU-POWER HPC's super sharp high-speed milling ability.



Outstanding chip evacuation through design coupled with high speed milling leaves **a well-defined clean cutter path.**

ONLY ONE PM60 E M

Reference page : p.C583 ~ p.C604

ADVANTAGES OF CARBIDE

Exceptional Wear Resistance

The ONLY ONE holds an Exceptional Wear Resistance
Which is an advantage of the micro-grain carbide tools.

The ONLY ONE performs better
without Causing chipping than
Normal coated carbide End mills
under the same carbide cutting conditions.

ADVANTAGES OF HSS

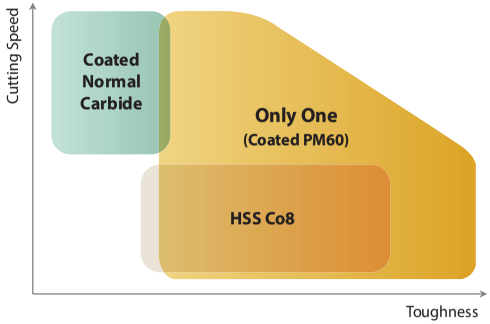
High Toughness

ONLY ONE is based on Powder Metallurgy that ensures
High Toughness which is one of the advantages of Cobalt HSS

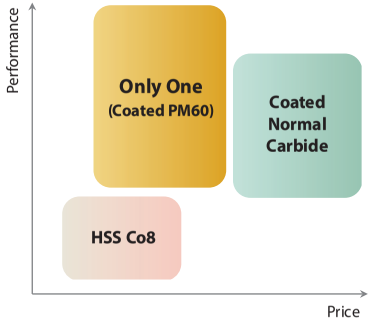
The ONLY ONE holds a very Strong Toughness
which can bring out Higher performances also on
Machines with unstable conditions
such as Vibration and irregular composition of materials

Both Advantages of Solid Carbide & HSS

To protect chipping problems under the unstable machining conditions with vibration



Higher Toughness than HSS Co8,
Cutting Speed (Vc) is as high as Coated Normal Carbide.

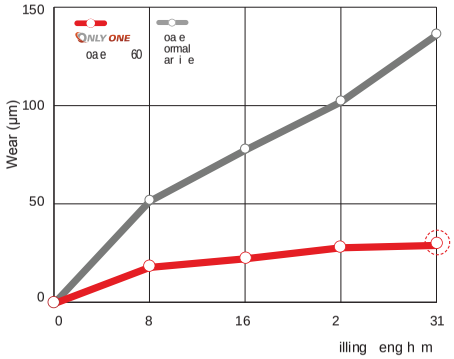


Better performance than HSS Co8,
Better price than Coated Normal Carbide.

ONLY ONE PM60 E M

Reference page : p.C583 ~ p.C604

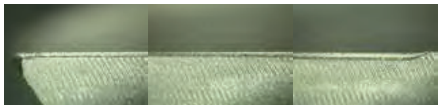
TEST I 4 Flute Square End mill



Cutting Condition (Down & Side Cutting)

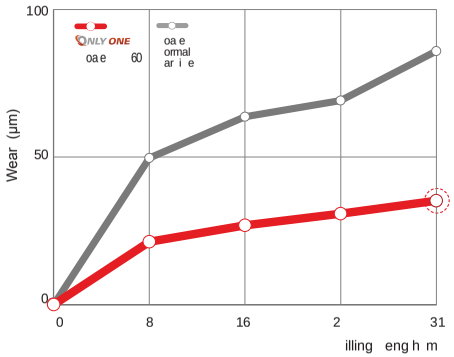
Tool	Only One Coated PM60	Coated Normal Carbide
Si e	Ø10xØ10x22x72/Ø10xØ10x22x70	
Work Material	- JIS : S45C - KS : SM45C - DIN : C45 - AISI : 1045	
RPM re ./min.	2,750	
Feed mm/min.	520	
Milling Method mm	Axial : 3 / Radial : 1	
Coolant	e	
Machine	Machining Center	

ONLY ONE Coated PM60



Coated Normal Carbide

TEST II 4 Flute Square End mill



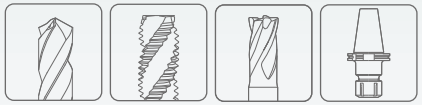
Cutting Condition (Down & Side Cutting)

Tool	Only One Coated PM60	Coated Normal Carbide
Si e	Ø10xØ10x22x72/Ø10xØ10x22x70	
Work Material	- JIS : S45C - KS : SM45C - DIN : C45 - AISI : 1045	
RPM re ./min.	2,750	
Feed mm/min.	520	
Milling Method mm	Axial : 10 / Radial : 1	
Coolant	e	
Machine	Machining Center	

ONLY ONE Coated PM60

Coated Normal Carbide

lo al ing ool ea er YG

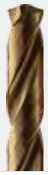


1 COATIN T CHNOLO I S

Coating Icon e hi h ng ikone	Coating Color e hi h ng ar e	Coating Type e hi h ng ar	Hardness H härtegrad	Max. sage Temperature C Max. Arbeitstemperatur	Friction Coefficient dry Reibungskoeffizient für stahl (trocken)	Coating Thickness μm Beschichtungsdicke	eneral Information llgemeine normaionen
TiN Coating i e hi h ng TiN	ol 	i ani m i ri e	2,300	600	0.40	1 5	Making it possible to higher performance in comparison to ra i ional non- oa e ool Recommended for the general application Ermöglicht eine höhere Leistung im Vergleich zu unbeschichteten Werkzeugen Empfohlen für die allgemeine Anwendung"
TiCN Coating i e hi h ng TiCN	l e grey 	i ani m ar on i ri e	3, 00	00	0.25	1 5	Characterized by high hardness and good toughness Providing tools with effective protection against cold-welding from especially wear resistant an i low oe i ien o ri ion Zeichnet sich durch hohe Härte und gute Zähigkeit aus Bietet den Werkzeugen einen wirksamen Schutz gegen Kaltverschweißung durch seine besondere Verschleißfestigkeit und seinen niedrigen Reibungskoeffizienten"
TiAlN Coating i l e hi h ng TiAlN	iole grey 	i ani m l mi m i ri e	3,100	900	0.50	1 5	Increase in hardness and an exceptional increase in resistance to oxidation at high temperature, compared to on en ional oa ing Application to drilling with severe thermal stress on cutting edges when continuous non-step feed, dry cutting or high speed cutting Höhere Härte und eine außergewöhnliche Steigerung der Oxidationsbeständigkeit bei hohen Temperaturen im Vergleich zu herkömmlichen Beschichtungen Anwendung beim Bohren mit starker thermischer Beanspruchung der Schneidkanten, im Trockenschnitt oder bei der Hochgeschwindigkeitszerspanung"
AlTiN Coating l i e hi h ng AlTiN	l e grey 	l mi m i ani m i ri e	3,300	900	0.40	1 5	Optimised coating for use in hard and high-speed ma hining wi h he high har ne , o i a ion re i an e and thermal stability ro e ion again a ra ion an a he ion o er the whole range of cutting speeds with high-strength an har - o-ma hine ma erial The good frictional properties reduce cutting forces Optimierte Beschichtung für den Einsatz in der Hart- und Hochgeschwindigkeitsbearbeitung mit hoher Härte, Oxidationsbeständigkeit und thermischer Stabilität Schutz vor Abrasions- und Adhäsionsverschleiß über den gesamten Schnittgeschwindigkeitsbereich bei hochfesten und schwer zu zerspanbaren Werkstoffen Die positiven Reibungseigenschaften reduzieren die Schnittkräfte

Coating Icon e hi h ng ikone	Coating Color e hi h ng are e	Coating Type e hi h ng ar	Hardness H härtegrad	Max. sage Temperature C Max. Arbeitstemperatur	Friction Coefficient dry Reibungskoeffizient für stahl (trocken)	Coating Thickness μm Beschichtungsdicke	eneral Information llgemeine norma ionen
Coating e hi h ng X Coating	l e grey 	l r a e	3,200	1,100	0.35	1 5	Coating with low hardness drop at high temperatures and stability against thermal oxidation Coating for superior dry and wet machining performance at high cutting speed Wide range of application field with stable layer structure Beschichtung mit geringem Härteverlust bei hohen Temperaturen und Stabilität gegen thermische Oxidation Hervorragende Beschichtung für Trocken- und Nassbearbeitung bei hohen Schnittgeschwindigkeiten Breites Anwendungsspektrum durch stabilem Schichtaufbau
Coating Y Beschichtung Y Coating	righ grey 	l r a e	3,200	1,100	0.35	1 5	Optimized coating adhesion results in high-level reliability High thermal shock stability and oxidation resistance for wet and dry machining Significantly lengthened tool lifetimes as compared to common high-performance coatings Good chip removal and minimization of built-up edge oma ion Optimierte Schichthaftung führt zu hoher Zuverlässigkeit Hohe Temperaturwechselbeständigkeit und Oxidationsresistenz bei Nass- und Trockenbearbeitung Deutlich verlängerte Werkzeugstandzeiten im Vergleich zu herkömmlichen Hochleistungsbeschichtungen Hervorragende Spanabfuhr und Minimierung von Aufbauschneidenbildung
H Coating e hi h ng H Coating	Copper 	l r a e	3,000	1,100	0.25	1 5	Improved wear resistance compared to TiAl-based, and superior high temperature hardness Superior adhesion and surface roughness, and uniform tool wear characteristics with multi-layer coating Possible machining with minimum quantity of coolant and dry machining to reduce production costs Verbesserte Verschleißfestigkeit im Vergleich zu TiAl-Beschichtungen und überlegene physikalische Eigenschaften (Hochtemperaturhärte und Bruchfestigkeit) Verbesserte Verschleißfestigkeit im Vergleich zu TiAl-basierten Beschichtungen und größere Härte bei hohen Temperaturen Ermöglicht Bearbeitung mit Minimalmengenschmierung und Trockenbearbeitung zur Senkung der Produktionskosten
Hardslick Coating Hardslick e hi h ng Hardslick	Black grey 	i l a e	3,000	800	0.20	1 5	e e he oe i ien o ri ion, an enhan e he orro ion re i an e o ano i oa ing Ideal for applications requiring fast chip evacuation, such a mol , or a i ional hemi al an orro ion re i an e Reduziert den Reibungskoeffizienten und verbessert die Korrosionsbeständigkeit der Eloxalschicht Ideal für Anwendungen, die einen schnellen Spanabtransport erfordern, wie z. B. Gesenkbau, oder eine zusätzliche chemische und Korrosionsbeständigkeit

1 COATIN T CHNOLO I S

Coating Icon e hi h ng ikone	Coating Color e hi h ng are e	Coating Type e hi h ng ar	Hardness H härtegrad	Max. sage Temperature C Max. Arbeitstemperatur	Friction Coefficient dry Reibungskoeffizient für stahl (trocken)	Coating Thickness μm Beschichtungsdicke	eneral Information llgemeine norma ionen
lue Coating la e e hi h ng BLUE	l e iole 	i a e	3, 00	1,200	0.40	1 5	Nanocomposite with Si Content for high hardness steel Extraordinary high temperature stability Excellent adhesion and good performace even for more unusual applications Nanokomposit mit Si-Anteil für hochgehärteten Stahl Außergewöhnliche Stabilität bei hohen Temperaturen Hervorragende Haftung und gute Leistung auch bei ungewöhnlichen Anwendungen
Coating Z Beschichtung Z Coating	Copper 	i a e	,000	900	0.40	1 5	Nanocomposite optimized among coatings or high har ne eel ma hining wi h igra e oa ing Superior machinability at high temperatures and used in milling and drilling finishing processes Superior physical properties of hardness, adhesion and oxidation resistance at high temperatures Optimierte nanokomposit Beschichtung mit Si-Anteil für die Bearbeitung von hochharten Stählen Hervorragende Zerspanleistung bei hohen Temperaturen und bei Fräs- und Bohrbearbeitungsprozessen Hervorragende physikalische Eigenschaften wie Härte, Haftung und Oxidationsbeständigkeit bei hohen Temperaturen
DLC iamon Like Carbon) Coating iamon Like Carbon) e hi h ng DLC	Black 	ar on	,000 5,000	500	0.01~0.1	0.5 ~ 1.5	i a le oa ing or e reme wear on i ion and fast cutting speeds without use of coolant Possible coating with high-speed machining and superior wear resistance Geeignete Beschichtung für extreme Verschleißbedingungen und hohe Gleitgeschwindigkeiten ohne Verwendung von Kühlmittel Beschichtung für die Hochgeschwindigkeitsbearbeitung bei überlegener Verschleißfestigkeit
Diamond Coating iaman e hi h ng Diamond	Grey 	ar on	10,000	600	~ 0.1	5 15	Possible to cut graphite workpieces with high-speed cutters at greater speeds and in significantly better quality Making it possible to produce sophisticated workpieces from a single clamping to a single cutter Enable controlled coating structures and compliance wi h he mo ringen oleran e limi Zerspanung von Graphitwerkstücken mit Hochgeschwindigkeitsfräsern bei wesentlich höheren Geschwindigkeiten und in wesentlich besserer Qualität Ermöglicht die Bearbeitung anspruchsvoller Werkstücke in einer einzigen Aufspannung und mit einem einzigen Werkzeug Kontrollierte Schichtstrukturen bei Einhaltung strengster Toleranzgrenzen

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	Examples
P	1	Non-alloyed steel	About 0.15% C	Annealed	125		S15C, C15, 1015
	2		About 0.45% C	Annealed	190	13	S45C, C45, 1045
	3		About 0.45% C	Quenched & Tempered	250	25	
	4		About 0.75% C	Annealed	270	28	SK5, Ck75, 1080
	5		About 0.75% C	Quenched & Tempered	300	32	
	6	Low-alloyed Steel		Annealed	180	10	SCM440, 42CrMo4, 410
	7			Quenched & Tempered	275	29	
	8			Quenched & Tempered	300	32	
	9			Quenched & Tempered	350	38	
	10	High-alloyed steel, and tool steel		Annealed	200	15	SKD, D2
	11			Quenched & Tempered	325	35	SKH, SUH, M42
M	12	Stainless Steel	Ferritic / Martensitic	Annealed	200	15	SUS 420, X40Cr13, 420
	13		Martensitic	Quenched & Tempered	240	23	
	14		Austenitic		180	10	SUS 316, 316, X5CrNiMo 17 12 2
K	15	Grey cast iron	Pearlitic / Ferritic		180	10	FC, GG, EN-GJL-250
	16		Pearlitic (Martensitic)		260	26	
	17	Nodular cast iron	Ferritic		160	3	FCD, GGG, EN-GJS-500-7
	18		Pearlitic		250	25	
	19	Malleable cast iron	Ferritic		130		FCMW, FCMP, GTS, GJMB350-10
	20		Pearlitic		230	21	
N	21	Aluminum-wrought alloy	Not Curable		60		SAE 1000, AlMg 1, 3.3315
	22		Curable	Hardened	100		SAE 7050, AlCuMg 1, 3.1325
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		ADC12, G-AlSi12, 3.2581
	24		≤ 12% Si, Curable	Hardened	90		C4BS, G-AlSi10Mg, 3.2381
	25		> 12% Si, Not Curable		130		
	26	Copper and copper alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		CuZn36Pb 3, 2.0375
	27		CuZn, CuSnZn (Brass)		90		CuZn 15, 2.0240
	28		CuSn, lead-free copper and electrolytic copper		100		G-CuZn40Fe, 2.0590
	29	Non-metallic materials	Duroplastic, Fiber Reinforced Plastic				CFRP
	30		Rubber, Wood, etc.				
S	31	Heat resistant super alloys	Fe Based	Annealed	200	15	X12 NiCrSi 36-16, 1.4864
	32			Aged	280	30	
	33		Ni or Co Based	Annealed	250	25	Inconel 718, NiCr20TiAl, 2.4631
	34			Aged	350	38	NiCu30Al, 2.4375
	35			Cast	320	34	G-X120Mn12, 1.3401
	36	Titanium alloys	Pure Titanium		400 Rm		
	37		Alpha + Beta Alloys	Hardened	1050 Rm		TiAl6V4, 3.7165
H	38	Hardened steel		Hardened	550	55	SK3
	39			Hardened	630	60	
	40	Chilled cast iron		Cast	400	42	
	41	Hardened cast iron		Hardened	550	55	

P	VDI 3323 1	Material Description: Non-alloyed steel	Composition / Structure / Heat Treatment: About 0.15% C, Annealed	HB: 125	HRc

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0037	STKM 12 C	St 37-2	-	4360 40 B	S 235 JR	E24-2	1311	Fe 360 B			16D	
1.0038	STKM 12 A	St 37-3	A570.36	4360 40 C	S275J2G3	E28-3	1312	Fe 360 D FF			ST14KP	
1.0045	SM 490 YA	S 355 JR	-	-	S 1207	E36-2	-	Fe 510 BFN				
1.0050	SS 50	St 50-2	A570 Gr.50	4360 50 B	E 295	A50-2	2172	Fe 490			ST5PS	
1.0060	SM 58	St 60-2	A572 Gr.65	4360 55 E	-	A60-2	1650	Fe 60-2			ST6PS	
1.0114		S 235 J0	-	En 40C	S 235 J0	E24-3		Fe 360 CFN				
1.0143		S 275 J0	-	-	S 275 J0	E28-3	1414	Fe 430 C				
1.0144	SM41C, SM400	St 44-3 N	A573 Gr.81	4360 43C	S 275 J2 G3	E28-3	1412	Fe 430 D FF			ST14KP	
1.0149		Ro St 44-2	-	43C	S 275 J0 H	-	1412	Fe430C				
1.0301	S10C	C10	1010	045M10	C 10	34C10, XC10		C 10	F.1511	G10100	10	
1.0330	SPCC	St 12	-	DC 01	Fe P01	DC 01/Fe P01	1142	Fe P01			15KP	
1.0335	SPHE	D D 13 (StW 24)	A622(1008)	H S 3	D D 13	3C		FeP13			08KP	
1.0338	SPCE	St 4	A620(1008)	14491 CR	Fe P04	Fe 14	1147	DC04/FeP04			08JU	
1.0345	SPV 50	P235 GH	A516 Gr.65	P 235 GH	P 235 GH	A 37 CP	1330	Fe E 235		K02503		
1.0401	S15C	C15	1015	080M15	-	C18RR, XC18	1350	C15, C16	F.1110	G10170	15	
1.0402	S20C	C22	1020	050 A 20	1 C 22	C20	1450	C 20	F.1120	G10200	20	
1.0425	SPV315	P265GH/HII				A42CP	1430	Fe4101KW		K02801	16K	
1.0443	SC 450	GS-45	A2765-35	A1		E23-45M	1305					
1.0539		S355NH				TSE355-4	2134	Fe510B				
1.0545		S355N		4360-50E		E355R	2334	FeE355KG				
1.0546		S355NL		4360-50EE		E355FP	2135	FeE355KT				
1.0547		S355J0H		4360-50C		TSE355-3	2172	Fe510C				
1.0549		S355NLH					2135	Fe510D				
1.0553	SM 520 M	St52-3U	A14880-40	4360-50C		320-560M	1606	Fe510C				
1.0562	SM490A	St E 355	A633 Gr.C	P 355 N		FeE355KGN	2132	Fe E 355 KG		K12000	15GF	
1.0565		W St E 355		P 355 NH		P 355 NH	2106	Fe E 355 KW		K01600		
1.0566	SLA 37	T St E 355		P 355 NL1		P 355 NL1	2107	Fe E 355 KT				
1.0570	SM 50 YA	St 52-3	1	4360-50C	S 355 JR	E36-3	2172	Fe 510 B			17G1S	
1.0715	SUM22	9SMn28	1213	230M07		S250	1912	CF9SMn28	F.2111	G12130		
1.0718	SUM22L	9SMnPb28	12L13			S250Pb	1914	CF9SMnPb28	F.2112	G12134		
1.0721		10S20	1108	10S20		10S20		CF10S20	F.2121	G11080		
1.0722		10SPb20	11L08			10PbF2		CF10SPb20		G11084		
1.0736	SUM25	9SMn36	1215			S300		CF9Mn36	F.2113	G12150		
1.0737		9SMnPb36	12L14			S300Pb	1926	CF9SMnPb36	F.2114	G12144		
1.0972		S315MC		1501-40F30		E315D						
1.0976		S355MC		1501-43F35		E355D	2642	FeE355TM				
1.0982		S460MC		1501-50F45								
1.0984		S500MC				E490D	2662	FeE490TM				
1.0986		S500MC		1501-60F55		E560D		FeE560TM				
1.1121	S10C	Ck10	1010	040A10		XC10	1265	C10	F.1510	G10100	10	
1.1141	S15	Ck15	1015	040A15	32C	XC15	1370	C15	F.1110	G10150	15	
1.1151	S20C	C22E	1020	055M15		2C22	1450	C20	F.1120	G10230	20	
1.8900	S25C	StE380	A572-60	436055E			2145	FeE390KG				
		St44-2	A36	436043A		NFA35-501E28	1411					
		StE320-3Z		1501160			1421					

P — VDI 3323 2

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Non-alloyed steel	About 0.45% C, Annealed	190	13

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0501	S35C	C35	1035	080A32		1C35	1572	C35	F.113	G10350	35	
1.0503	S45C	C45	1045	060A47		XC42H1TS	1672	C45	F.114	G10450	45	
1.0511	S40C	C40	1040	080M40		1C40		C40	F.114.A	G10400	40	
1.0540	S 50 C	C50					1674	C50		G10500		
1.0551		GS-52	A2770-36	A.2		280-480M	1505					
1.0553	SM 520 M	St52-3U	A14880-40	4360-50C		320-560M	1606	Fe510C				
1.0577		S 355 J 2 G4	A738	Fe 510 D 2 FF		A52FP	2107					
1.0726		35S20	1140	212M36	8M	35MF6	1957			G11400	40	
1.0727		45S20	1146			45MF4	1973			G11460		
1.1157		40Mn4	1039	150M36	15	40M5				G10390	40G	
1.1158	S25C	C25E	1025	070M25		XC25		C25	F.1120	G10250	25	
1.1166	SMn433H	34Mn5	1536						TO.B	G15360		
1.1167	SMn438(H)	36Mn5	1335	150M36		40M5	2120	36Mn6	F.1203	G13350	35G2	
1.1170	SCMn1	28Mn6	1330	150M28	14A	20M5		C28Mn	28Mn6	G13300	30G	
1.1178	S 30 C	C30E		080M30		XC32		C30	2C30	G10300		
1.1180		C35R	1035	080A35		3C35	1572		F.1135	G10350		
1.1181	S35C	C35E	1035	080A35		XC38	1572	C36	F.1130	G10340	35	
1.1191	S45C	Ck45	1045	080A46		XC45	1672	C45	F.1140		45	
1.1206	S 50 C	C50E	1050	080M50		2C50	1674	C50		G10500	50	
1.1213	S50C	Cf53	1050	070M55		XC48HTS	1674	C53		G10500	50	

P — VDI 3323 3

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Non-alloyed steel	About 0.45% C, Annealed	250	25

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0481	SG365	17 Mn 4/P 295 GH	A516 Gr.70	224-460B	P 295 GH	A 48 CP	2102	Fe E 295	A47RCI	K03501	14G2	
1.0501	S35C	C35	1035	080A32		1C35	1572	C35	F.1130	G10350	35	
1.0503	S45C	C45	1045	060A47		XC42H1TS	1672	C45	F.1140	G10450	45	
1.0614		C76D	1074			XC75				G10750		
1.0616		C86D	1086			XC80		C85		G10860		
1.0618		C92D	1095			XC90				G10950		
1.0726		35S20	1140	212M36	8M	35MF6	1957			G11400	40	
1.1157		40Mn4	1039	150M36	15	40M5				G10390	40G	
1.1165	SMn433H	30Mn5	1036	120M36		35M5		30Mn5	F.8211	K13300	30G2	
1.1167	SMn438(H)	36Mn5	1335	150M36		40M5	2120	36Mn6	F.1203	G13350	35G2	
1.1186	S40C	C40E	1040	060A40		2C40		C40		G10400		
1.1191	S45C	Ck45	1045	080M46		2C45	1672	C45	F.1140		45	
1.1201	S50C	C45R	1049	080M46		3C45	1660	C45	F.1145		38HM	
1.1213	S50C	Cf53	1050	070M55		XC48HTS	1674	C53		G10500	50	
1.7242	SCM 418 H	18CrMo4										
1.7337		16CrMo4-4	A387 Gr.12					A18CrMo45KW		K11564	15CM	
1.7362	SCMV6	12CrMo195		3606-625		Z10CD5-05		16CrMo205		K41545		
		17MnV6	A572-60	436055E		NFA35-501E36	2142					

MAT RIAL RO PS

P — VDI 3323 4

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Non-alloyed steel	About 0.75% C, Annealed	270	28

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0603	S70 C-CSP	C67	107	080A67		XC65		C67		G10700		
1.0605		C75	1075	144980HS				C75		G10740	75	
1.1203	S55C	Ck55	1055	060A57		2C55	1655	C55	F.1150	G10550	55	
1.1209		C55R	1055	070M55		3C55		C55	F.1155	G10550		
1.1221	S58C	Ck60	1060	060A62	43D	2C60	1678	C60	F.1150	G10640	60	
1.1231	S70 C-CSP	C67E	1070	060A67		XC68	1770	C70	F.5103	G10700	65GA	
1.1248	C75	C75E	1074	060A78		XC75	1774	C75	F.5107	G10800	75(A)	
1.1269	SK 5 -CSP	C85E	1086			XC90		C90		G10900	85(A)	
1.1274	SUP4	Ck 101	1095	060 A 96	C 100S	XC100	1870	C100	F.5117	G10950		
1.1545	SK 3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F.5118		U10A	
1.1663	SK 2	C125W	W112			Y2120					U13	

P — VDI 3323 5

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Non-alloyed steel	About 0.75% C, Quenched & Tempered	300	32

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0070		St 70-2	1055	Fe690-2FN	-	A70-2	1655	Fe 690	F.1150		55	
1.0535	S55C	C55	1055	070M55		1C55	1655	C55		J05000	55	
1.0601	S58C	C60	1060	060A62	43D	1C60		C60		G10600	60(G)	
1.1203	S55C	Ck55	1055	060A57		2C55	1655	C55	F.1150	G10550	55	
1.1221	S58C	Ck60	1060	060A62	43D	2C60	1678	C60	F.1150	G10640	60	
1.1274	SUP4	Ck 101	1095	060 A 96	C 100S	XC100	1870	C100	F.5117	G10950		
1.1545	SK 3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F.5118		U10A	
1.1663	SK 2	C125W	W112			Y2120					U13	
1.5120		38MnSi4										
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NC6						
1.7701		51CrMoV4						51CrMoV4				

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
6	Low-alloyed Steel	Annealed	180	10

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0116		St 37-3	A570 Gr. 36	4360-40C	S 235 J2 G3	E24-3	1312	Fe 360 D1(2)	AE235D		ST3KP	
1.0904	SKH 1, SKT 4	55Si7	9255	250A53	45	55S7	2085	55Si8	56Si7	G92550	55S2	
1.0961	SUP 7	60SiCr7	9262			60SC6		60SiCr8	60SiCr8	G92620		
1.2067		100Cr6	L3	BL3		Y100C6			100Cr6			
1.2108		90CrSi5	L1				2092	105WCR5				
1.2210		115CrV3	L2			100C3		107CrV3KU	F.520L		11KHF	
1.2241		51CrV4										
1.2330	SCM435TK	35CrMo4	4135	708A37		34CD4	2234	35CrMo4			35KHM	
1.2419	SKS31	105WCr6		105WC13		105WC13	2140	10WCr6			CWG	
1.2510	SKS3	100MnCrW4	O1	BO1		90 MWCV 5	2140	95 MnWCr 5 KU	F.5220		9KHVG	
1.2542		45WCrV7	S1	BS1			2710	45WCrV8KU			5CW25F	
1.2550		60WCrV7	S1			55WC20	2710	58WCr9KU			5KHV2SF	
1.2713	SKT4	55NiCrMoV6	L6			55NCDV7			F.520S		5CNM	
1.2721		50NiCr13	L6			55NCV6	2550		F.528			
1.2842		90MnCrV8	O2	BO2		90MV8				T31502	9G2F	
1.3501		100Cr2	E50100									
1.3505	SUJ2	100Cr6	52100	2S135	31	100C6	2258	100Cr6	F.1310		SC C 15	
1.5024		46Si7				45S7		46Si7	F.1451			
1.5025		51Si7	9259H		50Si7	51S7	2090	50Si7	F.1450			
1.5026		55Si7			56Si7	55S7	2085	55Si7	F.1440	G92550	55S2	
1.5027		60Si7	9260	251A60	60Si7	60S7		60Si7	F.1441	G92600	60S2	
1.5028	SUP7	65Si7	9260H									
1.5415	STFA 12	15Mo3	A204GrA	1503-243B		15D3	2912	16Mo3(KG)	F.2601	K11820		
1.5419	SCPH11	20Mo4	4419	1503-243-430			2512	G20Mo5		G44190		
1.5423	SB450M	16Mo5	4520	1503-245-420				16Mo5(KG)	F.2602	K11522		
1.5622		14Ni6	A350-LF5			16N6		14Ni6(KG)	F.2641			
1.5732	SNC415(H)	14NiCr10	3415			14NC11		16NiCr11				
1.5752	SNC815(H)	14NiCr14	3310	655M13	36A	12NC15					20X2H4A	
1.6511	SUP10	36CrNiMo4	9840	816M40	110	40NCD3		36NiCrMo4(KB)			40CN2MA	
1.6523	SNCM220(H)	21NiCrMo2	8620	805M20	362	20NCD2	2506	20NiCrMo2			20C GNM	
1.6546	SNCM240	40NiCrMo2-2	8740	311-Tyre7				40NiCrMo2(KB)			38C GNM	
1.6566		17NiCrMo6-4										
1.6587		17CrNiMo6		820A16		18NCD6		14NiCrMo13				
1.6657		10NiCrMo13-4						14NiCrMo131				
1.7015	SCr415(H)	10Cr3	5015	523M15		12C3				G50150	15C	
1.7033	SCr430(H)	34Cr4	5132	530A32	18B	32C4		34Cr4(KB)		G51300	35C	
1.7035	SCr440(H)	41Cr4	5140	530M40	18	42C4	2245	41Cr4		G51400	40H	
1.7131	SCR 415	16MnCr5	5115	527M17		16MC5	2511	16MnCr5		G51150	12KHN2	
1.7139		16MnCrS5					2127				18HG	
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3			50C GA	
1.7218	SCM420	25CrMo4	4130	CDS110		25CD4	2225	25CrMo4(KB)			20C M	
1.7220	SCM432	34CrMo4	4135	708 A 37		35CD4	2234	34CrMo4			35C M	
1.7223	SNB22-1	41CrMo4	4142					41CrMo4			40CFA	
1.7225	SCM 440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42CD4	2244	42 CrMo 4	F.1252		38HM	
1.7228		55NiCrMoV6G		823M30	33		2512	653M31				
1.7262	SCM415(H)	15CrMo5				12CD4	2216	12CrMo4				
1.7321		20mOcR4					2625					
1.7335	SCM415(H)	13CrMo4-4	A182-F11	1501-620		15CD4-5	2216	14CrMo45			12C M	
1.7361		32CrMo12		722M24	40B	30CD12	2240	30CrMo12	F.124A			
1.7380		10CrMo9-10	A182F22	1501-622		12CD9-10	2218	12CrMo9			12KH8	

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
6	Low-alloyed Steel	Annealed	180	10

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.7715		14MoV6-3		1503-660-440				13MoCrV6				
1.8159	SUP 10	50CrV4	6150	735A50	47	50CrV4	2230	50CrV4		G61500	50CGFA	
1.8161		58CrV4										
1.8509	SACM 645	41CrAlMo7	A355A	905M39	41B	40CAD6-12	2940	41CrAlMo7				
1.8523		39CrMoV13-9		897M39	40C			36CrMoV12				

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
7	Low-alloyed Steel	Quenched & Tempered	275	29

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.5415	STFA 12	15Mo3	A204GrA	1503-243B		15D3	2912	16Mo3(KG)	F.2601	K11820		
1.5423	SB450M	16Mo5	4520	1503-245-420				16Mo5(KG)	F.2602	K11522		
1.5622		14Ni6	A350-LF5			16N6		14Ni6(KG)	F.2641			
1.5732	SNC415(H)	14NiCr10	3415			14NC11		16NiCr11				
1.5752	SNC815(H)	14NiCr14	3310	655M13	36A	12NC15					20X2H4A	
1.5755	SNC236	31NiCr14		653M31		18NC13	2534		F.1270			
1.6565	SNCM447	40NiCrMo6	4340	817M40	24	35NCD6	2541	35NiCrMo6(KB)			38C 2N2MA	
1.6587		17CrNiMo6		820A16		18NCD6		14NiCrMo13				
1.6657		10NiCrMo13-4						14NiCrMo131				
1.6957		26NiCrMoV14-5										
1.7015	SCr415(H)	10Cr3	5015	523M15		12C3				G50150	15C	
1.7262	SCM415(H)	15CrMo5				12CD4	2216	12CrMo4				
1.7335	SCM415(H)	13CrMo4-4	A182-F11	1501-620		15CD4-5	2216	14CrMo45			12C M	
1.7380		10CrMo9-10	A182F22	1501-622		12CD9-10	2218	12CrMo9			12KH8	
1.7715		14MoV6-3		1503-660-440				13MoCrV6				
1.7733		24CrMoV55				20CDV6		21CrMoV511				
1.7755		GS-45CrMoV10-4										
1.8070		21CrMoV511						35NiCr9				

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
8	Low-alloyed Steel	Quenched & tempered	300	32

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.1730		C45W3	C45W			XC48						
1.2332	SCM(440)	47CrMo4	4142	708M40	19A	42CD4	2244	42CrMo4				
1.5736	SNC 631 (H)	36NiCr10	3435			30NC11						
1.6523	SNCM220(H)	21NiCrMo2	8620	805M20	362	20NCD2	2506	20NiCrMo2			20C GNM	
1.7033	SCr430(H)	34Cr4	5132	530A32	18B	32C4		34Cr4(KB)		G51300	35C	
1.7218	SCM420	25CrMo4	4130	CDS110		25CD4	2225	25CrMo4(KB)			20C M	
1.8515		32CrMo12		722M24	40B	30CD12	2240	32CrMo12	F.124A			

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
9	Low-alloyed Steel	Quenched & Tempered	350	38

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0904	SKH 1, SKT 4	55Si7	9255	250A53	45	55S7	2085	55Si8		G92550	55S2	
1.0961	SUP 7	60SiCr7	9262			60SiCr8		60SiCr8		G92620		
1.2067		100Cr6	L3	BL3		Y100C6		100Cr6				
1.2419	SKS31	105WCr6		105WC13		105WC13	2140	10WCr6			CWG	
1.2542		45WCrV7	S1	BS1			2710	45WCrV8KU			5CW25F	
1.2713	SKT4	55NiCrMoV6	L6			55NCDV7			F.5205		5CNM	
1.4882		X50CrMnNiNbN219				Z50CMNNb21-09						
1.5120		38MnSi4										
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NC6						
1.5755	SNC236	31NiCr14		830m31		18NC13	2534		F.1270			
1.6511	SUP10	36CrNiMo4	9840	816M40	110	40NCD3		36NiCrMo4(KB)			40CN2MA	
1.6546	SNCM240	40NiCrMo2-2	8740	311-Tyre7				40NiCrMo2(KB)			38CGNM	
1.7035	SCr440(H)	41Cr4	5140	530M40	18	42C4	2245	41Cr4		G51400	40H	
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3			50CGA	
1.7220	SCM432	34CrMo4	4135	708Aa37		35CD4	2234	34CrMo4			35CM	
1.7223	SNB22-1	41CrMo4	4142					41CrMo4			40CFA	
1.7225	SCM 440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42CD4	2244	42 CrMo 4	F.1252		38HM	
1.7361		32CrMo12		722M24	40B	30CD12	2240	30CrMo12	F.124A			
1.8159	SUP 10	50CrV4	6150	735A50	47	50CrV4	2230	50CrV4	51CrV4	G61500	50CGFA	
1.8161		58CrV4										
1.8509	SACM 645	41CrAlMo7	A355A	905M39	41B	40CAD6-12	2940	41CrAlMo7				
1.8523		39CrMoV13-9		897M39	40C			36CrMoV12				

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
10	High-alloyed steel, and tool steel	Annealed	200	15

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0347	SPCD	RR St 3	A619	CR 3	Fe P03	F 13		DC03/FeP03			08JU	
1.0723	SUM32	15S22		210A15			1922		F.210F			
1.2080	SKD1	X210Cr12	D3	BD3	X210Cr12	Z200C12		X205Cr12KU		T30403	KH12	
1.2162	SCR 420 H	21MnCr5				20MC5						
1.2311		40CrMnMo7				40CMD8		35cRmO8KU				
1.2312		40CrMnMoS8.6	P20+S			40CMD8S						
1.2316		X36CrMo17			X38CrMo16							
1.2343	SKD 6	X38CrMoV5-1	H11	BH11		Z38CDV5		X37CrMoV51KU		T20811	4C5MFS	
1.2344	SKD61	X40CrMoV5-1	H13	BH13		Z40CDV5	2242	X40CrMoV511KU	F.5318	T20813	4C 5MF1S	
1.2363	SKD12	X100CrMoV5-1	A2	BA2		Z100CDV5	2260	X100CrMoV51KU	F.5227		9KH5VF	
1.2379	SKD11	X155CrVMo121	D2	BD2		Z160CDV12	2310	X165CrMoW12KU		T30402	KH12MF	KRUPP2379
1.2436	SKD 2	X210CrW12	D4(D6)	BD6		Z200CD12	2312	X215CrW121KU	F.5213		KH12	

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
10	High-alloyed steel, and tool steel	Annealed	200	15

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.2510	SKS3	100MnCrW4	O1	BO1		90 MWCV 5	2140	95 MnWCr5 KU	F.5220		9KHVG	
1.2581	SKD5	X30WCrV9-3	H21	BH21		Z30WCV9		X30WCrV93KU	F.526	T20821	3C2W8F	
1.2601		X165CrMoV12					2310	X160CrMoV12			KH12MF	
1.2606	SKD 62	X37CrMoW51	H12	BH12		Z35CWDV5		X35CrMoW05KU	F.537	T20812	5CNM	
1.2764		X19NiCrMo4										
1.2767		X45NiCrMo4				45NCD16		40NiCrMoV8KU				
1.2842		90MnCrV8	O2	B02		90MV8		90MnVCr8KU		T31502	9G2F	
1.3243	SKH55	S6-5-2-5	T15			KCV06-05-05-04-02	2723	HS6-5-2-5			R6M5K5	
1.3249	SKH 3	S18-1-2-5	T4	BT4		Z80WKCV18-05-04					R18KSF2	
1.3343	SKH51, SKH9	S6-5-2	M2	BM2		Z85WDCV	2722	HS652	F.5604		R6M5	
1.3348	SKH 58	S2-9-2	M7			Z100DCWV09-04-02	2782	HS292	F.5607			
1.3355	SKH 2	S18-0-1	T1	BT1		Z80WCV18-4-01					R18	
1.4718	SUH1	X45CrSi9-3	HNV3	401S45	52	Z45CS9		X45CrSi8	F.322		40C 9S2	
1.5662	SL9N60(53)	X8Ni9	ASMA353	502-650		9Ni		X10Ni9	F.2645			
1.5680		12Ni19	2S15	12Ni19		Z18N5						

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
11	High-alloyed steel, and tool steel	Quenched & Tempered	325	35

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.2080	SKD1	X210Cr12	D3	BD3	X210Cr12	Z200C12		X205Cr12KU		T30403	KH12	
1.2344	SKD61	X40CrMoV5-1	H13	BH13		Z40CDV5	2242	X40CrMoV511KU	F.5318	T20813	4C 5MF1S	
1.2363	SKD12	X100CrMoV5-1	A2	BA2		Z100CDV5	2260	X100CrMoV51KU	F.5227		9KH5VF	
1.2436	SKD 2	X210CrW12	D4(D6)	BD6		Z200CD12	2312	X215CrW121KU	F.5213		KH12	
1.2581	SKD5	X30WCrV9-3	H21	BH21		Z30WCV9		X30WCrV93KU	F.526	T20821	3C2W8F	
1.2601		X165CrMoV12					2310	X160CrMoV12			KH12MF	
1.2714	SKT 4	55NiCrMoV7	6F3/L6			55NiCrMoV7			F.5205		5KHNV	
1.3202		S12-1-4-5		BT15				HS12-1-5-5				
1.3207		S10-4-3-10		BT42		Z130WKCDV						
1.3243	SKH55	S6-5-2-5	T15			KCV06-05-05-04-02	2723	HS6-5-2-5			R6M5K5	
1.3246		S7-4-2-5	M35			Z110WKCDV07-05-04		HS7-4-2-5				
1.3247	SKH 51	S2-10-1-8	M42	BM42		Z110DKCWV09-08-04		HS2-9-1-8			R2AM9K5	
1.3255	SKH 3	S18-1-2-5	T4	BT4		Z80WKCV18-05-04					R18KSF2	
1.3343	SKH51, SKH9	S6-5-2	M2	BM2		Z85WDCV	2722	HS652	F.5604		R6M5	
1.3348	SKH 58	S2-9-2	M7			Z100DCWV09-04-02	2782	HS292	F.5607			
1.3355	SKH 2	S18-0-1	T1	BT1		Z80WCV18-4-01					R18	
1.4718	SUH1	X45CrSi9-3	HNV3	401S45	52	Z45CS9		X45CrSi8	F.322		40C 9S2	
1.4935	SUH 616	X20CrMoWV121	422							S42200		
1.5680		12Ni19	2S15	12Ni19		Z18N5						

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VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
12	Stainless steel	Ferritic / Martensitic, Annealed	200	15

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4000	SUS403	X6Cr13	403	403S17		Z6C13	2301	X6Cr13	F.3110	S40300	08C 13	ATI 410S
1.4001		X7Cr14	410S	403S7		ZBC13	2301		F.8401		08C 13	
1.4002	SUS405	X6CrAl13	405	405S17		Z6CA13	2302	X6CrAl13		S40500		
1.4005	SUS416	X12CrS13	416	416S21		Z11CF13	2380	X12CrSC13	F.3411	S41600		ATI 416
1.4006	SUS410	X12Cr13	410	410S21	56A	Z10C13	2302	X12Cr13	F.3401	S41000	12C 13	ATI 410
1.4016	SUS430	X6Cr17	430	430S15	X8Cr17	ZBC17	2320	X8Cr17	F3113	S43000	12C 17	ATI 430
1.4027	SCS 2	GX20Cr14		420C29		Z20C13M					20C 13L	
1.4028	SUS420J2	X30Cr13	420	420S45		Z30C13	2304			S42020	20C 13	
1.4034	SUS420J2	X46Cr13		420S45		Z40C14		X40Cr14	F.3405			
1.4057	SUS431	X19CrNi17-2	431	431S29	57	Z15CN16-02	2321	X16CrNi16	F.3427	S43100	20C 17N2	431 (HT)
1.4086		GX120Cr29		452C11								
1.4104	SUS430F	X12CrMoS17	430F	420S37		Z10CF17	2383	X10CrS17	F.3117	S43020		
1.4112	SUS 440 B	X90CrMoV18	440B							S44003	95KH18	
1.4113	SUS434	X6CrMo17	434	434S17		Z8CD17-01	2325	X8CrMo17		S43400		AL 434
1.4313	SCS5	X3CrNi13-4	CA6-NM	425C11		Z4CND13-04M	2385	(G)X6CrNi304		J91540		
1.4340		GX40CrNi274								J92615		
1.4417		X2CrNiM05S195	S31500				2376			S39215		
1.4418		X4CrNiMo165				Z6CND16-04-01	2387					APX4
1.4510	SUS430LX	X6CrTi17	XM8			Z4CT17		X6CrTi17	F.3115	S43035	08C 17T	430 Ti
1.4511	SUS430LK	X6CrNb17				Z4CNb17		X6CrNb17	F.3122			AXC525
1.4512	SUH409	X6CrTi12	409	LW19		Z3CT12		X6CrTi12		S40900		
1.4720		X20CrMo13										
1.4724	SUS405	X10CrAl13	405	403S17		Z10C13		X10CrAl12	F.311		10C 13SJU	
1.4742	SUS430	X10CrAl18	430	439S15	60	Z10CAS18		X8Cr17	F.3113	S43000	15C 13SJU	
1.4747	SUH4	X80CrNiSi20	HNV6	443S65	59	Z80CSN20-02		X80CrSiNi20	F.3208	S65006		
1.4749		X18CrN28	446								15KH28	
1.4762	SUH446	X10CrAl24	446			Z10CAS24	2322	X16Cr26		S44600		
1.4871	SUH35,SUH36	X53CrMnNiN21-9	EV8	349S54		Z52CMN21-09		X53CrMnNiN219		S63008	55C 20G9AN4	
		X10CrNi15	429									
		X12CrNi18-9	302	302S31		Z10CN18-09	2330					

M 13

VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
13	Stainless steel	Martensitic, Quenched & Tempered	240	23

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4000	SUS403	X6Cr13	403	403S17		Z6C13	2301	X6Cr13	F.3110	S40300	08C 13	ATI 410S
1.4001		X7Cr14	410S	403S7		ZBC13	2301		F.8401		08C 13	
1.4006	SUS410	X12Cr13	410	410S21	56A	Z10C13	2302	X12Cr13	F.3401	S41000	12C 13	ATI 410
1.4016	SUS430	X6Cr17	430	430S15	X8Cr17	ZBC17	2320	X8Cr17	F.3113	S43000	12C 17	ATI 430
1.4021	SUS 420J1	X20Cr13	420	420S37		Z20C13	2303	14210	F.5261	S42000	20C 13	ATI 420
1.4027	SCS 2	GX20Cr14		420C29		Z20C13M					20C 13L	
1.4031	SUS 420 J2	X40Cr13	420			Z40C14	-2304		F.3404	S42080	40C 13	
1.4034	SUS420J2	X46Cr13		420S45		Z40C14		X40Cr14	F.3405			
1.4057	SUS431	X19CrNi17-2	431	431S29	57	Z15CN16-02	2321	X16CrNi16	F.3427	S43100	20C 17N2	431 (HT)
1.4104	SUS430F	X12CrMoS17	430F	420S37		Z10CF17	2383	X10CrS17	F.3117	S43020		
1.4113	SUS434	X6CrMo17	434	434S17		Z8CD17-01	2325	X8CrMo17		S43400		AL 434
1.4313	SCS5	X3CrNi13-4	CA6-NM	425C11		Z4CND13-04M	2385	(G)X6CrNi304		J91540		
1.4544		A 700	321	S.524		Z 10 CNT 1811		X6CrNiTi1811		J92630	08C 18N12T	
1.4546		X5CrNiNb18-10	348	347S31				X6CrNiNb1811		J92640		ATI 348
1.4871	SUH35,SUH36	X53CrMnNiN21-9	EV8	349S54		Z52CMN21-09		X53CrMnNiN219		S63008	55C 20G9AN4	
1.4922		X20cRmV12-1					2317	x20cRmOn11201				
1.4923		X22CrMoV121										Jethete X20

MAT RIAL RO PS

M 14

VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
14	Stainless steel	Austenitic	180	10

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4301	SUS 304	X5CrNi18-10	304	304S15		Z5CN18-09	2332		F.3551	S30409	08C 18N10	
1.4305	SUS303	X10CrNiS18-10	303	303S21	58M	Z8CNF18-09	2346	X10CrNiS18.09	F.3508	S30300	30C 18N11	ATI 303
1.4306	SCS19	X2CrNi1911	304L	304C12	X3CrNi1810KD	Z2CN18-09	2352	GX2CrNi1910	F.3503	S30403	03KH18N11	ATI 304L
1.4308	SUS304L	GX6CrNi18-9	CF-8	304C15	58E	Z6CN18-10M	2333					CF-8
1.4310	SUS 301	X10CrNi18-8	301	301S21		Z12CN17-07	2331	X2CrNi1807	F.3517	S30100	07KH16N6	ATI 301
1.4311	SUS304LN	X2CrNiN18 10	304LN	304S62		Z2CN18-10	2371	X2CrNiN1810	F.3541	S30453	03KH18N11	
1.4312	SCS12	GX10CrNi188	305	302C25		Z10CN18-9M					10C 18N9L	ATI 305
1.4350	SUS304	X5CrNi18-9	304	304S15	58E	Z6CN18-09	2332	X5CrNi1810	F.3551	S30400		ATI 304
1.4362		X2CrNiN234	S32304			Z2CN23-04AZ	2327			S32304		ATI 2304TM
1.4371		X3CrMnNiN18887	202	284S16		Z8CMN18-08-05						
1.4401	SUS316	X5CrNiMo17-12-2	316	316S13		Z3CND17-11-01	2347	X5CrNiMo17 12 2	F.3534	S31600	08KH17H13M2T	ATI 316
1.4404	SUS316L	X2CrNiMo17-13-2	316L	316S11		Z2CND17-12	2348	X2CrNiMo1712	F.3533	S31603		ATI 316L
1.4406	SUS316LN	X2CrNiMoN17122	316LN	316S61		Z2CND17-12AZ		X2CrNiMoN1712	F.3542	S31653	07C 18N	ATI 316LN
1.4408	SCS14	GX6CrNiMo18-10	CF-8M	316C16			2343	X7CrNiMo2010	F8414	J92900	10G2S2MSL	
1.4410	SCS 14 A	GX10CrNiMo18-9				Z5CND20-12M	2328			S32750		
1.4429	SUS316LN	X2CrNiMoN17-13-3	316Ln	316S62		Z2CND17-13AZ	2375	X2CrNiMoN17133	F.3543		03KH16N15M3	
1.4435	SUS316L	X2CrNiMo18143	316L	316S11		Z3CND17-12-03	2375	X2CrNiMo1713 2	F.3533	S31603	O3C 17N 14M3	
1.4436	SUS316	X3CrNiMo17-13-3	316	316S19		Z6CND18-12-03	2343	X5CrNiMo17 12 2	F.3543	S31600		
1.4438	SUS317L	X2CrNiMo18164	317L	317S12		Z2CND19-15-04	2367	X2CrNiMo18 16 4	F.3539	S31703		ATI 317L
1.4439		X2CrNiMoN17135	(s31726)			Z3CND18-14-06AZ						
1.4440		X2CrNiMo18-16										
1.4449	SUS317	X5CrNiMo17133	317	317S16				X5CrNiMo1815		S31700		ATI 317
1.4460	SUS 329 J1	X8CrNiMo275	329				2324			S32900		10RE51
1.4462	SUS329J3L	X2CrNiMoN2253		318S13		Z3CND22-05Az	2377			S31803		ATI 2205TM
1.4500		X7NiCrMoCuNb2520				23NCDU25-20M				J95150		
1.4521	SUS444	X2CrMoTi18-2	443444				2326	X2CrMoTiNb182	F.3123			
1.4539		X1NiCrMoCuN25205				Z2NCDU25-20	2562			N08904		ATI 904L
1.4541	SUS321	X14CrNiTi18-10	321	321S31		Z6CNT18-10	2337	X6CrNiTi18 11	F.3523	S32100	06C 18N10T	ATI 321
1.4542	SUS630	X5CrNiCuNb174	630			Z7CNU15-05						UGIMA 4542
1.4545		Z7CNU15.05	15-5PH							S15500		ATI 15-5
1.4547		X1CrNiMoN20187	S31254				2378			S31254		Uanus B25 6Mo
1.4550	SUS347	X6CrNiNb18-10	347	347S17	58F	Z6CNNb18-10	2338	X6CrNiNb1811	F.3552	S34700	08C 18N12B	ATI 347
1.4552	SCS 21	GX7CrNiNb18-9				Z4CNNb19-10M				J92710		
1.4568	SUS631	X 7 CrNiAl17 7		316S111		Z 9 CAN 17-7	2388	Z8CNA17-07		S17700	09C 17NJU1	17-7PH
1.4571	SUS 316Ti	X6CrNiMoTi17-12-2	316Ti	320S31	58J	Z6NDT17-12	2350	X6CrNiMoTi17 12	F.3535		10C 17N13M2T	ATI 316Ti
1.4581	SCS 22	GX5CrNiMoNb18		318C17		Z4CNDNb18-12M						
1.4583		X6CrNiMoNB18-12	318	303S21		Z15CNS20-12		X15CrNiSi2 12				
1.4585		GX7CrNiMoCuNb1818						X6CrNiMoTi17 12		J94651		
1.4821		X20CrNiSi254				Z20CNS25-04				S44635		
1.4823		GX40CrNiSi274								J92605		
1.4828	SCS17	X15CrNiSi20-12	309	309S24	58C	Z15CNS20-12			F.8414	S30900	20C 20N14S2	ATI 309
1.4833	SUS 309S	X6CrNi2213	309S	309S13		Z15CN24-13				J93400		
1.4845	SUH310	X12CrNi25-21	310S	310S24		Z12CN25-20	2361	X6CrNi2520	F.331	S31008	20C 23N18	ATI 310S
1.4878	SUS321	X12CrNiTi18-9	321	321S20	58B	Z6CNT18-12(B)	2337	X6CrNiTi1811	F.3553	S32100		ACX315
1.4891		X5CrNiNb18-10	S.s30415				2372					
1.4893		X8CrNiNb11	S30815				2368					
1.4948		X6CrNi1811	304H	304S51		Z5CN18-09	2333			S30480		
1.4980		X5NiCrTi2515	660				2570			S66286		Incoloy A 286
		X5NiCrN3525										
		X2CrNiMoN18134	S31753									
		X2CrNiMoN25227										

K — VDI 3323 15

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Grey cast iron	Pearlitic / Ferritic	180	10

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.6010	FC100	GG10	A48 20B	Grade 100	GJL-100	Ft 10 D	0100	G10	FG10		Sc 10	
0.6015	FC150	GG15	A48 25B	Grade 150	GJL-150	Ft 15 D	0115	G15	FG15		Sc 15	
0.6020	FC200	GG20	A48 30B	Grade 220	GJL-200	Ft 20 D	0120	G20	FG20	W06020	Sc 20	
0.6025	FC250	GG25	A48 40B	Grade 260	GJL-250	Ft 25 D	0125	G25	FG25		Sc 25	
0.6660		GGL-NiCr 20 2	1050/700/7	Grade F2	GJLA-XNiCr 20-2	L-NC 202	0523	-		F41002		Ni-Resist 2
1.4449	SUS317	X5CrNiMo17133	317	317S16				X5CrNiMo1815		S31700		ATI 317

K — VDI 3323 16

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Grey cast iron	Pearlitic (Martensitic)	260	26

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.6025	FC250	GG25	A48 40B	Grade 260	GJL-250	Ft 25 D	0125	G25	FG25		Sc 25	
0.6030	FC300	GG30	A48 45B	Grade 300	GJL-300	Ft 30 D	0130	G30	FG30		Sc 30	
0.6035	FC350	GG35	A48 50B	Grade 350	GJL-350	Ft 35 D	0135	G35	FG35		Sc 35	
0.6040	FC400	GG40	A48 60B	Grade 400	GJL-400	Ft 40 D	0140	G40	FC40		Sc 40	

K — VDI 3323 17

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Nodular cast iron	Ferritic	160	3

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.7033	FCD350-22L	GGG35.3	-	350/22L40	GJS-350-22-LT	FGS 370-17	0717-15	-				
0.7040	FCD400	GGG40	60-40-18	SNG 420-12	GJS-400-15	FCS 400-12	0717-02	GS 400-12	FG E38-17	F32800	Vc 42-12	
0.7043	FCD 370	GGG40.3	60-40-18	SNG 370-17	GJS-400-18-LT	FGS 370-17	0717-12	GSO 42-17			Vc 42-12	
0.6040	FC400	GG40	A48 60B	Grade 400	GJL-400	Ft 40 D	0140	G40	FC40		Sc 40	

K — VDI 3323 18

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Nodular cast iron	Pearlitic	250	25

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.7050	FCD500	GGG50	80-55-06	SNG 500-7	GJS-500-7	FGS 500-7	0727-02	GS 500-7	FG E50-7	F33100	Vc 50-2	
0.7060	FCD600	GGG60	80-55-06	SNG 600-3	GJS-600-3	FGS 600-3	0732-03	GS 600-3	FG E60-2		Vc 60-2	
0.7070	FCD700	GGG70	100-70-03	SNG 700-2	GJS-700-2	FGS 700-2	0737-01	GS 700-2	FG S70-2	F34800	Vc 70-2	
0.7652	FCDA-NiMn137	GGG NiMn 13-7	-	Grade S6	GJSA-XNiMn 13-7	FGS Ni13 Mn7	0772	-				Nodumag
0.7660		GGG NiCr 20-2	A436 D2	Grade S2	GJSA-XNiCr 20-2	FGS Ni20 Cr2	0776	-				Ni-Resist D-2

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K — VDI 3323 19

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Malleable cast iron	Ferritic	130	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.8135	FCMW330	GTS-35	32510	B 340-12	GJMB350-10	MN 35-10	0815	GMN 35	GTS35		Kc 35-10	

K — VDI 3323 20

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Malleable cast iron	Pearlitic	230	21

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.8145	FCMW370	GTS-45	A220-40010	P 440-7	GJMB450-6	MN 450	0852	GMN 45				
0.8155	FCMP490	GTS-55	50005	P 510-4	GJMB-550-4	MP 50-5	0854	GMN 55			Kc 60-3	
0.8165	FCMP590	GTS-65	70003	P 570-3	GJMB-650-2	MN 650-3	0856	GMN 65				
0.8170	FCMP690	GTS-70	90001	P 690-2	GJMB-700-2	MN 700-2	0862	GMN 70			Kc 70-2	

N — VDI 3323 21

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Aluminum-wrought alloy	Not Curable	60	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
3.0205		Al99	Al99									
3.0255	(A1050)	Al99.5	1000	L31		A59050C					D1	
3.3315		AlMg1										

N — VDI 3323 22

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Aluminum-wrought alloy	Curable, Hardened	100	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
3.1325		AlCuMg1									AD35	
3.1655	A2011	AlCuSiPb										
3.2315		AlMgSi1									AK9	
3.4345		AlZnMgCuO,5	7050	L86		AZ4GU/9051		811-04				
3.4365	7075	AlZnMgCu1,5	7075	7075		7075		AlZn5.8MgCuCr			B95	

N — VDI 3323 23

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
3.2163		G-AlSi9Cu3									VAL8	
3.2382		GD-AlSi10Mg										
3.2383		G-AlSi0Mg(Cu)	A360.2	LM9			4253					
3.2581		G-AlSi12										
3.3561		G-AlMg5										
3.5101		G-MgZn4sE1Zr1	ZE41	MAG5								
3.5103		MgSE3Zn2Zr1	EZ33	MAG6		G-TR3Z2						
3.5812		G-MgAl8Zn1	AZ81	NMAG1								
3.5912		G-MgAl9Zn1	AZ91	MAG7								
			A356-72	2789		NFA32-201						
	A5052		356.1	LM25			4244				AK7	
		G-AlSi12	A413.2	LM6			4261					
	ADC12	G-AlSi12(Cu)	A413.1	LM20			4260				AK12	
	A6061	GD-AlSi 12	A413.0				4247					
	A7075	GD-AlSi8Cu3	A380.1	LM24			4250					

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N — VDI 3323 24

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Aluminum-cast, alloyed	≤ 12% Si, Curable, Hardened	90	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.1871		G-AlCu4TiMg										
3.1754		G-AlCu5Ni1,5										
3.2371		G-AlSi7Mg	4218B								AK8	
3.2373	C4BS	G-AlSi9MGWA	SC64D			A-S7G	4251				AK9	
3.2381		G-AlSi 10Mg									AK12	
3.5106		G-MgAg3SE2Zr1	QE22	mag12								
		G-ALMG5	GD-AlSI12	LM5		A-5U12	4252					

N — VDI 3323 26

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Copper and Copper Alloys (Bronze / Brass)	Cutting alloys, PB>1%	110	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.0375		CuZn36Pb3									LS60-2	
2.1090		G-CuSn75pb	C93200			U-E7Z5pb4						
2.1096		G-CuSn5ZnPb	c83600	LG2								
2.1098		G-CuSn2Znpb	C83600									
2.1182		G-CuPb15Sn	C23000	LB1		U-pb15E8						

N — VDI 3323 27

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Copper and copper alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.0240	C2300	CuZn15									L90	
2.0321		CuZn37	C27200	cz108		CuZn36,CuZn37		C2700			L63	
2.0590		G-CuZn40Fe										
2.0592		G-CuZn35Al1	C86500	U-Z36N3		HTB1						
2.0596		G-CuZn34Al2	C86200	HTB1		U-Z36N3					LTs23AD	
2.1293		CuCrZr	C18200	CC102		U-Cr0-8Zr						

N — VDI 3323 28

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Copper and copper alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper	100	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.0060		E-Cu57										
2.0966		CuAl10Ni5Fe4	C63000	Ca104		U-A10N					BrAD	
2.0975		G-CuAl10Ni	B-148-52									
2.1050		G-CuSn 10	c90700	CT1								
2.1052		G-CuSn 12	C90800	pb2		UE12P						
2.1292		G-CuGrF35	C81500	CC1-FF								

S — VDI 3323 31

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Heat resistant superalloys	Fe Based, Annealed	200	15

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4558	NCF 800TB	X2NiCrAlTi3220	N08800	NA15								
1.4562		X1NiCrMoCu32287	N08031									
1.4563		X1NiCrMoCuN31274	N08028			Z1NCDU31-27-03	2584				EK77	
1.4864	SUH330	X12NiCrSi36-16	330	NA17		Z12NCS37-18				N08330		
1.4865	SCH15	GX40NiCrSi38-18		330C40				XG50NiCr3919		J94605		
1.4958		X5NiCrAlTi3120										

S — VDI 3323 32

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Heat resistant superalloys	Fe Based, Aged	280	30

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4977		X40CoCrNi2020				Z42CNKDWNb						

S — VDI 3323 33

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Heat resistant superalloys	Ni or Co Based, Annealed	250	25

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4360		NiCu30Fe		NA13		NU30				N04400		Monel400
2.4603		NiCr 30FeMo	5390A			NC22FeD						Hastelloy G-30
2.4610		NiMo16cR16Ti								N26455		HastelloyC-4
2.4630		NiCr20Ti		HR5,203-4		NC20T				N06075		Nimonic75
2.4631	NCF 80A	NiCr20TiAl		Hr40		NC20TA				N07080	KHN77TYuR	Nimonic 80A
2.4642	NCF 690	NiC29Fe				Nnc30Fe				N06690		Inconel 690
2.4856		NiCr22Mo9Nb		NA21		NC22FeDNb				N06625		Inconel 625
2.4858		NiCr21Mo		NA16		NC21FeDU				N08825	KHN38VT	Incoloy 825

S — VDI 3323 34

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Heat resistant superalloys	Ni or Co Based, Aged	350	38

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4375		NiCu30Al	4676	NA18		NU30AT				N05500		Monelk500
2.4662		NiFe35Cr14MoTi	5660			Z5NCDT42				N09901		Incoloy 901
2.4668		NiCr19Fe19NbMo	5383	HR8		NC19eNB				N07718		Inconel 718
2.4670		S-NiCr13A16MoNb	5391	Mar-46		NC12AD						Nimocast 713
2.4694		NiCr16fE7TiAl								N07751		Inconel 751
2.4955		NiFe25Cr20NbTi										
2.4964		CoCr20W15Ni	5772			KC20WN						Haynes 25
		CoCr22W14Ni	AMS 5772			KC22WN						

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S — VDI 3323 35

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Heat resistant superalloys	Ni or Co Based, Cast	320	34

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4669		NiCr15Fe7TiAl				NC15TNbA				N07750		Inconel X750
2.4685		G-NiMo28								N10665		Hastelloy B
2.4810		G-NiMo30										Hastelloy C
2.4973		NiCr19Co11MoTi	AMS 5399			NC19KDT					VT5-1	
3.7115		TiAl5Sn2								R54520	VT1-00	ATI Grade 6

S — VDI 3323 36

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Titanium alloys	Pure Titanium	400 Rm	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4674		NiCo15Cr10MoAlTi	AMS 5397							N13100		IN 100
3.7025		Ti1	R50250	2TA1						R50250		ATI 30 CP Gr. 1
3.7225		Ti1pd	R52250	TP1						R52250		

S — VDI 3323 37

Material Description	Composition / Structure / Heat Treatment	HB	HRc
Titanium alloys	Alpha + Beta Alloys, Hardened	1050 Rm	

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
3.7124		TiCu2		2TA21-24								
3.7145		TiAl6Sn2Zr4Mo2Si	R54620							R54620		
3.7165		TiAl6V4	AMS R56400	TA10-13		T-A6V					VT6	
3.7185		TiAl4Mo4Sn2		TA45-51								
3.7195		TiAl3V2.5								R56320		ATI 3-2.5
		TiAl4Mo4Sn4Si0.5										
		TiAl5Sn2.5	AMS R54520	TA14/17		T-A5E						
		Ti6Al4VELI	AMS R56401	TA11								

H

VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
38	Hardened steel	Hardened	550	55

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.1231	S70 C-CSP	Ck67	1070	060 A 67	C67S	XC68	1770	C70	F.5103		70	
1.1248	C75	Ck75	1078, 1080	060 A 78	C75S	XC75	1774	C75	F.5107		75	
1.1274	SUP 4	Ck101	1095	060 A 96	C 100S	XC100	1870	C100	F.5117			
1.1545	SK 3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F.5118		U10A	
1.2762		75CrMoNiW67	-	-	-	-	-	-				
1.3401	SCMnH1	GX120Mn12	A128(A)			Z120M12	2183	GX120Mn12	F.8251		110G13L	
1.4021	SUS 420 J1	X 20 Cr 13	420	420 S 37	X 20 Cr 13	Z 20 C 13	2303	X 20 Cr13	F.5261		20KH13	ATI 420
1.4109	SUS 440 A	X 65 CrMo 14	440 A	-	X 70 CrMo 15	Z 70 D 14	-	-				ATI 440A
1.4112	SUS 440 B	X 90 CrMoV 18	440 B	409 S 19	X 90 CrMoV 18	Z 2 CND 18 05	2327	X CrTi 12				
1.4125	SUS 440 C	X 105 CrMo 17	440 C	-	X 105 CrMo 17	Z 100 CD 17	-	X 105 CrMo 17			95KH18	ATI 440C
1.6746		32NiCrMo 14-5	-	832M31	32nlcRmO145	35NCD14	-	-				
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3				
1.7225	SCM 440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42CD4	2244	42 CrMo 4	F.1252		38HM	

H

VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
40	Chilled cast iron	Cast	400	42

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.9620		GX260NiCr42	A532 IB	Grade 2 A	GJN-HV520	FB Ni4 Cr2 BC	0512	-		F45001		Ni-Hard 2
0.9625		GX330NiCr42	A532 IA	Grade 2 B	GJN-HV550	FB Ni4 Cr2 HC	0513	-		F45000		Ni-Hard 1
0.9630		GX300CrNiSi 9 5 2	A532 ID	Grade 2 C	GJN-HV600	FB Cr9 Ni5	0457	-		F45003		Ni-Hard 4
0.9640		GX300CrMoNi1521	-	-	-	-	-	-		F45005		
0.9650		GX260Cr27	-	Grade 3 D		-	0466	-				
0.9655		GX300CrNMo271	-	Grade 3 E		-	-	-			20C 25N20S2	
1.4841	SUH 310	X15CrNiSi25-20	310	314S31	X 15 CrNiSi 25 20	Z15CNS25-20	-	-		S31400		Cronifer 2520

H

VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
41	Hardened cast iron	Hardened	550	55

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.9635		GX300 CrMo 15 3	-	-	-	-	-	-				
0.9645		GX260 CrMoNi 2021	-	-	-	-	-	-		F45007		

COMPARISON CHART SCAL FOR HARDN SS

Rockwell Hardness C Scale 150kg Brale (HRc)	Diamond Pyramid Hardness Number. Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm²
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520

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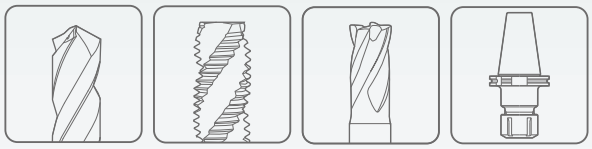

HOLEMAKING TOOLS

i-ONE DRILLS, CARBIDE INSERTS & HOLDERS
i-DREAM DRILLS, CARBIDE INSERTS & HOLDERS
SOLID CARBIDE DREAM DRILLS - PRO (with & without Coolant Holes)
SOLID CARBIDE DREAM DRILLS - GENERAL (with & without Coolant Holes)
SOLID CARBIDE DREAM DRILLS - HIGH FEED (with Coolant Holes)
SOLID CARBIDE DREAM DRILLS - FLAT BOTTOM (with & without Coolant Holes)
SOLID CARBIDE DREAM DRILLS - INOX (with Coolant Holes)
SOLID CARBIDE DREAM DRILLS - ALU (with Coolant Holes)
SOLID CARBIDE DREAM DRILLS - MQL TYPE (with Coolant Holes)
SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS (without Coolant Holes)
GENERAL SOLID CARBIDE DRILLS (JOBBER & STUB LENGTH)
HSS-PM MULTI-1 DRILLS
HSSCo8 & HSS-E HPD STRAIGHT SHANK DRILLS
HSS & HSS-E GOLD-P DRILLS
SUPER HSS SUPER-GP DRILLS
HSS, HSS-E & HSSCo8 STRAIGHT SHANK DRILLS
HSS & HSS-E MORSE TAPER SHANK DRILLS
SOLID CARBIDE & HSSCo8 NC-SPOTTING DRILLS
SOLID CARBIDE, HSS & HSS-E CENTER DRILLS
SPADE DRILLS, INSERTS & HOLDERS
CARBIDE, HSS & HSS-E REAMERS
HSS & HSSCo8 COUNTERSINKS
HSS-E COUNTERBORES
TECHNICAL DATA

YG-1 CO., LTD.

CONTENTS

HOLEMAKING TOOLS

CARBIDE EXCHANGEABLE DRILLS

- **i-ONE DRILLS**, CARBIDE INSERTS & HOLDERS — High Performance Exchangeable for General Steels and Cast Iron (i-ONE DRILLS)
- **i-DREAM DRILLS**, CARBIDE INSERTS & HOLDERS — For General Steels and Stainless Steels (i-DREAM DRILLS)

SOLID CARBIDE DRILLS

- SOLID CARBIDE **DREAM DRILLS - PRO** (with & without Coolant Holes) — For General Purpose (HRc30 to HRc50) / Extremely High hardness and Heat resistance due to YG-1 special Z-Coating ehnology (DREAM DRILLS -PRO)
- SOLID CARBIDE **DREAM DRILLS - GENERAL** (with & without Coolant Holes) — For General Purpose (HRc30 to HRc50) (DREAM DRILLS -GENERAL)
- SOLID CARBIDE **DREAM DRILLS - HIGH FEED** (with Coolant holes) — 1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill for Carbon Steels, Alloy Steels(up to HRc35) and Cast Iron (DREAM DRILLS -HIGH FEED)
- SOLID CARBIDE **DREAM DRILLS - FLAT BOTTOM** (with & without Coolant Holes) — For Holes on Various Angled Surfaces (DREAM DRILLS -FLAT BOTTOM)
- SOLID CARBIDE **DREAM DRILLS - INOX** (with Coolant Holes) — For Tough Materials like Stainless Steels (DREAM DRILLS -INOX)
- SOLID CARBIDE **DREAM DRILLS - ALU** (with Coolant Holes) — For Aluminum and Aluminum Alloys (DREAM DRILLS -ALU)
- SOLID CARBIDE **DREAM DRILLS - MQL TYPE** (with Coolant Holes) — Minimum Quantity Lubrication Drilling Deep Holes (10×D ~ 40×D) (DREAM DRILLS -MQL)
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HSS DRILLS

- HSS-PM **MULTI-1 DRILLS** — Premium HSS-PM Drills For Wide Range of Applications Particularly Stainless Steels and Titanium (MULTI-1 DRILLS)
- HSSCo8 & HSS-E **HPD STRAIGHT SHANK DRILLS** — High Precision Drilling for General Steels & Stainless Steels (HPD DRILLS)
- HSS & HSS-E **GOLD-P DRILLS** — Same Performance as Full TiN-coated Drills (GOLD-P DRILLS)
- SUPER HSS **SUPER-GP DRILLS** — All Applications Regardless of Machining Conditions; Good or Poor (SUPER-GP DRILLS)
- HSS, HSS-E & HSSCo8 **STRAIGHT SHANK DRILLS** — For General Purpose (Soft &Tough Materials) (STRAIGHT SHANK DRILLS)
- HSS & HSS-E **MORSE TAPER SHANK DRILLS** — Morse Taper Shank Drills for Wide Applications (TAPER SHANK DRILLS)

CARBIDE & HSS DRILLS

- SOLID CARBIDE & HSSCo8 **NC-SPOTTING DRILLS** — For Centering and Chamfering of Holes (NC-SPOTTING DRILLS)
- SOLID CARBIDE, HSS & HSS-E **CENTER DRILLS** — For General Purpose (CENTER DRILLS)

CARBIDE & HSS INSERT DRILLS

- **SPADE DRILLS**, INSERTS & HOLDERS — For General Machines and Drilling Large Diameters / Longer Tool Life and High Productivity (SPADE DRILLS)

REAMERS

- CARBIDE, HSS & HSS-E **REAMERS** — Carbide NC Machine Reamers / HSS Hand Reamers / HSS-E Chucking Reamers (REAMERS)

COUNTERSINKS

- HSS & HSSCo8 **COUNTERSINKS** — For Deburring, Chamfering and Countersinking (COUNTER SINKS)

COUNTERBORES

- HSS-E **COUNTERBORES** — For Machining Screw Head Seats (COUNTER BORES)

TECHNICAL DATA

- **TECHNICAL DATA** (TECHNICAL DATA)

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HOLEMAKING TOOLS

i-ONE DRILLS INSERTS

SERIES	Y101H	Y121H	Y141H	Y161H	Y181H	Y201H
SIZE MIN	10.00	12.00	14.00	16.00	18.00	20.00
SIZE MAX	11.91	13.90	15.90	17.90	19.90	21.90
PAGE	A24	A25	A26	A27	A28	A29
SURFACE TREATMENT	H-Coating					

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ISO	VDI 3323	Material Description	HB	HRc	Y101H	Y121H	Y141H	Y161H	Y181H	Y201H
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎
	11		325	35	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15						
	13		240	23						
	14		180	10						
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎
	16		260	26	◎	◎	◎	◎	◎	◎
	17	Nodular cast iron	160	3	◎	◎	◎	◎	◎	◎
	18		250	25	◎	◎	◎	◎	◎	◎
	19	Malleable cast iron	130		◎	◎	◎	◎	◎	◎
	20		230	21	◎	◎	◎	◎	◎	◎
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25		130							
	26	Copper and Copper Alloys (Bronze / Brass)	110							
	27		90							
	28		100							
	29	Non Metallic Materials								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42						
	41	Hardened Cast Iron	550	55						

i-ONE DRILLS INSERTS / i-ONE DRILLS HOLDERS

SERIES	Y221H	Y241H	Y261H	Y281H	Y301H	Y321H	ZD*3	ZD*5	ZD*8
SIZE MIN	22.00	24.00	26.00	28.00	30.00	32.00			
SIZE MAX	23.90	25.90	27.78	29.77	31.75	33.73			
PAGE	A30	A31	A32		A33				
SURFACE TREATMENT	H-Coating						3XD	5XD	8XD

ISO	VDI 3323	Y221H	Y241H	Y261H	Y281H	Y301H	Y321H
P	1	◎	◎	◎	◎	◎	◎
	2	◎	◎	◎	◎	◎	◎
	3	◎	◎	◎	◎	◎	◎
	4	◎	◎	◎	◎	◎	◎
	5	◎	◎	◎	◎	◎	◎
	6	◎	◎	◎	◎	◎	◎
	7	◎	◎	◎	◎	◎	◎
	8	◎	◎	◎	◎	◎	◎
	9	◎	◎	◎	◎	◎	◎
	10	◎	◎	◎	◎	◎	◎
	11	◎	◎	◎	◎	◎	◎
M	12						
	13						
	14						
K	15	◎	◎	◎	◎	◎	◎
	16	◎	◎	◎	◎	◎	◎
	17	◎	◎	◎	◎	◎	◎
	18	◎	◎	◎	◎	◎	◎
	19	◎	◎	◎	◎	◎	◎
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N	21						
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H	38						
	39						
	40						
	41						

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

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YG HOLEMAKING TOOLS

i-DREAM DRILLS INSERTS

SERIES	YA1A	YA2C	YB1A	YB2C	YC1A	YC2C	YD1A	YD2C	YE1A	YE2C
TYPE	A		B		C		D		E	
SIZE MIN	12.00		14.00		16.00		18.00		20.00	
SIZE MAX	13.89		15.87		17.86		19.84		21.83	
PAGE	A44		A45		A46		A47		A48	
SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN

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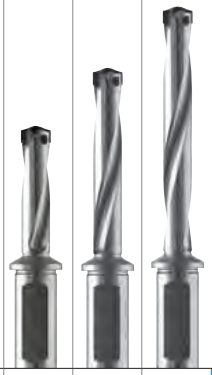
ISO	VDI 3323	Material Description	HB	HRc	YA1A	YA2C	YB1A	YB2C	YC1A	YC2C	YD1A	YD2C	YE1A	YE2C
P	1	Non-alloy steel	125		◎	○	◎	○	◎	○	◎	○	◎	○
	2		190	13	◎	○	◎	○	◎	○	◎	○	◎	○
	3		250	25	◎	○	◎	○	◎	○	◎	○	◎	○
	4		270	28	◎	○	◎	○	◎	○	◎	○	◎	○
	5		300	32	◎		◎		◎		◎		◎	
	6	Low alloy steel	180	10	◎	○	◎	○	◎	○	◎	○	◎	○
	7		275	29	◎	○	◎	○	◎	○	◎	○	◎	○
	8		300	32	◎		◎		◎		◎		◎	
	9		350	38	◎		◎		◎		◎		◎	
	10	High alloyed steel, and tool steel	200	15	◎	○	◎	○	◎	○	◎	○	◎	○
	11		325	35	◎		◎		◎		◎		◎	
M	12	Stainless steel	200	15		◎		◎		◎		◎		◎
	13		240	23		◎		◎		◎		◎		◎
	14		180	10		◎		◎		◎		◎		◎
K	15	Grey cast iron	180	10	◎		◎		◎		◎		◎	
	16		260	26	◎		◎		◎		◎		◎	
	17	Nodular cast iron	160	3	◎		◎		◎		◎		◎	
	18		250	25	◎		◎		◎		◎		◎	
	19	Malleable cast iron	130		◎		◎		◎		◎		◎	
	20		230	21	◎		◎		◎		◎		◎	
N	21	Aluminum-wrought alloy	60			○		○		○		○		○
	22		100			○		○		○		○		○
	23	Aluminum-cast, alloyed	75			○		○		○		○		○
	24		90			○		○		○		○		○
	25	Copper and Copper Alloys (Bronze / Brass)	130			○		○		○		○		○
	26		110			○		○		○		○		○
	27		90			○		○		○		○		○
	28		100			○		○		○		○		○
	29	Non Metallic Materials												
	30													
S	31	Heat Resistant Super Alloys	200	15										
	32		280	30										
	33		250	25										
	34		350	38										
	35		320	34										
	36	Titanium Alloys	400 Rm											
	37		1050 Rm											
H	38	Hardened steel	550	55										
	39		630	60										
	40	Chilled Cast Iron	400	42										
	41	Hardened Cast Iron	550	55										

i-DREAM DRILLS INSERTS / i-DREAM DRILLS HOLDERS

	YF1A	YF2C	YG1A	YG2C	YH1A	YH2C	YI1A	YI2C	YJ1A	YJ2C	ZH*3	ZH*5	ZH*7
TYPE	F		G		H		I		J				
SIZE MIN	22.00		24.00		26.00		28.00		30.00				
SIZE MAX	23.81		25.80		27.78		29.77		31.75				
PAGE	A49		A50		A51		A52		A53				
SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	3XD	5XD	7XD



ISO	YF1A	YF2C	YG1A	YG2C	YH1A	YH2C	YI1A	YI2C	YJ1A	YJ2C	ZH*3	ZH*5	ZH*7
P 1	◎	○	◎	○	◎	○	◎	○	◎	○			
P 2	◎	○	◎	○	◎	○	◎	○	◎	○			
P 3	◎	○	◎	○	◎	○	◎	○	◎	○			
P 4	◎	○	◎	○	◎	○	◎	○	◎	○			
P 5	◎		◎		◎		◎		◎				
P 6	◎	○	◎	○	◎	○	◎	○	◎	○			
P 7	◎	○	◎	○	◎	○	◎	○	◎	○			
P 8	◎		◎		◎		◎		◎				
P 9	◎		◎		◎		◎		◎				
P 10	◎	○	◎	○	◎	○	◎	○	◎	○			
P 11	◎		◎		◎		◎		◎				
M 12		◎		◎		◎		◎		◎			
M 13		◎		◎		◎		◎		◎			
M 14		◎		◎		◎		◎		◎			
K 15	◎		◎		◎		◎		◎				
K 16	◎		◎		◎		◎		◎				
K 17	◎		◎		◎		◎		◎				
K 18	◎		◎		◎		◎		◎				
K 19	◎		◎		◎		◎		◎				
K 20	◎		◎		◎		◎		◎				
N 21		○		○		○		○		○			
N 22		○		○		○		○		○			
N 23		○		○		○		○		○			
N 24		○		○		○		○		○			
N 25		○		○		○		○		○			
N 26		○		○		○		○		○			
N 27		○		○		○		○		○			
N 28		○		○		○		○		○			
N 29													
N 30													
S 31													
S 32													
S 33													
S 34													
S 35													
S 36													
S 37													
H 38													
H 39													
H 40													
H 41													

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HOLEMAKING TOOLS

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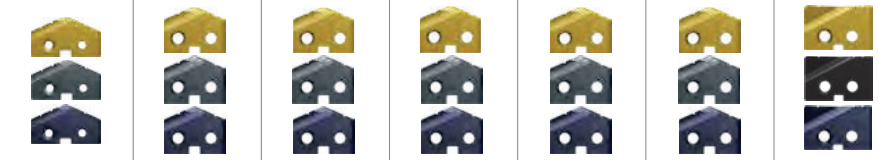
SPADE DRILLS INSERTS

SERIES	1~8	Y,Z,0,1~4	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3
SIZE MIN	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)
SIZE MAX	Ø114.3(#8)	Ø65.09(#4)	Ø35(#2)	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)
PAGE	A302	A308	A313	A316	A319	A323
SURFACE TREATMENT	TiN / TiCN / TiAlN					

ISO	VDI 3323	Material Description	HB	HRc						
P	1	Non-alloy steel	125		○	◎	◎		○	◎
	2		190	13	○	◎	◎		○	◎
	3		250	25	○	◎	◎		○	◎
	4		270	28	○	◎	◎		○	◎
	5		300	32						
	6	Low alloy steel	180	10	○	◎	◎		○	◎
	7		275	29	○	◎	◎		○	◎
	8		300	32		○	◎		○	◎
	9		350	38		○	◎		○	◎
	10	High alloyed steel, and tool steel	200	15		○	◎		○	◎
	11		325	35		○	◎		○	◎
M	12	Stainless steel	200	15	◎	○			◎	○
	13		240	23	◎	○			◎	○
	14		180	10	◎	○			◎	○
K	15	Grey cast iron	180	10	◎	○	○	◎	○	○
	16		260	26	○	◎	◎	◎	○	○
	17	Nodular cast iron	160	3	◎	○	○	◎	○	○
	18		250	25	○	◎	◎	◎	○	○
	19	Malleable cast iron	130		◎	○	○	◎	○	○
	20		230	21	○	◎	◎	◎	○	○
N	21	Aluminum-wrought alloy	60		◎	○	○		◎	○
	22		100		◎	○	○		◎	○
	23	Aluminum-cast, alloyed	75							
	24		90							
	25		130							
	26	Copper and Copper Alloys (Bronze / Brass)	110							
	27		90		◎	○	○		◎	○
	28		100							
	29	Non Metallic Materials								
	30									
S	31	Heat Resistant Super Alloys	200	15		◎	◎		◎	○
	32		280	30		○	◎		◎	○
	33		250	25		○	◎		◎	○
	34		350	38		○	◎		◎	○
	35		320	34		○	◎		◎	○
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55		○	◎		○	◎
	39		630	60						
	40	Chilled Cast Iron	400	42						
	41	Hardened Cast Iron	550	55						

SPADE DRILLS INSERTS

1~3	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1,2
Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)
Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)
A328	A331	A335	A338	A341	A345	A349
TiN / TiCN / TiAlN						TiN / Hardslick / TiAl



○	◎	◎		○	◎	◎	1	P
○	◎	◎		○	◎	◎	2	
○	◎	◎		○	◎	◎	3	
○	◎	◎		○	◎	◎	4	
							5	
○	◎	◎		○	◎	◎	6	
○	◎	◎		○	◎	◎	7	
	○	◎		○	◎	○	8	
	○	◎		○	◎	○	9	
	○	◎		○	◎	○	10	
	○	◎		○	◎	○	11	
◎	○			◎	○	○	12	M
◎	○			◎	○	○	13	
◎	○			◎	○	○	14	
◎	○	○	◎	○	○	○	15	K
○	◎	◎	◎	○	○	◎	16	
◎	○	○	◎	○	○	○	17	
○	◎	◎	◎	○	○	◎	18	
◎	○	○	◎	○	○	○	19	
○	◎	◎	◎	○	○	◎	20	
◎	○	○		◎	○	○	21	N
◎	○	○		◎	○	○	22	
							23	
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◎	○	○		◎	○	○	27	
							28	
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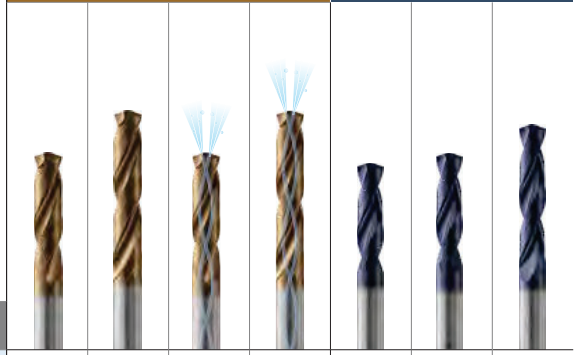
							30	
	◎	◎		◎	○	◎	31	S
	○	◎		◎	○	○	32	
	○	◎		◎	○	○	33	
	○	◎		◎	○	○	34	
	○	◎		◎	○	○	35	
							36	
							37	
	○	◎		○	◎	○	38	H
							39	
							40	
							41	

SELE TION G IDE

YG HOLEMAKING TOOLS

SERIES	DGN523	DGN526	DGN506	DGN508	DH404	DH423 DH443	DH424 DH444
	DREAM DRILLS PRO				DREAM DRILLS GENERAL		
DRILLING DEPTH	3XD	5XD	3XD	5XD	3XD	3XD	5XD
LENGTH	SHORT	LONG	SHORT	LONG	STUB	SHORT	LONG
SIZE MIN	D3.0	D1.0	D3.0	D1.0	D3.0	D3.0	D1.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0
PAGE	A62	A65	A68	A71	A80	A82	A85
SURFACE TREATMENT	Z-Coating				TiAlN		



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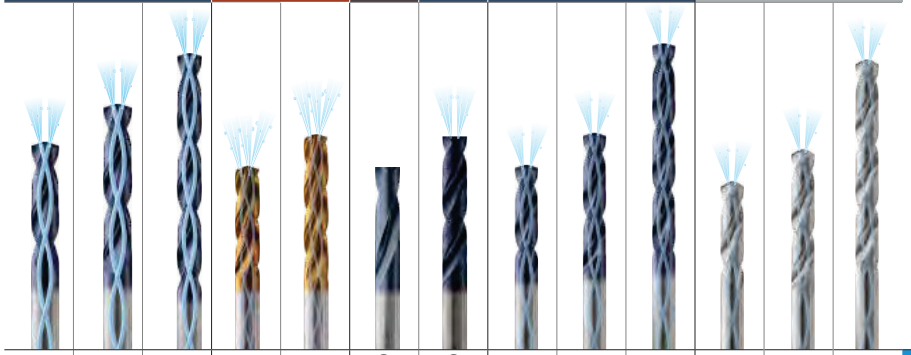
ISO	VDI 3323	Material Description	HB	HRc	DGN523	DGN526	DGN506	DGN508	DH404	DH423 DH443	DH424 DH444
P	1	Non-alloy steel	125								
	2		190	13	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎
	5		300	32	○	○	○	○	○	○	○
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎	◎
	8		300	32	○	○	○	○	○	○	○
	9		350	38	○	○	○	○	○	○	○
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎	◎
	11		325	35	○	○	○	○	○	○	○
M	12	Stainless steel	200	15	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○
	14		180	10							
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎	◎
	16		260	26	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	◎	◎	◎	◎	◎	◎	◎
	18		250	25	○	○	○	○	○	○	○
	19	Malleable cast iron	130		◎	◎	◎	◎	◎	◎	◎
	20		230	21	○	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60								
	22		100								
	23	Aluminum-cast, alloyed	75								
	24		90								
	25		130								
	26	Copper and Copper Alloys (Bronze / Brass)	110								
	27		90								
	28		100								
	29	Non Metallic Materials									
	30										
S	31	Heat Resistant Super Alloys	200	15							
	32		280	30							
	33		250	25							
	34		350	38							
	35		320	34							
	36	Titanium Alloys	400 Rm								
	37		1050 Rm								
H	38	Hardened steel	550	55	○	○	○	○	○	○	○
	39		630	60							
	40	Chilled Cast Iron	400	42							
	41	Hardened Cast Iron	550	55							

SERIES	DH406 DH446	DH408 DH448	DH421	DGR493	DGR495	DPP447	DH450	DH451	DH452	DH453	D5432	D5433	D5434
	DREAM DRILLS GENERAL			DREAM DRILLS HIGH FEED		DREAM DRILLS FLAT BOTTOM		DREAM DRILLS - INOX			DREAM DRILLS - ALU		
DRILLING DEPTH	3XD	5XD	8XD	3XD	5XD	2XD	5XD	3XD	5XD	8XD	3XD	5XD	8XD
LENGTH	SHORT	LONG	EXTRA LONG	SHORT	LONG	SHORT	LONG	SHORT	LONG	EXTRA LONG	SHORT	LONG	EXTRA LONG
SIZE MIN	D3.0	D1.0	D3.0	D5.0	D5.0	D3.0	D3.0	D3.0	D1.0	D3.0	D3.0	D3.0	D3.0
SIZE MAX	D20.0	D20.0	D14.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D14.0	D20.0	D20.0	D14.0
PAGE	A88	A91	A94	A101	A103	A110	A112	A119	A122	A125	A131	A134	A137
SURFACE TREATMENT	TiAlN			H-Coating		X-Coating	TiAlN	TiAlN			Bright		

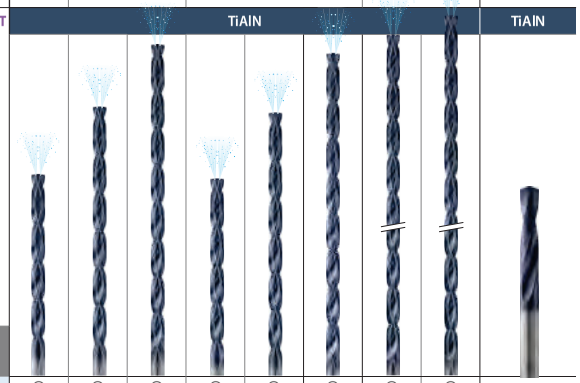


ISO	VDI 3323	Material Description	HB	HRc	DH406 DH446	DH408 DH448	DH421	DGR493	DGR495	DPP447	DH450	DH451	DH452	DH453	D5432	D5433	D5434
P	1	Non-alloy steel	125							◎	◎						
	2		190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	3		250	25	◎	◎	◎	◎	◎	◎	◎	○	○	○			
	4		270	28	◎	◎	◎	◎	◎	○	○						
	5		300	32	○	○	○	○	○	○	○						
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	7		275	29	◎	◎	◎	◎	◎	○	○	○	○	○			
	8		300	32	○	○	○	○	○	○	○						
	9		350	38	○	○	○	○	○	○	○						
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎								
	11		325	35	○	○	○	○	○								
M	12	Stainless steel	200	15	○	○	○			○	○	◎	◎	◎			
	13		240	23	○	○	○					◎	◎	◎			
	14		180	10								◎	◎	◎			
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎	◎						
	16		260	26	○	○	○	○	○	○	○						
	17	Nodular cast iron	160	3	◎	◎	◎	◎	◎								
	18		250	25	○	○	○	○	○								
	19	Malleable cast iron	130		◎	◎	◎	◎	◎								
	20		230	21	○	○	○	○	○								
N	21	Aluminum-wrought alloy	60							○	○	◎	◎	◎	◎	◎	◎
	22		100							○	○	◎	◎	◎	◎	◎	◎
	23	Aluminum-cast, alloyed	75									○	○	○	◎	◎	◎
	24		90									○	○	○	◎	◎	◎
	25		130									○	○	○			
	26	Copper and Copper Alloys (Bronze / Brass)	110														
	27		90														
	28		100														
	29	Non Metallic Materials															
	30																
S	31	Heat Resistant Super Alloys	200	15													
	32		280	30													
	33		250	25													
	34		350	38													
	35		320	34													
	36	Titanium Alloys	400 Rm														
	37		1050 Rm									○	○	○			
H	38	Hardened steel	550	55	○	○	○										
	39		630	60													
	40	Chilled Cast Iron	400	42													
	41	Hardened Cast Iron	550	55													

SELE TION G IDE

YG HOLEMAKING TOOLS

SERIES	DH510	DH515	DH520	DHM10	DHM15	DHM20	DHM25	DHM30	DH500
	DREAM DRILLS - MQL TYPE								DREAM DRILLS for HIGH HARDENED STEELS
DRILLING DEPTH / STANDARD	10XD	15XD	20XD	10XD	15XD	20XD	25XD	30XD	3XD
LENGTH	EXTRA LONG								SHORT
SIZE MIN	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D2.6
SIZE MAX	D14.0	D12.0	D12.0	D14.0	D12.0	D12.0	D10.0	D8.0	D14.0
PAGE	A144	A145		A146			A147		A151
SURFACE TREATMENT	TiAlN								TiAlN



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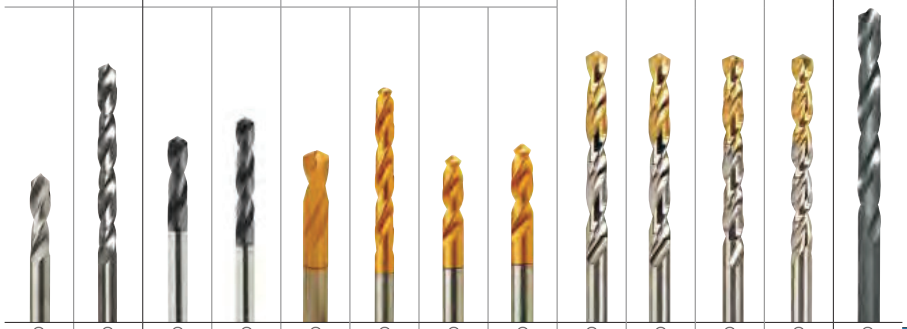
ISO	VDI 3323	Material Description	HB	HRc	DH510	DH515	DH520	DHM10	DHM15	DHM20	DHM25	DHM30	DH500
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎	◎	
	2		190	13	◎	◎	◎	◎	◎	◎	◎	◎	
	3		250	25	○	○	○	○	○	○	○	○	
	4		270	28									
	5		300	32									
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎	
	7		275	29	○	○	○	○	○	○	○	○	
	8		300	32	○	○	○	○	○	○	○	○	
	9		350	38									
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○	○	○	
	11		325	35	○	○	○	○	○	○	○	○	
M	12	Stainless steel	200	15									
	13		240	23									
	14		180	10									
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎	◎	◎	
	16		260	26	○	○	○	○	○	○	○	○	
	17	Nodular cast iron	160	3	◎	◎	◎	◎	◎	◎	◎	◎	
	18		250	25	○	○	○	○	○	○	○	○	
	19	Malleable cast iron	130		◎	◎	◎	◎	◎	◎	◎	◎	
	20		230	21	○	○	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	60										
	22		100										
	23	Aluminum-cast, alloyed	75										
	24		90										
	25		130										
	26	Copper and Copper Alloys (Bronze / Brass)	110										
	27		90										
	28		100										
	29	Non Metallic Materials											
	30												
S	31	Heat Resistant Super Alloys	200	15									
	32		280	30									
	33		250	25									
	34		350	38									
	35		320	34									
	36	Titanium Alloys	400 Rm										
	37		1050 Rm										
H	38	Hardened steel	550	55									◎
	39		630	60									◎
	40	Chilled Cast Iron	400	42									
	41	Hardened Cast Iron	550	55									

SERIES	D5405	D5407	CDRA03	CDRA04	D4541	D4542	DJ543	DJ544	D1GP125	D1GP165	DLGP195	DLGP506	DSH105
	GENERAL CARBIDE DRILLS		MULTI-1		HPD STRAIGHT SHANK DRILLS				GOLD-P DRILLS				SUPER-GP DRILLS
DRILLING DEPTH / STANDARD	DIN6539	DIN338	-		-		-		DIN338	DIN338	DIN338	DIN338	DIN338
LENGTH	STUB	JOBBER	STUB	JOBBER	STUB	JOBBER	STUB	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER	JOBBER
SIZE MIN	D1.0	D1.0	D1.0	D2.0	D2.0	D2.0	D2.0	D2.0	D1.0	D1.6	D1.0	D2.0	D2.0
SIZE MAX	D13.0	D13.0	D13.0	D13.0	D13.0	D32.0	D13.0	D20.0	D13.0	D13.0	D13.0	D13.0	D13.0
PAGE	A155	A157	A163	A166	A173	A177	A183	A186	A194	A197	A200	A203	A211
SURFACE TREATMENT	Bright		TiAlN		TiN				TiN				Steam Tempered
			HSS-PM		HSSCo8		HSS-E						



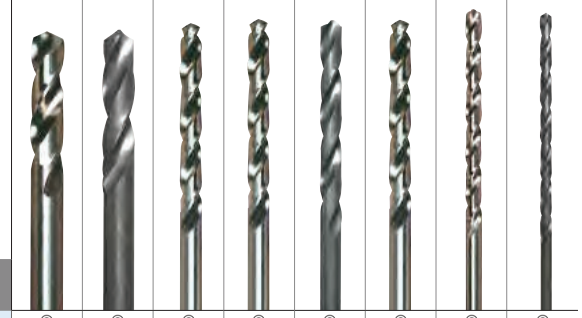
ISO	VDI 3323	D5405	D5407	CDRA03	CDRA04	D4541	D4542	DJ543	DJ544	D1GP125	D1GP165	DLGP195	DLGP506	DSH105
P	1	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎
	2	○	○	◎	◎	◎	◎			◎	◎	◎	◎	◎
	3			○	○	○	○			◎	◎	◎	◎	◎
	4									○	○	○	○	○
	5													
	6	○	○	◎	◎	◎	◎			◎	◎	◎	◎	◎
	7			○	○	○	○			○	○	○	○	○
	8			○	○					○	○	○	○	○
	9			○	○									
	10					○	○			○	○	○	○	○
	11													
M	12	○	○	○	○			◎	◎	◎	◎	◎		○
	13							○	○	○	○	○		○
	14			◎	◎			◎	◎	○	○	○		○
K	15	○	○	○	○	◎	◎			○	○	○	○	○
	16									○	○	○	○	○
	17									○	○	○	○	○
	18												○	
	19									○	○	○	○	○
	20												○	
N	21	◎	◎	◎	◎			◎	◎	○	○	○		○
	22	◎	◎	◎	◎			◎	◎	○	○	○		○
	23	◎	◎	○	○					○	○	○		○
	24	◎	◎	○	○									
	25													
	26							○	○					
	27													
	28													
	29									○	○	○		○
	30													
S	31													
	32													
	33													
	34													
	35													
	36	○	○	○	○					○	○	○		○
	37													
H	38													
	39													
	40													
	41													

SELECTION GUIDE

YG HOLEMAKING TOOLS

STRAIGHT SHANK DRILLS

SERIES	D2107	D1107	D2105	DL105	D1105	D1125	D2104	D1121
STANDARD	DIN1897	DIN1897	DIN338	DIN338	DIN338	DIN338	DIN340	DIN1869/1
LENGTH	STUB	STUB	JOBBER	JOBBER	JOBBER	JOBBER	LONG	EXTRA LONG
SIZE MIN	D1.0	D1.0	D1.0	D1.0	D0.3	D2.0	D2.0	D2.0
SIZE MAX	D31.0	D13.0	D20.0	D20.0	D20.0	D20.0	D12.0	D13.0
PAGE	A220	A224	A227	A230	A233	A238	A241	A243
SURFACE TREATMENT	Gold Coloring	Steam Tempered	Gold Coloring		Steam Tempered	Bright	Gold Coloring	Steam Tempered



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◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	D2107	D1107	D2105	DL105	D1105	D1125	D2104	D1121
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎	◎
	4		270	28	○	○	○	○	○	○	○	○
	5		300	32								
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎
	7		275	29	○	○	○	○	○	○	○	○
	8		300	32	○	○	○	○	○	○	○	○
	9		350	38								
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○	○	○
	11		325	35								
M	12	Stainless steel	200	15	◎	○	◎	◎	○	○	◎	○
	13		240	23	○	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○	○
	18		250	25								
	19	Malleable cast iron	130		○	○	○	○	○	○	○	○
	20		230	21								
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○	○
	24		90									
	25		130									
	26	Copper and Copper Alloys (Bronze / Brass)	110									
	27		90									
	28		100									
	29	Non Metallic Materials			○	○	○	○	○	○	○	○
	30											
S	31	Heat Resistant Super Alloys	200	15								
	32		280	30								
	33		250	25								
	34		350	38								
	35		320	34								
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○	○	○
	37		1050 Rm									
H	38	Hardened steel	550	55								
	39		630	60								
	40	Chilled Cast Iron	400	42								
	41	Hardened Cast Iron	550	55								

STRAIGHT SHANK DRILLS

SERIES	DL109	D1100	D1106	DH100 DL510	DH100 DL508	DH100 DL509	DH100 DL505	DH100 DL504	DH100 DT600	DH100 DT692	DH100 DT693
STANDARD	DIN338	DIN338	DIN338	DIN1897	DIN338	DIN340	DIN338	DIN340	DIN1869/1	DIN1869/2	DIN1869/3
LENGTH											
SIZE MIN	D1.5	D1.5	D1.5	D2.0	D2.0	D2.0	D2.0	D2.0	D2.0	D3.0	D4.0
SIZE MAX	D13.0	D13.0	D13.0	D20.0	D16.0	D12.0	D13.0	D13.0	D10.5	D10.2	D10.0
PAGE	A244	A245	A247	A249	A251	A253	A255	A257	A258		
SURFACE TREATMENT	Bright						Steam Tempered		TiAlN		

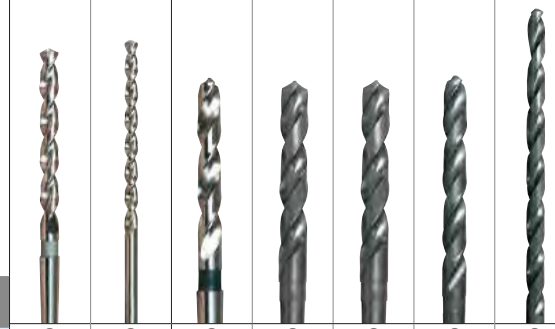
ISO	VDI 3323	Material Description	HB	HRc	DL109	D1100	D1106	DH100 DL510	DH100 DL508	DH100 DL509	DH100 DL505	DH100 DL504	DH100 DT600	DH100 DT692	DH100 DT693
P	1	Non-alloy steel	125		◎			◎	◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎			◎	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎			◎	◎	◎	◎	◎	◎	◎	◎
	4		270	28	○			○	○	○	○	○	○	○	○
	5		300	32											
	6	Low alloy steel	180	10	◎			◎	◎	◎	◎	◎	◎	◎	◎
	7		275	29	○			○	○	○	○	○	○	○	○
	8		300	32	○			○	○	○	○	○	○	○	○
	9		350	38											
	10	High alloyed steel, and tool steel	200	15	○			○	○	○	○	○	○	○	○
	11		325	35											
M	12	Stainless steel	200	15	◎										
	13		240	23	○										
	14		180	10	○										
K	15	Grey cast iron	180	10	○			○	○	○	○	○	○	○	○
	16		260	26	○			○	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○			○	○	○	○	○	○	○	○
	18		250	25				○	○	○	○	○	○	○	○
	19	Malleable cast iron	130		○			○	○	○	○	○	○	○	○
	20		230	21				○	○	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60		○		◎								
	22		100		○		◎								
	23	Aluminum-cast, alloyed	75		○		◎								
	24		90				◎								
	25		130												
	26	Copper and Copper Alloys (Bronze / Brass)	110												
	27		90			◎									
	28		100			◎									
	29	Non Metallic Materials			○										
	30														
S	31	Heat Resistant Super Alloys	200	15											
	32		280	30											
	33		250	25											
	34		350	38											
	35		320	34											
	36	Titanium Alloys	400 Rm		○										
	37		1050 Rm												
H	38	Hardened steel	550	55											
	39		630	60											
	40	Chilled Cast Iron	400	42											
	41	Hardened Cast Iron	550	55											

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SELE TION G IDE

YG HOLEMAKING TOOLS

	STRAIGHT SHANK DRILLS		MORSE TAPER SHANK DRILLS				
SERIES	DH100 DL608	DH50 DL507	DL205	D1205	D1206	D1209	D1210
STANDARD	DIN341	-	DIN345	DIN345	DIN341	DIN1870/1	DIN1870/2
LENGTH	LONG	EXTRA LONG	JOBBER	JOBBER	LONG	EXTRA LONG	EXTRA LONG
SIZE MIN	D13.0	D2.0	D13.0	D5.0	D13.0	D13.0	D13.0
SIZE MAX	D30.0	D13.0	D30.0	D60.0	D30.0	D50.0	D50.0
PAGE	A259	A260	A270	A271	A274	A275	A276
SURFACE TREATMENT	Bright		Bright	Steam Tempered			



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ISO	VDI 3323	Material Description	HB	HRc	DH100 DL608	DH50 DL507	DL205	D1205	D1206	D1209	D1210
P	1	Non-alloy steel	125		◎	○	◎	◎	◎	◎	◎
	2		190	13	◎		◎	◎	◎	◎	◎
	3		250	25	◎		◎	◎	◎	◎	◎
	4		270	28	○		○	○	○	○	○
	5		300	32							
	6	Low alloy steel	180	10	◎		◎	◎	◎	◎	◎
	7		275	29	○		○	○	○	○	○
	8		300	32	○		○	○	○	○	○
	9		350	38							
	10	High alloyed steel, and tool steel	200	15	○		○	○	○	○	○
	11		325	35							
M	12	Stainless steel	200	15			◎	◎	◎	◎	◎
	13		240	23			○	○	○	○	○
	14		180	10							
K	15	Grey cast iron	180	10	○		○	○	○	○	○
	16		260	26	○		○	○	○	○	○
	17	Nodular cast iron	160	3	○		○	○	○	○	○
	18		250	25	○		○	○	○	○	○
	19	Malleable cast iron	130		○		○	○	○	○	○
	20		230	21	○		○	○	○	○	○
N	21	Aluminum-wrought alloy	60			◎	○	○	○	○	○
	22		100			◎	○	○	○	○	○
	23	Aluminum-cast, alloyed	75			○	○	○	○	○	○
	24		90								
	25		130								
	26	Copper and Copper Alloys (Bronze / Brass)	110								
	27		90								
	28		100								
	29	Non Metallic Materials					○	○	○	○	○
	30										
S	31	Heat Resistant Super Alloys	200	15							
	32		280	30							
	33		250	25							
	34		350	38							
	35		320	34							
	36	Titanium Alloys	400 Rm				○	○	○	○	○
	37		1050 Rm								
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42							
	41	Hardened Cast Iron	550	55							

SELE TION G IDE

YG HOLEMAKING TOOLS

	NC-SPOTTING DRILLS					COUNTERSINKS				
SERIES	D5306 D5307	D5320	D2306 D2321	D2307 D2322	D2320 D2323	C1109 C3109	C1119 C3119	C1136 C3136	C1139 C3139	C1132 C3132
STANDARD	-	-	-	-	-	-	-	DIN334C	DIN335C	-
LENGTH	90°/120°	142°	90°	120°	142°	90°	90°	60°	90°	120°
SIZE MIN	D6.0	D3.0	D3.0	D3.0 / D6.0	D3.0 / D6.0	D10.0	D10.0	D6.3	D4.3	D8.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0 / D12.0	D20.0 / D12.0	D50.0	D50.0	D25.0	D31.0	D25.0
PAGE	A281	A282	A283	A284	A285	A410	A411	A412	A413	A414
SURFACE TREATMENT	Bright					Bright				

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ISO	VDI 3323	Material Description	HB	HRc	D5306 D5307	D5320	D2306 D2321	D2307 D2322	D2320 D2323	C1109 C3109	C1119 C3119	C1136 C3136	C1139 C3139	C1132 C3132
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	○	○	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	○	○	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	○	○	○	○	○
	4		270	28						○	○	○	○	○
	5		300	32						○	○	○	○	○
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎					
	7		275	29	○	○	○	○	○					
	8		300	32										
	9		350	38										
	10	High alloyed steel, and tool steel	200	15										
	11		325	35										
M	12	Stainless steel	200	15	○	○	○	○	○	○	○	○	○	○
	13		240	23						○	○	○	○	○
	14		180	10						○	○	○	○	○
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	○	○	◎	◎	◎
	16		260	26	○	○	○	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○	○	○	○
	18		250	25						○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○	○	○	○	○
	20		230	21						○	○	○	○	○
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○	◎	◎	◎
	22		100		○	○	○	○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○	○	○	○
	24		90							○	○	○	○	○
	25		130							○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110							○	○	○	○	○
	27		90							○	○	○	○	○
	28		100							○	○	○	○	○
	29	Non Metallic Materials												
	30													
S	31	Heat Resistant Super Alloys	200	15										
	32		280	30										
	33		250	25										
	34		350	38										
	35		320	34										
	36	Titanium Alloys	400 Rm		○	○								
	37		1050 Rm											
H	38	Hardened steel	550	55										
	39		630	60										
	40	Chilled Cast Iron	400	42										
	41	Hardened Cast Iron	550	55										

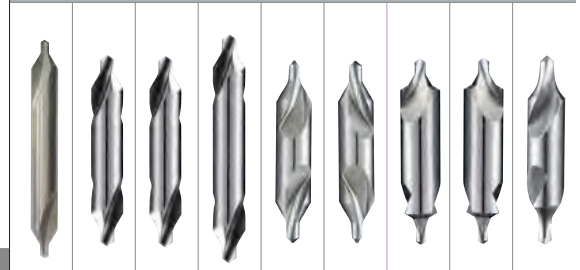
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SELE TION G IDE

YG HOLEMAKING TOOLS

CENTER DRILLS

SERIES	D5303	DV303	DV333	DV334	D1303	D1343	D1313	D1353	D1363
HOLE TYPE	-	-	-	-	-	-	-	-	-
FLUTE / FORM TYPE	FORM A	FORM A	FORM A	FORM A	FORM A	FORM A	FORM B	FORM B	FORM R
SIZE Min	D1.0	D0.5	D1.6	D1.0	D0.5	D0.5	D1.0	D2.0	D0.5
SIZE Max	D6.3	D6.3	D6.3	D5.0	D10.0	D8.0	D6.3	D6.3	D8.0
PAGE	A290	A291		A292	A293		A294		A295
SURFACE TREATMENT	Bright								



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◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	D5303	DV303	DV333	DV334	D1303	D1343	D1313	D1353	D1363
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	○	○	○	○	○	○	○	○
	4		270	28									
	5		300	32									
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎
	7		275	29	○	○	○	○	○	○	○	○	○
	8		300	32									
	9		350	38									
	10	High alloyed steel, and tool steel	200	15									
	11		325	35									
M	12	Stainless steel	200	15	○	○	○	○	○	○	○	○	○
	13		240	23									
	14		180	10									
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎
	16		260	26	○	○	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○	○	○
	18		250	25									
	19	Malleable cast iron	130		○	○	○	○	○	○	○	○	○
	20		230	21									
N	21	Aluminum-wrought alloy	60										
	22		100										
	23	Aluminum-cast, alloyed	75										
	24		90										
	25		130										
	26	Copper and Copper Alloys (Bronze / Brass)	110										
	27		90										
	28		100										
	29	Non Metallic Materials											
	30												
S	31	Heat Resistant Super Alloys	200	15									
	32		280	30									
	33		250	25									
	34		350	38									
	35		320	34									
	36	Titanium Alloys	400 Rm										
	37		1050 Rm										
H	38	Hardened steel	550	55									
	39		630	60									
	40	Chilled Cast Iron	400	42									
	41	Hardened Cast Iron	550	55									

CENTER DRILLS / REAMERS

SERIES	D1373	DV383	K4101	K4111	K1143	K1153	K2101	K2111	K2121	K2102	K2112	K21B1
HOLE TYPE	-	-										
FLUTE / FORM TYPE	FORM R	FORM R	Straight	LH Spiral	Straight	LH Spiral	Straight	LH Spiral	LH Spiral (Quick Spiral)	Straight	LH Spiral	LH Spiral
SIZE Min	D0.8	D1.6	D2.0	D2.0	D2.0	D2.0	D2.0	D2.0	D4.0	D10.0	D10.0	D2.0
SIZE Max	D5.0	D6.3	D20.0	D20.0	D60.0	D60.0	D20.0	D20.0	D20.0	D50.0	D50.0	D20.0
PAGE	A295	A296	A384	A385	A386	A388	A390	A392	A394	A395	A397	A399
SURFACE TREATMENT	Bright		Bright									

ISO	VDI 3323	D1373	DV383	K4101	K4111	K1143	K1153	K2101	K2111	K2121	K2102	K2112	K21B1
P	1	◎	◎	◎	◎	○	○	◎	◎	○	◎	◎	◎
	2	◎	◎	◎	◎	○	○	◎	◎	○	◎	◎	◎
	3	○	○	◎	◎			○	○		○	○	○
	4			○	○			○	○		○	○	○
	5			○	○								
	6	◎	◎	◎	◎	○	○	◎	◎	○	◎	◎	◎
	7	○	○	◎	◎			○	○		○	○	○
	8			○	○								
	9												
	10			○	○			○	○		○	○	○
	11												
M	12	○	○	○	○			○	○		○	○	○
	13			○	○			○	○		○	○	○
	14			○	○			○	○		○	○	○
K	15	◎	◎	◎	◎			○	○		○	○	○
	16	○	○	○	○			○	○		○	○	○
	17	○	○	◎	◎			○	○		○	○	○
	18			○	○			○	○		○	○	○
	19	○	○	◎	◎			○	○		○	○	○
	20			○	○			○	○		○	○	○
N	21			○	○	○	○	○	○	◎	○	○	○
	22			○	○	○	○	○	○	◎	○	○	○
	23			○	○	○	○	○	○	◎	○	○	○
	24			○	○	○	○	○	○	◎	○	○	○
	25												
	26			○	○	○	○	○	○	◎	○	○	○
	27			○	○	○	○	○	○	◎	○	○	○
	28			○	○	○	○	○	○	◎	○	○	○
	29												
	30												
S	31												
	32												
	33												
	34												
	35												
	36												
	37												
H	38												
	39												
	40												
	41												

SELE TION G IDE

HOLEMAKING TOOLS

COUNTERBORES

SERIES	EL950		
TYPE	MEDIUM	FINE	BEOFRE THREADING
PILOT DIA.	3.4~14.0	3.2~13.0	2.5~10.2
CUTTER DIA.	6.0~20.0		
PAGE	A419		
SURFACE TREATMENT	Bright		

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	
P	1	Non-alloy steel	125		◎
	2		190	13	◎
	3		250	25	◎
	4		270	28	◎
	5		300	32	◎
	6	Low alloy steel	180	10	◎
	7		275	29	◎
	8		300	32	◎
	9		350	38	○
	10	High alloyed steel, and tool steel	200	15	◎
	11		325	35	○
M	12	Stainless steel	200	15	
	13		240	23	
	14		180	10	
K	15	Grey cast iron	180	10	
	16		260	26	
	17	Nodular cast iron	160	3	
	18		250	25	
	19	Malleable cast iron	130		
	20		230	21	
N	21	Aluminum-wrought alloy	60		○
	22		100		○
	23	Aluminum-cast, alloyed	75		○
	24		90		○
	25		130		
	26	Copper and Copper Alloys (Bronze / Brass)	110		
	27		90		
	28		100		
	29	Non Metallic Materials			
	30				
S	31	Heat Resistant Super Alloys	200	15	
	32		280	30	
	33		250	25	
	34		350	38	
	35		320	34	
	36	Titanium Alloys	400 Rm		
	37		1050 Rm		
H	38	Hardened steel	550	55	
	39		630	60	
	40	Chilled Cast Iron	400	42	
	41	Hardened Cast Iron	550	55	

Leading Through Innovation

i-ONE DRILLS

i-One Drills

- **High Performance Exchangeable for General Steels and Cast Iron**
- **Leistungsstarke, austauschbare Bohrwerkzeuge für allgemeine Stähle und Gusseisen**

SELE TION G IDE

YG HOLEMAKING TOOLS

CARBIDE INSERTS & HOLDERS

i ONE DRILLS

High Performance Exchangeable for General Steels and Cast Iron

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A34

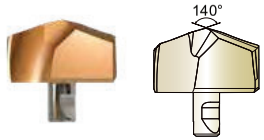
SERIES						Y101H	Y121H	Y141H	Y161H	Y181H	Y201H	Y221H	Y241H	Y261H	Y281H	Y301H	Y321H	ZD*3	ZD*5	ZD*8
SIZE MIN						10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00			
SIZE MAX						11.91	13.90	15.90	17.90	19.90	21.90	23.90	25.90	27.78	29.77	31.75	33.73			
PAGE						A24	A25	A26	A27	A28	A29	A30	A31	A32		A33				
SURFACE TREATMENT						H-Coating				H-Coating								3XD	5XD	8XD
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc														
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	7			Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	8			Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	9			Quenched & Tempered	350	38	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	11			Quenched & Tempered	325	35	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15														
	13		Martensitic	Quenched & Tempered	240	23														
	14		Austenitic10		180	10														
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	18		Pearlitic		250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	19	Malleable cast iron	Ferritic		130		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
	20		Pearlitic		230	21	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
N	21	Aluminum-wrought alloy	Not Curable		60															
	22		Curable	Hardened	100															
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75															
	24		≤ 12% Si, Curable	Hardened	90															
	25		> 12% Si, Not Curable		130															
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110															
	27		CuZn, CuSnZn (Brass)		90															
	28		CuSn, lead-free copper and electrolytic copper		100															
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic																	
	30		Rubber, Wood, etc.																	
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15														
	32			Cured	280	30														
	33		Ni or Co Based	Annealed	250	25														
	34			Cured	350	38														
	35			Cast	320	34														
	36	Titanium Alloys	Pure Titanium		400 Rm															
	37		Alpha + Beta Alloys	Hardened	1050 Rm															
H	38	Hardened steel		Hardened	550	55														
	39			Hardened	630	60														
	40	Chilled Cast Iron		Cast	400	42														
	41	Hardened Cast Iron		Hardened	550	55														

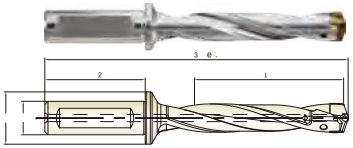
i-ONE DRILL INSERTS & HOLDERS

i-ONE DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
INSERTI & PORTAINSERTI i-ONE DRILL

- Applications
▶For carbon steels, alloy steels and cast iron.
▶Holder length: 3xD, 5xD, 8xD
- Benefits
▶Secure and quick clamping system.
▶High performance with cost efficiency.
▶Multi-layered coating delivers outstanding productivity and reliability.

- Anwendungen
▶Für Kohlenstoffstähle, legierte Stähle und Gusseisen.
▶Halterlänge: 3xD, 5xD, 8xD
- Vorteile
▶Sicheres und schnelles Spannsystem.
▶Hohe Leistungsfähigkeit bei gleichzeitiger Kosteneffizienz.
▶Mehrschichtige Beschichtung bietet hervorragende Produktivität und Zuverlässigkeit.





CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Unit : mm

Series Range (mm)	Insert EDP No. H-Coating	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S10 Ø10.00 to Ø11.99	Y101H1000	0.3937	-	10.00	ZD10003016	16	48	23	3D	31.5	103.0	TX1011P5
	Y101H1010	0.3976	-	10.10								
	Y101H1020	0.4016	-	10.20	ZD10005016				5D	52.5	123.0	
	Y101H1030	0.4055	-	10.30								
	Y101H1032	0.4063	13/32	10.32	ZD10008016				8D	84.0	153.0	
	Y101H1040	0.4094	-	10.40								
	Y101H1050	0.4134	-	10.50	ZD10503016	16	48	23	3D	33.0	104.0	
	Y101H1060	0.4173	-	10.60								
	Y101H1070	0.4213	-	10.70	ZD10505016				5D	55.0	125.0	
	Y101H1072	0.4219	27/64	10.72								
	Y101H1080	0.4252	-	10.80	ZD10508016				8D	88.0	156.5	
	Y101H1090	0.4291	-	10.90								
	Y101H1100	0.4331	-	11.00	ZD11003016	16	48	23	3D	34.5	105.0	
	Y101H1110	0.4370	-	11.10								
	Y101H1111	0.4375	7/16	11.11	ZD11005016				5D	57.5	127.0	
	Y101H1120	0.4409	-	11.20								
	Y101H1130	0.4449	-	11.30	ZD11008016				8D	92.0	160.0	
	Y101H1140	0.4488	-	11.40								
	Y101H1150	0.4528	-	11.50	ZD11503016	16	48	23	3D	36.0	106.0	
	Y101H1151	0.4531	29/64	11.51								
	Y101H1160	0.4567	-	11.60	ZD11505016				5D	60.0	129.0	
	Y101H1170	0.4606	-	11.70								
	Y101H1180	0.4646	-	11.80	ZD11508016				8D	96.0	163.5	
	Y101H1190	0.4685	-	11.90								
	Y101H1191	0.4688	15/32	11.91								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

YG i ONE D ILLS
Y H SERIES

i-ONE DRILL INSERTS & HOLDERS

i-ONE DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
INSERTI & PORTAINSERTI i-ONE DRILL

- Applications
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- Vorteile
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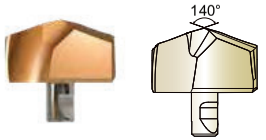
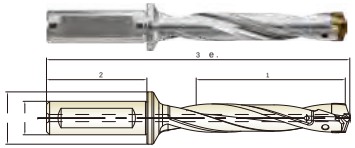
▶Mehrschichtige Beschichtung bietet hervorragende Produktivität und Zuverlässigkeit.





CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Unit : mm

Series Range (mm)	Insert EDP No. H-Coating	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S12 Ø12.00 to Ø13.99	Y121H1200	0.4724	-	12.00	ZD12003016	16	48	23	3D	37.5	109.8	TX1213P5
	Y121H1210	0.4764	-	12.10								
	Y121H1220	0.4803	-	12.20	ZD12005016				5D	62.5	133.8	
	Y121H1230	0.4844	31/64	12.30								
	Y121H1240	0.4882	-	12.40	ZD12008016				8D	100.0	169.8	
	Y121H1250	0.4921	-	12.50	ZD12503016	16	48	23	3D	39.0	110.8	
	Y121H1260	0.4961	-	12.60								
	Y121H1270	0.5000	1/2	12.70	ZD12505016				5D	65.0	135.8	
	Y121H1280	0.5039	-	12.80								
	Y121H1290	0.5079	-	12.90	ZD12508016				8D	104.0	173.3	
	Y121H1300	0.5118	-	13.00	ZD13003016	16	48	23	3D	40.5	112.8	
	Y121H1310	0.5156	33/64	13.10								
	Y121H1320	0.5197	-	13.20	ZD13005016				5D	67.5	138.8	
	Y121H1330	0.5236	-	13.30								
	Y121H1340	0.5276	-	13.40	ZD13008016				8D	108.0	177.8	
	Y121H1349	0.5313	17/32	13.49								
	Y121H1350	0.5315	-	13.50	ZD13503016	16	48	23	3D	42.0	113.8	
	Y121H1360	0.5354	-	13.60								
	Y121H1370	0.5394	-	13.70	ZD13505016				5D	70.0	140.8	
	Y121H1380	0.5433	-	13.80								
	Y121H1389	0.5469	35/64	13.89	ZD13508016				8D	112.0	181.3	
	Y121H1390	0.5472	-	13.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILL INSERTS & HOLDERS

i-ONE DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
INSERTI & PORTAINSERTI i-ONE DRILL

- Applications
▶For carbon steels, alloy steels and cast iron.
▶Holder length: 3xD, 5xD, 8xD
- Benefits
▶Secure and quick clamping system.
▶High performance with cost efficiency.
▶Multi-layered coating delivers outstanding productivity and reliability.

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▶Für Kohlenstoffstähle, legierte Stähle und Gusseisen.
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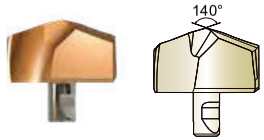
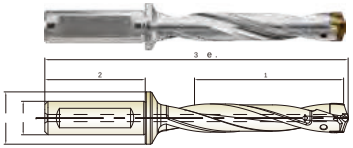
- Vorteile
▶Sicheres und schnelles Spannsystem.
▶Hohe Leistungsfähigkeit bei gleichzeitiger Kosteneffizienz.
▶Mehrschichtige Beschichtung bietet hervorragende Produktivität und Zuverlässigkeit.





CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Unit : mm

Series Range (mm)	Insert EDP No. H-Coating	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S14 Ø14.00 to Ø15.99	Y141H1400	0.5512	-	14.00	ZD14003016	16	48	23	3D	43.5	116.3	TX1415P7
	Y141H1410	0.5551	-	14.10								
	Y141H1420	0.5591	-	14.20	ZD14005016				5D	72.5	144.3	
	Y141H1429	0.5625	9/16	14.29								
	Y141H1430	0.5630	-	14.30	ZD14008016				8D	116.0	186.3	
	Y141H1440	0.5669	-	14.40								
	Y141H1450	0.5709	-	14.50	ZD14503016	16	48	23	3D	45.0	118.3	
	Y141H1460	0.5748	-	14.60								
	Y141H1468	0.5781	37/64	14.68	ZD14505016				5D	75.0	147.3	
	Y141H1470	0.5787	-	14.70								
	Y141H1480	0.5827	-	14.80	ZD14508016				8D	120.0	190.8	
	Y141H1490	0.5866	-	14.90								
	Y141H1500	0.5906	-	15.00	ZD15003016	16	48	23	3D	46.5	120.3	
	Y141H1508	0.5938	19/32	15.08								
	Y141H1510	0.5945	-	15.10	ZD15005016				5D	77.5	150.3	
	Y141H1520	0.5984	-	15.20								
	Y141H1530	0.6024	-	15.30	ZD15008016				8D	124.0	195.3	
	Y141H1540	0.6063	-	15.40								
	Y141H1548	0.6094	39/64	15.48								
	Y141H1550	0.6102	-	15.50	ZD15503016	16	48	23	3D	48.0	121.3	
	Y141H1560	0.6142	-	15.60								
	Y141H1570	0.6181	-	15.70	ZD15505016				5D	80.0	152.3	
	Y141H1580	0.6220	-	15.80								
	Y141H1588	0.6250	5/8	15.88	ZD15508016				8D	128.0	198.8	
	Y141H1590	0.6260	-	15.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

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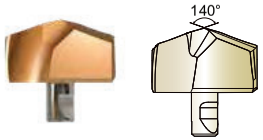

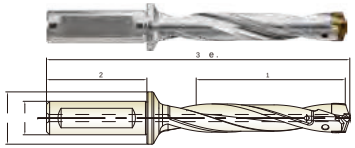

CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Unit : mm

Series Range (mm)	Insert EDP No. H-Coating	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S16 Ø16.00 to Ø17.99	Y161H1600	0.6299	-	16.00	ZD16003020	20	50	25	3D	51.0	127.0	TX1617P7
	Y161H1609	0.6335	-	16.09								
	Y161H1610	0.6339	-	16.10								
	Y161H1620	0.6378	-	16.20								
	Y161H1627	0.6406	41/64	16.27								
	Y161H1630	0.6417	-	16.30								
	Y161H1640	0.6457	-	16.40	ZD16005020				5D	85.0	160.0	
	Y161H1650	0.6496	-	16.50								
	Y161H1660	0.6535	-	16.60								
	Y161H1667	0.6563	21/32	16.67	ZD16008020				8D	136.0	209.5	
	Y161H1670	0.6575	-	16.70								
	Y161H1680	0.6614	-	16.80								
	Y161H1690	0.6654	-	16.90								
	Y161H1700	0.6693	-	17.00	ZD17003020	20	50	25	3D	54.0	130.0	TX1718P7
	Y161H1707	0.6719	43/64	17.07								
	Y161H1710	0.6732	-	17.10								
	Y161H1720	0.6772	-	17.20								
	Y161H1730	0.6811	-	17.30								
	Y161H1740	0.6850	-	17.40								
	Y161H1746	0.6875	11/16	17.46	ZD17005020				5D	90.0	165.0	
	Y161H1750	0.6890	-	17.50								
	Y161H1760	0.6929	-	17.60								
	Y161H1770	0.6969	-	17.70	ZD17008020				8D	144.0	217.5	
	Y161H1780	0.7008	-	17.80								
	Y161H1786	0.7031	45/64	17.86								
	Y161H1790	0.7047	-	17.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

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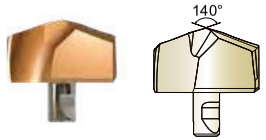

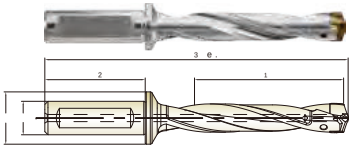

CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Unit : mm

Series Range (mm)	Insert EDP No. H-Coating	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S18 Ø18.00 to Ø19.99	Y181H1800	0.7087	-	18.00	ZD18003025	25	56	32	3D	57.0	141.3	TX1819P9
	Y181H1810	0.7126	-	18.10								
	Y181H1820	0.7165	-	18.20								
	Y181H1826	0.7188	23/32	18.26								
	Y181H1830	0.7205	-	18.30								
	Y181H1840	0.7244	-	18.40	ZD18005025				5D	95.0	178.3	
	Y181H1850	0.7283	-	18.50								
	Y181H1860	0.7323	-	18.60								
	Y181H1865	0.7344	47/64	18.65	ZD18008025				8D	152.0	233.8	
	Y181H1870	0.7362	-	18.70								
	Y181H1880	0.7402	-	18.80								
	Y181H1890	0.7441	-	18.90								
	Y181H1900	0.7480	-	19.00	ZD19003025	25	56	32	3D	60.0	145.3	TX1920P9
	Y181H1905	0.7500	3/4	19.05								
	Y181H1910	0.7520	-	19.10								
	Y181H1920	0.7559	-	19.20								
	Y181H1927	0.7587	-	19.27								
	Y181H1930	0.7598	-	19.30								
	Y181H1940	0.7638	-	19.40	ZD19005025				5D	100.0	184.3	
	Y181H1945	0.7656	49/64	19.45								
	Y181H1950	0.7677	-	19.50								
	Y181H1960	0.7717	-	19.60	ZD19008025				8D	160.0	242.8	
	Y181H1970	0.7756	-	19.70								
	Y181H1980	0.7795	-	19.80								
	Y181H1984	0.7813	25/32	19.84								
	Y181H1990	0.7835	-	19.90								

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◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
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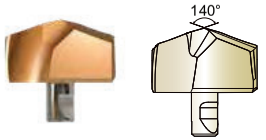

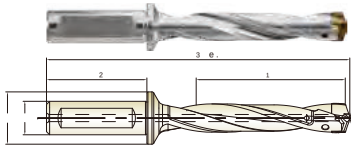

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Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
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Unit : mm

Series Range (mm)	Insert EDP No. H-Coating	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S20 Ø20.00 to Ø21.99	Y201H2000	0.7874	-	20.00	ZD20003025	25	56	32	3D	63.0	147.5	TX2021P9
	Y201H2010	0.7913	-	20.10								
	Y201H2020	0.7953	-	20.20								
	Y201H2024	0.7969	51/64	20.24								
	Y201H2030	0.7992	-	20.30								
	Y201H2040	0.8031	-	20.40	ZD20005025				5D	105.0	188.5	
	Y201H2050	0.8071	-	20.50								
	Y201H2060	0.8110	-	20.60								
	Y201H2064	0.8125	13/16	20.64	ZD20008025				8D	168.0	250.0	
	Y201H2070	0.8150	-	20.70								
	Y201H2080	0.8189	-	20.80								
	Y201H2090	0.8228	-	20.90								
	Y201H2100	0.8268	-	21.00	ZD21003025	25	56	32	3D	66.0	150.5	TX2122P9
	Y201H2103	0.8281	53/64	21.03								
	Y201H2110	0.8307	-	21.10								
	Y201H2120	0.8346	-	21.20								
	Y201H2130	0.8386	-	21.30								
	Y201H2140	0.8425	-	21.40								
	Y201H2143	0.8438	27/32	21.43	ZD21005025				5D	110.0	193.5	
	Y201H2150	0.8465	-	21.50								
	Y201H2160	0.8504	-	21.60								
	Y201H2170	0.8543	-	21.70	ZD21008025				8D	176.0	258.0	
	Y201H2180	0.8583	-	21.80								
	Y201H2183	0.8594	55/64	21.83								
	Y201H2190	0.8622	-	21.90								

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HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
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HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
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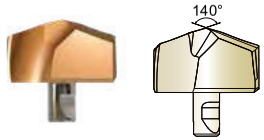

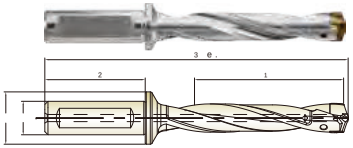

CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎ INDEXABLE DRILL HOLDER	D245 - 246		-	-
◎ ER COLLET CHUCK	D73 - 115			

Unit : mm

Series Range (mm)	Insert EDP No. (H-Coating)	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S22 Ø22.00 to Ø23.99	Y221H2200	0.8661	-	22.00	ZD22003025	25	56	32	3D	69.0	153.4	TX2223P9
	Y221H2210	0.8701	-	22.10								
	Y221H2220	0.8740	-	22.20								
	Y221H2223	0.8750	7/8	22.23								
	Y221H2230	0.8780	-	22.30								
	Y221H2240	0.8819	-	22.40	ZD22005025				5D	115.0	198.4	
	Y221H2250	0.8858	-	22.50								
	Y221H2260	0.8898	-	22.60								
	Y221H2262	0.8906	57/64	22.62	ZD22008025				8D	184.0	265.9	
	Y221H2270	0.8937	-	22.70								
	Y221H2280	0.8976	-	22.80								
	Y221H2290	0.9016	-	22.90								
	Y221H2300	0.9055	-	23.00	ZD23003025	25	56	32	3D	72.0	157.4	TX2324P9
	Y221H2302	0.9063	29/32	23.02								
	Y221H2310	0.9094	-	23.10								
	Y221H2320	0.9134	-	23.20								
	Y221H2330	0.9173	-	23.30								
	Y221H2340	0.9213	-	23.40								
	Y221H2342	0.9219	59/64	23.42	ZD23005025				5D	120.0	204.4	
	Y221H2350	0.9252	-	23.50								
	Y221H2360	0.9291	-	23.60								
	Y221H2370	0.9331	-	23.70	ZD23008025				8D	192.0	274.9	
	Y221H2380	0.9370	-	23.80								
	Y221H2381	0.9375	15/16	23.81								
	Y221H2390	0.9409	-	23.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

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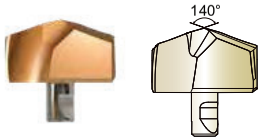
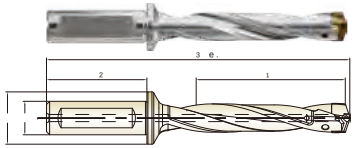
Y H SERIES
i-ONE DRILL INSERTS & HOLDERS
i-ONE DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
INSERTI & PORTAINSERTI i-ONE DRILL
- Applications
▶For carbon steels, alloy steels and cast iron.
▶Holder length: 3xD, 5xD, 8xD
- Benefits
▶Secure and quick clamping system.
▶High performance with cost efficiency.
▶Multi-layered coating delivers outstanding productivity and reliability.
- Anwendungen
▶Für Kohlenstoffstähle, legierte Stähle und Gusseisen.
▶Halterlänge: 3xD, 5xD, 8xD
- Vorteile
▶Sicheres und schnelles Spannsystem.
▶Hohe Leistungsfähigkeit bei gleichzeitiger Kosteneffizienz.
▶Mehrschichtige Beschichtung bietet hervorragende Produktivität und Zuverlässigkeit.





CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎ INDEXABLE DRILL HOLDER	D245 - 246		-	-
◎ ER COLLET CHUCK	D73 - 115			

Unit : mm

Series Range (mm)	Insert EDP No. (H-Coating)	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
S24 Ø24.00 to Ø25.99	Y241H2400	0.9449	-	24.00	ZD24003032	32	60	37	3D	75.0	165.8	TX2425P10
	Y241H2410	0.9488	-	24.10								
	Y241H2420	0.9528	-	24.20								
	Y241H2421	0.9531	61/64	24.21								
	Y241H2430	0.9567	-	24.30								
	Y241H2440	0.9606	-	24.40	ZD24005032				5D	125.0	214.8	
	Y241H2450	0.9646	-	24.50								
	Y241H2460	0.9685	-	24.60								
	Y241H2461	0.9688	31/32	24.61	ZD24008032				8D	200.0	288.3	
	Y241H2470	0.9724	-	24.70								
	Y241H2480	0.9764	-	24.80								
	Y241H2490	0.9803	-	24.90								
	Y241H2500	0.9844	63/64	25.00	ZD25003032	32	60	37	3D	78.0	170.8	TX2526P10
	Y241H2510	0.9882	-	25.10								
	Y241H2520	0.9921	-	25.20								
	Y241H2530	0.9961	-	25.30								
	Y241H2540	1.0000	1	25.40								
	Y241H2550	1.0039	-	25.50	ZD25005032				5D	130.0	221.8	
	Y241H2560	1.0079	-	25.60								
	Y241H2567	1.0106	-	25.67	ZD25008032				8D	208.0	298.3	
	Y241H2570	1.0118	-	25.70								
	Y241H2580	1.0156	1-1/64	25.80								
	Y241H2590	1.0197	-	25.90								

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

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- Applications
▶For carbon steels, alloy steels and cast iron.
▶Holder length: 3xD, 5xD, 8xD
- Benefits
▶Secure and quick clamping system.
▶High performance with cost efficiency.
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- Anwendungen
▶Für Kohlenstoffstähle, legierte Stähle und Gusseisen.
▶Halterlänge: 3xD, 5xD, 8xD
- Vorteile
▶Sicheres und schnelles Spannsystem.
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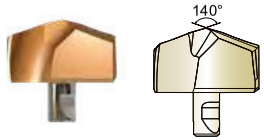

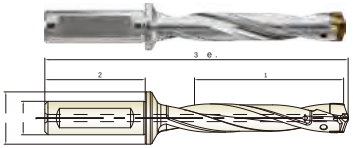

CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Unit : mm

Series Range (mm)	Insert EDP No. (H-Coating)	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
S26 Ø26.00 to Ø27.99	Y261H2600	1.0236	-	26.00	ZD26003032	32	60	37	3D	81.0	172.2	TX2627P10
	Y261H2619	1.0313	1-1/32	26.19								
	Y261H2650	1.0433	-	26.50	ZD26005032				5D	135.0	225.2	
	Y261H2659	1.0469	1-3/64	26.59								
	Y261H2699	1.0625	1-1/16	26.99	ZD26008032				8D	216.0	304.	
	Y261H2700	1.0630	-	27.00	ZD27003032	32	60	37	3D	84.0	175.2	TX2728P10
	Y261H2738	1.0781	1-5/64	27.38	ZD27005032				5D	140.0	230.2	
	Y261H2750	1.0827	-	27.50								
	Y261H2778	1.0938	1-3/32	27.78	ZD27008032				8D	224.0	312.7	
S28 Ø28.00 to Ø29.99	Y281H2800	1.1024	-	28.00	ZD28003032	32	60	37	3D	87.0	179.2	TX2829P10
	Y281H2818	1.1094	1-7/64	28.18								
	Y281H2850	1.1220	-	28.50	ZD28005032				5D	145.0	236.2	
	Y281H2858	1.1250	1-1/8	28.58								
	Y281H2897	1.1406	1-9/64	28.97	ZD28008032				8D	232.0	321.7	
	Y281H2900	1.1417	-	29.00	ZD29003032	32	60	37	3D	90.0	183.2	TX2930P10
	Y281H2937	1.1563	1-5/32	29.37	ZD29005032				5D	150.0	242.2	
	Y281H2950	1.1614	-	29.50								
	Y281H2977	1.1719	1-11/64	29.77	ZD29008032				8D	240.0	330.7	

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

YG i ONE DRILLS
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PLAQUETTES ET PORTE-PLAQUETTE i-ONE DRILL
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▶Sicheres und schnelles Spannsystem.
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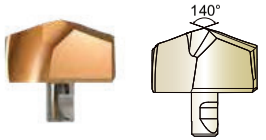
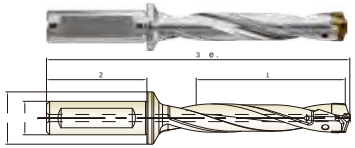




CARBIDE | ISO 9766 | h7 | 140° | H Coating p.A34

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Unit : mm

Series Range (mm)	Insert EDP No. (H-Coating)	Insert O.D. h7 dec.	frac.	mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
S30 Ø30.00 to Ø31.99	Y301H3000	1.1811		30.00	ZD30003032	32	60	37	3D	93.0	187.0	TX3031P15
	Y301H3016	1.1875	1-3/16	30.16								
	Y301H3050	1.2008		30.50	ZD30005032				5D	155.0	248.0	
	Y301H3056	1.2031	1-13/64	30.56								
	Y301H3096	1.2188	1-7/32	30.96	ZD30008032				8D	248.0	339.5	
	Y301H3100	1.2205		31.00	ZD31003032	32	60	37	3D	96.0	191.0	TX3132P15
	Y301H3135	1.2344	1-15/64	31.35	ZD31005032				5D	160.0	254.0	
	Y301H3150	1.2402		31.50								
	Y301H3175	1.2500	1-1/4	31.75	ZD31008032				8D	256.0	348.5	
S32 Ø32.00 to Ø33.99	Y321H3200	1.2598		32.00	ZD32003032	32	60	37	3D	99.0	197.2	TX3233P15
	Y321H3215	1.2656	1-17/64	32.15								
	Y321H3250	1.2795		32.50	ZD32005032				5D	165.0	262.2	
	Y321H3254	1.2813	1-9/32	32.54								
	Y321H3294	1.2969	1-19/64	32.94	ZD32008032				8D	264.0	359.7	
	Y321H3300	1.2992		33.00	ZD33003032	32	60	37	3D	102.0	201.2	TX3334P15
	Y321H3334	1.3125	1-5/16	33.34	ZD33005032				5D	170.0	268.2	
	Y321H3350	1.3189		33.50								
	Y321H3373	1.3281	1-21/64	33.73	ZD33008032				8D	272.0	368.7	

▶ Other diameters of insert and shank types of holder are available upon request.
◎ : Excellent ○ : Good

ISO	P											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Duplex	Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎					◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

YG i ONE DRILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

V.C = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev)					
				Ø10.0-11.99	Ø12.09-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.0-26.9	Ø27.0-33.99
P	1	Non-alloy steel	**100-126**	0.14-0.24	0.18-0.31	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	2		**84-110**	0.12-0.21	0.15-0.26	0.23-0.39	0.30-0.44	0.37-0.57	0.41-0.61
	3		**63-84**	0.11-0.18	0.13-0.22	0.19-0.31	0.24-0.35	0.33-0.51	0.36-0.54
	4		**58-74**	0.09-0.14	0.11-0.18	0.17-0.28	0.23-0.33	0.28-0.42	0.32-0.47
	5		**58-74**	0.09-0.14	0.11-0.18	0.17-0.28	0.23-0.33	0.28-0.42	0.32-0.47
	6	Low alloy steel	**74-95**	0.11-0.18	0.13-0.22	0.19-0.31	0.24-0.35	0.33-0.51	0.37-0.55
	7		**63-84**	0.11-0.18	0.13-0.22	0.17-0.28	0.24-0.35	0.33-0.51	0.37-0.55
	8		**58-74**	0.09-0.14	0.11-0.18	0.14-0.23	0.23-0.33	0.28-0.42	0.32-0.47
	9		**47-63**	0.07-0.11	0.09-0.13	0.14-0.23	0.23-0.33	0.28-0.42	0.32-0.47
	10	High alloyed steel, and tool steel	**53-68**	0.09-0.14	0.11-0.18	0.14-0.23	0.20-0.29	0.22-0.34	0.26-0.39
	11		**42-58**	0.09-0.14	0.11-0.18	0.12-0.20	0.23-0.33	0.22-0.34	0.26-0.39
K	15	Grey cast iron	**105-131**	0.13-0.23	0.17-0.29	0.22-0.41	0.30-0.46	0.40-0.56	0.44-0.61
	16		**79-100**	0.10-0.18	0.12-0.22	0.18-0.32	0.22-0.33	0.28-0.39	0.32-0.44
	17	Nodular cast iron	**100-126**	0.11-0.20	0.14-0.24	0.19-0.34	0.23-0.35	0.31-0.44	0.35-0.48
	18		**79-100**	0.10-0.18	0.12-0.22	0.15-0.29	0.21-0.32	0.28-0.39	0.32-0.44
	19	Malleable cast iron	**105-131**	0.11-0.20	0.14-0.24	0.19-0.34	0.23-0.35	0.31-0.44	0.35-0.48
	20		**79-100**	0.10-0.15	0.12-0.20	0.15-0.29	0.21-0.32	0.28-0.39	0.32-0.44

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 8xD holders.
▶ For use of 8xD holder, we recommend to use a pilot drill with equal to or larger than 140° point angle (0.5xD ~ 1.5xD).
The use of the centering pre-hole improves hole location, roundness and surface finish.

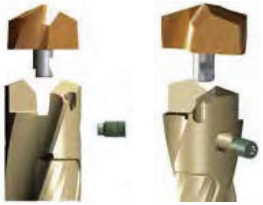
Comparison with Split Point Drill, Spade Drill & Dream Drill

Normal Split Point Drill
Dream Drill
Spade Drill
i-One Drill

YG i ONE DRILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

ASSEMBLY OF *i*-ONE DRILLS
MONTAGE DES i-ONE DRILLS

Make sure to clean the insert and insert seat.
Schneideinsatz und Haltersitz sorgfältig reinigen.



Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.
Schneideinsatz in den Haltersitz einführen und den Schneideinsatz fest auf den Grund des Haltersitzes pressen.

After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.
Wenn der Schneideinsatz fest auf den Grund des Haltersitzes gepresst ist, die Schraube fest anziehen und dabei Spezialfett verwenden.

WRENCH TYPE	PRODUCT NO.	SERIES (INSERT SIZE)	TORX PLUS®	TORQUE (N·m)
	TWFP05	S10~S12 (10.00 ~ 13.90)	5 IP	0.6
	TWDP07	S14~S16 (14.00 ~ 17.90)	7 IP	1.0
	TWDP09	S18~S22 (18.00 ~ 23.90)	9 IP	1.5
	TWDP10	S24~S28 (24.00 ~ 29.77)	10 IP	2.2
	TWDP15	S30~S32 (30.00 ~ 33.73)	15 IP	3.2

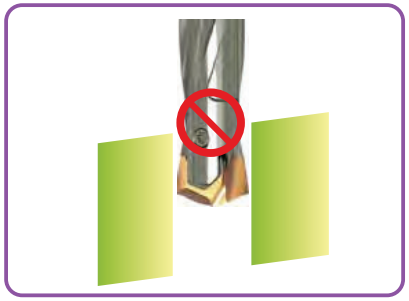
Use the Torx Plus wrench
Benutzen Sie den Winkeldreher oder T - Schlüsse

▶ Need to use appropriate wrenches and screws as indicated.
Unbedingt die angegebenen Schrauben und Dreher verwenden.
▶ It's important to tighten up the screw properly.
Es ist wichtig, die Schraube korrekt und fest anzuziehen.

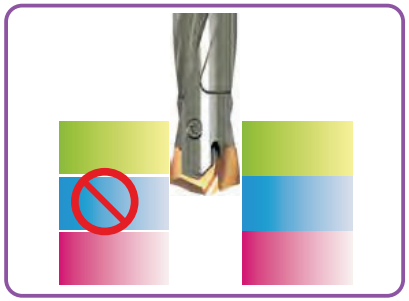
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

CAUTION-NOT RECOMMENDABLE APPLICATION
ACHTUNG - NICHT EMPFOHLENE ANWENDUNG

Intersecting cross hole is bigger than the drill insert's Margin Length.
Der Haltersitz ist größer als die Breite des Schneideinsatzes.

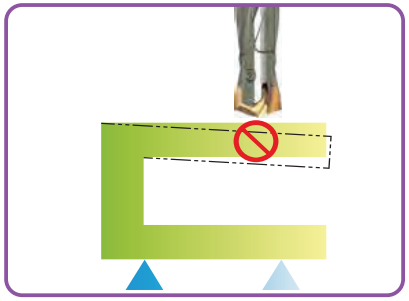


Material with slanting entrance and exit over 7 degrees. (If drilling 7 degrees or under slanting surface, reduce the feed about 30-50%)
Werkstücke mit schrägem Anschnitt oder Austritt von über 7°. (Zum Bohren von bis zu 7° Schräge den Vorschub um ca. 30-50% reduzieren).



For drilling stacked plates, minimize the space between the plates.
Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.

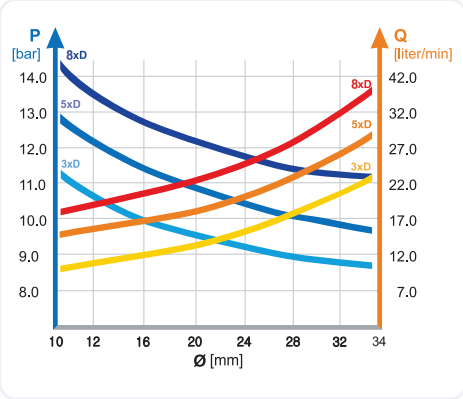
The space between stacked plates can cause insert breakage or poor chip control.
Freiraum in Blechpaketen kann den Bruch des Schneideinsatzes oder schlechte Entspanung verursachen.



The material needs to be fixtured securely before drilling.
Das Werkstück muss fest und sicher aufgespannt sein

YG i ONE D ILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING
EMPFOHLENE KÜHLMITTELDRUCK UND - MENGE BEIM VERTIKALEN BOHREN



- Recommended emulsion mix is 6 - 8%.
  Empfohlene Emulsionsmischung 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.
  Beim Bohren in rostfreie und hochfeste Stähle werden 10% empfohlen.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
  Beim horizontalen Bohren können Kühlmitteldruck und - menge um 30% gemindert werden.
- Dry drilling is possible for 1-2xD drilling. (But not recommended.)
  Trocken Bohren ist möglich bei 1-2xD. (Aber nicht empfohlen.)

TROUBLE SHOOTING
PROBLEMLÖSUNGEN

1) Heavy flank wear / Fast flank wear
- Reduce cutting speed
- Increase feed

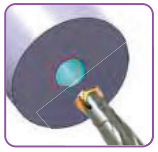
3) Build-up on cutting edge
- Increase cutting speed
- Use a coated insert

5) Wear of land margin
- Rigid clamping of workpiece
- Reduce cutting speed
- Increase coolant flow

7) Scratching on holder
- Rigid clamping of workpiece
- Reduce feed
- Increase coolant flow

2) Chipping on cutting edge
- Reduce feed
- Check the rigidity of spindle and chuck
- Rigid clamping of workpiece

4) Chipping or break down on outer corner
- Reduce feed
- Rigid clamping of workpiece



6) Unsatisfactory positioning of the hole
- Rigid clamping of workpiece
- Reduce feed during entrance or exit

8) Unsatisfactory surface finish
- Rigid clamping of workpiece
- Increase coolant flow and pressure

CARBIDE
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i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
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DREAM DRILLS for HIGH HARDENED STEELS
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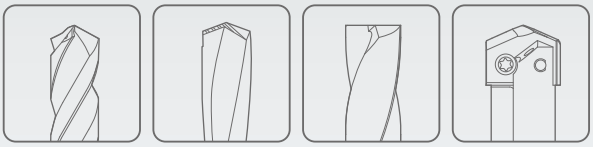
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

i-DREAM DRILLS

i-Dream Drills

- For General Steels and Stainless Steels
- Für allgemeine Stähle und Edelstähle

SELE TION G IDE

YG HOLEMAKING TOOLS

CARBIDE INSERTS & HOLDERS

i DREAM DRILLS

For General Steels and Stainless Steels

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◎ : Excellent ○ : Good

Recommended cutting conditions : p.A54, 55

SERIES	YA1A	YA2C	YB1A	YB2C
TYPE	A		B	
SIZE MIN	12.00		14.00	
SIZE MAX	13.89		15.87	
PAGE	A44		A45	
SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	YA1A	YA2C	YB1A	YB2C
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	○	◎	○
	2		About 0.45% C	Annealed	190	13	◎	○	◎	○
	3		About 0.45% C	Quenched & Tempered	250	25	◎	○	◎	○
	4		About 0.75% C	Annealed	270	28	◎	○	◎	○
	5		About 0.75% C	Quenched & Tempered	300	32	◎		◎	
	6	Low alloy steel		Annealed	180	10	◎	○	◎	○
	7			Quenched & Tempered	275	29	◎	○	◎	○
	8			Quenched & Tempered	300	32	◎		◎	
	9			Quenched & Tempered	350	38	◎		◎	
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	○	◎	○
	11			Quenched & Tempered	325	35	◎		◎	
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		◎		◎
	13		Martensitic	Quenched & Tempered	240	23		◎		◎
	14		Austenitic		180	10		◎		◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎		◎	
	16		Pearlitic (Martensitic)		260	26	◎		◎	
	17	Nodular cast iron	Ferritic		160	3	◎		◎	
	18		Pearlitic		250	25	◎		◎	
	19	Malleable cast iron	Ferritic		130		◎		◎	
	20		Pearlitic		230	21	◎		◎	
N	21	Aluminum-wrought alloy	Not Curable		60			○		○
	22		Curable	Hardened	100			○		○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			○		○
	24		≤ 12% Si, Curable	Hardened	90			○		○
	25		> 12% Si, Not Curable		130			○		○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			○		○
	27		CuZn, CuSnZn (Brass)		90			○		○
	28		CuSn, lead-free copper and electrolytic copper		100			○		○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

YC1A	YC2C	YD1A	YD2C	YE1A	YE2C	YF1A	YF2C	YG1A	YG2C
C		D		E		F		G	
16.00		18.00		20.00		22.00		24.00	
17.86		19.84		21.83		23.81		25.80	
A46		A47		A48		A49		A50	
TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN	TiAlN	TiCN

YC1A	YC2C	YD1A	YD2C	YE1A	YE2C	YF1A	YF2C	YG1A	YG2C		
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SELE TION G IDE

HOLEMAKING TOOLS

CARBIDE INSERTS & HOLDERS

i DREAM DRILLS

For General Steels and Stainless Steels

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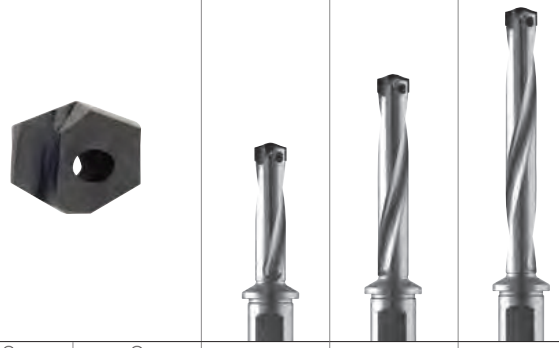
◎ : Excellent ○ : Good

Recommended cutting conditions : p.A54, 55

SERIES	YH1A	YH2C
TYPE	H	
SIZE MIN	26.00	
SIZE MAX	27.78	
PAGE	A51	
SURFACE TREATMENT	TiAlN	TiCN

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	YH1A (TiAlN)	YH2C (TiCN)
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	○
	2		About 0.45% C	Annealed	190	13	◎	○
	3		About 0.45% C	Quenched & Tempered	250	25	◎	○
	4		About 0.75% C	Annealed	270	28	◎	○
	5		About 0.75% C	Quenched & Tempered	300	32	◎	
	6	Low alloy steel		Annealed	180	10	◎	○
	7			Quenched & Tempered	275	29	◎	○
	8			Quenched & Tempered	300	32	◎	
	9			Quenched & Tempered	350	38	◎	
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	○
	11			Quenched & Tempered	325	35	◎	
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		◎
	13		Martensitic	Quenched & Tempered	240	23		◎
	14		Austenitic		180	10		◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	
	16		Pearlitic (Martensitic)		260	26	◎	
	17	Nodular cast iron	Ferritic		160	3	◎	
	18		Pearlitic		250	25	◎	
	19	Malleable cast iron	Ferritic		130		◎	
	20		Pearlitic		230	21	◎	
N	21	Aluminum-wrought alloy	Not Curable		60			○
	22		Curable	Hardened	100			○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			○
	24		≤ 12% Si, Curable	Hardened	90			○
	25		> 12% Si, Not Curable		130			○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			○
	27		CuZn, CuSnZn (Brass)		90			○
	28		CuSn, lead-free copper and electrolytic copper		100			○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

SERIES	YI1A	YI2C	YJ1A	YJ2C	ZH*3	ZH*5	ZH*7
TYPE	I		J				
SIZE MIN	28.00		30.00				
SIZE MAX	29.77		31.75				
PAGE	A52		A53				
SURFACE TREATMENT	TiAlN	TiCN	TiAlN	TiCN	3XD	5XD	7XD



ISO	VDI 3323	YI1A (TiAlN)	YI2C (TiCN)	YJ1A (TiAlN)	YJ2C (TiCN)	ZH*3 3XD	ZH*5 5XD	ZH*7 7XD
P	1	◎	○	◎	○			
	2	◎	○	◎	○			
	3	◎	○	◎	○			
	4	◎	○	◎	○			
	5	◎		◎				
	6	◎	○	◎	○			
	7	◎	○	◎	○			
	8	◎		◎				
	9	◎		◎				
	10	◎	○	◎	○			
	11	◎		◎				
M	12		◎		◎			
	13		◎		◎			
	14		◎		◎			
K	15	◎		◎				
	16	◎		◎				
	17	◎		◎				
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CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX
INSERTI & PORTAINSERTI i-DREAM DRILL

- Features of *i-Dream Drill* Inserts-
Merkmale des i-Dream Drill Einsätze

- Secure and accurate seating resulting in accurate repeatability and concentricity.
  Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

*i-Dream Drill **General** / i-Dream Drill **allgemeinen***
- For most steels materials / In den meisten Stahlsorten

*i-Dream Drill **INOX** / i-Dream Drill **INOX***
- For tough, ductile materials and stainless steels
  Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- Light, sharp cutting edge / Scharfe Schneidkante
- Soft cutting action / Weicher Schnitt
- Minimize cutting forces / Minimaler Schneidendruck
- Reduce built-up edge / Reduzierte Gratbildung

- Features of *i-Dream Drill* Holders-
- Merkmale des i-Dresm Drill Halters-

- Special Alloy Steels maintain its hardness and toughness under high temperatures.
  Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- Innovative surface treatment improves wear resistance and reduces corrosion.
  Innovative Oberflächenbehandlung, die die Verschleissfestigkeit erhöht und die Korrosion vermindert.
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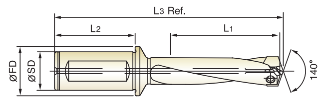

CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN | p.A54, 55

Recommended ToolHolder		Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER		D245 - 246		-
◎	ER COLLET CHUCK		-		D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
A Ø12.00 to Ø13.99	YA1A1200	YA2C1200	.4724	-	12.00
	YA1A1210	YA2C1210	.4764	-	12.10
	YA1A1220	YA2C1220	.4803	-	12.20
	YA1A1230	YA2C1230	.4844	31/64	12.30
	YA1A1250	YA2C1250	.4921	-	12.50
	YA1A1260	YA2C1260	.4961	-	12.60
	YA1A1270	YA2C1270	.5000	1/2	12.70
	YA1A1280	YA2C1280	.5039	-	12.80
	YA1A1290	YA2C1290	.5079	-	12.90
	YA1A1300	YA2C1300	.5118	-	13.00
	YA1A1310	YA2C1310	.5156	33/64	13.10
	YA1A1320	YA2C1320	.5197	-	13.20
	YA1A1349	YA2C1349	.5312	17/32	13.49
	YA1A1350	YA2C1350	.5315	-	13.50
	YA1A1360	YA2C1360	.5354	-	13.60
	YA1A1370	YA2C1370	.5394	-	13.70
	YA1A1380	YA2C1380	.5433	-	13.80
	YA1A1389	YA2C1389	.5469	35/64	13.89

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
ZH12003020	20	50	25	3D	36	112.4	TX1213T08
ZH12005020				5D	60	136.4	
ZH12007020				7D	84	160.4	
ZH12503020	20	50	25	3D	37.5	113.4	
ZH12505020				5D	62.5	138.4	
ZH12507020				7D	87.5	163.4	
ZH13003020	20	50	25	3D	39	115.4	TX1314T08
ZH13005020				5D	65	141.4	
ZH13007020				7D	91	167.4	
ZH13503020	20	50	25	3D	40.5	116.4	
ZH13505020				5D	67.5	143.4	
ZH13507020				7D	94.5	170.4	

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YA1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YA2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YA1A																					
YA2C	○	○	○	○	○	○	○	○													

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX
INSERTI & PORTAINSERTI i-DREAM DRILL

- Features of *i-Dream Drill* Inserts-
Merkmale des i-Dream Drill Einsätze

- Secure and accurate seating resulting in accurate repeatability and concentricity.
  Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

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- Reduce built-up edge / Reduzierte Gratbildung

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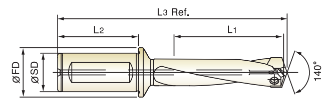

CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN | p.A54, 55

Recommended ToolHolder		Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER		D245 - 246		-
◎	ER COLLET CHUCK		-		D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
B Ø14.00 to Ø15.99	YB1A1400	YB2C1400	.5512	-	14.00
	YB1A1410	YB2C1410	.5551	-	14.10
	YB1A1420	YB2C1420	.5591	-	14.20
	YB1A1429	YB2C1429	.5625	9/16	14.29
	YB1A1430	YB2C1430	.5630	-	14.30
	YB1A1440	YB2C1440	.5669	-	14.40
	YB1A1450	YB2C1450	.5709	-	14.50
	YB1A1460	YB2C1460	.5748	-	14.60
	YB1A1468	YB2C1468	.5781	37/64	14.68
	YB1A1480	YB2C1480	.5827	-	14.80
	YB1A1500	YB2C1500	.5906	-	15.00
	YB1A1508	YB2C1508	.5938	19/32	15.08
	YB1A1510	YB2C1510	.5945	-	15.10
	YB1A1520	YB2C1520	.5984	-	15.20
	YB1A1530	YB2C1530	.6024	-	15.30
	YB1A1548	YB2C1548	.6094	39/64	15.48
	YB1A1550	YB2C1550	.6102	-	15.50
	YB1A1560	YB2C1560	.6142	-	15.60
	YB1A1570	YB2C1570	.6181	-	15.70
	YB1A1580	YB2C1580	.6220	-	15.80
	YB1A1587	YB2C1587	.6250	5/8	15.87

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
ZH14003020	20	50	25	3D	42	118.9	TX1415T08
ZH14005020				5D	70	146.9	
ZH14007020				7D	98	174.9	
ZH14503020	20	50	25	3D	43.5	120.9	
ZH14505020				5D	72.5	149.9	
ZH14507020				7D	101.5	178.9	
ZH15003020	20	50	25	3D	45	122.9	TX1516T08
ZH15005020				5D	75	152.9	
ZH15007020				7D	105	182.9	
ZH15503020	20	50	25	3D	46.5	123.9	
ZH15505020				5D	77.5	154.9	
ZH15507020				7D	108.5	185.9	

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YB1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YB2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YB1A																					
YB2C	○	○	○	○	○	○	○	○													

CARBIDE
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i-ONE DRILLS | i-DREAM DRILLS | DREAM DRILLS -PRO | DREAM DRILLS -GENERAL | DREAM DRILLS -HIGH FEED | DREAM DRILLS -FLAT BOTTOM | DREAM DRILLS -INOX | DREAM DRILLS -ALU | DREAM DRILLS -MQL | DREAM DRILLS for HIGH HARDENED STEELS | GENERAL CARBIDE DRILLS | MULTI-1 DRILLS | HPD DRILLS | GOLD-P DRILLS | SUPER-GP DRILLS | STRAIGHT SHANK DRILLS | TAPER SHANK DRILLS | NC-SPOTTING DRILLS | CENTER DRILLS | SPADE DRILLS | REAMERS | COUNTER SINKS | COUNTER BORES | TECHNICAL DATA

YG i D EAM D ILLS

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Y SERIES

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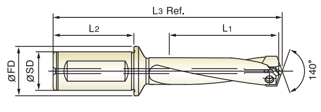

CARBIDE | ISO 9766 | h7 | 140° | TiAIN | TiCN

p.A54, 55

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
◎	ER COLLET CHUCK			D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAIN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	Drilling Depth L1	Overall Length L3 Ref.	Screw No.
Ø16.00 to Ø17.99	YC1A1600	YC2C1600	.6299	-	16.00	ZH16003020				3D	48	125.0	
	YC1A1609	YC2C1609	.6335	-	16.09								
	YC1A1620	YC2C1620	.6378	-	16.20	ZH16005020	20	50	25	5D	80	157.0	
	YC1A1627	YC2C1627	.6406	41/64	16.27								
	YC1A1630	YC2C1630	.6417	-	16.30	ZH16007020				7D	112	189.0	TX1617T08
	YC1A1650	YC2C1650	.6496	-	16.50	ZH16503020				3D	49.5	127.0	
	YC1A1667	YC2C1667	.6562	21/32	16.67	ZH16505020	20	50	25	5D	82.5	160.0	
	YC1A1680	YC2C1680	.6614	-	16.80	ZH16507020				7D	115.5	193.0	
	YC1A1700	YC2C1700	.6693	-	17.00	ZH17003020				3D	51	128.0	
	YC1A1707	YC2C1707	.6719	43/64	17.07	ZH17005020	20	50	25	5D	85	162.0	
	YC1A1746	YC2C1746	.6875	11/16	17.46	ZH17007020				7D	119	196.0	
	YC1A1750	YC2C1750	.6890	-	17.50	ZH17503020				3D	52.5	130.0	TX1718T08
	YC1A1780	YC2C1780	.7008	-	17.80	ZH17505020	20	50	25	5D	87.5	165.0	
	YC1A1786	YC2C1786	.7031	45/64	17.86	ZH17507020				7D	122.5	200.0	

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YC1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YC2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
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HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YC1A																					
YC2C	○	○	○	○	○	○	○	○													

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

CARBIDE
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i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
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YG i D EAM D ILLS

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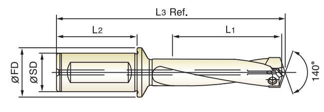

CARBIDE | ISO 9766 | h7 | 140° | TiAIN | TiCN

p.A54, 55

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
◎	ER COLLET CHUCK			D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAIN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. mm	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	Drilling Depth L1	Overall Length L3 Ref.	Screw No.
D Ø18.00 to Ø19.99	YD1A1800	YD2C1800	.7087	-	18.00	ZH18003025				3D	54	140.3	
						ZH18005025	25	56	32	5D	90	176.3	
	YD1A1826	YD2C1826	.7188	23/32	18.26	ZH18007025				7D	126	212.3	TX1819T15
	YD1A1850	YD2C1850	.7283	-	18.50	ZH18503025				3D	55.5	141.3	
	YD1A1865	YD2C1865	.7344	47/64	18.65	ZH18505025	25	56	32	5D	92.5	178.3	
	YD1A1880	YD2C1880	.7402	-	18.80	ZH18507025				7D	129.5	215.3	
	YD1A1900	YD2C1900	.7480	-	19.00	ZH19003025				3D	57	144.3	
	YD1A1905	YD2C1905	.7500	3/4	19.05	ZH19005025	25	56	32	5D	95	182.3	
	YD1A1927	YD2C1927	.7587	-	19.27								
	YD1A1945	YD2C1945	.7656	49/64	19.45	ZH19007025				7D	133	220.3	TX1920T15
	YD1A1950	YD2C1950	.7677	-	19.50	ZH19503025				3D	58.5	145.3	
	YD1A1980	YD2C1980	.7795	-	19.80	ZH19505025	25	56	32	5D	97.5	184.3	
	YD1A1984	YD2C1984	.7812	25/32	19.84	ZH19507025				7D	136.5	223.3	

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YD1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YD2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YD1A																					
YD2C	○	○	○	○	○	○	○	○													

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i D EAM D ILLS

YE A SERIES
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i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX
INSERTI & PORTAINSERTI i-DREAM DRILL

- Features of *i-Dream Drill* Inserts-
Merkmale des i-Dream Drill Einsätze

- ▶ Secure and accurate seating resulting in accurate repeatability and concentricity.
  Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

i-Dream Drill ***General*** / *i-Dream Drill* ***allgemeinen***
- ▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill ***INOX*** / *i-Dream Drill* ***INOX***
- ▶ For tough, ductile materials and stainless steels
  Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- ▶ Light, sharp cutting edge / Scharfe Schneidkante
- ▶ Soft cutting action / Weicher Schnitt
- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung

- Features of *i-Dream Drill* Holders-
- Merkmale des i-Dresm Drill Halters-

- ▶ Special Alloy Steels maintain its hardness and toughness under high temperatures.
  Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- ▶ Innovative surface treatment improves wear resistance and reduces corrosion.
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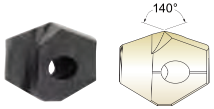
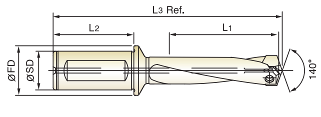
- ▶ High Performance flute design allows maximum chip evacuation and minimum interference.
  Optimierte Nutenform für maximale Spanabfuhr.





CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN

p.A54, 55

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
◎	ER COLLET CHUCK			D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
E Ø20.00 to Ø21.99	YE1A2000	YE2C2000	.7874		20.00
	YE1A2024	YE2C2024	.7969	51/64	20.24
	YE1A2050	YE2C2050	.8071		20.50
	YE1A2064	YE2C2064	.8125	13/16	20.64
	YE1A2070	YE2C2070	.8150		20.70
	YE1A2100	YE2C2100	.8268		21.00
	YE1A2103	YE2C2103	.8281	53/64	21.03
	YE1A2143	YE2C2143	.8438	27/32	21.43
	YE1A2150	YE2C2150	.8465		21.50
	YE1A2170	YE2C2170	.8543		21.70
	YE1A2183	YE2C2183	.8594	55/64	21.83

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
ZH20003025	25	56	32	3D	60	145.5	TX2021T20
ZH20005025				5D	100	185.5	
ZH20007025				7D	140	225.5	
ZH20503025	25	56	32	3D	61.5	147.5	
ZH20505025				5D	102.5	188.5	
ZH20507025				7D	143.5	229.5	
ZH21003025	25	56	32	3D	63	149.5	TX2122T20
ZH21005025				5D	105	191.5	
ZH21007025				7D	147	233.5	
ZH21503025	25	56	32	3D	64.5	150.5	
ZH21505025				5D	107.5	193.5	
ZH21507025				7D	150.5	236.5	

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YE1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YE2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YE1A																					
YE2C	○	○	○	○	○	○	○	○													

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INSERTI & PORTAINSERTI i-DREAM DRILL

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Merkmale des i-Dream Drill Einsätze

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- ▶ Minimize cutting forces / Minimaler Schneidendruck
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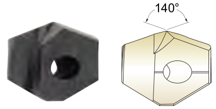

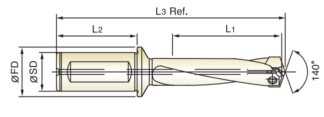

CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN

p.A54, 55

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
◎	ER COLLET CHUCK			D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
Ø22.00 to Ø23.99	YF1A2200	YF2C2200	.8661		22.00
	YF1A2223	YF2C2223	.8750	7/8	22.23
	YF1A2250	YF2C2250	.8858		22.50
	YF1A2262	YF2C2262	.8906	57/64	22.62
	YF1A2270	YF2C2270	.8937		22.70
	YF1A2300	YF2C2300	.9055		23.00
	YF1A2302	YF2C2302	.9062	29/32	23.02
	YF1A2342	YF2C2342	.9219	59/64	23.42
	YF1A2350	YF2C2350	.9252		23.50
	YF1A2370	YF2C2370	.9331		23.70
	YF1A2381	YF2C2381	.9375	15/16	23.81

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
ZH22003025	25	56	32	3D	66	152.4	TX2223T20
ZH22005025				5D	110	196.4	
ZH22007025				7D	154	240.4	
ZH22503025	25	56	32	3D	67.5	153.4	
ZH22505025				5D	112.5	198.4	
ZH22507025				7D	157.5	243.4	
ZH23003025	25	56	32	3D	69	155.4	TX2324T20
ZH23005025				5D	115	201.4	
ZH23007025				7D	161	247.4	
ZH23503025	25	56	32	3D	70.5	157.4	
ZH23505025				5D	117.5	204.4	
ZH23507025				7D	164.5	251.4	

▶ Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YF1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YF2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YF1A																					
YF2C	○	○	○	○	○	○	○	○													

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CARBIDE HSS i-ONE DRILLS i-DREAM DRILLS DREAM DRILLS-PRO DREAM DRILLS-GENERAL DREAM DRILLS-HIGH FEED DREAM DRILLS-FLAT BOTTOM DREAM DRILLS-INOX DREAM DRILLS-ALU DREAM DRILLS-MQL DREAM DRILLS for HIGH HARDENED STEELS GENERAL CARBIDE DRILLS MULTI-1 DRILLS HPD DRILLS GOLD-P DRILLS SUPER-GP DRILLS STRAIGHT SHANK DRILLS TAPER SHANK DRILLS NC-SPOTTING DRILLS CENTER DRILLS SPADE DRILLS REAMERS COUNTER SINKS COUNTER BORES TECHNICAL DATA

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX
INSERTI & PORTAINSERTI i-DREAM DRILL

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Merkmale des i-Dream Drill Einsätze

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i-Dream Drill General* / *i-Dream Drill allgemeinen

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i-Dream Drill INOX* / *i-Dream Drill INOX

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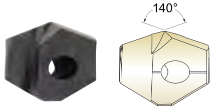

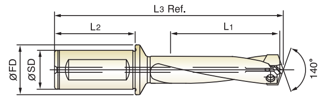

CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN | p.A54, 55

Recommended ToolHolder		Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER		D245 - 246	-	-
◎	ER COLLET CHUCK				D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
G Ø24.00 to Ø25.99	YG1A2400	YG2C2400	.9449	-	24.00
	YG1A2421	YG2C2421	.9531	61/64	24.21
	YG1A2450	YG2C2450	.9646	-	24.50
	YG1A2461	YG2C2461	.9688	31/32	24.61
	YG1A2470	YG2C2470	.9724	-	24.70
	YG1A2500	YG2C2500	.9843	63/64	25.00
	YG1A2540	YG2C2540	1.0000	1	25.40
	YG1A2550	YG2C2550	1.0039	-	25.50
	YG1A2567	YG2C2567	1.0106	-	25.67
	YG1A2570	YG2C2570	1.0118	-	25.70
	YG1A2580	YG2C2580	1.0156	1-1/64	25.80

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
ZH24003032	32	60	37	3D	72	164.8	TX2425T20
ZH24005032				5D	120	212.8	
ZH24007032				7D	168	260.8	
ZH24503032	32	60	37	3D	73.5	165.8	
ZH24505032				5D	122.5	214.8	
ZH24507032				7D	171.5	263.8	
ZH25003032	32	60	37	3D	75	167.8	TX2526T20
ZH25005032				5D	125	217.8	
ZH25007032				7D	175	267.8	
ZH25503032	32	60	37	3D	76.5	170.8	
ZH25505032				5D	127.5	221.8	
ZH25507032				7D	178.5	272.8	

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◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YG1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YG2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
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HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YG1A																					
YG2C	○	○	○	○	○	○	○	○													

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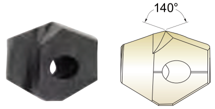

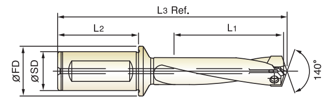

CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN | p.A54, 55

Recommended ToolHolder		Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER		D245 - 246	-	-
◎	ER COLLET CHUCK				D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
H Ø26.00 to Ø27.99	YH1A2600	YH2C2600	1.0236	-	26.00
	YH1A2619	YH2C2619	1.0312	1-1/32	26.19
	YH1A2650	YH2C2650	1.0433		26.50
	YH1A2659	YH2C2659	1.0469	1-3/64	26.59
	YH1A2699	YH2C2699	1.0625	1-1/16	26.99
	YH1A2700	YH2C2700	1.0630	-	27.00
	YH1A2750	YH2C2750	1.0827	-	27.50
	YH1A2778	YH2C2778	1.0938	1-3/32	27.78

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth L1		Overall Length L3 Ref.	Screw No.
ZH26003032	32	60	37	3D	78	171.2	TX2627T25
ZH26005032				5D	130	223.2	
ZH26007032				7D	182	275.2	
ZH26503032	32	60	37	3D	79.5	172.2	
ZH26505032				5D	132.5	225.2	
ZH26507032				7D	185.5	278.2	
ZH27003032	32	60	37	3D	81	174.2	TX2728T25
ZH27005032				5D	135	228.2	
ZH27007032				7D	189	282.2	
ZH27503032	32	60	37	3D	82.5	175.2	
ZH27505032				5D	137.5	230.2	
ZH27507032				7D	192.5	285.2	

- Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YH1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YH2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YH1A																					
YH2C	○	○	○	○	○	○	○	○													

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i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX
INSERTI & PORTAINSERTI i-DREAM DRILL

- Features of *i-Dream Drill* Inserts-
Merkmale des i-Dream Drill Einsätze

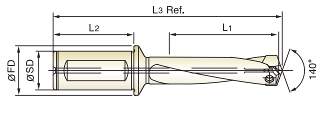
- Secure and accurate seating resulting in accurate repeatability and concentricity.
  Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

i-Dream Drill General** / i-Dream Drill **allgemeinen
- For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX** / i-Dream Drill **INOX
- For tough, ductile materials and stainless steels
  Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- Light, sharp cutting edge / Scharfe Schneidkante
- Soft cutting action / Weicher Schnitt
- Minimize cutting forces / Minimaler Schneidendruck
- Reduce built-up edge / Reduzierte Gratbildung

- Features of *i-Dream Drill* Holders-
- Merkmale des i-Dresm Drill Halters-

- Special Alloy Steels maintain its hardness and toughness under high temperatures.
  Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- Innovative surface treatment improves wear resistance and reduces corrosion.
  Innovative Oberflächenbehandlung, die die Verschleissfestigkeit erhöht und die Korrosion vermindert.
- High Performance flute design allows maximum chip evacuation and minimum interference.
  Optimierte Nutenform für maximale Spanabfuhr.



CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN | p.A54, 55

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
◎			ER COLLET CHUCK	D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
I Ø28.00 to Ø29.99	YI1A2800	YI2C2800	1.1024	-	28.00
	YI1A2818	YI2C2818	1.1094	1-7/64	28.18
	YI1A2850	YI2C2850	1.1220	-	28.50
	YI1A2858	YI2C2858	1.1250	1-1/8	28.58
	YI1A2900	YI2C2900	1.1417	-	29.00
	YI1A2937	YI2C2937	1.1562	1-5/32	29.37
	YI1A2950	YI2C2950	1.1614	-	29.50
	YI1A2977	YI2C2977	1.1719	1-11/64	29.77

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
ZH28003032	32	60	37	3D	84	178.2	TX2829T25
ZH28005032				5D	140	234.2	
ZH28007032				7D	196	290.2	
ZH28503032	32	60	37	3D	85.5	179.2	
ZH28505032				5D	142.5	236.2	
ZH28507032				7D	199.5	293.2	
ZH29003032	32	60	37	3D	87	182.2	TX2930T25
ZH29005032				5D	145	240.2	
ZH29007032				7D	203	298.2	
ZH29503032	32	60	37	3D	88.5	183.2	
ZH29505032				5D	147.5	242.2	
ZH29507032				7D	206.5	301.2	

- Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YI1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YI2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YI1A																					
YI2C	○	○	○	○	○	○	○	○													

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i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER
PLAQUETTES ET PORTE-PLAQUETTE I-DREAM DRILL - USAGE GÉNÉRAL / INOX
INSERTI & PORTAINSERTI i-DREAM DRILL

- Features of *i-Dream Drill* Inserts-
Merkmale des i-Dream Drill Einsätze

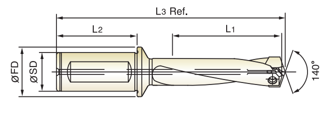
- Secure and accurate seating resulting in accurate repeatability and concentricity.
  Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

i-Dream Drill General** / i-Dream Drill **allgemeinen
- For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX** / i-Dream Drill **INOX
- For tough, ductile materials and stainless steels
  Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- Light, sharp cutting edge / Scharfe Schneidkante
- Soft cutting action / Weicher Schnitt
- Minimize cutting forces / Minimaler Schneidendruck
- Reduce built-up edge / Reduzierte Gratbildung

- Features of *i-Dream Drill* Holders-
- Merkmale des i-Dresm Drill Halters-

- Special Alloy Steels maintain its hardness and toughness under high temperatures.
  Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- Innovative surface treatment improves wear resistance and reduces corrosion.
  Innovative Oberflächenbehandlung, die die Verschleissfestigkeit erhöht und die Korrosion vermindert.
- High Performance flute design allows maximum chip evacuation and minimum interference.
  Optimierte Nutenform für maximale Spanabfuhr.



CARBIDE | ISO 9766 | h7 | 140° | TiAlN | TiCN | p.A54, 55

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
◎			ER COLLET CHUCK	D73 - 115

Unit : mm

Series Range (mm)	Insert EDP No. General (TiAlN)	Insert EDP No. INOX (TiCN)	Insert O.D. h7 dec.	Insert O.D. h7 frac.	Insert O.D. h7 mm
J Ø30.00 to Ø31.99	YJ1A3000	YJ2C3000	1.1811		30.00
	YJ1A3016	YJ2C3016	1.1875	1-3/16	30.16
	YJ1A3050	YJ2C3050	1.2008		30.50
	YJ1A3056	YJ2C3056	1.2031	1-13/64	30.56
	YJ1A3096	YJ2C3096	1.2188	1-7/32	30.96
	YJ1A3100	YJ2C3100	1.2205		31.00
	YJ1A3150	YJ2C3150	1.2402		31.50
	YJ1A3175	YJ2C3175	1.2500	1-1/4	31.75

Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Drilling Depth	L1	Overall Length L3 Ref.	Screw No.
ZH30003032	32	60	37	3D	90	186.0	TX3031T25
ZH30005032				5D	150	246.0	
ZH30007032				7D	210	306.0	
ZH30503032	32	60	37	3D	91.5	187.0	
ZH30505032				5D	152.5	248.0	
ZH30507032				7D	213.5	309.0	
ZH31003032	32	60	37	3D	93	188.0	TX3132T25
ZH31005032				5D	155	250.0	
ZH31007032				7D	217	312.0	
ZH31503032	32	60	37	3D	94.5	191.0	
ZH31505032				5D	157.5	254.0	
ZH31507032				7D	220.5	317.0	

- Other diameters of insert and shank types of holder are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
YJ1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎	◎	◎	◎
YJ2C	○	○	○	○		○	○			○		◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
YJ1A																					
YJ2C	○	○	○	○	○	○	○	○													

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CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

YG i DREAM DRILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

YA A Y A Y A YD A YE A Y A YG A YH A YI A Y A SERIES — i-DREAM DRILLS - GENERAL

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev) Ø12.00-14.99	Ø15.00-17.99	Ø18.00-21.99	Ø22.00-26.99	Ø27.00-31.99
P	1	Non-alloy steel	95-120	0.16-0.28	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	2		80-105	0.14-0.24	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	3		60-80	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
	4		55-70	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	5		55-70	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	6	Low alloy steel	70-90	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.34-0.50
	7		60-80	0.12-0.20	0.15-0.25	0.22-0.32	0.30-0.46	0.34-0.50
	8		55-70	0.10-0.16	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
	9		45-60	0.08-0.12	0.13-0.21	0.21-0.30	0.25-0.38	0.29-0.43
	10	High alloyed steel, and tool steel	50-65	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31	0.24-0.35
	11		40-55	0.10-0.16	0.11-0.18	0.21-0.30	0.20-0.31	0.24-0.35
K	15	Grey cast iron	100-125	0.15-0.26	0.20-0.37	0.27-0.42	0.36-0.51	0.40-0.55
	16		75-95	0.11-0.20	0.16-0.29	0.20-0.30	0.25-0.35	0.29-0.40
	17	Nodular cast iron	95-120	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
	18		75-95	0.11-0.20	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40
	19	Malleable cast iron	100-125	0.13-0.22	0.17-0.31	0.21-0.32	0.28-0.40	0.32-0.44
	20		75-95	0.11-0.18	0.14-0.26	0.19-0.29	0.25-0.35	0.29-0.40

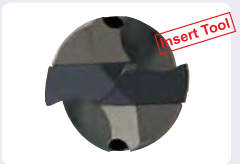
▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 7xD holders.
▶ For use of 7xD holder, we recommend to use a pilot drill with equal to or larger than 140° point angle (0.5xD - 1.5xD).
The use of the centering pre-hole improves hole location, roundness and surface finish.

Comparison with Split Point Drill, Spade Drill & Dream Drill

Normal Split Point Drill

Dream Drill

Spade Drill



i-Dream Drill

YG i DREAM DRILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

YA Y Y YD YE Y YG YH YI Y SERIES — i-DREAM DRILLS - INOX

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc (m/min)	Feed(mm/rev) Ø12.00-14.99	Ø15.00-17.99	Ø18.00-21.90	Ø22.00-26.99	Ø27.00-31.99
P	1	Non-alloy steel	95-120	0.16-0.28	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	2		80-105	0.14-0.24	0.21-0.35	0.27-0.40	0.34-0.52	0.37-0.55
	3		60-80	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.33-0.49
	4		55-70	0.10-0.16	0.15-0.25	0.21-0.30	0.25-0.38	0.29-0.43
	6	Low alloy steel	70-90	0.12-0.20	0.17-0.28	0.22-0.32	0.30-0.46	0.34-0.50
	7		60-80	0.12-0.20	0.15-0.25	0.22-0.32	0.30-0.46	0.34-0.50
	10	High alloyed steel, and tool steel	50-65	0.10-0.16	0.13-0.21	0.18-0.26	0.20-0.31	0.24-0.35
M	12	Stainless steel	30-45	0.08-0.14	0.09-0.15	0.10-0.16	0.12-0.20	0.140.22
	13		30-45	0.08-0.14	0.09-0.15	0.10-0.16	0.12-0.20	0.14-0.22
	14		45-60	0.10-0.16	0.12-0.18	0.14-0.20	0.15-0.26	0.18-0.28
N	21	Aluminum-wrought alloy	250-330	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
	22		200-250	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55	0.50-0.60
	23	Aluminum-cast, alloyed	200-250	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
	24		150-220	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50	0.45-0.55
	25		100-200	0.20-0.30	0.25-0.35	0.30-0.40	0.35-0.45	0.40-0.50
	26	Copper and Copper Alloys (Bronze / Brass)	115-145	0.16-0.28	0.23-0.36	0.29-0.36	0.37-0.45	0.41-0.48
	27		145-185	0.17-0.29	0.24-0.37	0.30-0.38	0.38-0.46	0.42-0.49
	28		95-120	0.06-0.09	0.09-0.13	0.11-0.13	0.15-0.18	0.19-0.22

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
▶ Recommend you to reduce the feed rate to 85%, 70% when you use 5xD, 7xD holders.
▶ For use of 7xD holder, we recommend to use a pilot drill with equal to or larger than 140° point angle (0.5xD - 1.5xD).
The use of the centering pre-hole improves hole location, roundness and surface finish.

ASSEMBLY OF *i*-DREAM DRILLS
MONTAGE DES i-DREAM DRILLS

Make sure to clean the insert and insert seat.
Schneideinsatz und Haltersitz sorgfältig reinigen.

Slide the drill insert into the slot of the holder and press down the insert to touch the bottom of the slot.
Schneideinsatz in den Haltersitz einführen und den Schneideinsatz fest auf den Grund des Haltersitzes pressen.

After confirming the insert is pressed down to the bottom of the slot, tighten the screw using anti-seize compound.
Wenn der Schneideinsatz fest auf den Grund des Haltersitzes gepresst ist, die Schraube fest anziehen und dabei Spezialfett verwenden.

WRENCH TYPE	PRODUCT NO.	T-HANDLE No.	SERIES (SIZE)
WING TYPE	TWWT08	—	A (Ø12.00-Ø13.99)
			B (Ø14.00-Ø15.99)
			C (Ø16.00-Ø17.99)
TORX BIT TYPE	TWBT15	TWH600	D (Ø18.00-Ø19.99)
	TWBT20		E, F, G (Ø20.00-Ø25.99)
	TWBT25		H, I, J (Ø26.00-Ø31.99)

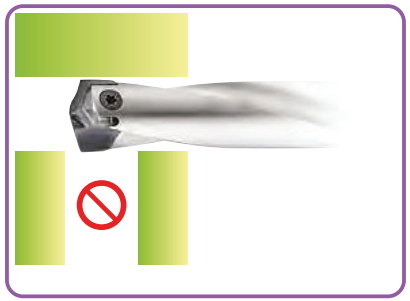
Use the wing type or T-type wrench.
Benutzen Sie den Winkeldreher oder T - Schlüsse

▶ Need to use appropriate wrenches and screws as indicated.
Unbedingt die angegebenen Schrauben und Dreher verwenden.

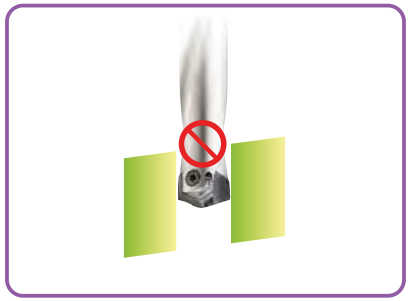
▶ It's important to tighten up the screw properly.
Es ist wichtig, die Schraube korrekt und fest anzuziehen.

YG i DREAM DRILLS
ECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDWERTE

CAUTION-NOT RECOMMENDABLE APPLICATION
ACHTUNG - NICHT EMPFOHLENE ANWENDUNG

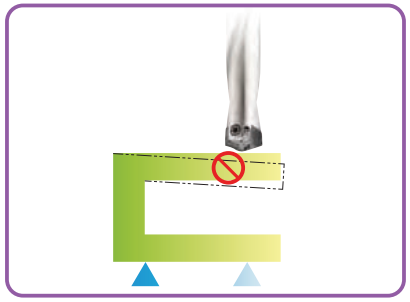


Intersecting cross hole is bigger than the drill insert's Margin Length.
Der Haltersitz ist größer als die Breite des Schneideinsatzes.



Material with slanting entrance and exit over 7 degrees. (If drilling 7 degrees or under slanting surface, reduce the feed about 30-50%)
Werkstücke mit schrägem Anschnitt oder Austritt von über 7°. (Zum Bohren von bis zu 7° Schräge den Vorschub um ca. 30-50% reduzieren).

For drilling stacked plates, minimize the space between the plates.
Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.
The space between stacked plates can cause insert breakage or poor chip control.
Freiraum in Blechpaketen kann den Bruch des Schneideinsatzes oder schlechte Entspanung verursachen.



The material needs to be fixtured securely before drilling.
Das Werkstück muss fest und sicher aufgespannt sein

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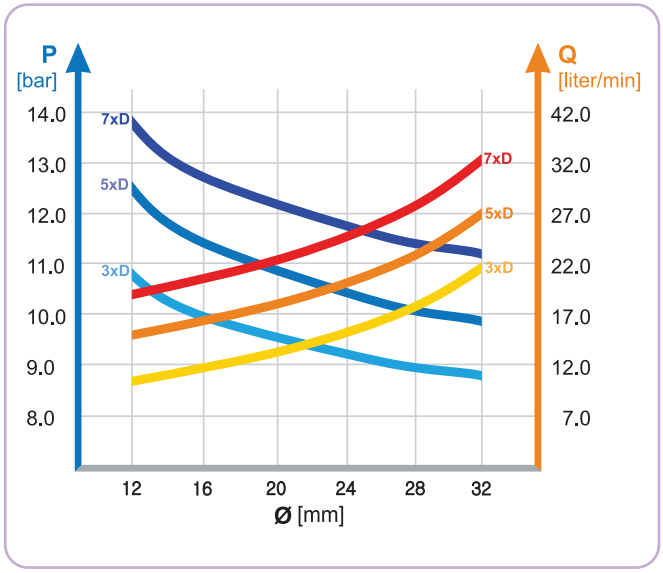
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

RECOMMENDED COOLANT PRESSURE AND FLOW RATE ON VERTICAL DRILLING
EMPFOHLENE KÜHLMITTELDRUCK UND - MENGE BEIM VERTIKALEN BOHREN



- Recommended emulsion mix is 6 - 8%.
  Empfohlene Emulsionsmischung 6 - 8%.
- For Drilling into Stainless and High Strength steels, a mix of 10% is recommended.
  Beim Bohren in rostfreie und hochfeste Stähle werden 10% empfohlen.
- For horizontal drilling, 30% reduction on the coolant pressure and flow rate is possible.
  Beim horizontalen Bohren können Kühlmitteldruck und - menge um 30% gemindert werden.
- Dry drilling is possible for 1-2xD drilling. (But not recommended.)
  Trocken Bohren ist möglich bei 1-2xD. (Aber nicht empfohlen.)

TROUBLE SHOOTING
PROBLEMLÖSUNGEN

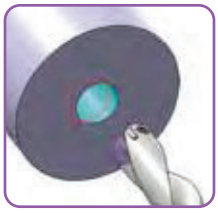
1) Heavy flank wear / Fast flank wear
- Reduce cutting speed
- Increase feed

2) Chipping on cutting edge
- Reduce feed
- Check the rigidity of spindle and chuck
- Rigid clamping of workpiece

3) Build-up on cutting edge
- Increase cutting speed
- Use a coated insert

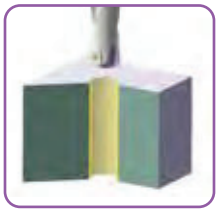
4) Chipping or break down on outer corner
- Reduce feed
- Rigid clamping of workpiece

5) Wear of land margin
- Rigid clamping of workpiece
- Reduce cutting speed
- Increase coolant flow



6) Unsatisfactory positioning of the hole
- Rigid clamping of workpiece
- Reduce feed during entrance or exit

7) Scratching on holder
- Rigid clamping of workpiece
- Reduce feed
- Increase coolant flow



8) Unsatisfactory surface finish
- Rigid clamping of workpiece
- Increase coolant flow and pressure

SOLID CA IDE D EAM D ILLS O

VHM DREAM DRILLS PRO BOHRER

- **For General Purpose (HRc30 to HRc50)**
- **Extremely High hardness and Heat resistance due to YG-1 special Z-Coating technology**

- Für allgemeine Zwecke (HRc30 bis HRc50)

- Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1

SELECTION GUIDE

HOLEMAKING TOOLS

SOLID CARBIDE
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For General Purpose (HRc30 to HRc50)
Extremely High hardness and Heat resistance due to YG-1 special Z-Coating technology

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A74

SERIES	DGN523	DGN526	DGN506	DGN508
DRILLING DEPTH	3XD	5XD	3XD	5XD
LENGTH	SHORT	LONG	SHORT	LONG
SIZE MIN	D3.0	D1.0	D3.0	D1.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0
PAGE	A62	A65	A68	A71
SURFACE TREATMENT	Z-Coating		Z-Coating	

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DGN523	DGN526	DGN506	DGN508	
P	1	Non-alloy steel	About 0.15% C	Annealed	125						P
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎	
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	
	7			Quenched & Tempered	275	29	◎	◎	◎	◎	
	8			Quenched & Tempered	300	32	○	○	○	○	
	9			Quenched & Tempered	350	38	○	○	○	○	
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎	
	11			Quenched & Tempered	325	35	○	○	○	○	
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○	M
	13		Martensitic	Quenched & Tempered	240	23	○	○	○	○	
	14		Austenitic		180	10					
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	K
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	
	18		Pearlitic		250	25	○	○	○	○	
	19	Malleable cast iron	Ferritic		130		◎	◎	◎	◎	
	20		Pearlitic		230	21	○	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable		60						N
	22		Curable	Hardened	100						
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75						
	24		≤ 12% Si, Curable	Hardened	90						
	25		> 12% Si, Not Curable		130						
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110						
	27		CuZn, CuSnZn (Brass)		90						
	28		CuSn, lead-free copper and electrolytic copper		100						
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					S
	32			Cured	280	30					
	33		Ni or Co Based	Annealed	250	25					
	34			Cured	350	38					
	35			Cast	320	34					
	36	Titanium Alloys	Pure Titanium		400 Rm						
	37		Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55	○	○	○	○	H
	39			Hardened	630	60					
	40	Chilled Cast Iron		Cast	400	42					
	41	Hardened Cast Iron		Hardened	550	55					

CARBIDE
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TECHNICAL DATA

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DGN SERIES

CARBIDE, DREAM DRILLS PRO

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KURZ
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VHM DREAM DRILLS PRO BOHRER
FORETS DREAM DRILLS CARBURE MONOBLOC – PRO
MD, DREAM DRILLS PRO

- ▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30-50), Cast Iron
- ▶ Wave shape cutting edge to improve chip formation for low cutting force
- ▶ Helical thinning for low thrust, stable torque and good chip breakage
- ▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

- ▶ Bohren für Kohlenstoffstähle, legierte Stähle (HB225-325), vorvergütete Stähle (HRc30-50), Gusseisen
- ▶ Wellenförmige Schneidkante zur Verbesserung der Spanbildung und für geringe Schnittkräfte
- ▶ Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
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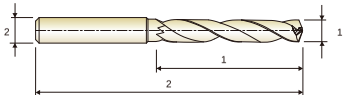

DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | Z Coating | p.A74 | 3 × D

Recommended ToolHolder	Plain Shank	Page
	SHRINK FIT HOLDER	D47-72
	HYDRAULIC CHUCK	D15-46
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN523030	3.0	6	20	62
DGN523031	3.1	6	20	62
DGN523032	3.2	6	20	62
DGN523033	3.3	6	20	62
DGN523034	3.4	6	20	62
DGN523035	3.5	6	20	62
DGN523036	3.6	6	20	62
DGN523037	3.7	6	20	62
DGN523038	3.8	6	24	66
DGN523039	3.9	6	24	66
DGN523040	4.0	6	24	66
DGN523041	4.1	6	24	66
DGN523042	4.2	6	24	66
DGN523043	4.3	6	24	66
DGN523044	4.4	6	24	66
DGN523045	4.5	6	24	66
DGN523046	4.6	6	24	66
DGN523047	4.7	6	24	66
DGN523048	4.8	6	28	66
DGN523049	4.9	6	28	66
DGN523050	5.0	6	28	66
DGN523051	5.1	6	28	66
DGN523052	5.2	6	28	66
DGN523053	5.3	6	28	66

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN523054	5.4	6	28	66
DGN523055	5.5	6	28	66
DGN523056	5.6	6	28	66
DGN523057	5.7	6	28	66
DGN523058	5.8	6	28	66
DGN523059	5.9	6	28	66
DGN523060	6.0	6	28	66
DGN523061	6.1	8	34	79
DGN523062	6.2	8	34	79
DGN523063	6.3	8	34	79
DGN523064	6.4	8	34	79
DGN523065	6.5	8	34	79
DGN523066	6.6	8	34	79
DGN523067	6.7	8	34	79
DGN523068	6.8	8	34	79
DGN523069	6.9	8	34	79
DGN523070	7.0	8	34	79
DGN523071	7.1	8	41	79
DGN523072	7.2	8	41	79
DGN523073	7.3	8	41	79
DGN523074	7.4	8	41	79
DGN523075	7.5	8	41	79
DGN523076	7.6	8	41	79
DGN523077	7.7	8	41	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
	K											M									
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO																					
	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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DGN SERIES

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MD, DREAM DRILLS PRO

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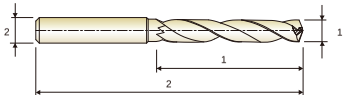

DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | Z Coating | p.A74 | 3 × D

Recommended ToolHolder	Plain Shank	Page
	SHRINK FIT HOLDER	D47-72
	HYDRAULIC CHUCK	D15-46
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN523078	7.8	8	41	79
DGN523079	7.9	8	41	79
DGN523080	8.0	8	41	79
DGN523081	8.1	10	47	89
DGN523082	8.2	10	47	89
DGN523083	8.3	10	47	89
DGN523084	8.4	10	47	89
DGN523085	8.5	10	47	89
DGN523086	8.6	10	47	89
DGN523087	8.7	10	47	89
DGN523088	8.8	10	47	89
DGN523089	8.9	10	47	89
DGN523090	9.0	10	47	89
DGN523091	9.1	10	47	89
DGN523092	9.2	10	47	89
DGN523093	9.3	10	47	89
DGN523094	9.4	10	47	89
DGN523095	9.5	10	47	89
DGN523096	9.6	10	47	89
DGN523097	9.7	10	47	89
DGN523098	9.8	10	47	89
DGN523099	9.9	10	47	89
DGN523100	10.0	10	47	89
DGN523101	10.1	12	55	102

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN523102	10.2	12	55	102
DGN523103	10.3	12	55	102
DGN523104	10.4	12	55	102
DGN523105	10.5	12	55	102
DGN523106	10.6	12	55	102
DGN523107	10.7	12	55	102
DGN523108	10.8	12	55	102
DGN523109	10.9	12	55	102
DGN523110	11.0	12	55	102
DGN523111	11.1	12	55	102
DGN523112	11.2	12	55	102
DGN523113	11.3	12	55	102
DGN523114	11.4	12	55	102
DGN523115	11.5	12	55	102
DGN523116	11.6	12	55	102
DGN523117	11.7	12	55	102
DGN523118	11.8	12	55	102
DGN523119	11.9	12	55	102
DGN523120	12.0	12	55	102
DGN523123	12.3	14	60	107
DGN523125	12.5	14	60	107
DGN523128	12.8	14	60	107
DGN523130	13.0	14	60	107
DGN523135	13.5	14	60	107

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
	K											M									
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO																					
	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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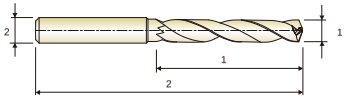


DIN 6537 | CARBIDE | 30° | h6 | m7 | 1° | Z Coating | p.A74

3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN523138	13.8	14	60	107
DGN523140	14.0	14	60	107
DGN523145	14.5	16	65	115
DGN523148	14.8	16	65	115
DGN523150	15.0	16	65	115
DGN523155	15.5	16	65	115
DGN523158	15.8	16	65	115
DGN523160	16.0	16	65	115
DGN523165	16.5	18	73	123
DGN523168	16.8	18	73	123

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN523170	17.0	18	73	123
DGN523175	17.5	18	73	123
DGN523178	17.8	18	73	123
DGN523180	18.0	18	73	123
DGN523185	18.5	20	79	131
DGN523190	19.0	20	79	131
DGN523195	19.5	20	79	131
DGN523198	19.8	20	79	131
DGN523200	20.0	20	79	131

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO																					
	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

D EAM D ILLS O

DGN SERIES

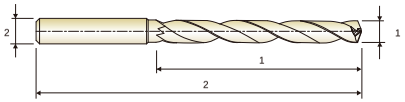
CARBIDE, DREAM DRILLS PRO

LONG
LANG
LONGUE
LUNGA

VHM DREAM DRILLS PRO BOHRER
FORETS DREAM DRILLS CARBURE MONOBLOC – PRO
MD, DREAM DRILLS PRO

- ▶ Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30-50), Cast Iron
- ▶ Wave shape cutting edge to improve chip formation for low cutting force
- ▶ Helical thinning for low thrust, stable torque and good chip breakage
- ▶ Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

- ▶ Bohren für Kohlenstoffstähle, legierte Stähle (HB225-325), vorvergütete Stähle (HRc30-50), Gusseisen
- ▶ Wellenförmige Schneidkante zur Verbesserung der Spanbildung und für geringe Schnittkräfte
- ▶ Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
- ▶ Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1



DIN 6537 | CARBIDE | 30° | h6 | m7 | 1° | Z Coating | p.A74

5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN526010	1.0	3	8	55
DGN526011	1.1	3	12	55
DGN526012	1.2	3	12	55
DGN526013	1.3	3	12	55
DGN526014	1.4	3	12	55
DGN526015	1.5	3	16	55
DGN526016	1.6	3	16	55
DGN526017	1.7	3	16	55
DGN526018	1.8	3	16	55
DGN526019	1.9	3	16	55
DGN526020	2.0	4	21	57
DGN526021	2.1	4	21	57
DGN526022	2.2	4	21	57
DGN526023	2.3	4	21	57
DGN526024	2.4	4	21	57
DGN526025	2.5	4	21	57
DGN526026	2.6	4	21	57
DGN526027	2.7	4	21	57
DGN526028	2.8	4	21	57
DGN526029	2.9	4	21	57
DGN526030	3.0	6	28	66
DGN526031	3.1	6	28	66
DGN526032	3.2	6	28	66
DGN526033	3.3	6	28	66

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN526034	3.4	6	28	66
DGN526035	3.5	6	28	66
DGN526036	3.6	6	28	66
DGN526037	3.7	6	28	66
DGN526038	3.8	6	36	74
DGN526039	3.9	6	36	74
DGN526040	4.0	6	36	74
DGN526041	4.1	6	36	74
DGN526042	4.2	6	36	74
DGN526043	4.3	6	36	74
DGN526044	4.4	6	36	74
DGN526045	4.5	6	36	74
DGN526046	4.6	6	36	74
DGN526047	4.7	6	36	74
DGN526048	4.8	6	44	82
DGN526049	4.9	6	44	82
DGN526050	5.0	6	44	82
DGN526051	5.1	6	44	82
DGN526052	5.2	6	44	82
DGN526053	5.3	6	44	82
DGN526054	5.4	6	44	82
DGN526055	5.5	6	44	82
DGN526056	5.6	6	44	82
DGN526057	5.7	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO																					
	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

D EAM D ILLS O

DGN SERIES

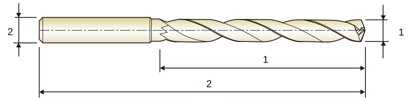
CARBIDE, DREAM DRILLS PRO

LONG
LANG
LONGUE
LUNGA

VHM DREAM DRILLS PRO BOHRER
FORETS DREAM DRILLS CARBURE MONOBLOC – PRO
MD, DREAM DRILLS PRO

- Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30-50), Cast Iron
- Wave shape cutting edge to improve chip formation for low cutting force
- Helical thinning for low thrust, stable torque and good chip breakage
- Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

- Bohren für Kohlenstoffstähle, legierte Stähle (HB225-325), vorvergütete Stähle (HRc30-50), Gusseisen
- Wellenförmige Schneidkante zur Verbesserung der Spanbildung und für geringe Schnittkräfte
- Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
- Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1



DIN 6537 | CARBIDE | 30° | h6 | m7 | 1° | Z Coating | p.A74

5 × D

Recommended ToolHolder	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. Z-Coating	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DGN526058	5.8	6	44	82
DGN526059	5.9	6	44	82
DGN526060	6.0	6	44	82
DGN526061	6.1	8	53	91
DGN526062	6.2	8	53	91
DGN526063	6.3	8	53	91
DGN526064	6.4	8	53	91
DGN526065	6.5	8	53	91
DGN526066	6.6	8	53	91
DGN526067	6.7	8	53	91
DGN526068	6.8	8	53	91
DGN526069	6.9	8	53	91
DGN526070	7.0	8	53	91
DGN526071	7.1	8	53	91
DGN526072	7.2	8	53	91
DGN526073	7.3	8	53	91
DGN526074	7.4	8	53	91
DGN526075	7.5	8	53	91
DGN526076	7.6	8	53	91
DGN526077	7.7	8	53	91
DGN526078	7.8	8	53	91
DGN526079	7.9	8	53	91
DGN526080	8.0	8	53	91
DGN526081	8.1	10	61	103

EDP No. Z-Coating	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DGN526082	8.2	10	61	103
DGN526083	8.3	10	61	103
DGN526084	8.4	10	61	103
DGN526085	8.5	10	61	103
DGN526086	8.6	10	61	103
DGN526087	8.7	10	61	103
DGN526088	8.8	10	61	103
DGN526089	8.9	10	61	103
DGN526090	9.0	10	61	103
DGN526091	9.1	10	61	103
DGN526092	9.2	10	61	103
DGN526093	9.3	10	61	103
DGN526094	9.4	10	61	103
DGN526095	9.5	10	61	103
DGN526096	9.6	10	61	103
DGN526097	9.7	10	61	103
DGN526098	9.8	10	61	103
DGN526099	9.9	10	61	103
DGN526100	10.0	10	61	103
DGN526101	10.1	12	71	118
DGN526102	10.2	12	71	118
DGN526103	10.3	12	71	118
DGN526104	10.4	12	71	118
DGN526105	10.5	12	71	118

- Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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D EAM D ILLS O

DGN SERIES

CARBIDE, DREAM DRILLS PRO

LONG
LANG
LONGUE
LUNGA

VHM DREAM DRILLS PRO BOHRER
FORETS DREAM DRILLS CARBURE MONOBLOC – PRO
MD, DREAM DRILLS PRO

- Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30-50), Cast Iron
- Wave shape cutting edge to improve chip formation for low cutting force
- Helical thinning for low thrust, stable torque and good chip breakage
- Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

- Bohren für Kohlenstoffstähle, legierte Stähle (HB225-325), vorvergütete Stähle (HRc30-50), Gusseisen
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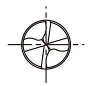
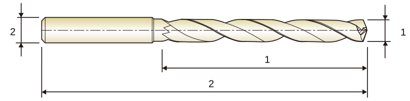
- Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1





DIN 6537 | CARBIDE | 30° | h6 | m7 | 1° | Z Coating | p.A74

5 × D

Recommended ToolHolder	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. Z-Coating	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DGN526106	10.6	12	71	118
DGN526107	10.7	12	71	118
DGN526108	10.8	12	71	118
DGN526109	10.9	12	71	118
DGN526110	11.0	12	71	118
DGN526111	11.1	12	71	118
DGN526112	11.2	12	71	118
DGN526113	11.3	12	71	118
DGN526114	11.4	12	71	118
DGN526115	11.5	12	71	118
DGN526116	11.6	12	71	118
DGN526117	11.7	12	71	118
DGN526118	11.8	12	71	118
DGN526119	11.9	12	71	118
DGN526120	12.0	12	71	118
DGN526122	12.2	14	77	124
DGN526125	12.5	14	77	124
DGN526128	12.8	14	77	124
DGN526130	13.0	14	77	124
DGN526135	13.5	14	77	124
DGN526138	13.8	14	77	124
DGN526140	14.0	14	77	124
DGN526142	14.2	16	83	133
DGN526145	14.5	16	83	133

EDP No. Z-Coating	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DGN526148	14.8	16	83	133
DGN526150	15.0	16	83	133
DGN526151	15.1	16	83	133
DGN526152	15.2	16	83	133
DGN526155	15.5	16	83	133
DGN526158	15.8	16	83	133
DGN526160	16.0	16	83	133
DGN526165	16.5	18	93	143
DGN526170	17.0	18	93	143
DGN526173	17.3	18	93	143
DGN526175	17.5	18	93	143
DGN526177	17.7	18	93	143
DGN526180	18.0	18	93	143
DGN526185	18.5	20	101	153
DGN526190	19.0	20	101	153
DGN526193	19.3	20	101	153
DGN526195	19.5	20	101	153
DGN526200	20.0	20	101	153

- Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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YG D EAM D ILLS O

DGN SERIES

CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES

SHORT
KURZ
COURTE
CORTA

VHM DREAM DRILLS PRO BOHRER MIT INNENKÜHLUNG
FORETS DREAM DRILLS CARBURE MONOBLOC – PRO, AVEC ARROSAGE CENTRAL
MD, DREAM DRILL PRO CON FORI DI REFRIGERAZIONE

- Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30-50), Cast Iron
- Wave shape cutting edge to improve chip formation for low cutting force
- Helical thinning for low thrust, stable torque and good chip breakage
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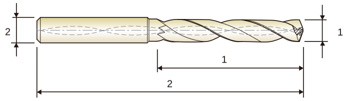
- Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
- Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1



DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | 2 ar | Z Coating | p.A75 | 3 × D

Recommended ToolHolder	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47 - 72
◎	HYDRAULIC CHUCK	D15 - 46
○	ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN506030	3.0	6	20	62
DGN506031	3.1	6	20	62
DGN506032	3.2	6	20	62
DGN506033	3.3	6	20	62
DGN506034	3.4	6	20	62
DGN506035	3.5	6	20	62
DGN506036	3.6	6	20	62
DGN506037	3.7	6	20	62
DGN506038	3.8	6	24	66
DGN506039	3.9	6	24	66
DGN506040	4.0	6	24	66
DGN506041	4.1	6	24	66
DGN506042	4.2	6	24	66
DGN506043	4.3	6	24	66
DGN506044	4.4	6	24	66
DGN506045	4.5	6	24	66
DGN506046	4.6	6	24	66
DGN506047	4.7	6	24	66
DGN506048	4.8	6	28	66
DGN506049	4.9	6	28	66
DGN506050	5.0	6	28	66
DGN506051	5.1	6	28	66
DGN506052	5.2	6	28	66
DGN506053	5.3	6	28	66
DGN506054	5.4	6	28	66
DGN506055	5.5	6	28	66
DGN506056	5.6	6	28	66
DGN506057	5.7	6	28	66
DGN506058	5.8	6	28	66
DGN506059	5.9	6	28	66
DGN506060	6.0	6	28	66
DGN506061	6.1	8	34	79
DGN506062	6.2	8	34	79
DGN506063	6.3	8	34	79
DGN506064	6.4	8	34	79
DGN506065	6.5	8	34	79
DGN506066	6.6	8	34	79
DGN506067	6.7	8	34	79
DGN506068	6.8	8	34	79
DGN506069	6.9	8	34	79
DGN506070	7.0	8	34	79
DGN506071	7.1	8	41	79
DGN506072	7.2	8	41	79
DGN506073	7.3	8	41	79
DGN506074	7.4	8	41	79
DGN506075	7.5	8	41	79
DGN506076	7.6	8	41	79
DGN506077	7.7	8	41	79

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P										M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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DGN SERIES

CARBIDE, DREAM DRILLS PRO WITH COOLANT HOLES

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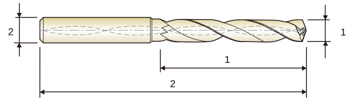
VHM DREAM DRILLS PRO BOHRER MIT INNENKÜHLUNG
FORETS DREAM DRILLS CARBURE MONOBLOC – PRO, AVEC ARROSAGE CENTRAL
MD, DREAM DRILL PRO CON FORI DI REFRIGERAZIONE

- Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30-50), Cast Iron
- Wave shape cutting edge to improve chip formation for low cutting force
- Helical thinning for low thrust, stable torque and good chip breakage
- Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

- Bohren für Kohlenstoffstähle, legierte Stähle (HB225-325), vorvergütete Stähle (HRc30-50), Gusseisen
- Wellenförmige Schneidkante zur Verbesserung der Spanbildung und für geringe Schnittkräfte
- Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
- Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1



DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | 2 ar | Z Coating | p.A75 | 3 × D

Recommended ToolHolder	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47 - 72
◎	HYDRAULIC CHUCK	D15 - 46
○	ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN506078	7.8	8	41	79
DGN506079	7.9	8	41	79
DGN506080	8.0	8	41	79
DGN506081	8.1	10	47	89
DGN506082	8.2	10	47	89
DGN506083	8.3	10	47	89
DGN506084	8.4	10	47	89
DGN506085	8.5	10	47	89
DGN506086	8.6	10	47	89
DGN506087	8.7	10	47	89
DGN506088	8.8	10	47	89
DGN506089	8.9	10	47	89
DGN506090	9.0	10	47	89
DGN506091	9.1	10	47	89
DGN506092	9.2	10	47	89
DGN506093	9.3	10	47	89
DGN506094	9.4	10	47	89
DGN506095	9.5	10	47	89
DGN506096	9.6	10	47	89
DGN506097	9.7	10	47	89
DGN506098	9.8	10	47	89
DGN506099	9.9	10	47	89
DGN506100	10.0	10	47	89
DGN506101	10.1	12	55	102
DGN506102	10.2	12	55	102
DGN506103	10.3	12	55	102
DGN506104	10.4	12	55	102
DGN506105	10.5	12	55	102
DGN506106	10.6	12	55	102
DGN506107	10.7	12	55	102
DGN506108	10.8	12	55	102
DGN506109	10.9	12	55	102
DGN506110	11.0	12	55	102
DGN506111	11.1	12	55	102
DGN506112	11.2	12	55	102
DGN506113	11.3	12	55	102
DGN506114	11.4	12	55	102
DGN506115	11.5	12	55	102
DGN506116	11.6	12	55	102
DGN506117	11.7	12	55	102
DGN506118	11.8	12	55	102
DGN506119	11.9	12	55	102
DGN506120	12.0	12	55	102
DGN506125	12.5	14	60	107
DGN506130	13.0	14	60	107
DGN506135	13.5	14	60	107
DGN506140	14.0	14	60	107
DGN506145	14.5	16	65	115

▶ Other shank types are available on your request.
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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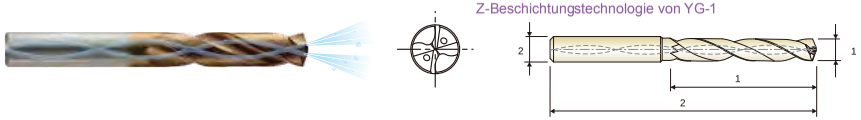

DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | 2 ar | Z Coating | p.A75 | 3 × D

Recommended ToolHolder

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN506150	15.0	16	65	115
DGN506155	15.5	16	65	115
DGN506160	16.0	16	65	115
DGN506165	16.5	18	73	123
DGN506170	17.0	18	73	123
DGN506175	17.5	18	73	123

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN506180	18.0	18	73	123
DGN506185	18.5	20	79	131
DGN506190	19.0	20	79	131
DGN506195	19.5	20	79	131
DGN506200	20.0	20	79	131

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO																					
	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

DREAM DRILLS
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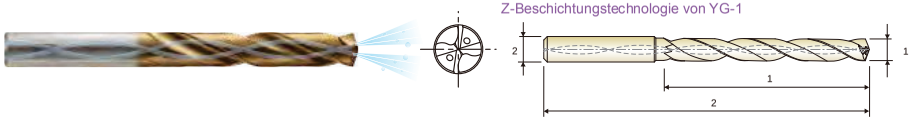

DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | 2 ar | Z Coating | p.A75 | 5 × D

Recommended ToolHolder

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN508010	1.0	3	8	55
DGN508011	1.1	3	12	55
DGN508012	1.2	3	12	55
DGN508013	1.3	3	12	55
DGN508014	1.4	3	12	55
DGN508015	1.5	3	16	55
DGN508016	1.6	3	16	55
DGN508017	1.7	3	16	55
DGN508018	1.8	3	16	55
DGN508019	1.9	3	16	55
DGN508020	2.0	4	21	57
DGN508021	2.1	4	21	57
DGN508022	2.2	4	21	57
DGN508023	2.3	4	21	57
DGN508024	2.4	4	21	57
DGN508025	2.5	4	21	57
DGN508026	2.6	4	21	57
DGN508027	2.7	4	21	57
DGN508028	2.8	4	21	57
DGN508029	2.9	4	21	57
DGN508030	3.0	6	28	66
DGN508031	3.1	6	28	66
DGN508032	3.2	6	28	66
DGN508033	3.3	6	28	66

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D1	D2	L1	L2
DGN508034	3.4	6	28	66
DGN508035	3.5	6	28	66
DGN508036	3.6	6	28	66
DGN508037	3.7	6	28	66
DGN508038	3.8	6	36	74
DGN508039	3.9	6	36	74
DGN508040	4.0	6	36	74
DGN508041	4.1	6	36	74
DGN508042	4.2	6	36	74
DGN508043	4.3	6	36	74
DGN508044	4.4	6	36	74
DGN508045	4.5	6	36	74
DGN508046	4.6	6	36	74
DGN508047	4.7	6	36	74
DGN508048	4.8	6	44	82
DGN508049	4.9	6	44	82
DGN508050	5.0	6	44	82
DGN508051	5.1	6	44	82
DGN508052	5.2	6	44	82
DGN508053	5.3	6	44	82
DGN508054	5.4	6	44	82
DGN508055	5.5	6	44	82
DGN508056	5.6	6	44	82
DGN508057	5.7	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO																					
	N										S						H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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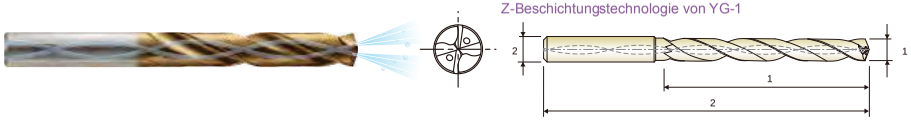

DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | 2 ar | Z Coating | p.A75 | 5 × D

Recommended ToolHolder	Plain Shank	Page
	SHRINK FIT HOLDER	D47-72
	HYDRAULIC CHUCK	D15-46
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN508058	5.8	6	44	82
DGN508059	5.9	6	44	82
DGN508060	6.0	6	44	82
DGN508061	6.1	8	53	91
DGN508062	6.2	8	53	91
DGN508063	6.3	8	53	91
DGN508064	6.4	8	53	91
DGN508065	6.5	8	53	91
DGN508066	6.6	8	53	91
DGN508067	6.7	8	53	91
DGN508068	6.8	8	53	91
DGN508069	6.9	8	53	91
DGN508070	7.0	8	53	91
DGN508071	7.1	8	53	91
DGN508072	7.2	8	53	91
DGN508073	7.3	8	53	91
DGN508074	7.4	8	53	91
DGN508075	7.5	8	53	91
DGN508076	7.6	8	53	91
DGN508077	7.7	8	53	91
DGN508078	7.8	8	53	91
DGN508079	7.9	8	53	91
DGN508080	8.0	8	53	91
DGN508081	8.1	10	61	103

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN508082	8.2	10	61	103
DGN508083	8.3	10	61	103
DGN508084	8.4	10	61	103
DGN508085	8.5	10	61	103
DGN508086	8.6	10	61	103
DGN508087	8.7	10	61	103
DGN508088	8.8	10	61	103
DGN508089	8.9	10	61	103
DGN508090	9.0	10	61	103
DGN508091	9.1	10	61	103
DGN508092	9.2	10	61	103
DGN508093	9.3	10	61	103
DGN508094	9.4	10	61	103
DGN508095	9.5	10	61	103
DGN508096	9.6	10	61	103
DGN508097	9.7	10	61	103
DGN508098	9.8	10	61	103
DGN508099	9.9	10	61	103
DGN508100	10.0	10	61	103
DGN508101	10.1	12	71	118
DGN508102	10.2	12	71	118
DGN508103	10.3	12	71	118
DGN508104	10.4	12	71	118
DGN508105	10.5	12	71	118

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
ISO	K											M									
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

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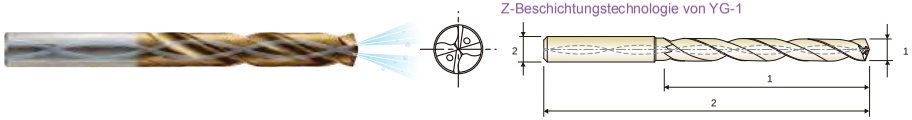
LUNGA

VHM DREAM DRILLS PRO BOHRER MIT INNENKÜHLUNG
FORETS DREAM DRILLS CARBURE MONOBLOC – PRO, AVEC ARROSAGE CENTRAL
MD, DREAM DRILL PRO CON FORI DI REFRIGERAZIONE

- Drilling for Carbon Steels, Alloy Steels (HB225-325), Pre-hardened Steels (HRc30-50), Cast Iron
- Wave shape cutting edge to improve chip formation for low cutting force
- Helical thinning for low thrust, stable torque and good chip breakage
- Extremely high hardness and heat resistance due to YG-1 special Z-Coating technology

- Bohren für Kohlenstoffstähle, legierte Stähle (HB225-325), vorvergütete Stähle (HRc30-50), Gusseisen
- Wellenförmige Schneidkante zur Verbesserung der Spanbildung und für geringe Schnittkräfte
- Spiralförmige Ausspitzung für geringe Axialkräfte, niedrige Schnittmomente und verbesserten Spanbruch
- Extrem hohe Härte und Hitzebeständigkeit durch die spezielle Z-Beschichtungstechnologie von YG-1



DIN 6537 | CARBIDE | 30° | h6 | m7 | 1 ° | 2 ar | Z Coating | p.A75 | 5 × D

Recommended ToolHolder	Plain Shank	Page
	SHRINK FIT HOLDER	D47-72
	HYDRAULIC CHUCK	D15-46
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN508106	10.6	12	71	118
DGN508107	10.7	12	71	118
DGN508108	10.8	12	71	118
DGN508109	10.9	12	71	118
DGN508110	11.0	12	71	118
DGN508111	11.1	12	71	118
DGN508112	11.2	12	71	118
DGN508113	11.3	12	71	118
DGN508114	11.4	12	71	118
DGN508115	11.5	12	71	118
DGN508116	11.6	12	71	118
DGN508117	11.7	12	71	118
DGN508118	11.8	12	71	118
DGN508119	11.9	12	71	118
DGN508120	12.0	12	71	118
DGN508125	12.5	14	77	124
DGN508130	13.0	14	77	124
DGN508135	13.5	14	77	124
DGN508140	14.0	14	77	124
DGN508145	14.5	16	83	133
DGN508150	15.0	16	83	133
DGN508155	15.5	16	83	133
DGN508160	16.0	16	83	133
DGN508165	16.5	18	93	143

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
Z-Coating	D_1	D_2	L_1	L_2
DGN508170	17.0	18	93	143
DGN508175	17.5	18	93	143
DGN508180	18.0	18	93	143
DGN508185	18.5	20	101	153
DGN508190	19.0	20	101	153
DGN508195	19.5	20	101	153
DGN508200	20.0	20	101	153

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																					
ISO	K											M									
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○			

DREAM DRILLS

ECOMMENDED CUTTING CONDITIONS

EM OHLENE SCHNEID A AMETE

DGN DGN SERIES without COOLANT HOLES

RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0
P	2	Non-alloy steel	85	RPM	27,060	13,530	120	RPM	12,730	9,550	7,640	6,370
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	3		85	RPM	27,060	13,530	120	RPM	12,730	9,550	7,640	6,370
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	4		85	RPM	27,060	13,530	120	RPM	12,730	9,550	7,640	6,370
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	5		75	RPM	23,870	11,940	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	6	Low alloy steel	85	RPM	27,060	13,530	120	RPM	12,730	9,550	7,640	6,370
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	7		75	RPM	23,870	11,940	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	8		75	RPM	23,870	11,940	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.02-0.04	0.03-0.05		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	9		36	RPM	11,460	5,730	50	RPM	5,310	3,980	3,180	2,650
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
	10	High alloyed steel, and tool steel	60	RPM	19,100	9,550	80	RPM	8,490	6,370	5,090	4,240
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	11		35	RPM	11,140	5,570	45	RPM	4,770	3,580	2,860	2,390
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
M	12	Stainless steel	60	RPM	19,100	9,550	85	RPM	9,020	6,760	5,410	4,510
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	13		45	RPM	14,320	7,160	55	RPM	5,840	4,380	3,500	2,920
				FEED	0.02-0.04	0.03-0.05			0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
K	15	Grey cast iron	85	RPM	27,060	13,530	120	RPM	12,730	9,550	7,640	6,370
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	16		80	RPM	25,460	12,730	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	17	Nodular cast iron	85	RPM	27,060	13,530	120	RPM	12,730	9,550	7,640	6,370
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	18		60	RPM	19,100	9,550	85	RPM	9,020	6,760	5,410	4,510
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	19	Malleable cast iron	75	RPM	23,870	11,940	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	20		60	RPM	19,100	9,550	85	RPM	9,020	6,760	5,410	4,510
				FEED	0.03-0.05	0.05-0.07			0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
H	38	Hardened steel	25	RPM	7,960	3,980	30	RPM	3,180	2,390	1,910	1,590
				FEED	0.01-0.02	0.01-0.03			0.01-0.03	0.01-0.04	0.02-0.05	0.03-0.06

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	2	Non-alloy steel	120	RPM	4,770	3,820	3,180	2,730	2,390	2,120	1,910
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	3		120	RPM	4,770	3,820	3,180	2,730	2,390	2,120	1,910
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	4		120	RPM	4,770	3,820	3,180	2,730	2,390	2,120	1,910
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	5		95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	6	Low alloy steel	120	RPM	4,770	3,820	3,180	2,730	2,390	2,120	1,910
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	7		95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	8		95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	9		50	RPM	1,990	1,590	1,330	1,140	990	880	800
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
	10	High alloyed steel, and tool steel	80	RPM	3,180	2,550	2,120	1,820	1,590	1,410	1,270
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	11		45	RPM	1,790	1,430	1,190	1,020	900	800	720
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
M	12	Stainless steel	85	RPM	3,380	2,710	2,250	1,930	1,690	1,500	1,350
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	13		55	RPM	2,190	1,750	1,460	1,250	1,090	970	880
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
K	15	Grey cast iron	120	RPM	4,770	3,820	3,180	2,730	2,390	2,120	1,910
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	16		95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	17	Nodular cast iron	120	RPM	4,770	3,820	3,180	2,730	2,390	2,120	1,910
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	18		85	RPM	3,380	2,710	2,250	1,930	1,690	1,500	1,350
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	19	Malleable cast iron	95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	20		85	RPM	3,380	2,710	2,250	1,930	1,690	1,500	1,350
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
H	38	Hardened steel	30	RPM	1,190	950	800	680	600	530	480
				FEED	0.03-0.06	0.04-0.07	0.04-0.08	0.05-0.09	0.05-0.09	0.05-0.10	0.05-0.10

▶ Recommend to reduce the feed rate as following **Feed 100%** : DGN523(3×D), DGN526(5×D)

DREAM DRILLS

ECOMMENDED CUTTING CONDITIONS

EM OHLENE SCHNEID A AMETE

DGN DGN SERIES with COOLANT HOLES

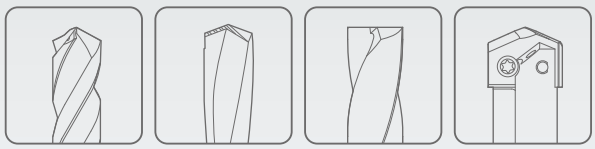
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0
P	2	Non-alloy steel	95	RPM	30,240	15,120	130	RPM	13,790	10,350	8,280	6,900
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	3		95	RPM	30,240	15,120	130	RPM	13,790	10,350	8,280	6,900
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	4		95	RPM	30,240	15,120	130	RPM	13,790	10,350	8,280	6,900
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	5		85	RPM	27,060	13,530	110	RPM	11,670	8,750	7,000	5,840
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	6	Low alloy steel	95	RPM	30,240	15,120	130	RPM	13,790	10,350	8,280	6,900
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	7		85	RPM	27,060	13,530	110	RPM	11,670	8,750	7,000	5,840
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	8		95	RPM	30,240	15,120	110	RPM	11,670	8,750	7,000	5,840
				FEED	0.02-0.04	0.03-0.05		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	9		50	RPM	15,920	7,960	60	RPM	6,370	4,770	3,820	3,180
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
	10	High alloyed steel, and tool steel	70	RPM	22,280	11,140	90	RPM	9,550	7,160	5,730	4,770
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	11		45	RPM	14,320	7,160	50	RPM	5,310	3,980	3,180	2,650
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
M	12	Stainless steel	75	RPM	23,870	11,940	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	13		55	RPM	17,510	8,750	65	RPM	6,900	5,170	4,140	3,450
				FEED	0.02-0.04	0.03-0.05		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
K	15	Grey cast iron	95	RPM	30,240	15,120	130	RPM	13,790	10,350	8,280	6,900
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	16		90	RPM	28,650	14,320	115	RPM	12,200	9,150	7,320	6,100
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	17	Nodular cast iron	110	RPM	35,010	17,510	145	RPM	15,380	11,540	9,230	7,690
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	18		75	RPM	23,870	11,940	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	19	Malleable cast iron	85	RPM	27,060	13,530	110	RPM	11,670	8,750	7,000	5,840
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	20		75	RPM	23,870	11,940	95	RPM	10,080	7,560	6,050	5,040
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
H	38	Hardened steel	30	RPM	9,550	4,770	35	RPM	3,710	2,790	2,230	1,860
				FEED	0.01-0.02	0.01-0.03		FEED	0.01-0.03	0.01-0.04	0.02-0.05	0.03-0.06

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	2	Non-alloy steel	130	RPM	5,170	4,140	3,450	2,960	2,590	2,300	2,070
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	3		130	RPM	5,170	4,140	3,450	2,960	2,590	2,300	2,070
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	4		130	RPM	5,170	4,140	3,450	2,960	2,590	2,300	2,070
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	5		110	RPM	4,380	3,500	2,920	2,500	2,190	1,950	1,750
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	6	Low alloy steel	130	RPM	5,170	4,140	3,450	2,960	2,590	2,300	2,070
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	7		110	RPM	4,380	3,500	2,920	2,500	2,190	1,950	1,750
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	8		110	RPM	4,380	3,500	2,920	2,500	2,190	1,950	1,750
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	9		60	RPM	2,390	1,910	1,590	1,360	1,190	1,060	950
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
	10	High alloyed steel, and tool steel	90	RPM	3,580	2,860	2,390	2,050	1,790	1,590	1,430
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	11		50	RPM	1,990	1,590	1,330	1,140	990	880	800
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
M	12	Stainless steel	95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	13		65	RPM	2,590	2,070	1,720	1,480	1,290	1,150	1,030
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
K	15	Grey cast iron	130	RPM	5,170	4,140	3,450	2,960	2,590	2,300	2,070
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	16		115	RPM	4,580	3,660	3,050	2,610	2,290	2,030	1,830
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	17	Nodular cast iron	145	RPM	5,770	4,620	3,850	3,300	2,880	2,560	2,310
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	18		95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	19	Malleable cast iron	110	RPM	4,380	3,500	2,920	2,500	2,190	1,950	1,750
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	20		95	RPM	3,780	3,020	2,520	2,160	1,890	1,680	1,510
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
H	38	Hardened steel	35	RPM	1,390	1,110	930	800	700	620	560
				FEED	0.03-0.06	0.04-0.07	0.04-0.08	0.05-0.09	0.05-0.09	0.05-0.10	0.05-0.10

▶ Recommend to reduce the feed rate as following **Feed 100%** : DGN506(3×D), DGN508(5×D)

Global Cutting Tool Leader G



HOLEMAKING

Leading Through Innovation

SOLID CA IDE

D EAM D ILLS GENE AL

DREAM DRILLS - UNIVERSAL

- For General Purpose (HRc30 to HRc50)
- Für allgemeine Anwendungen (HRc30 bis HRc50)

SELECTION GUIDE

YG HOLEMAKING TOOLS

SOLID CARBIDE
DREAM DRILLS GENERAL

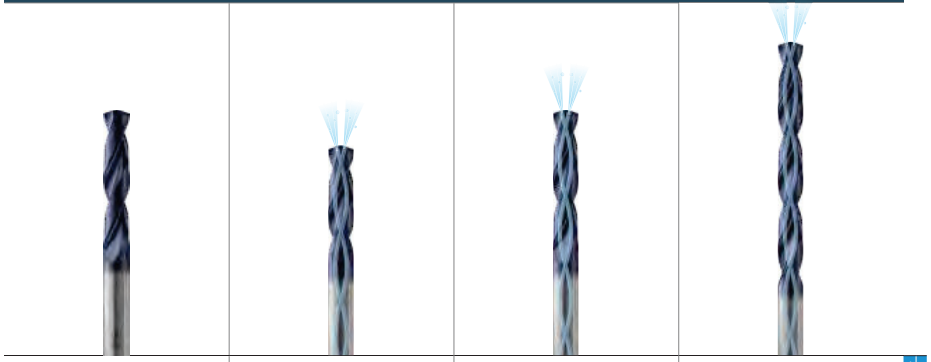
For General Purpose (HRc30 to HRc50)

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.94

SERIES	DH404	DH423 DH443	DH424 DH444	DH406 DH446	DH408 DH448	DH421
DRILLING DEPTH	3XD	3XD	5XD	3XD	5XD	8XD
LENGTH	STUB	SHORT	LONG	SHORT	LONG	EXTRA LONG
SIZE MIN	D3.0	D3.0	D1.0	D3.0	D1.0	D3.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0	D20.0	D14.0
PAGE	A80	A82	A85	A88	A91	A94
SURFACE TREATMENT	TiAlN		TiAlN			



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DH404	DH423 DH443	DH424 DH444	DH406 DH446	DH408 DH448	DH421
P	1	Non-alloy steel	About 0.15% C	Annealed	125							
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	○	○
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎
	8			Quenched & Tempered	300	32	○	○	○	○	○	○
	9			Quenched & Tempered	350	38	○	○	○	○	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎	◎	◎
	11			Quenched & Tempered	325	35	○	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○	○	○	○	○
	14		Austenitic		180	10						
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	○	○
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎	◎
	18		Pearlitic		250	25	○	○	○	○	○	○
	19	Malleable cast iron	Ferritic		130		◎	◎	◎	◎	◎	◎
	20		Pearlitic		230	21	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60							
	22		Curable	Hardened	100							
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75							
	24		≤ 12% Si, Curable	Hardened	90							
	25		> 12% Si, Not Curable		130							
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110							
	27		CuZn, CuSnZn (Brass)		90							
	28		CuSn, lead-free copper and electrolytic copper		100							
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic									
	30		Rubber, Wood, etc.									
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15						
	32			Cured	280	30						
	33		Ni or Co Based	Annealed	250	25						
	34			Cured	350	38						
	35			Cast	320	34						
	36	Titanium Alloys	Pure Titanium		400 Rm							
	37		Alpha + Beta Alloys	Hardened	1050 Rm							
H	38	Hardened steel		Hardened	550	55	○	○	○	○	○	○
	39			Hardened	630	60						
	40	Chilled Cast Iron		Cast	400	42						
	41	Hardened Cast Iron		Hardened	550	55						

CARBIDE
HSS
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i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
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TECHNICAL DATA

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DH SERIES

CARBIDE, DREAM DRILLS

STUB

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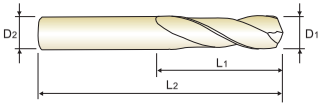
VOLLHARTMETALL DREAM SPIRALBOHRER
Forets DREAM DRILLS carbure, série extra-courte
PUNTE ELICOIDALI IN MD - DREAM DRILLS

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation

- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunsstoffen
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96

$D_1 = D_2$
3 × D

Recommended ToolHolder

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D_1	L_1	L_2
DH404030	3.0	16	46
DH404031	3.1	18	49
DH404032	3.2	18	49
DH404033	3.3	18	49
DH404034	3.4	20	52
DH404035	3.5	20	52
DH404036	3.6	20	52
DH404037	3.7	20	52
DH404038	3.8	22	55
DH404039	3.9	22	55
DH404040	4.0	22	55
DH404041	4.1	22	55
DH404042	4.2	22	55
DH404043	4.3	24	58
DH404044	4.4	24	58
DH404045	4.5	24	58
DH404046	4.6	24	58
DH404047	4.7	24	58
DH404048	4.8	26	62
DH404049	4.9	26	62
DH404050	5.0	26	62
DH404051	5.1	26	62
DH404052	5.2	26	62
DH404053	5.3	26	62

EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D_1	L_1	L_2
DH404054	5.4	28	66
DH404055	5.5	28	66
DH404056	5.6	28	66
DH404057	5.7	28	66
DH404058	5.8	28	66
DH404059	5.9	28	66
DH404060	6.0	28	66
DH404061	6.1	31	70
DH404062	6.2	31	70
DH404063	6.3	31	70
DH404064	6.4	31	70
DH404065	6.5	31	70
DH404066	6.6	31	70
DH404067	6.7	31	70
DH404068	6.8	34	74
DH404069	6.9	34	74
DH404070	7.0	34	74
DH404071	7.1	34	74
DH404072	7.2	34	74
DH404073	7.3	34	74
DH404074	7.4	34	74
DH404075	7.5	34	74
DH404076	7.6	37	79
DH404077	7.7	37	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL
DH SERIES
CARBIDE, DREAM DRILLS
STUB
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA
VOLLHARTMETALL DREAM SPIRALBOHRER
Forets DREAM DRILLS carbure, série extra-courte
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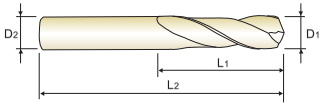

DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96
$D_1 = D_2$
3 × D
Recommended ToolHolder
Plain Shank | Page
SHRINK FIT HOLDER | D47-72
HYDRAULIC CHUCK | D15-46
ER COLLET CHUCK | D73-115
Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D_1	L_1	L_2
DH404078	7.8	37	79
DH404079	7.9	37	79
DH404080	8.0	37	79
DH404081	8.1	37	79
DH404082	8.2	37	79
DH404083	8.3	37	79
DH404084	8.4	37	79
DH404085	8.5	37	79
DH404086	8.6	40	84
DH404087	8.7	40	84
DH404088	8.8	40	84
DH404089	8.9	40	84
DH404090	9.0	40	84
DH404091	9.1	40	84
DH404092	9.2	40	84
DH404093	9.3	40	84
DH404094	9.4	40	84
DH404095	9.5	40	84
DH404096	9.6	43	89
DH404097	9.7	43	89
DH404098	9.8	43	89
DH404099	9.9	43	89

EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D_1	L_1	L_2
DH404100	10.0	43	89
DH404102	10.2	43	89
DH404105	10.5	43	89
DH404110	11.0	47	95
DH404115	11.5	47	95
DH404120	12.0	51	102
DH404130	13.0	51	102
DH404135	13.5	54	107
DH404140	14.0	54	107
DH404145	14.5	56	111
DH404150	15.0	56	111
DH404155	15.5	58	115
DH404160	16.0	58	115
DH404165	16.5	60	119
DH404170	17.0	60	119
DH404175	17.5	62	123
DH404180	18.0	62	123
DH404185	18.5	64	127
DH404190	19.0	64	127
DH404195	19.5	66	131
DH404200	20.0	66	131

▶ Other shank types are available on your request.
◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL

PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

CARBIDE, DREAM DRILLS

SHORT
KURZ
COURTE
CORTA

VOLLHARTMETALL DREAM SPIRALBOHRER
Forets DREAM DRILLS carbure, série courte
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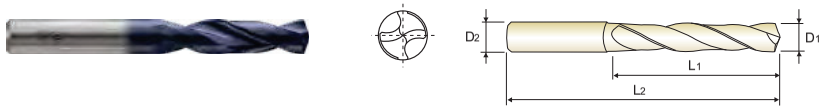


DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH423030	DH443030	3.0	6	20	62
DH423031	DH443031	3.1	6	20	62
DH423032	DH443032	3.2	6	20	62
DH423033	DH443033	3.3	6	20	62
DH423034	DH443034	3.4	6	20	62
DH423035	DH443035	3.5	6	20	62
DH423036	DH443036	3.6	6	20	62
DH423037	DH443037	3.7	6	20	62
DH423038	DH443038	3.8	6	24	66
DH423039	DH443039	3.9	6	24	66
DH423040	DH443040	4.0	6	24	66
DH423041	DH443041	4.1	6	24	66
DH423042	DH443042	4.2	6	24	66
DH423043	DH443043	4.3	6	24	66
DH423044	DH443044	4.4	6	24	66
DH423045	DH443045	4.5	6	24	66
DH423046	DH443046	4.6	6	24	66
DH423047	DH443047	4.7	6	24	66
DH423048	DH443048	4.8	6	28	66
DH423049	DH443049	4.9	6	28	66
DH423050	DH443050	5.0	6	28	66
DH423051	DH443051	5.1	6	28	66
DH423052	DH443052	5.2	6	28	66
DH423053	DH443053	5.3	6	28	66

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH423054	DH443054	5.4	6	28	66
DH423055	DH443055	5.5	6	28	66
DH423056	DH443056	5.6	6	28	66
DH423057	DH443057	5.7	6	28	66
DH423058	DH443058	5.8	6	28	66
DH423059	DH443059	5.9	6	28	66
DH423060	DH443060	6.0	6	28	66
DH423061	DH443061	6.1	8	34	79
DH423062	DH443062	6.2	8	34	79
DH423063	DH443063	6.3	8	34	79
DH423064	DH443064	6.4	8	34	79
DH423065	DH443065	6.5	8	34	79
DH423066	DH443066	6.6	8	34	79
DH423067	DH443067	6.7	8	34	79
DH423068	DH443068	6.8	8	34	79
DH423069	DH443069	6.9	8	34	79
DH423070	DH443070	7.0	8	34	79
DH423071	DH443071	7.1	8	41	79
DH423072	DH443072	7.2	8	41	79
DH423073	DH443073	7.3	8	41	79
DH423074	DH443074	7.4	8	41	79
DH423075	DH443075	7.5	8	41	79
DH423076	DH443076	7.6	8	41	79
DH423077	DH443077	7.7	8	41	79

▶ Other shank types are available on your request.

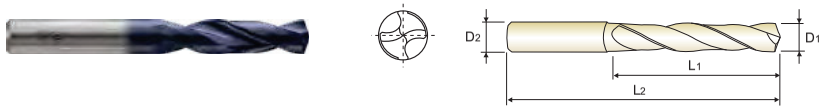
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	K											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL
PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES
CARBIDE, DREAM DRILLS
SHORT KURZ COURTE CORTA
VOLLHARTMETALL DREAM SPIRALBOHRER
Forets DREAM DRILLS carbure, série courte
PUNTE ELICOIDALI IN MD - DREAM DRILLS
▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶ Self centering and chip breaking by R-thinning
▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶ Optimized flute shape for strength of drilling and smooth chip evacuation
▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96 | 3 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH423078	DH443078	7.8	8	41	79
DH423079	DH443079	7.9	8	41	79
DH423080	DH443080	8.0	8	41	79
DH423081	DH443081	8.1	10	47	89
DH423082	DH443082	8.2	10	47	89
DH423083	DH443083	8.3	10	47	89
DH423084	DH443084	8.4	10	47	89
DH423085	DH443085	8.5	10	47	89
DH423086	DH443086	8.6	10	47	89
DH423087	DH443087	8.7	10	47	89
DH423088	DH443088	8.8	10	47	89
DH423089	DH443089	8.9	10	47	89
DH423090	DH443090	9.0	10	47	89
DH423091	DH443091	9.1	10	47	89
DH423092	DH443092	9.2	10	47	89
DH423093	DH443093	9.3	10	47	89
DH423094	DH443094	9.4	10	47	89
DH423095	DH443095	9.5	10	47	89
DH423096	DH443096	9.6	10	47	89
DH423097	DH443097	9.7	10	47	89
DH423098	DH443098	9.8	10	47	89
DH423099	DH443099	9.9	10	47	89
DH423100	DH443100	10.0	10	47	89
DH423101	DH443101	10.1	12	55	102

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH423102	DH443102	10.2	12	55	102
DH423103	DH443103	10.3	12	55	102
DH423104	DH443104	10.4	12	55	102
DH423105	DH443105	10.5	12	55	102
DH423106	DH443106	10.6	12	55	102
DH423107	DH443107	10.7	12	55	102
DH423108	DH443108	10.8	12	55	102
DH423109	DH443109	10.9	12	55	102
DH423110	DH443110	11.0	12	55	102
DH423111	DH443111	11.1	12	55	102
DH423112	DH443112	11.2	12	55	102
DH423113	DH443113	11.3	12	55	102
DH423114	DH443114	11.4	12	55	102
DH423115	DH443115	11.5	12	55	102
DH423116	DH443116	11.6	12	55	102
DH423117	DH443117	11.7	12	55	102
DH423118	DH443118	11.8	12	55	102
DH423119	DH443119	11.9	12	55	102
DH423120	DH443120	12.0	12	55	102
DH423123	DH443123	12.3	14	60	107
DH423125	DH443125	12.5	14	60	107
DH423128	DH443128	12.8	14	60	107
DH423130	DH443130	13.0	14	60	107
DH423135	DH443135	13.5	14	60	107

▶ NEXT PAGE

◎ : Excellent ○ : Good
ISO | K | | | | | | | | | | | M | | | K | | | | | |
Material Description | Non-alloy steel | | | | | Low alloy steel | | | | High alloyed steel, and tool steel | | Stainless steel | | | Grey cast iron | | Nodular cast iron | | Malleable cast iron | |
VDI 3323 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20
HRc | | 13 | 25 | 28 | 32 | 10 | 29 | 32 | 38 | 15 | 35 | 15 | 23 | 10 | 10 | 26 | 3 | 25 | | 21
HB | 125 | 190 | 250 | 270 | 300 | 180 | 275 | 300 | 350 | 200 | 325 | 200 | 240 | 180 | 180 | 260 | 160 | 250 | 130 | 230
Recommended | | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | ○ | ○ | ◎ | ○ | ○ | ○ | | ◎ | ○ | ◎ | ○ | ◎ | ○
ISO | N | | | | | | | | | | S | | | | | | | H | | |
Material Description | Aluminum-wrought alloy | | Aluminum-cast, alloyed | | | Copper and Copper Alloys (Bronze / Brass) | | | Non Metallic Materials | | Heat Resistant Super Alloys | | | | | Titanium Alloys | | Hardened steel | Chilled Cast Iron | Hardened Cast Iron
VDI 3323 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41
HRc | | | | | | | | | | | 15 | 30 | 25 | 38 | 34 | | | 55 | 60 | 42 | 55
HB | 60 | 100 | 75 | 90 | 130 | 110 | 90 | 100 | | | 200 | 280 | 250 | 350 | 320 | 400 Rm | 1050 Rm | 550 | 630 | 400 | 550
Recommended | | | | | | | | | | | | | | | | | | ○ | | | |

D EAM D ILLS GENE AL

PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

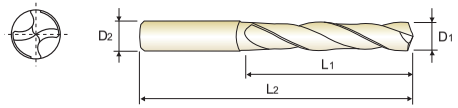
CARBIDE, DREAM DRILLS

SHORT
KURZ
COURTE
CORTA

VOLLHARTMETALL DREAM SPIRALBOHRER
Forets DREAM DRILLS carbure, série courte
PUNTE ELICOIDALI IN MD - DREAM DRILLS

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation

- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH423138	DH443138	13.8	14	60	107
DH423140	DH443140	14.0	14	60	107
DH423145	DH443145	14.5	16	65	115
DH423148	DH443148	14.8	16	65	115
DH423150	DH443150	15.0	16	65	115
DH423155	DH443155	15.5	16	65	115
DH423158	DH443158	15.8	16	65	115
DH423160	DH443160	16.0	16	65	115
DH423165	DH443165	16.5	18	73	123
DH423168	DH443168	16.8	18	73	123

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH423170	DH443170	17.0	18	73	123
DH423175	DH443175	17.5	18	73	123
DH423178	DH443178	17.8	18	73	123
DH423180	DH443180	18.0	18	73	123
DH423185	DH443185	18.5	20	79	131
DH423190	DH443190	19.0	20	79	131
DH423195	DH443195	19.5	20	79	131
DH423198	DH443198	19.8	20	79	131
DH423200	DH443200	20.0	20	79	131

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO																				
	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL
PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

CARBIDE, DREAM DRILLS

LONG
LANG
LONGUE
LUNGA

VOLLHARTMETALL DREAM SPIRALBOHRER
Forets DREAM DRILLS carbure, série longue
PUNTE ELICOIDALI IN MD - DREAM DRILLS

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
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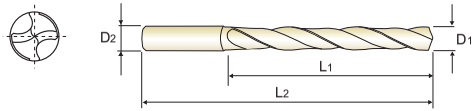
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH424010	-	1.0	3	8	55
DH424011	-	1.1	3	12	55
DH424012	-	1.2	3	12	55
DH424013	-	1.3	3	12	55
DH424014	-	1.4	3	12	55
DH424015	-	1.5	3	16	55
DH424016	-	1.6	3	16	55
DH424017	-	1.7	3	16	55
DH424018	-	1.8	3	16	55
DH424019	-	1.9	3	16	55
DH424020	-	2.0	4	21	57
DH424021	-	2.1	4	21	57
DH424022	-	2.2	4	21	57
DH424023	-	2.3	4	21	57
DH424024	-	2.4	4	21	57
DH424025	-	2.5	4	21	57
DH424026	-	2.6	4	21	57
DH424027	-	2.7	4	21	57
DH424028	-	2.8	4	21	57
DH424029	-	2.9	4	21	57
DH424030	DH444030	3.0	6	28	66
DH424031	DH444031	3.1	6	28	66
DH424032	DH444032	3.2	6	28	66
DH424033	DH444033	3.3	6	28	66

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH424034	DH444034	3.4	6	28	66
DH424035	DH444035	3.5	6	28	66
DH424036	DH444036	3.6	6	28	66
DH424037	DH444037	3.7	6	28	66
DH424038	DH444038	3.8	6	36	74
DH424039	DH444039	3.9	6	36	74
DH424040	DH444040	4.0	6	36	74
DH424041	DH444041	4.1	6	36	74
DH424042	DH444042	4.2	6	36	74
DH424043	DH444043	4.3	6	36	74
DH424044	DH444044	4.4	6	36	74
DH424045	DH444045	4.5	6	36	74
DH424046	DH444046	4.6	6	36	74
DH424047	DH444047	4.7	6	36	74
DH424048	DH444048	4.8	6	44	82
DH424049	DH444049	4.9	6	44	82
DH424050	DH444050	5.0	6	44	82
DH424051	DH444051	5.1	6	44	82
DH424052	DH444052	5.2	6	44	82
DH424053	DH444053	5.3	6	44	82
DH424054	DH444054	5.4	6	44	82
DH424055	DH444055	5.5	6	44	82
DH424056	DH444056	5.6	6	44	82
DH424057	DH444057	5.7	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO																				
	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL

PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

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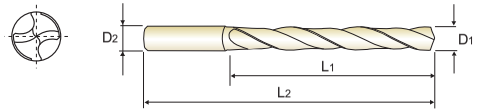


DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH424058	DH444058	5.8	6	44	82
DH424059	DH444059	5.9	6	44	82
DH424060	DH444060	6.0	6	44	82
DH424061	DH444061	6.1	8	53	91
DH424062	DH444062	6.2	8	53	91
DH424063	DH444063	6.3	8	53	91
DH424064	DH444064	6.4	8	53	91
DH424065	DH444065	6.5	8	53	91
DH424066	DH444066	6.6	8	53	91
DH424067	DH444067	6.7	8	53	91
DH424068	DH444068	6.8	8	53	91
DH424069	DH444069	6.9	8	53	91
DH424070	DH444070	7.0	8	53	91
DH424071	DH444071	7.1	8	53	91
DH424072	DH444072	7.2	8	53	91
DH424073	DH444073	7.3	8	53	91
DH424074	DH444074	7.4	8	53	91
DH424075	DH444075	7.5	8	53	91
DH424076	DH444076	7.6	8	53	91
DH424077	DH444077	7.7	8	53	91
DH424078	DH444078	7.8	8	53	91
DH424079	DH444079	7.9	8	53	91
DH424080	DH444080	8.0	8	53	91
DH424081	DH444081	8.1	10	61	103

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH424082	DH444082	8.2	10	61	103
DH424083	DH444083	8.3	10	61	103
DH424084	DH444084	8.4	10	61	103
DH424085	DH444085	8.5	10	61	103
DH424086	DH444086	8.6	10	61	103
DH424087	DH444087	8.7	10	61	103
DH424088	DH444088	8.8	10	61	103
DH424089	DH444089	8.9	10	61	103
DH424090	DH444090	9.0	10	61	103
DH424091	DH444091	9.1	10	61	103
DH424092	DH444092	9.2	10	61	103
DH424093	DH444093	9.3	10	61	103
DH424094	DH444094	9.4	10	61	103
DH424095	DH444095	9.5	10	61	103
DH424096	DH444096	9.6	10	61	103
DH424097	DH444097	9.7	10	61	103
DH424098	DH444098	9.8	10	61	103
DH424099	DH444099	9.9	10	61	103
DH424100	DH444100	10.0	10	61	103
DH424101	DH444101	10.1	12	71	118
DH424102	DH444102	10.2	12	71	118
DH424103	DH444103	10.3	12	71	118
DH424104	DH444104	10.4	12	71	118
DH424105	DH444105	10.5	12	71	118

▶ Other shank types are available on your request.

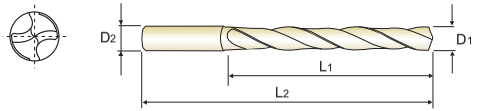
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
Material Description																												
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL
PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES
CARBIDE, DREAM DRILLS
LONG
LANG
LONGUE
LUNGA
VOLLHARTMETALL DREAM SPIRALBOHRER
Forets DREAM DRILLS carbure, série longue
PUNTE ELICOIDALI IN MD - DREAM DRILLS
▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶ Self centering and chip breaking by R-thinning
▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶ Optimized flute shape for strength of drilling and smooth chip evacuation
▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6539 | CARBIDE | 30° | h6 | h7 | 140° | TiAlN | p.A96 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH424106	DH444106	10.6	12	71	118
DH424107	DH444107	10.7	12	71	118
DH424108	DH444108	10.8	12	71	118
DH424109	DH444109	10.9	12	71	118
DH424110	DH444110	11.0	12	71	118
DH424111	DH444111	11.1	12	71	118
DH424112	DH444112	11.2	12	71	118
DH424113	DH444113	11.3	12	71	118
DH424114	DH444114	11.4	12	71	118
DH424115	DH444115	11.5	12	71	118
DH424116	DH444116	11.6	12	71	118
DH424117	DH444117	11.7	12	71	118
DH424118	DH444118	11.8	12	71	118
DH424119	DH444119	11.9	12	71	118
DH424120	DH444120	12.0	12	71	118
DH424125	DH444125	12.5	14	77	124
DH424130	DH444130	13.0	14	77	124
DH424135	DH444135	13.5	14	77	124
DH424140	DH444140	14.0	14	77	124
DH424145	DH444145	14.5	16	83	133
DH424150	DH444150	15.0	16	83	133
DH424155	DH444155	15.5	16	83	133
DH424160	DH444160	16.0	16	83	133
DH424165	DH444165	16.5	18	93	143

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH424170	DH444170	17.0	18	93	143
DH424175	DH444175	17.5	18	93	143
DH424180	DH444180	18.0	18	93	143
DH424185	DH444185	18.5	20	101	153
DH424190	DH444190	19.0	20	101	153
DH424195	DH444195	19.5	20	101	153
DH424200	DH444200	20.0	20	101	153

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
Material Description																												
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL

PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

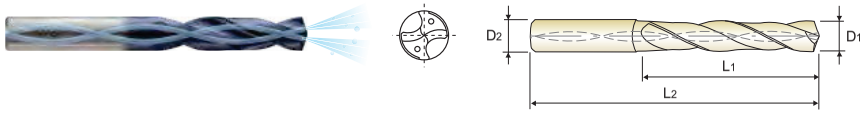
CARBIDE, DREAM DRILLS with COOLANT HOLES

SHORT

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — KURZ
Forets DREAM DRILLS carbure, avec arrosage central, série courte — COURTE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — CORTA

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation

- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH406030	DH446030	3.0	6	20	62
DH406031	DH446031	3.1	6	20	62
DH406032	DH446032	3.2	6	20	62
DH406033	DH446033	3.3	6	20	62
DH406034	DH446034	3.4	6	20	62
DH406035	DH446035	3.5	6	20	62
DH406036	DH446036	3.6	6	20	62
DH406037	DH446037	3.7	6	20	62
DH406038	DH446038	3.8	6	24	66
DH406039	DH446039	3.9	6	24	66
DH406040	DH446040	4.0	6	24	66
DH406041	DH446041	4.1	6	24	66
DH406042	DH446042	4.2	6	24	66
DH406043	DH446043	4.3	6	24	66
DH406044	DH446044	4.4	6	24	66
DH406045	DH446045	4.5	6	24	66
DH406046	DH446046	4.6	6	24	66
DH406047	DH446047	4.7	6	24	66
DH406048	DH446048	4.8	6	28	66
DH406049	DH446049	4.9	6	28	66
DH406050	DH446050	5.0	6	28	66
DH406051	DH446051	5.1	6	28	66
DH406052	DH446052	5.2	6	28	66
DH406053	DH446053	5.3	6	28	66

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH406054	DH446054	5.4	6	28	66
DH406055	DH446055	5.5	6	28	66
DH406056	DH446056	5.6	6	28	66
DH406057	DH446057	5.7	6	28	66
DH406058	DH446058	5.8	6	28	66
DH406059	DH446059	5.9	6	28	66
DH406060	DH446060	6.0	6	28	66
DH406061	DH446061	6.1	8	34	79
DH406062	DH446062	6.2	8	34	79
DH406063	DH446063	6.3	8	34	79
DH406064	DH446064	6.4	8	34	79
DH406065	DH446065	6.5	8	34	79
DH406066	DH446066	6.6	8	34	79
DH406067	DH446067	6.7	8	34	79
DH406068	DH446068	6.8	8	34	79
DH406069	DH446069	6.9	8	34	79
DH406070	DH446070	7.0	8	34	79
DH406071	DH446071	7.1	8	41	79
DH406072	DH446072	7.2	8	41	79
DH406073	DH446073	7.3	8	41	79
DH406074	DH446074	7.4	8	41	79
DH406075	DH446075	7.5	8	41	79
DH406076	DH446076	7.6	8	41	79
DH406077	DH446077	7.7	8	41	79

▶ Other shank types are available on your request.

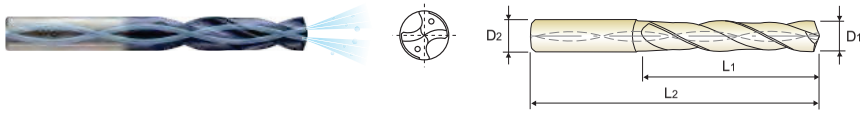
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
Material Description																												
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL
PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES
CARBIDE, DREAM DRILLS with COOLANT HOLES
SHORT
VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — KURZ
Forets DREAM DRILLS carbure, avec arrosage central, série courte — COURTE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — CORTA
▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶ Self centering and chip breaking by R-thinning
▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶ Optimized flute shape for strength of drilling and smooth chip evacuation
▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 3 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH406078	DH446078	7.8	8	41	79
DH406079	DH446079	7.9	8	41	79
DH406080	DH446080	8.0	8	41	79
DH406081	DH446081	8.1	10	47	89
DH406082	DH446082	8.2	10	47	89
DH406083	DH446083	8.3	10	47	89
DH406084	DH446084	8.4	10	47	89
DH406085	DH446085	8.5	10	47	89
DH406086	DH446086	8.6	10	47	89
DH406087	DH446087	8.7	10	47	89
DH406088	DH446088	8.8	10	47	89
DH406089	DH446089	8.9	10	47	89
DH406090	DH446090	9.0	10	47	89
DH406091	DH446091	9.1	10	47	89
DH406092	DH446092	9.2	10	47	89
DH406093	DH446093	9.3	10	47	89
DH406094	DH446094	9.4	10	47	89
DH406095	DH446095	9.5	10	47	89
DH406096	DH446096	9.6	10	47	89
DH406097	DH446097	9.7	10	47	89
DH406098	DH446098	9.8	10	47	89
DH406099	DH446099	9.9	10	47	89
DH406100	DH446100	10.0	10	47	89
DH406101	DH446101	10.1	12	55	102

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
DH406102	DH446102	10.2	12	55	102
DH406103	DH446103	10.3	12	55	102
DH406104	DH446104	10.4	12	55	102
DH406105	DH446105	10.5	12	55	102
DH406106	DH446106	10.6	12	55	102
DH406107	DH446107	10.7	12	55	102
DH406108	DH446108	10.8	12	55	102
DH406109	DH446109	10.9	12	55	102
DH406110	DH446110	11.0	12	55	102
DH406111	DH446111	11.1	12	55	102
DH406112	DH446112	11.2	12	55	102
DH406113	DH446113	11.3	12	55	102
DH406114	DH446114	11.4	12	55	102
DH406115	DH446115	11.5	12	55	102
DH406116	DH446116	11.6	12	55	102
DH406117	DH446117	11.7	12	55	102
DH406118	DH446118	11.8	12	55	102
DH406119	DH446119	11.9	12	55	102
DH406120	DH446120	12.0	12	55	102
DH406125	DH446125	12.5	14	60	107
DH406130	DH446130	13.0	14	60	107
DH406135	DH446135	13.5	14	60	107
DH406140	DH446140	14.0	14	60	107
DH406145	DH446145	14.5	16	65	115

▶ Other shank types are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
Material Description																												
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL

PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

CARBIDE, DREAM DRILLS with COOLANT HOLES — SHORT

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — KURZ
Forets DREAM DRILLS carbure, avec arrosage central, série courte — COURTE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — CORTA

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
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- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
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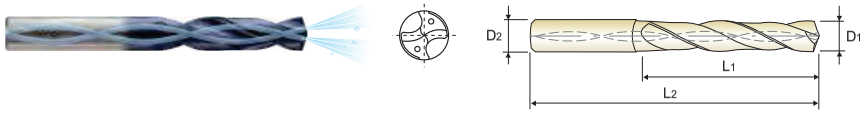

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH406150	DH446150	15.0	16	65	115
DH406155	DH446155	15.5	16	65	115
DH406160	DH446160	16.0	16	65	115
DH406165	DH446165	16.5	18	73	123
DH406170	DH446170	17.0	18	73	123
DH406175	DH446175	17.5	18	73	123
DH406180	DH446180	18.0	18	73	123
DH406185	DH446185	18.5	20	79	131
DH406190	DH446190	19.0	20	79	131
DH406195	DH446195	19.5	20	79	131
DH406200	DH446200	20.0	20	79	131

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL

PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

CARBIDE, DREAM DRILLS with COOLANT HOLES — LONG

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — LANG
Forets DREAM DRILLS carbure, avec arrosage central, série longue — LONGUE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — LUNGA

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation

- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	EDP No. (TiAlN) Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH408010	-	1.0	3	8	55
DH408011	-	1.1	3	12	55
DH408012	-	1.2	3	12	55
DH408013	-	1.3	3	12	55
DH408014	-	1.4	3	12	55
DH408015	-	1.5	3	16	55
DH408016	-	1.6	3	16	55
DH408017	-	1.7	3	16	55
DH408018	-	1.8	3	16	55
DH408019	-	1.9	3	16	55
DH408020	-	2.0	4	21	57
DH408021	-	2.1	4	21	57
DH408022	-	2.2	4	21	57
DH408023	-	2.3	4	21	57
DH408024	-	2.4	4	21	57
DH408025	-	2.5	4	21	57
DH408026	-	2.6	4	21	57
DH408027	-	2.7	4	21	57
DH408028	-	2.8	4	21	57
DH408029	-	2.9	4	21	57
DH408030	DH448030	3.0	6	28	66
DH408031	DH448031	3.1	6	28	66
DH408032	DH448032	3.2	6	28	66
DH408033	DH448033	3.3	6	28	66
DH408034	DH448034	3.4	6	28	66
DH408035	DH448035	3.5	6	28	66
DH408036	DH448036	3.6	6	28	66
DH408037	DH448037	3.7	6	28	66
DH408038	DH448038	3.8	6	36	74
DH408039	DH448039	3.9	6	36	74
DH408040	DH448040	4.0	6	36	74
DH408041	DH448041	4.1	6	36	74
DH408042	DH448042	4.2	6	36	74
DH408043	DH448043	4.3	6	36	74
DH408044	DH448044	4.4	6	36	74
DH408045	DH448045	4.5	6	36	74
DH408046	DH448046	4.6	6	36	74
DH408047	DH448047	4.7	6	36	74
DH408048	DH448048	4.8	6	44	82
DH408049	DH448049	4.9	6	44	82
DH408050	DH448050	5.0	6	44	82
DH408051	DH448051	5.1	6	44	82
DH408052	DH448052	5.2	6	44	82
DH408053	DH448053	5.3	6	44	82
DH408054	DH448054	5.4	6	44	82
DH408055	DH448055	5.5	6	44	82
DH408056	DH448056	5.6	6	44	82
DH408057	DH448057	5.7	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL

PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

CARBIDE, DREAM DRILLS with COOLANT HOLES — LONG

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — LANG
Forets DREAM DRILLS carbure, avec arrosage central, série longue — LONGUE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — LUNGA

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- Self centering and chip breaking by R-thinning
- Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
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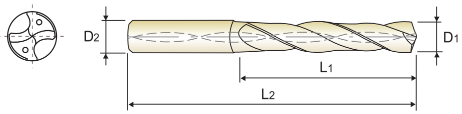
- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 5 × D

Recommended ToolHolder	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH408058	DH448058	5.8	6	44	82
DH408059	DH448059	5.9	6	44	82
DH408060	DH448060	6.0	6	44	82
DH408061	DH448061	6.1	8	53	91
DH408062	DH448062	6.2	8	53	91
DH408063	DH448063	6.3	8	53	91
DH408064	DH448064	6.4	8	53	91
DH408065	DH448065	6.5	8	53	91
DH408066	DH448066	6.6	8	53	91
DH408067	DH448067	6.7	8	53	91
DH408068	DH448068	6.8	8	53	91
DH408069	DH448069	6.9	8	53	91
DH408070	DH448070	7.0	8	53	91
DH408071	DH448071	7.1	8	53	91
DH408072	DH448072	7.2	8	53	91
DH408073	DH448073	7.3	8	53	91
DH408074	DH448074	7.4	8	53	91
DH408075	DH448075	7.5	8	53	91
DH408076	DH448076	7.6	8	53	91
DH408077	DH448077	7.7	8	53	91
DH408078	DH448078	7.8	8	53	91
DH408079	DH448079	7.9	8	53	91
DH408080	DH448080	8.0	8	53	91
DH408081	DH448081	8.1	10	61	103

EDP No. (TiAlN) Plain	Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH408082	DH448082	8.2	10	61	103
DH408083	DH448083	8.3	10	61	103
DH408084	DH448084	8.4	10	61	103
DH408085	DH448085	8.5	10	61	103
DH408086	DH448086	8.6	10	61	103
DH408087	DH448087	8.7	10	61	103
DH408088	DH448088	8.8	10	61	103
DH408089	DH448089	8.9	10	61	103
DH408090	DH448090	9.0	10	61	103
DH408091	DH448091	9.1	10	61	103
DH408092	DH448092	9.2	10	61	103
DH408093	DH448093	9.3	10	61	103
DH408094	DH448094	9.4	10	61	103
DH408095	DH448095	9.5	10	61	103
DH408096	DH448096	9.6	10	61	103
DH408097	DH448097	9.7	10	61	103
DH408098	DH448098	9.8	10	61	103
DH408099	DH448099	9.9	10	61	103
DH408100	DH448100	10.0	10	61	103
DH408101	DH448101	10.1	12	71	118
DH408102	DH448102	10.2	12	71	118
DH408103	DH448103	10.3	12	71	118
DH408104	DH448104	10.4	12	71	118
DH408105	DH448105	10.5	12	71	118

- Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

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YG-1 CO., LTD.

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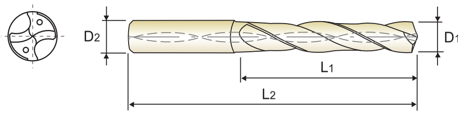
PLAIN SHANK DH SERIES
FLAT SHANK DH SERIES

CARBIDE, DREAM DRILLS with COOLANT HOLES — LONG

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — LANG
Forets DREAM DRILLS carbure, avec arrosage central, série longue — LONGUE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — LUNGA

- Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- Self centering and chip breaking by R-thinning
- Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- Optimized flute shape for strength of drilling and smooth chip evacuation

- Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 5 × D

Recommended ToolHolder	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. (TiAlN) Plain	Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH408106	DH448106	10.6	12	71	118
DH408107	DH448107	10.7	12	71	118
DH408108	DH448108	10.8	12	71	118
DH408109	DH448109	10.9	12	71	118
DH408110	DH448110	11.0	12	71	118
DH408111	DH448111	11.1	12	71	118
DH408112	DH448112	11.2	12	71	118
DH408113	DH448113	11.3	12	71	118
DH408114	DH448114	11.4	12	71	118
DH408115	DH448115	11.5	12	71	118
DH408116	DH448116	11.6	12	71	118
DH408117	DH448117	11.7	12	71	118
DH408118	DH448118	11.8	12	71	118
DH408119	DH448119	11.9	12	71	118
DH408120	DH448120	12.0	12	71	118
DH408125	DH448125	12.5	14	77	124
DH408130	DH448130	13.0	14	77	124
DH408135	DH448135	13.5	14	77	124
DH408140	DH448140	14.0	14	77	124
DH408145	DH448145	14.5	16	83	133
DH408150	DH448150	15.0	16	83	133
DH408155	DH448155	15.5	16	83	133
DH408160	DH448160	16.0	16	83	133
DH408165	DH448165	16.5	18	93	143

EDP No. (TiAlN) Plain	Flat	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH408170	DH448170	17.0	18	93	143
DH408175	DH448175	17.5	18	93	143
DH408180	DH448180	18.0	18	93	143
DH408185	DH448185	18.5	20	101	153
DH408190	DH448190	19.0	20	101	153
DH408195	DH448195	19.5	20	101	153
DH408200	DH448200	20.0	20	101	153

- Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

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DH SERIES

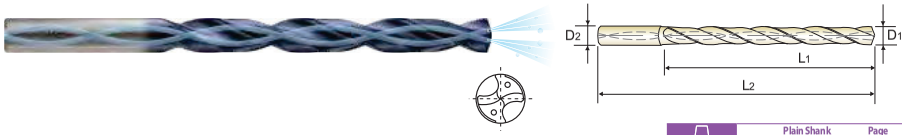
CARBIDE, DREAM DRILLS with COOLANT HOLES

EXTRA LONG

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — ÜBERLANG
Forets DREAM DRILLS carbure, avec arrosage central, série extra-longue — EXTRA-LONGUE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — EXTRA LUNGA

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation

- ▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
- ▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
- ▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 8 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D_1	D_2	L_1	L_2
DH421030	3.0	6	34	72
DH421031	3.1	6	34	72
DH421032	3.2	6	34	72
DH421033	3.3	6	34	72
DH421034	3.4	6	34	72
DH421035	3.5	6	34	72
DH421036	3.6	6	34	72
DH421037	3.7	6	34	72
DH421038	3.8	6	43	81
DH421039	3.9	6	43	81
DH421040	4.0	6	43	81
DH421041	4.1	6	43	81
DH421042	4.2	6	43	81
DH421043	4.3	6	43	81
DH421044	4.4	6	43	81
DH421045	4.5	6	43	81
DH421046	4.6	6	43	81
DH421047	4.7	6	43	81
DH421048	4.8	6	57	95
DH421049	4.9	6	57	95
DH421050	5.0	6	57	95
DH421051	5.1	6	57	95
DH421052	5.2	6	57	95
DH421053	5.3	6	57	95

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D_1	D_2	L_1	L_2
DH421054	5.4	6	57	95
DH421055	5.5	6	57	95
DH421056	5.6	6	57	95
DH421057	5.7	6	57	95
DH421058	5.8	6	57	95
DH421059	5.9	6	57	95
DH421060	6.0	6	57	95
DH421061	6.1	8	76	114
DH421062	6.2	8	76	114
DH421063	6.3	8	76	114
DH421064	6.4	8	76	114
DH421065	6.5	8	76	114
DH421066	6.6	8	76	114
DH421067	6.7	8	76	114
DH421068	6.8	8	76	114
DH421069	6.9	8	76	114
DH421070	7.0	8	76	114
DH421071	7.1	8	76	114
DH421072	7.2	8	76	114
DH421073	7.3	8	76	114
DH421074	7.4	8	76	114
DH421075	7.5	8	76	114
DH421076	7.6	8	76	114
DH421077	7.7	8	76	114

▶ Other shank types are available on your request.

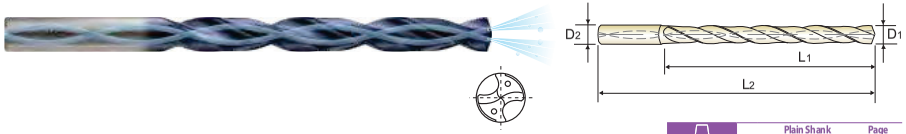
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL
DH SERIES
CARBIDE, DREAM DRILLS with COOLANT HOLES
EXTRA LONG
VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL — ÜBERLANG
Forets DREAM DRILLS carbure, avec arrosage central, série extra-longue — EXTRA-LONGUE
PUNTE ELICOIDALI IN MD - DREAM DRILLS (con fori di refrigerazione) — EXTRA LUNGA
▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
▶ Self centering and chip breaking by R-thinning
▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
▶ Optimized flute shape for strength of drilling and smooth chip evacuation
▶ Bohren von Stahl, Stahlguss, Gusseisen, Temperguss, Nichteisenmetallen-Leichtmetallen, abrasiven Kunststoffen
▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung
▶ Wellenform und Neagtivfase auf der Schneide bewirken geringen Schub, stabiles Drehmoment und lange Standzeit
▶ Optimierte Nutenform für Hochleistungsbohren und leichte Spanabfuhr



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A97 | 8 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D_1	D_2	L_1	L_2
DH421078	7.8	8	76	114
DH421079	7.9	8	76	114
DH421080	8.0	8	76	114
DH421081	8.1	10	95	142
DH421082	8.2	10	95	142
DH421083	8.3	10	95	142
DH421084	8.4	10	95	142
DH421085	8.5	10	95	142
DH421086	8.6	10	95	142
DH421087	8.7	10	95	142
DH421088	8.8	10	95	142
DH421089	8.9	10	95	142
DH421090	9.0	10	95	142
DH421091	9.1	10	95	142
DH421092	9.2	10	95	142
DH421093	9.3	10	95	142
DH421094	9.4	10	95	142
DH421095	9.5	10	95	142
DH421096	9.6	10	95	142
DH421097	9.7	10	95	142
DH421098	9.8	10	95	142
DH421099	9.9	10	95	142
DH421100	10.0	10	95	142
DH421101	10.1	12	114	162

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D_1	D_2	L_1	L_2
DH421102	10.2	12	114	162
DH421103	10.3	12	114	162
DH421104	10.4	12	114	162
DH421105	10.5	12	114	162
DH421106	10.6	12	114	162
DH421107	10.7	12	114	162
DH421108	10.8	12	114	162
DH421109	10.9	12	114	162
DH421110	11.0	12	114	162
DH421111	11.1	12	114	162
DH421112	11.2	12	114	162
DH421113	11.3	12	114	162
DH421114	11.4	12	114	162
DH421115	11.5	12	114	162
DH421116	11.6	12	114	162
DH421117	11.7	12	114	162
DH421118	11.8	12	114	162
DH421119	11.9	12	114	162
DH421120	12.0	12	114	162
DH421125	12.5	14	133	178
DH421130	13.0	14	133	178
DH421135	13.5	14	133	178
DH421140	14.0	14	133	178

▶ Other shank types are available on your request.
◎ : Excellent ○ : Good

ISO																				
											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○	○	○		◎	○	◎	○	◎	○

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○			

D EAM D ILLS GENE AL

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DH DH DH DH DH SERIES without COOLANT HOLES

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0
P	2	Non-alloy steel	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	3		70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	4		70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	5		60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	6	Low alloy steel	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	7		60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	8		60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.02-0.04	0.03-0.05		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	9		30	RPM	9550	4770	40	RPM	4240	3180	2550	2120
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
	10	High alloyed steel, and tool steel	50	RPM	15920	7960	70	RPM	7430	5570	4460	3710
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	11		30	RPM	9550	4770	40	RPM	4240	3180	2550	2120
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
M	12	Stainless steel	50	RPM	15920	7960	70	RPM	7430	5570	4460	3710
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	13		35	RPM	11140	5570	45	RPM	4770	3580	2860	2390
					0.02-0.04	0.03-0.05			0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
K	15	Grey cast iron	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	16		65	RPM	20690	10350	80	RPM	8490	6370	5090	4240
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	17	Nodular cast iron	70	RPM	22280	11140	100	RPM	10610	7960	6370	5310
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	18		50	RPM	15920	7960	70	RPM	7430	5570	4460	3710
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	19	Malleable cast iron	60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	20		50	RPM	15920	7960	70	RPM	7430	5570	4460	3710
					0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
H	38	Hardened steel	20	RPM	6370	3180	25	RPM	2650	1990	1590	1330
				FEED	0.01-0.02	0.01-0.03		FEED	0.01-0.03	0.01-0.04	0.02-0.05	0.03-0.06

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	2	Non-alloy steel	100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	3		100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	4		100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	5		80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	6	Low alloy steel	100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	7		80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	8		80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	9		40	RPM	1590	1270	1060	910	800	710	640
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
	10	High alloyed steel, and tool steel	70	RPM	2790	2230	1860	1590	1390	1240	1110
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	11		40	RPM	1590	1270	1060	910	800	710	640
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
M	12	Stainless steel	70	RPM	2790	2230	1860	1590	1390	1240	1110
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	13		45	RPM	1790	1430	1190	1020	900	800	720
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
K	15	Grey cast iron	100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	16		80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	17	Nodular cast iron	100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	18		70	RPM	2790	2230	1860	1590	1390	1240	1110
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	19	Malleable cast iron	80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	20		70	RPM	2790	2230	1860	1590	1390	1240	1110
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
H	38	Hardened steel	25	RPM	990	800	660	570	500	440	400
				FEED	0.03-0.06	0.04-0.07	0.04-0.08	0.05-0.09	0.05-0.09	0.05-0.10	0.05-0.10

▶ Recommend to reduce the feed rate as following **Feed 100%** : DH404(3×D), DH423(3×D), DH424(5×D)

D EAM D ILLS GENE AL
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DH DH DH DH DH SERIES with COOLANT HOLES

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

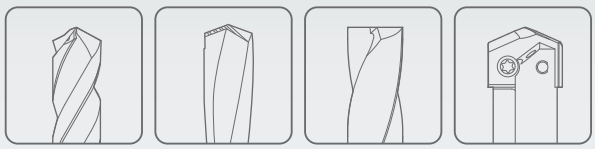
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0
P	2	Non-alloy steel	80	RPM	25460	12730	110	RPM	11670	8750	7000	5840
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	3		80	RPM	25460	12730	110	RPM	11670	8750	7000	5840
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	4		80	RPM	25460	12730	110	RPM	11670	8750	7000	5840
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	5		70	RPM	22280	11140	90	RPM	9550	7160	5730	4770
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	6	Low alloy steel	80	RPM	25460	12730	110	RPM	11670	8750	7000	5840
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	7		70	RPM	22280	11140	90	RPM	9550	7160	5730	4770
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	8		70	RPM	22280	11140	90	RPM	9550	7160	5730	4770
				FEED	0.02-0.04	0.03-0.05		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	9		40	RPM	12730	6370	50	RPM	5310	3980	3180	2650
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
	10	High alloyed steel, and tool steel	60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.03-0.05	0.05-0.07		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
	11		40	RPM	12730	6370	45	RPM	4770	3580	2860	2390
				FEED	0.02-0.04	0.03-0.05		FEED	0.03-0.08	0.05-0.11	0.08-0.14	0.10-0.16
M	12	Stainless steel	60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	13		45	RPM	14320	7160	55	RPM	5840	4380	3500	2920
				FEED	0.02-0.04	0.03-0.05		FEED	0.04-0.10	0.07-0.13	0.10-0.16	0.12-0.18
K	15	Grey cast iron	80	RPM	25460	12730	110	RPM	11670	8750	7000	5840
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	16		75	RPM	23870	11940	95	RPM	10080	7560	6050	5040
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	17	Nodular cast iron	90	RPM	28650	14320	120	RPM	12730	9550	7640	6370
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	18		60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.04-0.06	0.04-0.06		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
	19	Malleable cast iron	70	RPM	22280	11140	90	RPM	9550	7160	5730	4770
				FEED	0.04-0.06	0.04-0.06		FEED	0.08-0.14	0.12-0.18	0.15-0.22	0.20-0.26
	20		60	RPM	19100	9550	80	RPM	8490	6370	5090	4240
				FEED	0.03-0.05	0.05-0.07		FEED	0.06-0.12	0.08-0.14	0.14-0.20	0.16-0.22
H	38	Hardened steel	25	RPM	7960	3980	30	RPM	3180	2390	1910	1590
				FEED	0.01-0.02	0.01-0.03		FEED	0.01-0.03	0.01-0.04	0.02-0.05	0.03-0.06

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	2	Non-alloy steel	110	RPM	4380	3500	2920	2500	2190	1950	1750
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	3		110	RPM	4380	3500	2920	2500	2190	1950	1750
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	4		110	RPM	4380	3500	2920	2500	2190	1950	1750
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	5		90	RPM	3580	2860	2390	2050	1790	1590	1430
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	6	Low alloy steel	110	RPM	4380	3500	2920	2500	2190	1950	1750
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	7		90	RPM	3580	2860	2390	2050	1790	1590	1430
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	8		90	RPM	3580	2860	2390	2050	1790	1590	1430
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	9		50	RPM	1990	1590	1330	1140	990	880	800
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
	10	High alloyed steel, and tool steel	80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
	11		45	RPM	1790	1430	1190	1020	900	800	720
				FEED	0.12-0.18	0.13-0.19	0.14-0.20	0.15-0.21	0.16-0.22	0.17-0.25	0.18-0.28
M	12	Stainless steel	80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	13		55	RPM	2190	1750	1460	1250	1090	970	880
				FEED	0.14-0.20	0.15-0.23	0.17-0.25	0.18-0.26	0.19-0.27	0.20-0.30	0.22-0.32
K	15	Grey cast iron	110	RPM	4380	3500	2920	2500	2190	1950	1750
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	16		95	RPM	3780	3020	2520	2160	1890	1680	1510
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	17	Nodular cast iron	120	RPM	4770	3820	3180	2730	2390	2120	1910
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	18		80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
	19	Malleable cast iron	90	RPM	3580	2860	2390	2050	1790	1590	1430
				FEED	0.22-0.28	0.25-0.33	0.27-0.35	0.29-0.37	0.31-0.39	0.32-0.42	0.34-0.44
	20		80	RPM	3180	2550	2120	1820	1590	1410	1270
				FEED	0.18-0.24	0.19-0.27	0.21-0.29	0.23-0.31	0.25-0.33	0.28-0.38	0.30-0.40
H	38	Hardened steel	30	RPM	1190	950	800	680	600	530	480
				FEED	0.03-0.06	0.04-0.07	0.04-0.08	0.05-0.09	0.05-0.09	0.05-0.10	0.05-0.10

▶ Recommend to reduce the feed rate as following **Feed 100%** : DH406(3×D), DH408(5×D) **Feed 75%** : DH421(8×D)

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader G



HOLEMAKING

DREAM DRILLS
HIGH EED

DREAM DRILLS - HIGH FEED

- **1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill For Carbon Steels, Alloy Steels(up to HRc35) and Cast Iron**

- **1,5 bis 2 mal höhere Vorschubgeschwindigkeit als Bohrer mit 2 Schneiden, für Kohlenstoffstähle, legierte Stähle (bis HRc35) und Grauguss**

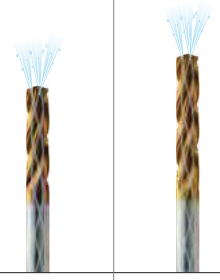
SELE TION G IDE

HOLEMAKING TOOLS

SERIES	DGR493	DGR495
DRILLING DEPTH	3XD	5XD
LENGTH	SHORT	LONG
SIZE MIN	D5.0	D5.0
SIZE MAX	D20.0	D20.0
PAGE	A101	A103
SURFACE TREATMENT	H-Coating	

SOLID CARBIDE
DREAM DRILLS
HIGH EED

1.5 to 2 Times Faster Feeding Speed than 2-Flute Drill for Carbon Steels, Alloy Steels(up to HRc35) and Cast Iron



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A105

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DGR493	DGR495
P	1	Non-alloy steel	About 0.15% C	Annealed	125			
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	○	○
	6	Low alloy steel		Annealed	180	10	◎	◎
	7			Quenched & Tempered	275	29	◎	◎
	8			Quenched & Tempered	300	32	○	○
	9			Quenched & Tempered	350	38	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎
	11			Quenched & Tempered	325	35	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○
	17	Nodular cast iron	Ferritic		160	3	◎	◎
	18		Pearlitic		250	25	○	○
	19	Malleable cast iron	Ferritic		130		◎	◎
	20		Pearlitic		230	21	○	○
N	21	Aluminum-wrought alloy	Not Curable		60			
	22		Curable	Hardened	100			
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			
	24		≤ 12% Si, Curable	Hardened	90			
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

D EAM D ILLS
HIGH EED

DGR SERIES

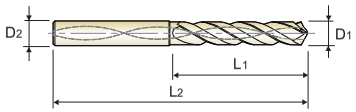
CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES

SHORT
KURZ
COURTE
CORTA

DREAM DRILLS HIGH FEED mit KÜHLKANAL
Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série courte
PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione)

- ▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶Multi-Layer coating delivers much better productivity and reliability
- ▶Self centering and chip breaking by R-thinning and coolant holes

- ▶ Bohren von Kohlenstoff-Stählen, legierten Stählen(-HRc35) und Gusseisen
- ▶ Höhere Produktivität durch den 1,5 bis 2-fach höheren Vorschub gegenüber herkömmlichen zweischneidigen Bohrern
- ▶ Die Multi-Layer Beschichtung ermöglicht eine bessere Produktivität und Zuverlässigkeit
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | H Coating | p.A105 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR493050	5.0	6	28	66
DGR493051	5.1	6	28	66
DGR493052	5.2	6	28	66
DGR493053	5.3	6	28	66
DGR493054	5.4	6	28	66
DGR493055	5.5	6	28	66
DGR493056	5.6	6	28	66
DGR493057	5.7	6	28	66
DGR493058	5.8	6	28	66
DGR493059	5.9	6	28	66
DGR493060	6.0	6	28	66
DGR493061	6.1	8	34	79
DGR493062	6.2	8	34	79
DGR493063	6.3	8	34	79
DGR493064	6.4	8	34	79
DGR493065	6.5	8	34	79
DGR493066	6.6	8	34	79
DGR493067	6.7	8	34	79
DGR493068	6.8	8	34	79
DGR493069	6.9	8	34	79
DGR493070	7.0	8	34	79
DGR493071	7.1	8	41	79
DGR493072	7.2	8	41	79
DGR493073	7.3	8	41	79

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR493074	7.4	8	41	79
DGR493075	7.5	8	41	79
DGR493076	7.6	8	41	79
DGR493077	7.7	8	41	79
DGR493078	7.8	8	41	79
DGR493079	7.9	8	41	79
DGR493080	8.0	8	41	79
DGR493081	8.1	10	47	89
DGR493082	8.2	10	47	89
DGR493083	8.3	10	47	89
DGR493084	8.4	10	47	89
DGR493085	8.5	10	47	89
DGR493086	8.6	10	47	89
DGR493087	8.7	10	47	89
DGR493088	8.8	10	47	89
DGR493089	8.9	10	47	89
DGR493090	9.0	10	47	89
DGR493091	9.1	10	47	89
DGR493092	9.2	10	47	89
DGR493093	9.3	10	47	89
DGR493094	9.4	10	47	89
DGR493095	9.5	10	47	89
DGR493096	9.6	10	47	89
DGR493097	9.7	10	47	89

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○				◎	○	◎	○	◎	○

ISO	N										S					H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

D EAM D ILLS HIGH EED

DGR SERIES

CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES

SHORT

DREAM DRILLS HIGH FEED mit KÜHLKANAL — KURZ
Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série courte — COURTE
PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione) — CORTA

- ▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶Multi-Layer coating delivers much better productivity and reliability
- ▶Self centering and chip breaking by R-thinning and coolant holes

- ▶ Bohren von Kohlenstoff-Stählen, legierten Stählen(-HRc35) und Gusseisen
- ▶ Höhere Produktivität durch den 1,5 bis 2-fach höheren Vorschub gegenüber herkömmlichen zweischneidigen Bohrern
- ▶ Die Multi-Layer Beschichtung ermöglicht eine bessere Produktivität und Zuverlässigkeit
- ▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | H Coating | p.A105 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47 - 72
◎	HYDRAULIC CHUCK	D15 - 46
○	ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR493098	9.8	10	47	89
DGR493099	9.9	10	47	89
DGR493100	10.0	10	47	89
DGR493101	10.1	12	55	102
DGR493102	10.2	12	55	102
DGR493103	10.3	12	55	102
DGR493104	10.4	12	55	102
DGR493105	10.5	12	55	102
DGR493106	10.6	12	55	102
DGR493107	10.7	12	55	102
DGR493108	10.8	12	55	102
DGR493109	10.9	12	55	102
DGR493110	11.0	12	55	102
DGR493111	11.1	12	55	102
DGR493112	11.2	12	55	102
DGR493113	11.3	12	55	102
DGR493114	11.4	12	55	102
DGR493115	11.5	12	55	102
DGR493116	11.6	12	55	102
DGR493117	11.7	12	55	102

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR493118	11.8	12	55	102
DGR493119	11.9	12	55	102
DGR493120	12.0	12	55	102
DGR493125	12.5	14	60	107
DGR493130	13.0	14	60	107
DGR493135	13.5	14	60	107
DGR493140	14.0	14	60	107
DGR493145	14.5	16	65	115
DGR493150	15.0	16	65	115
DGR493155	15.5	16	65	115
DGR493160	16.0	16	65	115
DGR493165	16.5	18	73	123
DGR493170	17.0	18	73	123
DGR493175	17.5	18	73	123
DGR493180	18.0	18	73	123
DGR493185	18.5	20	79	131
DGR493190	19.0	20	79	131
DGR493195	19.5	20	79	131
DGR493200	20.0	20	79	131

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P														M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron			Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25			21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250		130	230	
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○				◎	○	◎	○		◎	○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
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CENTER DRILLS
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TECHNICAL DATA

D EAM D ILLS HIGH EED

DGR SERIES

CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES

LONG

DREAM DRILLS HIGH FEED mit KÜHLKANAL — KURZ
Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série longue — LONGUE
PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione) — LUNGA

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DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | H Coating | p.A105 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47 - 72
◎	HYDRAULIC CHUCK	D15 - 46
○	ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR495050	5.0	6	44	82
DGR495051	5.1	6	44	82
DGR495052	5.2	6	44	82
DGR495053	5.3	6	44	82
DGR495054	5.4	6	44	82
DGR495055	5.5	6	44	82
DGR495056	5.6	6	44	82
DGR495057	5.7	6	44	82
DGR495058	5.8	6	44	82
DGR495059	5.9	6	44	82
DGR495060	6.0	6	44	82
DGR495061	6.1	8	53	91
DGR495062	6.2	8	53	91
DGR495063	6.3	8	53	91
DGR495064	6.4	8	53	91
DGR495065	6.5	8	53	91
DGR495066	6.6	8	53	91
DGR495067	6.7	8	53	91
DGR495068	6.8	8	53	91
DGR495069	6.9	8	53	91
DGR495070	7.0	8	53	91
DGR495071	7.1	8	53	91
DGR495072	7.2	8	53	91
DGR495073	7.3	8	53	91

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR495074	7.4	8	53	91
DGR495075	7.5	8	53	91
DGR495076	7.6	8	53	91
DGR495077	7.7	8	53	91
DGR495078	7.8	8	53	91
DGR495079	7.9	8	53	91
DGR495080	8.0	8	53	91
DGR495081	8.1	10	61	103
DGR495082	8.2	10	61	103
DGR495083	8.3	10	61	103
DGR495084	8.4	10	61	103
DGR495085	8.5	10	61	103
DGR495086	8.6	10	61	103
DGR495087	8.7	10	61	103
DGR495088	8.8	10	61	103
DGR495089	8.9	10	61	103
DGR495090	9.0	10	61	103
DGR495091	9.1	10	61	103
DGR495092	9.2	10	61	103
DGR495093	9.3	10	61	103
DGR495094	9.4	10	61	103
DGR495095	9.5	10	61	103
DGR495096	9.6	10	61	103
DGR495097	9.7	10	61	103

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P														M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron			Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25			21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250		130	230	
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○				◎	○	◎	○		◎	○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

D EAM D ILLS HIGH EED

DGR SERIES

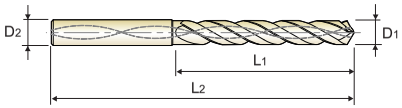
CARBIDE, DREAM DRILLS - HIGH FEED with COOLANT HOLES

LONG / KURZ / LONGUE / LUNGA

- DREAM DRILLS HIGH FEED mit KÜHLKANAL
- Forets DREAM DRILLS carbure Grande Avance avec arrosage central, série longue
- PUNTE DREAM DRILL HIGH FEED (con i fori di refrigerazione)

▶Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
▶Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
▶Multi-Layer coating delivers much better productivity and reliability
▶Self centering and chip breaking by R-thinning and coolant holes

▶ Bohren von Kohlenstoff-Stählen, legierten Stählen(-HRc35) und Gusseisen
▶ Höhere Produktivität durch den 1,5 bis 2-fach höheren Vorschub gegenüber herkömmlichen zweischneidigen Bohrern
▶ Die Multi-Layer Beschichtung ermöglicht eine bessere Produktivität und Zuverlässigkeit
▶ Selbst zentrierend und guter Spanbruch durch die R-Ausspitzung



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | H Coating | p.A105 | 5 × D

Recommended Tool Holder

Plain Shank	Page
SHRINK FIT HOLDER	D47 - 72
HYDRAULIC CHUCK	D15 - 46
ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR495098	9.8	10	61	103
DGR495099	9.9	10	61	103
DGR495100	10.0	10	61	103
DGR495101	10.1	12	71	118
DGR495102	10.2	12	71	118
DGR495103	10.3	12	71	118
DGR495104	10.4	12	71	118
DGR495105	10.5	12	71	118
DGR495106	10.6	12	71	118
DGR495107	10.7	12	71	118
DGR495108	10.8	12	71	118
DGR495109	10.9	12	71	118
DGR495110	11.0	12	71	118
DGR495111	11.1	12	71	118
DGR495112	11.2	12	71	118
DGR495113	11.3	12	71	118
DGR495114	11.4	12	71	118
DGR495115	11.5	12	71	118
DGR495116	11.6	12	71	118
DGR495117	11.7	12	71	118

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
H-Coating	D1	D2	L1	L2
DGR495118	11.8	12	71	118
DGR495119	11.9	12	71	118
DGR495120	12.0	12	71	118
DGR495125	12.5	14	77	124
DGR495130	13.0	14	77	124
DGR495135	13.5	14	77	124
DGR495140	14.0	14	77	124
DGR495145	14.5	16	83	133
DGR495150	15.0	16	83	133
DGR495155	15.5	16	83	133
DGR495160	16.0	16	83	133
DGR495165	16.5	18	93	143
DGR495170	17.0	18	93	143
DGR495175	17.5	18	93	143
DGR495180	18.0	18	93	143
DGR495185	18.5	20	101	153
DGR495190	19.0	20	101	153
DGR495195	19.5	20	101	153
DGR495200	20.0	20	101	153

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎	○	◎	◎	○	○	◎	○				◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

D EAM D ILLS HIGH EED

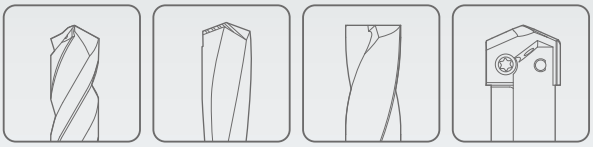
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DGR DGR SERIES with COOLANT HOLES

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	2	Non-alloy steel	100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.6	0.56-0.7	0.56-0.72	0.63-0.81	0.7-0.88
	3		100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.6	0.56-0.7	0.56-0.72	0.63-0.81	0.7-0.88
	4		100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590
				FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67
	5		80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270
				FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67
	6	Low alloy steel	100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.54	0.56-0.63	0.56-0.64	0.63-0.72	0.68-0.81
	7		80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270
				FEED	0.2-0.25	0.24-0.3	0.32-0.4	0.4-0.5	0.48-0.54	0.56-0.63	0.56-0.64	0.63-0.72	0.68-0.81
	8		80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270
				FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67
	9		40	RPM	2550	2120	1590	1270	1060	910	800	710	640
				FEED	0.13-0.18	0.16-0.22	0.21-0.29	0.26-0.36	0.32-0.38	0.36-0.43	0.36-0.45	0.38-0.47	0.41-0.54
	10	High alloyed steel, and tool steel	70	RPM	4460	3710	2790	2230	1860	1590	1390	1240	1110
				FEED	0.16-0.21	0.2-0.26	0.26-0.34	0.34-0.42	0.41-0.47	0.47-0.54	0.47-0.55	0.5-0.59	0.54-0.67
	11		40	RPM	2550	2120	1590	1270	1060	910	800	710	640
				FEED	0.13-0.18	0.16-0.22	0.21-0.29	0.26-0.36	0.32-0.38	0.36-0.43	0.36-0.45	0.38-0.47	0.41-0.54
K	15	Grey cast iron	100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590
				FEED	0.23-0.30	0.27-0.36	0.36-0.48	0.45-0.60	0.54-0.72	0.63-0.84	0.64-0.80	0.72-0.90	0.80-0.98
	16		80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270
				FEED	0.20-0.25	0.24-0.30	0.32-0.40	0.40-0.50	0.48-0.60	0.56-0.70	0.56-0.72	0.63-0.81	0.70-0.90
	17	Nodular cast iron	100	RPM	6370	5310	3980	3180	2650	2270	1990	1770	1590
				FEED	0.23-0.30	0.27-0.36	0.36-0.48	0.45-0.60	0.54-0.72	0.63-0.84	0.64-0.80	0.72-0.90	0.80-0.98
	18		70	RPM	4460	3710	2790	2230	1860	1590	1390	1240	1110
				FEED	0.20-0.25	0.24-0.30	0.32-0.40	0.40-0.50	0.48-0.60	0.56-0.70	0.56-0.72	0.63-0.81	0.70-0.90
	19	Malleable cast iron	80	RPM	5090	4240	3180	2550	2120	1820	1590	1410	1270
				FEED	0.23-0.30	0.27-0.36	0.36-0.48	0.45-0.60	0.54-0.72	0.63-0.84	0.64-0.80	0.72-0.90	0.80-0.98
	20		70	RPM	4460	3710	2790	2230	1860	1590	1390	1240	1110
				FEED	0.20-0.25	0.24-0.30	0.32-0.40	0.40-0.50	0.48-0.60	0.56-0.70	0.56-0.72	0.63-0.81	0.70-0.90

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

DREAM DRILLS
LAT OTTOM

DREAM DRILLS - FLACHBOHRER

- For Holes on Various Angled Surfaces
- Für Bohrungen auf verschiedenen abgewinkelten Oberflächen

SELE TION G IDE

HOLEMAKING TOOLS

SERIES	DPP447	DH450
DRILLING DEPTH	2XD	5XD
LENGTH	SHORT	LONG
SIZE MIN	D3.0	D3.0
SIZE MAX	D20.0	D20.0
PAGE	A110	A112
SURFACE TREATMENT	X-Coating	TiAlN

SOLID CARBIDE
DREAM DRILLS
LAT OTTOM

For Holes on Various Angled Surfaces

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

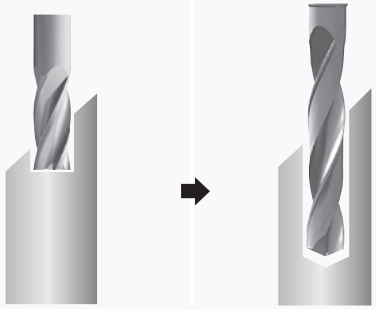
Recommended cutting conditions : p.A114

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DPP447	DH450
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C	Annealed	270	28	○	○
	5		About 0.75% C	Quenched & Tempered	300	32	○	○
	6	Low alloy steel		Annealed	180	10	◎	◎
	7			Quenched & Tempered	275	29	○	○
	8			Quenched & Tempered	300	32	○	○
	9			Quenched & Tempered	350	38	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○
	17	Nodular cast iron	Ferritic		160	3		
	18		Pearlitic		250	25		
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60		○	○
	22		Curable	Hardened	100		○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			
	24		≤ 12% Si, Curable	Hardened	90			
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

Only One Operation for Angled Surface

For angled surfaces, two operations are required to drill in a conventional process

For angled surfaces, only one operation can complete the drilling with Dream Drill Flat Bottom



1st operation (End mill)
Counter boring to make flat surface and guide hole

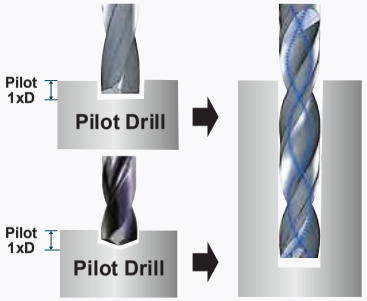
2nd operation (Drill)
Drilling to required depth of hole

One operation (Dream Drill Flat Bottom)
One Drill does it all
without using both an end mill and a drill

Pilot Drilling for 5 X D

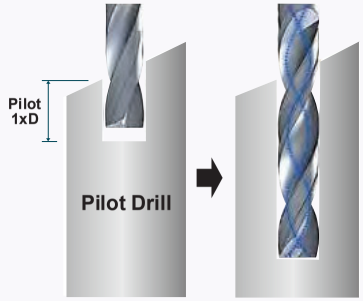
1. FLAT SURFACE

Pilot Drill (Flat Bottom 2xD) — **Dream Drill Flat Bottom (5xD)**



2. INCLINED SURFACE

Pilot Drill (Flat Bottom 2xD or End Mill) — **Dream Drill Flat Bottom (5xD)**



▶For Flat bottom 5xD drilling depth, Slope surface needs Pilot Drilling with YG-1 Flat Bottom Drill (2XD) and Flat surface needs Pilot Drilling with YG-1 Dream Drill General.
▶Pilot Drilling Depth : around 1XD
▶Pilot Drilling Diameter : same size diameter

D EAM D ILLS LAT OTTOM

DPP SERIES

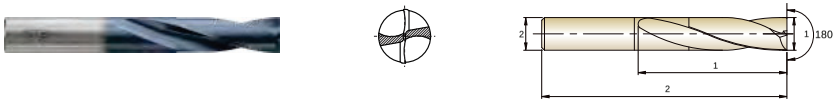
CARBIDE, DREAM DRILLS - FLAT BOTTOM

SHORT

VHM, DREAM DRILLS - FLACHBOHRER — KURZ
DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC — COURTE
PUNTE IN MD DREAM DRILLS, TESTA PIANA — CORTA

- For holes on various angled surfaces.
- 180 degree point angle enables drilling of flat, inclined and curved surfaces.
- Optimized flute shape for excellent chip evacuation.
- High strength cutting edge to improve tool life and versatility drilling.
- For through holes, minimized burrs at entrance and exit when drilling thin plate.

- Für Bohrungen auf verschiedenen abgewinkelten Flächen.
- Der 180-Grad-Spitzenwinkel ermöglicht das Bohren von flachen, geneigten und gekrümmten Oberflächen.
- Optimierte Nutenform für hervorragende Spanabfuhr.
- Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
- Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.



CARBIDE | 20° | h6 | h7 | 180° | X Coating | p.A114

2 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DPP447030	3.0	6	16	50
DPP447031	3.1	6	16	50
DPP447032	3.2	6	16	50
DPP447033	3.3	6	16	50
DPP447034	3.4	6	18	50
DPP447035	3.5	6	18	50
DPP447036	3.6	6	18	50
DPP447037	3.7	6	18	50
DPP447038	3.8	6	18	50
DPP447039	3.9	6	18	50
DPP447040	4.0	6	18	50
DPP447041	4.1	6	20	60
DPP447042	4.2	6	20	60
DPP447043	4.3	6	20	60
DPP447044	4.4	6	20	60
DPP447045	4.5	6	22	60
DPP447046	4.6	6	22	60
DPP447047	4.7	6	22	60
DPP447048	4.8	6	22	60
DPP447049	4.9	6	22	60
DPP447050	5.0	6	22	60
DPP447051	5.1	6	24	60
DPP447052	5.2	6	24	60
DPP447053	5.3	6	24	60
DPP447054	5.4	6	24	60
DPP447055	5.5	6	24	60
DPP447056	5.6	6	24	60
DPP447057	5.7	6	26	60

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DPP447058	5.8	6	26	60
DPP447059	5.9	6	26	60
DPP447060	6.0	6	26	60
DPP447061	6.1	8	28	70
DPP447062	6.2	8	28	70
DPP447063	6.3	8	28	70
DPP447064	6.4	8	30	70
DPP447065	6.5	8	30	70
DPP447066	6.6	8	30	70
DPP447067	6.7	8	30	70
DPP447068	6.8	8	30	70
DPP447069	6.9	8	30	70
DPP447070	7.0	8	30	70
DPP447071	7.1	8	34	70
DPP447072	7.2	8	34	70
DPP447073	7.3	8	34	70
DPP447074	7.4	8	34	70
DPP447075	7.5	8	34	70
DPP447076	7.6	8	34	70
DPP447077	7.7	8	34	70
DPP447078	7.8	8	34	70
DPP447079	7.9	8	34	70
DPP447080	8.0	8	34	70
DPP447081	8.1	10	38	80
DPP447082	8.2	10	38	80
DPP447083	8.3	10	38	80

▶ Other diameters and shank types are available upon request.

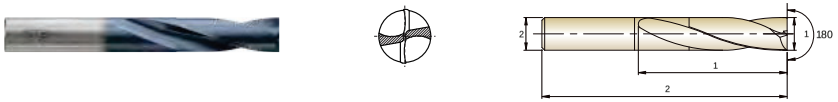
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○			○			◎	○				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

D EAM D ILLS LAT OTTOM
DPP SERIES
CARBIDE, DREAM DRILLS - FLAT BOTTOM
SHORT
VHM, DREAM DRILLS - FLACHBOHRER — KURZ
DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC — COURTE
PUNTE IN MD DREAM DRILLS, TESTA PIANA — CORTA
For holes on various angled surfaces.
180 degree point angle enables drilling of flat, inclined and curved surfaces.
Optimized flute shape for excellent chip evacuation.
High strength cutting edge to improve tool life and versatility drilling.
For through holes, minimized burrs at entrance and exit when drilling thin plate.
Für Bohrungen auf verschiedenen abgewinkelten Flächen.
Der 180-Grad-Spitzenwinkel ermöglicht das Bohren von flachen, geneigten und gekrümmten Oberflächen.
Optimierte Nutenform für hervorragende Spanabfuhr.
Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.



CARBIDE | 20° | h6 | h7 | 180° | X Coating | p.A114
2 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DPP447084	8.4	10	38	80
DPP447085	8.5	10	38	80
DPP447086	8.6	10	38	80
DPP447087	8.7	10	40	80
DPP447088	8.8	10	40	80
DPP447089	8.9	10	40	80
DPP447090	9.0	10	40	80
DPP447091	9.1	10	42	80
DPP447092	9.2	10	42	80
DPP447093	9.3	10	42	80
DPP447094	9.4	10	42	80
DPP447095	9.5	10	42	80
DPP447096	9.6	10	42	80
DPP447097	9.7	10	45	80
DPP447098	9.8	10	45	80
DPP447099	9.9	10	45	80
DPP447100	10.0	10	45	80
DPP447101	10.1	12	46	90
DPP447102	10.2	12	46	90
DPP447103	10.3	12	46	90
DPP447104	10.4	12	48	90
DPP447105	10.5	12	48	90
DPP447106	10.6	12	48	90
DPP447107	10.7	12	48	90
DPP447108	10.8	12	48	90
DPP447109	10.9	12	48	90
DPP447110	11.0	12	48	90
DPP447111	11.1	12	50	90

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DPP447112	11.2	12	50	90
DPP447113	11.3	12	50	90
DPP447114	11.4	12	50	90
DPP447115	11.5	12	50	90
DPP447116	11.6	12	50	90
DPP447117	11.7	12	52	90
DPP447118	11.8	12	52	90
DPP447119	11.9	12	52	90
DPP447120	12.0	12	52	90
DPP447125	12.5	14	54	100
DPP447130	13.0	14	56	100
DPP447135	13.5	14	58	100
DPP447140	14.0	14	58	100
DPP447145	14.5	16	62	105
DPP447150	15.0	16	62	105
DPP447155	15.5	16	64	115
DPP447160	16.0	16	64	115
DPP447165	16.5	18	70	125
DPP447170	17.0	18	70	125
DPP447175	17.5	18	70	125
DPP447180	18.0	18	70	125
DPP447185	18.5	20	75	135
DPP447190	19.0	20	75	135
DPP447195	19.5	20	75	145
DPP447200	20.0	20	75	145

▶ Other diameters and shank types are available upon request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○			○			◎	○				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

D EAM D ILLS LAT OTTOM

DH 0 SERIES

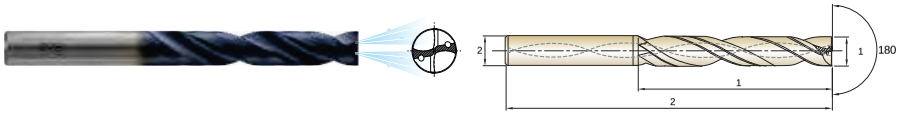
CARBIDE, DREAM DRILLS - FLAT BOTTOM with COOLANT HOLES

LONG

VHM, DREAM DRILLS - FLACHBOHRER — KURZ
DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC — LONGUE
PUNTE IN MD DREAM DRILLS, TESTA PIANA — LUNGA

- For holes on various angled surfaces.
- 180 degree point angle enables drilling of flat, inclined and curved surfaces.
- Optimized flute shape for excellent chip evacuation.
- High strength cutting edge to improve tool life and versatility drilling.
- For through holes, minimized burrs at entrance and exit when drilling thin plate.
- Pilot Drilling for 5XD

- Für Bohrungen auf verschiedenen abgewinkelten Flächen.
- Der 180-Grad-Spitzenwinkel ermöglicht das Bohren von flachen, geneigten und gekrümmten Oberflächen.
- Optimierte Nutenform für hervorragende Spanabfuhr.
- Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
- Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.
- Pilotbohren 5XD



CARBIDE | 30° | h6 | h7 | 180° | 20 bar | TiAlN | p.A115 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH450030	3.0	6	28	66
DH450031	3.1	6	28	66
DH450032	3.2	6	28	66
DH450033	3.3	6	28	66
DH450034	3.4	6	28	66
DH450035	3.5	6	28	66
DH450036	3.6	6	28	66
DH450037	3.7	6	28	66
DH450038	3.8	6	36	74
DH450039	3.9	6	36	74
DH450040	4.0	6	36	74
DH450041	4.1	6	36	74
DH450042	4.2	6	36	74
DH450043	4.3	6	36	74
DH450044	4.4	6	36	74
DH450045	4.5	6	36	74
DH450046	4.6	6	36	74
DH450047	4.7	6	36	74
DH450048	4.8	6	44	82
DH450049	4.9	6	44	82
DH450050	5.0	6	44	82
DH450051	5.1	6	44	82
DH450052	5.2	6	44	82
DH450053	5.3	6	44	82
DH450054	5.4	6	44	82
DH450055	5.5	6	44	82
DH450056	5.6	6	44	82
DH450057	5.7	6	44	82

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH450058	5.8	6	44	82
DH450059	5.9	6	44	82
DH450060	6.0	6	44	82
DH450061	6.1	8	53	91
DH450062	6.2	8	53	91
DH450063	6.3	8	53	91
DH450064	6.4	8	53	91
DH450065	6.5	8	53	91
DH450066	6.6	8	53	91
DH450067	6.7	8	53	91
DH450068	6.8	8	53	91
DH450069	6.9	8	53	91
DH450070	7.0	8	53	91
DH450071	7.1	8	53	91
DH450072	7.2	8	53	91
DH450073	7.3	8	53	91
DH450074	7.4	8	53	91
DH450075	7.5	8	53	91
DH450076	7.6	8	53	91
DH450077	7.7	8	53	91
DH450078	7.8	8	53	91
DH450079	7.9	8	53	91
DH450080	8.0	8	53	91
DH450081	8.1	10	61	103
DH450082	8.2	10	61	103
DH450083	8.3	10	61	103

- Other diameters and shank types are available upon request.

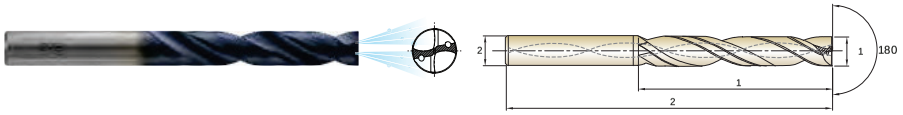
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○			○			◎	○				

ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

D EAM D ILLS LAT OTTOM
DH 0 SERIES
CARBIDE, DREAM DRILLS - FLAT BOTTOM with COOLANT HOLES LONG
VHM, DREAM DRILLS - FLACHBOHRER — KURZ
DREAM DRILLS - FOND PLAT, FORET CARBURE MONOBLOC — LONGUE
PUNTE IN MD DREAM DRILLS, TESTA PIANA — LUNGA
- For holes on various angled surfaces.
- 180 degree point angle enables drilling of flat, inclined and curved surfaces.
- Optimized flute shape for excellent chip evacuation.
- High strength cutting edge to improve tool life and versatility drilling.
- For through holes, minimized burrs at entrance and exit when drilling thin plate.
- Pilot Drilling for 5XD
- Für Bohrungen auf verschiedenen abgewinkelten Flächen.
- Der 180-Grad-Spitzenwinkel ermöglicht das Bohren von flachen, geneigten und gekrümmten Oberflächen.
- Optimierte Nutenform für hervorragende Spanabfuhr.
- Hochfeste Schneide zur Verbesserung der Standzeit und Vielseitigkeit beim Bohren.
- Für Durchgangsbohrungen, minimierter Grat am Ein- und Austritt beim Bohren von dünnen Blechen.
- Pilotbohren 5XD

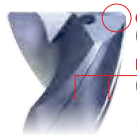


CARBIDE | 30° | h6 | h7 | 180° | 20 bar | TiAlN | p.A115 | 5 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH450084	8.4	10	61	103
DH450085	8.5	10	61	103
DH450086	8.6	10	61	103
DH450087	8.7	10	61	103
DH450088	8.8	10	61	103
DH450089	8.9	10	61	103
DH450090	9.0	10	61	103
DH450091	9.1	10	61	103
DH450092	9.2	10	61	103
DH450093	9.3	10	61	103
DH450094	9.4	10	61	103
DH450095	9.5	10	61	103
DH450096	9.6	10	61	103
DH450097	9.7	10	61	103
DH450098	9.8	10	61	103
DH450099	9.9	10	61	103
DH450100	10.0	10	61	103
DH450102	10.2	12	71	118
DH450105	10.5	12	71	118
DH450108	10.8	12	71	118
DH450110	11.0	12	71	118
DH450115	11.5	12	71	118
DH450118	11.8	12	71	118
DH450119	11.9	12	71	118
DH450120	12.0	12	71	118
DH450125	12.5	14	77	124
DH450130	13.0	14	77	124
DH450135	13.5	14	77	124

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH450140	14.0	14	77	124
DH450145	14.5	16	83	133
DH450150	15.0	16	83	133
DH450155	15.5	16	83	133
DH450160	16.0	16	83	133
DH450165	16.5	18	93	143
DH450170	17.0	18	93	143
DH450175	17.5	18	93	143
DH450180	18.0	18	93	143
DH450185	18.5	20	101	153
DH450190	19.0	20	101	153
DH450195	19.5	20	101	153
DH450200	20.0	20	101	153

- Other diameters and shank types are available upon request.



Chamfer
(Below data)

Double Margin
(2xD Single Margin)
Hole straightness and roundness provides good alignments

Drill Diameter (mm)	Corner Chamfer (mm)
Ø3.0 ~ Ø6.0	0.06
Ø6.1 ~ Ø10.0	0.12
Ø10.1 ~ Ø14.0	0.18
Ø14.1 ~ Ø20.0	0.26

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	○	○	○			○			◎	○				

ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○																			

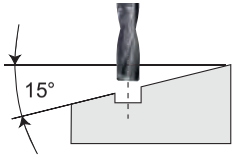
YG D EAM D ILLS LAT OTTOM

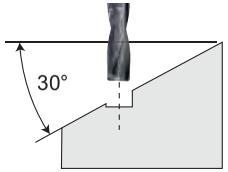
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DPP SERIES without COOLANT HOLES (2XD)

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1	Non-alloy steel	80	RPM	8490	6370	5090	4240	3180	2550	2120	1590	1270
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.08-0.14	0.11-0.17	0.11-0.21	0.18-0.28	0.28-0.38
	2		80	RPM	8490	6370	5090	4240	3180	2550	2120	1590	1270
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.08-0.14	0.11-0.17	0.11-0.21	0.18-0.28	0.28-0.38
	3		70	RPM	7430	5570	4460	3710	2790	2230	1860	1390	1110
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34
	4		40	RPM	4240	3180	2550	2120	1590	1270	1060	800	640
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34
	5		38	RPM	4030	3020	2420	2020	1510	1210	1010	760	600
				FEED	0.02-0.05	0.02-0.06	0.03-0.08	0.03-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.21-0.31
	6	Low alloy steel	45	RPM	4770	3580	2860	2390	1790	1430	1190	900	720
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34
	7		40	RPM	4240	3180	2550	2120	1590	1270	1060	800	640
				FEED	0.02-0.05	0.03-0.07	0.03-0.08	0.04-0.10	0.07-0.13	0.11-0.17	0.11-0.21	0.18-0.28	0.24-0.34
	8		38	RPM	4030	3020	2420	2020	1510	1210	1010	760	600
				FEED	0.02-0.05	0.02-0.06	0.03-0.08	0.03-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.21-0.31
	9		25	RPM	2650	1990	1590	1330	990	800	660	500	400
				FEED	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.08	0.05-0.10	0.06-0.12	0.06-0.16	0.10-0.20
M	12	Stainless steel	30	RPM	3180	2390	1910	1590	1190	950	800	600	480
				FEED	0.01-0.03	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.08	0.05-0.10	0.06-0.12	0.09-0.15
K	15	Grey cast iron	70	RPM	7430	5570	4460	3710	2790	2230	1860	1390	1110
				FEED	0.02-0.05	0.02-0.06	0.03-0.08	0.03-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30
	16		60	RPM	6370	4770	3820	3180	2390	1910	1590	1190	950
				FEED	0.02-0.05	0.02-0.05	0.03-0.06	0.03-0.07	0.04-0.10	0.07-0.13	0.06-0.16	0.11-0.21	0.15-0.25
N	21	Aluminum-wrought alloy	165	RPM	17510	13130	10500	8750	6570	5250	4380	3280	2630
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40
	22		165	RPM	17510	13130	10500	8750	6570	5250	4380	3280	2630
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40

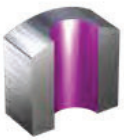




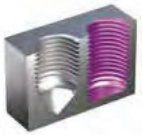
Surface Angle	Cutting Conditions RPM	FEED
0° - 15°	100%	100%
15° - 30°	100%	50%
30° -	70%	30%

- ▶ The cutting conditions are for 2xD.
- ▶ The rigid and precise machine and holder are required.
- ▶ The recommended depth of hole is measured from the highest point of the hole on drilling in inclined and angled surfaces.
- ▶ The recommended cutting conditions are those for drilling on flat and horizontal surfaces.
- ▶ Please adjust feed rate according to the above surface angle when drilling on an inclined surface.
  - The recommended feed rate 50% or lower, in case of 15°-30° of the incline angle.
  - The recommended feed rate 30% or lower and RPM 70%, in case of 30° - of the incline angle.
- ▶ Please decrease cutting speed as material hardness increases.
- ▶ Only use drilling tool. Side milling, traversing, helical milling are not usable.

VARIETY OF DRILLING


Curved Surface

Chained Hole

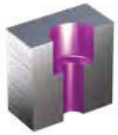

Blind Hole for Threading

Guide Drilling

Cross Drilling

Inclined Entry

Inclined Exit


Counter Boring

Thin Plate

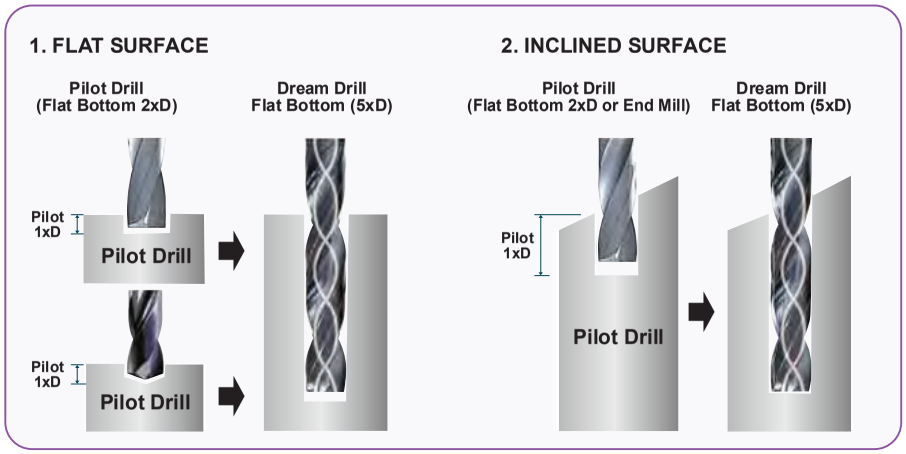
YG D EAM D ILLS LAT OTTOM
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DH 0 SERIES with COOLANT HOLES (5XD)

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1	Non-alloy steel	100	RPM	10610	7960	6370	5310	3980	3180	2650	1990	1590
				FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60
	2		90	RPM	9550	7160	5730	4770	3580	2860	2390	1790	1430
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40
	3		90	RPM	9550	7160	5730	4770	3580	2860	2390	1790	1430
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40
	4		75	RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190
				FEED	0.02-0.04	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30
	5		75	RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190
				FEED	0.02-0.04	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30
	6	Low alloy steel	85	RPM	9020	6760	5410	4510	3380	2710	2250	1690	1350
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40
	7		75	RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40
	8		75	RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190
				FEED	0.02-0.04	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30
	9		50	RPM	5310	3980	3180	2650	1990	1590	1330	990	800
				FEED	0.02-0.04	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30
M	12	Stainless steel	60	RPM	6370	4770	3820	3180	2390	1910	1590	1190	950
				FEED	0.02-0.05	0.04-0.08	0.04-0.10	0.06-0.12	0.10-0.16	0.14-0.20	0.14-0.24	0.22-0.32	0.30-0.40
K	15	Grey cast iron	90	RPM	9550	7160	5730	4770	3580	2860	2390	1790	1430
				FEED	0.02-0.05	0.03-0.06	0.05-0.08	0.05-0.09	0.06-0.12	0.09-0.15	0.08-0.18	0.14-0.24	0.20-0.30
	16		75	RPM	7960	5970	4770	3980	2980	2390	1990	1490	1190
				FEED	0.02-0.05	0.02-0.05	0.03-0.06	0.03-0.07	0.04-0.10	0.07-0.13	0.06-0.16	0.11-0.21	0.15-0.25
N	21	Aluminum-wrought alloy	160	RPM	16980	12730	10190	8490	6370	5090	4240	3180	2550
				FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60
	22		160	RPM	16980	12730	10190	8490	6370	5090	4240	3180	2550
				FEED	0.05-0.09	0.08-0.12	0.09-0.15	0.12-0.18	0.18-0.24	0.24-0.30	0.26-0.36	0.38-0.48	0.50-0.60

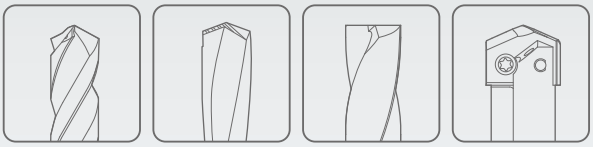
- ▶ Required pilot hole of the same diameter before using the 5xD Flat bottom Drills.
- ▶ The above table values is for under 5xD depth with pilot drilling operation.

DREAM DRILLS FLAT BOTTOM - Pilot Drilling for 5 X D



- ▶For Flat bottom 5xD drilling depth, Slope surface needs Pilot Drilling with YG-1 Flat Bottom Drill (2XD) and Flat surface needs Pilot Drilling with YG-1 Dream Drill General.
- ▶Pilot Drilling Depth : around 1XD
- ▶Pilot Drilling Diameter : same size diameter

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

SOLID AR IDE

DREAM DRILLS INO

DREAM DRILLS - INOX

- For Tough Materials like Stainless Steels
- Für schwierig zerspanbare Materialien wie Edelstahl

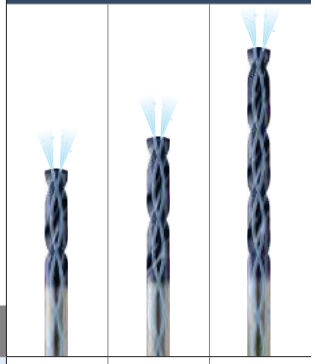
SELE TION G IDE

YG HOLEMAKING TOOLS

SERIES	DH451	DH452	DH453
DRILLING DEPTH	3XD	5XD	8XD
LENGTH	SHORT	LONG	EXTRA LONG
SIZE MIN	D3.0	D1.0	D3.0
SIZE MAX	D20.0	D20.0	D14.0
PAGE	A119	A122	A125
SURFACE TREATMENT	TiAlN		

SOLID CARBIDE DREAM DRILLS INO

For Tough Materials like Stainless Steels



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A127

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DH451	DH452	DH453
P	1	Non-alloy steel	About 0.15% C	Annealed	125				
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○
	4		About 0.75% C	Annealed	270	28			
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	○	○	○
	8			Quenched & Tempered	300	32			
	9			Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15			
	11			Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎
	13		Martensitic	Quenched & Tempered	240	23	◎	◎	◎
	14		Austenitic		180	10	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10			
	16		Pearlitic (Martensitic)		260	26			
	17	Nodular cast iron	Ferritic		160	3			
	18		Pearlitic		250	25			
	19	Malleable cast iron	Ferritic		130				
	20		Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎	◎
	22		Curable	Hardened	100		◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○	○
	25		> 12% Si, Not Curable		130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm		○	○	○
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

YG DREAM DRILLS INO

DH SERIES

CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES

SHORT

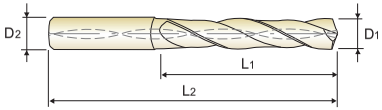
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL — KURZ

Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série courte — COURTE

PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) — CORTA

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life

- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No. TiAlN	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH451030	3.0	6	20	62
DH451031	3.1	6	20	62
DH451032	3.2	6	20	62
DH451033	3.3	6	20	62
DH451034	3.4	6	20	62
DH451035	3.5	6	20	62
DH451036	3.6	6	20	62
DH451037	3.7	6	20	62
DH451038	3.8	6	24	66
DH451039	3.9	6	24	66
DH451040	4.0	6	24	66
DH451041	4.1	6	24	66
DH451042	4.2	6	24	66
DH451043	4.3	6	24	66
DH451044	4.4	6	24	66
DH451045	4.5	6	24	66
DH451046	4.6	6	24	66
DH451047	4.7	6	24	66
DH451048	4.8	6	28	66
DH451049	4.9	6	28	66
DH451050	5.0	6	28	66
DH451051	5.1	6	28	66
DH451052	5.2	6	28	66
DH451053	5.3	6	28	66

EDP No. TiAlN	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
DH451054	5.4	6	28	66
DH451055	5.5	6	28	66
DH451056	5.6	6	28	66
DH451057	5.7	6	28	66
DH451058	5.8	6	28	66
DH451059	5.9	6	28	66
DH451060	6.0	6	28	66
DH451061	6.1	8	34	79
DH451062	6.2	8	34	79
DH451063	6.3	8	34	79
DH451064	6.4	8	34	79
DH451065	6.5	8	34	79
DH451066	6.6	8	34	79
DH451067	6.7	8	34	79
DH451068	6.8	8	34	79
DH451069	6.9	8	34	79
DH451070	7.0	8	34	79
DH451071	7.1	8	41	79
DH451072	7.2	8	41	79
DH451073	7.3	8	41	79
DH451074	7.4	8	41	79
DH451075	7.5	8	41	79
DH451076	7.6	8	41	79
DH451077	7.7	8	41	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

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DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451078	7.8	8	41	79
DH451079	7.9	8	41	79
DH451080	8.0	8	41	79
DH451081	8.1	10	47	89
DH451082	8.2	10	47	89
DH451083	8.3	10	47	89
DH451084	8.4	10	47	89
DH451085	8.5	10	47	89
DH451086	8.6	10	47	89
DH451087	8.7	10	47	89
DH451088	8.8	10	47	89
DH451089	8.9	10	47	89
DH451090	9.0	10	47	89
DH451091	9.1	10	47	89
DH451092	9.2	10	47	89
DH451093	9.3	10	47	89
DH451094	9.4	10	47	89
DH451095	9.5	10	47	89
DH451096	9.6	10	47	89
DH451097	9.7	10	47	89
DH451098	9.8	10	47	89
DH451099	9.9	10	47	89
DH451100	10.0	10	47	89
DH451101	10.1	12	55	102

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451102	10.2	12	55	102
DH451103	10.3	12	55	102
DH451104	10.4	12	55	102
DH451105	10.5	12	55	102
DH451106	10.6	12	55	102
DH451107	10.7	12	55	102
DH451108	10.8	12	55	102
DH451109	10.9	12	55	102
DH451110	11.0	12	55	102
DH451111	11.1	12	55	102
DH451112	11.2	12	55	102
DH451113	11.3	12	55	102
DH451114	11.4	12	55	102
DH451115	11.5	12	55	102
DH451116	11.6	12	55	102
DH451117	11.7	12	55	102
DH451118	11.8	12	55	102
DH451119	11.9	12	55	102
DH451120	12.0	12	55	102
DH451125	12.5	14	60	107
DH451130	13.0	14	60	107
DH451135	13.5	14	60	107
DH451140	14.0	14	60	107
DH451145	14.5	16	65	115

▶ Other shank types are available on your request.

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

D EAM D ILLS INO
DH SERIES
CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES
SHORT / KURZ / COURTE / CORTA
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL
Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série courte
PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione)
▶Special flute shape and geometry suitable for machining stainless steel
▶Excellent chip evacuation from better surface treatment
▶Point R-thinning achieves superior centering and chip curling
▶TiAlN coating for better surface finishes and longer tool life
▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 3 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451150	15.0	16	65	115
DH451155	15.5	16	65	115
DH451160	16.0	16	65	115
DH451165	16.5	18	73	123
DH451170	17.0	18	73	123
DH451175	17.5	18	73	123

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH451180	18.0	18	73	123
DH451185	18.5	20	79	131
DH451190	19.0	20	79	131
DH451195	19.5	20	79	131
DH451200	20.0	20	79	131

▶ Other shank types are available on your request.
◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

D EAM D ILLS INO

DH SERIES

CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES

LONG

VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL — LANG

Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série longue — LONGUE

PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) — LUNGA

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life

- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452010	1.0	3	8	55
DH452011	1.1	3	12	55
DH452012	1.2	3	12	55
DH452013	1.3	3	12	55
DH452014	1.4	3	12	55
DH452015	1.5	3	16	55
DH452016	1.6	3	16	55
DH452017	1.7	3	16	55
DH452018	1.8	3	16	55
DH452019	1.9	3	16	55
DH452020	2.0	4	21	57
DH452021	2.1	4	21	57
DH452022	2.2	4	21	57
DH452023	2.3	4	21	57
DH452024	2.4	4	21	57
DH452025	2.5	4	21	57
DH452026	2.6	4	21	57
DH452027	2.7	4	21	57
DH452028	2.8	4	21	57
DH452029	2.9	4	21	57
DH452030	3.0	6	28	66
DH452031	3.1	6	28	66
DH452032	3.2	6	28	66
DH452033	3.3	6	28	66

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452034	3.4	6	28	66
DH452035	3.5	6	28	66
DH452036	3.6	6	28	66
DH452037	3.7	6	28	66
DH452038	3.8	6	36	74
DH452039	3.9	6	36	74
DH452040	4.0	6	36	74
DH452041	4.1	6	36	74
DH452042	4.2	6	36	74
DH452043	4.3	6	36	74
DH452044	4.4	6	36	74
DH452045	4.5	6	36	74
DH452046	4.6	6	36	74
DH452047	4.7	6	36	74
DH452048	4.8	6	44	82
DH452049	4.9	6	44	82
DH452050	5.0	6	44	82
DH452051	5.1	6	44	82
DH452052	5.2	6	44	82
DH452053	5.3	6	44	82
DH452054	5.4	6	44	82
DH452055	5.5	6	44	82
DH452056	5.6	6	44	82
DH452057	5.7	6	44	82

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

D EAM D ILLS INO
DH SERIES
CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES
LONG
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL — LANG
Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série longue — LONGUE
PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) — LUNGA
▶Special flute shape and geometry suitable for machining stainless steel
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▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 5 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452058	5.8	6	44	82
DH452059	5.9	6	44	82
DH452060	6.0	6	44	82
DH452061	6.1	8	53	91
DH452062	6.2	8	53	91
DH452063	6.3	8	53	91
DH452064	6.4	8	53	91
DH452065	6.5	8	53	91
DH452066	6.6	8	53	91
DH452067	6.7	8	53	91
DH452068	6.8	8	53	91
DH452069	6.9	8	53	91
DH452070	7.0	8	53	91
DH452071	7.1	8	53	91
DH452072	7.2	8	53	91
DH452073	7.3	8	53	91
DH452074	7.4	8	53	91
DH452075	7.5	8	53	91
DH452076	7.6	8	53	91
DH452077	7.7	8	53	91
DH452078	7.8	8	53	91
DH452079	7.9	8	53	91
DH452080	8.0	8	53	91
DH452081	8.1	10	61	103

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452082	8.2	10	61	103
DH452083	8.3	10	61	103
DH452084	8.4	10	61	103
DH452085	8.5	10	61	103
DH452086	8.6	10	61	103
DH452087	8.7	10	61	103
DH452088	8.8	10	61	103
DH452089	8.9	10	61	103
DH452090	9.0	10	61	103
DH452091	9.1	10	61	103
DH452092	9.2	10	61	103
DH452093	9.3	10	61	103
DH452094	9.4	10	61	103
DH452095	9.5	10	61	103
DH452096	9.6	10	61	103
DH452097	9.7	10	61	103
DH452098	9.8	10	61	103
DH452099	9.9	10	61	103
DH452100	10.0	10	61	103
DH452101	10.1	12	71	118
DH452102	10.2	12	71	118
DH452103	10.3	12	71	118
DH452104	10.4	12	71	118
DH452105	10.5	12	71	118

▶ Other shank types are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

D EAM D ILLS INO

DH SERIES

CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES

LONG

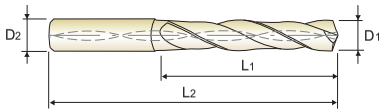
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL — LANG

Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série longue — LONGUE

PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) — LUNGA

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life

- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452106	10.6	12	71	118
DH452107	10.7	12	71	118
DH452108	10.8	12	71	118
DH452109	10.9	12	71	118
DH452110	11.0	12	71	118
DH452111	11.1	12	71	118
DH452112	11.2	12	71	118
DH452113	11.3	12	71	118
DH452114	11.4	12	71	118
DH452115	11.5	12	71	118
DH452116	11.6	12	71	118
DH452117	11.7	12	71	118
DH452118	11.8	12	71	118
DH452119	11.9	12	71	118
DH452120	12.0	12	71	118
DH452125	12.5	14	77	124
DH452130	13.0	14	77	124
DH452135	13.5	14	77	124
DH452140	14.0	14	77	124
DH452145	14.5	16	83	133
DH452150	15.0	16	83	133
DH452155	15.5	16	83	133
DH452160	16.0	16	83	133
DH452165	16.5	18	93	143

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH452170	17.0	18	93	143
DH452175	17.5	18	93	143
DH452180	18.0	18	93	143
DH452185	18.5	20	101	153
DH452190	19.0	20	101	153
DH452195	19.5	20	101	153
DH452200	20.0	20	101	153

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO																				
	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

D EAM D ILLS INO

DH SERIES

CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES

EXTRA LONG

VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL — ÜBERLANG

Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série extra-longue — EXTRA-LONGUE

PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione) — EXTRA LUNGA

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
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- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit

DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 8 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH453030	3.0	6	34	72
DH453031	3.1	6	34	72
DH453032	3.2	6	34	72
DH453033	3.3	6	34	72
DH453034	3.4	6	34	72
DH453035	3.5	6	34	72
DH453036	3.6	6	34	72
DH453037	3.7	6	34	72
DH453038	3.8	6	43	81
DH453039	3.9	6	43	81
DH453040	4.0	6	43	81
DH453041	4.1	6	43	81
DH453042	4.2	6	43	81
DH453043	4.3	6	43	81
DH453044	4.4	6	43	81
DH453045	4.5	6	43	81
DH453046	4.6	6	43	81
DH453047	4.7	6	43	81
DH453048	4.8	6	57	95
DH453049	4.9	6	57	95
DH453050	5.0	6	57	95
DH453051	5.1	6	57	95
DH453052	5.2	6	57	95
DH453053	5.3	6	57	95

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH453054	5.4	6	57	95
DH453055	5.5	6	57	95
DH453056	5.6	6	57	95
DH453057	5.7	6	57	95
DH453058	5.8	6	57	95
DH453059	5.9	6	57	95
DH453060	6.0	6	57	95
DH453061	6.1	8	76	114
DH453062	6.2	8	76	114
DH453063	6.3	8	76	114
DH453064	6.4	8	76	114
DH453065	6.5	8	76	114
DH453066	6.6	8	76	114
DH453067	6.7	8	76	114
DH453068	6.8	8	76	114
DH453069	6.9	8	76	114
DH453070	7.0	8	76	114
DH453071	7.1	8	76	114
DH453072	7.2	8	76	114
DH453073	7.3	8	76	114
DH453074	7.4	8	76	114
DH453075	7.5	8	76	114
DH453076	7.6	8	76	114
DH453077	7.7	8	76	114

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO																				
	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

D EAM D ILLS INO

DH SERIES

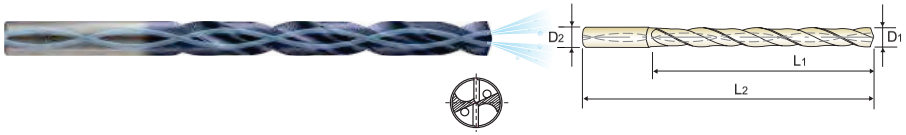
CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES

EXTRA LONG
ÜBERLANG
EXTRA-LONGUE
EXTRA LUNGA

VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL
Forets DREAM DRILLS carbure pour INOX, avec arrosage central, série extra-longue
PUNTE ELICOIDALI IN MD, DREAM DRILLS - INOX (con fori di refrigerazione)

- ▶Special flute shape and geometry suitable for machining stainless steel
- ▶Excellent chip evacuation from better surface treatment
- ▶Point R-thinning achieves superior centering and chip curling
- ▶TiAlN coating for better surface finishes and longer tool life

- ▶ Spezielle Nutenform und Geometrie für die Bearbeitung von rostfreiem Stahl
- ▶ Hervorragende Spanabfuhr durch bessere Oberflächenbehandlung
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung
- ▶ TiAlN-Beschichtung für bessere Oberflächengüte der Bohrung und längere Standzeit



DIN 6537 | CARBIDE | 30° | h6 | m7 | 140° | 20 bar | TiAlN | p.A127 | 8 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH453078	7.8	8	76	114
DH453079	7.9	8	76	114
DH453080	8.0	8	76	114
DH453081	8.1	10	95	142
DH453082	8.2	10	95	142
DH453083	8.3	10	95	142
DH453084	8.4	10	95	142
DH453085	8.5	10	95	142
DH453086	8.6	10	95	142
DH453087	8.7	10	95	142
DH453088	8.8	10	95	142
DH453089	8.9	10	95	142
DH453090	9.0	10	95	142
DH453091	9.1	10	95	142
DH453092	9.2	10	95	142
DH453093	9.3	10	95	142
DH453094	9.4	10	95	142
DH453095	9.5	10	95	142
DH453096	9.6	10	95	142
DH453097	9.7	10	95	142
DH453098	9.8	10	95	142
DH453099	9.9	10	95	142
DH453100	10.0	10	95	142
DH453101	10.1	12	114	162

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH453102	10.2	12	114	162
DH453103	10.3	12	114	162
DH453104	10.4	12	114	162
DH453105	10.5	12	114	162
DH453106	10.6	12	114	162
DH453107	10.7	12	114	162
DH453108	10.8	12	114	162
DH453109	10.9	12	114	162
DH453110	11.0	12	114	162
DH453111	11.1	12	114	162
DH453112	11.2	12	114	162
DH453113	11.3	12	114	162
DH453114	11.4	12	114	162
DH453115	11.5	12	114	162
DH453116	11.6	12	114	162
DH453117	11.7	12	114	162
DH453118	11.8	12	114	162
DH453119	11.9	12	114	162
DH453120	12.0	12	114	162
DH453125	12.5	14	133	178
DH453130	13.0	14	133	178
DH453135	13.5	14	133	178
DH453140	14.0	14	133	178

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	○			◎	○					◎	◎	◎						

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○	○												○				

D EAM D ILLS INO

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DH DH DH SERIES with COOLANT HOLES

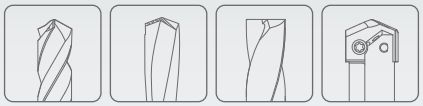
VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	3.0	4.0	5.0	6.0
P	2	Non-alloy steel	70	RPM	22280	11140	10610	7960	6370	5310
				FEED	0.02-0.04	0.04-0.06	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
	3		70	RPM	22280	11140	7430	5570	4460	3710
				FEED	0.02-0.04	0.04-0.06	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
	6	Low alloy steel	70	RPM	22280	11140	7430	5570	4460	3710
				FEED	0.02-0.04	0.04-0.06	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
	7		50	RPM	15920	7960	5310	3980	3180	2650
				FEED	0.02-0.04	0.04-0.06	0.04-0.10	0.06-0.12	0.12-0.18	0.14-0.20
M	12	Stainless steel	40	RPM	12730	6370	5310	3980	3180	2650
				FEED	0.02-0.04	0.02-0.04	0.03-0.05	0.05-0.09	0.07-0.11	0.08-0.12
	13		25	RPM	7960	3980	4240	3180	2550	2120
				FEED	0.02-0.04	0.02-0.04	0.03-0.05	0.05-0.09	0.07-0.11	0.08-0.12
	14		45	RPM	14320	7160	6370	4770	3820	3180
				FEED	0.02-0.04	0.02-0.04	0.04-0.06	0.06-0.10	0.08-0.12	0.09-0.13
N	21	Aluminum-wrought alloy	130	RPM	41380	20690	19100	14320	11460	9550
				FEED	0.04~0.10	0.08~0.14	0.14~0.20	0.19~0.25	0.20~0.26	0.22~0.28
	22		130	RPM	41380	20690	19100	14320	11460	9550
				FEED	0.04~0.10	0.08~0.14	0.14~0.20	0.19~0.25	0.20~0.26	0.22~0.28
	23	Aluminum-cast, alloyed	110	RPM	35010	17510	16980	12730	10190	8490
				FEED	0.04~0.10	0.08~0.14	0.14~0.20	0.19~0.25	0.20~0.26	0.22~0.28
	24		110	RPM	35010	17510	16980	12730	10190	8490
				FEED	0.04~0.10	0.08~0.14	0.14~0.20	0.19~0.25	0.20~0.26	0.22~0.28
	25		90	RPM	28650	14320	13790	10350	8280	6900
				FEED	0.04~0.08	0.06~0.10	0.12~0.18	0.16~0.22	0.17~0.23	0.19~0.25
S	37	Titanium Alloys	25	RPM	7960	3980	4240	3180	2550	2120
				FEED	0.01-0.03	0.01-0.03	0.02-0.04	0.04-0.08	0.06-0.10	0.07-0.11

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	2	Non-alloy steel	100	RPM	3980	3180	2650	2270	1990	1770	1590
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
	3		100	RPM	2790	2230	1860	1590	1390	1240	1110
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
	6	Low alloy steel	100	RPM	2790	2230	1860	1590	1390	1240	1110
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
	7		70	RPM	1990	1590	1330	1140	990	880	800
				FEED	0.16-0.22	0.18-0.24	0.19-0.27	0.21-0.39	0.23-0.31	0.26-0.36	0.28-0.38
M	12	Stainless steel	50	RPM	1990	1590	1330	1140	990	880	800
				FEED	0.09-0.13	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20
	13		40	RPM	1590	1270	1060	910	800	710	640
				FEED	0.09-0.13	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20
	14		60	RPM	2390	1910	1590	1360	1190	1060	950
				FEED	0.10-0.14	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19	0.15-0.20	0.16-0.21
N	21	Aluminum-wrought alloy	180	RPM	7160	5730	4770	4090	3580	3180	2860
				FEED	0.24~0.30	0.26~0.32	0.28~0.34	0.30~0.36	0.32~0.38	0.33~0.43	0.35~0.45
	22		180	RPM	7160	5730	4770	4090	3580	3180	2860
				FEED	0.24~0.30	0.26~0.32	0.28~0.34	0.30~0.36	0.32~0.38	0.33~0.43	0.35~0.45
	23	Aluminum-cast, alloyed	160	RPM	6370	5090	4240	3640	3180	2830	2550
				FEED	0.24~0.30	0.26~0.32	0.28~0.34	0.30~0.36	0.32~0.38	0.33~0.43	0.35~0.45
	24		160	RPM	6370	5090	4240	3640	3180	2830	2550
				FEED	0.24~0.30	0.26~0.32	0.28~0.34	0.30~0.36	0.32~0.38	0.33~0.43	0.35~0.45
	25		130	RPM	5170	4140	3450	2960	2590	2300	2070
				FEED	0.21~0.27	0.23~0.29	0.25~0.31	0.27~0.33	0.28~0.34	0.28~0.38	0.30~0.40
S	37	Titanium Alloys	40	RPM	1590	1270	1060	910	800	710	640
				FEED	0.08-0.12	0.09-0.14	0.10-0.15	0.11-0.16	0.12-0.17	0.13-0.18	0.14-0.19

▶ Recommend to reduce the feed rate as following
Feed 100% : DH451(3xD), DH452(5xD) **Feed 85%** : DH453(8xD)

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

SOLID AR IDE

DREAM DRILLS AL

DREAM DRILLS - ALU

- For Aluminum and Aluminum Alloys
- Für Aluminium und Aluminiumlegierungen

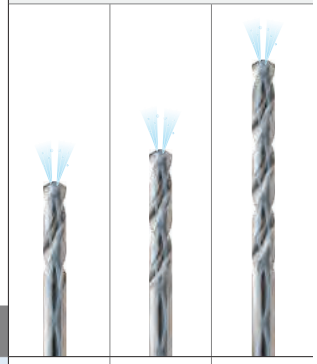
SELE TION G IDE

YG HOLEMAKING TOOLS

SERIES	D5432	D5433	D5434
DRILLING DEPTH	3XD	5XD	8XD
LENGTH	SHORT	LONG	EXTRA LONG
SIZE MIN	D3.0	D3.0	D3.0
SIZE MAX	D20.0	D20.0	D14.0
PAGE	A131	A134	A137
SURFACE TREATMENT	Bright		

SOLID CARBIDE DREAM DRILLS AL

For Aluminum and Aluminum Alloys



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A139

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D5432	D5433	D5434
P	1	Non-alloy steel	About 0.15% C	Annealed	125				
	2		About 0.45% C	Annealed	190	13			
	3		About 0.45% C	Quenched & Tempered	250	25			
	4		About 0.75% C	Annealed	270	28			
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10			
	7			Quenched & Tempered	275	29			
	8			Quenched & Tempered	300	32			
	9			Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15			
	11			Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10			
	16		Pearlitic (Martensitic)		260	26			
	17	Nodular cast iron	Ferritic		160	3			
	18		Pearlitic		250	25			
	19	Malleable cast iron	Ferritic		130				
	20		Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎	◎
	22		Curable	Hardened	100		◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎	◎
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

YG D EAM D ILLS ALU

D SERIES

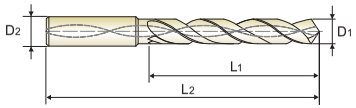
CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES

SHORT
KURZ
COURTE
CORTA

VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série courte
PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)

- Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- Wider and deeper flute gullets for maximum chip removal
- Special geometry and smooth coating reduces built up edge and improves finishes

- Optimierte Ausspitzung für Aluminum & Aluminumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- Breitere und tiefere Spannuten für maximale Spanabfuhr
- Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5432030	3.0	6	20	62
D5432031	3.1	6	20	62
D5432032	3.2	6	20	62
D5432033	3.3	6	20	62
D5432034	3.4	6	20	62
D5432035	3.5	6	20	62
D5432036	3.6	6	20	62
D5432037	3.7	6	20	62
D5432038	3.8	6	24	66
D5432039	3.9	6	24	66
D5432040	4.0	6	24	66
D5432041	4.1	6	24	66
D5432042	4.2	6	24	66
D5432043	4.3	6	24	66
D5432044	4.4	6	24	66
D5432045	4.5	6	24	66
D5432046	4.6	6	24	66
D5432047	4.7	6	24	66
D5432048	4.8	6	28	66
D5432049	4.9	6	28	66
D5432050	5.0	6	28	66
D5432051	5.1	6	28	66
D5432052	5.2	6	28	66
D5432053	5.3	6	28	66

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5432054	5.4	6	28	66
D5432055	5.5	6	28	66
D5432056	5.6	6	28	66
D5432057	5.7	6	28	66
D5432058	5.8	6	28	66
D5432059	5.9	6	28	66
D5432060	6.0	6	28	66
D5432061	6.1	8	34	79
D5432062	6.2	8	34	79
D5432063	6.3	8	34	79
D5432064	6.4	8	34	79
D5432065	6.5	8	34	79
D5432066	6.6	8	34	79
D5432067	6.7	8	34	79
D5432068	6.8	8	34	79
D5432069	6.9	8	34	79
D5432070	7.0	8	34	79
D5432071	7.1	8	41	79
D5432072	7.2	8	41	79
D5432073	7.3	8	41	79
D5432074	7.4	8	41	79
D5432075	7.5	8	41	79
D5432076	7.6	8	41	79
D5432077	7.7	8	41	79

- DLC coating is available on your request.
- Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO																				
Material Description	N Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		S Heat Resistant Super Alloys					Titanium Alloys		H Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

D EAM D ILLS ALU

D SERIES

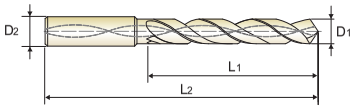
CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES

SHORT / KURZ / COURTE / CORTA

VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série courte
PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)

- Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- Wider and deeper flute gullets for maximum chip removal
- Special geometry and smooth coating reduces built up edge and improves finishes

- Optimierte Ausspitzung für Aluminum & Aluminumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- Breitere und tiefere Spannuten für maximale Spanabfuhr
- Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5432078	7.8	8	41	79
D5432079	7.9	8	41	79
D5432080	8.0	8	41	79
D5432081	8.1	10	47	89
D5432082	8.2	10	47	89
D5432083	8.3	10	47	89
D5432084	8.4	10	47	89
D5432085	8.5	10	47	89
D5432086	8.6	10	47	89
D5432087	8.7	10	47	89
D5432088	8.8	10	47	89
D5432089	8.9	10	47	89
D5432090	9.0	10	47	89
D5432091	9.1	10	47	89
D5432092	9.2	10	47	89
D5432093	9.3	10	47	89
D5432094	9.4	10	47	89
D5432095	9.5	10	47	89
D5432096	9.6	10	47	89
D5432097	9.7	10	47	89
D5432098	9.8	10	47	89
D5432099	9.9	10	47	89
D5432100	10.0	10	47	89
D5432101	10.1	12	55	102

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5432102	10.2	12	55	102
D5432103	10.3	12	55	102
D5432104	10.4	12	55	102
D5432105	10.5	12	55	102
D5432106	10.6	12	55	102
D5432107	10.7	12	55	102
D5432108	10.8	12	55	102
D5432109	10.9	12	55	102
D5432110	11.0	12	55	102
D5432111	11.1	12	55	102
D5432112	11.2	12	55	102
D5432113	11.3	12	55	102
D5432114	11.4	12	55	102
D5432115	11.5	12	55	102
D5432116	11.6	12	55	102
D5432117	11.7	12	55	102
D5432118	11.8	12	55	102
D5432119	11.9	12	55	102
D5432120	12.0	12	55	102
D5432125	12.5	14	60	107
D5432130	13.0	14	60	107
D5432135	13.5	14	60	107
D5432140	14.0	14	60	107
D5432145	14.5	16	65	115

- DLC coating is available on your request.
- Other shank types are available on your request.

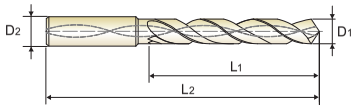
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

D EAM D ILLS ALU
D SERIES
CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES
SHORT / KURZ / COURTE / CORTA
VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série courte
PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)
- Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- Wider and deeper flute gullets for maximum chip removal
- Special geometry and smooth coating reduces built up edge and improves finishes
- Optimierte Ausspitzung für Aluminum & Aluminumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- Breitere und tiefere Spannuten für maximale Spanabfuhr
- Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 3 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5432150	15.0	16	65	115
D5432155	15.5	16	65	115
D5432160	16.0	16	65	115
D5432165	16.5	18	73	123
D5432170	17.0	18	73	123
D5432175	17.5	18	73	123
D5432180	18.0	18	73	123
D5432185	18.5	20	79	131

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5432190	19.0	20	79	131
D5432195	19.5	20	79	131
D5432200	20.0	20	79	131

- DLC coating is available on your request.
- Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

D EAM D ILLS ALU

D SERIES

CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES

LONG

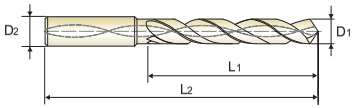
VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL — LANG

Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série longue — LONGUE

PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (CON FORI DI REFRIGERAZIONE) — LUNGA

- ▶ Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes

- ▶ Optimierte Ausspitzung für Aluminum & Aluminumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- ▶ Breitere und tiefere Spannuten für maximale Spanabfuhr
- ▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5433030	3.0	6	28	66
D5433031	3.1	6	28	66
D5433032	3.2	6	28	66
D5433033	3.3	6	28	66
D5433034	3.4	6	28	66
D5433035	3.5	6	28	66
D5433036	3.6	6	28	66
D5433037	3.7	6	28	66
D5433038	3.8	6	36	74
D5433039	3.9	6	36	74
D5433040	4.0	6	36	74
D5433041	4.1	6	36	74
D5433042	4.2	6	36	74
D5433043	4.3	6	36	74
D5433044	4.4	6	36	74
D5433045	4.5	6	36	74
D5433046	4.6	6	36	74
D5433047	4.7	6	36	74
D5433048	4.8	6	44	82
D5433049	4.9	6	44	82
D5433050	5.0	6	44	82
D5433051	5.1	6	44	82
D5433052	5.2	6	44	82
D5433053	5.3	6	44	82

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5433054	5.4	6	44	82
D5433055	5.5	6	44	82
D5433056	5.6	6	44	82
D5433057	5.7	6	44	82
D5433058	5.8	6	44	82
D5433059	5.9	6	44	82
D5433060	6.0	6	44	82
D5433061	6.1	8	53	91
D5433062	6.2	8	53	91
D5433063	6.3	8	53	91
D5433064	6.4	8	53	91
D5433065	6.5	8	53	91
D5433066	6.6	8	53	91
D5433067	6.7	8	53	91
D5433068	6.8	8	53	91
D5433069	6.9	8	53	91
D5433070	7.0	8	53	91
D5433071	7.1	8	53	91
D5433072	7.2	8	53	91
D5433073	7.3	8	53	91
D5433074	7.4	8	53	91
D5433075	7.5	8	53	91
D5433076	7.6	8	53	91
D5433077	7.7	8	53	91

- ▶ DLC coating is available on your request.
- ▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

D EAM D ILLS ALU
D SERIES
CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES
LONG
VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL — LANG
Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série longue — LONGUE
PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (CON FORI DI REFRIGERAZIONE) — LUNGA
▶ Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
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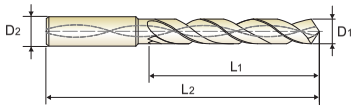
▶ Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 5 × D
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115
Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5433078	7.8	8	53	91
D5433079	7.9	8	53	91
D5433080	8.0	8	53	91
D5433081	8.1	10	61	103
D5433082	8.2	10	61	103
D5433083	8.3	10	61	103
D5433084	8.4	10	61	103
D5433085	8.5	10	61	103
D5433086	8.6	10	61	103
D5433087	8.7	10	61	103
D5433088	8.8	10	61	103
D5433089	8.9	10	61	103
D5433090	9.0	10	61	103
D5433091	9.1	10	61	103
D5433092	9.2	10	61	103
D5433093	9.3	10	61	103
D5433094	9.4	10	61	103
D5433095	9.5	10	61	103
D5433096	9.6	10	61	103
D5433097	9.7	10	61	103
D5433098	9.8	10	61	103
D5433099	9.9	10	61	103
D5433100	10.0	10	61	103
D5433101	10.1	12	71	118

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5433102	10.2	12	71	118
D5433103	10.3	12	71	118
D5433104	10.4	12	71	118
D5433105	10.5	12	71	118
D5433106	10.6	12	71	118
D5433107	10.7	12	71	118
D5433108	10.8	12	71	118
D5433109	10.9	12	71	118
D5433110	11.0	12	71	118
D5433111	11.1	12	71	118
D5433112	11.2	12	71	118
D5433113	11.3	12	71	118
D5433114	11.4	12	71	118
D5433115	11.5	12	71	118
D5433116	11.6	12	71	118
D5433117	11.7	12	71	118
D5433118	11.8	12	71	118
D5433119	11.9	12	71	118
D5433120	12.0	12	71	118
D5433125	12.5	14	77	124
D5433130	13.0	14	77	124
D5433135	13.5	14	77	124
D5433140	14.0	14	77	124
D5433145	14.5	16	83	133

▶ DLC coating is available on your request.
▶ Other shank types are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO																				
											M				K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

D EAM D ILLS ALU

D SERIES

CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES

LONG

VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL — LANG
Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série longue — LONGUE
PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (CON FORI DI REFRIGERAZIONE) — LUNGA

- Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
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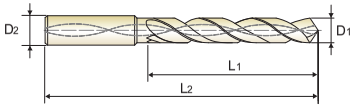
- Optimierte Ausspitzung für Aluminum & Aluminumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- Breitere und tiefere Spannuten für maximale Spanabfuhr
- Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 5 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5433150	15.0	16	83	133
D5433155	15.5	16	83	133
D5433160	16.0	16	83	133
D5433165	16.5	18	93	143
D5433170	17.0	18	93	143
D5433175	17.5	18	93	143
D5433180	18.0	18	93	143
D5433185	18.5	20	101	153

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5433190	19.0	20	101	153
D5433195	19.5	20	101	153
D5433200	20.0	20	101	153

- DLC coating is available on your request.
- Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

D EAM D ILLS ALU
D SERIES

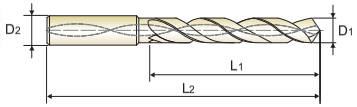
CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES

EXTRA LONG

VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL — ÜBERLANG
Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série extra-longue — EXTRA-LONGUE
PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione) — EXTRA LUNGA

- Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- Wider and deeper flute gullets for maximum chip removal
- Special geometry and smooth coating reduces built up edge and improves finishes

- Optimierte Ausspitzung für Aluminum & Aluminumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- Breitere und tiefere Spannuten für maximale Spanabfuhr
- Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 8 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5434030	3.0	6	34	72
D5434031	3.1	6	34	72
D5434032	3.2	6	34	72
D5434033	3.3	6	34	72
D5434034	3.4	6	34	72
D5434035	3.5	6	34	72
D5434036	3.6	6	34	72
D5434037	3.7	6	34	72
D5434038	3.8	6	43	81
D5434039	3.9	6	43	81
D5434040	4.0	6	43	81
D5434041	4.1	6	43	81
D5434042	4.2	6	43	81
D5434043	4.3	6	43	81
D5434044	4.4	6	43	81
D5434045	4.5	6	43	81
D5434046	4.6	6	43	81
D5434047	4.7	6	43	81
D5434048	4.8	6	57	95
D5434049	4.9	6	57	95
D5434050	5.0	6	57	95
D5434051	5.1	6	57	95
D5434052	5.2	6	57	95
D5434053	5.3	6	57	95
D5434054	5.4	6	57	95

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5434055	5.5	6	57	95
D5434056	5.6	6	57	95
D5434057	5.7	6	57	95
D5434058	5.8	6	57	95
D5434059	5.9	6	57	95
D5434060	6.0	6	57	95
D5434061	6.1	8	76	114
D5434062	6.2	8	76	114
D5434063	6.3	8	76	114
D5434064	6.4	8	76	114
D5434065	6.5	8	76	114
D5434066	6.6	8	76	114
D5434067	6.7	8	76	114
D5434068	6.8	8	76	114
D5434069	6.9	8	76	114
D5434070	7.0	8	76	114
D5434071	7.1	8	76	114
D5434072	7.2	8	76	114
D5434073	7.3	8	76	114
D5434074	7.4	8	76	114
D5434075	7.5	8	76	114
D5434076	7.6	8	76	114
D5434077	7.7	8	76	114
D5434078	7.8	8	76	114
D5434079	7.9	8	76	114

- DLC coating is available on your request.
- Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

D EAM D ILLS ALU

D SERIES

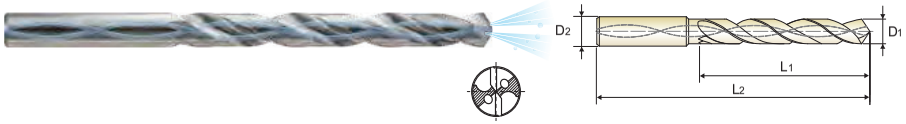
CARBIDE, DREAM DRILLS - ALU with COOLANT HOLES

EXTRA LONG
ÜBERLANG
EXTRA-LONGUE
EXTRA LUNGA

VOLLHARTMETALL DREAM SPIRALBOHRER - ALU mit KÜHLKANAL
Forets DREAM DRILLS carbure pour ALU, avec arrosage central, série extra-longue
PUNTE ELICOIDALI IN MD, DREAM DRILLS - ALU (con fori di refrigerazione)

- Optimized thining for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- Wider and deeper flute gullets for maximum chip removal
- Special geometry and smooth coating reduces built up edge and improves finishes

- Optimierte Ausspitzung für Aluminum & Aluminumlegierungen zur Vermeidung von Verstopfungen durch das Aufschweißen der Späne
- Breitere und tiefere Spannuten für maximale Spanabfuhr
- Spezielle Geometrie und glatte Beschichtung reduzieren Aufbauschneidenbildung und verbessern die Oberflächen



DIN 6537 | CARBIDE | 30° | h6 | m7 | 118° | 20 bar | Bright | p.A139 | 8 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
○	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5434080	8.0	8	76	114
D5434081	8.1	10	95	142
D5434082	8.2	10	95	142
D5434083	8.3	10	95	142
D5434084	8.4	10	95	142
D5434085	8.5	10	95	142
D5434086	8.6	10	95	142
D5434087	8.7	10	95	142
D5434088	8.8	10	95	142
D5434089	8.9	10	95	142
D5434090	9.0	10	95	142
D5434091	9.1	10	95	142
D5434092	9.2	10	95	142
D5434093	9.3	10	95	142
D5434094	9.4	10	95	142
D5434095	9.5	10	95	142
D5434096	9.6	10	95	142
D5434097	9.7	10	95	142
D5434098	9.8	10	95	142
D5434099	9.9	10	95	142
D5434100	10.0	10	95	142
D5434101	10.1	12	114	162
D5434102	10.2	12	114	162
D5434103	10.3	12	114	162
D5434104	10.4	12	114	162

EDP No.	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
D5434105	10.5	12	114	162
D5434106	10.6	12	114	162
D5434107	10.7	12	114	162
D5434108	10.8	12	114	162
D5434109	10.9	12	114	162
D5434110	11.0	12	114	162
D5434111	11.1	12	114	162
D5434112	11.2	12	114	162
D5434113	11.3	12	114	162
D5434114	11.4	12	114	162
D5434115	11.5	12	114	162
D5434116	11.6	12	114	162
D5434117	11.7	12	114	162
D5434118	11.8	12	114	162
D5434119	11.9	12	114	162
D5434120	12.0	12	114	162
D5434125	12.5	14	133	178
D5434130	13.0	14	133	178
D5434135	13.5	14	133	178
D5434140	14.0	14	133	178

- DLC coating is available on your request.
- Other shank types are available on your request.

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

D EAM D ILLS ALU

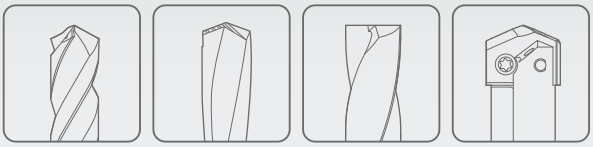
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

D D D SERIES with COOLANT HOLES

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter(mm) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21	Aluminum-wrought alloy	200	RPM	21220	15920	12730	10610	7960	6370	5310	4550	3980	3540	3180
				FEED	0.12-0.18	0.14-0.22	0.15-0.23	0.17-0.25	0.21-0.28	0.24-0.30	0.24-0.30	0.25-0.35	0.25-0.35	0.28-0.38	0.30-0.40
	22		160	RPM	16980	12730	10190	8490	6370	5090	4240	3640	3180	2830	2550
				FEED	0.12-0.18	0.14-0.22	0.15-0.23	0.17-0.25	0.21-0.28	0.24-0.30	0.24-0.30	0.25-0.35	0.25-0.35	0.28-0.38	0.30-0.40
	23	Aluminum-cast, alloyed	150	RPM	15920	11940	9550	7960	5970	4770	3980	3410	2980	2650	2390
				FEED	0.15-0.21	0.17-0.25	0.19-0.27	0.21-0.28	0.24-0.31	0.29-0.45	0.33-0.55	0.35-0.60	0.35-0.60	0.39-0.73	0.39-0.85
	24		140	RPM	14850	11140	8910	7430	5570	4460	3710	3180	2790	2480	2230
				FEED	0.15-0.21	0.17-0.25	0.19-0.27	0.21-0.28	0.24-0.31	0.29-0.45	0.33-0.55	0.35-0.60	0.35-0.60	0.39-0.73	0.39-0.85

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

DREAM DRILLS M L TYPE

DREAM DRILLS - MQL TYPE

- Minimum Quantity Lubrication Drilling Deep Holes (10×D ~ 40×D)

- Minimalmengenschmierung Tieflochbohren (10×D ~ 40×D)

SELE TION G IDE

HOLEMAKING TOOLS

SERIES	DH510	DH515	DH520
DRILLING DEPTH	10XD	15XD	20XD
LENGTH	EXTRA LONG	EXTRA LONG	EXTRA LONG
SIZE MIN	D3.0	D3.0	D3.0
SIZE MAX	D14.0	D12.0	D12.0
PAGE	A144	A145	
SURFACE TREATMENT	TiAlN		

SOLID CARBIDE
DREAM DRILLS
M L TYPE

Minimum Quantity Lubrication
Drilling Deep Holes (10×D ~ 40×D)

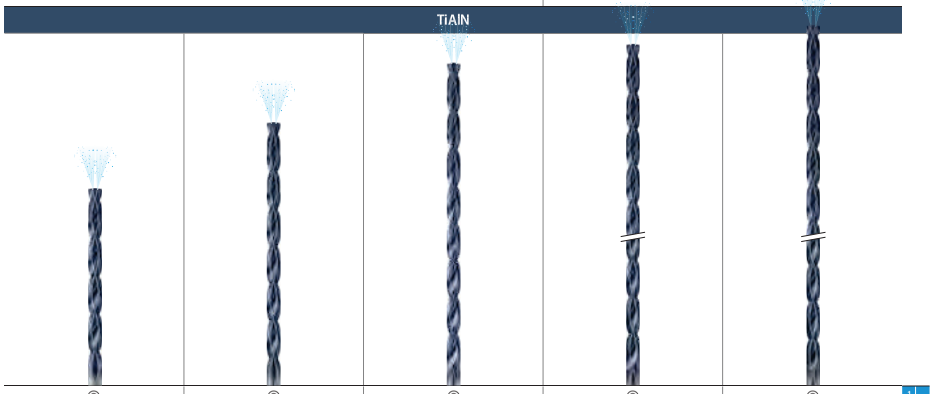
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. A148

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DH510	DH515	DH520
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○
	4		About 0.75% C	Annealed	270	28			
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	○	○	○
	8			Quenched & Tempered	300	32	○	○	○
	9			Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○
	11			Quenched & Tempered	325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○	○
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎
	18		Pearlitic		250	25	○	○	○
	19	Malleable cast iron	Ferritic		130		◎	◎	◎
	20		Pearlitic		230	21	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60				
	22		Curable	Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

DHM10	DHM15	DHM20	DHM25	DHM30
10XD	15XD	20XD	25XD	30XD
EXTRA LONG	EXTRA LONG	EXTRA LONG	EXTRA LONG	EXTRA LONG
D3.0	D3.0	D3.0	D3.0	D3.0
D14.0	D12.0	D12.0	D10.0	D8.0
	A146		A147	
TiAlN				



ISO	DHM10	DHM15	DHM20	DHM25	DHM30
P	◎	◎	◎	◎	◎
	◎	◎	◎	◎	◎
	○	○	○	○	○
	◎	◎	◎	◎	◎
	○	○	○	○	○
	○	○	○	○	○
	○	○	○	○	○
	○	○	○	○	○
M					
K	◎	◎	◎	◎	◎
	○	○	○	○	○
	◎	◎	◎	◎	◎
	○	○	○	○	○
	◎	◎	◎	◎	◎
	○	○	○	○	○
N					
S					
H					

DREAM DRILLS MQL

DH 0 SERIES

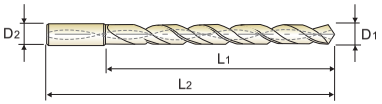
CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES

EXTRA LONG

- VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL in GERADZAHLIGER SCHAFTAUSFÜHRUNG — *ÜBERLANG*
- Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue — *EXTRA-LONGUE*
- PUNTE ELICOIDALI IN MD, DREAM DRILLS MQL (con fori di refrigerazione) — *EXTRA LUNGA*

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAlN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)

- ▶ 4-Facetten-Spitze für gute Zentrierfähigkeit
- ▶ Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
- ▶ Verbesserte Spanabfuhr durch hochglanzpolierte TiAlN-Nano-Vollbeschichtung
- ▶ MMS geeignet



CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN | p.A148

10 × D

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
○	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH510030	3.0	3	39	90
DH510033	3.3	4	46	97
DH510035	3.5	4	46	97
DH510040	4.0	4	52	103
DH510042	4.2	5	59	112
DH510045	4.5	5	59	112
DH510050	5.0	5	65	118
DH510055	5.5	6	72	127
DH510060	6.0	6	78	133
DH510065	6.5	7	85	141
DH510068	6.8	7	91	147
DH510070	7.0	7	91	147
DH510075	7.5	8	98	155

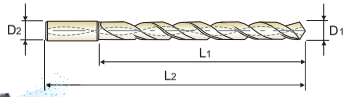
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH510080	8.0	8	104	161
DH510085	8.5	9	111	169
DH510090	9.0	9	117	175
DH510095	9.5	10	124	182
DH510100	10.0	10	130	188
DH510105	10.5	11	137	201
DH510110	11.0	11	143	207
DH510115	11.5	12	150	215
DH510120	12.0	12	156	221
DH510125	12.5	13	163	229
DH510130	13.0	13	169	235
DH510135	13.5	14	176	243
DH510140	14.0	14	182	249

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MQL
DH SERIES
DH 0 SERIES
CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES
EXTRA LONG
VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL in GERADZAHLIGER SCHAFTAUSFÜHRUNG — ÜBERLANG
Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue — EXTRA-LONGUE
PUNTE ELICOIDALI IN MD, DREAM DRILLS MQL (con fori di refrigerazione) — EXTRA LUNGA
▶ 4-Facet Point for good centering capability
▶ Optimized special flutes are ideal for removing chips and for productive drilling
▶ Enhanced chip evacuation by polished flute upgraded TiAlN nano layer full coating
▶ MQL system compatible (Minimum Quantity Lubrication)
▶ 4-Facetten-Spitze für gute Zentrierfähigkeit
▶ Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
▶ Verbesserte Spanabfuhr durch hochglanzpolierte TiAlN-Nano-Vollbeschichtung
▶ MMS geeignet



15 × D (DH515) | **20 × D (DH520)**

CARBIDE | 30° | h6 | h7 | 140° | 20 bar | TiAlN | p.A148
Recommended ToolHolder
	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
○	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

DH

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH515030	3.0	3	54	105
DH515035	3.5	4	63	114
DH515040	4.0	4	72	123
DH515045	4.5	5	81	134
DH515050	5.0	5	90	143
DH515055	5.5	6	99	154
DH515060	6.0	6	108	163
DH515070	7.0	7	126	182
DH515080	8.0	8	144	201
DH515090	9.0	9	162	220
DH515100	10.0	10	180	238
DH515110	11.0	11	198	262
DH515120	12.0	12	216	281

DH 0

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH520030	3.0	3	69	120
DH520035	3.5	4	81	132
DH520040	4.0	4	92	143
DH520045	4.5	5	104	157
DH520050	5.0	5	115	168
DH520055	5.5	6	127	182
DH520060	6.0	6	138	193
DH520070	7.0	7	161	217
DH520080	8.0	8	184	241
DH520090	9.0	9	207	265
DH520100	10.0	10	230	288
DH520120	12.0	12	276	341

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MULTI

DHM SERIES

DHM 0 SERIES

CARBIDE, DREAM DRILL MQL TYPE END MILL SHANK with COOLANT HOLE

EXTRA LONG / ÜBERLANG / EXTRA-LONGUE / EXTRA LUNGA

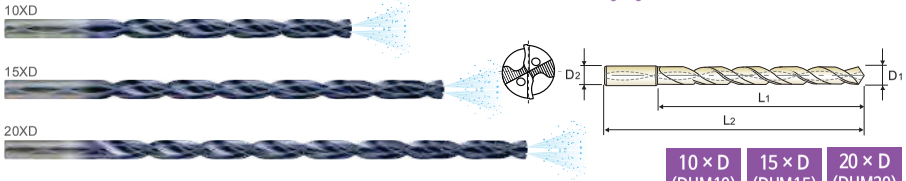
VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE MIT KÜHLKANAL

Forets DREAM DRILLS carbure Type MQL avec arrosage central, série extra-longue

PUNTE MD, DREAM DRILLS MQL GAMBO RINFORZATO (con fori di ferigerazione)

- 4-Facet Point for good centering capability
- Optimized special flutes are ideal for removing chips and for productive drilling
- Enhanced chip evacuation by polished flute upgraded TiAlN nano layer full coating
- MQL system compatible (Minimum Quantity Lubrication)

- 4-Facetten-Spitze für gute Zentrierfähigkeit
- Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
- Verbesserte Spanabfuhr durch hochglanzpolierte TiAlN-Nano-Vollbeschichtung
- MMS geeignet



10 × D (DHM10) | 15 × D (DHM15) | 20 × D (DHM20)

CARBIDE | 30° | h6 | h7 | 140° | 20 bar (DHM10) | 45 bar (DHM15, DHM20) | TiAlN

p.A148

Recommended ToolHolder

	Plain Shank	Page
SHRINK FIT HOLDER		D47-72
HYDRAULIC CHUCK		D15-46
ER COLLET CHUCK		D73-115

DHM 0

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DHM10030	3.0	6	40	80
DHM10033	3.3	6	47	87
DHM10035	3.5	6	47	87
DHM10040	4.0	6	53	93
DHM10042	4.2	6	60	100
DHM10045	4.5	6	60	100
DHM10050	5.0	6	66	106
DHM10055	5.5	6	73	113
DHM10060	6.0	6	79	119
DHM10065	6.5	8	86	126
DHM10068	6.8	8	92	132
DHM10070	7.0	8	92	132
DHM10075	7.5	8	99	139
DHM10080	8.0	8	105	145
DHM10085	8.5	10	112	156
DHM10090	9.0	10	118	162
DHM10095	9.5	10	126	170
DHM10100	10.0	10	132	176
DHM10105	10.5	12	139	188
DHM10110	11.0	12	145	194
DHM10115	11.5	12	152	201
DHM10120	12.0	12	158	207
DHM10125	12.5	14	165	214
DHM10130	13.0	14	171	220
DHM10135	13.5	14	178	227
DHM10140	14.0	14	184	233

DHM

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DHM15030	3.0	6	55	95
DHM15035	3.5	6	64	104
DHM15040	4.0	6	73	113
DHM15045	4.5	6	82	122
DHM15050	5.0	6	91	131
DHM15055	5.5	6	100	140
DHM15060	6.0	6	109	149
DHM15070	7.0	8	127	167
DHM15080	8.0	8	145	185
DHM15090	9.0	10	163	207
DHM15100	10.0	10	182	226
DHM15110	11.0	12	200	249
DHM15120	12.0	12	218	267

DHM 0

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DHM20030	3.0	6	70	110
DHM20035	3.5	6	82	122
DHM20040	4.0	6	93	133
DHM20045	4.5	6	105	145
DHM20050	5.0	6	116	156
DHM20055	5.5	6	128	168
DHM20060	6.0	6	139	179
DHM20070	7.0	8	162	202
DHM20080	8.0	8	185	225
DHM20090	9.0	10	208	252
DHM20100	10.0	10	232	276
DHM20110	11.0	12	255	304
DHM20120	12.0	12	278	327

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

DREAM DRILLS MULTI

DHM SERIES

DHM 0 SERIES

CARBIDE, DREAM DRILL MQL TYPE END MILL SHANK with COOLANT HOLE

EXTRA LONG / ÜBERLANG / EXTRA-LONGUE / EXTRA LUNGA

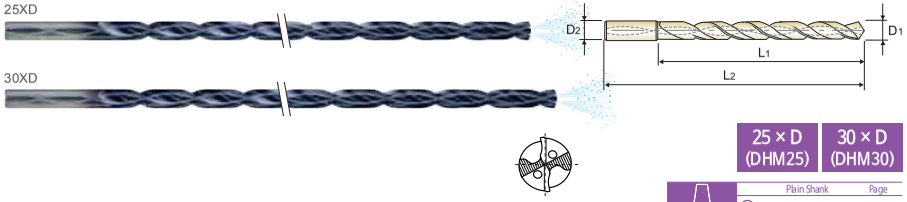
VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE MIT KÜHLKANAL

Forets DREAM DRILLS carbure Type MQL avec arrosage central, attachement type fraise, série extra-longue

PUNTE MD, DREAM DRILLS MQL GAMBO RINFORZATO (con fori di ferigerazione)

- 4-Facet Point for good centering capability
- Optimized special flutes are ideal for removing chips and for productive drilling
- Enhanced chip evacuation by polished flute upgraded TiAlN nano layer full coating
- MQL system compatible (Minimum Quantity Lubrication)

- 4-Facetten-Spitze für gute Zentrierfähigkeit
- Optimierte Spezialnuten für die ideale Spanabfuhr und zum produktiven Bohren
- Verbesserte Spanabfuhr durch hochglanzpolierte TiAlN-Nano-Vollbeschichtung
- MMS geeignet



25 × D (DHM25) | 30 × D (DHM30)

CARBIDE | 30° | h6 | h7 | 140° | 45 bar | TiAlN

p.A148

Recommended ToolHolder

	Plain Shank	Page
SHRINK FIT HOLDER		D47-72
HYDRAULIC CHUCK		D15-46
ER COLLET CHUCK		D73-115

DHM

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DHM25030	3.0	6.0	85	125
DHM25035	3.5	6.0	99	139
DHM25040	4.0	6.0	113	153
DHM25045	4.5	6.0	127	167
DHM25050	5.0	6.0	141	181
DHM25055	5.5	6.0	155	195
DHM25060	6.0	6.0	169	209
DHM25070	7.0	8.0	197	237
DHM25080	8.0	8.0	225	265
DHM25090	9.0	10.0	253	297
DHM25100	10.0	10.0	282	326

▶ Made to order in depth 35 & 40D(3~6mm)

DHM 0

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DHM30030	3.0	6.0	100	140
DHM30035	3.5	6.0	117	157
DHM30040	4.0	6.0	133	173
DHM30045	4.5	6.0	150	190
DHM30050	5.0	6.0	166	206
DHM30055	5.5	6.0	183	223
DHM30060	6.0	6.0	199	239
DHM30070	7.0	8.0	232	272
DHM30080	8.0	8.0	265	305

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○		○	○				◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

D EAM D ILLS M LT E

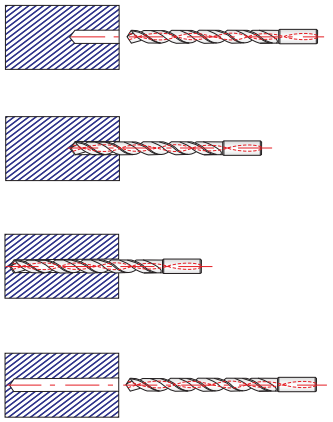
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DH 0 DH DH 0 DHM 0 DHM DHM 0 DHM DHM 0 SERIES

with COOLANT HOLES

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc 10xD-20xD	Vc 25xD-30xD	Parameter	Drill Diameter(mm) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0
P	1	Non-alloy steel	120	100	RPM(10xD-20xD)	12730	9550	7640	6370	4770	3820	3180	2730
					RPM(25xD-30xD)	10610	7960	6370	5310	3980	3180	2650	2270
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31
	2		100	80	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270
					RPM(25xD-30xD)	8490	6370	5090	4240	3180	2550	2120	1820
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31
	3		80	65	RPM(10xD-20xD)	8490	6370	5090	4240	3180	2550	2120	1820
					RPM(25xD-30xD)	6900	5170	4140	3450	2590	2070	1720	1480
					FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26
	6	Low alloy steel	100	100	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270
					RPM(25xD-30xD)	10610	7960	6370	5310	3980	3180	2650	2270
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31
	7		70	60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590
					RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360
					FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26
	8		55	50	RPM(10xD-20xD)	5840	4380	3500	2920	2190	1750	1460	1250
					RPM(25xD-30xD)	5310	3980	3180	2650	1990	1590	1330	1140
					FEED	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24	0.20-0.26
	10	High alloyed steel, and tool steel	60	50	RPM(10xD-20xD)	6370	4770	3820	3180	2390	1910	1590	1360
					RPM(25xD-30xD)	5310	3980	3180	2650	1990	1590	1330	1140
					FEED	0.05-0.09	0.07-0.11	0.08-0.14	0.10-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.18-0.24
	11		50	45	RPM(10xD-20xD)	5310	3980	3180	2650	1990	1590	1330	1140
					RPM(25xD-30xD)	4770	3580	2860	2390	1790	1430	1190	1020
					FEED	0.04-0.08	0.06-0.10	0.07-0.13	0.08-0.14	0.10-0.16	0.12-0.18	0.13-0.19	0.15-0.21
K	15	Grey cast iron	90	75	RPM(10xD-20xD)	9550	7160	5730	4770	3580	2860	2390	2050
					RPM(25xD-30xD)	7960	5970	4770	3980	2980	2390	1990	1710
					FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36
	16		70	60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590
					RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360
					FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36
	17	Nodular cast iron	100	80	RPM(10xD-20xD)	10610	7960	6370	5310	3980	3180	2650	2270
					RPM(25xD-30xD)	8490	6370	5090	4240	3180	2550	2120	1820
					FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36
	18		70	60	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590
					RPM(25xD-30xD)	6370	4770	3820	3180	2390	1910	1590	1360
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31
	19	Malleable cast iron	80	65	RPM(10xD-20xD)	8490	6370	5090	4240	3180	2550	2120	1820
					RPM(25xD-30xD)	6900	5170	4140	3450	2590	2070	1720	1480
					FEED	0.10-0.14	0.12-0.16	0.17-0.23	0.19-0.25	0.22-0.28	0.24-0.30	0.28-0.34	0.30-0.36
	20		70	55	RPM(10xD-20xD)	7430	5570	4460	3710	2790	2230	1860	1590
					RPM(25xD-30xD)	5840	4380	3500	2920	2190	1750	1460	1250
					FEED	0.08-0.12	0.10-0.14	0.12-0.18	0.14-0.20	0.18-0.24	0.20-0.26	0.22-0.26	0.25-0.31



1. Guide Drilling should be done as Diameter +0.01~+0.1mm between 3xD and 5xD depth.
2. For Main Drilling, proceed with low RPM at Guide Drilling segment. (RPM 300, FEED 400mm/min)
3. Just before the end of Guide Drilling segment, reduce feed to zero and increase the RPM according to Recommended Cutting Condition chart (See above).
4. After then, proceed main drilling by increasing feed without step drilling.
5. When coming out from Guide Drilling start point after drilling, RPM should be reduced as 300 and feed should be 1000 mm/min.
6. When coming out from Guide Drilling segment to the outside, the feed should be decreased as 50%.

DREAM DRILLS
HIGH HARDENED STEELS
DREAM DRILLS - FÜR HOCHGEHÄRTETE STÄHLE

- For High Hardened Steels (HRc50 to HRc70)
- Für hochgehärtete Stähle (HRc50 bis HRc70)

SELE TION G IDE

HOLEMAKING TOOLS

SERIES	DH500
DRILLING DEPTH	3XD
LENGTH	SHORT
SIZE MIN	D2.6
SIZE MAX	D14.0
PAGE	A151
SURFACE TREATMENT	TiAlN

SOLID CARBIDE
DREAM DRILLS
HIGH HARDENED STEELS

For High Hardened Steels (HRc50 to HRc70)

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A151

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc
P	1	Non-alloy steel	About 0.15% C	Annealed	125	
	2		About 0.45% C	Annealed	190	13
	3		About 0.45% C	Quenched & Tempered	250	25
	4		About 0.75% C	Annealed	270	28
	5		About 0.75% C	Quenched & Tempered	300	32
	6	Low alloy steel		Annealed	180	10
	7			Quenched & Tempered	275	29
	8			Quenched & Tempered	300	32
	9			Quenched & Tempered	350	38
	10	High alloyed steel, and tool steel		Annealed	200	15
	11			Quenched & Tempered	325	35
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15
	13		Martensitic	Quenched & Tempered	240	23
	14		Austenitic		180	10
K	15	Grey cast iron	Pearlitic / ferritic		180	10
	16		Pearlitic (Martensitic)		260	26
	17	Nodular cast iron	Ferritic		160	3
	18		Pearlitic		250	25
	19	Malleable cast iron	Ferritic		130	
	20		Pearlitic		230	21
N	21	Aluminum-wrought alloy	Not Curable		60	
	22		Curable	Hardened	100	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75	
	24		≤ 12% Si, Curable	Hardened	90	
	25		> 12% Si, Not Curable		130	
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110	
	27		CuZn, CuSnZn (Brass)		90	
	28		CuSn, lead-free copper and electrolytic copper		100	
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			
	30		Rubber, Wood, etc.			
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15
	32			Cured	280	30
	33		Ni or Co Based	Annealed	250	25
	34			Cured	350	38
	35			Cast	320	34
	36	Titanium Alloys	Pure Titanium		400 Rm	
	37		Alpha + Beta Alloys	Hardened	1050 Rm	
H	38	Hardened steel		Hardened	550	55 ◎
	39.1			Hardened	630	60 ◎
	39.3			Hardened		70 ◎
	40	Chilled Cast Iron		Cast	400	42
	41	Hardened Cast Iron		Hardened	550	55

D EAM D ILLS
0 HIGH HA DENED STEELS

DH 00 SERIES

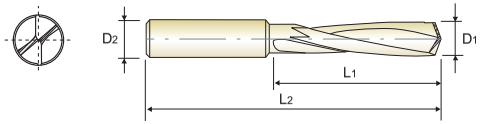
CARBIDE, DREAM DRILLS for HIGH HARDENED STEELS (HRc50~HRc70)

SHORT / KURZ / COURTE / CORTA

- VOLLHARTMETALL DREAM SPIRALBOHRER FÜR HOCHGEHARTETE STAHLE
- Forets DREAM DRILLS carbure pour Aciers Trempés (50 HRc ~ 70 HRc)
- PUNTE ELICOIDALI IN MD, DREAM DRILL - ACCIAI HRC 50 - 70

▶Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
▶Special geometry design for Hardened Steels
▶Minimum of cutting load through special thinning
▶Performing good chip removal and powerful drilling

▶Bohren von hoch gehärteten Stählen, Vergütungsstähle, angelassenen Stählen bis HRc 70
▶Spezielle Bohrergeometrie für gehärtete Stähle
▶Minimaler Schnedendruck durch spezielle Ausspitzung
▶Gute Spanabfuhr und Hochleistungsbohren



CARBIDE | 15° | h6 | h7 | 140° | TiAlN | p.A151

3 × D

Recommended Toolholder

Plain Shank	Page
SHRINK FIT HOLDER	D47-72
HYDRAULIC CHUCK	D15-46
ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH500026	2.6	3	14	44
DH500030	3.0	3	16	46
DH500033	3.3	4	18	48
DH500034	3.4	4	20	50
DH500035	3.5	4	20	50
DH500040	4.0	4	22	52
DH500042	4.2	6	25	65
DH500043	4.3	6	28	68
DH500044	4.4	6	28	68
DH500045	4.5	6	28	68
DH500050	5.0	6	32	72
DH500051	5.1	6	32	72
DH500052	5.2	6	32	72
DH500055	5.5	6	35	75
DH500060	6.0	6	35	75
DH500065	6.5	8	40	80
DH500068	6.8	8	45	85
DH500069	6.9	8	45	85

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
DH500070	7.0	8	45	85
DH500075	7.5	8	45	85
DH500080	8.0	8	50	98
DH500085	8.5	10	50	98
DH500086	8.6	10	57	105
DH500088	8.8	10	57	105
DH500090	9.0	10	57	105
DH500095	9.5	10	57	105
DH500100	10.0	10	63	111
DH500102	10.2	12	63	111
DH500103	10.3	12	63	111
DH500105	10.5	12	63	111
DH500108	10.8	12	71	119
DH500110	11.0	12	71	119
DH500115	11.5	12	71	119
DH500120	12.0	12	71	119
DH500140	14.0	14	77	125

TTING ONDITIONS

DH 00 SERIES **DREAM DRILLS for HIGH HARDENED STEELS**

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

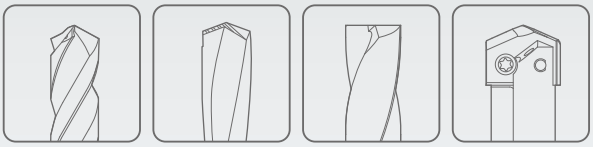
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0
H	38	Hardened steel	20	RPM	2550	2120	1590	1270	1060	800	640	530	450
				FEED	0.01~0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06
	39.1		15	RPM	1910	1590	1190	950	800	600	480	400	340
				FEED	0.01~0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06
	39.3		12	RPM	1530	1270	950	760	640	480	380	320	270
				FEED	0.01~0.03	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.05	0.01-0.05	0.01-0.05	0.01-0.06	0.01-0.06

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38 39.1 39.3	40	41
HRc											15	30	25	38	34			55 60 70	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550 630	400	550
Recommended																		◎ ◎ ◎		

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

SOLID AR IDE

GENERAL AR IDE DRILLS

UNIVERSELLE VHM - BOHRER

- For General Purpose, DIN338 & DIN6539
- Für allgemeine Anwendungen, DIN 338 & DIN 6539

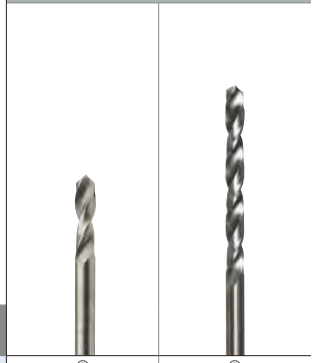
SELE TION G IDE

HOLEMAKING TOOLS

SERIES	D5405	D5407
STANDARD	DIN6539	DIN338
LENGTH	STUB	JOBBER
SIZE MIN	D1.0	D1.0
SIZE MAX	D13.0	D13.0
PAGE	A155	A157
SURFACE TREATMENT	Bright	

SOLID CARBIDE
GENERAL AR IDE DRILLS

For General Purpose, DIN338 & DIN6539



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A159

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D5405	D5407
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	○	○
	3		About 0.45% C	Quenched & Tempered	250	25		
	4		About 0.75% C	Annealed	270	28		
	5		About 0.75% C	Quenched & Tempered	300	32		
	6	Low alloy steel		Annealed	180	10	○	○
	7			Quenched & Tempered	275	29		
	8			Quenched & Tempered	300	32		
	9			Quenched & Tempered	350	38		
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○
	16		Pearlitic (Martensitic)		260	26		
	17	Nodular cast iron	Ferritic		160	3		
	18		Pearlitic		250	25		
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎
	22		Curable	Hardened	100		◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

GENE AL CA IDE D ILLS

D 0 SERIES

CARBIDE DRILLS

STUB

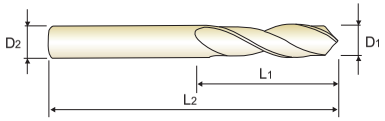
VOLLHARTMETALL-SPIRALBOHRER
Forets carbure, série extra-courte
PUNTE IN METALLO DURO

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

▶Application : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

▶Verwendung : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

under 3.0mm 3.0mm & over



D1=D2

DIN 6539 | CARBIDE | 30° | h6 | h7 | 118° | p.A159

Recommended ToolHolder	Plain Shank	Page
	◎ SHRINK FIT HOLDER	D47-72
	◎ HYDRAULIC CHUCK	D15-46
	○ ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5405010	1.0	6	26
D5405011	1.1	7	28
D5405012	1.2	8	30
D5405013	1.3	8	30
D5405014	1.4	9	32
D5405015	1.5	9	32
D5405016	1.6	10	34
D5405017	1.7	10	34
D5405018	1.8	11	36
D5405019	1.9	11	36
D5405020	2.0	12	38
D5405021	2.1	12	38
D5405022	2.2	13	40
D5405023	2.3	13	40
D5405024	2.4	14	43
D5405025	2.5	14	43
D5405026	2.6	14	43
D5405027	2.7	16	46
D5405028	2.8	16	46
D5405029	2.9	16	46
D5405030	3.0	16	46
D5405031	3.1	18	49
D5405032	3.2	18	49
D5405033	3.3	18	49

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5405034	3.4	20	52
D5405035	3.5	20	52
D5405036	3.6	20	52
D5405037	3.7	20	52
D5405038	3.8	22	55
D5405039	3.9	22	55
D5405040	4.0	22	55
D5405041	4.1	22	55
D5405042	4.2	22	55
D5405043	4.3	24	58
D5405044	4.4	24	58
D5405045	4.5	24	58
D5405046	4.6	24	58
D5405047	4.7	24	58
D5405048	4.8	26	62
D5405049	4.9	26	62
D5405050	5.0	26	62
D5405051	5.1	26	62
D5405052	5.2	26	62
D5405053	5.3	26	62
D5405054	5.4	28	66
D5405055	5.5	28	66
D5405056	5.6	28	66
D5405057	5.7	28	66

▶ TiN(D6405), TiCN(DG405) and TiAlN(DH405) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○						○			○					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

GENE AL CA IDE D ILLS

D 0 SERIES

CARBIDE DRILLS

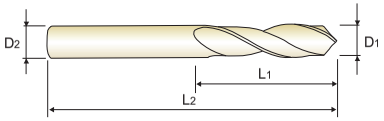
STUB

VOLLHARTMETALL-SPIRALBOHRER
Forets carbure, série extra-courte
PUNTE IN METALLO DURO

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

▶**Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

▶**Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



$D_1 = D_2$

DIN 6539 | CARBIDE | 30° | h6 | h7 | 118° | p.A159

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
○	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5405058	5.8	28	66
D5405059	5.9	28	66
D5405060	6.0	28	66
D5405061	6.1	31	70
D5405062	6.2	31	70
D5405063	6.3	31	70
D5405064	6.4	31	70
D5405065	6.5	31	70
D5405066	6.6	31	70
D5405067	6.7	31	70
D5405068	6.8	34	74
D5405069	6.9	34	74
D5405070	7.0	34	74
D5405071	7.1	34	74
D5405072	7.2	34	74
D5405073	7.3	34	74
D5405074	7.4	34	74
D5405075	7.5	34	74
D5405076	7.6	37	79
D5405077	7.7	37	79
D5405078	7.8	37	79
D5405079	7.9	37	79
D5405080	8.0	37	79
D5405081	8.1	37	79
D5405082	8.2	37	79

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5405083	8.3	37	79
D5405084	8.4	37	79
D5405085	8.5	37	79
D5405086	8.6	40	84
D5405087	8.7	40	84
D5405088	8.8	40	84
D5405089	8.9	40	84
D5405090	9.0	40	84
D5405091	9.1	40	84
D5405092	9.2	40	84
D5405093	9.3	40	84
D5405094	9.4	40	84
D5405095	9.5	40	84
D5405096	9.6	43	89
D5405097	9.7	43	89
D5405098	9.8	43	89
D5405099	9.9	43	89
D5405100	10.0	43	89
D5405102	10.2	43	89
D5405105	10.5	43	89
D5405110	11.0	47	95
D5405115	11.5	47	95
D5405120	12.0	51	102
D5405130	13.0	51	102

▶ TiN(D6405), TiCN(DG405) and TiAlN(DH405) are available on your request.

◎ : Excellent ○ : Good

ISO	P																			
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○						○			○					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					

GENE AL CA IDE D ILLS
D 0 SERIES

CARBIDE DRILLS

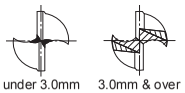
JOBBER

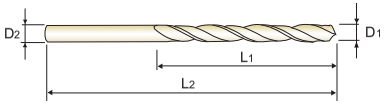
VOLLHARTMETALL-SPIRALBOHRER
Forets carbure, série courte
PUNTE IN METALLO DURO

KURZ
COURTE
CORTA

▶**Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

▶**Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.





$D_1 = D_2$

DIN 338 | CARBIDE | 30° | h6 | h7 | 118° | p.A159

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
○	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5407010	1.0	12	34
D5407011	1.1	14	36
D5407012	1.2	16	38
D5407013	1.3	16	38
D5407014	1.4	18	40
D5407015	1.5	18	40
D5407016	1.6	20	43
D5407017	1.7	20	43
D5407018	1.8	22	46
D5407019	1.9	22	46
D5407020	2.0	24	49
D5407021	2.1	24	49
D5407022	2.2	27	53
D5407023	2.3	27	53
D5407024	2.4	30	57
D5407025	2.5	30	57
D5407026	2.6	30	57
D5407027	2.7	33	61
D5407028	2.8	33	61
D5407029	2.9	33	61
D5407030	3.0	33	61
D5407031	3.1	36	65

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5407032	3.2	36	65
D5407033	3.3	36	65
D5407034	3.4	39	70
D5407035	3.5	39	70
D5407036	3.6	39	70
D5407037	3.7	39	70
D5407038	3.8	43	75
D5407039	3.9	43	75
D5407040	4.0	43	75
D5407041	4.1	43	75
D5407042	4.2	43	75
D5407043	4.3	47	80
D5407044	4.4	47	80
D5407045	4.5	47	80
D5407046	4.6	47	80
D5407047	4.7	47	80
D5407048	4.8	52	86
D5407049	4.9	52	86
D5407050	5.0	52	86
D5407051	5.1	52	86
D5407052	5.2	52	86
D5407053	5.3	52	86

▶ TiN(D6407), TiCN(DG407) and TiAlN(DH407) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P																			
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○						○			○					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					

GENE AL CA IDE D ILLS

D 0 SERIES

CARBIDE DRILLS

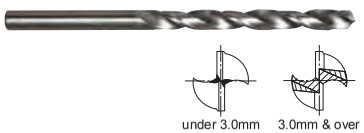
JOBBER

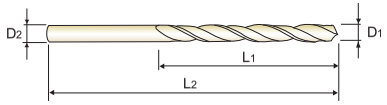
VOLLHARTMETALL-SPIRALBOHRER
Forets carbure, série courte
MPUNTE IN METALLO DURO

KURZ
COURTE
CORTA

▶**Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

▶**Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.





$D_1 = D_2$

DIN 338 | CARBIDE | 30° | h6 | h7 | 118° | p.A159

Recommended ToolHolder

	Plain Shank	Page
◎	SHRINK FIT HOLDER	D47-72
◎	HYDRAULIC CHUCK	D15-46
○	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D_1	Flute Length L_1	Overall Length L_2
D5407054	5.4	57	93
D5407055	5.5	57	93
D5407056	5.6	57	93
D5407057	5.7	57	93
D5407058	5.8	57	93
D5407059	5.9	57	93
D5407060	6.0	57	93
D5407061	6.1	63	101
D5407062	6.2	63	101
D5407063	6.3	63	101
D5407064	6.4	63	101
D5407065	6.5	63	101
D5407068	6.8	69	109

EDP No.	Drill Diameter D_1	Flute Length L_1	Overall Length L_2
D5407070	7.0	69	109
D5407075	7.5	69	109
D5407080	8.0	75	117
D5407085	8.5	75	117
D5407090	9.0	81	125
D5407095	9.5	81	125
D5407100	10.0	87	133
D5407102	10.2	87	133
D5407105	10.5	87	133
D5407110	11.0	94	142
D5407115	11.5	94	142
D5407120	12.0	101	151
D5407130	13.0	101	151

▶ TiN(D6407), TiCN(DG407) and TiAlN(DH407) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	○				○						○			○					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎												○					

GENE AL CA IDE D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

D 0 D 0 SERIES

GENERAL CARBIDE DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0
P	1	Non-alloy steel	55	RPM	17510	8750
				FEED	0.02-0.03	0.02-0.04
	2		45	RPM	14320	7160
				FEED	0.02-0.03	0.02-0.04
	6	Low alloy steel	35	RPM	11140	5570
				FEED	0.02-0.03	0.02-0.04
M	12	Stainless steel	15	RPM	4770	2390
				FEED	0.01-0.02	0.01-0.03
K	15	Grey cast iron	25	RPM	7960	3980
				FEED	0.03-0.04	0.03-0.05
N	21	Aluminum-wrought alloy	100	RPM	31830	15920
				FEED	0.04-0.05	0.04-0.06
	22		90	RPM	28650	14320
				FEED	0.04-0.05	0.04-0.06
	23	Aluminum-cast, alloyed	70	RPM	22280	11140
				FEED	0.04-0.05	0.04-0.06
	24		60	RPM	19100	9550
				FEED	0.04-0.05	0.04-0.06
S	36	Titanium Alloys	10	RPM	3180	1590
				FEED	0.01-0.02	0.01-0.03

Vc	Parameter	Drill Diameter (mm) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	13.0
70	RPM	7430	5570	4460	3710	2790	2230	1860	1710
	FEED	0.03-0.05	0.03-0.06	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.10-0.14	0.12-0.16
60	RPM	6370	4770	3820	3180	2390	1910	1590	1470
	FEED	0.03-0.05	0.03-0.06	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.10-0.14	0.12-0.16
50	RPM	5310	3980	3180	2650	1990	1590	1330	1220
	FEED	0.03-0.05	0.03-0.06	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.10-0.14	0.12-0.16
25	RPM	2650	1990	1590	1330	990	800	660	610
	FEED	0.02-0.04	0.02-0.05	0.03-0.06	0.04-0.07	0.06-0.09	0.07-0.11	0.08-0.12	0.09-0.13
45	RPM	4770	3580	2860	2390	1790	1430	1190	1100
	FEED	0.04-0.06	0.04-0.07	0.05-0.08	0.06-0.09	0.09-0.12	0.12-0.16	0.14-0.18	0.16-0.20
140	RPM	14850	11140	8910	7430	5570	4460	3710	3430
	FEED	0.05-0.07	0.05-0.08	0.06-0.09	0.08-0.11	0.12-0.15	0.15-0.19	0.19-0.23	0.21-0.25
120	RPM	12730	9550	7640	6370	4770	3820	3180	2940
	FEED	0.05-0.07	0.05-0.08	0.06-0.09	0.08-0.11	0.12-0.15	0.15-0.19	0.19-0.23	0.21-0.25
100	RPM	10610	7960	6370	5310	3980	3180	2650	2450
	FEED	0.05-0.07	0.05-0.08	0.06-0.09	0.08-0.11	0.12-0.15	0.15-0.19	0.19-0.23	0.21-0.25
80	RPM	8490	6370	5090	4240	3180	2550	2120	1960
	FEED	0.05-0.07	0.05-0.08	0.06-0.09	0.08-0.11	0.12-0.15	0.15-0.19	0.19-0.23	0.21-0.25
20	RPM	2120	1590	1270	1060	800	640	530	490
	FEED	0.02-0.04	0.02-0.05	0.03-0.06	0.04-0.07	0.06-0.09	0.07-0.11	0.08-0.12	0.09-0.13

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
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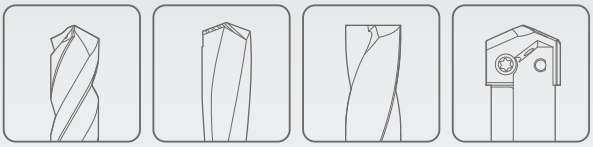
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

HSS PM

M LTI DRILLS

MULTI-1 BOHRER

- **Premium HSS-PM Drills**
  For Wide Range of Applications Particularly Stainless Steels and Titanium

- **HSS-PM Bohrer**
  Für ein breites Anwendungsspektrum, insbesondere Edelstahl und Titan

SELE TION G IDE

YG HOLEMAKING TOOLS

SERIES	CDRA03	CDRA04
TOOL MATERIAL	HSS-PM	
LENGTH	STUB	JOBBER
SIZE MIN	D1.0	D2.0
SIZE MAX	D13.0	D13.0
PAGE	A163	A166
SURFACE TREATMENT	TiAlN	

HSS-PM
M LTI DRILLS

Premium HSS-PM Drills
for Wide Range of Applications Particularly Stainless Steels and Titanium

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A169

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	CDRA03	CDRA04
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	○
	4		About 0.75% C	Annealed	270	28		
	5		About 0.75% C	Quenched & Tempered	300	32		
	6	Low alloy steel		Annealed	180	10	◎	◎
	7			Quenched & Tempered	275	29	○	○
	8			Quenched & Tempered	300	32	○	○
	9			Quenched & Tempered	350	38	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○
	16		Pearlitic (Martensitic)		260	26		
	17	Nodular cast iron	Ferritic		160	3		
	18		Pearlitic		250	25		
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎
	22		Curable	Hardened	100		◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

YG MULTI D ILLS

DRA0 SERIES

HSS-PM, MULTI-1 DRILLS

STUB

HSS-PM MULTI-1 BOHRER
Forets MULTI-1 HSS-PM Premium, série extra-courte
PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

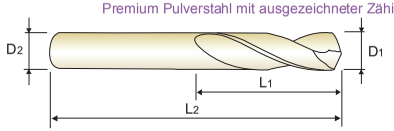
▶Application : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

▶Advantage : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

▶Anwendung : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.

▶Vorteile : Maximale Selbstzentrierung durch besonderen Spitzenanschliff
Bohrergeometrie für optimale Spanabfuhr.
Premium Pulverstahl mit ausgezeichneter Zähigkeit.

up to 1.4mm over 1.4mm



HSS PM | 30° | h6 | h7 | 118° | 135° | TiAlN

up to 1.9mm over 1.9mm

p.A169

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No. TiAlN	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
CDRA03010	1.0	3	6	38
CDRA03011	1.1	3	7	39
CDRA03012	1.2	3	8	40
CDRA03013	1.3	3	8	40
CDRA03014	1.4	3	9	41
CDRA03015	1.5	3	9	41
CDRA03016	1.6	3	10	42
CDRA03017	1.7	3	10	42
CDRA03018	1.8	3	11	43
CDRA03019	1.9	3	11	43
CDRA03020	2.0	3	12	44
CDRA03021	2.1	3	12	44
CDRA03022	2.2	3	13	45
CDRA03023	2.3	3	13	45
CDRA03024	2.4	3	14	46
CDRA03025	2.5	3	14	46
CDRA03026	2.6	3	14	46
CDRA03027	2.7	3	16	48
CDRA03028	2.8	3	16	48
CDRA03029	2.9	3	16	48
CDRA03030	3.0	3	16	48
CDRA03031	3.1	4	18	50
CDRA03032	3.2	4	18	50
CDRA03033	3.3	4	18	50

EDP No. TiAlN	Drill Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
CDRA03034	3.4	4	20	52
CDRA03035	3.5	4	20	52
CDRA03036	3.6	4	20	52
CDRA03037	3.7	4	20	52
CDRA03038	3.8	4	22	54
CDRA03039	3.9	4	22	54
CDRA03040	4.0	4	22	54
CDRA03041	4.1	6	22	66
CDRA03042	4.2	6	22	66
CDRA03043	4.3	6	24	68
CDRA03044	4.4	6	24	68
CDRA03045	4.5	6	24	68
CDRA03046	4.6	6	24	68
CDRA03047	4.7	6	24	68
CDRA03048	4.8	6	26	70
CDRA03049	4.9	6	26	70
CDRA03050	5.0	6	26	70
CDRA03051	5.1	6	26	70
CDRA03052	5.2	6	26	70
CDRA03053	5.3	6	26	70
CDRA03054	5.4	6	28	72
CDRA03055	5.5	6	28	72
CDRA03056	5.6	6	28	72
CDRA03057	5.7	6	28	72

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎	○					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

HSS-PM, MULTI-1 DRILLS

STUB

HSS-PM MULTI-1 BOHRER
Forets MULTI-1 HSS-PM Premium, série extra-courte
PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM

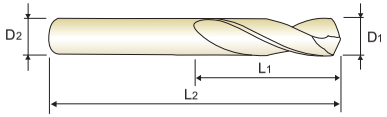
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

▶**Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

▶**Advantage** : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.

▶**Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.

▶**Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff
Bohrergeometrie für optimale Spanabfuhr.
Premium Pulverstahl mit ausgezeichneter Zähigkeit.



HSS PM | 30° | h6 | h7 | 118° | 135° | TiAlN

up to 1.9mm over 1.9mm

p.A169

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No. TiAlN	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
CDRA03058	5.8	6	28	72
CDRA03059	5.9	6	28	72
CDRA03060	6.0	6	28	72
CDRA03061	6.1	8	31	75
CDRA03062	6.2	8	31	75
CDRA03063	6.3	8	31	75
CDRA03064	6.4	8	31	75
CDRA03065	6.5	8	31	75
CDRA03066	6.6	8	31	75
CDRA03067	6.7	8	31	75
CDRA03068	6.8	8	34	78
CDRA03069	6.9	8	34	78
CDRA03070	7.0	8	34	78
CDRA03071	7.1	8	34	78
CDRA03072	7.2	8	34	78
CDRA03073	7.3	8	34	78
CDRA03074	7.4	8	34	78
CDRA03075	7.5	8	34	78
CDRA03076	7.6	8	37	81
CDRA03077	7.7	8	37	81
CDRA03078	7.8	8	37	81
CDRA03079	7.9	8	37	81
CDRA03080	8.0	8	37	81
CDRA03081	8.1	10	37	87

EDP No. TiAlN	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
CDRA03082	8.2	10	37	87
CDRA03083	8.3	10	37	87
CDRA03084	8.4	10	37	87
CDRA03085	8.5	10	37	87
CDRA03086	8.6	10	40	90
CDRA03087	8.7	10	40	90
CDRA03088	8.8	10	40	90
CDRA03089	8.9	10	40	90
CDRA03090	9.0	10	40	90
CDRA03091	9.1	10	40	90
CDRA03092	9.2	10	40	90
CDRA03093	9.3	10	40	90
CDRA03094	9.4	10	40	90
CDRA03095	9.5	10	40	90
CDRA03096	9.6	10	43	93
CDRA03097	9.7	10	43	93
CDRA03098	9.8	10	43	93
CDRA03099	9.9	10	43	93
CDRA03100	10.0	10	43	93
CDRA03101	10.1	12	43	100
CDRA03102	10.2	12	43	100
CDRA03103	10.3	12	43	100
CDRA03104	10.4	12	43	100
CDRA03105	10.5	12	43	100

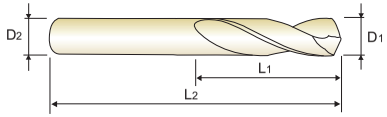
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎	○					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

MULTI D ILLS
DRA0 SERIES
HSS-PM, MULTI-1 DRILLS
STUB
HSS-PM MULTI-1 BOHRER
Forets MULTI-1 HSS-PM Premium, série extra-courte
PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA
▶Application : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
▶Advantage : Point shape to maximize self-centering.
Flute design for the best chip evacuation.
Premium powder materials with excellent toughness.
▶Anwendung : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.
▶Vorteile : Maximale Selbstzentrierung durch besonderen Spitzenanschliff
Bohrergeometrie für optimale Spanabfuhr.
Premium Pulverstahl mit ausgezeichneter Zähigkeit.



HSS PM | 30° | h6 | h7 | 118° | 135° | TiAlN
up to 1.9mm over 1.9mm
p.A169
Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115
Unit : mm

EDP No. TiAlN	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
CDRA03106	10.6	12	43	100
CDRA03107	10.7	12	47	104
CDRA03108	10.8	12	47	104
CDRA03109	10.9	12	47	104
CDRA03110	11.0	12	47	104
CDRA03111	11.1	12	47	104
CDRA03112	11.2	12	47	104
CDRA03113	11.3	12	47	104
CDRA03114	11.4	12	47	104
CDRA03115	11.5	12	47	104
CDRA03116	11.6	12	47	104
CDRA03117	11.7	12	47	104
CDRA03118	11.8	12	47	104
CDRA03119	11.9	12	51	108
CDRA03120	12.0	12	51	108
CDRA03121	12.1	12	51	108
CDRA03122	12.2	12	51	108
CDRA03123	12.3	12	51	108
CDRA03124	12.4	12	51	108
CDRA03125	12.5	12	51	108

EDP No. TiAlN	Drill Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
CDRA03126	12.6	12	51	108
CDRA03127	12.7	12	51	108
CDRA03128	12.8	12	51	108
CDRA03129	12.9	12	51	108
CDRA03130	13.0	12	51	108

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎	○					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

MULTI D ILLS

DRA0 SERIES

HSS-PM, MULTI-1 DRILLS

JOBBER

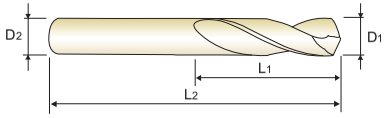
HSS-PM MULTI-1 BOHRER — KURZ
Forets MULTI-1 HSS-PM Premium, série courte — COURTE
PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM — CORTA

▶**Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

▶**Advantage** : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

▶**Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.

▶**Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



HSS PM | 30° | h6 | h7 | 135° | TiAlN p.A169

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04020	2.0	3	24	56
CDRA04021	2.1	3	24	56
CDRA04022	2.2	3	25	56
CDRA04023	2.3	3	25	56
CDRA04024	2.4	3	30	61
CDRA04025	2.5	3	30	61
CDRA04026	2.6	3	30	61
CDRA04027	2.7	3	33	64
CDRA04028	2.8	3	33	64
CDRA04029	2.9	3	33	64
CDRA04030	3.0	3	33	64
CDRA04031	3.1	4	36	68
CDRA04032	3.2	4	36	68
CDRA04033	3.3	4	36	68
CDRA04034	3.4	4	39	71
CDRA04035	3.5	4	39	71
CDRA04036	3.6	4	39	71
CDRA04037	3.7	4	39	71
CDRA04038	3.8	4	43	75
CDRA04039	3.9	4	43	75
CDRA04040	4.0	4	43	75
CDRA04041	4.1	6	43	85
CDRA04042	4.2	6	43	85
CDRA04043	4.3	6	47	89

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04044	4.4	6	47	89
CDRA04045	4.5	6	47	89
CDRA04046	4.6	6	47	89
CDRA04047	4.7	6	47	89
CDRA04048	4.8	6	52	94
CDRA04049	4.9	6	52	94
CDRA04050	5.0	6	52	94
CDRA04051	5.1	6	52	94
CDRA04052	5.2	6	52	94
CDRA04053	5.3	6	52	94
CDRA04054	5.4	6	57	99
CDRA04055	5.5	6	57	99
CDRA04056	5.6	6	57	99
CDRA04057	5.7	6	57	99
CDRA04058	5.8	6	57	99
CDRA04059	5.9	6	57	99
CDRA04060	6.0	6	57	99
CDRA04061	6.1	8	63	107
CDRA04062	6.2	8	63	107
CDRA04063	6.3	8	63	107
CDRA04064	6.4	8	63	107
CDRA04065	6.5	8	63	107
CDRA04066	6.6	8	63	107
CDRA04067	6.7	8	63	107

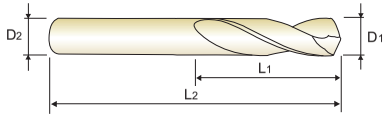
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎	○					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

MULTI D ILLS
DRA0 SERIES
HSS-PM, MULTI-1 DRILLS
JOBBER
HSS-PM MULTI-1 BOHRER — KURZ
Forets MULTI-1 HSS-PM Premium, série courte — COURTE
PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM — CORTA
▶Application : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.
▶Advantage : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.
▶Anwendung : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.
▶Vorteile : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



HSS PM | 30° | h6 | h7 | 135° | TiAlN p.A169
Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115
Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04068	6.8	8	69	113
CDRA04069	6.9	8	69	113
CDRA04070	7.0	8	69	113
CDRA04071	7.1	8	69	113
CDRA04072	7.2	8	69	113
CDRA04073	7.3	8	69	113
CDRA04074	7.4	8	69	113
CDRA04075	7.5	8	69	113
CDRA04076	7.6	8	75	119
CDRA04077	7.7	8	75	119
CDRA04078	7.8	8	75	119
CDRA04079	7.9	8	75	119
CDRA04080	8.0	8	75	119
CDRA04081	8.1	10	75	125
CDRA04082	8.2	10	75	125
CDRA04083	8.3	10	75	125
CDRA04084	8.4	10	75	125
CDRA04085	8.5	10	75	125
CDRA04086	8.6	10	81	131
CDRA04087	8.7	10	81	131
CDRA04088	8.8	10	81	131
CDRA04089	8.9	10	81	131
CDRA04090	9.0	10	81	131
CDRA04091	9.1	10	81	131

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA04092	9.2	10	81	131
CDRA04093	9.3	10	81	131
CDRA04094	9.4	10	81	131
CDRA04095	9.5	10	81	131
CDRA04096	9.6	10	87	137
CDRA04097	9.7	10	87	137
CDRA04098	9.8	10	87	137
CDRA04099	9.9	10	87	137
CDRA04100	10.0	10	87	137
CDRA04101	10.1	12	87	144
CDRA04102	10.2	12	87	144
CDRA04103	10.3	12	87	144
CDRA04104	10.4	12	87	144
CDRA04105	10.5	12	87	144
CDRA04106	10.6	12	87	144
CDRA04107	10.7	12	94	151
CDRA04108	10.8	12	94	151
CDRA04109	10.9	12	94	151
CDRA04110	11.0	12	94	151
CDRA04111	11.1	12	94	151
CDRA04112	11.2	12	94	151
CDRA04113	11.3	12	94	151
CDRA04114	11.4	12	94	151
CDRA04115	11.5	12	94	151

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎	○					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

HSS-PM, MULTI-1 DRILLS

JOBBER

HSS-PM MULTI-1 BOHRER — **KURZ**

Forets MULTI-1 HSS-PM Premium, série courte — **COURTE**

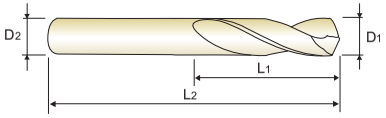
PUNTA GAMBO CILINDRICO MULTI-1, HSS-PM — **CORTA**

▶Application : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, Stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys, Titanium.

▶Advantage : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

▶Anwendung : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30~45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen, Titan.

▶Vorteile : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



HSS PM | 30° | h6 | h7 | 135° | TiAlN

p.A169

Recommended Toolholder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D_1	D_2	L_1	L_2
CDRA04116	11.6	12	94	151
CDRA04117	11.7	12	94	151
CDRA04118	11.8	12	94	151
CDRA04119	11.9	12	101	158
CDRA04120	12.0	12	101	158
CDRA04121	12.1	12	101	158
CDRA04122	12.2	12	101	158
CDRA04123	12.3	12	101	158

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D_1	D_2	L_1	L_2
CDRA04124	12.4	12	101	158
CDRA04125	12.5	12	101	158
CDRA04126	12.6	12	101	158
CDRA04127	12.7	12	101	158
CDRA04128	12.8	12	101	158
CDRA04129	12.9	12	101	158
CDRA04130	13.0	12	101	158

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○	○	○			○		◎	○					

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○												○					

DRA0 DRA0 SERIES MULTI-1 DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	5.0
P	1	Non-alloy steel	30	RPM	9550	40	RPM	6370	4240	3180	2550
				FEED	0.01~0.03		FEED	0.03~0.06	0.08~0.12	0.09~0.15	0.12~0.18
	2		28	RPM	8910	35	RPM	5570	3710	2790	2230
				FEED	0.01~0.03		FEED	0.03~0.06	0.08~0.12	0.09~0.15	0.12~0.18
	3		28	RPM	8910	35	RPM	5570	3710	2790	2230
				FEED	0.01~0.03		FEED	0.03~0.06	0.08~0.12	0.09~0.15	0.12~0.18
	6	Low alloy steel	28	RPM	8910	35	RPM	5570	3710	2790	2230
				FEED	0.01~0.03		FEED	0.03~0.06	0.08~0.12	0.09~0.15	0.12~0.18
	7		23	RPM	7320	30	RPM	4770	3180	2390	1910
				FEED	0.01~0.03		FEED	0.03~0.05	0.06~0.10	0.07~0.13	0.10~0.16
	8		20	RPM	6370	25	RPM	3980	2650	1990	1590
				FEED	0.01-0.02		FEED	0.02-0.05	0.03-0.07	0.04-0.10	0.06-0.12
	9		15	RPM	4770	20	RPM	3180	2120	1590	1270
				FEED	0.01-0.02		FEED	0.02-0.05	0.03-0.07	0.04-0.10	0.06-0.12
M	12	Stainless steel	15	RPM	4770	20	RPM	3180	2120	1590	1270
				FEED	0.01~0.03		FEED	0.03-0.07	0.05-0.09	0.06-0.12	0.09-0.15
	14		13	RPM	4140	15	RPM	2390	1590	1190	950
				FEED	0.01-0.02		FEED	0.02-0.05	0.03-0.07	0.04-0.10	0.06-0.12
K	15	Grey cast iron	30	RPM	9550	40	RPM	6370	4240	3180	2550
				FEED	0.02~0.04		FEED	0.04~0.10	0.07~0.13	0.09~0.15	0.12~0.18
N	21	Aluminum-wrought alloy	68	RPM	21650	90	RPM	14320	9550	7160	5730
				FEED	0.09~0.13		FEED	0.13~0.17	0.23~0.27	0.27~0.33	0.33~0.39
	22		68	RPM	21650	90	RPM	14320	9550	7160	5730
				FEED	0.09~0.13		FEED	0.13~0.17	0.23~0.27	0.27~0.33	0.33~0.39
	23	Aluminum-cast, alloyed	60	RPM	19100	80	RPM	12730	8490	6370	5090
				FEED	0.09~0.13		FEED	0.13~0.17	0.23~0.27	0.27~0.33	0.33~0.39
	24		55	RPM	17510	70	RPM	11140	7430	5570	4460
				FEED	0.06~0.10		FEED	0.10~0.14	0.15~0.19	0.20~0.26	0.24~0.30
S	36	Titanium Alloys	5	RPM	1590	5	RPM	800	530	400	320
				FEED	0.01~0.02		FEED	0.02~0.05	0.03~0.07	0.04~0.08	0.06~0.12

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 6.0	8.0	10.0	12.0	13.0
P	1	Non-alloy steel	40	RPM	2120	1590	1270	1060	980
				FEED	0.14~0.20	0.18~0.24	0.18~0.28	0.20~0.30	0.20~0.30
	2		35	RPM	1860	1390	1110	930	860
				FEED	0.14~0.20	0.18~0.24	0.18~0.28	0.20~0.30	0.20~0.30
	3		35	RPM	1860	1390	1110	930	860
				FEED	0.14~0.20	0.18~0.24	0.18~0.28	0.20~0.30	0.20~0.30
	6	Low alloy steel	35	RPM	1860	1390	1110	930	860
				FEED	0.14~0.20	0.18~0.24	0.18~0.28	0.20~0.30	0.20~0.30
	7		30	RPM	1590	1190	950	800	730
				FEED	0.12~0.18	0.14~0.20	0.14~0.24	0.16~0.26	0.16~0.26
	8		25	RPM	1330	990	800	660	610
				FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14~0.24	0.14~0.24
	9		20	RPM	1060	800	640	530	490
				FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14~0.24	0.14~0.24
M	12	Stainless steel	20	RPM	1060	800	640	530	490
				FEED	0.12-0.18	0.18-0.24	0.20-0.30	0.26-0.36	0.26-0.36
	14		15	RPM	800	600	480	400	370
				FEED	0.07-0.13	0.10-0.20	0.12-0.22	0.14~0.24	0.14~0.24
K	15	Grey cast iron	40	RPM	2120	1590	1270	1060	980
				FEED	0.13~0.19	0.18~0.24	0.20~0.30	0.22~0.32	0.22~0.32
N	21	Aluminum-wrought alloy	90	RPM	4770	3580	2860	2390	2200
				FEED	0.40~0.46	0.45~0.51	0.51~0.61	0.63~0.73	0.63~0.73
	22		90	RPM	4770	3580	2860	2390	2200
				FEED	0.40~0.46	0.45~0.51	0.51~0.61	0.63~0.73	0.63~0.73
	23	Aluminum-cast, alloyed	80	RPM	4240	3180	2550	2120	1960
				FEED	0.40~0.46	0.45~0.51	0.51~0.61	0.63~0.73	0.63~0.73
	24		70	RPM	3710	2790	2230	1860	1710
				FEED	0.28~0.34	0.30~0.36	0.34~0.44	0.36~0.46	0.36~0.46
S	36	Titanium Alloys	5	RPM	270	200	160	130	120
				FEED	0.07~0.13	0.09~0.15	0.12~0.22	0.14~0.24	0.14~0.24

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
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MULTI-1 DRILLS
HPD DRILLS
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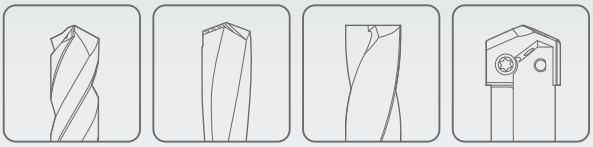
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

HPD STRAIGHT SHANK DRILLS

HPD BOHRER

- **High Precision Drilling for General Steels & Stainless Steels**
- **Hochpräzises Bohren für allgemeine Stähle und rostfreie Stähle**

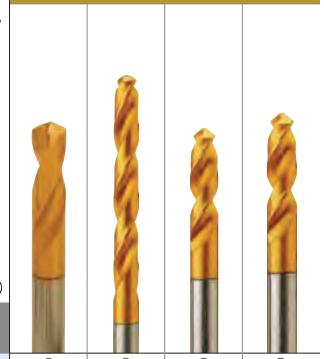
SELE TION G IDE

YG HOLEMAKING TOOLS

SERIES	D4541	D4542	DJ543	DJ544
TOOL MATERIAL	HSSCo8		HSS-E	
LENGTH	STUB	JOBBER	STUB	JOBBER
SIZE MIN	D2.0	D2.0	D2.0	D2.0
SIZE MAX	D13.0	D32.0	D13.0	D20.0
PAGE	A173	A177	A183	A186
SURFACE TREATMENT	TiN			

HSSCo8 & HSS-E
HPD STRAIGHT SHANK DRILLS

High Precision Drilling for General Steels & Stainless Steels



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.198

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D4541	D4542	DJ543	DJ544
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	○	○
	2		About 0.45% C	Annealed	190	13	◎	◎		
	3		About 0.45% C	Quenched & Tempered	250	25	○	○		
	4		About 0.75% C	Annealed	270	28				
	5		About 0.75% C	Quenched & Tempered	300	32				
	6	Low alloy steel		Annealed	180	10	◎	◎		
	7			Quenched & Tempered	275	29	○	○		
	8			Quenched & Tempered	300	32				
	9			Quenched & Tempered	350	38				
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○		
	11			Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			◎	◎
	13		Martensitic	Quenched & Tempered	240	23			○	○
	14		Austenitic		180	10			◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎		
	16		Pearlitic (Martensitic)		260	26				
	17	Nodular cast iron	Ferritic		160	3				
	18		Pearlitic		250	25				
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60				◎	◎
	22		Curable	Hardened	100				◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				○	○
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

YG HOLE MAKING TOOLS

D SERIES

HSSCo8, HPD TWIST DRILLS for STEELS

STUB

PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
Forets HPD HSSCo Premium pour Aciers, série extra-courte
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

▶Application : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.

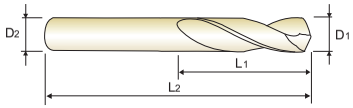
▶Advantage : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity

▶Anwendung : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.

▶Vorteile : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.

under 4mm

4mm & over



D1=D2

HSS Co8 | 25° | h7 | h8 | 130° | TiN

p.A189

Recommended ToolHolder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541020	2.00	12	44
D4541920	2.05	12	44
D4541021	2.10	12	44
D4541921	2.15	13	45
D4541022	2.20	13	45
D4541922	2.25	13	45
D4541023	2.30	13	45
D4541923	2.35	13	45
D4541024	2.40	14	46
D4541924	2.45	14	46
D4541025	2.50	14	46
D4541925	2.55	14	46
D4541026	2.60	14	46
D4541926	2.65	14	46
D4541027	2.70	16	48
D4541927	2.75	16	48
D4541028	2.80	16	48
D4541928	2.85	16	48
D4541029	2.90	16	48
D4541929	2.95	16	48
D4541030	3.00	16	48
D4541930	3.05	18	50

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
D4541031	3.10	18	50
D4541931	3.15	18	50
D4541032	3.20	18	50
D4541932	3.25	18	50
D4541033	3.30	18	50
D4541933	3.35	18	50
D4541034	3.40	20	52
D4541934	3.45	20	52
D4541035	3.50	20	52
D4541935	3.55	20	52
D4541036	3.60	20	52
D4541936	3.65	20	52
D4541037	3.70	20	52
D4541937	3.75	20	52
D4541038	3.80	22	54
D4541938	3.85	22	54
D4541039	3.90	22	54
D4541939	3.95	22	54
D4541040	4.00	22	54
D4541940	4.05	22	66
D4541041	4.10	22	66
D4541941	4.15	22	66

▶ TiCN(D7541), TiAlN(DQ541) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

HSSCo8, HPD TWIST DRILLS for STEELS

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PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
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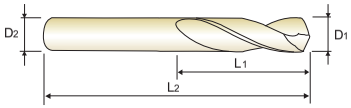


$D_1 = D_2$

HSS Co8 | 25° | h7 | h8 | 130° | TiN | p.A189

Recommended ToolHolder — Plain Shank: ER COLLET CHUCK — Page: D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4541042	4.20	22	66
D4541942	4.25	22	66
D4541043	4.30	24	68
D4541943	4.35	24	68
D4541044	4.40	24	68
D4541944	4.45	24	68
D4541045	4.50	24	68
D4541945	4.55	24	68
D4541046	4.60	24	68
D4541946	4.65	24	68
D4541047	4.70	24	68
D4541947	4.75	24	68
D4541048	4.80	26	70
D4541948	4.85	26	70
D4541049	4.90	26	70
D4541949	4.95	26	70
D4541050	5.00	26	70
D4541950	5.05	26	70
D4541051	5.10	26	70
D4541951	5.15	26	70
D4541052	5.20	26	70
D4541952	5.25	26	70

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4541053	5.30	26	70
D4541953	5.35	28	72
D4541054	5.40	28	72
D4541954	5.45	28	72
D4541055	5.50	28	72
D4541955	5.55	28	72
D4541056	5.60	28	72
D4541956	5.65	28	72
D4541057	5.70	28	72
D4541957	5.75	28	72
D4541058	5.80	28	72
D4541958	5.85	28	72
D4541059	5.90	28	72
D4541959	5.95	28	72
D4541060	6.00	28	72
D4541061	6.10	31	75
D4541062	6.20	31	75
D4541063	6.30	31	75
D4541064	6.40	31	75
D4541065	6.50	31	75
D4541965	6.55	31	75
D4541066	6.60	31	75

▶ TiCN(D7541), TiAlN(DQ541) are available on your request.

▶ NEXT PAGE

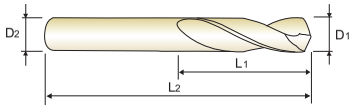
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

HDD ILLS
D SERIES

HSSCo8, HPD TWIST DRILLS for STEELS
STUB
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
Forets HPD HSSCo Premium pour Aciers, série extra-courte
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA
▶Application : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.
▶Advantage : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity
▶Anwendung : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
▶Vorteile : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



$D_1 = D_2$
HSS Co8 | 25° | h7 | h8 | 130° | TiN | p.A189
Recommended ToolHolder — Plain Shank: ER COLLET CHUCK — Page: D73-115
Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4541966	6.65	31	75
D4541067	6.70	31	75
D4541068	6.80	34	78
D4541069	6.90	34	78
D4541070	7.00	34	78
D4541071	7.10	34	78
D4541072	7.20	34	78
D4541073	7.30	34	78
D4541973	7.35	34	78
D4541074	7.40	34	78
D4541075	7.50	34	78
D4541975	7.55	37	81
D4541076	7.60	37	81
D4541976	7.65	37	81
D4541077	7.70	37	81
D4541078	7.80	37	81
D4541079	7.90	37	81
D4541080	8.00	37	81
D4541081	8.10	37	87
D4541082	8.20	37	87
D4541083	8.30	37	87
D4541983	8.35	37	87

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4541084	8.40	37	87
D4541085	8.50	37	87
D4541985	8.55	40	90
D4541086	8.60	40	90
D4541986	8.65	40	90
D4541087	8.70	40	90
D4541088	8.80	40	90
D4541089	8.90	40	90
D4541090	9.00	40	90
D4541091	9.10	40	90
D4541092	9.20	40	90
D4541992	9.25	40	90
D4541093	9.30	40	90
D4541993	9.35	40	90
D4541094	9.40	40	90
D4541994	9.45	40	90
D4541095	9.50	40	90
D4541995	9.55	43	93
D4541096	9.60	43	93
D4541996	9.65	43	93
D4541097	9.70	43	93
D4541098	9.80	43	93

▶ TiCN(D7541), TiAlN(DQ541) are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

YG HDD ILLS

D SERIES

HSSCo8, HPD TWIST DRILLS for STEELS

STUB

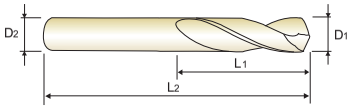
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE — EXTRA KURZ
Forets HPD HSSCo Premium pour Aciers, série extra-courte — EXTRA-COURTE
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI — EXTRA CORTA

▶**Application** : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.

▶**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity

▶**Anwendung** : Für präzises Bohren mit NC/NC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.

▶**Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



$D_1 = D_2$

HSS Co8 | 25° | h7 | h8 | 130° | TiN p.A189

Recommended ToolHolder — Plain Shank: ER COLLET CHUCK — Page: D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4541099	9.90	43	93
D4541999	9.95	43	93
D4541100	10.00	43	93
D4541101	10.10	43	100
D4541102	10.20	43	100
D4541802	10.25	43	100
D4541103	10.30	43	100
D4541803	10.35	43	100
D4541104	10.40	43	100
D4541105	10.50	43	100
D4541805	10.55	43	100
D4541106	10.60	43	100
D4541806	10.65	47	104
D4541107	10.70	47	104
D4541108	10.80	47	104
D4541109	10.90	47	104
D4541809	10.95	47	104
D4541110	11.00	47	104
D4541111	11.10	47	104
D4541112	11.20	47	104
D4541812	11.25	47	104
D4541113	11.30	47	104

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4541813	11.35	47	104
D4541114	11.40	47	104
D4541115	11.50	47	104
D4541815	11.55	47	104
D4541116	11.60	47	104
D4541117	11.70	47	104
D4541118	11.80	47	104
D4541119	11.90	51	108
D4541120	12.00	51	108
D4541121	12.10	51	108
D4541122	12.20	51	108
D4541123	12.30	51	108
D4541124	12.40	51	108
D4541125	12.50	51	108
D4541126	12.60	51	108
D4541127	12.70	51	108
D4541128	12.80	51	108
D4541129	12.90	51	108
D4541130	13.00	51	108

▶ TiCN(D7541), TiAlN(DQ541) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

YG HDD ILLS

D SERIES

HSSCo8, HPD TWIST DRILLS for STEELS

JOBBER

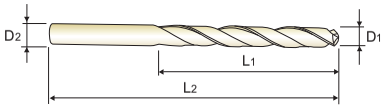
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE — KURZ
Forets HPD HSSCo Premium pour Aciers, série courte — COURTE
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI — CORTA

▶**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

▶**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

▶**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

▶**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



$D_1 = D_2$

HSS Co8 | 30° | h7 | h6 | h8 | 130° | TiN p.A189

up to 13mm over 13mm

Recommended ToolHolder — Plain Shank: ER COLLET CHUCK — Page: D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542020	2.00	24	56
D4542920	2.05	24	56
D4542021	2.10	24	56
D4542921	2.15	27	59
D4542022	2.20	27	59
D4542922	2.25	27	59
D4542023	2.30	27	59
D4542923	2.35	27	59
D4542024	2.40	30	62
D4542924	2.45	30	62
D4542025	2.50	30	62
D4542925	2.55	30	62
D4542026	2.60	30	62
D4542926	2.65	30	62
D4542027	2.70	33	65
D4542927	2.75	33	65
D4542028	2.80	33	65
D4542928	2.85	33	65
D4542029	2.90	33	65
D4542929	2.95	33	65
D4542030	3.00	33	65
D4542930	3.05	36	68

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542031	3.10	36	68
D4542931	3.15	36	68
D4542032	3.20	36	68
D4542932	3.25	36	68
D4542033	3.30	36	68
D4542933	3.35	36	68
D4542034	3.40	39	71
D4542934	3.45	39	71
D4542035	3.50	39	71
D4542935	3.55	39	71
D4542036	3.60	39	71
D4542936	3.65	39	71
D4542037	3.70	39	71
D4542937	3.75	39	71
D4542038	3.80	43	75
D4542938	3.85	43	75
D4542039	3.90	43	75
D4542939	3.95	43	75
D4542040	4.00	43	75
D4542940	4.05	43	87
D4542041	4.10	43	87
D4542941	4.15	43	87

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

YG HDD ILLS

D SERIES

HSSCo8, HPD TWIST DRILLS for STEELS

JOBBER

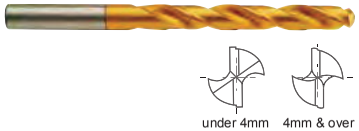
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE — KURZ
Forets HPD HSSCo Premium pour Aciers, série courte — COURTE
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI — CORTA

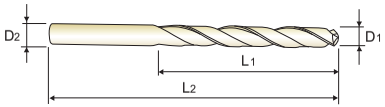
▶**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

▶**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

▶**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

▶**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.





$D_1=D_2$

HSS Co8 | 30° | h7 | h6 | h8 | 130° | TiN

up to 13mm over 13mm

p.A189

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542042	4.20	43	87
D4542942	4.25	43	87
D4542043	4.30	47	91
D4542943	4.35	47	91
D4542044	4.40	47	91
D4542944	4.45	47	91
D4542045	4.50	47	91
D4542945	4.55	47	91
D4542046	4.60	47	91
D4542946	4.65	47	91
D4542047	4.70	47	91
D4542947	4.75	47	91
D4542048	4.80	52	96
D4542948	4.85	52	96
D4542049	4.90	52	96
D4542949	4.95	52	96
D4542050	5.00	52	96
D4542950	5.05	52	96
D4542051	5.10	52	96
D4542951	5.15	52	96
D4542052	5.20	52	96
D4542952	5.25	52	96

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542053	5.30	52	96
D4542953	5.35	57	101
D4542054	5.40	57	101
D4542954	5.45	57	101
D4542055	5.50	57	101
D4542955	5.55	57	101
D4542056	5.60	57	101
D4542956	5.65	57	101
D4542057	5.70	57	101
D4542957	5.75	57	101
D4542058	5.80	57	101
D4542958	5.85	57	101
D4542059	5.90	57	101
D4542959	5.95	57	101
D4542060	6.00	57	101
D4542960	6.05	63	107
D4542061	6.10	63	107
D4542961	6.15	63	107
D4542062	6.20	63	107
D4542962	6.25	63	107
D4542063	6.30	63	107
D4542963	6.35	63	107

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.

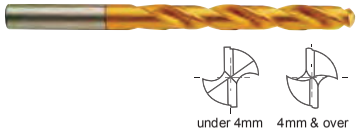
▶ NEXT PAGE

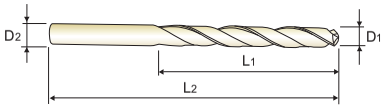
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

YG HDD ILLS
D SERIES
HSSCo8, HPD TWIST DRILLS for STEELS
JOBBER
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE — KURZ
Forets HPD HSSCo Premium pour Aciers, série courte — COURTE
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI — CORTA
▶Application : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.
▶Advantage : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.
▶Anwendung : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
▶Vorteile : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.





$D_1=D_2$
HSS Co8 | 30° | h7 | h6 | h8 | 130° | TiN
up to 13mm over 13mm
p.A189
Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115
Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542064	6.40	63	107
D4542964	6.45	63	107
D4542065	6.50	63	107
D4542965	6.55	63	107
D4542066	6.60	63	107
D4542966	6.65	63	107
D4542067	6.70	63	107
D4542967	6.75	69	113
D4542068	6.80	69	113
D4542968	6.85	69	113
D4542069	6.90	69	113
D4542969	6.95	69	113
D4542070	7.00	69	113
D4542970	7.05	69	113
D4542071	7.10	69	113
D4542971	7.15	69	113
D4542072	7.20	69	113
D4542972	7.25	69	113
D4542073	7.30	69	113
D4542973	7.35	69	113
D4542074	7.40	69	113
D4542974	7.45	69	113

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542075	7.50	69	113
D4542975	7.55	75	119
D4542076	7.60	75	119
D4542976	7.65	75	119
D4542077	7.70	75	119
D4542977	7.75	75	119
D4542078	7.80	75	119
D4542978	7.85	75	119
D4542079	7.90	75	119
D4542979	7.95	75	119
D4542080	8.00	75	119
D4542980	8.05	75	125
D4542081	8.10	75	125
D4542981	8.15	75	125
D4542082	8.20	75	125
D4542982	8.25	75	125
D4542083	8.30	75	125
D4542983	8.35	75	125
D4542084	8.40	75	125
D4542984	8.45	75	125
D4542085	8.50	75	125
D4542985	8.55	81	131

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

YG HDD ILLS

D SERIES

HSSCo8, HPD TWIST DRILLS for STEELS

JOBBER

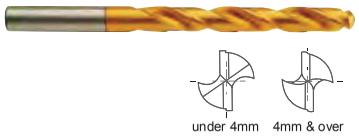
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE — KURZ
Forets HPD HSSCo Premium pour Aciers, série courte — COURTE
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI — CORTA

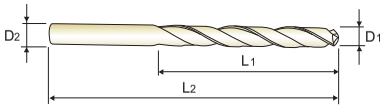
▶**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

▶**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

▶**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

▶**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.





$D_1=D_2$

HSS Co8 | 30° | h7 | h6 | h8 | 130° | TiN

up to 13mm | over 13mm

p.A189

Recommended ToolHolder — Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542086	8.60	81	131
D4542986	8.65	81	131
D4542087	8.70	81	131
D4542987	8.75	81	131
D4542088	8.80	81	131
D4542988	8.85	81	131
D4542089	8.90	81	131
D4542989	8.95	81	131
D4542090	9.00	81	131
D4542990	9.05	81	131
D4542091	9.10	81	131
D4542991	9.15	81	131
D4542092	9.20	81	131
D4542992	9.25	81	131
D4542093	9.30	81	131
D4542993	9.35	81	131
D4542094	9.40	81	131
D4542994	9.45	81	131
D4542095	9.50	81	131
D4542995	9.55	87	137
D4542096	9.60	87	137
D4542996	9.65	87	137

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542097	9.70	87	137
D4542997	9.75	87	137
D4542098	9.80	87	137
D4542998	9.85	87	137
D4542099	9.90	87	137
D4542999	9.95	87	137
D4542100	10.00	87	137
D4542800	10.05	87	144
D4542101	10.10	87	144
D4542801	10.15	87	144
D4542102	10.20	87	144
D4542802	10.25	87	144
D4542103	10.30	87	144
D4542803	10.35	87	144
D4542104	10.40	87	144
D4542804	10.45	87	144
D4542105	10.50	87	144
D4542805	10.55	87	144
D4542106	10.60	87	144
D4542806	10.65	94	151
D4542107	10.70	94	151
D4542807	10.75	94	151

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.

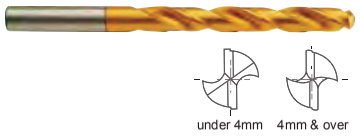
▶ NEXT PAGE

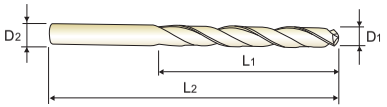
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

YG HDD ILLS
D SERIES
HSSCo8, HPD TWIST DRILLS for STEELS
JOBBER
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE — KURZ
Forets HPD HSSCo Premium pour Aciers, série courte — COURTE
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI — CORTA
▶Application : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.
▶Advantage : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.
▶Anwendung : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
▶Vorteile : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.





$D_1=D_2$
HSS Co8 | 30° | h7 | h6 | h8 | 130° | TiN
up to 13mm | over 13mm
p.A189
Recommended ToolHolder — Plain Shank — ER COLLET CHUCK — Page D73-115
Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542108	10.80	94	151
D4542808	10.85	94	151
D4542109	10.90	94	151
D4542809	10.95	94	151
D4542110	11.00	94	151
D4542810	11.05	94	151
D4542111	11.10	94	151
D4542811	11.15	94	151
D4542112	11.20	94	151
D4542812	11.25	94	151
D4542113	11.30	94	151
D4542813	11.35	94	151
D4542114	11.40	94	151
D4542814	11.45	94	151
D4542115	11.50	94	151
D4542815	11.55	94	151
D4542116	11.60	94	151
D4542816	11.65	94	151
D4542117	11.70	94	151
D4542817	11.75	94	151
D4542118	11.80	94	151
D4542818	11.85	101	158

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542119	11.90	101	158
D4542819	11.95	101	158
D4542120	12.00	101	158
D4542121	12.10	101	158
D4542122	12.20	101	158
D4542123	12.30	101	158
D4542124	12.40	101	158
D4542125	12.50	101	158
D4542126	12.60	101	158
D4542127	12.70	101	158
D4542128	12.80	101	158
D4542129	12.90	101	158
D4542130	13.00	101	158
D4542135	13.50	90	150
D4542140	14.00	90	150
D4542141	14.10	95	155
D4542145	14.50	95	155
D4542150	15.00	95	161
D4542155	15.50	100	166
D4542156	15.60	100	166
D4542160	16.00	100	166
D4542165	16.50	106	172

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

YG HDD ILLS

D SERIES

HSSCo8, HPD TWIST DRILLS for STEELS

JOBBER

PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE
Forets HPD HSSCo Premium pour Aciers, série courte
PUNTE ELICOIDALI HPD IN PREMIUM HSS Co, PER ACCIAI

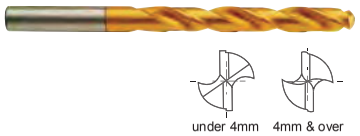
KURZ
COURTE
CORTA

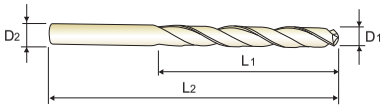
▶**Application** : Designed for high speed non-step 4D~5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.

▶**Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D~5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

▶**Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.

▶**Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.





$D_1=D_2$

HSS Co8 | 30° | h7 | h6 | h8 | 130° | TiN

up to 13mm over 13mm

p.A189

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542170	17.00	106	172
D4542175	17.50	112	178
D4542176	17.60	112	178
D4542180	18.00	112	178
D4542185	18.50	118	184
D4542190	19.00	118	194
D4542195	19.50	125	201
D4542196	19.60	125	201
D4542200	20.00	125	201
D4542205	20.50	128	204
D4542210	21.00	128	204
D4542211	21.10	128	204
D4542215	21.50	132	208
D4542220	22.00	132	208
D4542225	22.50	136	212

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
D4542230	23.00	136	212
D4542235	23.50	136	212
D4542240	24.00	140	220
D4542245	24.50	140	220
D4542250	25.00	140	220
D4542255	25.50	145	225
D4542260	26.00	145	225
D4542265	26.50	145	225
D4542270	27.00	150	230
D4542280	28.00	150	230
D4542290	29.00	155	235
D4542300	30.00	155	235
D4542310	31.00	160	240
D4542320	32.00	165	245

▶ TiCN(D7542), TiAlN(DQ542) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○			○					◎					

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

YG HDD ILLS

D SERIES

HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS

STUB

HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
Forets HPD-SUS HSS-E pour INOX, série extra-courte
PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

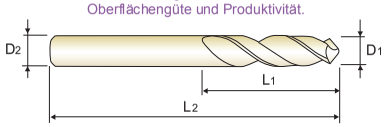
▶**Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

▶**Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling. Wide flute and stub length-increasing chip removal and reducing vibration and deflecton. High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

▶Anwendung : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.

▶**Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.

for STAINLESS STEELS
für rostfreier Stäle



$D_1=D_2$

HSS-E | 38° | h7 | h8 | 130° | 120° | TiN

up to 4mm over 4mm

p.A189

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ543020	2.00	12	44
DJ543021	2.10	12	44
DJ543022	2.20	13	45
DJ543023	2.30	13	45
DJ543024	2.40	14	46
DJ543025	2.50	14	46
DJ543026	2.60	14	46
DJ543027	2.70	16	48
DJ543028	2.80	16	48
DJ543029	2.90	16	48
DJ543030	3.00	16	48
DJ543031	3.10	18	50
DJ543032	3.20	18	50
DJ543033	3.30	18	50
DJ543034	3.40	20	52
DJ543035	3.50	20	52
DJ543036	3.60	20	52
DJ543037	3.70	20	52
DJ543038	3.80	22	54
DJ543039	3.90	22	54
DJ543040	4.00	22	54
DJ543041	4.10	22	66

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ543042	4.20	22	66
DJ543043	4.30	24	68
DJ543044	4.40	24	68
DJ543045	4.50	24	68
DJ543046	4.60	24	68
DJ543047	4.70	24	68
DJ543048	4.80	26	70
DJ543049	4.90	26	70
DJ543050	5.00	26	70
DJ543051	5.10	26	70
DJ543052	5.20	26	70
DJ543053	5.30	26	70
DJ543054	5.40	28	72
DJ543055	5.50	28	72
DJ543056	5.60	28	72
DJ543057	5.70	28	72
DJ543058	5.80	28	72
DJ543059	5.90	28	72
DJ543060	6.00	28	72
DJ543061	6.10	31	75
DJ543062	6.20	31	75
DJ543063	6.30	31	75

▶ TiCN(DW543), TiAlN(DY543) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○											◎	○	◎						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎				○															

YG HDD ILLS

D SERIES

HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS

STUB

HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
Forets HPD-SUS HSS-E pour INOX, série extra-courte
PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

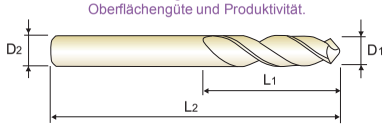
▶**Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

▶**Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Wide flute and stub length-increasing chip removal and reducing vibration and deflecton.
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life
High quality & good surface finish, high productivity.

▶**Anwendung** : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.

▶**Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.

four facet



for STAINLESS STEELS
für rostfreier Stäle

$D_1 = D_2$

HSS-E | 38° | h7 | h8 | 130° | 120° | TiN

up to 4mm | over 4mm

p.A189

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ543064	6.40	31	75
DJ543065	6.50	31	75
DJ543066	6.60	31	75
DJ543067	6.70	31	75
DJ543068	6.80	34	78
DJ543069	6.90	34	78
DJ543070	7.00	34	78
DJ543071	7.10	34	78
DJ543072	7.20	34	78
DJ543073	7.30	34	78
DJ543074	7.40	34	78
DJ543075	7.50	34	78
DJ543076	7.60	37	81
DJ543077	7.70	37	81
DJ543078	7.80	37	81
DJ543079	7.90	37	81
DJ543080	8.00	37	81
DJ543081	8.10	37	87
DJ543082	8.20	37	87
DJ543083	8.30	37	87
DJ543084	8.40	37	87
DJ543085	8.50	37	87

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ543086	8.60	40	90
DJ543087	8.70	40	90
DJ543088	8.80	40	90
DJ543089	8.90	40	90
DJ543090	9.00	40	90
DJ543091	9.10	40	90
DJ543092	9.20	40	90
DJ543093	9.30	40	90
DJ543094	9.40	40	90
DJ543095	9.50	40	90
DJ543096	9.60	43	93
DJ543097	9.70	43	93
DJ543098	9.80	43	93
DJ543099	9.90	43	93
DJ543100	10.00	43	93
DJ543101	10.10	43	100
DJ543102	10.20	43	100
DJ543103	10.30	43	100
DJ543104	10.40	43	100
DJ543105	10.50	43	100
DJ543106	10.60	43	100
DJ543107	10.70	47	104

▶ TiCN(DW543), TiAlN(DY543) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○											◎	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															

YG HDD ILLS
D SERIES
HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS
STUB
HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE
Forets HPD-SUS HSS-E pour INOX, série extra-courte
PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA
▶Application : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.
▶Advantage : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Wide flute and stub length-increasing chip removal and reducing vibration and deflecton.
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life
High quality & good surface finish, high productivity.
▶Anwendung : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.
▶Vorteile : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.
for STAINLESS STEELS
für rostfreier Stäle
four facet
D1=D2
HSS-E | 38° | h7 | h8 | 130° | 120° | TiN
up to 4mm | over 4mm
p.A189
Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115
Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ543108	10.80	47	104
DJ543109	10.90	47	104
DJ543110	11.00	47	104
DJ543111	11.10	47	104
DJ543112	11.20	47	104
DJ543113	11.30	47	104
DJ543114	11.40	47	104
DJ543115	11.50	47	104
DJ543116	11.60	47	104
DJ543117	11.70	47	104
DJ543118	11.80	47	104
DJ543119	11.90	51	108

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ543120	12.00	51	108
DJ543121	12.10	51	108
DJ543122	12.20	51	108
DJ543123	12.30	51	108
DJ543124	12.40	51	108
DJ543125	12.50	51	108
DJ543126	12.60	51	108
DJ543127	12.70	51	108
DJ543128	12.80	51	108
DJ543129	12.90	51	108
DJ543130	13.00	51	108

▶ TiCN(DW543), TiAlN(DY543) are available on your request.
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○											◎	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															

YG HDD ILLS

D SERIES

HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS

JOBBER

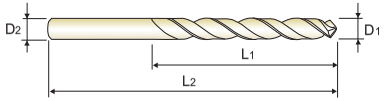
HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE — KURZ
Forets HPD-SUS HSS-E pour INOX, série courte — COURTE
PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX — CORTA

▶**Application** : Designed for 4D~5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

▶**Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Reinforced web and jobbers length-increasing rigidity and suitable for 4D~5D drilling.
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life
High quality & good surface finish, high productivity.

▶**Anwendung** : Für 4D~5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.

▶**Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



for STAINLESS STEELS
für rostfreier Stäle

$D_1 = D_2$

HSS-E | 38° | h7 | h8 | 130° (up to 4mm) | 120° (over 4mm) | TiN | p.A189

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ544020	2.00	24	56
DJ544021	2.10	24	56
DJ544022	2.20	27	59
DJ544023	2.30	27	59
DJ544024	2.40	30	62
DJ544025	2.50	30	62
DJ544026	2.60	30	62
DJ544027	2.70	33	65
DJ544028	2.80	33	65
DJ544029	2.90	33	65
DJ544030	3.00	33	65
DJ544031	3.10	36	68
DJ544032	3.20	36	68
DJ544033	3.30	36	68
DJ544034	3.40	39	71
DJ544035	3.50	39	71
DJ544036	3.60	39	71
DJ544037	3.70	39	71
DJ544038	3.80	43	75
DJ544039	3.90	43	75
DJ544040	4.00	43	75
DJ544041	4.10	43	87

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ544042	4.20	43	87
DJ544043	4.30	47	91
DJ544044	4.40	47	91
DJ544045	4.50	47	91
DJ544046	4.60	47	91
DJ544047	4.70	47	91
DJ544048	4.80	52	96
DJ544049	4.90	52	96
DJ544050	5.00	52	96
DJ544051	5.10	52	96
DJ544052	5.20	52	96
DJ544053	5.30	52	96
DJ544054	5.40	57	101
DJ544055	5.50	57	101
DJ544056	5.60	57	101
DJ544057	5.70	57	101
DJ544058	5.80	57	101
DJ544059	5.90	57	101
DJ544060	6.00	57	101
DJ544061	6.10	63	107
DJ544062	6.20	63	107
DJ544063	6.30	63	107

▶ TiCN(DW544), TiAlN(DY544) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○											◎	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															

YG HDD ILLS
D SERIES
HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS
JOBBER
HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE — KURZ
Forets HPD-SUS HSS-E pour INOX, série courte — COURTE
PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX — CORTA
▶Application : Designed for 4D~5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.
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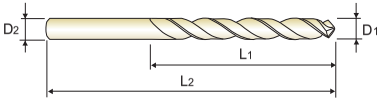
High quality & good surface finish, high productivity.
▶Anwendung : Für 4D~5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.
▶Vorteile : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



for STAINLESS STEELS
für rostfreier Stäle

$D_1 = D_2$
HSS-E | 38° | h7 | h8 | 130° (up to 4mm) | 120° (over 4mm) | TiN | p.A189
Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115
Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ544064	6.40	63	107
DJ544065	6.50	63	107
DJ544066	6.60	63	107
DJ544067	6.70	63	107
DJ544068	6.80	69	113
DJ544069	6.90	69	113
DJ544070	7.00	69	113
DJ544071	7.10	69	113
DJ544072	7.20	69	113
DJ544073	7.30	69	113
DJ544074	7.40	69	113
DJ544075	7.50	69	113
DJ544076	7.60	75	119
DJ544077	7.70	75	119
DJ544078	7.80	75	119
DJ544079	7.90	75	119
DJ544080	8.00	75	119
DJ544081	8.10	75	125
DJ544082	8.20	75	125
DJ544083	8.30	75	125
DJ544084	8.40	75	125
DJ544085	8.50	75	125

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D_1	L_1	L_2
DJ544086	8.60	81	131
DJ544087	8.70	81	131
DJ544088	8.80	81	131
DJ544089	8.90	81	131
DJ544090	9.00	81	131
DJ544091	9.10	81	131
DJ544092	9.20	81	131
DJ544093	9.30	81	131
DJ544094	9.40	81	131
DJ544095	9.50	81	131
DJ544096	9.60	87	137
DJ544097	9.70	87	137
DJ544098	9.80	87	137
DJ544099	9.90	87	137
DJ544100	10.00	87	137
DJ544101	10.10	87	144
DJ544102	10.20	87	144
DJ544103	10.30	87	144
DJ544104	10.40	87	144
DJ544105	10.50	87	144
DJ544106	10.60	87	144
DJ544107	10.70	94	151

▶ TiCN(DW544), TiAlN(DY544) are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○											◎	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															

YG HDDILLS

D SERIES

HSS-E, HPD-SUS TWIST DRILLS for STAINLESS STEELS

JOBBER

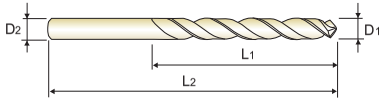
HSS-E, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE — KURZ
Forets HPD-SUS HSS-E pour INOX, série courte — COURTE
PUNTE ELICOIDALI HPD-SUS IN HSS-E, PER ACCIAI INOX — CORTA

▶**Application** : Designed for 4D~5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.

▶**Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
Reinforced web and jobbers length-increasing rigidity and suitable for 4D~5D drilling.
High vanadium HSS-E material with superior TiN coating - higher speed and feed, longer tool life
High quality & good surface finish, high productivity.

▶**Anwendung** : Für 4D~5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.

▶**Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-E-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



for STAINLESS STEELS
für rostfreier Stäle

up to 13mm over 13mm

HSS-E | 38° | h7 | h8 | 130° | 120° | TiN

up to 4mm over 4mm

p.A189

$D_1 = D_2$

Recommended ToolHolder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
DJ544108	10.80	94	151
DJ544109	10.90	94	151
DJ544110	11.00	94	151
DJ544111	11.10	94	151
DJ544112	11.20	94	151
DJ544113	11.30	94	151
DJ544114	11.40	94	151
DJ544115	11.50	94	151
DJ544116	11.60	94	151
DJ544117	11.70	94	151
DJ544118	11.80	94	151
DJ544119	11.90	101	158
DJ544120	12.00	101	158
DJ544121	12.10	101	158
DJ544122	12.20	101	158
DJ544123	12.30	101	158
DJ544124	12.40	101	158
DJ544125	12.50	101	158
DJ544126	12.60	101	158
DJ544127	12.70	101	158
DJ544128	12.80	101	158
DJ544129	12.90	101	158

EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2
DJ544130	13.00	101	158
DJ544135	13.50	106	166
DJ544140	14.00	106	166
DJ544141	14.10	109	169
DJ544145	14.50	109	169
DJ544150	15.00	109	169
DJ544155	15.50	112	172
DJ544156	15.60	112	172
DJ544160	16.00	112	172
DJ544165	16.50	115	181
DJ544170	17.00	115	181
DJ544175	17.50	118	184
DJ544176	17.60	118	184
DJ544180	18.00	118	184
DJ544185	18.50	122	188
DJ544190	19.00	122	188
DJ544195	19.50	125	191
DJ544196	19.60	125	191
DJ544200	20.00	125	191

▶ TiCN(DW544), TiAlN(DY544) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○											◎	○	◎						

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎				○															

D D SERIES HPD DRILLS for STEELS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	35	RPM	5570	3710	2790	2230	1860	1390	1110	930
				FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32
	2		25	RPM	3980	2650	1990	1590	1330	990	800	660
				FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32
	3		25	RPM	3980	2650	1990	1590	1330	990	800	660
				FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32
	6	Low alloy steel	30	RPM	4770	3180	2390	1910	1590	1190	950	800
				FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32
	7		25	RPM	3980	2650	1990	1590	1330	990	800	660
				FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32
	10	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	950	800	600	480	400
				FEED	0.04-0.10	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19	0.18-0.24	0.20-0.30	0.22-0.32
K	15	Grey cast iron	40	RPM	6370	4240	3180	2550	2120	1590	1270	1060
				FEED	0.06-0.12	0.09-0.15	0.12-0.18	0.15-0.21	0.16-0.22	0.22-0.28	0.26-0.36	0.28-0.38

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0
P	1	Non-alloy steel	35	RPM	800	700	620	560	510	460	430	400	370	350
				FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70
	2		25	RPM	570	500	440	400	360	330	310	280	270	250
				FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70
	3		25	RPM	570	500	440	400	360	330	310	280	270	250
				FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70
	6	Low alloy steel	30	RPM	680	600	530	480	430	400	370	340	320	300
				FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70
	7		25	RPM	570	500	440	400	360	330	310	280	270	250
				FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70
	10	High alloyed steel, and tool steel	15	RPM	340	300	270	240	220	200	180	170	160	150
				FEED	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45	0.40-0.50	0.44-0.54	0.48-0.58	0.52-0.62	0.56-0.66	0.60-0.70
K	15	Grey cast iron	40	RPM	910	800	710	640	580	530	490	450	420	400
				FEED	0.32-0.42	0.35-0.45	0.42-0.52	0.44-0.54	0.50-0.60	0.54-0.64	0.59-0.69	0.64-0.74	0.69-0.79	0.74-0.84

Please decrease the feed rate (15~20%) in D4542 SERIES HPD drills.
Den Vorschub in der D4542 Gruppe HPD Bohrer bitte verringern.

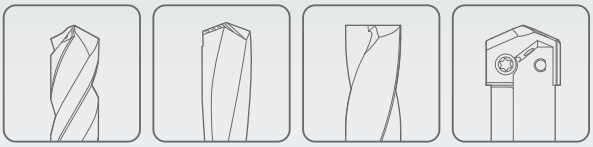
D D SERIES HPD-SUS DRILLS for STAINLESS STEELS

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	5.0	6.0
P	1	Non-alloy steel	35	RPM	5570	3710	2790	2230	1860
				FEED	0.04-0.1	0.07-0.13	0.09-0.15	0.12-0.18	0.13-0.19
M	12	Stainless steel	20	RPM	3180	2120	1590	1270	1060
				FEED	0.03-0.07	0.05-0.09	0.06-0.12	0.09-0.15	0.12-0.18
	13		18	RPM	2860	1910	1430	1150	950
				FEED	0.03-0.07	0.05-0.09	0.06-0.12	0.09-0.15	0.12-0.18
	14		15	RPM	2390	1590	1190	950	800
				FEED	0.02-0.05	0.03-0.07	0.04-0.10	0.06-0.12	0.07-0.13
N	21	Aluminum-wrought alloy	90	RPM	14320	9550	7160	5730	4770
				FEED	0.05-0.12	0.10-0.18	0.12-0.22	0.15-0.25	0.17-0.27
	22		90	RPM	14320	9550	7160	5730	4770
				FEED	0.05-0.12	0.10-0.18	0.12-0.22	0.15-0.25	0.17-0.27
	26	Copper and Copper Alloys (Bronze / Brass)	35	RPM	5570	3710	2790	2230	1860
				FEED	0.03-0.06	0.05-0.09	0.05-0.11	0.08-0.14	0.11-0.17

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	1	Non-alloy steel	35	RPM	1390	1110	930	800	700	620	560
				FEED	0.18-0.24	0.20-0.30	0.22-0.32	0.25-0.35	0.28-0.38	0.34-0.44	0.35-0.45
M	12	Stainless steel	20	RPM	800	640	530	450	400	350	320
				FEED	0.18-0.24	0.20-0.30	0.26-0.36	0.34-0.44	0.38-0.48	0.40-0.50	0.43-0.53
	13		18	RPM	720	570	480	410	360	320	290
				FEED	0.18-0.24	0.20-0.30	0.26-0.36	0.34-0.44	0.38-0.48	0.40-0.50	0.43-0.53
	14		15	RPM	600	480	400	340	300	270	240
				FEED	0.10-0.160	0.12-0.22	0.14-0.24	0.24-0.34	0.28-0.38	0.30-0.40	0.33-0.43
N	21	Aluminum-wrought alloy	90	RPM	3580	2860	2390	2050	1790	1590	1430
				FEED	0.25-0.35	0.35-0.45	0.40-0.55	0.45-0.60	0.55-0.70	0.60-0.75	0.65-0.80
	22		90	RPM	3580	2860	2390	2050	1790	1590	1430
				FEED	0.25-0.35	0.35-0.45	0.40-0.55	0.45-0.60	0.55-0.70	0.60-0.75	0.65-0.80
	26	Copper and Copper Alloys (Bronze / Brass)	35	RPM	1390	1110	930	800	700	620	560
				FEED	0.14-0.20	0.16-0.26	0.18-0.28	0.22-0.32	0.26-0.36	0.28-0.38	0.30-0.40

Please decrease the feed rate (15~20%) in DJ544 SERIES HPD-SUS drills.
Den Vorschub in der DJ544 Gruppe HPD-SUS Bohrer bitte verringern

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

GOLD P DRILLS

GOLD-P BOHRER

- Same Performance as Full TiN-coated Drills

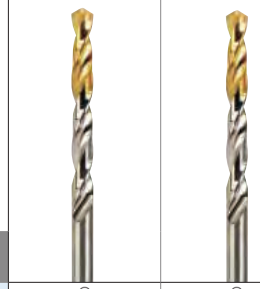
- Gleiche Leistung, wie bei voll TiN-beschichteten Bohrern

SELE TION G IDE

YG HOLEMAKING TOOLS

HSS & HSS-E
GOLD P DRILLS

Same Performance as Full TiN-coated Drills



SERIES	D1GP125	D1GP165
STANDARD	DIN338	DIN338
LENGTH	JOBBER	JOBBER
SIZE MIN	D1.0	D1.6
SIZE MAX	D13.0	D13.0
PAGE	A194	A197
SURFACE TREATMENT	TiN	

SERIES	DLGP195	DLGP506
STANDARD	DIN338	DIN338
LENGTH	JOBBER	JOBBER
SIZE MIN	D1.0	D2.0
SIZE MAX	D13.0	D13.0
PAGE	A200	A203
SURFACE TREATMENT	TiN	

Please visit globalyg1.com/mat for material search

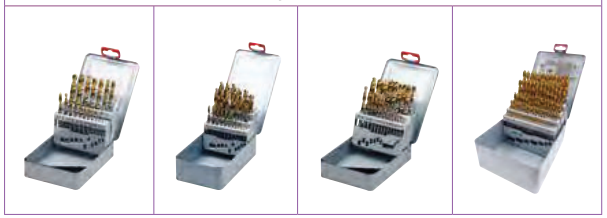
◎ : Excellent ○ : Good

Recommended cutting conditions : p.A207

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D1GP125	D1GP165	DLGP195	DLGP506	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎	1
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	2
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	3
	4		About 0.75% C	Annealed	270	28	○	○	○	○	4
	5		About 0.75% C	Quenched & Tempered	300	32					5
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	6
	7			Quenched & Tempered	275	29	○	○	○	○	7
	8			Quenched & Tempered	300	32	○	○	○	○	8
	9			Quenched & Tempered	350	38					9
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○	10
	11			Quenched & Tempered	325	35					11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎		12
	13		Martensitic	Quenched & Tempered	240	23	○	○	○		13
	14		Austenitic		180	10	○	○	○		14
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	○	15
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	16
	17	Nodular cast iron	Ferritic		160	3	○	○	○	○	17
	18		Pearlitic		250	25				○	18
	19	Malleable cast iron	Ferritic		130		○	○	○	○	19
	20		Pearlitic		230	21				○	20
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○		21
	22		Curable	Hardened	100		○	○	○		22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○		23
	24		≤ 12% Si, Curable	Hardened	90						24
	25		> 12% Si, Not Curable		130						25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110						26
	27		CuZn, CuSnZn (Brass)		90						27
	28		CuSn, lead-free copper and electrolytic copper		100						28
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○		29
	30		Rubber, Wood, etc.								30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					31
	32			Cured	280	30					32
	33		Ni or Co Based	Annealed	250	25					33
	34			Cured	350	38					34
	35			Cast	320	34					35
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○		36
	37		Alpha + Beta Alloys	Hardened	1050 Rm						37
H	38	Hardened steel		Hardened	550	55					38
	39			Hardened	630	60					39
	40	Chilled Cast Iron		Cast	400	42					40
	41	Hardened Cast Iron		Hardened	550	55					41

GOLD P DRILL SETS

SET1	SET2	SET3	SET4
19pcs	25pcs	24pcs	91pcs
1.0mm ~ 10.0mm ×0.5mm step	1.0mm ~ 13.0mm ×0.5mm step	1.0mm ~ 10.5mm ×0.5mm step +3.3 +4.2 +6.8 +10.2	1.0mm ~ 10.0mm ×0.1mm step
p. A206			



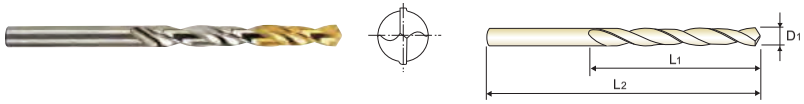
HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER
KURZ
COURTE
CORTA

HSS SPIRALBOHRER, GOLD-P BESCHICHTET
Forets GOLD-P HSS queue cylindrique revêtus, série courte
PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

- ▶Flute Geometry : Right hand helix
- ▶Point Angle : 118˚, Normal point
- ▶Surface treatment : Bright body, TiN coating on working area
- ▶Application : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- ▶Nutenform : Rechtsspirale
- ▶Spitzenwinkel : 118° Normalanschliff
- ▶Oberfläche : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶Anwendung : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 | HSS | N ≈30° | h8 | 118° | TiN p.A207

Recommended Toolholder: ER COLLET CHUCK — Plain Shank: D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP125010	1.0	12	34
D1GP125011	1.1	14	36
D1GP125012	1.2	16	38
D1GP125013	1.3	16	38
D1GP125014	1.4	18	40
D1GP125015	1.5	18	40
D1GP125016	1.6	20	43
D1GP125017	1.7	20	43
D1GP125018	1.8	22	46
D1GP125019	1.9	22	46
D1GP125020	2.0	24	49
D1GP125021	2.1	24	49
D1GP125022	2.2	27	53
D1GP125023	2.3	27	53
D1GP125024	2.4	30	57
D1GP125025	2.5	30	57
D1GP125026	2.6	30	57
D1GP125027	2.7	33	61
D1GP125028	2.8	33	61
D1GP125029	2.9	33	61
D1GP125030	3.0	33	61
D1GP125031	3.1	36	65
D1GP125032	3.2	36	65
D1GP125033	3.3	36	65
D1GP125034	3.4	39	70
D1GP125035	3.5	39	70

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP125036	3.6	39	70
D1GP125037	3.7	39	70
D1GP125038	3.8	43	75
D1GP125039	3.9	43	75
D1GP125040	4.0	43	75
D1GP125041	4.1	43	75
D1GP125042	4.2	43	75
D1GP125043	4.3	47	80
D1GP125044	4.4	47	80
D1GP125045	4.5	47	80
D1GP125046	4.6	47	80
D1GP125047	4.7	47	80
D1GP125048	4.8	52	86
D1GP125049	4.9	52	86
D1GP125050	5.0	52	86
D1GP125051	5.1	52	86
D1GP125052	5.2	52	86
D1GP125053	5.3	52	86
D1GP125054	5.4	57	93
D1GP125055	5.5	57	93
D1GP125056	5.6	57	93
D1GP125057	5.7	57	93
D1GP125058	5.8	57	93
D1GP125059	5.9	57	93
D1GP125060	6.0	57	93
D1GP125061	6.1	63	101

▶ NEXT PAGE

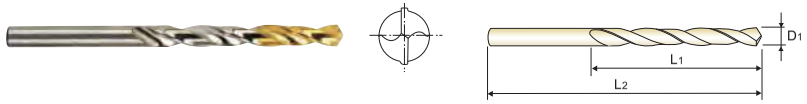
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

GOLD D ILLS
D GP SERIES

HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED
JOBBER
KURZ
COURTE
CORTA
HSS SPIRALBOHRER, GOLD-P BESCHICHTET
Forets GOLD-P HSS queue cylindrique revêtus, série courte
PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P
▶Flute Geometry : Right hand helix
▶Point Angle : 118˚, Normal point
▶Surface treatment : Bright body, TiN coating on working area
▶Application : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron
▶Nutenform : Rechtsspirale
▶Spitzenwinkel : 118° Normalanschliff
▶Oberfläche : Blank mit TiN-Beschichtung im Arbeitsbereich
▶Anwendung : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 | HSS | N ≈30° | h8 | 118° | TiN p.A207
Recommended Toolholder: ER COLLET CHUCK — Plain Shank: D73-115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP125062	6.2	63	101
D1GP125063	6.3	63	101
D1GP125064	6.4	63	101
D1GP125065	6.5	63	101
D1GP125066	6.6	63	101
D1GP125067	6.7	63	101
D1GP125068	6.8	69	109
D1GP125069	6.9	69	109
D1GP125070	7.0	69	109
D1GP125071	7.1	69	109
D1GP125072	7.2	69	109
D1GP125073	7.3	69	109
D1GP125074	7.4	69	109
D1GP125075	7.5	69	109
D1GP125076	7.6	75	117
D1GP125077	7.7	75	117
D1GP125078	7.8	75	117
D1GP125079	7.9	75	117
D1GP125080	8.0	75	117
D1GP125081	8.1	75	117
D1GP125082	8.2	75	117
D1GP125083	8.3	75	117
D1GP125084	8.4	75	117
D1GP125085	8.5	75	117
D1GP125086	8.6	81	125
D1GP125087	8.7	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP125088	8.8	81	125
D1GP125089	8.9	81	125
D1GP125090	9.0	81	125
D1GP125091	9.1	81	125
D1GP125092	9.2	81	125
D1GP125093	9.3	81	125
D1GP125094	9.4	81	125
D1GP125095	9.5	81	125
D1GP125096	9.6	87	133
D1GP125097	9.7	87	133
D1GP125098	9.8	87	133
D1GP125099	9.9	87	133
D1GP125100	10.0	87	133
D1GP125101	10.1	87	133
D1GP125102	10.2	87	133
D1GP125103	10.3	87	133
D1GP125104	10.4	87	133
D1GP125105	10.5	87	133
D1GP125106	10.6	87	133
D1GP125107	10.7	94	142
D1GP125108	10.8	94	142
D1GP125109	10.9	94	142
D1GP125110	11.0	94	142
D1GP125111	11.1	94	142
D1GP125112	11.2	94	142
D1GP125113	11.3	94	142

▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

YG GOLD DRILLS

D GP SERIES

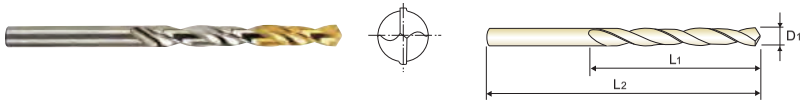
HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER
KURZ
COURTE
CORTA

HSS SPIRALBOHRER, GOLD-P BESCHICHTET
Forets GOLD-P HSS queue cylindrique revêtus, série courte
PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

- ▶**Flute Geometry** : Right hand helix
- ▶**Point Angle** : 118˚, Normal point
- ▶**Surface treatment** : Bright body, TiN coating on working area
- ▶**Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- ▶**Nutenform** : Rechtsspirale
- ▶**Spitzenwinkel** : 118˚ Normalanschliff
- ▶**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶**Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 | HSS | N ≈30° | h8 | 118° | TiN p.A207

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP125114	11.4	94	142
D1GP125115	11.5	94	142
D1GP125116	11.6	94	142
D1GP125117	11.7	94	142
D1GP125118	11.8	94	142
D1GP125119	11.9	101	151
D1GP125120	12.0	101	151
D1GP125121	12.1	101	151
D1GP125122	12.2	101	151
D1GP125123	12.3	101	151

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP125124	12.4	101	151
D1GP125125	12.5	101	151
D1GP125126	12.6	101	151
D1GP125127	12.7	101	151
D1GP125128	12.8	101	151
D1GP125129	12.9	101	151
D1GP125130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

YG GOLD DRILLS

D GP 6 SERIES

HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER
KURZ
COURTE
CORTA

HSS SPIRALBOHRER, GOLD-P BESCHICHTET
Forets GOLD-P HSS queue cylindrique revêtus, série courte
PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P

- ▶**Flute Geometry** : Right hand helix
- ▶**Point Angle** : 118˚, Split point
- ▶**Surface treatment** : Bright body, TiN coating on working area
- ▶**Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- ▶**Nutenform** : Rechtsspirale
- ▶**Spitzenwinkel** : 118˚ Kreuzanschliff
- ▶**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶**Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss

DIN 338 | HSS | N ≈30° | h8 | 118° | TiN p.A207

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP165016	1.6	20	43
D1GP165017	1.7	20	43
D1GP165018	1.8	22	46
D1GP165019	1.9	22	46
D1GP165020	2.0	24	49
D1GP165021	2.1	24	49
D1GP165022	2.2	27	53
D1GP165023	2.3	27	53
D1GP165024	2.4	30	57
D1GP165025	2.5	30	57
D1GP165026	2.6	30	57
D1GP165027	2.7	33	61
D1GP165028	2.8	33	61
D1GP165029	2.9	33	61
D1GP165030	3.0	33	61
D1GP165031	3.1	36	65
D1GP165032	3.2	36	65
D1GP165033	3.3	36	65
D1GP165034	3.4	39	70
D1GP165035	3.5	39	70
D1GP165036	3.6	39	70
D1GP165037	3.7	39	70
D1GP165038	3.8	43	75
D1GP165039	3.9	43	75
D1GP165040	4.0	43	75
D1GP165041	4.1	43	75

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP165042	4.2	43	75
D1GP165043	4.3	47	80
D1GP165044	4.4	47	80
D1GP165045	4.5	47	80
D1GP165046	4.6	47	80
D1GP165047	4.7	47	80
D1GP165048	4.8	52	86
D1GP165049	4.9	52	86
D1GP165050	5.0	52	86
D1GP165051	5.1	52	86
D1GP165052	5.2	52	86
D1GP165053	5.3	52	86
D1GP165054	5.4	57	93
D1GP165055	5.5	57	93
D1GP165056	5.6	57	93
D1GP165057	5.7	57	93
D1GP165058	5.8	57	93
D1GP165059	5.9	57	93
D1GP165060	6.0	57	93
D1GP165061	6.1	63	101
D1GP165062	6.2	63	101
D1GP165063	6.3	63	101
D1GP165064	6.4	63	101
D1GP165065	6.5	63	101
D1GP165066	6.6	63	101
D1GP165067	6.7	63	101

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

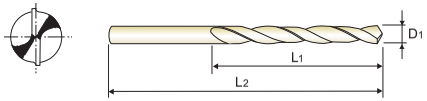
HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER

HSS SPIRALBOHRER, GOLD-P BESCHICHTET — KURZ
Forets GOLD-P HSS queue cylindrique revêtus, série courte — COURTE
PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P — CORTA

- ▶**Flute Geometry** : Right hand helix
- ▶**Point Angle** : 118˚, Split point
- ▶**Surface treatment** : Bright body, TiN coating on working area
- ▶**Application** : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron

- ▶**Nutenform** : Rechtsspirale
- ▶**Spitzenwinkel** : 118° Kreuzanschliff
- ▶**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶**Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 | HSS | N ≈30° | h8 | 118° | TiN p.A207

Recommended Toolholder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP165068	6.8	69	109
D1GP165069	6.9	69	109
D1GP165070	7.0	69	109
D1GP165071	7.1	69	109
D1GP165072	7.2	69	109
D1GP165073	7.3	69	109
D1GP165074	7.4	69	109
D1GP165075	7.5	69	109
D1GP165076	7.6	75	117
D1GP165077	7.7	75	117
D1GP165078	7.8	75	117
D1GP165079	7.9	75	117
D1GP165080	8.0	75	117
D1GP165081	8.1	75	117
D1GP165082	8.2	75	117
D1GP165083	8.3	75	117
D1GP165084	8.4	75	117
D1GP165085	8.5	75	117
D1GP165086	8.6	81	125
D1GP165087	8.7	81	125
D1GP165088	8.8	81	125
D1GP165089	8.9	81	125
D1GP165090	9.0	81	125
D1GP165091	9.1	81	125
D1GP165092	9.2	81	125
D1GP165093	9.3	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP165094	9.4	81	125
D1GP165095	9.5	81	125
D1GP165096	9.6	87	133
D1GP165097	9.7	87	133
D1GP165098	9.8	87	133
D1GP165099	9.9	87	133
D1GP165100	10.0	87	133
D1GP165101	10.1	87	133
D1GP165102	10.2	87	133
D1GP165103	10.3	87	133
D1GP165104	10.4	87	133
D1GP165105	10.5	87	133
D1GP165106	10.6	87	133
D1GP165107	10.7	94	142
D1GP165108	10.8	94	142
D1GP165109	10.9	94	142
D1GP165110	11.0	94	142
D1GP165111	11.1	94	142
D1GP165112	11.2	94	142
D1GP165113	11.3	94	142
D1GP165114	11.4	94	142
D1GP165115	11.5	94	142
D1GP165116	11.6	94	142
D1GP165117	11.7	94	142
D1GP165118	11.8	94	142
D1GP165119	11.9	101	151

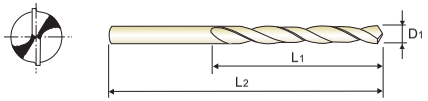
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

GOLD DRILLS
D GP 6 SERIES
HSS, STRAIGHT SHANK DRILLS, GOLD-P COATED
JOBBER
HSS SPIRALBOHRER, GOLD-P BESCHICHTET — KURZ
Forets GOLD-P HSS queue cylindrique revêtus, série courte — COURTE
PUNTE IN HSS, GAMBO CILINDRICO, GOLD-P — CORTA
▶Flute Geometry : Right hand helix
▶Point Angle : 118˚, Split point
▶Surface treatment : Bright body, TiN coating on working area
▶Application : Drilling steels, Cast steels alloyed and Non-alloyed, Grey cast iron, Graphite, Malleable cast iron
▶Nutenform : Rechtsspirale
▶Spitzenwinkel : 118° Kreuzanschliff
▶Oberfläche : Blank mit TiN-Beschichtung im Arbeitsbereich
▶Anwendung : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338 | HSS | N ≈30° | h8 | 118° | TiN p.A207
Recommended Toolholder | Plain Shank | Page
ER COLLET CHUCK | D73-115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP165120	12.0	101	151
D1GP165121	12.1	101	151
D1GP165122	12.2	101	151
D1GP165123	12.3	101	151
D1GP165124	12.4	101	151
D1GP165125	12.5	101	151

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1GP165126	12.6	101	151
D1GP165127	12.7	101	151
D1GP165128	12.8	101	151
D1GP165129	12.9	101	151
D1GP165130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

GOLD D ILLS

DLGP SERIES

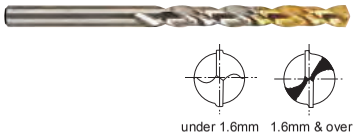
HSS-E, STRAIGHT SHANK DRILLS, GOLD-P COATED

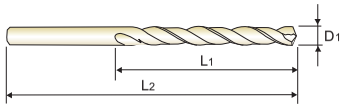
JOBBER

HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET — KURZ
Forets GOLD-P HSS-E queue cylindrique revêtus, série courte — COURTE
PUNTE IN HSS-E, GAMBO CILINDRICO, GOLD-P — CORTA

▶**Flute Geometry** : Right hand helix
▶**Point Angle** : 135˚, under 1.6mm : Normal point
1.6mm & over : Split point
▶**Surface treatment** : Bright body, TiN coating on working area
▶**Application** : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.

▶**Nutenform** : Rechtsspirale
▶**Spitzenwinkel** : 135˚, unter 1.6mm : Normalanschliff
1.6mm & über : Kreuzanschliff
▶**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
▶**Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen





DIN 338 | HSS-E | 33° | h8 | 135° | TiN p.A207

Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP195010	1.0	12	34
DLGP195011	1.1	14	36
DLGP195012	1.2	16	38
DLGP195013	1.3	16	38
DLGP195014	1.4	18	40
DLGP195015	1.5	18	40
DLGP195016	1.6	20	43
DLGP195017	1.7	20	43
DLGP195018	1.8	22	46
DLGP195019	1.9	22	46
DLGP195020	2.0	24	49
DLGP195021	2.1	24	49
DLGP195022	2.2	27	53
DLGP195023	2.3	27	53
DLGP195024	2.4	30	57
DLGP195025	2.5	30	57
DLGP195026	2.6	30	57
DLGP195027	2.7	33	61
DLGP195028	2.8	33	61
DLGP195029	2.9	33	61
DLGP195030	3.0	33	61
DLGP195031	3.1	36	65
DLGP195032	3.2	36	65
DLGP195033	3.3	36	65
DLGP195034	3.4	39	70
DLGP195035	3.5	39	70

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP195036	3.6	39	70
DLGP195037	3.7	39	70
DLGP195038	3.8	43	75
DLGP195039	3.9	43	75
DLGP195040	4.0	43	75
DLGP195041	4.1	43	75
DLGP195042	4.2	43	75
DLGP195043	4.3	47	80
DLGP195044	4.4	47	80
DLGP195045	4.5	47	80
DLGP195046	4.6	47	80
DLGP195047	4.7	47	80
DLGP195048	4.8	52	86
DLGP195049	4.9	52	86
DLGP195050	5.0	52	86
DLGP195051	5.1	52	86
DLGP195052	5.2	52	86
DLGP195053	5.3	52	86
DLGP195054	5.4	57	93
DLGP195055	5.5	57	93
DLGP195056	5.6	57	93
DLGP195057	5.7	57	93
DLGP195058	5.8	57	93
DLGP195059	5.9	57	93
DLGP195060	6.0	57	93
DLGP195061	6.1	63	101

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

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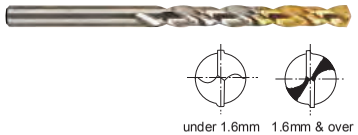
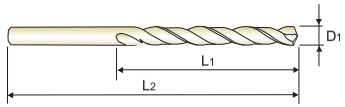
HSS-E, STRAIGHT SHANK DRILLS, GOLD-P COATED
JOBBER
HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET — KURZ
Forets GOLD-P HSS-E queue cylindrique revêtus, série courte — COURTE
PUNTE IN HSS-E, GAMBO CILINDRICO, GOLD-P — CORTA
▶Flute Geometry : Right hand helix
▶Point Angle : 135˚, under 1.6mm : Normal point
1.6mm & over : Split point
▶Surface treatment : Bright body, TiN coating on working area
▶Application : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.
▶Nutenform : Rechtsspirale
▶Spitzenwinkel : 135˚, unter 1.6mm : Normalanschliff
1.6mm & über : Kreuzanschliff
▶Oberfläche : Blank mit TiN-Beschichtung im Arbeitsbereich
▶Anwendung : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen





DIN 338 | HSS-E | 33° | h8 | 135° | TiN p.A207
Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73-115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP195062	6.2	63	101
DLGP195063	6.3	63	101
DLGP195064	6.4	63	101
DLGP195065	6.5	63	101
DLGP195066	6.6	63	101
DLGP195067	6.7	63	101
DLGP195068	6.8	69	109
DLGP195069	6.9	69	109
DLGP195070	7.0	69	109
DLGP195071	7.1	69	109
DLGP195072	7.2	69	109
DLGP195073	7.3	69	109
DLGP195074	7.4	69	109
DLGP195075	7.5	69	109
DLGP195076	7.6	75	117
DLGP195077	7.7	75	117
DLGP195078	7.8	75	117
DLGP195079	7.9	75	117
DLGP195080	8.0	75	117
DLGP195081	8.1	75	117
DLGP195082	8.2	75	117
DLGP195083	8.3	75	117
DLGP195084	8.4	75	117
DLGP195085	8.5	75	117
DLGP195086	8.6	81	125
DLGP195087	8.7	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP195088	8.8	81	125
DLGP195089	8.9	81	125
DLGP195090	9.0	81	125
DLGP195091	9.1	81	125
DLGP195092	9.2	81	125
DLGP195093	9.3	81	125
DLGP195094	9.4	81	125
DLGP195095	9.5	81	125
DLGP195096	9.6	87	133
DLGP195097	9.7	87	133
DLGP195098	9.8	87	133
DLGP195099	9.9	87	133
DLGP195100	10.0	87	133
DLGP195101	10.1	87	133
DLGP195102	10.2	87	133
DLGP195103	10.3	87	133
DLGP195104	10.4	87	133
DLGP195105	10.5	87	133
DLGP195106	10.6	87	133
DLGP195107	10.7	94	142
DLGP195108	10.8	94	142
DLGP195109	10.9	94	142
DLGP195110	11.0	94	142
DLGP195111	11.1	94	142
DLGP195112	11.2	94	142
DLGP195113	11.3	94	142

▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

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DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

HSS-E, STRAIGHT SHANK DRILLS, GOLD-P COATED

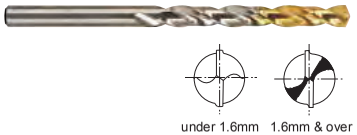
JOBBER

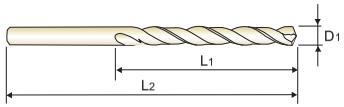
HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET
Forets GOLD-P HSS-E queue cylindrique revêtus, série courte
PUNTE IN HSS-E, GAMBO CILINDRICO, GOLD-P

KURZ
COURTE
CORTA

- ▶**Flute Geometry** : Right hand helix
- ▶**Point Angle** : 135˚, under 1.6mm : Normal point
  1.6mm & over : Split point
- ▶**Surface treatment** : Bright body, TiN coating on working area
- ▶**Application** : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.

- ▶**Nutenform** : Rechtsspirale
- ▶**Spitzenwinkel** : 135˚, unter 1.6mm : Normalanschliff
  1.6mm & über : Kreuzanschliff
- ▶**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶**Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen





DIN 338 | HSS-E | 33° | h8 | 135° | TiN p.A207

Recommended Toolholder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP195114	11.4	94	142
DLGP195115	11.5	94	142
DLGP195116	11.6	94	142
DLGP195117	11.7	94	142
DLGP195118	11.8	94	142
DLGP195119	11.9	101	151
DLGP195120	12.0	101	151
DLGP195121	12.1	101	151
DLGP195122	12.2	101	151
DLGP195123	12.3	101	151

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP195124	12.4	101	151
DLGP195125	12.5	101	151
DLGP195126	12.6	101	151
DLGP195127	12.7	101	151
DLGP195128	12.8	101	151
DLGP195129	12.9	101	151
DLGP195130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

HSS-E, DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED

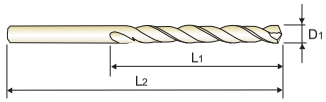
JOBBER

HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET
Forets GOLD-P HSS-E queue cylindrique revêtus, DH100 pour perçage profond, série courte
PUNTE GAMBO CILINDRICO DH100 IN HSS-E, PER FORI PROFONDI, GOLD-P

KURZ
COURTE
CORTA

- ▶**Flute Geometry** : Right hand, 38˚ helix, DH100 worm pattern type.
- ▶**Point Angle** : 130˚, Split point giving higher chip removal.
- ▶**Surface treatment** : Bright body, TiN coating on working area.
- ▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, or magnesium alloys.

- ▶**Nutenform** : 38˚ Rechtsspirale, DH 100 Flachnut
- ▶**Spitzenwinkel** : Durch 130˚ Kreuzanschliff Gute Spanabfuhr
- ▶**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶**Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



▶DH100 worm pattern drills

DIN 338 | HSS-E | 38° | h8 | 130° | TiN p.A207

Recommended Toolholder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP506020	2.0	24	49
DLGP506021	2.1	24	49
DLGP506022	2.2	27	53
DLGP506023	2.3	27	53
DLGP506024	2.4	30	57
DLGP506025	2.5	30	57
DLGP506026	2.6	30	57
DLGP506027	2.7	33	61
DLGP506028	2.8	33	61
DLGP506029	2.9	33	61
DLGP506030	3.0	33	61
DLGP506031	3.1	36	65
DLGP506032	3.2	36	65
DLGP506033	3.3	36	65
DLGP506034	3.4	39	70
DLGP506035	3.5	39	70
DLGP506036	3.6	39	70
DLGP506037	3.7	39	70
DLGP506038	3.8	43	75
DLGP506039	3.9	43	75
DLGP506040	4.0	43	75
DLGP506041	4.1	43	75
DLGP506042	4.2	43	75
DLGP506043	4.3	47	80
DLGP506044	4.4	47	80
DLGP506045	4.5	47	80

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP506046	4.6	47	80
DLGP506047	4.7	47	80
DLGP506048	4.8	52	86
DLGP506049	4.9	52	86
DLGP506050	5.0	52	86
DLGP506051	5.1	52	86
DLGP506052	5.2	52	86
DLGP506053	5.3	52	86
DLGP506054	5.4	57	93
DLGP506055	5.5	57	93
DLGP506056	5.6	57	93
DLGP506057	5.7	57	93
DLGP506058	5.8	57	93
DLGP506059	5.9	57	93
DLGP506060	6.0	57	93
DLGP506061	6.1	63	101
DLGP506062	6.2	63	101
DLGP506063	6.3	63	101
DLGP506064	6.4	63	101
DLGP506065	6.5	63	101
DLGP506066	6.6	63	101
DLGP506067	6.7	63	101
DLGP506068	6.8	69	109
DLGP506069	6.9	69	109
DLGP506070	7.0	69	109
DLGP506071	7.1	69	109

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

YG GOLD DRILLS

DLGP 06 SERIES

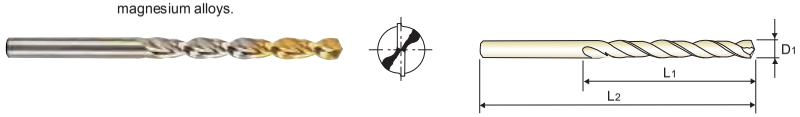
HSS-E, DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED

JOBBER / KURZ / COURTE / CORTA

HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET
Forets GOLD-P HSS-E queue cylindrique revêtus, DH100 pour perçage profond, série courte
PUNTE GAMBO CILINDRICO DH100 IN HSS-E, PER FORI PROFONDI, GOLD-P

- ▶**Flute Geometry** : Right hand, 38° helix, DH100 worm pattern type.
- ▶**Point Angle** : 130°, Split point giving higher chip removal.
- ▶**Surface treatment** : Bright body, TiN coating on working area.
- ▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, or magnesium alloys.

- ▶**Nutenform** : 38° Rechtsspirale, DH 100 Flachnut
- ▶**Spitzenwinkel** : Durch 130° Kreuzanschliff Gute Spanabfuhr
- ▶**Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶**Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



▶ DH100 worm pattern drills

DIN 338 | HSS-E | 38° | h8 | 130° | TiN p.A207

Recommended Toolholder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP506072	7.2	69	109
DLGP506073	7.3	69	109
DLGP506074	7.4	69	109
DLGP506075	7.5	69	109
DLGP506076	7.6	75	117
DLGP506077	7.7	75	117
DLGP506078	7.8	75	117
DLGP506079	7.9	75	117
DLGP506080	8.0	75	117
DLGP506081	8.1	75	117
DLGP506082	8.2	75	117
DLGP506083	8.3	75	117
DLGP506084	8.4	75	117
DLGP506085	8.5	75	117
DLGP506086	8.6	81	125
DLGP506087	8.7	81	125
DLGP506088	8.8	81	125
DLGP506089	8.9	81	125
DLGP506090	9.0	81	125
DLGP506091	9.1	81	125
DLGP506092	9.2	81	125
DLGP506093	9.3	81	125
DLGP506094	9.4	81	125
DLGP506095	9.5	81	125
DLGP506096	9.6	87	133
DLGP506097	9.7	87	133

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP506098	9.8	87	133
DLGP506099	9.9	87	133
DLGP506100	10.0	87	133
DLGP506101	10.1	87	133
DLGP506102	10.2	87	133
DLGP506103	10.3	87	133
DLGP506104	10.4	87	133
DLGP506105	10.5	87	133
DLGP506106	10.6	87	133
DLGP506107	10.7	94	142
DLGP506108	10.8	94	142
DLGP506109	10.9	94	142
DLGP506110	11.0	94	142
DLGP506111	11.1	94	142
DLGP506112	11.2	94	142
DLGP506113	11.3	94	142
DLGP506114	11.4	94	142
DLGP506115	11.5	94	142
DLGP506116	11.6	94	142
DLGP506117	11.7	94	142
DLGP506118	11.8	94	142
DLGP506119	11.9	101	151
DLGP506120	12.0	101	151
DLGP506121	12.1	101	151
DLGP506122	12.2	101	151
DLGP506123	12.3	101	151

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

YG GOLD DRILLS
DLGP 06 SERIES
HSS-E, DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED
JOBBER / KURZ / COURTE / CORTA
HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET
Forets GOLD-P HSS-E queue cylindrique revêtus, DH100 pour perçage profond, série courte
PUNTE GAMBO CILINDRICO DH100 IN HSS-E, PER FORI PROFONDI, GOLD-P
▶Flute Geometry : Right hand, 38° helix, DH100 worm pattern type.
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▶Nutenform : 38° Rechtsspirale, DH 100 Flachnut
▶Spitzenwinkel : Durch 130° Kreuzanschliff Gute Spanabfuhr
▶Oberfläche : Blank mit TiN-Beschichtung im Arbeitsbereich
▶Anwendung : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen

▶ DH100 worm pattern drills
DIN 338 | HSS-E | 38° | h8 | 130° | TiN p.A207
Recommended Toolholder | Plain Shank | Page
ER COLLET CHUCK | D73-115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP506124	12.4	101	151
DLGP506125	12.5	101	151
DLGP506126	12.6	101	151
DLGP506127	12.7	101	151

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DLGP506128	12.8	101	151
DLGP506129	12.9	101	151
DLGP506130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

GOLD D ILLS

GOLD-P COATED DRILL SETS

GOLD-P BESCHICHTET BOHRER SATS
Coffrets de Forets GOLD-P revêtus
SET DI PUNTE GOLD-P

DIN DRILL SETS O ER LENGTH G P D

EDP No.	DESCRIPTON	SIZE	Q'TY
D1GP165SET1	HSS Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.0x0.5mm step	19 pcs
D1GP165SET2	HSS Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-13.0x0.5mm step	25 pcs
D1GP165SET3	HSS Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.5x0.5mm step +3.3 +4.2 +6.8 +10.2	24 pcs
DLGP195SET1	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.0x0.5mm step	19 pcs
DLGP195SET2	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-13.0x0.5mm step	25 pcs
DLGP195SET3	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.5x0.5mm step +3.3 +4.2 +6.8 +10.2	24 pcs
DLGPSET982	HSS-E Straight Shank, Split Point (Ø1.0 & Ø1.5 : NORMAL point)	1.0-10.0x0.1mm step	91 pcs

GOLD D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

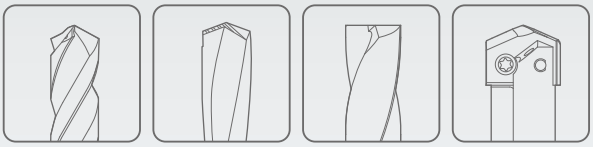
D GP D GP 6 DLGP DLGP 06 SERIES HSS & HSS-E GOLD-P DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	28	RPM	8910	40	RPM	6370	4240	3180	2120	1590	1270	980
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	2		25	RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	3		20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	4		15	RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18
	6	Low alloy steel	25	RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	7		20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	8		20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18
	10	High alloyed steel, and tool steel	15	RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
M	12	Stainless steel	18	RPM	5730	25	RPM	3980	2650	1990	1330	990	800	610
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	13		15	RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	14		10	RPM	3180	15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18
K	15	Grey cast iron	28	RPM	8910	40	RPM	6370	4240	3180	2120	1590	1270	980
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	16		25	RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860
				FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18
	17	Nodular cast iron	28	RPM	8910	40	RPM	6370	4240	3180	2120	1590	1270	980
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	18		20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18
	19	Malleable cast iron	25	RPM	7960	35	RPM	5570	3710	2790	1860	1390	1110	860
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	20		20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14	0.12-0.18
N	21	Aluminum-wrought alloy	45	RPM	14320	65	RPM	10350	6900	5170	3450	2590	2070	1590
				FEED	0.02-0.05		FEED	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.22-0.28
	22		45	RPM	14320	65	RPM	10350	6900	5170	3450	2590	2070	1590
				FEED	0.02-0.05		FEED	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.22-0.28
	23	Aluminum-cast, alloyed	35	RPM	11140	50	RPM	7960	5310	3980	2650	1990	1590	1220
				FEED	0.02-0.05		FEED	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22	0.22-0.28
	29	Non Metallic Materials	20	RPM	6370	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.01-0.03		FEED	0.04-0.08	0.06-0.10	0.08-0.12	0.12-0.16	0.12-0.18	0.16-0.22	0.18-0.24
	36	Titanium Alloys	15	RPM	4770	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01-0.02		FEED	0.02-0.05	0.02-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.13	0.08-0.14

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

S PER GP DRILLS

SUPER-GP DRILLS

- **All Applications Regardless of Machining Conditions; Good or Poor**
- **Für alle Anwendungen unabhängig von den Bearbeitungsbedingungen; gut oder schlecht**

SELE TION G IDE

HOLEMAKING TOOLS

SERIES	DSH105
STANDARD	DIN338
LENGTH	JOBBER
SIZE MIN	D2.0
SIZE MAX	D13.0
PAGE	A211
SURFACE TREATMENT	Steam Tempered

SUPER HSS
S PER GP DRILLS

All Applications Regardless of Machining Conditions; Good or Poor

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.226

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎
	2		About 0.45% C	Annealed	190	13	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎
	4		About 0.75% C	Annealed	270	28	○
	5		About 0.75% C	Quenched & Tempered	300	32	
	6	Low alloy steel		Annealed	180	10	◎
	7			Quenched & Tempered	275	29	○
	8			Quenched & Tempered	300	32	○
	9			Quenched & Tempered	350	38	
	10	High alloyed steel, and tool steel		Annealed	200	15	○
	11			Quenched & Tempered	325	35	
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○
	13		Martensitic	Quenched & Tempered	240	23	○
	14		Austenitic		180	10	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○
	16		Pearlitic (Martensitic)		260	26	○
	17	Nodular cast iron	Ferritic		160	3	○
	18		Pearlitic		250	25	
	19	Malleable cast iron	Ferritic		130		○
	20		Pearlitic		230	21	
N	21	Aluminum-wrought alloy	Not Curable		60		○
	22		Curable	Hardened	100		○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○
	24		≤ 12% Si, Curable	Hardened	90		
	25		> 12% Si, Not Curable		130		
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		
	27		CuZn, CuSnZn (Brass)		90		
	28		CuSn, lead-free copper and electrolytic copper		100		
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○
	30		Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	
	32			Cured	280	30	
	33		Ni or Co Based	Annealed	250	25	
	34			Cured	350	38	
	35			Cast	320	34	
	36	Titanium Alloys	Pure Titanium		400 Rm		○
	37		Alpha + Beta Alloys	Hardened	1050 Rm		
H	38	Hardened steel		Hardened	550	55	
	39			Hardened	630	60	
	40	Chilled Cast Iron		Cast	400	42	
	41	Hardened Cast Iron		Hardened	550	55	

SU E G
D ILLS

DSH 0 SERIES

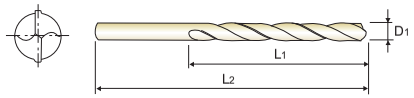
SUPER HSS, SUPER-GP DRILLS (DIN338)

JOBBER
KURZ
COURTE
CORTA

SUPER HSS, SUPER-GP DRILLS (DIN338)
Forets SUPER-GP Super HSS, queue cylindrique (DIN338)
PUNTA SUPER-GP DRILL, IN SUPER-HSS, GAMBO CILINDRICO (DIN338)

- ▶Surface treatment: Steam Tempered (Black Oxide Finish)
- ▶Applications: Excellent tool performance in steels, cast iron, alloy steels and malleable cast iron.
- ▶Special HSS improves toughness, wear resistance as well as extends dramatically the tool life.
- ▶All applications regardless of machine condition: Good or Poor.

- ▶Oberflächenbehandlung: Dampfgehärtet (Schwarze Oxydschicht)
- ▶Anwendungen: Ausgezeichnete Leistung bei Stählen, Gusseisen, legierten Stählen und Temperguss.
- ▶Spezial-HSS verbessert Zähigkeit, Verschleissfestigkeit und verlängert drastisch die Standzeit.
- ▶Alle Anwendungen unabhängig vom Maschinenzustand: Gut oder schlecht.



DIN 338 | SUPER HSS | 30° | h8 | 118° | Vap

p.A214

Recommended Toolholder	Plain Shank	Page
◎	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
* DSH105020	2.0	24	49
* DSH105021	2.1	24	49
* DSH105022	2.2	27	53
* DSH105023	2.3	27	53
* DSH105024	2.4	30	57
* DSH105025	2.5	30	57
* DSH105026	2.6	30	57
* DSH105027	2.7	33	61
* DSH105028	2.8	33	61
* DSH105029	2.9	33	61
* DSH105030	3.0	33	61
* DSH105031	3.1	36	65
* DSH105032	3.2	36	65
* DSH105033	3.3	36	65
* DSH105034	3.4	39	70
* DSH105035	3.5	39	70
* DSH105036	3.6	39	70
* DSH105037	3.7	39	70
* DSH105038	3.8	43	75
* DSH105039	3.9	43	75
* DSH105040	4.0	43	75
* DSH105041	4.1	43	75
* DSH105042	4.2	43	75
* DSH105043	4.3	47	80

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
* DSH105044	4.4	47	80
* DSH105045	4.5	47	80
* DSH105046	4.6	47	80
* DSH105047	4.7	47	80
* DSH105048	4.8	52	86
* DSH105049	4.9	52	86
* DSH105050	5.0	52	86
* DSH105051	5.1	52	86
* DSH105052	5.2	52	86
* DSH105053	5.3	52	86
* DSH105054	5.4	57	93
* DSH105055	5.5	57	93
* DSH105056	5.6	57	93
* DSH105057	5.7	57	93
* DSH105058	5.8	57	93
* DSH105059	5.9	57	93
* DSH105060	6.0	57	93
* DSH105061	6.1	63	101
* DSH105062	6.2	63	101
* DSH105063	6.3	63	101
* DSH105064	6.4	63	101
* DSH105065	6.5	63	101
* DSH105066	6.6	63	101
* DSH105067	6.7	63	101

* 10pcs per package
** 5pcs per package

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
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STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

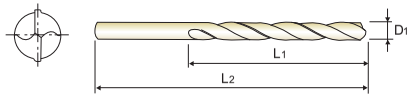
SUPER HSS, SUPER-GP DRILLS (DIN338)

JOBBER

- SUPER HSS, SUPER-GP DRILLS (DIN338) — *KURZ*
- Forets SUPER-GP Super HSS, queue cylindrique (DIN338) — *COURTE*
- PUNTA SUPER-GP DRILL, IN SUPER-HSS, GAMBO CILINDRICO (DIN338) — *CORTA*

▶Surface treatment: Steam Tempered (Black Oxide Finish)
▶Applications: Excellent tool performance in steels, cast iron, alloy steels and malleable cast iron.
▶Special HSS improves toughness, wear resistance as well as extends dramatically the tool life.
▶All applications regardless of machine condition: Good or Poor.

▶Oberflächenbehandlung: Dampfgehärtet (Schwarze Oxydschicht)
▶Anwendungen: Ausgezeichnete Leistung bei Stählen, Gusseisen, legierten Stählen und Temperguss.
▶Spezial-HSS verbessert Zähigkeit, Verschleissfestigkeit und verlängert drastisch die Standzeit.
▶Alle Anwendungen unabhängig vom Maschinenzustand: Gut oder schlecht.



DIN 338 | SUPER HSS | 30° | h8 | 118° | Vap

p.A214

Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
* DSH105068	6.8	69	109
* DSH105069	6.9	69	109
* DSH105070	7.0	69	109
* DSH105071	7.1	69	109
* DSH105072	7.2	69	109
* DSH105073	7.3	69	109
* DSH105074	7.4	69	109
* DSH105075	7.5	69	109
* DSH105076	7.6	75	117
* DSH105077	7.7	75	117
* DSH105078	7.8	75	117
* DSH105079	7.9	75	117
* DSH105080	8.0	75	117
* DSH105081	8.1	75	117
* DSH105082	8.2	75	117
* DSH105083	8.3	75	117
** DSH105084	8.4	75	117
** DSH105085	8.5	75	117
** DSH105086	8.6	81	125
** DSH105087	8.7	81	125
** DSH105088	8.8	81	125
** DSH105089	8.9	81	125
** DSH105090	9.0	81	125
** DSH105091	9.1	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
** DSH105092	9.2	81	125
** DSH105093	9.3	81	125
** DSH105094	9.4	81	125
** DSH105095	9.5	81	125
** DSH105096	9.6	87	133
** DSH105097	9.7	87	133
** DSH105098	9.8	87	133
** DSH105099	9.9	87	133
** DSH105100	10.0	87	133
** DSH105101	10.1	87	133
** DSH105102	10.2	87	133
** DSH105103	10.3	87	133
** DSH105104	10.4	87	133
** DSH105105	10.5	87	133
** DSH105106	10.6	87	133
** DSH105107	10.7	94	142
** DSH105108	10.8	94	142
** DSH105109	10.9	94	142
** DSH105110	11.0	94	142
** DSH105111	11.1	94	142
** DSH105112	11.2	94	142
** DSH105113	11.3	94	142
** DSH105114	11.4	94	142
** DSH105115	11.5	94	142

* 10pcs per package
**5pcs per package

▶ NEXT PAGE

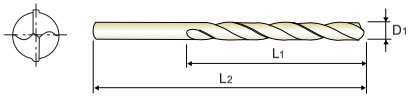
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

SU E G
D ILLS
DSH 0 SERIES

SUPER HSS, SUPER-GP DRILLS (DIN338)
JOBBER
SUPER HSS, SUPER-GP DRILLS (DIN338) — KURZ
Forets SUPER-GP Super HSS, queue cylindrique (DIN338) — COURTE
PUNTA SUPER-GP DRILL, IN SUPER-HSS, GAMBO CILINDRICO (DIN338) — CORTA
▶Surface treatment: Steam Tempered (Black Oxide Finish)
▶Applications: Excellent tool performance in steels, cast iron, alloy steels and malleable cast iron.
▶Special HSS improves toughness, wear resistance as well as extends dramatically the tool life.
▶All applications regardless of machine condition: Good or Poor.
▶Oberflächenbehandlung: Dampfgehärtet (Schwarze Oxydschicht)
▶Anwendungen: Ausgezeichnete Leistung bei Stählen, Gusseisen, legierten Stählen und Temperguss.
▶Spezial-HSS verbessert Zähigkeit, Verschleissfestigkeit und verlängert drastisch die Standzeit.
▶Alle Anwendungen unabhängig vom Maschinenzustand: Gut oder schlecht.



DIN 338 | SUPER HSS | 30° | h8 | 118° | Vap

p.A214

Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
** DSH105116	11.6	94	142
** DSH105117	11.7	94	142
** DSH105118	11.8	94	142
** DSH105119	11.9	101	151
** DSH105120	12.0	101	151
** DSH105121	12.1	101	151
** DSH105122	12.2	101	151
** DSH105123	12.3	101	151

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
** DSH105124	12.4	101	151
** DSH105125	12.5	101	151
** DSH105126	12.6	101	151
** DSH105127	12.7	101	151
** DSH105128	12.8	101	151
** DSH105129	12.9	101	151
** DSH105130	13.0	101	151

* 10pcs per package
** 5pcs per package

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○	○	○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

SU E G D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

DSH 0 SERIES SUPER HSS, SUPER-GP DRILLS (DIN338)

RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	2		25	RPM	3980	2650	1990	1330	990	800	610
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	3		20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	4		20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10
	6	Low alloy steel	25	RPM	3980	2650	1990	1330	990	800	610
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	7		20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	8		20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10
	10	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
M	12	Stainless steel	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	13		15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	14		10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	16		25	RPM	3980	2650	1990	1330	990	800	610
				FEED	0.01-0.02	0.01-0.03	0.02-0.04	0.02-0.05	0.03-0.06	0.03-0.06	0.04-0.10
	17	Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	730
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
	19	Malleable cast iron	25	RPM	3980	2650	1990	1330	990	800	610
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.1-0.13	0.11-0.15	0.11-0.17
N	21	Aluminum-wrought alloy	55	RPM	8750	5840	4380	2920	2190	1750	1350
				FEED	0.03-0.06	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22
	22		55	RPM	8750	5840	4380	2920	2190	1750	1350
				FEED	0.03-0.06	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22
	23	Aluminum-cast, alloyed	40	RPM	6370	4240	3180	2120	1590	1270	980
				FEED	0.03-0.06	0.05-0.09	0.07-0.11	0.12-0.16	0.12-0.18	0.14-0.20	0.16-0.22
	29	Non Metallic Materials	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.02-0.04	0.03-0.05	0.04-0.06	0.05-0.08	0.10-0.13	0.11-0.15	0.11-0.17
P	36	Titanium Alloys	10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01-0.03	0.02-0.04	0.03-0.05	0.04-0.07	0.05-0.08	0.05-0.09	0.06-0.10

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
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REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr
YG-1 CO., LTD.

Leading Through Innovation

STRAIGHT SHANK DRILLS

BOHRER MIT ZYLINDERSCHAFT

- **For General Purpose (Soft &Tough Materials)**
- **Für allgemeine Anwendungen (weiche & zähe Materialien)**

SELE TION G IDE

YG HOLEMAKING TOOLS

HSS, HSS-E & HSSCo8
STRAIGHT SHANK DRILLS

For General Purpose (Soft &Tough Materials)

Please visit globalyg1.com/mat for material search

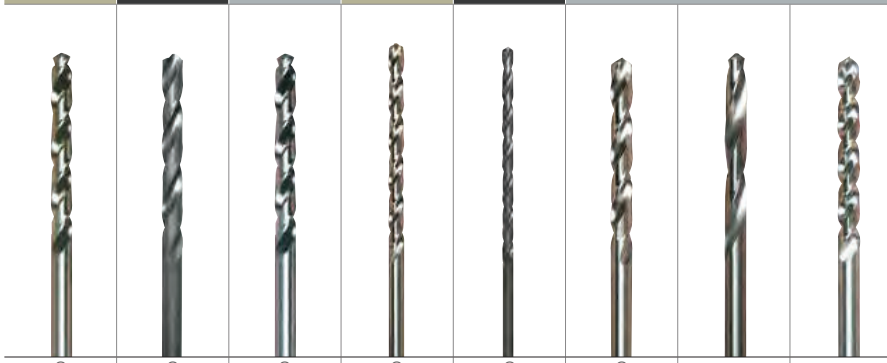
◎ : Excellent ○ : Good

Recommended cutting conditions : p.A262

SERIES	D2107	D1107	D2105
STANDARD	DIN1897	DIN1897	DIN338
LENGTH	STUB	STUB	JOBBER
SIZE MIN	D1.0	D1.0	D1.0
SIZE MAX	D31.0	D13.0	D20.0
PAGE	A220	A224	A227
SURFACE TREATMENT	Gold Coloring	Steam Tempered	Gold Coloring

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D2107	D1107	D2105
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	○	○	○
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	○	○	○
	8			Quenched & Tempered	300	32	○	○	○
	9			Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○
	11			Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	○	◎
	13		Martensitic	Quenched & Tempered	240	23	○	○	○
	14		Austenitic		180	10	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○
	16		Pearlitic (Martensitic)		260	26	○	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○	○
	18		Pearlitic		250	25			
	19	Malleable cast iron	Ferritic		130		○	○	○
	20		Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○
	22		Curable	Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

SERIES	DL105	D1105	D1125	D2104	D1121	DL109	D1100	D1106
STANDARD	DIN338	DIN338	DIN338	DIN340	DIN1869/1	DIN338	DIN338	DIN338
LENGTH	JOBBER	JOBBER	JOBBER	LONG	EXTRA LONG	JOBBER	JOBBER	JOBBER
SIZE MIN	D1.0	D0.3	D2.0	D2.0	D2.0	D1.5	D1.5	D1.5
SIZE MAX	D20.0	D20.0	D20.0	D12.0	D13.0	D13.0	D13.0	D13.0
PAGE	A230	A233	A238	A241	A243	A244	A245	A247
SURFACE TREATMENT	Gold Coloring	Steam Tempered	Bright	Gold Coloring	Steam Tempered	Bright		



ISO	VDI 3323	DL105	D1105	D1125	D2104	D1121	DL109	D1100	D1106
P	1	◎	◎	◎	◎	◎	◎		
	2	◎	◎	◎	◎	◎	◎		
	3	◎	◎	◎	◎	◎	◎		
	4	○	○	○	○	○	○		
	5								
	6	◎	◎	◎	◎	◎	◎		
	7	○	○	○	○	○	○		
	8	○	○	○	○	○	○		
	9								
	10	○	○	○	○	○	○		
	11								
M	12	◎	○	○	◎	○	◎		
	13	○	○	○	○	○	○		
	14	○	○	○	○	○	○		
K	15	○	○	○	○	○	○		
	16	○	○	○	○	○	○		
	17	○	○	○	○	○	○		
	18								
	19	○	○	○	○	○	○		
	20								
N	21	○	○	○	○	○	○		◎
	22	○	○	○	○	○	○		◎
	23	○	○	○	○	○	○		◎
	24								◎
	25								
	26								
	27							◎	
	28							◎	
	29	○	○	○	○	○	○		
	30								
S	31								
	32								
	33								
	34								
	35								
	36	○	○	○	○	○	○		
	37								
H	38								
	39								
	40								
	41								

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
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SELE TION G IDE

HOLEMAKING TOOLS

HSS-E STRAIGHT SHANK DRILLS

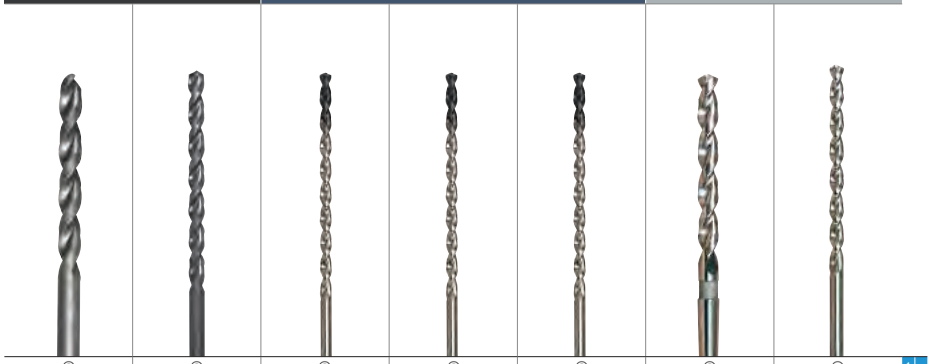
For General Purpose (Soft &Tough Materials)

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A262

SERIES	DH100 DL510	DH100 DL508	DH100 DL509	DH100 DL505	DH100 DL504	DH100 DT600	DH100 DT692	DH100 DT693	DH100 DL608	DH50 DL507
STANDARD	DIN1897	DIN338	DIN340	DIN338	DIN340	DIN1869/1	DIN1869/2	DIN1869/3	DIN341	-
LENGTH	STUB	JOBBER	LONG	JOBBER	LONG	EXTRA LONG			LONG	EXTRA LONG
SIZE MIN	D2.0	D2.0	D2.0	D2.0	D2.0	D2.0	D3.0	D4.0	D13.0	D2.0
SIZE MAX	D20.0	D16.0	D12.0	D13.0	D13.0	D10.5	D10.2	D10.0	D30.0	D13.0
PAGE	A249	A251	A253	A255	A257	A258			A259	A260
SURFACE TREATMENT	Bright			Steam Tempered		TiAlN			Bright	



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	DL510	DL508	DL509	DL505	DL504	DT600	DT692	DT693	DL608	DL507
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎	◎	◎	◎	◎	◎	○
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	3		About 0.45% C	Quenched &Tempered	250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	4		About 0.75% C	Annealed	270	28	○	○	○	○	○	○	○	○	○	
	5		About 0.75% C	Quenched &Tempered	300	32										
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	
	7			Quenched &Tempered	275	29	○	○	○	○	○	○	○	○	○	
	8			Quenched &Tempered	300	32	○	○	○	○	○	○	○	○	○	
	9			Quenched &Tempered	350	38										
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○	○	○	○	○	○	
	11			Quenched &Tempered	325	35										
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15										
	13		Martensitic	Quenched &Tempered	240	23										
	14		Austenitic		180	10										
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	○	○	○	○	○	○	
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	○	○	○	○	○	
	17	Nodular cast iron	Ferritic		160	3	○	○	○	○	○	○	○	○	○	
	18		Pearlitic		250	25	○	○	○	○	○	○	○	○	○	
	19	Malleable cast iron	Ferritic		130		○	○	○	○	○	○	○	○	○	
	20		Pearlitic		230	21	○	○	○	○	○	○	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable		60											◎
	22		Curable	Hardened	100											◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75											○
	24		≤ 12% Si, Curable	Hardened	90											
	25		> 12% Si, Not Curable		130											
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110											
	27		CuZn, CuSnZn (Brass)		90											
	28		CuSn, lead-free copper and electrolytic copper		100											
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic													
	30		Rubber, Wood, etc.													
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15										
	32			Cured	280	30										
	33		Ni or Co Based	Annealed	250	25										
	34			Cured	350	38										
	35			Cast	320	34										
	36	Titanium Alloys	Pure Titanium		400 Rm											
	37		Alpha + Beta Alloys	Hardened	1050 Rm											
H	38	Hardened steel		Hardened	550	55										
	39			Hardened	630	60										
	40	Chilled Cast Iron		Cast	400	42										
	41	Hardened Cast Iron		Hardened	550	55										

ST AIGHT SHANK D ILLS

D 0 SERIES

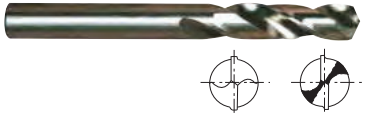
HSSCo8, STRAIGHT SHANK TWIST DRILLS

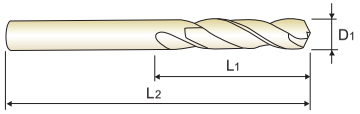
STUB

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT — EXTRA KURZ
Forets HSSCo8, queue cylindrique, Forme C, série extra-courte — EXTRA-COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8 — EXTRA CORTA

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.





DIN 1897 | HSS Co8 | 33° | h8 | 135° | Gold Coloring | p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 (Page)

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107010	1.0	6	26
D2107011	1.1	7	28
D2107012	1.2	8	30
D2107912	1.25	8	30
D2107013	1.3	8	30
D2107014	1.4	9	32
D2107015	1.5	9	32
D2107016	1.6	10	34
D2107017	1.7	10	34
D2107917	1.75	11	36
D2107018	1.8	11	36
D2107019	1.9	11	36
D2107020	2.0	12	38
D2107021	2.1	12	38
D2107022	2.2	13	40
D2107922	2.25	13	40
D2107023	2.3	13	40
D2107024	2.4	14	43
D2107025	2.5	14	43
D2107026	2.6	14	43
D2107027	2.7	16	46
D2107927	2.75	16	46
D2107028	2.8	16	46
D2107029	2.9	16	46
D2107030	3.0	16	46
D2107031	3.1	18	49

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107032	3.2	18	49
D2107932	3.25	18	49
D2107033	3.3	18	49
D2107034	3.4	20	52
D2107035	3.5	20	52
D2107036	3.6	20	52
D2107037	3.7	20	52
D2107937	3.75	20	52
D2107038	3.8	22	55
D2107039	3.9	22	55
D2107040	4.0	22	55
D2107041	4.1	22	55
D2107042	4.2	22	55
D2107942	4.25	22	55
D2107043	4.3	24	58
D2107044	4.4	24	58
D2107045	4.5	24	58
D2107046	4.6	24	58
D2107946	4.65	24	58
D2107047	4.7	24	58
D2107947	4.75	24	58
D2107048	4.8	26	62
D2107049	4.9	26	62
D2107050	5.0	26	62
D2107051	5.1	26	62
D2107052	5.2	26	62

▶ HSS-E(DL107) is available on your request.
▶ TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

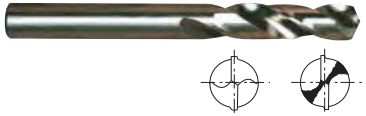
▶ NEXT PAGE

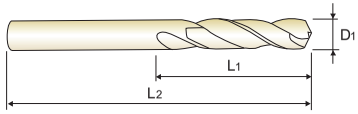
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
D 0 SERIES
HSSCo8, STRAIGHT SHANK TWIST DRILLS
STUB
HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT — EXTRA KURZ
Forets HSSCo8, queue cylindrique, Forme C, série extra-courte — EXTRA-COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8 — EXTRA CORTA
▶Surface treatment : Coloring(Gold color)
▶Application : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes
▶Oberflächenbehandlung : Coloring(Goldfarbe)
▶Verwendung : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.





DIN 1897 | HSS Co8 | 33° | h8 | 135° | Gold Coloring | p.A262
Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 (Page)
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107952	5.25	26	62
D2107053	5.3	26	62
D2107054	5.4	28	66
D2107055	5.5	28	66
D2107955	5.55	28	66
D2107056	5.6	28	66
D2107057	5.7	28	66
D2107957	5.75	28	66
D2107058	5.8	28	66
D2107059	5.9	28	66
D2107060	6.0	28	66
D2107061	6.1	31	70
D2107062	6.2	31	70
D2107962	6.25	31	70
D2107063	6.3	31	70
D2107064	6.4	31	70
D2107065	6.5	31	70
D2107066	6.6	31	70
D2107067	6.7	31	70
D2107967	6.75	34	74
D2107068	6.8	34	74
D2107069	6.9	34	74
D2107070	7.0	34	74
D2107071	7.1	34	74
D2107072	7.2	34	74
D2107972	7.25	34	74

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107073	7.3	34	74
D2107074	7.4	34	74
D2107974	7.45	34	74
D2107075	7.5	34	74
D2107076	7.6	37	79
D2107077	7.7	37	79
D2107977	7.75	37	79
D2107078	7.8	37	79
D2107079	7.9	37	79
D2107080	8.0	37	79
D2107081	8.1	37	79
D2107082	8.2	37	79
D2107982	8.25	37	79
D2107083	8.3	37	79
D2107084	8.4	37	79
D2107085	8.5	37	79
D2107086	8.6	40	84
D2107087	8.7	40	84
D2107987	8.75	40	84
D2107088	8.8	40	84
D2107089	8.9	40	84
D2107090	9.0	40	84
D2107091	9.1	40	84
D2107092	9.2	40	84
D2107992	9.25	40	84
D2107093	9.3	40	84

▶ HSS-E(DL107) is available on your request.
▶ TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS

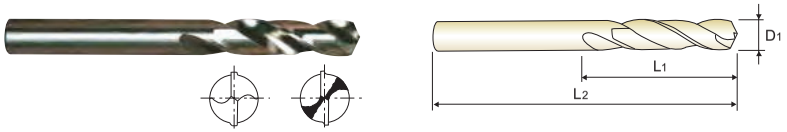
STUB

EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 | HSS Co8 | 33° | h8 | 135° | Gold Coloring | p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 (Page)

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107993	9.35	40	84
D2107094	9.4	40	84
D2107095	9.5	40	84
D2107096	9.6	43	89
D2107097	9.7	43	89
D2107997	9.75	43	89
D2107098	9.8	43	89
D2107099	9.9	43	89
D2107100	10.0	43	89
D2107102	10.2	43	89
D2107802	10.25	43	89
D2107105	10.5	43	89
D2107807	10.75	47	95
D2107110	11.0	47	95
D2107812	11.25	47	95
D2107115	11.5	47	95
D2107817	11.75	47	95
D2107118	11.8	47	95
D2107120	12.0	51	102
D2107822	12.25	51	102
D2107125	12.5	51	102
D2107827	12.75	51	102
D2107130	13.0	51	102
D2107832	13.25	54	107
D2107135	13.5	54	107
D2107837	13.75	54	107

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107138	13.8	54	107
D2107140	14.0	54	107
D2107842	14.25	56	111
D2107145	14.5	56	111
D2107847	14.75	56	111
D2107150	15.0	56	111
D2107852	15.25	58	115
D2107155	15.5	58	115
D2107857	15.75	58	115
D2107160	16.0	58	115
D2107862	16.25	60	119
D2107165	16.5	60	119
D2107867	16.75	60	119
D2107170	17.0	60	119
D2107872	17.25	62	123
D2107175	17.5	62	123
D2107877	17.75	62	123
D2107180	18.0	62	123
D2107882	18.25	64	127
D2107185	18.5	64	127
D2107887	18.75	64	127
D2107190	19.0	64	127
D2107892	19.25	66	131
D2107195	19.5	66	131
D2107897	19.75	66	131
D2107200	20.0	66	131

▶ HSS-E(DL107) is available on your request.
▶ TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

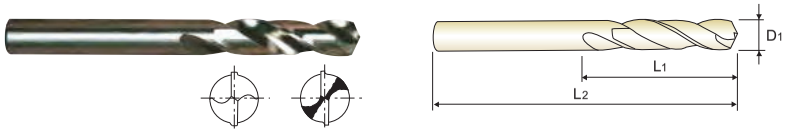
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
D 0 SERIES
HSSCo8, STRAIGHT SHANK TWIST DRILLS
STUB
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA
HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSSCo8, queue cylindrique, Forme C, série extra-courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8
▶Surface treatment : Coloring(Gold color)
▶Application : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes
▶Oberflächenbehandlung : Coloring(Goldfarbe)
▶Verwendung : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 | HSS Co8 | 33° | h8 | 135° | Gold Coloring | p.A262
Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 (Page)
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107205	20.5	68	136
D2107210	21.0	68	136
D2107215	21.5	70	141
D2107220	22.0	70	141
D2107225	22.5	72	146
D2107230	23.0	72	146
D2107235	23.5	72	146
D2107240	24.0	75	151

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2107245	24.5	75	151
D2107250	25.0	75	151
D2107260	26.0	78	156
D2107270	27.0	81	162
D2107280	28.0	81	162
D2107290	29.0	84	168
D2107300	30.0	84	168
D2107310	31.0	87	174

▶ HSS-E(DL107) is available on your request.
▶ TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

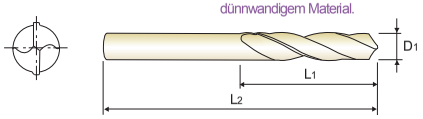
HSS, STRAIGHT SHANK TWIST DRILLS

STUB
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA

HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSS, queue cylindrique, série extra-courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm
▶**Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.

▶**Oberflächenbehandlung** : Steam Homo(Scwarzoxidation)
Helle Beschaffenheit unter 2mm
▶**Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 | HSS | N 20~30° | h8 | 118° | Vap p.A262

Recommended Toolholder	Plain Shank	Page
	ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1107010	1.0	6	26
D1107011	1.1	7	28
D1107012	1.2	8	30
D1107912	1.25	8	30
D1107013	1.3	8	30
D1107014	1.4	9	32
D1107015	1.5	9	32
D1107016	1.6	9	34
D1107017	1.7	10	34
D1107917	1.75	11	36
D1107018	1.8	11	36
D1107019	1.9	11	36
D1107020	2.0	12	38
D1107021	2.1	12	38
D1107022	2.2	13	40
D1107922	2.25	13	40
D1107023	2.3	13	40
D1107024	2.4	14	43
D1107025	2.5	14	43
D1107026	2.6	14	43
D1107027	2.7	16	46
D1107927	2.75	16	46
D1107028	2.8	16	46
D1107029	2.9	16	46
D1107030	3.0	16	46
D1107031	3.1	18	49

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1107032	3.2	18	49
D1107932	3.25	18	49
D1107033	3.3	18	49
D1107034	3.4	20	52
D1107035	3.5	20	52
D1107036	3.6	20	52
D1107037	3.7	20	52
D1107937	3.75	20	52
D1107038	3.8	22	55
D1107039	3.9	22	55
D1107040	4.0	22	55
D1107041	4.1	22	55
D1107042	4.2	22	55
D1107942	4.25	22	55
D1107043	4.3	24	58
D1107044	4.4	24	58
D1107045	4.5	24	58
D1107046	4.6	24	58
D1107047	4.7	24	58
D1107947	4.75	24	58
D1107048	4.8	26	62
D1107049	4.9	26	62
D1107050	5.0	26	62
D1107051	5.1	26	62
D1107052	5.2	26	62
D1107952	5.25	26	62

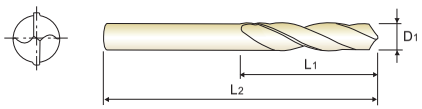
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
D 0 SERIES
HSS, STRAIGHT SHANK TWIST DRILLS
STUB
EXTRA KURZ
EXTRA-COURTE
EXTRA CORTA
HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSS, queue cylindrique, série extra-courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS
▶Surface treatment : Steam Tempered(Black Oxide Finish)
▶Application : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.
▶Oberflächenbehandlung : Steam Homo(Scwarzoxidation)
▶Verwendung : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 | HSS | N 20~30° | h8 | 118° | Vap p.A262
Recommended Toolholder | Plain Shank | Page
ER COLLET CHUCK | D73 - 115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1107053	5.3	26	62
D1107054	5.4	28	66
D1107055	5.5	28	66
D1107056	5.6	28	66
D1107057	5.7	28	66
D1107957	5.75	28	66
D1107058	5.8	28	66
D1107059	5.9	28	66
D1107060	6.0	28	66
D1107061	6.1	31	70
D1107062	6.2	31	70
D1107962	6.25	31	70
D1107063	6.3	31	70
D1107064	6.4	31	70
D1107065	6.5	31	70
D1107066	6.6	31	70
D1107067	6.7	31	70
D1107967	6.75	34	74
D1107068	6.8	34	74
D1107069	6.9	34	74
D1107070	7.0	34	74
D1107071	7.1	34	74
D1107072	7.2	34	74
D1107972	7.25	34	74
D1107073	7.3	34	74
D1107074	7.4	34	74

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1107075	7.5	34	74
D1107076	7.6	37	79
D1107077	7.7	37	79
D1107977	7.75	37	79
D1107078	7.8	37	79
D1107079	7.9	37	79
D1107080	8.0	37	79
D1107081	8.1	37	79
D1107082	8.2	37	79
D1107982	8.25	37	79
D1107083	8.3	37	79
D1107084	8.4	37	79
D1107085	8.5	37	79
D1107086	8.6	40	84
D1107087	8.7	40	84
D1107987	8.75	40	84
D1107088	8.8	40	84
D1107089	8.9	40	84
D1107090	9.0	40	84
D1107091	9.1	40	84
D1107092	9.2	40	84
D1107992	9.25	40	84
D1107093	9.3	40	84
D1107094	9.4	40	84
D1107095	9.5	40	84
D1107096	9.6	43	89

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

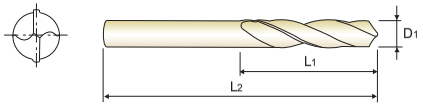
HSS, STRAIGHT SHANK TWIST DRILLS

STUB

- HSS, SPIRALBOHRER mit ZYLINDERSCHAFT — *EXTRA KURZ*
- Forets HSS, queue cylindrique, série extra-courte — *EXTRA-COURTE*
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS — *EXTRA CORTA*

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.

▶**Oberflächenbehandlung** : Steam Homo(Scwarzoxidation)
▶**Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 | HSS | N 20~30° | h8 | 118° | Vap p.A262

Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1107097	9.7	43	89
D1107997	9.75	43	89
D1107098	9.8	43	89
D1107099	9.9	43	89
D1107100	10.0	43	89
D1107802	10.25	43	89
D1107105	10.5	43	89
D1107807	10.75	47	95
D1107110	11.0	47	95
D1107812	11.25	47	95
D1107115	11.5	47	95
D1107817	11.75	47	95

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1107120	12.0	51	102
D1107822	12.25	51	102
D1107125	12.5	51	102
D1107827	12.75	51	102
D1107130	13.0	51	102

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

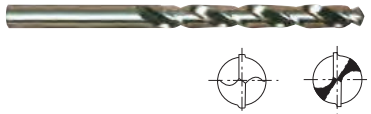
HSSCo8, STRAIGHT SHANK TWIST DRILLS

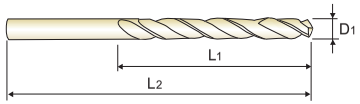
JOBBER

- HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT — *KURZ*
- Forets HSSCo8, queue cylindrique, Forme C, série courte — *COURTE*
- PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8 — *CORTA*

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.





DIN 338 | HSS Co8 | 33° | h8 | 135° | Gold Coloring p.A262

Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2105010	1.0	12	34
D2105011	1.1	14	36
D2105012	1.2	16	38
D2105912	1.25	16	38
D2105013	1.3	16	38
D2105014	1.4	18	40
D2105015	1.5	18	40
D2105016	1.6	20	43
D2105017	1.7	20	43
D2105917	1.75	22	46
D2105018	1.8	22	46
D2105019	1.9	22	46
D2105020	2.0	24	49
D2105021	2.1	24	49
D2105022	2.2	27	53
D2105922	2.25	27	53
D2105023	2.3	27	53
D2105024	2.4	30	57
D2105025	2.5	30	57
D2105026	2.6	30	57
D2105027	2.7	33	61
D2105927	2.75	33	61
D2105028	2.8	33	61
D2105029	2.9	33	61
D2105030	3.0	33	61
D2105031	3.1	36	65

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2105032	3.2	36	65
D2105932	3.25	36	65
D2105033	3.3	36	65
D2105034	3.4	39	70
D2105035	3.5	39	70
D2105036	3.6	39	70
D2105037	3.7	39	70
D2105937	3.75	39	70
D2105038	3.8	43	75
D2105039	3.9	43	75
D2105040	4.0	43	75
D2105041	4.1	43	75
D2105042	4.2	43	75
D2105942	4.25	43	75
D2105043	4.3	47	80
D2105044	4.4	47	80
D2105045	4.5	47	80
D2105046	4.6	47	80
D2105047	4.7	47	80
D2105947	4.75	47	80
D2105048	4.8	52	86
D2105049	4.9	52	86
D2105050	5.0	52	86
D2105051	5.1	52	86
D2105052	5.2	52	86
D2105952	5.25	52	86

▶ TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

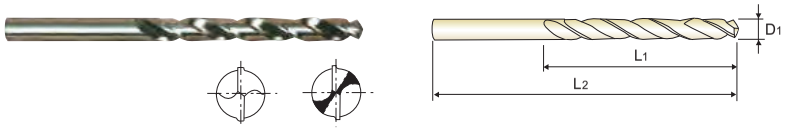
HSSCo8, STRAIGHT SHANK TWIST DRILLS

JOBBER

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSSCo8, queue cylindrique, Forme C, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8 — CORTA

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 | HSS Co8 | 33° | h8 | 135° | Gold Coloring | p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 (Page)

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2105053	5.3	52	86
D2105054	5.4	57	93
D2105055	5.5	57	93
D2105056	5.6	57	93
D2105057	5.7	57	93
D2105957	5.75	57	93
D2105058	5.8	57	93
D2105059	5.9	57	93
D2105060	6.0	57	93
D2105061	6.1	63	101
D2105062	6.2	63	101
D2105962	6.25	63	101
D2105063	6.3	63	101
D2105064	6.4	63	101
D2105065	6.5	63	101
D2105066	6.6	63	101
D2105067	6.7	63	101
D2105967	6.75	69	109
D2105068	6.8	69	109
D2105069	6.9	69	109
D2105070	7.0	69	109
D2105071	7.1	69	109
D2105072	7.2	69	109
D2105972	7.25	69	109
D2105073	7.3	69	109
D2105074	7.4	69	109

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2105075	7.5	69	109
D2105076	7.6	75	117
D2105077	7.7	75	117
D2105977	7.75	75	117
D2105078	7.8	75	117
D2105079	7.9	75	117
D2105080	8.0	75	117
D2105081	8.1	75	117
D2105082	8.2	75	117
D2105982	8.25	75	117
D2105083	8.3	75	117
D2105084	8.4	75	117
D2105085	8.5	75	117
D2105086	8.6	81	125
D2105087	8.7	81	125
D2105987	8.75	81	125
D2105088	8.8	81	125
D2105089	8.9	81	125
D2105090	9.0	81	125
D2105091	9.1	81	125
D2105092	9.2	81	125
D2105992	9.25	81	125
D2105093	9.3	81	125
D2105094	9.4	81	125
D2105095	9.5	81	125
D2105096	9.6	87	133

▶ TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

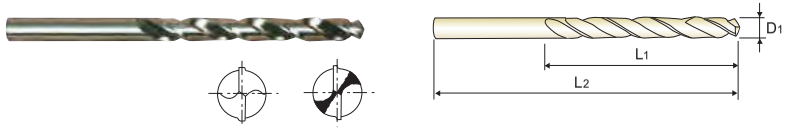
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
D 0 SERIES
HSSCo8, STRAIGHT SHANK TWIST DRILLS
JOBBER
HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSSCo8, queue cylindrique, Forme C, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8 — CORTA
▶Surface treatment : Coloring(Gold color)
▶Application : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.
▶Oberflächenbehandlung : Coloring(Goldfarbe)
▶Verwendung : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 | HSS Co8 | 33° | h8 | 135° | Gold Coloring | p.A262
Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 (Page)
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2105097	9.7	87	133
D2105997	9.75	87	133
D2105098	9.8	87	133
D2105099	9.9	87	133
D2105100	10.0	87	133
D2105102	10.2	87	133
D2105105	10.5	87	133
D2105110	11.0	94	142
D2105115	11.5	94	142
D2105120	12.0	101	151
D2105125	12.5	101	151
D2105130	13.0	101	151
D2105135	13.5	108	160
D2105140	14.0	108	160

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2105145	14.5	114	169
D2105150	15.0	114	169
D2105155	15.5	120	178
D2105160	16.0	120	178
D2105165	16.5	125	184
D2105170	17.0	125	184
D2105175	17.5	130	191
D2105180	18.0	130	191
D2105185	18.5	135	198
D2105190	19.0	135	198
D2105195	19.5	140	205
D2105200	20.0	140	205

▶ TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

DL 0 SERIES

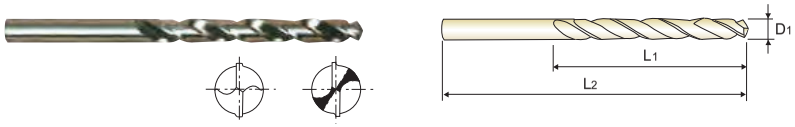
HSS-E, STRAIGHT SHANK TWIST DRILLS

JOBBER

HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSS-E, queue cylindrique, Forme C, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E — CORTA

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 | HSS-E | 33° | h8 | 135° | Gold Coloring p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL105010	1.0	12	34
DL105011	1.1	14	36
DL105012	1.2	16	38
DL105912	1.25	16	38
DL105013	1.3	16	38
DL105014	1.4	18	40
DL105015	1.5	18	40
DL105016	1.6	20	43
DL105017	1.7	20	43
DL105917	1.75	22	46
DL105018	1.8	22	46
DL105019	1.9	22	46
DL105020	2.0	24	49
DL105021	2.1	24	49
DL105022	2.2	27	53
DL105922	2.25	27	53
DL105023	2.3	27	53
DL105024	2.4	30	57
DL105025	2.5	30	57
DL105026	2.6	30	57
DL105027	2.7	33	61
DL105927	2.75	33	61
DL105028	2.8	33	61
DL105029	2.9	33	61
DL105030	3.0	33	61
DL105031	3.1	36	65

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL105032	3.2	36	65
DL105932	3.25	36	65
DL105033	3.3	36	65
DL105034	3.4	39	70
DL105035	3.5	39	70
DL105036	3.6	39	70
DL105037	3.7	39	70
DL105937	3.75	39	70
DL105038	3.8	43	75
DL105039	3.9	43	75
DL105040	4.0	43	75
DL105041	4.1	43	75
DL105042	4.2	43	75
DL105942	4.25	43	75
DL105043	4.3	47	80
DL105044	4.4	47	80
DL105045	4.5	47	80
DL105046	4.6	47	80
DL105047	4.7	47	80
DL105947	4.75	47	80
DL105048	4.8	52	86
DL105049	4.9	52	86
DL105050	5.0	52	86
DL105051	5.1	52	86
DL105052	5.2	52	86
DL105952	5.25	52	86

▶ TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

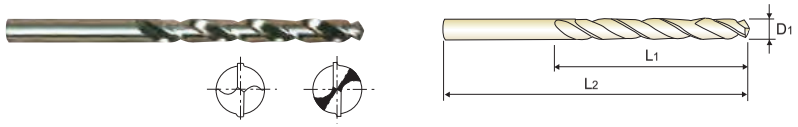
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
DL 0 SERIES
HSS-E, STRAIGHT SHANK TWIST DRILLS
JOBBER
HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSS-E, queue cylindrique, Forme C, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E — CORTA
▶Surface treatment : Coloring(Gold color)
▶Application : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.
▶Oberflächenbehandlung : Coloring(Goldfarbe)
▶Verwendung : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 338 | HSS-E | 33° | h8 | 135° | Gold Coloring p.A262
Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL105053	5.3	52	86
DL105054	5.4	57	93
DL105055	5.5	57	93
DL105056	5.6	57	93
DL105057	5.7	57	93
DL105957	5.75	57	93
DL105058	5.8	57	93
DL105059	5.9	57	93
DL105060	6.0	57	93
DL105061	6.1	63	101
DL105062	6.2	63	101
DL105962	6.25	63	101
DL105063	6.3	63	101
DL105064	6.4	63	101
DL105065	6.5	63	101
DL105066	6.6	63	101
DL105067	6.7	63	101
DL105967	6.75	69	109
DL105068	6.8	69	109
DL105069	6.9	69	109
DL105070	7.0	69	109
DL105071	7.1	69	109
DL105072	7.2	69	109
DL105972	7.25	69	109
DL105073	7.3	69	109
DL105074	7.4	69	109

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL105075	7.5	69	109
DL105076	7.6	75	117
DL105077	7.7	75	117
DL105977	7.75	75	117
DL105078	7.8	75	117
DL105079	7.9	75	117
DL105080	8.0	75	117
DL105081	8.1	75	117
DL105082	8.2	75	117
DL105982	8.25	75	117
DL105083	8.3	75	117
DL105084	8.4	75	117
DL105085	8.5	75	117
DL105086	8.6	81	125
DL105087	8.7	81	125
DL105987	8.75	81	125
DL105088	8.8	81	125
DL105089	8.9	81	125
DL105090	9.0	81	125
DL105091	9.1	81	125
DL105092	9.2	81	125
DL105992	9.25	81	125
DL105093	9.3	81	125
DL105094	9.4	81	125
DL105095	9.5	81	125
DL105096	9.6	87	133

▶ TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.
▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

DL 0 SERIES

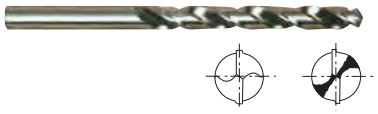
HSS-E, STRAIGHT SHANK TWIST DRILLS

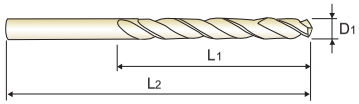
JOBBER

HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSS-E, queue cylindrique, Forme C, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS - E — CORTA

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.





DIN 338 | HSS-E | 33° | h8 | 135° | Gold Coloring | p.A262

Recommended Toolholder	Plain Shank	Page
	ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL105097	9.7	87	133
DL105997	9.75	87	133
DL105098	9.8	87	133
DL105099	9.9	87	133
DL105100	10.0	87	133
DL105102	10.2	87	133
DL105105	10.5	87	133
DL105110	11.0	94	142
DL105115	11.5	94	142
DL105120	12.0	101	151
DL105125	12.5	101	151
DL105130	13.0	101	151
DL105135	13.5	108	160
DL105140	14.0	108	160

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL105145	14.5	114	169
DL105150	15.0	114	169
DL105155	15.5	120	178
DL105160	16.0	120	178
DL105165	16.5	125	184
DL105170	17.0	125	184
DL105175	17.5	130	191
DL105180	18.0	130	191
DL105185	18.5	135	198
DL105190	19.0	135	198
DL105195	19.5	140	205
DL105200	20.0	140	205

▶ TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

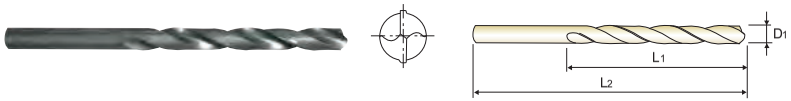
HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

HSS, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSS, queue cylindrique, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS — CORTA

▶**Surface treatment** : Steam Tempered(Black Oxide Finish) Bright Finish under 2mm
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

▶**Oberflächenbehandlung** : Steam Homo(Scwarzoxidation) Helle Beschaffenheit unter 2mm
▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 | HSS | N 20~30° | h8 | 118° | Vap | p.A262

Recommended Toolholder	Plain Shank	Page
	ER COLLET CHUCK	D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105003	0.3	3	19
D1105004	0.4	5	20
D1105005	0.5	6	22
D1105006	0.6	7	24
D1105007	0.7	9	28
D1105008	0.8	10	30
D1105009	0.9	11	32
D1105010	1.0	12	34
D1105910	1.05	12	34
D1105011	1.1	14	36
D1105911	1.15	14	36
D1105012	1.2	16	38
D1105912	1.25	16	38
D1105013	1.3	16	38
D1105913	1.35	18	40
D1105014	1.4	18	40
D1105914	1.45	18	40
D1105015	1.5	18	40
D1105915	1.55	20	43
D1105016	1.6	20	43
D1105916	1.65	20	43
D1105017	1.7	20	43
D1105917	1.75	22	46
D1105018	1.8	22	46
D1105918	1.85	22	46
D1105019	1.9	22	46

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105919	1.95	24	49
D1105020	2.0	24	49
D1105920	2.05	24	49
D1105021	2.1	24	49
D1105921	2.15	27	53
D1105022	2.2	27	53
D1105922	2.25	27	53
D1105023	2.3	27	53
D1105923	2.35	27	53
D1105024	2.4	30	57
D1105924	2.45	30	57
D1105025	2.5	30	57
D1105925	2.55	30	57
D1105026	2.6	30	57
D1105926	2.65	30	57
D1105027	2.7	33	61
D1105927	2.75	33	61
D1105028	2.8	33	61
D1105928	2.85	33	61
D1105029	2.9	33	61
D1105929	2.95	33	61
D1105030	3.0	33	61
D1105930	3.05	36	65
D1105031	3.1	36	65
D1105931	3.15	36	65
D1105032	3.2	36	65

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

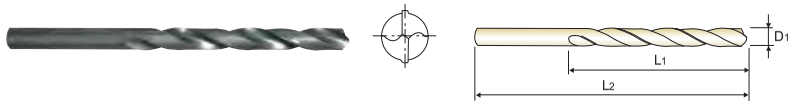
HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER
KURZ
COURTE
CORTA

HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSS, queue cylindrique, série courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

▶**Surface treatment** : Steam Tempered(Black Oxide Finish) Bright Finish under 2mm
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

▶**Oberflächenbehandlung** : Steam Homo(Scwarzoxidation) Helle Beschaffenheit unter 2mm
▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 | HSS | N 20~30° | h8 | 118° | Vap p.A262

Recommended Toolholder	Plain Shank	Page
ER COLLET CHUCK		D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105932	3.25	36	65
D1105033	3.3	36	65
D1105933	3.35	36	65
D1105034	3.4	39	70
D1105934	3.45	39	70
D1105035	3.5	39	70
D1105935	3.55	39	70
D1105036	3.6	39	70
D1105936	3.65	39	70
D1105037	3.7	39	70
D1105937	3.75	39	70
D1105038	3.8	43	75
D1105938	3.85	43	75
D1105039	3.9	43	75
D1105939	3.95	43	75
D1105040	4.0	43	75
D1105940	4.05	43	75
D1105041	4.1	43	75
D1105941	4.15	43	75
D1105042	4.2	43	75
D1105942	4.25	43	75
D1105043	4.3	47	80
D1105943	4.35	47	80
D1105044	4.4	47	80
D1105944	4.45	47	80
D1105045	4.5	47	80

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105945	4.55	47	80
D1105046	4.6	47	80
D1105946	4.65	47	80
D1105047	4.7	47	80
D1105947	4.75	47	80
D1105048	4.8	52	86
D1105948	4.85	52	86
D1105049	4.9	52	86
D1105949	4.95	52	86
D1105050	5.0	52	86
D1105950	5.05	52	86
D1105051	5.1	52	86
D1105951	5.15	52	86
D1105052	5.2	52	86
D1105952	5.25	52	86
D1105053	5.3	52	86
D1105953	5.35	57	93
D1105054	5.4	57	93
D1105954	5.45	57	93
D1105055	5.5	57	93
D1105955	5.55	57	93
D1105056	5.6	57	93
D1105956	5.65	57	93
D1105057	5.7	57	93
D1105957	5.75	57	93
D1105058	5.8	57	93

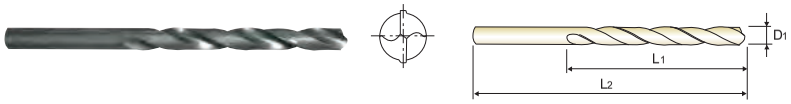
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
D 0 SERIES
HSS, STRAIGHT SHANK TWIST DRILLS
JOBBER
KURZ
COURTE
CORTA
HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSS, queue cylindrique, série courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS
▶Surface treatment : Steam Tempered(Black Oxide Finish) Bright Finish under 2mm
▶Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.
▶Oberflächenbehandlung : Steam Homo(Scwarzoxidation) Helle Beschaffenheit unter 2mm
▶Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 | HSS | N 20~30° | h8 | 118° | Vap p.A262
Recommended Toolholder | Plain Shank | Page
ER COLLET CHUCK | D73 - 115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105958	5.85	57	93
D1105059	5.9	57	93
D1105959	5.95	57	93
D1105060	6.0	57	93
D1105960	6.05	63	101
D1105061	6.1	63	101
D1105961	6.15	63	101
D1105062	6.2	63	101
D1105962	6.25	63	101
D1105063	6.3	63	101
D1105963	6.35	63	101
D1105064	6.4	63	101
D1105964	6.45	63	101
D1105065	6.5	63	101
D1105965	6.55	63	101
D1105066	6.6	63	101
D1105966	6.65	63	101
D1105067	6.7	63	101
D1105967	6.75	69	109
D1105068	6.8	69	109
D1105968	6.85	69	109
D1105069	6.9	69	109
D1105969	6.95	69	109
D1105070	7.0	69	109
D1105970	7.05	69	109
D1105071	7.1	69	109

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105971	7.15	69	109
D1105072	7.2	69	109
D1105972	7.25	69	109
D1105073	7.3	69	109
D1105973	7.35	69	109
D1105074	7.4	69	109
D1105974	7.45	69	109
D1105075	7.5	69	109
D1105975	7.55	75	117
D1105076	7.6	75	117
D1105976	7.65	75	117
D1105077	7.7	75	117
D1105977	7.75	75	117
D1105078	7.8	75	117
D1105978	7.85	75	117
D1105079	7.9	75	117
D1105979	7.95	75	117
D1105080	8.0	75	117
D1105081	8.1	75	117
D1105082	8.2	75	117
D1105982	8.25	75	117
D1105083	8.3	75	117
D1105084	8.4	75	117
D1105085	8.5	75	117
D1105086	8.6	81	125
D1105087	8.7	81	125

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

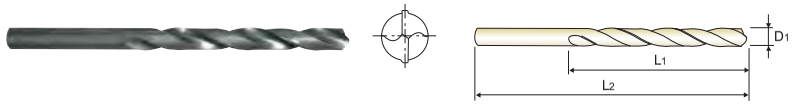
HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER

HSS, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSS, queue cylindrique, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS — CORTA

▶**Surface treatment** : Steam Tempered(Black Oxide Finish) Bright Finish under 2mm
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

▶**Oberflächenbehandlung** : Steam Homo(Scwarzoxidation) Helle Beschaffenheit unter 2mm
▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 | HSS | N 20~30° | h8 | 118° | Vap p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 — Page

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105987	8.75	81	125
D1105088	8.8	81	125
D1105089	8.9	81	125
D1105090	9.0	81	125
D1105091	9.1	81	125
D1105092	9.2	81	125
D1105992	9.25	81	125
D1105093	9.3	81	125
D1105094	9.4	81	125
D1105095	9.5	81	125
D1105096	9.6	87	133
D1105097	9.7	87	133
D1105997	9.75	87	133
D1105098	9.8	87	133
D1105099	9.9	87	133
D1105100	10.0	87	133
D1105101	10.1	87	133
D1105102	10.2	87	133
D1105802	10.25	87	133
D1105103	10.3	87	133
D1105104	10.4	87	133
D1105105	10.5	87	133
D1105106	10.6	87	133
D1105107	10.7	94	142
D1105807	10.75	94	142
D1105108	10.8	94	142

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105109	10.9	94	142
D1105110	11.0	94	142
D1105111	11.1	94	142
D1105112	11.2	94	142
D1105812	11.25	94	142
D1105113	11.3	94	142
D1105114	11.4	94	142
D1105115	11.5	94	142
D1105116	11.6	94	142
D1105117	11.7	94	142
D1105817	11.75	94	142
D1105118	11.8	94	142
D1105119	11.9	101	151
D1105120	12.0	101	151
D1105121	12.1	101	151
D1105122	12.2	101	151
D1105822	12.25	101	151
D1105123	12.3	101	151
D1105124	12.4	101	151
D1105125	12.5	101	151
D1105126	12.6	101	151
D1105127	12.7	101	151
D1105827	12.75	101	151
D1105128	12.8	101	151
D1105129	12.9	101	151
D1105130	13.0	101	151

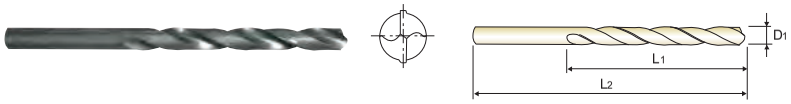
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
D 0 SERIES
HSS, STRAIGHT SHANK TWIST DRILLS
JOBBER
HSS, SPIRALBOHRER mit ZYLINDERSCHAFT — KURZ
Forets HSS, queue cylindrique, série courte — COURTE
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS — CORTA
▶Surface treatment : Steam Tempered(Black Oxide Finish) Bright Finish under 2mm
▶Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.
▶Oberflächenbehandlung : Steam Homo(Scwarzoxidation) Helle Beschaffenheit unter 2mm
▶Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 | HSS | N 20~30° | h8 | 118° | Vap p.A262
Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115 — Page
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105832	13.25	108	160
D1105135	13.5	108	160
D1105837	13.75	108	160
D1105140	14.0	108	160
D1105842	14.25	114	169
D1105145	14.5	114	169
D1105847	14.75	114	169
D1105150	15.0	114	169
D1105852	15.25	120	178
D1105155	15.5	120	178
D1105857	15.75	120	178
D1105160	16.0	120	178
D1105862	16.25	125	184
D1105165	16.5	125	184

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1105867	16.75	125	184
D1105170	17.0	125	184
D1105872	17.25	130	191
D1105175	17.5	130	191
D1105877	17.75	130	191
D1105180	18.0	130	191
D1105882	18.25	135	198
D1105185	18.5	135	198
D1105887	18.75	135	198
D1105190	19.0	135	198
D1105892	19.25	140	205
D1105195	19.5	140	205
D1105897	19.75	140	205
D1105200	20.0	140	205

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

ST AIGHT SHANK D ILLS

D SERIES

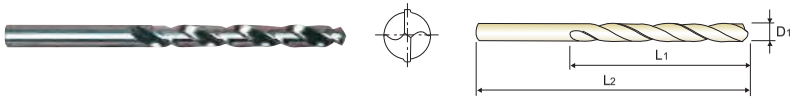
HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER
KURZ
COURTE
CORTA

HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSS, queue cylindrique, série courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

▶Surface treatment : Bright Finish
▶Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

▶Oberflächenbehandlung : Helle Beschaffenheit
▶Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 | HSS | N 20~30° | h8 | 118° | Bright p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125020	2.0	24	49
D1125021	2.1	24	49
D1125022	2.2	27	53
D1125023	2.3	27	53
D1125024	2.4	30	57
D1125025	2.5	30	57
D1125026	2.6	30	57
D1125027	2.7	33	61
D1125028	2.8	33	61
D1125029	2.9	33	61
D1125030	3.0	33	61
D1125031	3.1	36	65
D1125032	3.2	36	65
D1125033	3.3	36	65
D1125034	3.4	39	70
D1125035	3.5	39	70
D1125036	3.6	39	70
D1125037	3.7	39	70
D1125038	3.8	43	75
D1125039	3.9	43	75
D1125040	4.0	43	75
D1125041	4.1	43	75
D1125042	4.2	43	75
D1125043	4.3	47	80
D1125044	4.4	47	80
D1125045	4.5	47	80

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125046	4.6	47	80
D1125047	4.7	47	80
D1125048	4.8	52	86
D1125049	4.9	52	86
D1125050	5.0	52	86
D1125051	5.1	52	86
D1125052	5.3	52	86
D1125053	5.3	52	86
D1125054	5.4	57	93
D1125055	5.5	57	93
D1125056	5.6	57	93
D1125057	5.7	57	93
D1125058	5.8	57	93
D1125059	5.9	57	93
D1125060	6.0	57	93
D1125061	6.1	63	101
D1125062	6.2	63	101
D1125063	6.3	63	101
D1125064	6.4	63	101
D1125065	6.5	63	101
D1125066	6.6	63	101
D1125067	6.7	63	101
D1125068	6.8	69	109
D1125069	6.9	69	109
D1125070	7.0	69	109
D1125071	7.1	69	109

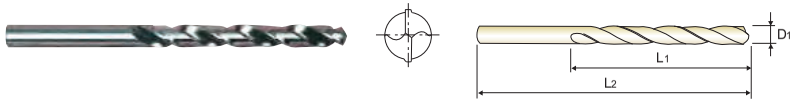
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS
D SERIES
HSS, STRAIGHT SHANK TWIST DRILLS
JOBBER
KURZ
COURTE
CORTA
HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSS, queue cylindrique, série courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS
▶Surface treatment : Bright Finish
▶Application : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.
▶Oberflächenbehandlung : Helle Beschaffenheit
▶Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338 | HSS | N 20~30° | h8 | 118° | Bright p.A262
Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125072	7.2	69	109
D1125073	7.3	69	109
D1125074	7.4	69	109
D1125075	7.5	69	109
D1125076	7.6	75	117
D1125077	7.7	75	117
D1125078	7.8	75	117
D1125079	7.9	75	117
D1125080	8.0	75	117
D1125081	8.1	75	117
D1125082	8.2	75	117
D1125083	8.3	75	117
D1125084	8.4	75	117
D1125085	8.5	75	117
D1125086	8.6	81	125
D1125087	8.7	81	125
D1125088	8.8	81	125
D1125089	8.9	81	125
D1125090	9.0	81	125
D1125091	9.1	81	125
D1125092	9.2	81	125
D1125093	9.3	81	125
D1125094	9.4	81	125
D1125095	9.5	81	125
D1125096	9.6	87	133
D1125097	9.7	87	133

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125098	9.8	87	133
D1125099	9.9	87	133
D1125100	10.0	87	133
D1125101	10.1	87	133
D1125102	10.2	87	133
D1125103	10.3	87	133
D1125104	10.4	87	133
D1125105	10.5	87	133
D1125106	10.6	87	133
D1125107	10.7	94	142
D1125108	10.8	94	142
D1125109	10.9	94	142
D1125110	11.0	94	142
D1125111	11.1	94	142
D1125112	11.2	94	142
D1125113	11.3	94	142
D1125114	11.4	94	142
D1125115	11.5	94	142
D1125116	11.6	94	142
D1125117	11.7	94	142
D1125118	11.8	94	142
D1125119	11.9	101	151
D1125120	12.0	101	151
D1125121	12.1	101	151
D1125122	12.2	101	151
D1125123	12.3	101	151

▶ NEXT PAGE
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D SERIES

HSS, STRAIGHT SHANK TWIST DRILLS

JOBBER
KURZ
COURTE
CORTA

HSS, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSS, queue cylindrique, série courte
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS

▶**Surface treatment** : Bright Finish
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

▶**Oberflächenbehandlung** : Helle Beschaffenheit
▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.

DIN 338 | HSS | N 20~30° | h8 | 118° | Bright p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125124	12.4	101	151
D1125125	12.5	101	151
D1125126	12.6	101	151
D1125127	12.7	101	151
D1125128	12.8	101	151
D1125129	12.9	101	151
D1125130	13.0	101	151
D1125132	13.2	101	151
D1125133	13.3	108	160
D1125135	13.5	108	160
D1125140	14.0	108	160
D1125145	14.5	114	169

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1125150	15.0	114	169
D1125155	15.5	120	178
D1125160	16.0	120	178
D1125165	16.5	125	184
D1125170	17.0	125	184
D1125175	17.5	130	191
D1125180	18.0	130	191
D1125185	18.5	135	198
D1125190	19.0	135	198
D1125195	19.5	140	205
D1125200	20.0	140	205

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS

LONG
LANG
LONGUE
LUNGA

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT
Forets HSSCo8, queue cylindrique, série longue
PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Für Bohrarbeiten mit Bohrungen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.

DIN 340 | HSS Co8 | 33° | h8 | 135° | Gold Coloring p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2104020	2.0	56	85
D2104021	2.1	56	85
D2104022	2.2	59	90
D2104023	2.3	59	90
D2104024	2.4	62	95
D2104025	2.5	62	95
D2104026	2.6	62	95
D2104027	2.7	66	100
D2104028	2.8	66	100
D2104029	2.9	66	100
D2104030	3.0	66	100
D2104031	3.1	69	106
D2104032	3.2	69	106
D2104033	3.3	69	106
D2104034	3.4	73	112
D2104035	3.5	73	112
D2104036	3.6	73	112
D2104037	3.7	73	112
D2104038	3.8	78	119
D2104039	3.9	78	119
D2104040	4.0	78	119
D2104041	4.1	78	119
D2104042	4.2	78	119
D2104043	4.3	82	126
D2104044	4.4	82	126
D2104045	4.5	82	126

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2104046	4.6	82	126
D2104047	4.7	82	126
D2104048	4.8	87	132
D2104049	4.9	87	132
D2104050	5.0	87	132
D2104051	5.1	87	132
D2104052	5.2	87	132
D2104053	5.3	87	132
D2104054	5.4	91	139
D2104055	5.5	91	139
D2104056	5.6	91	139
D2104057	5.7	91	139
D2104058	5.8	91	139
D2104059	5.9	91	139
D2104060	6.0	91	139
D2104061	6.1	97	148
D2104062	6.2	97	148
D2104063	6.3	97	148
D2104064	6.4	97	148
D2104065	6.5	97	148
D2104066	6.6	97	148
D2104067	6.7	97	148
D2104068	6.8	102	156
D2104069	6.9	102	156
D2104070	7.0	102	156
D2104071	7.1	102	156

▶ HSS-E(DL104) is available on your request.
▶ TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 0 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS

LONG

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT — LANG

Forets HSSCo8, queue cylindrique, série longue — LONGUE

PUNTE ELICOIDALI, GAMBO CILINDRICO, HSSCo8 — LUNGA

▶**Surface treatment** : Coloring(Gold color)
▶**Application** : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

▶**Oberflächenbehandlung** : Coloring(Goldfarbe)
▶**Verwendung** : Für Bohrarbeiten mit Bohrbuchsen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.

DIN 340 | HSS Co8 | 33° | h8 | 135° | Gold Coloring p.A262

Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2104072	7.2	102	156
D2104073	7.3	102	156
D2104074	7.4	102	156
D2104075	7.5	102	156
D2104076	7.6	109	165
D2104077	7.7	109	165
D2104078	7.8	109	165
D2104079	7.9	109	165
D2104080	8.0	109	165
D2104081	8.1	109	165
D2104082	8.2	109	165
D2104083	8.3	109	165
D2104084	8.4	109	165
D2104085	8.5	109	165
D2104086	8.6	115	175
D2104087	8.7	115	175
D2104088	8.8	115	175
D2104089	8.9	115	175
D2104090	9.0	115	175
D2104091	9.1	115	175

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2104092	9.2	115	175
D2104093	9.3	115	175
D2104094	9.4	115	175
D2104095	9.5	115	175
D2104096	9.6	121	184
D2104097	9.7	121	184
D2104098	9.8	121	184
D2104099	9.9	121	184
D2104100	10.0	121	184
D2104102	10.2	121	184
D2104105	10.5	121	184
D2104108	10.8	128	195
D2104110	11.0	128	195
D2104112	11.2	128	195
D2104115	11.5	128	195
D2104118	11.8	128	195
D2104120	12.0	134	205

▶ HSS-E(DL104) is available on your request.
▶ TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D SERIES

HSS, STRAIGHT SHANK TWIST DRILLS

EXTRA LONG

HSS, SPIRALBOHRER MIT ZYLINDERSCHAFT — ÜBERLANG

Forets HSS, queue cylindrique, série extra-longue — EXTRA-LONGUE

PUNTE ELICOIDALI, GAMBO CILINDRICO, HSS — EXTRA LUNGA

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Designed for drilling deep holes or deeply located holes
Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

▶**Oberflächenbehandlung** : Steam Homo(Scwarzoxidation)
▶**Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher, zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.

DIN 1869/1 | HSS | N 20~30° | h8 | 118° | Vap p.A262

Recommended Toolholder — Plain Shank: ER COLLET CHUCK — Page: D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1121020	2.0	85	125
D1121025	2.5	95	140
D1121030	3.0	100	150
D1121035	3.5	115	165
D1121040	4.0	120	175
D1121045	4.5	125	185
D1121050	5.0	135	195
D1121055	5.5	140	205
D1121060	6.0	140	205
D1121065	6.5	150	215
D1121070	7.0	155	225
D1121075	7.5	155	225

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1121080	8.0	165	240
D1121085	8.5	165	240
D1121090	9.0	175	250
D1121095	9.5	175	250
D1121100	10.0	185	265
D1121105	10.5	185	265
D1121110	11.0	195	280
D1121115	11.5	195	280
D1121120	12.0	205	295
D1121125	12.5	205	295
D1121130	13.0	205	295

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		○	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

DL 0 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for HEAVY DUTY

JOBBER

HSS-E, SPIRALBOHRER für HOHE LEISTUNGEN mit ZYLINDERSCHAFT — KURZ

Forets HSS-E, queue cylindrique pour matériaux durs, série courte — COURTE

PUNTE ELICOIDALI PER IMPIEGHI GRAVOSI, GAMBO CILINDRICO, HSS - E — CORTA

▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.

DIN 338 | HSS-E | N 20~30° | h8 | 118° | Bright p.A262

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL109015	1.5	18	40
DL109917	1.75	22	46
DL109020	2.0	24	49
DL109922	2.25	27	53
DL109025	2.5	30	57
DL109927	2.75	33	61
DL109030	3.0	33	61
DL109932	3.25	36	65
DL109035	3.5	39	70
DL109937	3.75	39	70
DL109040	4.0	43	75
DL109942	4.25	43	75
DL109045	4.5	47	80
DL109947	4.75	47	80
DL109050	5.0	52	86
DL109952	5.25	52	86
DL109055	5.5	57	93
DL109957	5.75	57	93
DL109060	6.0	57	93
DL109962	6.25	63	101
DL109065	6.5	63	101
DL109967	6.75	69	109
DL109070	7.0	69	109
DL109972	7.25	69	109
DL109075	7.5	69	109
DL109977	7.75	75	117

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL109080	8.0	75	117
DL109982	8.25	75	117
DL109085	8.5	75	117
DL109987	8.75	81	125
DL109090	9.0	81	125
DL109992	9.25	81	125
DL109095	9.5	81	125
DL109997	9.75	87	133
DL109100	10.0	87	133
DL109105	10.5	87	133
DL109110	11.0	94	142
DL109115	11.5	94	142
DL109120	12.0	101	151
DL109125	12.5	101	151
DL109130	13.0	101	151

▶ TiN(DN109), TiCN(DX109) and TiAlN(DT109) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○	○	○	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

ST AIGHT SHANK D ILLS

D 00 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS for BRASS/BRONZE

JOBBER

HSS, SPIRALBOHRER für MESSING/BRONZE mit ZYLINDERSCHAFT — KURZ

Forets HSS, queue cylindrique pour Laiton/Bronze, série courte — COURTE

PUNTE ELICOIDALI, GAMBO CILINDRICO PER OTTONE (HSS) — CORTA

▶**Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.

▶**Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.

DIN 338 | HSS | N 15~20° | h8 | 118° | Bright p.A263

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1100015	1.5	18	40
D1100016	1.6	20	43
D1100017	1.7	20	43
D1100018	1.8	22	46
D1100019	1.9	22	46
D1100020	2.0	24	49
D1100021	2.1	24	49
D1100022	2.2	27	53
D1100023	2.3	27	53
D1100024	2.4	30	57
D1100025	2.5	30	57
D1100026	2.6	30	57
D1100027	2.7	33	61
D1100028	2.8	33	61
D1100029	2.9	33	61
D1100030	3.0	33	61
D1100031	3.1	36	65
D1100032	3.2	36	65
D1100033	3.3	36	65
D1100034	3.4	39	70
D1100035	3.5	39	70
D1100036	3.6	39	70
D1100037	3.7	39	70
D1100038	3.8	43	75
D1100039	3.9	43	75
D1100040	4.0	43	75

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1100041	4.1	43	75
D1100042	4.2	43	75
D1100043	4.3	47	80
D1100044	4.4	47	80
D1100045	4.5	47	80
D1100046	4.6	47	80
D1100047	4.7	47	80
D1100048	4.8	52	86
D1100049	4.9	52	86
D1100050	5.0	52	86
D1100051	5.1	52	86
D1100052	5.2	52	86
D1100053	5.3	52	86
D1100054	5.4	57	93
D1100055	5.5	57	93
D1100056	5.6	57	93
D1100057	5.7	57	93
D1100058	5.8	57	93
D1100059	5.9	57	93
D1100060	6.0	57	93
D1100061	6.1	63	101
D1100062	6.2	63	101
D1100063	6.3	63	101
D1100064	6.4	63	101
D1100065	6.5	63	101
D1100066	6.6	63	101

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended							◎	◎													

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

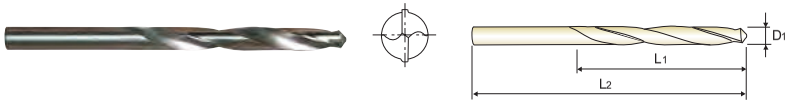
HSS, STRAIGHT SHANK TWIST DRILLS for BRASS/BRONZE

JOBBER

HSS, SPIRALBOHRER für MESSING/BRONZE mit ZYLINDERSCHAFT — *KURZ*
Forets HSS, queue cylindrique pour Laiton/Bronze, série courte — *COURTE*
PUNTE ELICOIDALI, GAMBO CILINDRICO PER OTTONE (HSS) — *CORTA*

▶**Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.

▶**Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338 | HSS | N 15~20° | h8 | 118° | Bright p.A263

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1100067	6.7	63	101
D1100068	6.8	69	109
D1100069	6.9	69	109
D1100070	7.0	69	109
D1100071	7.1	69	109
D1100072	7.2	69	109
D1100073	7.3	69	109
D1100074	7.4	69	109
D1100075	7.5	69	109
D1100076	7.6	75	117
D1100077	7.7	75	117
D1100078	7.8	75	117
D1100079	7.9	75	117
D1100080	8.0	75	117
D1100081	8.1	75	117
D1100082	8.2	75	117
D1100083	8.3	75	117
D1100084	8.4	75	117
D1100085	8.5	75	117
D1100086	8.6	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1100087	8.7	81	125
D1100088	8.8	81	125
D1100089	8.9	81	125
D1100090	9.0	81	125
D1100091	9.1	81	125
D1100092	9.2	81	125
D1100093	9.3	81	125
D1100094	9.4	81	125
D1100095	9.5	81	125
D1100096	9.6	87	133
D1100097	9.7	87	133
D1100098	9.8	87	133
D1100099	9.9	87	133
D1100100	10.0	87	133
D1100105	10.5	87	133
D1100110	11.0	94	142
D1100115	11.5	94	142
D1100120	12.0	101	151
D1100125	12.5	101	151
D1100130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended							◎	◎													

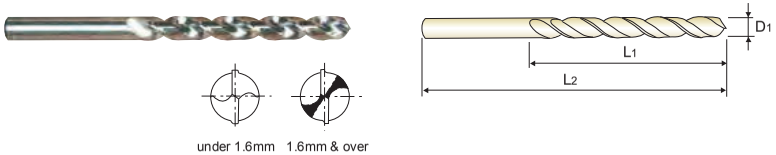
HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

JOBBER

HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT — *KURZ*
Forets HSS, queue cylindrique pour ALU, Forme C, série courte — *COURTE*
PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS) — *CORTA*

▶**Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze aluminum and magnesium alloys.

▶**Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338 | HSS | 38° | h8 | 135° | Bright p.A263

Recommended Toolholder: ER COLLET CHUCK — Plain Shank D73 - 115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106015	1.5	18	40
D1106016	1.6	20	43
D1106017	1.7	20	43
D1106018	1.8	22	46
D1106019	1.9	22	46
D1106020	2.0	24	49
D1106021	2.1	24	49
D1106022	2.2	27	53
D1106023	2.3	27	53
D1106024	2.4	30	57
D1106025	2.5	30	57
D1106026	2.6	30	57
D1106027	2.7	33	61
D1106028	2.8	33	61
D1106029	2.9	33	61
D1106030	3.0	33	61
D1106031	3.1	36	65
D1106032	3.2	36	65
D1106033	3.3	36	65
D1106034	3.4	39	70
D1106035	3.5	39	70
D1106036	3.6	39	70
D1106037	3.7	39	70
D1106038	3.8	43	75
D1106039	3.9	43	75
D1106040	4.0	43	75

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106041	4.1	43	75
D1106042	4.2	43	75
D1106043	4.3	47	80
D1106044	4.4	47	80
D1106045	4.5	47	80
D1106046	4.6	47	80
D1106047	4.7	47	80
D1106048	4.8	52	86
D1106049	4.9	52	86
D1106050	5.0	52	86
D1106051	5.1	52	86
D1106052	5.2	52	86
D1106053	5.3	52	86
D1106054	5.4	57	93
D1106055	5.5	57	93
D1106056	5.6	57	93
D1106057	5.7	57	93
D1106058	5.8	57	93
D1106059	5.9	57	93
D1106060	6.0	57	93
D1106061	6.1	63	101
D1106062	6.2	63	101
D1106063	6.3	63	101
D1106064	6.4	63	101
D1106065	6.5	63	101
D1106066	6.6	63	101

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

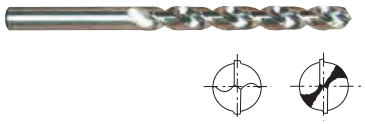
HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

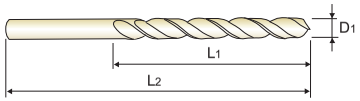
JOBBER

- HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT — *KURZ*
- Forets HSS, queue cylindrique pour ALU, Forme C, série courte — *COURTE*
- PUNTE ELICOIDALI, GAMBO CILINDRICO, PER ALLUMINIO (HSS) — *CORTA*

▶**Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze aluminum and magnesium alloys.

▶**Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.





DIN 338 | HSS | 38° | h8 | 135° | Bright p.A263

Recommended Toolholder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106067	6.7	63	101
D1106068	6.8	69	109
D1106069	6.9	69	109
D1106070	7.0	69	109
D1106071	7.1	69	109
D1106072	7.2	69	109
D1106073	7.3	69	109
D1106074	7.4	69	109
D1106075	7.5	69	109
D1106076	7.6	75	117
D1106077	7.7	75	117
D1106078	7.8	75	117
D1106079	7.9	75	117
D1106080	8.0	75	117
D1106081	8.1	75	117
D1106082	8.2	75	117
D1106083	8.3	75	117
D1106084	8.4	75	117
D1106085	8.5	75	117
D1106086	8.6	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D1106087	8.7	81	125
D1106088	8.8	81	125
D1106089	8.9	81	125
D1106090	9.0	81	125
D1106091	9.1	81	125
D1106092	9.2	81	125
D1106093	9.3	81	125
D1106094	9.4	81	125
D1106095	9.5	81	125
D1106096	9.6	87	133
D1106097	9.7	87	133
D1106098	9.8	87	133
D1106099	9.9	87	133
D1106100	10.0	87	133
D1106105	10.5	87	133
D1106110	11.0	94	142
D1106115	11.5	94	142
D1106120	12.0	101	151
D1106125	12.5	101	151
D1106130	13.0	101	151

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎																	

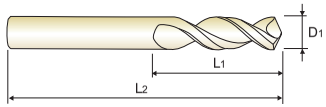
HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

STUB

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — *EXTRA KURZ*
- Forets HSS-E, queue cylindrique pour perçage profond, série extra-courte — *EXTRA-COURTE*
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — *EXTRA CORTA*

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶ **DH100** worm pattern drills

DIN 1897 | HSS-E | 42° | h8 | 130° | Bright p.A264

Recommended Toolholder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL510020	2.0	12	38
DL510021	2.1	12	38
DL510022	2.2	13	40
DL510023	2.3	13	40
DL510024	2.4	14	43
DL510025	2.5	14	43
DL510026	2.6	14	43
DL510027	2.7	16	46
DL510028	2.8	16	46
DL510029	2.9	16	46
DL510030	3.0	16	46
DL510031	3.1	18	49
DL510032	3.2	18	49
DL510033	3.3	18	49
DL510034	3.4	20	52
DL510035	3.5	20	52
DL510036	3.6	20	52
DL510037	3.7	20	52
DL510038	3.8	22	55
DL510039	3.9	22	55
DL510040	4.0	22	55
DL510041	4.1	22	55
DL510042	4.2	22	55
DL510043	4.3	24	58
DL510044	4.4	24	58
DL510045	4.5	24	58

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL510046	4.6	24	58
DL510047	4.7	24	58
DL510048	4.8	26	62
DL510049	4.9	26	62
DL510050	5.0	26	62
DL510051	5.1	26	62
DL510052	5.2	26	62
DL510053	5.3	26	66
DL510054	5.4	28	66
DL510055	5.5	28	66
DL510056	5.6	28	66
DL510057	5.7	28	66
DL510058	5.8	28	66
DL510059	5.9	28	66
DL510060	6.0	28	66
DL510061	6.1	31	70
DL510062	6.2	31	70
DL510063	6.3	31	70
DL510064	6.4	31	70
DL510065	6.5	31	70
DL510066	6.6	31	70
DL510067	6.7	31	70
DL510068	6.8	34	74
DL510069	6.9	34	74
DL510070	7.0	34	74
DL510071	7.1	34	74

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

ST AIGHT SHANK D ILLS

DL 0 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

STUB

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — EXTRA KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série extra-courte — EXTRA-COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — EXTRA CORTA

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

▶DH100 worm pattern drills

DIN 1897 | HSS-E | 42° | h8 | 130° | Bright p.A264

Recommended Toolholder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL510072	7.2	34	74
DL510073	7.3	34	74
DL510074	7.4	34	74
DL510075	7.5	34	74
DL510076	7.6	37	79
DL510077	7.7	37	79
DL510078	7.8	37	79
DL510079	7.9	37	79
DL510080	8.0	37	79
DL510081	8.1	37	79
DL510082	8.2	37	79
DL510083	8.3	37	79
DL510084	8.4	37	79
DL510085	8.5	37	79
DL510086	8.6	40	84
DL510087	8.7	40	84
DL510088	8.8	40	84
DL510089	8.9	40	84
DL510090	9.0	40	84
DL510091	9.1	40	84
DL510092	9.2	40	84
DL510093	9.3	40	84
DL510094	9.4	40	84
DL510095	9.5	40	84
DL510096	9.6	43	89
DL510097	9.7	43	89
DL510098	9.8	43	89
DL510099	9.9	43	89

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL510100	10.0	43	89
DL510102	10.2	43	89
DL510105	10.5	43	89
DL510108	10.8	47	95
DL510110	11.0	47	95
DL510112	11.2	47	95
DL510115	11.5	47	95
DL510118	11.8	47	95
DL510120	12.0	51	102
DL510125	12.5	51	102
DL510130	13.0	51	102
DL510135	13.5	54	107
DL510140	14.0	54	107
DL510145	14.5	56	111
DL510150	15.0	56	111
DL510155	15.5	58	115
DL510160	16.0	58	115
DL510165	16.5	60	119
DL510170	17.0	60	119
DL510175	17.5	62	123
DL510180	18.0	62	123
DL510185	18.5	64	127
DL510190	19.0	64	127
DL510195	19.5	66	131
DL510200	20.0	66	131

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

ST AIGHT SHANK D ILLS
DL 0 SERIES
HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série courte — COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — CORTA

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

▶DH100 worm pattern drills

DIN 338 | HSS-E | 42° | h8 | 130° | Bright p.A264

Recommended Toolholder: Plain Shank — ER COLLET CHUCK — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL508020	2.0	24	49
DL508021	2.1	24	49
DL508022	2.2	27	53
DL508023	2.3	27	53
DL508024	2.4	30	57
DL508025	2.5	30	57
DL508026	2.6	30	57
DL508027	2.7	33	61
DL508028	2.8	33	61
DL508029	2.9	33	61
DL508030	3.0	33	61
DL508031	3.1	36	65
DL508032	3.2	36	65
DL508033	3.3	36	65
DL508034	3.4	39	70
DL508035	3.5	39	70
DL508036	3.6	39	70
DL508037	3.7	39	70
DL508038	3.8	43	75
DL508039	3.9	43	75
DL508040	4.0	43	75
DL508041	4.1	43	75
DL508042	4.2	43	75
DL508043	4.3	47	80
DL508044	4.4	47	80
DL508045	4.5	47	80

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL508046	4.6	47	80
DL508047	4.7	47	80
DL508048	4.8	52	86
DL508049	4.9	52	86
DL508050	5.0	52	86
DL508051	5.1	52	86
DL508052	5.2	52	86
DL508053	5.3	52	86
DL508054	5.4	57	93
DL508055	5.5	57	93
DL508056	5.6	57	93
DL508057	5.7	57	93
DL508058	5.8	57	93
DL508059	5.9	57	93
DL508060	6.0	57	93
DL508061	6.1	63	101
DL508062	6.2	63	101
DL508063	6.3	63	101
DL508064	6.4	63	101
DL508065	6.5	63	101
DL508066	6.6	63	101
DL508067	6.7	63	101
DL508068	6.8	69	109
DL508069	6.9	69	109
DL508070	7.0	69	109
DL508071	7.1	69	109

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

JOBBER

HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — KURZ

Forets HSS-E, queue cylindrique pour perçage profond, série courte — COURTE

PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — CORTA

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

▶DH100 worm pattern drills

DIN 338 | HSS-E | 42° | h8 | 130° | Bright | p.A264

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL508072	7.2	69	109
DL508073	7.3	69	109
DL508074	7.4	69	109
DL508075	7.5	69	109
DL508076	7.6	75	117
DL508077	7.7	75	117
DL508078	7.8	75	117
DL508079	7.9	75	117
DL508080	8.0	75	117
DL508081	8.1	75	117
DL508082	8.2	75	117
DL508083	8.3	75	117
DL508084	8.4	75	117
DL508085	8.5	75	117
DL508086	8.6	81	125
DL508087	8.7	81	125
DL508088	8.8	81	125
DL508089	8.9	81	125
DL508090	9.0	81	125
DL508091	9.1	81	125
DL508092	9.2	81	125
DL508093	9.3	81	125
DL508094	9.4	81	125
DL508095	9.5	81	125

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL508096	9.6	87	133
DL508097	9.7	87	133
DL508098	9.8	87	133
DL508099	9.9	87	133
DL508100	10.0	87	133
DL508102	10.2	87	133
DL508105	10.5	87	133
DL508110	11.0	94	142
DL508112	11.2	94	142
DL508115	11.5	94	142
DL508120	12.0	101	151
DL508125	12.5	101	151
DL508130	13.0	101	151
DL508135	13.5	108	160
DL508140	14.0	108	160
DL508145	14.5	114	169
DL508150	15.0	114	169
DL508155	15.5	120	178
DL508160	16.0	120	178

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

LONG

HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — LANG

Forets HSS-E, queue cylindrique pour perçage profond, série longue — LONGUE

PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — LUNGA

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.

▶DH100 worm pattern drills

DIN 340 | HSS-E | 42° | h8 | 130° | Bright | p.A264

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL509020	2.0	56	85
DL509021	2.1	56	85
DL509022	2.2	59	90
DL509023	2.3	59	90
DL509024	2.4	62	95
DL509025	2.5	62	95
DL509026	2.6	62	95
DL509027	2.7	66	100
DL509028	2.8	66	100
DL509029	2.9	66	100
DL509030	3.0	66	100
DL509031	3.1	69	106
DL509032	3.2	69	106
DL509033	3.3	69	106
DL509034	3.4	73	112
DL509035	3.5	73	112
DL509036	3.6	73	112
DL509037	3.7	73	112
DL509038	3.8	78	119
DL509039	3.9	78	119
DL509040	4.0	78	119
DL509041	4.1	78	119
DL509042	4.2	78	119
DL509043	4.3	82	126
DL509044	4.4	82	126
DL509045	4.5	82	126

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL509046	4.6	82	126
DL509047	4.7	82	126
DL509048	4.8	87	132
DL509049	4.9	87	132
DL509050	5.0	87	132
DL509051	5.1	87	132
DL509052	5.2	87	132
DL509053	5.3	87	132
DL509054	5.4	91	139
DL509055	5.5	91	139
DL509056	5.6	91	139
DL509057	5.7	91	139
DL509058	5.8	91	139
DL509059	5.9	91	139
DL509060	6.0	91	139
DL509061	6.1	97	148
DL509062	6.2	97	148
DL509063	6.3	97	148
DL509064	6.4	97	148
DL509065	6.5	97	148
DL509066	6.6	97	148
DL509067	6.7	97	148
DL509068	6.8	102	156
DL509069	6.9	102	156
DL509070	7.0	102	156
DL509071	7.1	102	156

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

ST AIGHT SHANK D ILLS

DL 0 SERIES

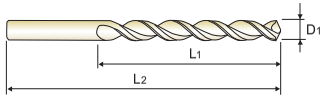
HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

LONG

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — LANG
- Forets HSS-E, queue cylindrique pour perçage profond, série longue — LONGUE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — LUNGA

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶DH100 worm pattern drills

DIN 340 | HSS-E | 42° | h8 | 130° | Bright | p.A264

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL509072	7.2	102	156
DL509073	7.3	102	156
DL509074	7.4	102	156
DL509075	7.5	102	156
DL509076	7.6	109	165
DL509077	7.7	109	165
DL509078	7.8	109	165
DL509079	7.9	109	165
DL509080	8.0	109	165
DL509081	8.1	109	165
DL509082	8.2	109	165
DL509083	8.3	109	165
DL509084	8.4	109	165
DL509085	8.5	109	165
DL509086	8.6	115	175
DL509087	8.7	115	175
DL509088	8.8	115	175
DL509089	8.9	115	175
DL509090	9.0	115	175
DL509091	9.1	115	175
DL509092	9.2	115	175
DL509093	9.3	115	175
DL509094	9.4	115	175
DL509095	9.5	115	175
DL509096	9.6	121	184
DL509097	9.7	121	184

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL509098	9.8	121	184
DL509099	9.9	121	184
DL509100	10.0	121	184
DL509102	10.2	121	184
DL509105	10.5	121	184
DL509110	11.0	128	195
DL509115	11.5	128	195
DL509120	12.0	134	205

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

ST AIGHT SHANK D ILLS
DL 0 SERIES

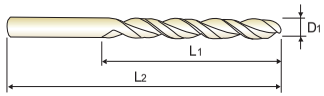
HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

JOBBER

- HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — KURZ
- Forets HSS-E, queue cylindrique pour perçage profond, série courte — COURTE
- PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — CORTA

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶DH100 worm pattern drills

DIN 338 | HSS-E | 38° | h8 | 130° | Vap | p.A264

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL505020	2.0	24	49
DL505021	2.1	24	49
DL505022	2.2	27	53
DL505023	2.3	27	53
DL505024	2.4	30	57
DL505025	2.5	30	57
DL505026	2.6	30	57
DL505027	2.7	33	61
DL505028	2.8	33	61
DL505029	2.9	33	61
DL505030	3.0	33	61
DL505031	3.1	36	65
DL505032	3.2	36	65
DL505033	3.3	36	65
DL505034	3.4	39	70
DL505035	3.5	39	70
DL505036	3.6	39	70
DL505037	3.7	39	70
DL505038	3.8	43	75
DL505039	3.9	43	75
DL505040	4.0	43	75
DL505041	4.1	43	75
DL505042	4.2	43	75
DL505043	4.3	47	80
DL505044	4.4	47	80
DL505045	4.5	47	80

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL505046	4.6	47	80
DL505047	4.7	47	80
DL505048	4.8	52	86
DL505049	4.9	52	86
DL505050	5.0	52	86
DL505051	5.1	52	86
DL505052	5.2	52	86
DL505053	5.3	52	86
DL505054	5.4	57	93
DL505055	5.5	57	93
DL505056	5.6	57	93
DL505057	5.7	57	93
DL505058	5.8	57	93
DL505059	5.9	57	93
DL505060	6.0	57	93
DL505061	6.1	63	101
DL505062	6.2	63	101
DL505063	6.3	63	101
DL505064	6.4	63	101
DL505065	6.5	63	101
DL505066	6.6	63	101
DL505067	6.7	63	101
DL505068	6.8	69	109
DL505069	6.9	69	109
DL505070	7.0	69	109
DL505071	7.1	69	109

▶ TiN(DN505), TiCN(DX505) and TiAlN(DT505) are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

ST AIGHT SHANK D ILLS

DL 0 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

JOBBER

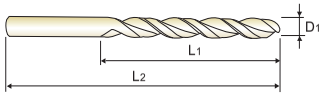
HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — KURZ

Forets HSS-E, queue cylindrique pour perçage profond, série courte — COURTE

PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — CORTA

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶DH100 worm pattern drills

DIN 338 | HSS-E | 38° | h8 | 130° | Vap | p.A264

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL505072	7.2	69	109
DL505073	7.3	69	109
DL505074	7.4	69	109
DL505075	7.5	69	109
DL505076	7.6	75	117
DL505077	7.7	75	117
DL505078	7.8	75	117
DL505079	7.9	75	117
DL505080	8.0	75	117
DL505081	8.1	75	117
DL505082	8.2	75	117
DL505083	8.3	75	117
DL505084	8.4	75	117
DL505085	8.5	75	117
DL505086	8.6	81	125
DL505087	8.7	81	125
DL505088	8.8	81	125
DL505089	8.9	81	125
DL505090	9.0	81	125
DL505091	9.1	81	125
DL505092	9.2	81	125
DL505093	9.3	81	125
DL505094	9.4	81	125
DL505095	9.5	81	125
DL505096	9.6	87	133
DL505097	9.7	87	133
DL505098	9.8	87	133
DL505099	9.9	87	133
DL505100	10.0	87	133
DL505101	10.1	87	133
DL505102	10.2	87	133
DL505105	10.5	87	133
DL505108	10.8	94	142
DL505110	11.0	94	142
DL505112	11.2	94	142
DL505115	11.5	94	142
DL505118	11.8	94	142
DL505120	12.0	101	151
DL505122	12.2	101	151
DL505125	12.5	101	151
DL505128	12.8	101	151
DL505130	13.0	101	151

▶ TiN(DN505), TiCN(DX505) and TiAlN(DT505) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

ST AIGHT SHANK D ILLS
DL 0 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

LONG

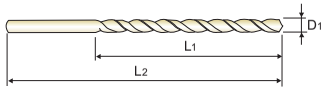
HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — LANG

Forets HSS-E, queue cylindrique pour perçage profond, série longue — LONGUE

PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — LUNGA

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl,Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶DH100 worm pattern drills

DIN 340 | HSS-E | 38° | h8 | 130° | Vap | p.A264

Recommended Toolholder: ER COLLET CHUCK — Plain Shank — Page D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL504020	2.0	56	85
DL504021	2.1	56	85
DL504022	2.2	59	90
DL504023	2.3	59	90
DL504024	2.4	62	95
DL504025	2.5	62	95
DL504026	2.6	62	95
DL504027	2.7	66	100
DL504028	2.8	66	100
DL504029	2.9	66	100
DL504030	3.0	66	100
DL504031	3.1	69	106
DL504032	3.2	69	106
DL504033	3.3	69	106
DL504034	3.4	73	112
DL504035	3.5	73	112
DL504036	3.6	73	112
DL504037	3.7	73	112
DL504038	3.8	78	119
DL504039	3.9	78	119
DL504040	4.0	78	119
DL504042	4.2	78	119
DL504045	4.5	82	126
DL504048	4.8	87	132
DL504050	5.0	87	132
DL504052	5.2	87	132
DL504055	5.5	91	139
DL504058	5.8	91	139
DL504060	6.0	91	139
DL504062	6.2	97	148
DL504065	6.5	97	148
DL504068	6.8	102	156
DL504070	7.0	102	156
DL504072	7.2	102	156
DL504075	7.5	102	156
DL504078	7.8	109	165
DL504080	8.0	109	165
DL504082	8.2	109	165
DL504085	8.5	109	165
DL504090	9.0	115	175
DL504095	9.5	115	175
DL504098	9.8	121	184
DL504100	10.0	121	184
DL504105	10.5	121	184
DL504110	11.0	128	195
DL504115	11.5	128	195
DL504120	12.0	134	205
DL504125	12.5	134	205
DL504130	13.0	134	205

▶ TiN(DN504), TiCN(DX504) and TiAlN(DT504) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

ST AIGHT SHANK D ILLS

DT600 SERIES | DT6 SERIES | DT6 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES

EXTRA LONG

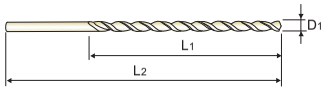
HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT — *ÜBERLANG*

Forets HSS-E, queue cylindrique pour perçage profond, Forme C, série extra-longue — *EXTRA-LONGUE*

PUNTA IN HSS-E, GAMBO CILINDRICO PER FORI NON - STOP — *EXTRA LUNGA*

▶**Surface treatment** : TiAlN coating on working area.
▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Tempergu ß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶ DH100 worm pattern drills

DIN 1869/1 | DIN 1869/2 | DIN 1869/3 | HSS-E | 38° | h8 | 130° | TiAlN

p.A265

Recommended Toolholder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

DT600 SERIES (DIN1869/1)

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DT600020	2.0	85	125
DT600025	2.5	95	140
DT600030	3.0	100	150
DT600035	3.5	115	165
DT600040	4.0	120	175
DT600045	4.5	125	185
DT600050	5.0	135	195
DT600055	5.5	140	205
DT600060	6.0	140	205
DT600065	6.5	150	215
DT600070	7.0	155	225
DT600075	7.5	155	225
DT600080	8.0	165	240
DT600085	8.5	165	240
DT600090	9.0	175	250
DT600095	9.5	175	250
DT600100	10.0	185	265
DT600105	10.5	185	265

▶ TiN(DN600) and TiCN(DX600) are available on your request.

DT692 SERIES (DIN1869/2)

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DT692030	3.0	130	190
DT692035	3.5	145	210
DT692040	4.0	150	220
DT692045	4.5	160	235
DT692050	5.0	170	245
DT692055	5.5	180	260
DT692060	6.0	180	260
DT692065	6.5	190	275
DT692070	7.0	200	290
DT692075	7.5	200	290
DT692080	8.0	210	305
DT692085	8.5	210	305
DT692090	9.0	220	320
DT692095	9.5	220	320
DT692100	10.0	235	340
DT692102	10.2	235	340

DT693 SERIES (DIN1869/3)

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DT693040	4.0	190	280
DT693050	5.0	210	315
DT693060	6.0	225	330
DT693080	8.0	265	390
DT693100	10.0	295	430

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

ST AIGHT SHANK D ILLS

DL60 SERIES

HSS-E, MORSE TAPER SHANK TWIST DRILLS for DEEP HOLES

LONG

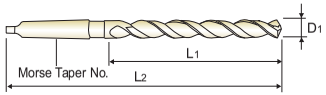
HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT — *LANG*

Forets HSS-E, queue cône morse pour perçage profond, série longue — *LONGUE*

PUNTE IN HSS - E, ATTACCO CONO MORSE PER FORI NON - STOP — *LUNGA*

▶**Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

▶**Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Tempergu ß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



▶ DH100 worm pattern drills

DIN 341 | HSS-E | 38° | 1 ~ 3 | h8 | 130° | Bright

p.A264

Recommended Toolholder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No.of Morse Taper
DL608130	13.0	134	215	1
DL608135	13.5	142	223	1
DL608140	14.0	142	223	1
DL608145	14.5	147	245	2
DL608150	15.0	147	245	2
DL608155	15.5	153	251	2
DL608160	16.0	153	251	2
DL608165	16.5	159	257	2
DL608170	17.0	159	257	2
DL608175	17.5	165	263	2
DL608180	18.0	165	263	2
DL608185	18.5	171	269	2
DL608190	19.0	171	269	2

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No.of Morse Taper
DL608195	19.5	177	275	2
DL608200	20.0	177	275	2
DL608210	21.0	184	282	2
DL608220	22.0	191	289	2
DL608230	23.0	198	296	2
DL608240	24.0	206	327	3
DL608250	25.0	206	327	3
DL608260	26.0	214	335	3
DL608270	27.0	222	343	3
DL608280	28.0	222	343	3
DL608290	29.0	230	351	3
DL608300	30.0	230	351	3

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○					○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

ST AIGHT SHANK D ILLS

DL 0 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES

EXTRA LONG / ÜBERLANG / EXTRA-LONGUE / EXTRA LUNGA

- HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT
- Forets HSS-E, queue cylindrique pour ALU, perçage profond, série extra-longue
- PUNTE HSS-E, GAMBO CILINDRICO PER FORATURE NON - STOP SU ALLUMINIO

▶**Application** : Drilling deep holes in aluminum and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.

▶**Verwendung** : Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunstoffe und Holz.

▶ DH50 worm pattern drills

HSS-E | 38° | h8 | 118° | Bright p.A265

Recommended Toolholder: ER COLLET CHUCK — Plain Shank: D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL507120	2.0	40	75
DL507121	2.1	40	75
DL507220	2.0	50	100
DL507221	2.1	50	100
DL507225	2.5	50	100
DL507227	2.7	50	100
DL507230	3.0	50	100
DL507233	3.3	50	100
DL507235	3.5	50	100
DL507320	2.0	75	150
DL507321	2.1	75	150
DL507325	2.5	75	150
DL507327	2.7	75	150
DL507330	3.0	75	150
DL507333	3.3	75	150
DL507335	3.5	75	150
DL507340	4.0	75	150
DL507342	4.2	75	150
DL507345	4.5	75	150
DL507350	5.0	75	150
DL507353	5.3	75	150
DL507355	5.5	75	150
DL507360	6.0	75	150

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL507430	3.0	100	200
DL507433	3.3	100	200
DL507435	3.5	100	200
DL507440	4.0	100	200
DL507442	4.2	100	200
DL507445	4.5	100	200
DL507450	5.0	100	200
DL507453	5.3	100	200
DL507455	5.5	100	200
DL507460	6.0	100	200
DL507465	6.5	100	200
DL507468	6.8	100	200
DL507470	7.0	100	200
DL507475	7.5	100	200
DL507480	8.0	100	200
DL507485	8.5	100	200
DL507488	8.8	100	200
DL507490	9.0	100	200
DL507495	9.5	100	200
DL507700	10.0	100	200
DL507540	4.0	150	250
DL507542	4.2	150	250
DL507545	4.5	150	250
DL507550	5.0	150	250
DL507553	5.3	150	250

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○																			

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○																		

ST AIGHT SHANK D ILLS
DL 0 SERIES
HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES
EXTRA LONG / ÜBERLANG / EXTRA-LONGUE / EXTRA LUNGA
HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT
Forets HSS-E, queue cylindrique pour ALU, perçage profond, série extra-longue
PUNTE HSS-E, GAMBO CILINDRICO PER FORATURE NON - STOP SU ALLUMINIO
▶Application : Drilling deep holes in aluminum and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.
▶Verwendung : Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunstoffe und Holz.

▶ DH50 worm pattern drills

HSS-E | 38° | h8 | 118° | Bright p.A265

Recommended Toolholder: ER COLLET CHUCK — Plain Shank: D73-115

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL507555	5.5	150	250
DL507560	6.0	150	250
DL507565	6.5	150	250
DL507568	6.8	150	250
DL507570	7.0	150	250
DL507575	7.5	150	250
DL507580	8.0	150	250
DL507585	8.5	150	250
DL507588	8.8	150	250
DL507590	9.0	150	250
DL507595	9.5	150	250
DL507800	10.0	150	250
DL507803	10.3	150	250
DL507805	10.5	150	250
DL507810	11.0	150	250
DL507815	11.5	150	250
DL507820	12.0	150	250
DL507825	12.5	150	250
DL507830	13.0	150	250

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL507650	5.0	180	300
DL507653	5.3	180	300
DL507655	5.5	180	300
DL507660	6.0	180	300
DL507665	6.5	180	300
DL507668	6.8	180	300
DL507670	7.0	180	300
DL507675	7.5	180	300
DL507680	8.0	180	300
DL507685	8.5	180	300
DL507688	8.8	180	300
DL507690	9.0	180	300
DL507695	9.5	180	300
DL507900	10.0	180	300
DL507903	10.3	180	300
DL507905	10.5	180	300
DL507910	11.0	180	300
DL507915	11.5	180	300
DL507920	12.0	180	300
DL507925	12.5	180	300
DL507930	13.0	180	300

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○																			

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	○																		

ST AIGHT SHANK D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

D 0 D 0 D 0 DL 0 D 0 / D D 0 D DL 0 SERIES — HSS, HSS-E & HSSCo8 COBALT DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	13.0	16.0	18.0	20.0	30.0
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	2		25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	3		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	4		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	6	Low alloy steel	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	7		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	8		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	10	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	800	600	480	370	300	270	240	160
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
M	12	Stainless steel	20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	13		15	RPM	2390	1590	1190	800	600	480	370	300	270	240	160
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	14		10	RPM	1590	1060	800	530	400	320	240	200	180	160	110
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	16		25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	17	Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	19	Malleable cast iron	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
N	21	Aluminum-wrought alloy	55	RPM	8750	5840	4380	2920	2190	1750	1350	1090	970	880	580
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38
	22		55	RPM	8750	5840	4380	2920	2190	1750	1350	1090	970	880	580
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38
	23	Aluminum-cast, alloyed	40	RPM	6370	4240	3180	2120	1590	1270	980	800	710	640	420
				FEED	0.03~0.06	0.05~0.09	0.07~0.11	0.12~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38
	29	Non Metallic Materials	20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	36	Titanium Alloys	10	RPM	1590	1060	800	530	400	320	240	200	180	160	110
				FEED	0.01~0.03	0.02~0.04	0.03~0.05	0.04~0.07	0.05~0.08	0.05~0.09	0.06~0.10	0.05~0.11	0.06~0.12	0.09~0.13	0.12~0.18

ST AIGHT SHANK D ILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

D 00 SERIES — HSS, TWIST DRILLS for BRASS / BRONZE

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0
N	27	Copper and Copper Alloys (Bronze / Brass)	45	RPM	9550	7160	4770	3580	2860	2390	1790	1430	1100
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.12~0.16	0.16~0.20	0.19~0.25	0.22~0.32
	28		30	RPM	6370	4770	3180	2390	1910	1590	1190	950	730
				FEED	0.01-0.03	0.02~0.05	0.03~0.06	0.04~0.08	0.05~0.09	0.07~0.11	0.09~0.13	0.10~0.16	0.11~0.21

D 06 SERIES — HSS, TWIST DRILLS for ALUMINUM

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0
N	21	Aluminum-wrought alloy	50	RPM	10610	7960	5310	3980	3180	2650	1990	1590	1220
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	22		50	RPM	10610	7960	5310	3980	3180	2650	1990	1590	1220
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	23	Aluminum-cast, alloyed	40	RPM	8490	6370	4240	3180	2550	2120	1590	1270	980
				FEED	0.03-0.06	0.05~0.08	0.06~0.10	0.08~0.12	0.10~0.14	0.14~0.18	0.14~0.20	0.19~0.25	0.25~0.35
	24		30	RPM	6370	4770	3180	2390	1910	1590	1190	950	730
				FEED	0.01-0.04	0.03~0.06	0.03~0.07	0.04~0.08	0.05~0.09	0.04~0.10	0.06~0.12	0.10~0.16	0.12~0.22

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

DL 0 DL 0 DL 0 DL 0 DL 0 DL60 SERIES — HSS-E, DH100 WORM PATTERN DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	13.0	16.0	18.0	20.0	30.0
P	1	Non-alloy steel	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	2		25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	3		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	4		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	6	Low alloy steel	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.2	0.19~0.25	0.22~0.28
	7		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.2	0.19~0.25	0.22~0.28
	8		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	10	High alloyed steel, and tool steel	15	RPM	2390	1590	1190	800	600	480	370	300	270	240	160
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	16		25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	17	Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	730	600	530	480	320
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	18		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18
	19	Malleable cast iron	25	RPM	3980	2650	1990	1330	990	800	610	500	440	400	270
				FEED	0.02~0.04	0.03~0.05	0.04~0.06	0.05~0.08	0.10~0.13	0.11~0.15	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28
	20		20	RPM	3180	2120	1590	1060	800	640	490	400	350	320	210
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18

DT600 DT6 DT6 SERIES — HSS-E, DH100 WORM PATTERN DRILLS (EXTRA LONG)

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

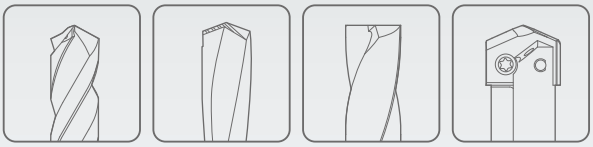
ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	2		15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	3		10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	4		10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10
	6	Low alloy steel	15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	7		10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	8		10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10
	10	High alloyed steel, and tool steel	5	RPM	800	530	400	270	200	160	120
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
K	15	Grey cast iron	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	16		15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10
	17	Nodular cast iron	20	RPM	3180	2120	1590	1060	800	640	490
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	18		10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10
	19	Malleable cast iron	15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01~0.03	0.03~0.05	0.04~0.06	0.05~0.08	0.08~0.11	0.09~0.13	0.10~0.16
	20		10	RPM	1590	1060	800	530	400	320	240
				FEED	0.01~0.02	0.01~0.03	0.02~0.04	0.02~0.05	0.03~0.06	0.03~0.06	0.04~0.10

DL 0 SERIES — HSS-E, DH50 WORM PATTERN DRILLS

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	13.0
P	1	Non-alloy steel	15	RPM	2390	1590	1190	800	600	480	370
				FEED	0.01~0.03	0.02~0.04	0.03~0.06	0.04~0.08	0.04~0.10	0.07~0.13	0.09~0.15
N	21	Aluminum-wrought alloy	55	RPM	8750	5840	4380	2920	2190	1750	1350
				FEED	0.02~0.04	0.03~0.06	0.04~0.08	0.08~0.12	0.10~0.16	0.14~0.20	0.16~0.26
	22		45	RPM	7160	4770	3580	2390	1790	1430	1100
				FEED	0.02~0.04	0.03~0.06	0.04~0.08	0.08~0.12	0.10~0.16	0.14~0.20	0.16~0.26
	23	Aluminum-cast, alloyed	40	RPM	6370	4240	3180	2120	1590	1270	980
				FEED	0.02~0.04	0.03~0.06	0.04~0.08	0.08~0.12	0.10~0.16	0.14~0.20	0.16~0.26

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader YG



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Recommended cutting conditions : p.A277

SERIES	DL205	D1205	D1206
STANDARD	DIN345	DIN345	DIN341
LENGTH	JOBBER	JOBBER	LONG
SIZE MIN	D13.0	D5.0	D13.0
SIZE MAX	D30.0	D60.0	D30.0
PAGE	A270	A271	A274
SURFACE TREATMENT	Bright	Steam Tempered	

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D1205	D1206
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C	Annealed	270	28	○	○
	5		About 0.75% C	Quenched & Tempered	300	32		
	6	Low alloy steel		Annealed	180	10	◎	◎
	7			Quenched & Tempered	275	29	○	○
	8			Quenched & Tempered	300	32	○	○
	9			Quenched & Tempered	350	38		
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎
	13		Martensitic	Quenched & Tempered	240	23	○	○
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○
	16		Pearlitic (Martensitic)		260	26	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○
	18		Pearlitic		250	25	○	○
	19	Malleable cast iron	Ferritic		130		○	○
	20		Pearlitic		230	21	○	○
N	21	Aluminum-wrought alloy	Not Curable		60		○	○
	22		Curable	Hardened	100		○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○
	24		≤ 12% Si, Curable	Hardened	90			
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

D1209	D1210
DIN1870/1	DIN1870/2
EXTRA LONG	EXTRA LONG
D13.0	D13.0
D50.0	D50.0
A275	A276
Steam Tempered	

D1209	D1210		
◎	◎	1	P
◎	◎	2	
◎	◎	3	
○	○	4	
		5	
◎	◎	6	
○	○	7	
○	○	8	
		9	
○	○	10	
		11	
◎	◎	12	M
○	○	13	
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CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

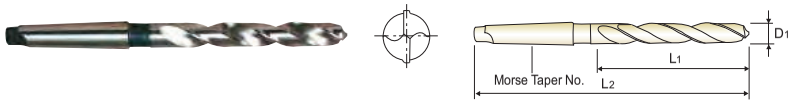
HSS-E, MORSE TAPER SHANK TWIST DRILLS for HEAVY DUTY

JOBBER / KURZ / COURTE / CORTA

- HSS-E, SPIRALBOHRER für HOHELEISTUNGEN mit MORSEKEGELSCHAFT
- Forets HSS-E, queue cône morse pour matériaux durs, série courte
- HSS-E, PUNTE ELICOIDALI, ATTACCO CM PER LAVORAZIONI GRAVOSE

▶**Surface treatment** : Bright Finish
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

▶**Oberflächenbehandlung** : Helle Beschaffenheit
▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 345 | HSS-E | N ≈30° | 1~3 | h8 | 118° | Bright | p.A277

Recommended Toolholder: MORSE TAPER ARBOR (Plain Shank) — D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
DL205130	13.0	101	182	1
DL205135	13.5	108	189	1
DL205140	14.0	108	189	1
DL205145	14.5	114	212	2
DL205150	15.0	114	212	2
DL205155	15.5	120	218	2
DL205160	16.0	120	218	2
DL205165	16.5	125	223	2
DL205170	17.0	125	223	2
DL205175	17.5	130	228	2
DL205180	18.0	130	228	2
DL205185	18.5	135	233	2
DL205190	19.0	135	233	2
DL205195	19.5	140	238	2
DL205200	20.0	140	238	2
DL205205	20.5	145	243	2
DL205210	21.0	145	243	2
DL205215	21.5	150	248	2

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
DL205220	22.0	150	248	2
DL205225	22.5	155	253	2
DL205230	23.0	155	253	2
DL205235	23.5	155	276	3
DL205240	24.0	160	281	3
DL205245	24.5	160	281	3
DL205250	25.0	160	281	3
DL205255	25.5	165	286	3
DL205260	26.0	165	286	3
DL205265	26.5	165	286	3
DL205270	27.0	170	291	3
DL205275	27.5	170	291	3
DL205280	28.0	170	291	3
DL205285	28.5	175	296	3
DL205290	29.0	175	296	3
DL205295	29.5	175	296	3
DL205300	30.0	175	296	3

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○		○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

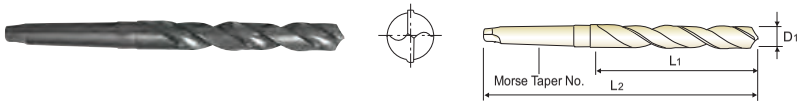
HSS, MORSE TAPER SHANK TWIST DRILLS

JOBBER / KURZ / COURTE / CORTA

- HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
- Forets HSS, queue cône morse, série courte
- PUNTE ELICOIDALI IN HSS, ATTACCO CM

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 345 | HSS | N ≈30° | 1~5 | h8 | 118° | Vap | p.A277

Recommended Toolholder: MORSE TAPER ARBOR (Plain Shank) — D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205050	5.0	52	133	1
D1205055	5.5	57	138	1
D1205060	6.0	57	138	1
D1205065	6.5	63	144	1
D1205070	7.0	69	150	1
D1205075	7.5	69	150	1
D1205080	8.0	75	156	1
D1205085	8.5	75	156	1
D1205090	9.0	81	162	1
D1205095	9.5	81	162	1
D1205100	10.0	87	168	1
D1205105	10.5	87	168	1
D1205110	11.0	94	175	1
D1205115	11.5	94	175	1
D1205120	12.0	101	182	1
D1205125	12.5	101	182	1
D1205130	13.0	101	182	1
D1205132	13.2	101	182	1
D120513A	13.25	108	189	1
D1205135	13.5	108	189	1
D120513B	13.75	108	189	1
D1205138	13.8	108	189	1
D1205140	14.0	108	189	1
D120514A	14.25	114	212	2
D1205145	14.5	114	212	2
D120514B	14.75	114	212	2

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205150	15.0	114	212	2
D120515A	15.25	120	218	2
D1205155	15.5	120	218	2
D120515B	15.75	120	218	2
D1205160	16.0	120	218	2
D120516A	16.25	125	223	2
D1205165	16.5	125	223	2
D120516B	16.75	125	223	2
D1205170	17.0	125	223	2
D120517A	17.25	130	228	2
D1205175	17.5	130	228	2
D120517B	17.75	130	228	2
D1205180	18.0	130	228	2
D120518A	18.25	135	233	2
D1205185	18.5	135	233	2
D120518B	18.75	135	233	2
D1205190	19.0	135	233	2
D120519A	19.25	140	238	2
D1205195	19.5	140	238	2
D120519B	19.75	140	238	2
D1205200	20.0	140	238	2
D120520A	20.25	145	243	2
D1205205	20.5	145	243	2
D120520B	20.75	145	243	2
D1205210	21.0	145	243	2
D120521A	21.25	150	248	2

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○		○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

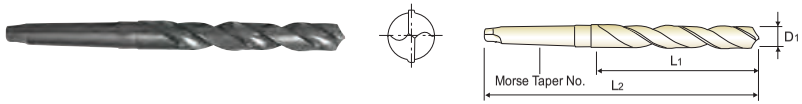
HSS, MORSE TAPER SHANK TWIST DRILLS

JOBBER

HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT — *KURZ*
Forets HSS, queue cône morse, série courte — *COURTE*
PUNTE ELICOIDALI IN HSS, ATTACCO CM — *CORTA*

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cas tiron, malleable cast iron, graphite.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 345 | HSS | N ≈30° | 1~5 | h8 | 118° | Vap p.A277

Recommended Toolholder: MORSE TAPER ARBOR — Plain Shank: D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205215	21.5	150	248	2
D120521B	21.75	150	248	2
D1205220	22.0	150	248	2
D120522A	22.25	150	248	2
D1205225	22.5	155	253	2
D120522B	22.75	155	253	2
D1205230	23.0	155	253	2
D120523A	23.25	155	276	3
D1205235	23.5	155	276	3
D120523B	23.75	160	281	3
D1205240	24.0	160	281	3
D120524A	24.25	160	281	3
D1205245	24.5	160	281	3
D120524B	24.75	160	281	3
D1205250	25.0	160	281	3
D120525A	25.25	165	286	3
D1205255	25.5	165	286	3
D120525B	25.75	165	286	3
D1205260	26.0	165	286	3
D120526A	26.25	165	286	3
D1205265	26.5	165	286	3
D120526B	26.75	170	291	3
D1205270	27.0	170	291	3
D120527A	27.25	170	291	3
D1205275	27.5	170	291	3
D120527B	27.75	170	291	3

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205280	28.0	170	291	3
D120528A	28.25	175	296	3
D1205285	28.5	175	296	3
D120528B	28.75	175	296	3
D1205290	29.0	175	296	3
D120529A	29.25	175	296	3
D1205295	29.5	175	296	3
D120529B	29.75	175	296	3
D1205300	30.0	175	296	3
D120530A	30.25	180	301	3
D1205305	30.5	180	301	3
D120530B	30.75	180	301	3
D1205310	31.0	180	301	3
D120531A	31.25	180	301	3
D1205315	31.5	180	301	3
D120531B	31.75	185	306	3
D1205320	32.0	185	334	4
D1205325	32.5	185	334	4
D1205330	33.0	185	334	4
D1205335	33.5	185	334	4
D1205340	34.0	190	339	4
D1205345	34.5	190	339	4
D1205350	35.0	190	339	4
D1205355	35.5	190	339	4
D1205360	36.0	195	344	4
D1205365	36.5	195	344	4

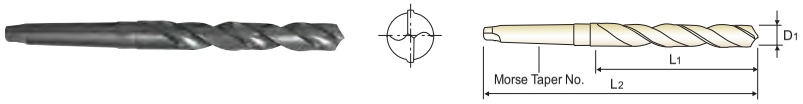
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○		○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

MO SE TA E SHANK D ILLS
D 0 SERIES
HSS, MORSE TAPER SHANK TWIST DRILLS
JOBBER
HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT — KURZ
Forets HSS, queue cône morse, série courte — COURTE
PUNTE ELICOIDALI IN HSS, ATTACCO CM — CORTA
▶Surface treatment : Steam Tempered(Black Oxide Finish)
▶Application : Drilling steels, cast steels alloyed and non-alloyed, grey cas tiron, malleable cast iron, graphite.
▶Oberflächenbehandlung : Steam Homo(Schwarzoxidation)
▶Verwendung : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 345 | HSS | N ≈30° | 1~5 | h8 | 118° | Vap p.A277
Recommended Toolholder: MORSE TAPER ARBOR — Plain Shank: D177-181
Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205370	37.0	195	344	4
D1205375	37.5	195	344	4
D1205380	38.0	200	349	4
D1205385	38.5	200	349	4
D1205390	39.0	200	349	4
D1205395	39.5	200	349	4
D1205400	40.0	200	349	4
D1205405	40.5	205	354	4
D1205410	41.0	205	354	4
D1205415	41.5	205	354	4
D1205420	42.0	205	354	4
D1205425	42.5	205	354	4
D1205430	43.0	210	359	4
D1205435	43.5	210	359	4
D1205440	44.0	210	359	4
D1205445	44.5	210	359	4
D1205450	45.0	210	359	4
D1205455	45.5	215	364	4
D1205460	46.0	215	364	4
D1205465	46.5	215	364	4
D1205470	47.0	215	364	4
D1205475	47.5	215	364	4
D1205480	48.0	220	369	4
D1205485	48.5	220	369	4
D1205490	49.0	220	369	4
D1205495	49.5	220	369	4

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1205500	50.0	220	369	4
D1205505	50.5	225	374	4
D1205510	51.0	225	412	5
D1205520	52.0	225	412	5
D1205530	53.0	225	412	5
D1205540	54.0	230	417	5
D1205550	55.0	230	417	5
D1205560	56.0	230	417	5
D1205570	57.0	235	422	5
D1205580	58.0	235	422	5
D1205590	59.0	235	422	5
D1205600	60.0	235	422	5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○		○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
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TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

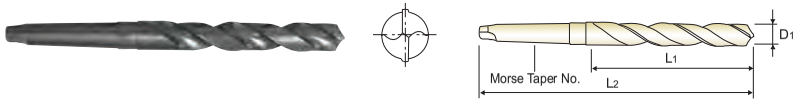
HSS, MORSE TAPER SHANK TWIST DRILLS

LONG
LANG
LONGUE
LUNGA

HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
Forets HSS, queue cône morse, série longue
PUNTE ELICOIDALI IN HSS, ATTACCO CM

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling deep holes in steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Für Bohrungen mit Bohrbuchsen oder an tief liegenden Stellen. Zum Bohren von Stahl und Stahlguß, Grauß, Temperguß, Sphäroguß, Sintereisen, Neusilber und Graphit.



DIN 341 | HSS | N ≈30° | 1~3 | h8 | 118° | Vap p.A277

Recommended Toolholder: MORSE TAPER ARBOR — Plain Shank D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1206130	13.0	134	215	1
D1206135	13.5	142	223	1
D1206140	14.0	142	223	1
D1206145	14.5	147	245	2
D1206150	15.0	147	245	2
D1206155	15.5	153	251	2
D1206160	16.0	153	251	2
D1206165	16.5	159	257	2
D1206170	17.0	159	257	2
D1206175	17.5	165	263	2
D1206180	18.0	165	263	2
D1206185	18.5	171	269	2
D1206190	19.0	171	269	2

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1206195	19.5	177	275	2
D1206200	20.0	177	275	2
D1206210	21.0	184	282	2
D1206220	22.0	191	289	2
D1206230	23.0	198	296	2
D1206240	24.0	206	327	3
D1206250	25.0	206	327	3
D1206260	26.0	214	335	3
D1206270	27.0	222	343	3
D1206280	28.0	222	343	3
D1206290	29.0	230	351	3
D1206300	30.0	230	351	3

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○		○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

HSS, MORSE TAPER SHANK TWIST DRILLS

EXTRA LONG
ÜBERLANG
EXTRA-LONGUE
EXTRA LUNGA

HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT
Forets HSS, queue cône morse, série extra-longue
PUNTE ELICOIDALI IN HSS, ATTACCO CM

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Drilling deep holes in steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Für Bohrungen mit Bohrbuchsen oder an tief liegenden Stellen. Zum Bohren von Stahl und Stahlguß, Grauß, Temperguß, Sphäroguß, Sintereisen, Neusilber und Graphit

DIN 1870/1 | HSS | N ≈30° | 1~4 | h8 | 118° | Vap p.A277

Recommended Toolholder: MORSE TAPER ARBOR — Plain Shank D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1209130	13.0	205	310	1
D1209135	13.5	220	325	1
D1209140	14.0	220	325	1
D1209145	14.5	220	340	2
D1209150	15.0	220	340	2
D1209155	15.5	230	355	2
D1209160	16.0	230	355	2
D1209165	16.5	230	355	2
D1209170	17.0	230	355	2
D1209175	17.5	245	370	2
D1209180	18.0	245	370	2
D1209185	18.5	245	370	2
D1209190	19.0	245	370	2
D1209195	19.5	260	385	2
D1209200	20.0	260	385	2
D1209205	20.5	260	385	2
D1209210	21.0	260	385	2
D1209215	21.5	270	405	2
D1209220	22.0	270	405	2
D1209225	22.5	270	405	2
D1209230	23.0	270	405	2
D1209235	23.5	270	425	3
D1209240	24.0	290	440	3
D1209245	24.5	290	440	3
D1209250	25.0	290	440	3
D1209255	25.5	290	440	3
D1209260	26.0	290	440	3
D1209265	26.5	290	440	3

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1209270	27.0	305	460	3
D1209275	27.5	305	460	3
D1209280	28.0	305	460	3
D1209285	28.5	305	460	3
D1209290	29.0	305	460	3
D1209295	29.5	305	460	3
D1209300	30.0	305	460	3
D1209305	30.5	320	480	3
D1209310	31.0	320	480	3
D1209320	32.0	320	505	4
D1209330	33.0	320	505	4
D1209340	34.0	340	530	4
D1209350	35.0	340	530	4
D1209360	36.0	340	530	4
D1209370	37.0	340	530	4
D1209380	38.0	360	555	4
D1209390	39.0	360	555	4
D1209400	40.0	360	555	4
D1209410	41.0	360	555	4
D1209420	42.0	360	555	4
D1209430	43.0	385	585	4
D1209440	44.0	385	585	4
D1209450	45.0	385	585	4
D1209460	46.0	385	585	4
D1209470	47.0	385	585	4
D1209480	48.0	405	605	4
D1209490	49.0	405	605	4
D1209500	50.0	405	605	4

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○		○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

MO SE TA E SHANK D ILLS

D 0 SERIES

HSS, MORSE TAPER SHANK TWIST DRILLS

EXTRA LONG

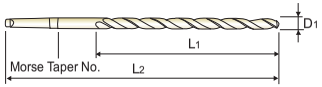
HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT — ÜBERLANG

Forets HSS, queue cône morse, série extra-longue — EXTRA-LONGUE

PUNTE ELICOIDALI IN HSS, ATTACCO CM — EXTRA LUNGA

▶**Surface treatment** : Steam Tempered(Black Oxide Finish)
▶**Application** : Designed for drilling deep holes or deeply located holes. Drilling into steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, Spheriodal graphite cast iron, sintered iron, aluminum and aluminum alloys.

▶**Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
▶**Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher.
Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen und Graphit



DIN 1870/2 | HSS | N ≈ 30° | 1~4 | h8 | 118° | Vap

p.A277

Recommended Toolholder — Plain Shank: MORSE TAPER ARBOR — Page: D177-181

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1210130	13.0	260	395	1
D1210135	13.5	275	410	1
D1210140	14.0	275	410	1
D1210145	14.5	275	425	2
D1210150	15.0	275	425	2
D1210155	15.5	295	445	2
D1210160	16.0	295	445	2
D1210165	16.5	295	445	2
D1210170	17.0	295	445	2
D1210175	17.5	310	465	2
D1210180	18.0	310	465	2
D1210185	18.5	310	465	2
D1210190	19.0	310	465	2
D1210195	19.5	325	490	2
D1210200	20.0	325	490	2
D1210205	20.5	325	490	2
D1210210	21.0	325	490	2
D1210215	21.5	345	515	2
D1210220	22.0	345	515	2
D1210225	22.5	345	515	2
D1210230	23.0	345	515	2
D1210235	23.5	345	535	3
D1210240	24.0	365	555	3
D1210245	24.5	365	555	3
D1210250	25.0	365	555	3
D1210255	25.5	365	555	3
D1210260	26.0	365	555	3
D1210265	26.5	365	555	3

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	Morse Taper No.
D1210270	27.0	385	580	3
D1210275	27.5	385	580	3
D1210280	28.0	385	580	3
D1210285	28.5	385	580	3
D1210290	29.0	385	580	3
D1210295	29.5	385	580	3
D1210300	30.0	385	580	3
D1210310	31.0	410	610	3
D1210320	32.0	410	635	4
D1210330	33.0	410	635	4
D1210340	34.0	430	665	4
D1210350	35.0	430	665	4
D1210360	36.0	430	665	4
D1210370	37.0	430	665	4
D1210380	38.0	460	695	4
D1210390	39.0	460	695	4
D1210400	40.0	460	695	4
D1210410	41.0	460	695	4
D1210420	42.0	460	695	4
D1210430	43.0	490	735	4
D1210440	44.0	490	735	4
D1210450	45.0	490	735	4
D1210460	46.0	490	735	4
D1210470	47.0	490	735	4
D1210480	48.0	510	765	4
D1210490	49.0	510	765	4
D1210500	50.0	510	765	4

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○		◎	○	○		○		◎	○		○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○						○							○					

MO SE TA E SHANK D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

DL 0 D 0 D 06
D 0 D 0 SERIES

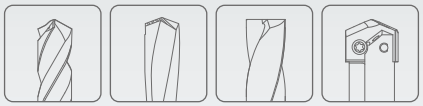
HSS&HSS-E, MORSE TAPER SHANK DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 13.0	16.0	18.0	20.0	30.0	40.0	50.0	60.0
P	1	Non-alloy steel	30	RPM	730	600	530	480	320	240	190	160
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	2		25	RPM	610	500	440	400	270	200	160	130
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	3		20	RPM	490	400	350	320	210	160	130	110
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	4		15	RPM	370	300	270	240	160	120	100	80
				FEED	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24
	6	Low alloy steel	25	RPM	610	500	440	400	270	200	160	130
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	7		20	RPM	490	400	350	320	210	160	130	110
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	8		15	30	370	300	270	240	160	120	100	80
				320	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24
	10	High alloyed steel, and tool steel	15	RPM	370	300	270	240	160	120	100	80
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
M	12	Stainless steel	20	RPM	490	400	350	320	210	160	130	110
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	13		15	RPM	370	300	270	240	160	120	100	80
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
K	15	Grey cast iron	30	RPM	730	600	530	480	320	240	190	160
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	16		25	RPM	610	500	440	400	270	200	160	130
				FEED	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24
	17	Nodular cast iron	30	RPM	730	600	530	480	320	240	190	160
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	18		20	RPM	490	400	350	320	210	160	130	110
				FEED	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24
	19	Malleable cast iron	25	RPM	610	500	440	400	270	200	160	130
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
	20		20	RPM	490	400	350	320	210	160	130	110
				FEED	0.04~0.10	0.06~0.12	0.08~0.14	0.10~0.16	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24
N	21	Aluminum-wrought alloy	55	RPM	1350	1090	970	880	580	440	350	290
				FEED	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38	0.32~0.42	0.36~0.46	0.40~0.50
	22		55	RPM	1350	1090	970	880	580	440	350	290
				FEED	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38	0.32~0.42	0.36~0.46	0.40~0.50
	23	Aluminum-cast, alloyed	40	RPM	980	800	710	640	420	320	250	210
				FEED	0.16~0.22	0.18~0.24	0.20~0.28	0.20~0.30	0.28~0.38	0.32~0.42	0.36~0.46	0.40~0.50
	29	Non Metallic Materials	20	RPM	490	400	350	320	210	160	130	110
				FEED	0.11~0.17	0.12~0.18	0.14~0.20	0.19~0.25	0.22~0.28	0.24~0.30	0.28~0.34	0.36~0.40
S	36	Titanium Alloys	10	RPM	240	200	180	160	110	80	60	50
				FEED	0.06~0.10	0.05~0.11	0.06~0.12	0.09~0.13	0.12~0.18	0.14~0.20	0.16~0.22	0.18~0.24

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

SOLID AR IDE HSS

N SPOTTING DRILLS

NC-ANBOHRER

- For Centering and Chamfering of Holes
- Zum Zentrieren und Anfasen von Bohrungen

SELE TION G IDE

HOLEMAKING TOOLS

SERIES	D5306 D5307	D5320	D2306 D2321	D2307 D2322	D2320 D2323
POINT ANGLE	90° / 120°	142°	90°	120°	142°
SIZE MIN	D6.0	D3.0	D3.0	D3.0 / D6.0	D3.0 / D6.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0 / D12.0	D20.0 / D12.0
PAGE	A281	A282	A283	A284	A285
SURFACE TREATMENT	Bright				

SOLID CARBIDE & HSSCo8

N SPOTTING DRILLS

For Centering and Chamfering of Holes

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A286

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D5306 D5307	D5320	D2306 D2321	D2307 D2322	D2320 D2323
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎
	4		About 0.75% C	Annealed	270	28					
	5		About 0.75% C	Quenched & Tempered	300	32					
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎
	7			Quenched & Tempered	275	29	○	○	○	○	○
	8			Quenched & Tempered	300	32					
	9			Quenched & Tempered	350	38					
	10	High alloyed steel, and tool steel		Annealed	200	15					
	11			Quenched & Tempered	325	35					
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○	○
	13		Martensitic	Quenched & Tempered	240	23					
	14		Austenitic		180	10					
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○	○	○	○
	18		Pearlitic		250	25					
	19	Malleable cast iron	Ferritic		130		○	○	○	○	○
	20		Pearlitic		230	21					
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○	○
	22		Curable	Hardened	100		○	○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○	○
	24		≤ 12% Si, Curable	Hardened	90						
	25		> 12% Si, Not Curable		130						
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110						
	27		CuZn, CuSnZn (Brass)		90						
	28		CuSn, lead-free copper and electrolytic copper		100						
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					
	32			Cured	280	30					
	33		Ni or Co Based	Annealed	250	25					
	34			Cured	350	38					
	35			Cast	320	34					
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○			
	37		Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55					
	39			Hardened	630	60					
	40	Chilled Cast Iron		Cast	400	42					
	41	Hardened Cast Iron		Hardened	550	55					

NC S OTTING D ILLS

D 06 SERIES
D 0 SERIES

CARBIDE, NC-SPOTTING DRILLS 90°, 120°

VOLLHARTMETALL NC-ANBOHRER 90°, 120°
Forets carbure à pointer NC 90°, 120°
PUNTE IN MD A CENTRARE NC 90°, 120°

▶**Application** : For more precise centering work on NC/CNC machines. The large diameter of the tool permits chamfering work after centering continuously.

▶**Verwendung** : Auf NC-Maschinen, Lehrenbohrwerken u.a. kapitalintensiven Bohrwerken, zum Zentrieren und Anfasen von Gewindebohrungen in einem Arbeitsgang. Besonders geeignet zum Anbohren von hochfesten Stählen, Stahlguß, Grauguß, Hartguß, Mangan-Hartstahl, CrNi-Stählen, Bronze, Leicht-und Buntmetallen.

CARBIDE | DIN 6535HB | h6 | 90° | 120° | Bright p.A286

Recommended ToolHolder

	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

NC-Spotting drills 90°
NC-Anbohrer 90°

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5306060	6.0	13	50
D5306080	8.0	23	60
D5306100	10.0	24	70
D5306120	12.0	24	70
D5306160	16.0	29	75
D5306200	20.0	35	100

NC-Spotting drills 120°
NC-Anbohrer 120°

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5307060	6.0	13	50
D5307080	8.0	23	60
D5307100	10.0	24	70
D5307120	12.0	24	70
D5307160	16.0	29	75
D5307200	20.0	35	100

▶ TiN(D6306, D6307), TiCN(DG306, DG307) and TiAlN(DH306, DH307) are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎	○					○			◎	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○													○					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

NC S OTTING D ILLS

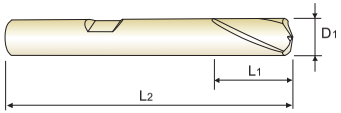
D 0 SERIES

CARBIDE, NC-SPOTTING DRILLS 142°

VOLLHARTMETALL NC-ANBOHRER 142°
Forets carbure à pointer NC 142°
PUNTE IN MD A CENTRARE NC 142°

▶**Application** : For more precise centering work on NC/CNC machines. The large diameter of the tool permits chamfering work after centering continuously.

▶**Verwendung** : Auf NC-Maschinen, Lehrenbohrwerken u.a. kapitalintensiven Bohrwerken, zum Zentrieren und Anfasen von Gewindebohrungen in einem Arbeitsgang. Besonders geeignet zum Anbohren von hochfesten Stählen, Stahlguß, Grauguß, Hartguß, Mangan-Hartstahl, CrNi-Stählen, Bronze, Leicht-und Buntmetallen.



CARBIDE | DIN 6535HB | h6 | 142° | Bright p.A286

Recommended ToolHolder	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

NC-Spotting drills 142°
NC-Anbohrer 142°

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
● D5320030	3.0	8	32
● D5320040	4.0	10	40
● D5320050	5.0	13	50
D5320060	6.0	13	50
D5320080	8.0	23	60
D5320100	10.0	24	70
D5320120	12.0	24	70
D5320160	16.0	29	75
D5320200	20.0	35	100

● with plain shank

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎	○					○			◎	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○													○					

NC S OTTING D ILLS

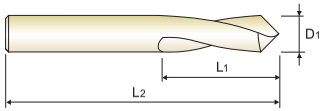
D 06 SERIES
D SERIES

HSSCo8, NC-SPOTTING DRILLS 90°

HSSCo8, NC-ANBOHRER 90°
Forets HSSCo8 à pointer NC 90°
PUNTE A CENTRARE NC 90°, HSSCo8

▶**Application** : For more precise centering work on NC/CNC Machines.
The large diameter of the tool permits chamfering work after centering continuously.

▶**Verwendung** : Für positionsgenaues und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.



NC | HSS Co8 | h6 | h6 | 90° | Bright p.A286

Recommended ToolHolder	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2306030	3.0	12	46
D2306040	4.0	12	55
D2306050	5.0	15	60
D2306060	6.0	20	66
D2306080	8.0	25	79
D2306100	10.0	25	89
D2306120	12.0	30	102
D2306160	16.0	35	115
D2306200	20.0	40	131

▶ TiN, TiCN and TiAlN are available on your request.

LONG LENGTH

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2321030	3.0	12	80
D2321040	4.0	12	100
D2321050	5.0	15	120
D2321060	6.0	20	140
D2321080	8.0	25	140
D2321100	10.0	25	170
D2321120	12.0	30	170
D2321160	16.0	35	200
D2321200	20.0	40	200

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎	○					○			◎	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○																		

NC S OTTING D ILLS

D 0 SERIES
D SERIES

HSSCo8, NC-SPOTTING DRILLS 120°

HSSCo8, NC-ANBOHRER 120°
Forets HSSCo8 à pointer NC 120°
PUNTE A CENTRARE NC 120°, HSSCo8

▶**Application** : For more precise centering work on NC/CNC Machines.
The large diameter of the tool permits chamfering work after centering continuously.

▶**Verwendung** : Für positionsgenaues und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.

NC | HSS Co8 | h6 | h6 | 120° | Bright p.A286

Recommended ToolHolder	Plain Shank	Page
	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
	ER COLLET CHUCK	D73 - 115

LONG LENGTH

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2307030	3.0	12	46
D2307040	4.0	12	55
D2307050	5.0	15	60
D2307060	6.0	20	66
D2307080	8.0	25	79
D2307100	10.0	25	89
D2307120	12.0	30	102
D2307160	16.0	35	115
D2307200	20.0	40	131

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2322060	6.0	20	140
D2322080	8.0	25	140
D2322100	10.0	25	170
D2322120	12.0	30	170

▶ TiN, TiCN and TiAlN are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎	○					○			◎	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○																		

NC S OTTING D ILLS

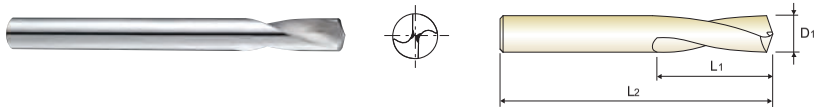
D 0 SERIES
D SERIES

HSSCo8, NC-SPOTTING DRILLS 142°

HSSCo8, NC-ANBOHRER 142°
Forets HSSCo8 à pointer NC 142°
PUNTE A CENTRARE NC 142°, HSSCo8

▶**Application** : For more precise centering work on NC/CNC Machines.
The large diameter of the tool permits chamfering work after centering continuously.

▶**Verwendung** : Für positionsgenaues und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.



NC | HSS Co8 | h6 | h6 | 142° | Bright p.A286

Recommended ToolHolder	Plain Shank	Page
	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
	ER COLLET CHUCK	D73 - 115

LONG LENGTH

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2320030	3.0	12	46
D2320040	4.0	12	55
D2320050	5.0	15	60
D2320060	6.0	20	66
D2320080	8.0	25	79
D2320100	10.0	25	89
D2320120	12.0	30	102
D2320160	16.0	35	115
D2320200	20.0	40	131

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D2323060	6.0	20	140
D2323080	8.0	25	140
D2323100	10.0	25	170
D2323120	12.0	30	170

▶ TiN, TiCN and TiAlN are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎	○					○			◎	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○																		

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

NC S OTTING D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

D 06 D 0 D 0 SERIES — CARBIDE, NC-SPOTTING DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1	Non-alloy steel	75	RPM	11940	7960	5970	3980	2980	2390	1990	1490	1190
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
	2		70	RPM	11140	7430	5570	3710	2790	2230	1860	1390	1110
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
	3		65	RPM	10350	6900	5170	3450	2590	2070	1720	1290	1030
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
	6	Low alloy steel	70	RPM	11140	7430	5570	3710	2790	2230	1860	1390	1110
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
	7		55	RPM	8750	5840	4380	2920	2190	1750	1460	1090	880
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
M	12	Stainless steel	35	RPM	5570	3710	2790	1860	1390	1110	930	700	560
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
K	15	Grey cast iron	90	RPM	14320	9550	7160	4770	3580	2860	2390	1790	1430
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28
	16		70	RPM	11140	7430	5570	3710	2790	2230	1860	1390	1110
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
	17	Nodular cast iron	90	RPM	14320	9550	7160	4770	3580	2860	2390	1790	1430
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28
	19	Malleable cast iron	60	RPM	9550	6370	4770	3180	2390	1910	1590	1190	950
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.2	0.18-0.24	0.22-0.28
N	21	Aluminum-wrought alloy	165	RPM	26260	17510	13130	8750	6570	5250	4380	3280	2630
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31
	22		130	RPM	20690	13790	10350	6900	5170	4140	3450	2590	2070
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31
	23	Aluminum-cast, alloyed	110	RPM	17510	11670	8750	5840	4380	3500	2920	2190	1750
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31
S	36	Titanium Alloys	35	RPM	5570	3710	2790	1860	1390	1110	930	700	560
				FEED	0.01-0.03	0.03-0.05	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19

D 0 D D D D 06 D 0 SERIES — HSSCo8, NC-SPOTTING DRILLS

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1	Non-alloy steel	25	RPM	3980	2650	1990	1330	990	800	660	500	400
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
	2		25	RPM	3980	2650	1990	1330	990	800	660	500	400
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
	3		15	RPM	2390	1590	1190	800	600	480	400	300	240
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
	6	Low alloy steel	20	RPM	3180	2120	1590	1060	800	640	530	400	320
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
	7		15	RPM	2390	1590	1190	800	600	480	400	300	240
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
M	12	Stainless steel	15	RPM	2390	1590	1190	800	600	480	400	300	240
				FEED	0.02-0.04	0.04-0.06	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19	0.15-0.21
K	15	Grey cast iron	30	RPM	4770	3180	2390	1590	1190	950	800	600	480
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28
	16		25	RPM	3980	2650	1990	1330	990	800	660	500	400
				FEED	0.01-0.03	0.03-0.05	0.04-0.07	0.05-0.08	0.07-0.10	0.08-0.12	0.09-0.14	0.11-0.17	0.13-0.19
	17	Nodular cast iron	30	RPM	4770	3180	2390	1590	1190	950	800	600	480
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28
	19	Malleable cast iron	20	RPM	3180	2120	1590	1060	800	640	530	400	320
				FEED	0.03-0.05	0.05-0.07	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.16	0.15-0.20	0.18-0.24	0.22-0.28
N	21	Aluminum-wrought alloy	65	RPM	10350	6900	5170	3450	2590	2070	1720	1290	1030
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31
	22		60	RPM	9550	6370	4770	3180	2390	1910	1590	1190	950
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31
	23	Aluminum-cast, alloyed	50	RPM	7960	5310	3980	2650	1990	1590	1330	990	800
				FEED	0.04-0.06	0.06-0.09	0.08-0.11	0.10-0.13	0.12-0.15	0.15-0.19	0.18-0.23	0.21-0.27	0.25-0.31

Leading Through Innovation

SOLID AR IDE HSS HSS E

ENTER DRILLS

ZENTRIERBOHRER

- For General Purpose
- Für allgemeine Anwendungen

SELE TION G IDE

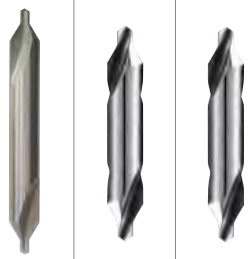
HOLEMAKING TOOLS

SOLID CARBIDE, HSS & HSS-E

ENTER DRILLS

For General Purpose

SERIES	D5303	DV303	DV333
TOOL MATERIAL	CARBIDE	HSS-E	HSS-E
TYPE	FORM A	FORM A	FORM A
SIZE MIN	D1.0	D0.5	D1.6
SIZE MAX	D6.3	D6.3	D6.3
PAGE	A290	A291	
SURFACE TREATMENT	Bright		



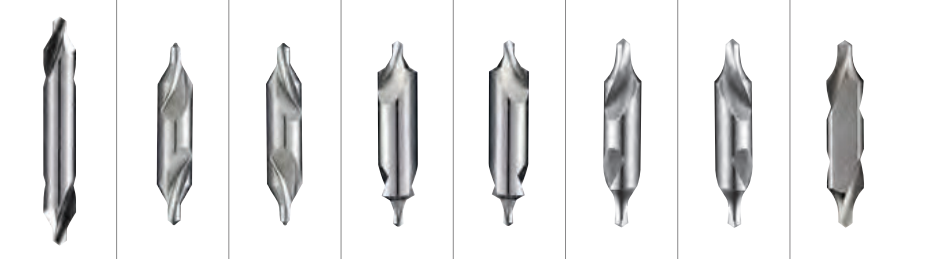
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A297

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	D5303	DV303	DV333
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	○	○
	4		About 0.75% C	Annealed	270	28			
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	○	○	○
	8			Quenched & Tempered	300	32			
	9			Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15			
	11			Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○	○
	18		Pearlitic		250	25			
	19	Malleable cast iron	Ferritic		130		○	○	○
	20		Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable		60				
	22		Curable	Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

DV334	D1303	D1343	D1313	D1353	D1363	D1373	DV383
HSS-E	HSS	HSS	HSS	HSS	HSS	HSS	HSS-E
FORM A	FORM A	FORM A	FORM B	FORM B	FORM R	FORM R	FORM R
D1.0	D0.5	D0.5	D1.0	D2.0	D0.5	D0.8	D1.6
D5.0	D10.0	D8.0	D6.3	D6.3	D8.0	D5.0	D6.3
A292	A293		A294		A295		A296
Bright							



ISO	VDI 3323	DV334	D1303	D1343	D1313	D1353	D1363	D1373	DV383
P	1	◎	◎	◎	◎	◎	◎	◎	◎
	2	◎	◎	◎	◎	◎	◎	◎	◎
	3	○	○	○	○	○	○	○	○
	4								
	5								
	6	◎	◎	◎	◎	◎	◎	◎	◎
	7	○	○	○	○	○	○	○	○
	8								
	9								
	10								
	11								
M	12	○	○	○	○	○	○	○	○
	13								
	14								
K	15	◎	◎	◎	◎	◎	◎	◎	◎
	16	○	○	○	○	○	○	○	○
	17	○	○	○	○	○	○	○	○
	18								
	19	○	○	○	○	○	○	○	○
	20								
N	21								
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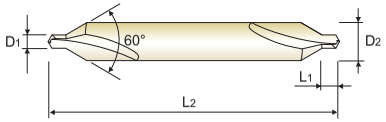
	41								

CARBIDE, CENTER DRILLS / FORM A

VOLLHARTMETALL, ZENTRIERBOHRER / FORM A
Forets carbure à centrer / Forme A
PUNTE A CENTRARE IN MD / FORMA A



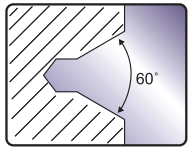
DIN 333 | CARBIDE | h8 | k12 | 120° | Bright p.A297

Recommended ToolHolder	Plain Shank	Page
	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
	ER COLLET CHUCK	D73 - 115

FORM A (60°)

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
D5303010	1.0	3.15	1.3	31.5
D5303912	1.25	3.15	1.6	31.5
D5303016	1.6	4	2	35.5
D5303020	2.0	5	2.5	40
D5303025	2.5	6.3	3.1	45
D5303931	3.15	8	3.9	50
D5303040	4.0	10	5	56
D5303050	5.0	12.5	6.3	63
D5303063	6.3	16	8	71



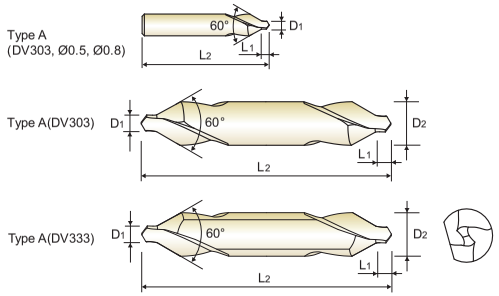
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎	○					○			◎	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

HSS-E, CENTER DRILLS / FORM A

HSS-EX, ZENTRIERBOHRER / FORM A
Forets HSS-EX à centrer / Forme A
PUNTE A CENTRARE PER TORNI IN HSS-EX / FORMA A



DIN 333 | HSS-E | h8 | k12 | 120° | Bright p.A297

Recommended ToolHolder	Plain Shank	Page
	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
	ER COLLET CHUCK	D73 - 115

FORM A (60°)

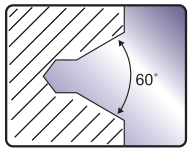
EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
DV303005	0.5	3.15	0.8	25
DV303008	0.8	3.15	1.1	25
DV303010	1.0	3.15	1.3	31.5
DV303912	1.25	3.15	1.6	31.5
DV303016	1.6	4	2	35.5
DV303020	2.0	5	2.5	40
DV303025	2.5	6.3	3.1	45
DV303931	3.15	8	3.9	50
DV303040	4.0	10	5	56
DV303050	5.0	12.5	6.3	63
DV303063	6.3	16	8	71

▶ Under 1.0mm : Single End

FORM A (60°), FLAT

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
DV333016	1.6	4	2	35.5
DV333020	2.0	5	2.5	40
DV333025	2.5	6.3	3.1	45
DV333931	3.15	8	3.9	50
DV333040	4.0	10	5	56
DV333050	5.0	12.5	6.3	63
DV333063	6.3	16	8	71



◎ : Excellent ○ : Good

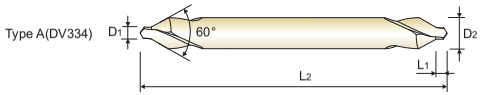
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○					○			◎	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

HSS-E, CENTER DRILLS EXTRA LONG / FORM A

HSS-EX, ZENTRIERBOHRER / FORM A
Forets HSS-EX à centrer / Forme A, série extra-longue
PUNTE A CENTRARE PER TORNI IN HSS-EX / FORMA A



HSS-E | h8 | k12 | 120° | Bright p.A297

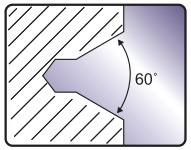
Recommended ToolHolder

	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

EXTRA LONG / FORM A (60°)

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
DV334010	1.0	4	1.3	120
DV334016	1.6	5	2	120
DV334020	2.0	6	2.5	120
DV334025	2.5	8	3.1	120
DV334931	3.15	10	3.9	120
DV334040	4.0	12	5	120
DV334050	5.0	14	6.3	120



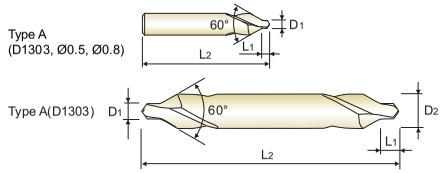
◎ : Excellent ○ : Good

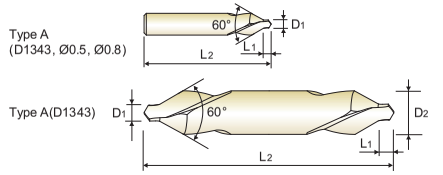
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○					○			◎	○	○		○	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

HSS, CENTER DRILLS / FORM A

HSS, ZENTRIERBOHRER / FORM A
Forets HSS à centrer / Forme A
PUNTE A CENTRARE PER TORNI IN HSS / FORMA A





DIN 333 | HSS | h8 | k12 | 120° | Bright p.A297

Recommended ToolHolder

	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

FORM A (60°)

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
D1303005	0.5	3.15	0.8	25
D1303008	0.8	3.15	1.1	25
D1303010	1.0	3.15	1.3	31.5
D1303912	1.25	3.15	1.6	31.5
D1303016	1.6	4	2	35.5
D1303020	2.0	5	2.5	40
D1303025	2.5	6.3	3.1	45
D1303931	3.15	8	3.9	50
D1303040	4.0	10	5	56
D1303050	5.0	12.5	6.3	63
D1303063	6.3	16	8	71
D1303080	8.0	20	10.1	80
D1303100	10.0	25	12.8	100

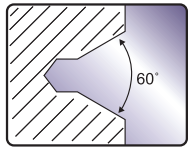
▶ Under 1.0mm : Single End

LEFT HELIX / FORM A (60°)

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
D1343005	0.5	3.15	0.8	25
D1343008	0.8	3.15	1.1	25
D1343010	1.0	3.15	1.3	31.5
D1343912	1.25	3.15	1.6	31.5
D1343016	1.6	4	2	35.5
D1343020	2.0	5	2.5	40
D1343025	2.5	6.3	3.1	45
D1343931	3.15	8	3.9	50
D1343040	4.0	10	5	56
D1343050	5.0	12.5	6.3	63
D1343063	6.3	16	8	71
D1343080	8.0	20	10.1	80

▶ Under 1.0mm : Single End



◎ : Excellent ○ : Good

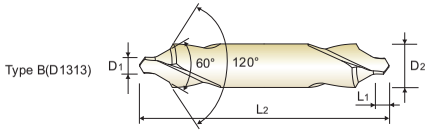
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○					○			◎	○	○		○	

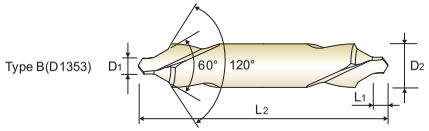
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

HSS, CENTER DRILLS / FORM B

HSS, ZENTRIERBOHRER / FORM B
Forets HSS à centrer / Forme B
PUNTE A CENTRARE PER TORNI IN HSS / FORMA B





DIN 333 | HSS | h8 | k12 | 120° | Bright p.A297

Recommended ToolHolder	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

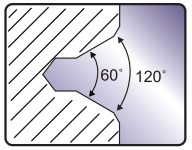
FORM B (60° + 120°)

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
D1313010	1.0	4	1.3	35.5
D1313912	1.25	5	1.6	40
D1313016	1.6	6.3	2	45
D1313020	2.0	8	2.5	50
D1313025	2.5	10	3.1	55
D1313931	3.15	11.2	3.9	60
D1313040	4.0	14	5	67
D1313050	5.0	18	6.3	75
D1313063	6.3	20	8	80

LEFT HELIX / FORM B (60° + 120°)

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length L1	Overall Length L2
D1353020	2.0	8	2.5	50
D1353025	2.5	10	3.1	55
D1353931	3.15	11.2	3.9	60
D1353040	4.0	14	5	67
D1353063	6.3	20	8	80



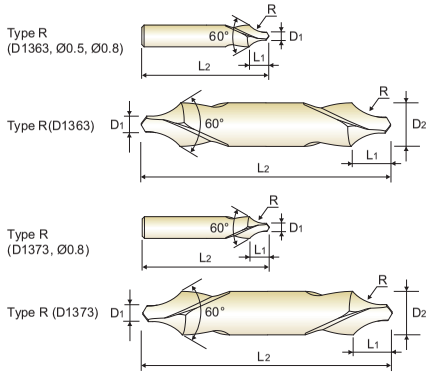
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○					○			◎	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

HSS, CENTER DRILLS / FORM R

HSS, ZENTRIERBOHRER / FORM R
Forets HSS à centrer / Forme R
PUNTE A CENTRARE PER TORNI IN HSS / FORMA R



DIN 333 | HSS | h8 | k12 | 120° | Bright p.A297

Recommended ToolHolder	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

FORM R

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length (Include Radius) L1	Overall Length L2	Radius R
D1363005	0.5	3.15	2.12	25	1.25
D1363008	0.8	3.15	2.65	25	2
D1363010	1.0	3.15	3	31.5	2.5
D1363912	1.25	3.15	3.35	31.5	3.15
D1363016	1.6	4	4.25	35.5	4
D1363020	2.0	5	5.3	40	5
D1363025	2.5	6.3	6.7	45	6.3
D1363931	3.15	8	8.5	50	8
D1363040	4.0	10	10.6	56	10
D1363050	5.0	12.5	13.2	63	12.5
D1363063	6.3	16	17	71	16
D1363080	8.0	20	21.2	80	20

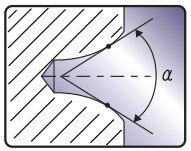
▶ Under 1.0mm : Single End

LEFT HELIX / FORM R

Unit : mm

EDP No.	Drill Diameter D1	Shank Diameter D2	Pilot Length (Include Radius) L1	Overall Length L2	Radius R
D1373008	0.8	3.15	2.65	25	2
D1373010	1.0	3.15	3	31.5	2.5
D1373912	1.25	3.15	3.35	31.5	3.15
D1373016	1.6	4	4.25	35.5	4
D1373020	2.0	5	5.3	40	5
D1373025	2.5	6.3	6.7	45	6.3
D1373931	3.15	8	8.5	50	8
D1373040	4.0	10	10.6	56	10
D1373050	5.0	12.5	13.2	63	12.5

▶ Under 1.0mm : Single End



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○					○			◎	○	○		○	

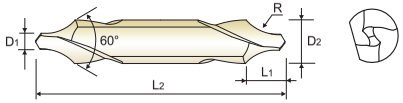
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

HSS-E, CENTER DRILLS / FORM R

- HSS-EX, ZENTRIERBOHRER / FORM R
- Forets HSS-EX à centrer / Forme R
- PUNTE A CENTRARE PER TORNI IN HSS-EX / FORMA R

Type R (DV383)



DIN 333 | HSS-E | h8 | k12 | 120° | Bright p.A297

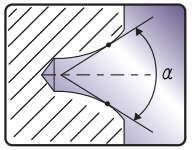
Recommended ToolHolder

	Plain Shank	Page
◎	NC DRILL CHUCK & OTHER TOOL HOLDERS	D247 - 256
○	ER COLLET CHUCK	D73 - 115

FORM R / FLAT

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Pilot Length (Include Radius)	Overall Length	Radius
	D_1	D_2	L_1	L_2	R
DV383016	1.6	4	4.25	35.5	4
DV383020	2.0	5	5.3	40	5
DV383025	2.5	6.3	6.7	45	6.3
DV383931	3.15	8	8.5	50	8
DV383040	4.0	10	10.6	56	10
DV383050	5.0	12.5	13.2	63	12.5
DV383063	6.3	16	17	71	16



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○			◎	○					○			◎	○	○		○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

D 0 SERIES CARBIDE, CENTER DRILLS

VC = M/MIN
RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	3.0	4.0	5.0	6.0
P	1	Non-alloy steel	50	RPM	15920	7960	5310	3980	3180	2650
				FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12
	2		40	RPM	12730	6370	4240	3180	2550	2120
				FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12
	3		30	RPM	9550	4770	3180	2390	1910	1590
				FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08
	6	Low alloy steel	40	RPM	12730	6370	4240	3180	2550	2120
				FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12
	7		30	RPM	9550	4770	3180	2390	1910	1590
				FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08
M	12	Stainless steel	20	RPM	6370	3180	2120	1590	1270	1060
				FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08
K	15	Grey cast iron	60	RPM	19100	9550	6370	4770	3820	3180
				FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12
	16		50	RPM	15920	7960	5310	3980	3180	2650
				FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08
	17	Nodular cast iron	60	RPM	19100	9550	6370	4770	3820	3180
				FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12
	19	Malleable cast iron	40	RPM	12730	6370	4240	3180	2550	2120
				FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12

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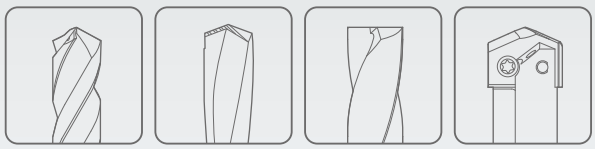
HSS & HSS-E, CENTER DRILLS

ISO	VDI 3323	Material Description	Vc	Parameter	Drill Diameter (mm) 0.5	Vc	Parameter	Drill Diameter (mm) 1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0
P	1	Non-alloy steel	30	RPM	19100	40	RPM	12730	6370	4240	3180	2550	2120	1590	1270
				FEED	0.01-0.03		FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18
	2		25	RPM	15920	30	RPM	9550	4770	3180	2390	1910	1590	1190	950
				FEED	0.01-0.03		FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18
	3		20	RPM	12730	25	RPM	7960	3980	2650	1990	1590	1330	990	800
				FEED	0.005-0.02		FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	0.06-0.12	0.08-0.14
	6	Low alloy steel	25	RPM	15920	30	RPM	9550	4770	3180	2390	1910	1590	1190	950
				FEED	0.01-0.03		FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18
	7		15	RPM	9550	20	RPM	6370	3180	2120	1590	1270	1060	800	640
				FEED	0.005-0.02		FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	0.06-0.12	0.08-0.14
M	12	Stainless steel	8	RPM	5090	10	RPM	3180	1590	1060	800	640	530	400	320
				FEED	0.005-0.02		FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	0.06-0.12	0.08-0.14
K	15	Grey cast iron	30	RPM	19100	40	RPM	12730	6370	4240	3180	2550	2120	1590	1270
				FEED	0.01-0.03		FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18
	16		25	RPM	15920	30	RPM	9550	4770	3180	2390	1910	1590	1190	950
				FEED	0.005-0.02		FEED	0.01-0.03	0.01-0.035	0.015-0.05	0.02-0.06	0.03-0.07	0.04-0.08	0.06-0.12	0.08-0.14
	17	Nodular cast iron	30	RPM	19100	40	RPM	12730	6370	4240	3180	2550	2120	1590	1270
				FEED	0.01-0.03		FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.09-0.15	0.12-0.18
	19	Malleable cast iron	20	RPM	12730	25	RPM	7960	3980	2650	1990	1590	1330	990	800
				FEED	0.01-0.03		FEED	0.02-0.04	0.03-0.06	0.04-0.08	0.05-0.09	0.06-0.10	0.07-0.12	0.06-0.12	0.12-0.18

Global Cutting Tool Leader YG



HOLEMAKING

Leading Through Innovation

INSE TS HOLDE S

S ADE D ILLS

BOHRMESSER

- **For General Machines and Drilling Large Diameters, Longer Tool Life and High Productivity**

- **Für allgemeine Maschinen und zum Bohren großer Durchmesser, längere Werkzeugstandzeiten und höhere Produktivität**

SELECTION GUIDE

HOLEMAKING TOOLS

Please visit globalyg1.com/mat for material search

INSERTS & HOLDERS
S ADE D ILLS

For General Machines and Drilling Large Diameters
Longer Tool Life and High Productivity

◎ : Excellent ○ : Good

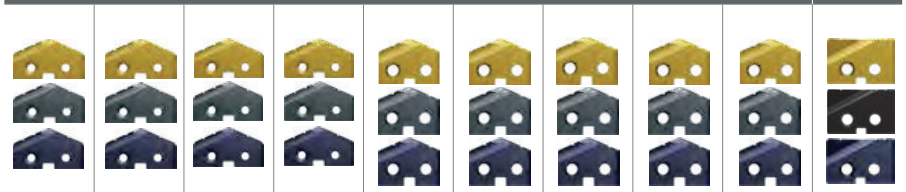
Recommended cutting conditions : p.A375

SERIES	1~8	Y,Z,0,1~4	Y,Z,0,1,2
TOOL MATERIAL	HSS M4	SUPER HSS T15	PREMIUM HSS M48
POINT	STANDARD	STANDARD	STANDARD
SIZE MIN	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)
SIZE MAX	Ø114.3(#8)	Ø65.09(#4)	Ø35(#2)
PAGE	A302	A308	A313
SURFACE TREATMENT	TiN / TiCN / TiAlN		

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	1~8	Y,Z,0,1~4	Y,Z,0,1,2
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	◎	◎
	2		About 0.45% C	Annealed	190	13	○	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	◎	◎
	4		About 0.75% C	Annealed	270	28	○	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10	○	◎	◎
	7			Quenched & Tempered	275	29	○	◎	◎
	8			Quenched & Tempered	300	32		○	◎
	9			Quenched & Tempered	350	38		○	◎
	10	High alloyed steel, and tool steel		Annealed	200	15		○	◎
	11			Quenched & Tempered	325	35		○	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	○	
	13		Martensitic	Quenched & Tempered	240	23	◎	○	
	14		Austenitic		180	10	◎	○	
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	○	○
	16		Pearlitic (Martensitic)		260	26	○	◎	◎
	17	Nodular cast iron	Ferritic		160	3	◎	○	○
	18		Pearlitic		250	25	○	◎	◎
	19	Malleable cast iron	Ferritic		130		◎	○	○
	20		Pearlitic		230	21	○	◎	◎
N	21	Aluminum-wrought alloy	Not Curable		60		◎	○	○
	22		Curable	Hardened	100		◎	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90		◎	○	○
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		◎	◎
	32			Cured	280	30		○	◎
	33		Ni or Co Based	Annealed	250	25		○	◎
	34			Cured	350	38		○	◎
	35			Cast	320	34		○	◎
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55		○	◎
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

TA E SHANK		TAPER SHANK HOLDERS - INCH/METRIC	A364
LANGED SHANK		FLANGED STRAIGHT SHANK HOLDERS - INCH/METRIC	A364
ST AIGHT SHANK		STRAIGHT SHANK HOLDERS - INCH	A382

SERIES	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	1~3	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1,2
TOOL MATERIAL	CARBIDE K10	CARBIDE K20	CARBIDE P40	HSS M4	SUPER HSS T15	PREMIUM HSS M48	CARBIDE K10	CARBIDE K20	CARBIDE P40	SUPER COBALT T15
POINT	STANDARD	STANDARD	STANDARD	SM-POINT	SM-POINT	SM-POINT	SM-POINT	SM-POINT	SM-POINT	FALT BOTTOM
SIZE MIN	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø17.86(#1)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)	Ø9.5(#Y)
SIZE MAX	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)	Ø35(#2)	Ø47.63(#3)	Ø47.63(#3)	Ø35(#2)
PAGE	A316	A319	A323	A328	A331	A335	A338	A341	A345	A349
SURFACE TREATMENT	TiN / TiCN / TiAlN									TiN / Hardslick / TiAlN



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	1~3	Y,Z,0,1~3	Y,Z,0,1,2	Y,Z,0,1,2	Y,Z,0,1~3	Y,Z,0,1~3	Y,Z,0,1,2
P	1	Non-alloy steel	About 0.15% C	Annealed	125			○	◎	○	◎	◎		○	◎	◎
	2		About 0.45% C	Annealed	190	13		○	◎	○	◎	◎		○	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25		○	◎	○	◎	◎		○	◎	◎
	4		About 0.75% C	Annealed	270	28		○	◎	○	◎	◎		○	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32										
	6	Low alloy steel		Annealed	180	10		○	◎	○	◎	◎		○	◎	◎
	7			Quenched & Tempered	275	29		○	◎	○	◎	◎		○	◎	◎
	8			Quenched & Tempered	300	32		○	◎		○	◎		○	◎	○
	9			Quenched & Tempered	350	38		○	◎		○	◎		○	◎	○
	10	High alloyed steel, and tool steel		Annealed	200	15		○	◎		○	◎		○	◎	○
	11			Quenched & Tempered	325	35		○	◎		○	◎		○	◎	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		◎	○	◎	○			◎	○	○
	13		Martensitic	Quenched & Tempered	240	23		◎	○	◎	○			◎	○	○
	14		Austenitic		180	10		◎	○	◎	○			◎	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	○	○	◎	○	○	◎	○	○	○
	16		Pearlitic (Martensitic)		260	26	◎	○	○	○	◎	◎	◎	○	○	◎
	17	Nodular cast iron	Ferritic		160	3	◎	○	○	◎	○	○	◎	○	○	○
	18		Pearlitic		250	25	◎	○	○	○	◎	◎	◎	○	○	◎
	19	Malleable cast iron	Ferritic		130		◎	○	○	◎	○	○	◎	○	○	○
	20		Pearlitic		230	21	◎	○	○	○	◎	◎	◎	○	○	◎
N	21	Aluminum-wrought alloy	Not Curable		60			◎	○	◎	○	○		◎	○	○
	22		Curable	Hardened	100			◎	○	◎	○	○		◎	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75											
	24		≤ 12% Si, Curable	Hardened	90											
	25		> 12% Si, Not Curable		130											
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110											
	27		CuZn, CuSnZn (Brass)		90			◎	○	◎	○	○		◎	○	○
	28		CuSn, lead-free copper and electrolytic copper		100											
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic													
	30		Rubber, Wood, etc.													
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		◎	○		◎	◎		◎	○	◎
	32			Cured	280	30		◎	○		○	◎		◎	○	○
	33		Ni or Co Based	Annealed	250	25		◎	○		○	◎		◎	○	○
	34			Cured	350	38		◎	○		○	◎		◎	○	○
	35			Cast	320	34		◎	○		○	◎		◎	○	○
	36	Titanium Alloys	Pure Titanium		400 Rm											
	37		Alpha + Beta Alloys	Hardened	1050 Rm											
H	38	Hardened steel		Hardened	550	55		○	◎		○	◎		○	◎	○
	39			Hardened	630	60										
	40	Chilled Cast Iron		Cast	400	42										
	41	Hardened Cast Iron		Hardened	550	55										

Coating	Characteristics
H	-First choice for excellent wear resistance and toughness -Preventive of chipping due to cold welding -Achieve high penetration rates even in deep holes with reliable tool life -Coefficient of friction against steel : 0.25 -Color : Bronze
TiN	-Increased tool life over non-coating -Improved wear resistance and high hardness -For normal applications -Coefficient of friction against steel : 0.4 -Color : Gold

Coating	Characteristics
TiCN	-Maximum working temperature up to 400°c -Better wear resistance over non-coating -Coefficient of friction against steel : 0.4 -Color : Blue-Grey
TiAlN	-Maximum working temperature up to 800°c -Excellent heat and oxidation resisance -Coefficient of friction against steel : 0.4 -Color : Violet-Grey
Hardslick	-Better chip evauation for tapping and drilling -High hardness and improved lubrication -Coefficient of friction against steel : 0.2 -Color : Black-Gery

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
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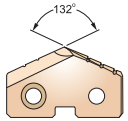
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SPADE DRILL INSERTS - HSS M4

EINWEG BOHREINSATZ - HSS M4
Plaquettes SPADE DRILL - HSS M4
CUSPIDI SPADE DRILL - HSS M4



- For general use in steels and cast irons.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A375

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S1405045	S1410045	S1415045
		18.00	.7087		S1455180	S1460180	S1465180
	23/32	18.26	.7188		S1405046	S1410046	S1415046
		18.50	.7283		S1455185	S1460185	S1465185
	47/64	18.65	.7344		S1405047	S1410047	S1415047
		19.00	.7480		S1455190	S1460190	S1465190
	3/4	19.05	.7500		S1405048	S1410048	S1415048
	49/64	19.45	.7656		S1405049	S1410049	S1415049
		19.50	.7677		S1455195	S1460195	S1465195
	25/32	19.84	.7813		S1405050	S1410050	S1415050
		20.00	.7874		S1455200	S1460200	S1465200
	51/64	20.24	.7969		S1405051	S1410051	S1415051
		20.50	.8071		S1455205	S1460205	S1465205
	13/16	20.64	.8125		S1405052	S1410052	S1415052
		21.00	.8268		S1455210	S1460210	S1465210
	27/32	21.43	.8438		S1405054	S1410054	S1415054
	55/64	21.83	.8594		S1405055	S1410055	S1415055
		22.00	.8661		S1455220	S1460220	S1465220
	7/8	22.23	.8750		S1405056	S1410056	S1415056
	57/64	22.62	.8906		S1405057	S1410057	S1415057
		23.00	.9055		S1455230	S1460230	S1465230
	29/32	23.02	.9063		S1405058	S1410058	S1415058
	59/64	23.42	.9219		S1405059	S1410059	S1415059
	15/16	23.81	.9375		S1405060	S1410060	S1415060
		24.00	.9449		S1455240	S1460240	S1465240
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1405062	S1410062	S1415062
	63/64	25.00	.9843		S1455250	S1460250	S1465250
	1	25.40	1.0000		S1405100	S1410100	S1415100
	1-1/64	25.80	1.0156		S1405101	S1410101	S1415101
		26.00	1.0236		S1455260	S1460260	S1465260
	1-1/32	26.19	1.0313		S1405102	S1410102	S1415102
	1-3/64	26.59	1.0469		S1405103	S1410103	S1415103
	1-1/16	26.99	1.0625		S1405104	S1410104	S1415104
		27.00	1.0630		S1455270	S1460270	S1465270

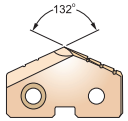
◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

S ADE D ILLS
SERIES

SPADE DRILL INSERTS - HSS M4
EINWEG BOHREINSATZ - HSS M4
Plaquettes FORETS A LAME - HSS M4
CUSPIDI SPADE DRILL - HSS M4



- For general use in steels and cast irons.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A375

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	1-3/32	27.78	1.0938	4.8 (3/16)	S1405106	S1410106	S1415106
		28.00	1.1024		S1455280	S1460280	S1465280
	1-7/64	28.18	1.1094		S1405107	S1410107	S1415107
	1-1/8	28.58	1.1250		S1405108	S1410108	S1415108
		29.00	1.1417		S1455290	S1460290	S1465290
	1-5/32	29.37	1.1563		S1405110	S1410110	S1415110
		30.00	1.1811		S1455300	S1460300	S1465300
	1-3/16	30.16	1.1875		S1405112	S1410112	S1415112
	1-7/32	30.96	1.2188		S1405114	S1410114	S1415114
		31.00	1.2205		S1455310	S1460310	S1465310
	1-1/4	31.75	1.2500		S1405116	S1410116	S1415116
		32.00	1.2598		S1455320	S1460320	S1465320
	1-9/32	32.54	1.2813		S1405118	S1410118	S1415118
		33.00	1.2992		S1455330	S1460330	S1465330
	1-5/16	33.34	1.3125		S1405120	S1410120	S1415120
		34.00	1.3386		S1455340	S1460340	S1465340
	1-11/32	34.13	1.3438		S1405122	S1410122	S1415122
	1-3/8	34.93	1.3750		S1405124	S1410124	S1415124
		35.00	1.3780		S1455350	S1460350	S1465350
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4063	6.4 (1/4)	S1405126	S1410126	S1415126
		36.00	1.4173		S1455360	S1460360	S1465360
	1-7/16	36.51	1.4375		S1405128	S1410128	S1415128
		37.00	1.4567		S1455370	S1460370	S1465370
	1-15/32	37.31	1.4688		S1405130	S1410130	S1415130
		38.00	1.4961		S1455380	S1460380	S1465380
	1-1/2	38.10	1.5000		S1405132	S1410132	S1415132
	1-17/32	38.89	1.5313		S1405134	S1410134	S1415134
		39.00	1.5354		S1455390	S1460390	S1465390
	1-9/16	39.69	1.5625		S1405136	S1410136	S1415136
		40.00	1.5748		S1455400	S1460400	S1465400
	1-19/32	40.48	1.5938		S1405138	S1410138	S1415138
		41.00	1.6142		S1455410	S1460410	S1465410
	1-5/8	41.28	1.6250		S1405140	S1410140	S1415140
		42.00	1.6535		S1455420	S1460420	S1465420

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

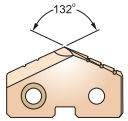
YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

SPADE DRILL INSERTS - HSS M4

EINWEG BOHREINSATZ - HSS M4
Plaquettes FORETS A LAME - HSS M4
CUSPIDI SPADE DRILL - HSS M4

- For general use in steels and cast irons.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-21/32	42.07	1.6563	6.4 (1/4)	S1405142	S1410142	S1415142
	1-11/16	42.86	1.6875		S1405144	S1410144	S1415144
		43.00	1.6929		S1455430	S1460430	S1465430
	1-23/32	43.66	1.7188		S1405146	S1410146	S1415146
		44.00	1.7323		S1455440	S1460440	S1465440
	1-3/4	44.45	1.7500		S1405148	S1410148	S1415148
		45.00	1.7717		S1455450	S1460450	S1465450
	1-25/32	45.24	1.7813		S1405150	S1410150	S1415150
		46.00	1.8110		S1455460	S1460460	S1465460
	1-13/16	46.04	1.8125		S1405152	S1410152	S1415152
	1-27/32	46.83	1.8438		S1405154	S1410154	S1415154
		47.00	1.8504		S1455470	S1460470	S1465470
	1-7/8	47.63	1.8750		S1405156	S1410156	S1415156
4 Ø46.99 (1.850) to Ø65.28 (2.570)		48.00	1.8898	7.9 (5/16)	S1455480	S1460480	S1465480
	1-29/32	48.42	1.9063		S1405158	S1410158	S1415158
		49.00	1.9291		S1455490	S1460490	S1465490
	1-15/16	49.21	1.9375		S1405160	S1410160	S1415160
		50.00	1.9685		S1455500	S1460500	S1465500
	1-31/32	50.01	1.9688		S1405162	S1410162	S1415162
	2	50.80	2.0000		S1405200	S1410200	S1415200
		51.00	2.0079		S1455510	S1460510	S1465510
	2-1/32	51.59	2.0313		S1405202	S1410202	S1415202
	2-3/64	52.00	2.0472		S1455520	S1460520	S1465520
	2-1/16	52.39	2.0625		S1405204	S1410204	S1415204
		53.00	2.0866		S1455530	S1460530	S1465530
	2-3/32	53.18	2.0938		S1405206	S1410206	S1415206
	2-1/8	53.98	2.1250		S1405208	S1410208	S1415208
		54.00	2.1260		S1455540	S1460540	S1465540
	2-5/32	54.77	2.1563		S1405210	S1410210	S1415210
		55.00	2.1654		S1455550	S1460550	S1465550
	2-3/16	55.56	2.1875		S1405212	S1410212	S1415212
		56.00	2.2047		S1455560	S1460560	S1465560
	2-7/32	56.36	2.2188		S1405214	S1410214	S1415214
		57.00	2.2441		S1455570	S1460570	S1465570

◎ : Excellent ○ : Good

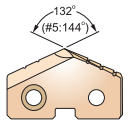
ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		K Nodular cast iron		K Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

S ADE D ILLS
SERIES
SPADE DRILL INSERTS - HSS M4
EINWEG BOHREINSATZ - HSS M4
Plaquettes FORETS A LAME - HSS M4
CUSPIDI SPADE DRILL - HSS M4

- For general use in steels and cast irons.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar



Cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
4 Ø46.99 (1.850) to Ø65.28 (2.570)	2-1/4	57.15	2.2500	7.9 (5/16)	S1405216	S1410216	S1415216
	2-9/32	57.94	2.2813		S1405218	S1410218	S1415218
		58.00	2.2835		S1455580	S1460580	S1465580
	2-5/16	58.74	2.3125		S1405220	S1410220	S1415220
		59.00	2.3228		S1455590	S1460590	S1465590
	2-11/32	59.53	2.3438		S1405222	S1410222	S1415222
		60.00	2.3622		S1455600	S1460600	S1465600
	2-3/8	60.33	2.3750		S1405224	S1410224	S1415224
		61.00	2.4016		S1455610	S1460610	S1465610
	2-13/32	61.12	2.4063		S1405226	S1410226	S1415226
	2-7/16	61.91	2.4375		S1405228	S1410228	S1415228
		62.00	2.4409		S1455620	S1460620	S1465620
	2-15/32	62.71	2.4688		S1405230	S1410230	S1415230
		63.00	2.4803		S1455630	S1460630	S1465630
	2-1/2	63.50	2.5000		S1405232	S1410232	S1415232
		64.00	2.5197		S1455640	S1460640	S1465640
	2-17/32	64.29	2.5313		S1405234	S1410234	S1415234
		65.00	2.5591		S1455650	S1460650	S1465650
	2-9/16	65.09	2.5625		S1405236	S1410236	S1415236
5 Ø62.38 (2.456) to Ø76.20 (3.000)	2-1/2	63.50	2.5000	11.1 (7/16)	S14052D2	S14102D2	S14152D2
		64.00	2.5197		S145564A	S146064A	S146564A
	2-17/32	64.29	2.5313		S14052D4	S14102D4	S14152D4
	2-9/16	65.09	2.5625		S14052D6	S14102D6	S14152D6
	2-19/32	65.88	2.5938		S1405238	S1410238	S1415238
		66.00	2.5984		S1455660	S1460660	S1465660
	2-5/8	66.68	2.6250		S1405240	S1410240	S1415240
	2-21/32	67.47	2.6563		S1405242	S1410242	S1415242
		68.00	2.6772		S1455680	S1460680	S1465680
	2-11/16	68.26	2.6875		S1405244	S1410244	S1415244
	2-23/32	69.05	2.7188		S1405246	S1410246	S1415246
	2-3/4	69.85	2.7500		S1405248	S1410248	S1415248
		70.00	2.7559		S1455700	S1460700	S1465700
	2-25/32	70.64	2.7813		S1405250	S1410250	S1415250
	2-13/16	71.44	2.8125		S1405252	S1410252	S1415252

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		K Nodular cast iron		K Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

SPADE DRILL INSERTS - HSS M4

- EINWEG BOHREINSATZ - HSS M4
- Plaquettes FORETS A LAME - HSS M4
- CUSPIDI SPADE DRILL - HSS M4

- For general use in steels and cast irons.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

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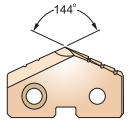
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A375

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
5 Ø62.38 (2.456) to Ø76.20 (3.000)		72.00	2.8346	11.1 (7/16)	S1455720	S1460720	S1465720
	2-27/32	72.23	2.8438		S1405254	S1410254	S1415254
	2-7/8	73.03	2.8750		S1405256	S1410256	S1415256
	2-29/32	73.82	2.9063		S1405258	S1410258	S1415258
		74.00	2.9134		S1455740	S1460740	S1465740
	2-15/16	74.61	2.9375		S1405260	S1410260	S1415260
	2-31/32	75.41	2.9688		S1405262	S1410262	S1415262
		76.00	2.9921		S1455760	S1460760	S1465760
	3	76.20	3.0000		S1405300	S1410300	S1415300
6 Ø76.23 (3.001) to Ø89.08 (3.507)	3-1/32	76.99	3.0313	11.1 (7/16)	S1405302	S1410302	S1415302
	3-1/16	77.79	3.0625		S1405304	S1410304	S1415304
		78.00	3.0709		S1455780	S1460780	S1465780
	3-3/32	78.58	3.0938		S1405306	S1410306	S1415306
	3-1/8	79.38	3.1250		S1405308	S1410308	S1415308
		80.00	3.1496		S1455800	S1460800	S1465800
	3-5/32	80.17	3.1563		S1405310	S1410310	S1415310
	3-3/16	80.96	3.1875		S1405312	S1410312	S1415312
	3-7/32	81.76	3.2188		S1405314	S1410314	S1415314
		82.00	3.2283		S1455820	S1460820	S1465820
	3-1/4	82.55	3.2500		S1405316	S1410316	S1415316
	3-9/32	83.34	3.2813		S1405318	S1410318	S1415318
		84.00	3.3071		S1455840	S1460840	S1465840
	3-5/16	84.14	3.3125		S1405320	S1410320	S1415320
	3-11/32	84.93	3.3438		S1405322	S1410322	S1415322
	3-3/8	85.73	3.3750		S1405324	S1410324	S1415324
		86.00	3.3858		S1455860	S1460860	S1465860
	3-13/32	86.52	3.4063		S1405326	S1410326	S1415326
	3-7/16	87.31	3.4375		S1405328	S1410328	S1415328
		88.00	3.4646		S1455880	S1460880	S1465880
	3-15/32	88.11	3.4688		S1405330	S1410330	S1415330
	3-1/2	88.90	3.5000		S1405332	S1410332	S1415332
7	3-17/32	89.69	3.5313	11.1 (7/16)	S1405334	S1410334	S1415334
		90.00	3.5433		S1455900	S1460900	S1465900
	3-9/16	90.49	3.5625		S1405336	S1410336	S1415336

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

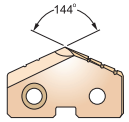
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

S ADE D ILLS
SERIES

SPADE DRILL INSERTS - HSS M4
EINWEG BOHREINSATZ - HSS M4
Plaquettes FORETS A LAME - HSS M4
CUSPIDI SPADE DRILL - HSS M4

For general use in steels and cast irons.
Set up time can be reduced due to changing inserts easily on the machine.
Any non-standard size available.

Für allgemeine Anwendung in Stahl und Gusseisen
Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
Jede Abmessung außerhalb des Kataloges lieferbar



Recommended ToolHolder
INDEXABLE DRILL HOLDER D245 - 246
ER COLLET CHUCK D73 - 115
Cutting conditions : p.A375

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
7 Ø87.76 (3.455) to Ø101.60 (4.000)	3-19/32	91.28	3.5938	11.1 (7/16)	S1405338	S1410338	S1415338
		92.00	3.6221		S1455920	S1460920	S1465920
	3-5/8	92.08	3.6250		S1405340	S1410340	S1415340
	3-21/32	92.87	3.6563		S1405342	S1410342	S1415342
	3-11/16	93.66	3.6875		S1405344	S1410344	S1415344
		94.00	3.7008		S1455940	S1460940	S1465940
	3-23/32	94.46	3.7188		S1405346	S1410346	S1415346
	3-3/4	95.25	3.7500		S1405348	S1410348	S1415348
		96.00	3.7795		S1455960	S1460960	S1465960
	3-25/32	96.04	3.7813		S1405350	S1410350	S1415350
	3-13/16	96.84	3.8125		S1405352	S1410352	S1415352
	3-27/32	97.63	3.8438		S1405354	S1410354	S1415354
		98.00	3.8583		S1455980	S1460980	S1465980
	3-7/8	98.43	3.8750		S1405356	S1410356	S1415356
	3-29/32	99.22	3.9063		S1405358	S1410358	S1415358
		100.00	3.9370		S1455A00	S1460A00	S1465A00
	3-15/16	100.01	3.9375		S1405360	S1410360	S1415360
	3-31/32	100.81	3.9688		S1405362	S1410362	S1415362
	4	101.60	4.0000		S1405400	S1410400	S1415400
8 Ø101.63 (4.001) to Ø114.48 (4.507)	4-1/64	102.00	4.0157	11.1 (7/16)	S1455A20	S1460A20	S1465A20
	4-1/16	103.19	4.0625		S1405404	S1410404	S1415404
	4-3/32	104.00	4.0945		S1455A40	S1460A40	S1465A40
	4-1/8	104.78	4.1250		S1405408	S1410408	S1415408
		106.00	4.1732		S1455A60	S1460A60	S1465A60
	4-3/16	106.36	4.1875		S1405412	S1410412	S1415412
	4-1/4	107.95	4.2500		S1405416	S1410416	S1415416
		108.00	4.2520		S1455A80	S1460A80	S1465A80
	4-5/16	109.54	4.3125		S1405420	S1410420	S1415420
		110.00	4.3307		S1455B00	S1460B00	S1465B00
	4-3/8	111.13	4.3750		S1405424	S1410424	S1415424
		112.00	4.4094		S1455B20	S1460B20	S1465B20
	4-7/16	112.71	4.4375		S1405428	S1410428	S1415428
		114.00	4.4882		S1455B40	S1460B40	S1465B40
	4-1/2	114.30	4.5000		S1405432	S1410432	S1415432

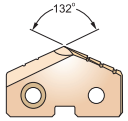
◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

SPADE DRILL INSERTS - SUPER HSS T15

EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL - Super HSS T15
CUSPIDI SPADE DRILL - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK	D73 - 115		

Cutting conditions : p.A376

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	S1155095	S1160095	S1165095
	3/8	9.53	.3750		S1105024	S1110024	S1115024
		9.80	.3860		S1155098	S1160098	S1165098
	25/64	9.92	.3906		S1105025	S1110025	S1115025
		10.00	.3937		S1155100	S1160100	S1165100
		10.20	.4016		S1155102	S1160102	S1165102
	13/32	10.32	.4063		S1105026	S1110026	S1115026
		10.50	.4134		S1155105	S1160105	S1165105
	27/64	10.72	.4219		S1105027	S1110027	S1115027
		10.80	.4252		S1155108	S1160108	S1165108
		11.00	.4331		S1155110	S1160110	S1165110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	S1105028	S1110028	S1115028
		11.50	.4528		S1155115	S1160115	S1165115
	29/64	11.51	.4531		S1105029	S1110029	S1115029
	15/32	11.91	.4688		S1105030	S1110030	S1115030
		12.00	.4724		S1155120	S1160120	S1165120
	31/64	12.30	.4844		S1105031	S1110031	S1115031
		12.50	.4921		S1155125	S1160125	S1165125
	1/2	12.70	.5000		S1105032	S1110032	S1115032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	S1155130	S1160130	S1165130
	33/64	13.10	.5156		S1105033	S1110033	S1115033
	17/32	13.49	.5313		S1105034	S1110034	S1115034
		13.50	.5315		S1155135	S1160135	S1165135
	35/64	13.89	.5469		S1105035	S1110035	S1115035
		14.00	.5512		S1155140	S1160140	S1165140
	9/16	14.29	.5625		S1105036	S1110036	S1115036
		14.50	.5709		S1155145	S1160145	S1165145
	37/64	14.68	.5781		S1105037	S1110037	S1115037
		15.00	.5906		S1155150	S1160150	S1165150
	19/32	15.08	.5938		S1105038	S1110038	S1115038
	39/64	15.48	.6094		S1105039	S1110039	S1115039
		15.50	.6102		S1155155	S1160155	S1165155
	5/8	15.88	.6250		S1105040	S1110040	S1115040
		16.00	.6299		S1155160	S1160160	S1165160

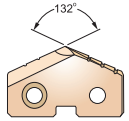
◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	

ISO																							
	N										S							H					
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommended	○	○					○				◎	○	○	○	○			○				

S ADE D ILLS
SERIES

SPADE DRILL INSERTS - SUPER HSS T15
EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL - Super HSS T15
CUSPIDI SPADE DRILL - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK	D73 - 115		

Cutting conditions : p.A376

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
0 Ø12.98 (.511) to Ø17.65 (.695)	41/64	16.27	.6406	3.2 (1/8)	S1105041	S1110041	S1115041
		16.50	.6496		S1155165	S1160165	S1165165
	21/32	16.67	.6563		S1105042	S1110042	S1115042
		17.00	.6693		S1155170	S1160170	S1165170
	43/64	17.07	.6719		S1105043	S1110043	S1115043
	11/16	17.46	.6875		S1105044	S1110044	S1115044
		17.50	.6890		S1155175	S1160175	S1165175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S1105045	S1110045	S1115045
		18.00	.7087		S1155180	S1160180	S1165180
	23/32	18.26	.7188		S1105046	S1110046	S1115046
		18.50	.7283		S1155185	S1160185	S1165185
	47/64	18.65	.7344		S1105047	S1110047	S1115047
		19.00	.7480		S1155190	S1160190	S1165190
	3/4	19.05	.7500		S1105048	S1110048	S1115048
	49/64	19.45	.7656		S1105049	S1110049	S1115049
		19.50	.7677		S1155195	S1160195	S1165195
	25/32	19.84	.7813		S1105050	S1110050	S1115050
		20.00	.7874		S1155200	S1160200	S1165200
	51/64	20.24	.7969		S1105051	S1110051	S1115051
		20.50	.8071		S1155205	S1160205	S1165205
	13/16	20.64	.8125		S1105052	S1110052	S1115052
		21.00	.8268		S1155210	S1160210	S1165210
	27/32	21.43	.8438		S1105054	S1110054	S1115054
	55/64	21.83	.8594		S1105055	S1110055	S1115055
		22.00	.8661		S1155220	S1160220	S1165220
	7/8	22.23	.8750		S1105056	S1110056	S1115056
	57/64	22.62	.8906		S1105057	S1110057	S1115057
		23.00	.9055		S1155230	S1160230	S1165230
	29/32	23.02	.9063		S1105058	S1110058	S1115058
	59/64	23.42	.9219		S1105059	S1110059	S1115059
	15/16	23.81	.9375		S1105060	S1110060	S1115060
		24.00	.9449		S1155240	S1160240	S1165240

◎ : Excellent ○ : Good

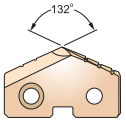
ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎	

ISO																							
	N										S							H					
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34			55	60	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550	
Recommended	○	○					○				◎	○	○	○	○			○				

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SPADE DRILL INSERTS - SUPER HSS T15

EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL - Super HSS T15
CUSPIDI SPADE DRILL - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A376

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1105062	S1110062	S1115062
	63/64	25.00	.9843		S1155250	S1160250	S1165250
	1	25.40	1.0000		S1105100	S1110100	S1115100
	1-1/64	25.80	1.0156		S1105101	S1110101	S1115101
		26.00	1.0236		S1155260	S1160260	S1165260
	1-1/32	26.19	1.0313		S1105102	S1110102	S1115102
	1-3/64	26.59	1.0469		S1105103	S1110103	S1115103
	1-1/16	26.99	1.0625		S1105104	S1110104	S1115104
		27.00	1.0630		S1155270	S1160270	S1165270
	1-3/32	27.78	1.0938		S1105106	S1110106	S1115106
		28.00	1.1024		S1155280	S1160280	S1165280
	1-7/64	28.18	1.1094		S1105107	S1110107	S1115107
	1-1/8	28.58	1.1250		S1105108	S1110108	S1115108
		29.00	1.1417		S1155290	S1160290	S1165290
	1-5/32	29.37	1.1563		S1105110	S1110110	S1115110
		30.00	1.1811		S1155300	S1160300	S1165300
	1-3/16	30.16	1.1875		S1105112	S1110112	S1115112
	1-7/32	30.96	1.2188		S1105114	S1110114	S1115114
		31.00	1.2205		S1155310	S1160310	S1165310
	1-1/4	31.75	1.2500		S1105116	S1110116	S1115116
		32.00	1.2598		S1155320	S1160320	S1165320
	1-9/32	32.54	1.2813		S1105118	S1110118	S1115118
	1-5/16	33.00	1.2992		S1155330	S1160330	S1165330
		33.34	1.3125		S1105120	S1110120	S1115120
		34.00	1.3386		S1155340	S1160340	S1165340
	1-11/32	34.13	1.3438		S1105122	S1110122	S1115122
	1-3/8	34.93	1.3750		S1105124	S1110124	S1115124
		35.00	1.3780		S1155350	S1160350	S1165350
3 Ø34.37(1.353) to Ø47.80(1.882)	1-13/32	35.72	1.4063	6.4 (1/4)	S1105126	S1110126	S1115126
		36.00	1.4173		S1155360	S1160360	S1165360
	1-7/16	36.51	1.4375		S1105128	S1110128	S1115128
		37.00	1.4567		S1155370	S1160370	S1165370
	1-15/32	37.31	1.4688		S1105130	S1110130	S1115130
		38.00	1.4961		S1155380	S1160380	S1165380

◎ : Excellent ○ : Good

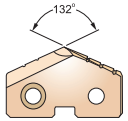
ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	○	◎

ISO																				
	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

S ADE D ILLS
SERIES

SPADE DRILL INSERTS - SUPER HSS T15

EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL - Super HSS T15
CUSPIDI SPADE DRILL - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A376

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-1/2	38.10	1.5000	6.4 (1/4)	S1105132	S1110132	S1115132
	1-17/32	38.89	1.5313		S1105134	S1110134	S1115134
		39.00	1.5354		S1155390	S1160390	S1165390
	1-9/16	39.69	1.5625		S1105136	S1110136	S1115136
		40.00	1.5748		S1155400	S1160400	S1165400
	1-19/32	40.48	1.5938		S1105138	S1110138	S1115138
		41.00	1.6142		S1155410	S1160410	S1165410
	1-5/8	41.28	1.6250		S1105140	S1110140	S1115140
		42.00	1.6535		S1155420	S1160420	S1165420
	1-21/32	42.07	1.6563		S1105142	S1110142	S1115142
	1-11/16	42.86	1.6875		S1105144	S1110144	S1115144
		43.00	1.6929		S1155430	S1160430	S1165430
	1-23/32	43.66	1.7188		S1105146	S1110146	S1115146
		44.00	1.7323		S1155440	S1160440	S1165440
	1-3/4	44.45	1.7500		S1105148	S1110148	S1115148
		45.00	1.7717		S1155450	S1160450	S1165450
	1-25/32	45.24	1.7813		S1105150	S1110150	S1115150
		46.00	1.8110		S1155460	S1160460	S1165460
	1-13/16	46.04	1.8125		S1105152	S1110152	S1115152
	1-27/32	46.83	1.8438		S1105154	S1110154	S1115154
		47.00	1.8504		S1155470	S1160470	S1165470
	1-7/8	47.63	1.8750		S1105156	S1110156	S1115156
4 Ø46.99 (1.850) to Ø65.28 (2.570)		48.00	1.8898	7.9 (5/16)	S1155480	S1160480	S1165480
	1-29/32	48.42	1.9063		S1105158	S1110158	S1115158
		49.00	1.9291		S1155490	S1160490	S1165490
	1-15/16	49.21	1.9375		S1105160	S1110160	S1115160
		50.00	1.9685		S1155500	S1160500	S1165500
	1-31/32	50.01	1.9688		S1105162	S1110162	S1115162
	2	50.80	2.0000		S1105200	S1110200	S1115200
		51.00	2.0079		S1155510	S1160510	S1165510
	2-1/32	51.59	2.0313		S1105202	S1110202	S1115202
	2-3/64	52.00	2.0472		S1155520	S1160520	S1165520
	2-1/16	52.39	2.0625		S1105204	S1110204	S1115204
		53.00	2.0866		S1155530	S1160530	S1165530

◎ : Excellent ○ : Good

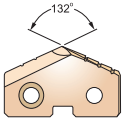
ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	○	◎

ISO																				
	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SPADE DRILL INSERTS - SUPER HSS T15

EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL - Super HSS T15
CUSPIDI SPADE DRILL - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A376

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
4 Ø46.99 (1.850) to Ø65.28 (2.570)	2-3/32	53.18	2.0938	7.9 (5/16)	S1105206	S1110206	S1115206
	2-1/8	53.98	2.1250		S1105208	S1110208	S1115208
		54.00	2.1260		S1155540	S1160540	S1165540
	2-5/32	54.77	2.1563		S1105210	S1110210	S1115210
		55.00	2.1654		S1155550	S1160550	S1165550
	2-3/16	55.56	2.1875		S1105212	S1110212	S1115212
		56.00	2.2047		S1155560	S1160560	S1165560
	2-7/32	56.36	2.2188		S1105214	S1110214	S1115214
		57.00	2.2441		S1155570	S1160570	S1165570
	2-1/4	57.15	2.2500		S1105216	S1110216	S1115216
	2-9/32	57.94	2.2813		S1105218	S1110218	S1115218
		58.00	2.2835		S1155580	S1160580	S1165580
	2-5/16	58.74	2.3125		S1105220	S1110220	S1115220
		59.00	2.3228		S1155590	S1160590	S1165590
	2-11/32	59.53	2.3438		S1105222	S1110222	S1115222
		60.00	2.3622		S1155600	S1160600	S1165600
	2-3/8	60.33	2.3750		S1105224	S1110224	S1115224
		61.00	2.4016		S1155610	S1160610	S1165610
	2-13/32	61.12	2.4063		S1105226	S1110226	S1115226
	2-7/16	61.91	2.4375		S1105228	S1110228	S1115228
		62.00	2.4409		S1155620	S1160620	S1165620
	2-15/32	62.71	2.4688		S1105230	S1110230	S1115230
		63.00	2.4803		S1155630	S1160630	S1165630
	2-1/2	63.50	2.5000		S1105232	S1110232	S1115232
		64.00	2.5197		S1155640	S1160640	S1165640
	2-17/32	64.29	2.5313		S1105234	S1110234	S1115234
		65.00	2.5591		S1155650	S1160650	S1165650
	2-9/16	65.09	2.5625		S1105236	S1110236	S1115236

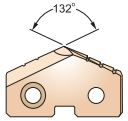
◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILL INSERTS - PREMIUM HSS M48

EINWEG BOHREINSATZ - PREMIUM HSS M48
Plaquettes SPADE DRILL - HSS Premium M48
CUSPIDI SPADE DRILL - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350~500 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350~500 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A377

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48 TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	S1555095	S1560095	S1565095
	3/8	9.53	.3750		S1505024	S1510024	S1515024
		9.80	.3860		S1555098	S1560098	S1565098
	25/64	9.92	.3906		S1505025	S1510025	S1515025
		10.00	.3937		S1555100	S1560100	S1565100
		10.20	.4016		S1555102	S1560102	S1565102
	13/32	10.32	.4063		S1505026	S1510026	S1515026
		10.50	.4134		S1555105	S1560105	S1565105
	27/64	10.72	.4219		S1505027	S1510027	S1515027
		10.80	.4252		S1555108	S1560108	S1565108
		11.00	.4331		S1555110	S1560110	S1565110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	S1505028	S1510028	S1515028
		11.50	.4528		S1555115	S1560115	S1565115
	29/64	11.51	.4531		S1505029	S1510029	S1515029
	15/32	11.91	.4688		S1505030	S1510030	S1515030
		12.00	.4724		S1555120	S1560120	S1565120
	31/64	12.30	.4844		S1505031	S1510031	S1515031
		12.50	.4921		S1555125	S1560125	S1565125
	1/2	12.70	.5000		S1505032	S1510032	S1515032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	S1555130	S1560130	S1565130
	33/64	13.10	.5156		S1505033	S1510033	S1515033
	17/32	13.49	.5313		S1505034	S1510034	S1515034
		13.50	.5315		S1555135	S1560135	S1565135
	35/64	13.89	.5469		S1505035	S1510035	S1515035
		14.00	.5512		S1555140	S1560140	S1565140
	9/16	14.29	.5625		S1505036	S1510036	S1515036
		14.50	.5709		S1555145	S1560145	S1565145
	37/64	14.68	.5781		S1505037	S1510037	S1515037
		15.00	.5906		S1555150	S1560150	S1565150
	19/32	15.08	.5938		S1505038	S1510038	S1515038
	39/64	15.48	.6094		S1505039	S1510039	S1515039
		15.50	.6102		S1555155	S1560155	S1565155
	5/8	15.88	.6250		S1505040	S1510040	S1515040
		16.00	.6299		S1555160	S1560160	S1565160

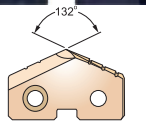
◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎				○	◎	○	◎	○	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SPADE DRILL INSERTS - PREMIUM HSS M48

EINWEG BOHREINSATZ - PREMIUM HSS M48
Plaquettes SPADE DRILL - HSS Premium M48
CUSPIDI SPADE DRILL - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350~500 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.
- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350~500 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A377

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	S1505041	S1510041	S1515041
		16.50	.6496		S1555165	S1560165	S1565165
	21/32	16.67	.6563		S1505042	S1510042	S1515042
		17.00	.6693		S1555170	S1560170	S1565170
	43/64	17.07	.6719		S1505043	S1510043	S1515043
	11/16	17.46	.6875		S1505044	S1510044	S1515044
		17.50	.6890		S1555175	S1560175	S1565175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S1505045	S1510045	S1515045
		18.00	.7087		S1555180	S1560180	S1565180
	23/32	18.26	.7188		S1505046	S1510046	S1515046
		18.50	.7283		S1555185	S1560185	S1565185
	47/64	18.65	.7344		S1505047	S1510047	S1515047
		19.00	.7480		S1555190	S1560190	S1565190
	3/4	19.05	.7500		S1505048	S1510048	S1515048
	49/64	19.45	.7656		S1505049	S1510049	S1515049
		19.50	.7677		S1555195	S1560195	S1565195
	25/32	19.84	.7813		S1505050	S1510050	S1515050
		20.00	.7874		S1555200	S1560200	S1565200
	51/64	20.24	.7969		S1505051	S1510051	S1515051
		20.50	.8071		S1555205	S1560205	S1565205
	13/16	20.64	.8125		S1505052	S1510052	S1515052
		21.00	.8268		S1555210	S1560210	S1565210
	27/32	21.43	.8438		S1505054	S1510054	S1515054
	55/64	21.83	.8594		S1505055	S1510055	S1515055
		22.00	.8661		S1555220	S1560220	S1565220
	7/8	22.23	.8750		S1505056	S1510056	S1515056
	57/64	22.62	.8906		S1505057	S1510057	S1515057
		23.00	.9055		S1555230	S1560230	S1565230
	29/32	23.02	.9063		S1505058	S1510058	S1515058
	59/64	23.42	.9219		S1505059	S1510059	S1515059
	15/16	23.81	.9375		S1505060	S1510060	S1515060
		24.00	.9449		S1555240	S1560240	S1565240

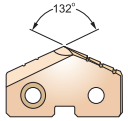
◎ : Excellent ○ : Good

ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎				○	◎	○	◎	○	◎

ISO																				
	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

S ADE D ILLS
SERIES

SPADE DRILL INSERTS - PREMIUM HSS M48
EINWEG BOHREINSATZ - PREMIUM HSS M48
Plaquettes SPADE DRILL - HSS Premium M48
CUSPIDI SPADE DRILL - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350~500 Brinell.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.
- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350~500 Brinell
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A377

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1505062	S1510062	S1515062
	63/64	25.00	.9843		S1555250	S1560250	S1565250
	1	25.40	1.0000		S1505100	S1510100	S1515100
	1-1/64	25.80	1.0156		S1505101	S1510101	S1515101
		26.00	1.0236		S1555260	S1560260	S1565260
	1-1/32	26.19	1.0313		S1505102	S1510102	S1515102
	1-3/64	26.59	1.0469		S1505103	S1510103	S1515103
	1-1/16	26.99	1.0625		S1505104	S1510104	S1515104
		27.00	1.0630		S1555270	S1560270	S1565270
	1-3/32	27.78	1.0938		S1505106	S1510106	S1515106
		28.00	1.1024		S1555280	S1560280	S1565280
	1-7/64	28.18	1.1094		S1505107	S1510107	S1515107
	1-1/8	28.58	1.1250		S1505108	S1510108	S1515108
		29.00	1.1417		S1555290	S1560290	S1565290
	1-5/32	29.37	1.1563		S1505110	S1510110	S1515110
		30.00	1.1811		S1555300	S1560300	S1565300
	1-3/16	30.16	1.1875		S1505112	S1510112	S1515112
	1-7/32	30.96	1.2188		S1505114	S1510114	S1515114
		31.00	1.2205		S1555310	S1560310	S1565310
	1-1/4	31.75	1.2500		S1505116	S1510116	S1515116
		32.00	1.2598		S1555320	S1560320	S1565320
	1-9/32	32.54	1.2813		S1505118	S1510118	S1515118
		33.00	1.2992		S1555330	S1560330	S1565330
	1-5/16	33.34	1.3125		S1505120	S1510120	S1515120
		34.00	1.3386		S1555340	S1560340	S1565340
	1-11/32	34.13	1.3438		S1505122	S1510122	S1515122
	1-3/8	34.93	1.3750		S1505124	S1510124	S1515124
		35.00	1.3780		S1555350	S1560350	S1565350

◎ : Excellent ○ : Good

ISO																				
											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎				○	◎	○	◎	○	◎

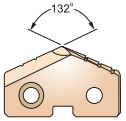
ISO																				
	N										S						H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

S ADE D ILLS

SERIES

SPADE DRILL INSERTS for CAST IRON - CARBIDE K10

- EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL pour la fonte - Carbure K10
- CUSPIDI SPADE DRILL - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A378

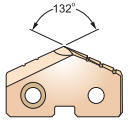
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K10 TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	S1655095	S1660095	S1665095
	3/8	9.53	.3750		S1605024	S1610024	S1615024
		9.80	.3860		S1655098	S1660098	S1665098
	25/64	9.92	.3906		S1605025	S1610025	S1615025
		10.00	.3937		S1655100	S1660100	S1665100
		10.20	.4016		S1655102	S1660102	S1665102
	13/32	10.32	.4063		S1605026	S1610026	S1615026
		10.50	.4134		S1655105	S1660105	S1665105
	27/64	10.72	.4219		S1605027	S1610027	S1615027
		10.80	.4252		S1655108	S1660108	S1665108
		11.00	.4331		S1655110	S1660110	S1665110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	S1605028	S1610028	S1615028
		11.50	.4528		S1655115	S1660115	S1665115
	29/64	11.51	.4531		S1605029	S1610029	S1615029
	15/32	11.91	.4688		S1605030	S1610030	S1615030
		12.00	.4724		S1655120	S1660120	S1665120
	31/64	12.30	.4844		S1605031	S1610031	S1615031
		12.50	.4921		S1655125	S1660125	S1665125
	1/2	12.70	.5000		S1605032	S1610032	S1615032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	S1655130	S1660130	S1665130
	33/64	13.10	.5156		S1605033	S1610033	S1615033
	17/32	13.49	.5313		S1605034	S1610034	S1615034
		13.50	.5315		S1655135	S1660135	S1665135
	35/64	13.89	.5469		S1605035	S1610035	S1615035
		14.00	.5512		S1655140	S1660140	S1665140
	9/16	14.29	.5625		S1605036	S1610036	S1615036
		14.50	.5709		S1655145	S1660145	S1665145
	37/64	14.68	.5781		S1605037	S1610037	S1615037
		15.00	.5906		S1655150	S1660150	S1665150
	19/32	15.08	.5938		S1605038	S1610038	S1615038
	39/64	15.48	.6094		S1605039	S1610039	S1615039
		15.50	.6102		S1655155	S1660155	S1665155
	5/8	15.88	.6250		S1605040	S1610040	S1615040
		16.00	.6299		S1655160	S1660160	S1665160

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

ISO	N										S					H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

S ADE D ILLS
SERIES
SPADE DRILL INSERTS for CAST IRON - CARBIDE K10
EINWEG BOHREINSATZ - VOLLHARTMETALL K10
Plaquettes SPADE DRILL pour la fonte - Carbure K10
CUSPIDI SPADE DRILL - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K10 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	S1605041	S1610041	S1615041
		16.50	.6496		S1655165	S1660165	S1665165
	21/32	16.67	.6563		S1605042	S1610042	S1615042
		17.00	.6693		S1655170	S1660170	S1665170
	43/64	17.07	.6719		S1605043	S1610043	S1615043
	11/16	17.46	.6875		S1605044	S1610044	S1615044
		17.50	.6890		S1655175	S1660175	S1665175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S1605045	S1610045	S1615045
		18.00	.7087		S1655180	S1660180	S1665180
	23/32	18.26	.7188		S1605046	S1610046	S1615046
		18.50	.7283		S1655185	S1660185	S1665185
	47/64	18.65	.7344		S1605047	S1610047	S1615047
		19.00	.7480		S1655190	S1660190	S1665190
	3/4	19.05	.7500		S1605048	S1610048	S1615048
	49/64	19.45	.7656		S1605049	S1610049	S1615049
		19.50	.7677		S1655195	S1660195	S1665195
	25/32	19.84	.7813		S1605050	S1610050	S1615050
		20.00	.7874		S1655200	S1660200	S1665200
	51/64	20.24	.7969		S1605051	S1610051	S1615051
		20.50	.8071		S1655205	S1660205	S1665205
	13/16	20.64	.8125		S1605052	S1610052	S1615052
		21.00	.8268		S1655210	S1660210	S1665210
	27/32	21.43	.8438		S1605054	S1610054	S1615054
	55/64	21.83	.8594		S1605055	S1610055	S1615055
		22.00	.8661		S1655220	S1660220	S1665220
	7/8	22.23	.8750		S1605056	S1610056	S1615056
	57/64	22.62	.8906		S1605057	S1610057	S1615057
		23.00	.9055		S1655230	S1660230	S1665230
	29/32	23.02	.9063		S1605058	S1610058	S1615058
	59/64	23.42	.9219		S1605059	S1610059	S1615059
	15/16	23.81	.9375		S1605060	S1610060	S1615060
		24.00	.9449		S1655240	S1660240	S1665240

◎ : Excellent ○ : Good

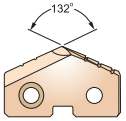
ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

ISO	N										S					H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

SPADE DRILL INSERTS for CAST IRON - CARBIDE K10

EINWEG BOHREINSATZ - VOLLHARTMETALL K10
Plaquettes SPADE DRILL pour la fonte - Carbure K10
CUSPIDI SPADE DRILL - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K10 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1605062	S1610062	S1615062
	63/64	25.00	.9843		S1655250	S1660250	S1665250
	1	25.40	1.0000		S1605100	S1610100	S1615100
	1-1/64	25.80	1.0156		S1605101	S1610101	S1615101
		26.00	1.0236		S1655260	S1660260	S1665260
	1-1/32	26.19	1.0313		S1605102	S1610102	S1615102
	1-3/64	26.59	1.0469		S1605103	S1610103	S1615103
	1-1/16	26.99	1.0625		S1605104	S1610104	S1615104
		27.00	1.0630		S1655270	S1660270	S1665270
	1-3/32	27.78	1.0938		S1605106	S1610106	S1615106
		28.00	1.1024		S1655280	S1660280	S1665280
	1-7/64	28.18	1.1094		S1605107	S1610107	S1615107
	1-1/8	28.58	1.1250		S1605108	S1610108	S1615108
		29.00	1.1417		S1655290	S1660290	S1665290
	1-5/32	29.37	1.1563		S1605110	S1610110	S1615110
		30.00	1.1811		S1655300	S1660300	S1665300
	1-3/16	30.16	1.1875		S1605112	S1610112	S1615112
	1-7/32	30.96	1.2188		S1605114	S1610114	S1615114
		31.00	1.2205		S1655310	S1660310	S1665310
	1-1/4	31.75	1.2500		S1605116	S1610116	S1615116
		32.00	1.2598		S1655320	S1660320	S1665320
	1-9/32	32.54	1.2813		S1605118	S1610118	S1615118
		33.00	1.2992		S1655330	S1660330	S1665330
	1-5/16	33.34	1.3125		S1605120	S1610120	S1615120
		34.00	1.3386		S1655340	S1660340	S1665340
	1-11/32	34.13	1.3438		S1605122	S1610122	S1615122
	1-3/8	34.93	1.3750		S1605124	S1610124	S1615124
		35.00	1.3780		S1655350	S1660350	S1665350

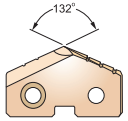
◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

SPADE DRILL INSERTS - CARBIDE K20

EINWEG BOHREINSATZ - VOLLHARTMETALL K20
Plaquettes SPADE DRILL - Carbure K20
CUSPIDI SPADE DRILL - MD K20



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	S1755095	S1760095	S1765095
	3/8	9.53	.3750		S1705024	S1710024	S1715024
		9.80	.3860		S1755098	S1760098	S1765098
	25/64	9.92	.3906		S1705025	S1710025	S1715025
		10.00	.3937		S1755100	S1760100	S1765100
		10.20	.4016		S1755102	S1760102	S1765102
	13/32	10.32	.4063		S1705026	S1710026	S1715026
		10.50	.4134		S1755105	S1760105	S1765105
	27/64	10.72	.4219		S1705027	S1710027	S1715027
		10.80	.4252		S1755108	S1760108	S1765108
		11.00	.4331		S1755110	S1760110	S1765110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	S1705028	S1710028	S1715028
		11.50	.4528		S1755115	S1760115	S1765115
	29/64	11.51	.4531		S1705029	S1710029	S1715029
	15/32	11.91	.4688		S1705030	S1710030	S1715030
		12.00	.4724		S1755120	S1760120	S1765120
	31/64	12.30	.4844		S1705031	S1710031	S1715031
		12.50	.4921		S1755125	S1760125	S1765125
	1/2	12.70	.5000		S1705032	S1710032	S1715032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	S1755130	S1760130	S1765130
	33/64	13.10	.5156		S1705033	S1710033	S1715033
	17/32	13.49	.5313		S1705034	S1710034	S1715034
		13.50	.5315		S1755135	S1760135	S1765135
	35/64	13.89	.5469		S1705035	S1710035	S1715035
		14.00	.5512		S1755140	S1760140	S1765140
	9/16	14.29	.5625		S1705036	S1710036	S1715036
		14.50	.5709		S1755145	S1760145	S1765145
	37/64	14.68	.5781		S1705037	S1710037	S1715037
		15.00	.5906		S1755150	S1760150	S1765150
	19/32	15.08	.5938		S1705038	S1710038	S1715038
	39/64	15.48	.6094		S1705039	S1710039	S1715039
		15.50	.6102		S1755155	S1760155	S1765155
	5/8	15.88	.6250		S1705040	S1710040	S1715040
		16.00	.6299		S1755160	S1760160	S1765160

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended												◎	◎	◎	○	○	○	○	○	○

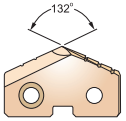
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

S ADE D ILLS

SERIES

SPADE DRILL INSERTS - CARBIDE K20

EINWEG BOHREINSATZ - VOLLHARTMETALL K20
Plaquettes SPADE DRILL - Carbure K20
CUSPIDI SPADE DRILL - MD K20



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246		-	-
ER COLLET CHUCK	D73 - 115			

Cutting conditions : p.A378

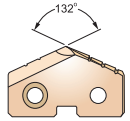
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	S1705041	S1710041	S1715041
		16.50	.6496		S1755165	S1760165	S1765165
	21/32	16.67	.6563		S1705042	S1710042	S1715042
		17.00	.6693		S1755170	S1760170	S1765170
	43/64	17.07	.6719		S1705043	S1710043	S1715043
	11/16	17.46	.6875		S1705044	S1710044	S1715044
		17.50	.6890		S1755175	S1760175	S1765175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S1705045	S1710045	S1715045
		18.00	.7087		S1755180	S1760180	S1765180
	23/32	18.26	.7188		S1705046	S1710046	S1715046
		18.50	.7283		S1755185	S1760185	S1765185
	47/64	18.65	.7344		S1705047	S1710047	S1715047
		19.00	.7480		S1755190	S1760190	S1765190
	3/4	19.05	.7500		S1705048	S1710048	S1715048
	49/64	19.45	.7656		S1705049	S1710049	S1715049
		19.50	.7677		S1755195	S1760195	S1765195
	25/32	19.84	.7813		S1705050	S1710050	S1715050
		20.00	.7874		S1755200	S1760200	S1765200
	51/64	20.24	.7969		S1705051	S1710051	S1715051
		20.50	.8071		S1755205	S1760205	S1765205
	13/16	20.64	.8125		S1705052	S1710052	S1715052
		21.00	.8268		S1755210	S1760210	S1765210
	27/32	21.43	.8438		S1705054	S1710054	S1715054
	55/64	21.83	.8594		S1705055	S1710055	S1715055
		22.00	.8661		S1755220	S1760220	S1765220
	7/8	22.23	.8750		S1705056	S1710056	S1715056
	57/64	22.62	.8906		S1705057	S1710057	S1715057
		23.00	.9055		S1755230	S1760230	S1765230
	29/32	23.02	.9063		S1705058	S1710058	S1715058
	59/64	23.42	.9219		S1705059	S1710059	S1715059
	15/16	23.81	.9375		S1705060	S1710060	S1715060
		24.00	.9449		S1755240	S1760240	S1765240

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

S ADE D ILLS
SERIES
SPADE DRILL INSERTS - CARBIDE K20
EINWEG BOHREINSATZ - VOLLHARTMETALL K20
Plaquettes SPADE DRILL - Carbure K20
CUSPIDI SPADE DRILL - MD K20



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
INDEXABLE DRILL HOLDER	D245 - 246		-	-
ER COLLET CHUCK	D73 - 115			

Cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1705062	S1710062	S1715062
	63/64	25.00	.9843		S1755250	S1760250	S1765250
	1	25.40	1.0000		S1705100	S1710100	S1715100
	1-1/64	25.80	1.0156		S1705101	S1710101	S1715101
		26.00	1.0236		S1755260	S1760260	S1765260
	1-1/32	26.19	1.0313		S1705102	S1710102	S1715102
	1-3/64	26.59	1.0469		S1705103	S1710103	S1715103
	1-1/16	26.99	1.0625		S1705104	S1710104	S1715104
		27.00	1.0630		S1755270	S1760270	S1765270
	1-3/32	27.78	1.0938		S1705106	S1710106	S1715106
		28.00	1.1024		S1755280	S1760280	S1765280
	1-7/64	28.18	1.1094		S1705107	S1710107	S1715107
	1-1/8	28.58	1.1250		S1705108	S1710108	S1715108
		29.00	1.1417		S1755290	S1760290	S1765290
	1-5/32	29.37	1.1563		S1705110	S1710110	S1715110
		30.00	1.1811		S1755300	S1760300	S1765300
	1-3/16	30.16	1.1875		S1705112	S1710112	S1715112
	1-7/32	30.96	1.2188		S1705114	S1710114	S1715114
		31.00	1.2205		S1755310	S1760310	S1765310
	1-1/4	31.75	1.2500		S1705116	S1710116	S1715116
		32.00	1.2598		S1755320	S1760320	S1765320
	1-9/32	32.54	1.2813		S1705118	S1710118	S1715118
		33.00	1.2992		S1755330	S1760330	S1765330
	1-5/16	33.34	1.3125		S1705120	S1710120	S1715120
		34.00	1.3386		S1755340	S1760340	S1765340
	1-11/32	34.13	1.3438		S1705122	S1710122	S1715122
	1-3/8	34.93	1.3750		S1705124	S1710124	S1715124
		35.00	1.3780		S1755350	S1760350	S1765350

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	

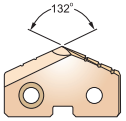
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

SPADE DRILL INSERTS - CARBIDE K20

EINWEG BOHREINSATZ - VOLLHARTMETALL K20
Plaquettes SPADE DRILL - Carbure K20
CUSPIDI SPADE DRILL - MD K20

- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	EDP No. CARBIDE K20 TiCN	EDP No. CARBIDE K20 TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4063	6.4 (1/4)	S1705126	S1710126	S1715126
		36.00	1.4173		S1755360	S1760360	S1765360
	1-7/16	36.51	1.4375		S1705128	S1710128	S1715128
		37.00	1.4567		S1755370	S1760370	S1765370
	1-15/32	37.31	1.4688		S1705130	S1710130	S1715130
		38.00	1.4961		S1755380	S1760380	S1765380
	1-1/2	38.10	1.5000		S1705132	S1710132	S1715132
	1-17/32	38.89	1.5313		S1705134	S1710134	S1715134
		39.00	1.5354		S1755390	S1760390	S1765390
	1-9/16	39.69	1.5625		S1705136	S1710136	S1715136
		40.00	1.5748		S1755400	S1760400	S1765400
	1-19/32	40.48	1.5938		S1705138	S1710138	S1715138
		41.00	1.6142		S1755410	S1760410	S1765410
	1-5/8	41.28	1.6250		S1705140	S1710140	S1715140
		42.00	1.6535		S1755420	S1760420	S1765420
	1-21/32	42.07	1.6563		S1705142	S1710142	S1715142
	1-11/16	42.86	1.6875		S1705144	S1710144	S1715144
		43.00	1.6929		S1755430	S1760430	S1765430
	1-23/32	43.66	1.7188		S1705146	S1710146	S1715146
		44.00	1.7323		S1755440	S1760440	S1765440
	1-3/4	44.45	1.7500		S1705148	S1710148	S1715148
		45.00	1.7717		S1755450	S1760450	S1765450
	1-25/32	45.24	1.7813		S1705150	S1710150	S1715150
		46.00	1.8110		S1755460	S1760460	S1765460
	1-13/16	46.04	1.8125		S1705152	S1710152	S1715152
	1-27/32	46.83	1.8438		S1705154	S1710154	S1715154
		47.00	1.8504		S1755470	S1760470	S1765470
	1-7/8	47.63	1.8750		S1705156	S1710156	S1715156

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	

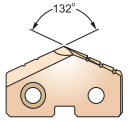
ISO																					
	N									S							H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

SPADE DRILL INSERTS - CARBIDE P40

EINWEG BOHREINSATZ - VOLLHARTMETALL P40
Plaquettes SPADE DRILL - Carbure P40
CUSPIDI SPADE DRILL - MD P40

- For general use in carbon steels and alloy steels.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Cutting conditions : p.A380

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	EDP No. CARBIDE P40 TiCN	EDP No. CARBIDE P40 TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	S1855095	S1860095	S1865095
	3/8	9.53	.3750		S1805024	S1810024	S1815024
		9.80	.3860		S1855098	S1860098	S1865098
	25/64	9.92	.3906		S1805025	S1810025	S1815025
		10.00	.3937		S1855100	S1860100	S1865100
		10.20	.4016		S1855102	S1860102	S1865102
	13/32	10.32	.4063		S1805026	S1810026	S1815026
		10.50	.4134		S1855105	S1860105	S1865105
	27/64	10.72	.4219		S1805027	S1810027	S1815027
		10.80	.4252		S1855108	S1860108	S1865108
		11.00	.4331		S1855110	S1860110	S1865110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	S1805028	S1810028	S1815028
		11.50	.4528		S1855115	S1860115	S1865115
	29/64	11.51	.4531		S1805029	S1810029	S1815029
	15/32	11.91	.4688		S1805030	S1810030	S1815030
		12.00	.4724		S1855120	S1860120	S1865120
	31/64	12.30	.4844		S1805031	S1810031	S1815031
		12.50	.4921		S1855125	S1860125	S1865125
	1/2	12.70	.5000		S1805032	S1810032	S1815032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	S1855130	S1860130	S1865130
	33/64	13.10	.5156		S1805033	S1810033	S1815033
	17/32	13.49	.5313		S1805034	S1810034	S1815034
		13.50	.5315		S1855135	S1860135	S1865135
	35/64	13.89	.5469		S1805035	S1810035	S1815035
		14.00	.5512		S1855140	S1860140	S1865140
	9/16	14.29	.5625		S1805036	S1810036	S1815036
		14.50	.5709		S1855145	S1860145	S1865145
	37/64	14.68	.5781		S1805037	S1810037	S1815037
		15.00	.5906		S1855150	S1860150	S1865150
	19/32	15.08	.5938		S1805038	S1810038	S1815038
	39/64	15.48	.6094		S1805039	S1810039	S1815039
		15.50	.6102		S1855155	S1860155	S1865155
	5/8	15.88	.6250		S1805040	S1810040	S1815040
		16.00	.6299		S1855160	S1860160	S1865160

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	

ISO																					
	N									S							H				
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

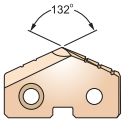
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

SERIES

SPADE DRILL INSERTS - CARBIDE P40

EINWEG BOHREINSATZ - VOLLHARTMETALL P40
Plaquettes SPADE DRILL - Carbure P40
CUSPIDI SPADE DRILL - MD P40



- For general use in carbon steels and alloy steels.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

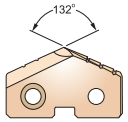
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	S1805041	S1810041	S1815041
		16.50	.6496		S1855165	S1860165	S1865165
	21/32	16.67	.6563		S1805042	S1810042	S1815042
		17.00	.6693		S1855170	S1860170	S1865170
	43/64	17.07	.6719		S1805043	S1810043	S1815043
	11/16	17.46	.6875		S1805044	S1810044	S1815044
		17.50	.6890		S1855175	S1860175	S1865175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S1805045	S1810045	S1815045
		18.00	.7087		S1855180	S1860180	S1865180
	23/32	18.26	.7188		S1805046	S1810046	S1815046
		18.50	.7283		S1855185	S1860185	S1865185
	47/64	18.65	.7344		S1805047	S1810047	S1815047
		19.00	.7480		S1855190	S1860190	S1865190
	3/4	19.05	.7500		S1805048	S1810048	S1815048
	49/64	19.45	.7656		S1805049	S1810049	S1815049
		19.50	.7677		S1855195	S1860195	S1865195
	25/32	19.84	.7813		S1805050	S1810050	S1815050
		20.00	.7874		S1855200	S1860200	S1865200
	51/64	20.24	.7969		S1805051	S1810051	S1815051
		20.50	.8071		S1855205	S1860205	S1865205
	13/16	20.64	.8125		S1805052	S1810052	S1815052
		21.00	.8268		S1855210	S1860210	S1865210
	27/32	21.43	.8438		S1805054	S1810054	S1815054
	55/64	21.83	.8594		S1805055	S1810055	S1815055
		22.00	.8661		S1855220	S1860220	S1865220
	7/8	22.23	.8750		S1805056	S1810056	S1815056
	57/64	22.62	.8906		S1805057	S1810057	S1815057
		23.00	.9055		S1855230	S1860230	S1865230
	29/32	23.02	.9063		S1805058	S1810058	S1815058
	59/64	23.42	.9219		S1805059	S1810059	S1815059
	15/16	23.81	.9375		S1805060	S1810060	S1815060
		24.00	.9449		S1855240	S1860240	S1865240

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

S ADE D ILLS
SERIES
SPADE DRILL INSERTS - CARBIDE P40
EINWEG BOHREINSATZ - VOLLHARTMETALL P40
Plaquettes SPADE DRILL - Carbure P40
CUSPIDI SPADE DRILL - MD P40



- For general use in carbon steels and alloy steels.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S1805062	S1810062	S1815062
	63/64	25.00	.9843		S1855250	S1860250	S1865250
	1	25.40	1.0000		S1805100	S1810100	S1815100
	1-1/64	25.80	1.0156		S1805101	S1810101	S1815101
		26.00	1.0236		S1855260	S1860260	S1865260
	1-1/32	26.19	1.0313		S1805102	S1810102	S1815102
	1-3/64	26.59	1.0469		S1805103	S1810103	S1815103
	1-1/16	26.99	1.0625		S1805104	S1810104	S1815104
		27.00	1.0630		S1855270	S1860270	S1865270
	1-3/32	27.78	1.0938		S1805106	S1810106	S1815106
		28.00	1.1024		S1855280	S1860280	S1865280
	1-7/64	28.18	1.1094		S1805107	S1810107	S1815107
	1-1/8	28.58	1.1250		S1805108	S1810108	S1815108
		29.00	1.1417		S1855290	S1860290	S1865290
	1-5/32	29.37	1.1563		S1805110	S1810110	S1815110
		30.00	1.1811		S1855300	S1860300	S1865300
	1-3/16	30.16	1.1875		S1805112	S1810112	S1815112
	1-7/32	30.96	1.2188		S1805114	S1810114	S1815114
		31.00	1.2205		S1855310	S1860310	S1865310
	1-1/4	31.75	1.2500		S1805116	S1810116	S1815116
		32.00	1.2598		S1855320	S1860320	S1865320
	1-9/32	32.54	1.2813		S1805118	S1810118	S1815118
		33.00	1.2992		S1855330	S1860330	S1865330
	1-5/16	33.34	1.3125		S1805120	S1810120	S1815120
		34.00	1.3386		S1855340	S1860340	S1865340
	1-11/32	34.13	1.3438		S1805122	S1810122	S1815122
	1-3/8	34.93	1.3750		S1805124	S1810124	S1815124
		35.00	1.3780		S1855350	S1860350	S1865350

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

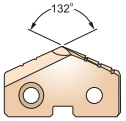
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

S ADE D ILLS

SERIES

SPADE DRILL INSERTS - CARBIDE P40

EINWEG BOHREINSATZ - VOLLHARTMETALL P40
Plaquettes SPADE DRILL - Carbure P40
CUSPIDI SPADE DRILL - MD P40



- For general use in carbon steels and alloy steels.
- Set up time can be reduced due to changing inserts easily on the machine.
- Any non-standard size available.

- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- Jede Abmessung außerhalb des Kataloges lieferbar

Cutting conditions : p.A380

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	◎ INDEXABLE DRILL HOLDER	D245 - 246	-	-
	◎ ER COLLET CHUCK		D73 - 115	

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4063	6.4 (1/4)	S1805126	S1810126	S1815126
		36.00	1.4173		S1855360	S1860360	S1865360
	1-7/16	36.51	1.4375		S1805128	S1810128	S1815128
		37.00	1.4567		S1855370	S1860370	S1865370
	1-15/32	37.31	1.4688		S1805130	S1810130	S1815130
		38.00	1.4961		S1855380	S1860380	S1865380
	1-1/2	38.10	1.5000		S1805132	S1810132	S1815132
	1-17/32	38.89	1.5313		S1805134	S1810134	S1815134
		39.00	1.5354		S1855390	S1860390	S1865390
	1-9/16	39.69	1.5625		S1805136	S1810136	S1815136
		40.00	1.5748		S1855400	S1860400	S1865400
	1-19/32	40.48	1.5938		S1805138	S1810138	S1815138
		41.00	1.6142		S1855410	S1860410	S1865410
	1-5/8	41.28	1.6250		S1805140	S1810140	S1815140
		42.00	1.6535		S1855420	S1860420	S1865420
	1-21/32	42.07	1.6563		S1805142	S1810142	S1815142
	1-11/16	42.86	1.6875		S1805144	S1810144	S1815144
		43.00	1.6929		S1855430	S1860430	S1865430
	1-23/32	43.66	1.7188		S1805146	S1810146	S1815146
		44.00	1.7323		S1855440	S1860440	S1865440
	1-3/4	44.45	1.7500		S1805148	S1810148	S1815148
		45.00	1.7717		S1855450	S1860450	S1865450
	1-25/32	45.24	1.7813		S1805150	S1810150	S1815150
		46.00	1.8110		S1855460	S1860460	S1865460
	1-13/16	46.04	1.8125		S1805152	S1810152	S1815152
	1-27/32	46.83	1.8438		S1805154	S1810154	S1815154
		47.00	1.8504		S1855470	S1860470	S1865470
	1-7/8	47.63	1.8750		S1805156	S1810156	S1815156

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

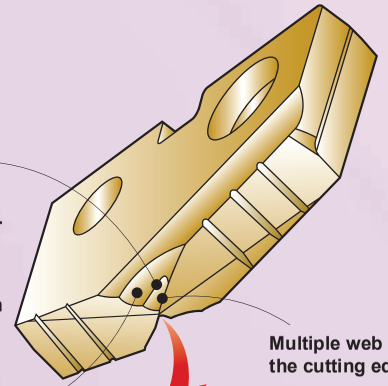
ISO																					
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr
YG-1 CO., LTD.

Special features of SM-Point Spade Drill

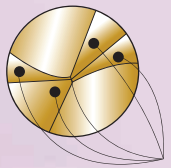
This new "Hybrid Point" combines the strength of the standard point with additional "Web Thinning".

This new point increases stability, reduces thrust, improves centering and allows increased speeds and feeds.



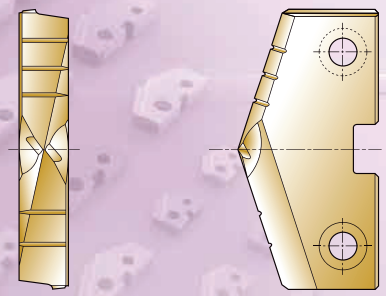
Multiple thinning form at the bottom of the large thinning.
- The optimum thinning for the difference from the cutting speed, the cutting quantity and the cutting load according to the distance from the drill point to the cutting edge.

Radius back face
- Wide chip space



Multiple web thinning with the cutting edge of small web thinning.
- Good self-centering
- Less tool lead off
- Reduction in bell mouthing, thrust
- Increased stability

Four-facet point
- Self-centering
- Less thrust force

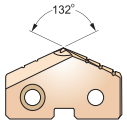


SM-POINT SPADE DRILL INSERTS - HSS M4

SM-POINT EINWEG BOHREINSATZ - HSS M4
Plaquettes SPADE DRILL, pointe SM - HSS M4
CUSPIDI, SM-POINT - HSS M4

- For general use in steels and cast irons.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelteQ uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	SM405045	SM410045	SM415045
		18.00	.7087		SM455180	SM460180	SM465180
	23/32	18.26	.7188		SM405046	SM410046	SM415046
		18.50	.7283		SM455185	SM460185	SM465185
	47/64	18.65	.7344		SM405047	SM410047	SM415047
		19.00	.7480		SM455190	SM460190	SM465190
	3/4	19.05	.7500		SM405048	SM410048	SM415048
	49/64	19.45	.7656		SM405049	SM410049	SM415049
		19.50	.7677		SM455195	SM460195	SM465195
	25/32	19.84	.7812		SM405050	SM410050	SM415050
		20.00	.7874		SM455200	SM460200	SM465200
	51/64	20.24	.7969		SM405051	SM410051	SM415051
		20.50	.8071		SM455205	SM460205	SM465205
	13/16	20.64	.8125		SM405052	SM410052	SM415052
		21.00	.8268		SM455210	SM460210	SM465210
	27/32	21.43	.8438		SM405054	SM410054	SM415054
	55/64	21.83	.8594		SM405055	SM410055	SM415055
		22.00	.8661		SM455220	SM460220	SM465220
	7/8	22.23	.8750		SM405056	SM410056	SM415056
	57/64	22.62	.8906		SM405057	SM410057	SM415057
		23.00	.9055		SM455230	SM460230	SM465230
	29/32	23.02	.9062		SM405058	SM410058	SM415058
	59/64	23.42	.9219		SM405059	SM410059	SM415059
	15/16	23.81	.9375		SM405060	SM410060	SM415060
		24.00	.9449		SM455240	SM460240	SM465240

◎ : Excellent ○ : Good

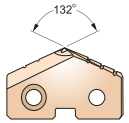
ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

S ADE D ILLS
SERIES
SM-POINT SPADE DRILL INSERTS - HSS M4
SM-POINT EINWEG BOHREINSATZ - HSS M4
Plaquettes SPADE DRILL, pointe SM - HSS M4
CUSPIDI, SM-POINT - HSS M4

- For general use in steels and cast irons.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelteQ uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.A375

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM405062	SM410062	SM415062
	63/64	25.00	.9843		SM455250	SM460250	SM465250
	1	25.40	1.0000		SM405100	SM410100	SM415100
	1-1/64	25.80	1.0156		SM405101	SM410101	SM415101
		26.00	1.0236		SM455260	SM460260	SM465260
	1-1/32	26.19	1.0312		SM405102	SM410102	SM415102
	1-3/64	26.59	1.0469		SM405103	SM410103	SM415103
	1-1/16	26.99	1.0625		SM405104	SM410104	SM415104
		27.00	1.0630		SM455270	SM460270	SM465270
	1-3/32	27.78	1.0938		SM405106	SM410106	SM415106
		28.00	1.1024		SM455280	SM460280	SM465280
	1-7/64	28.18	1.1094		SM405107	SM410107	SM415107
	1-1/8	28.58	1.1250		SM405108	SM410108	SM415108
		29.00	1.1417		SM455290	SM460290	SM465290
	1-5/32	29.37	1.1562		SM405110	SM410110	SM415110
		30.00	1.1811		SM455300	SM460300	SM465300
	1-3/16	30.16	1.1875		SM405112	SM410112	SM415112
	1-7/32	30.96	1.2188		SM405114	SM410114	SM415114
		31.00	1.2205		SM455310	SM460310	SM465310
	1-1/4	31.75	1.2500		SM405116	SM410116	SM415116
		32.00	1.2598		SM455320	SM460320	SM465320
	1-9/32	32.54	1.2812		SM405118	SM410118	SM415118
		33.00	1.2992		SM455330	SM460330	SM465330
	1-5/16	33.34	1.3125		SM405120	SM410120	SM415120
		34.00	1.3386		SM455340	SM460340	SM465340
	1-11/32	34.13	1.3438		SM405122	SM410122	SM415122
	1-3/8	34.93	1.3750		SM405124	SM410124	SM415124
		35.00	1.3780		SM455350	SM460350	SM465350

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

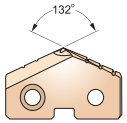
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SM-POINT SPADE DRILL INSERTS - HSS M4

SM-POINT EINWEG BOHREINSATZ - HSS M4
Plaquettes SPADE DRILL, pointe SM - HSS M4
CUSPIDI, SM-POINT - HSS M4

- For general use in steels and cast irons.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Für allgemeine Anwendung in Stahl und Gusseisen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelteQ uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A375

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. HSS M4 TiN	EDP No. HSS M4 TiCN	EDP No. HSS M4 TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4062	6.4 (1/4)	SM405126	SM410126	SM415126
		36.00	1.4173		SM455360	SM460360	SM465360
	1-7/16	36.51	1.4375		SM405128	SM410128	SM415128
		37.00	1.4567		SM455370	SM460370	SM465370
	1-15/32	37.31	1.4688		SM405130	SM410130	SM415130
		38.00	1.4961		SM455380	SM460380	SM465380
	1-1/2	38.10	1.5000		SM405132	SM410132	SM415132
	1-17/32	38.89	1.5312		SM405134	SM410134	SM415134
		39.00	1.5354		SM455390	SM460390	SM465390
	1-9/16	39.69	1.5625		SM405136	SM410136	SM415136
		40.00	1.5748		SM455400	SM460400	SM465400
	1-19/32	40.48	1.5938		SM405138	SM410138	SM415138
		41.00	1.6142		SM455410	SM460410	SM465410
	1-5/8	41.28	1.6250		SM405140	SM410140	SM415140
		42.00	1.6535		SM455420	SM460420	SM465420
	1-21/32	42.07	1.6562		SM405142	SM410142	SM415142
	1-11/16	42.86	1.6875		SM405144	SM410144	SM415144
		43.00	1.6929		SM455430	SM460430	SM465430
	1-23/32	43.66	1.7188		SM405146	SM410146	SM415146
		44.00	1.7323		SM455440	SM460440	SM465440
	1-3/4	44.45	1.7500		SM405148	SM410148	SM415148
		45.00	1.7717		SM455450	SM460450	SM465450
	1-25/32	45.24	1.7812		SM405150	SM410150	SM415150
		46.00	1.8110		SM455460	SM460460	SM465460
	1-13/16	46.04	1.8125		SM405152	SM410152	SM415152
	1-27/32	46.83	1.8438		SM405154	SM410154	SM415154
		47.00	1.8504		SM455470	SM460470	SM465470
	1-7/8	47.63	1.8750		SM405156	SM410156	SM415156

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○		○	○					◎	◎	◎	◎	○	◎	○	◎	○	

ISO																					
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎														

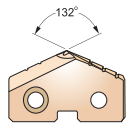
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL, pointe SM - Super HSS T15
CUSPIDI, SM-POINT - HSS T15

- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.

- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelteQ uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A376

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	EDP No. SUPER HSS T15 TiCN	EDP No. SUPER HSS T15 TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	SM155095	SM160095	SM165095
	3/8	9.53	.3750		SM105024	SM110024	SM115024
		9.80	.3858		SM155098	SM160098	SM165098
	25/64	9.92	.3906		SM105025	SM110025	SM115025
		10.00	.3937		SM155100	SM160100	SM165100
		10.20	.4016		SM155102	SM160102	SM165102
	13/32	10.32	.4062		SM105026	SM110026	SM115026
		10.50	.4134		SM155105	SM160105	SM165105
	27/64	10.72	.4219		SM105027	SM110027	SM115027
		10.80	.4252		SM155108	SM160108	SM165108
		11.00	.4331		SM155110	SM160110	SM165110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	SM105028	SM110028	SM115028
		11.50	.4528		SM155115	SM160115	SM165115
	29/64	11.51	.4531		SM105029	SM110029	SM115029
	15/32	11.91	.4688		SM105030	SM110030	SM115030
		12.00	.4724		SM155120	SM160120	SM165120
	31/64	12.30	.4844		SM105031	SM110031	SM115031
		12.50	.4921		SM155125	SM160125	SM165125
	1/2	12.70	.5000		SM105032	SM110032	SM115032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	SM155130	SM160130	SM165130
	33/64	13.10	.5156		SM105033	SM110033	SM115033
	17/32	13.49	.5312		SM105034	SM110034	SM115034
		13.50	.5315		SM155135	SM160135	SM165135
	35/64	13.89	.5469		SM105035	SM110035	SM115035
		14.00	.5512		SM155140	SM160140	SM165140
	9/16	14.29	.5625		SM105036	SM110036	SM115036
		14.50	.5709		SM155145	SM160145	SM165145
	37/64	14.68	.5781		SM105037	SM110037	SM115037
		15.00	.5906		SM155150	SM160150	SM165150
	19/32	15.08	.5938		SM105038	SM110038	SM115038
	39/64	15.48	.6094		SM105039	SM110039	SM115039
		15.50	.6102		SM155155	SM160155	SM165155
	5/8	15.88	.6250		SM105040	SM110040	SM115040
		16.00	.6299		SM155160	SM160160	SM165160

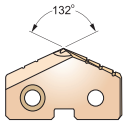
◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	◎	◎	

ISO																					
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL, pointe SM - Super HSS T15
CUSPIDI DI FORATURA SM-POINT - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
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- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelteQ uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

cutting conditions : p.A376

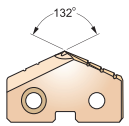
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM105041	SM110041	SM115041
		16.50	.6496		SM155165	SM160165	SM165165
	21/32	16.67	.6562		SM105042	SM110042	SM115042
		17.00	.6693		SM155170	SM160170	SM165170
	43/64	17.07	.6719		SM105043	SM110043	SM115043
	11/16	17.46	.6875		SM105044	SM110044	SM115044
		17.50	.6890		SM155175	SM160175	SM165175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	SM105045	SM110045	SM115045
		18.00	.7087		SM155180	SM160180	SM165180
	23/32	18.26	.7188		SM105046	SM110046	SM115046
		18.50	.7283		SM155185	SM160185	SM165185
	47/64	18.65	.7344		SM105047	SM110047	SM115047
		19.00	.7480		SM155190	SM160190	SM165190
	3/4	19.05	.7500		SM105048	SM110048	SM115048
	49/64	19.45	.7656		SM105049	SM110049	SM115049
		19.50	.7677		SM155195	SM160195	SM165195
	25/32	19.84	.7812		SM105050	SM110050	SM115050
		20.00	.7874		SM155200	SM160200	SM165200
	51/64	20.24	.7969		SM105051	SM110051	SM115051
		20.50	.8071		SM155205	SM160205	SM165205
	13/16	20.64	.8125		SM105052	SM110052	SM115052
		21.00	.8268		SM155210	SM160210	SM165210
	27/32	21.43	.8438		SM105054	SM110054	SM115054
	55/64	21.83	.8594		SM105055	SM110055	SM115055
		22.00	.8661		SM155220	SM160220	SM165220
	7/8	22.23	.8750		SM105056	SM110056	SM115056
	57/64	22.62	.8906		SM105057	SM110057	SM115057
		23.00	.9055		SM155230	SM160230	SM165230
	29/32	23.02	.9062		SM105058	SM110058	SM115058
	59/64	23.42	.9219		SM105059	SM110059	SM115059
	15/16	23.81	.9375		SM105060	SM110060	SM115060
		24.00	.9449		SM155240	SM160240	SM165240

◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	○	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

S ADE D ILLS
SERIES
SM-POINT SPADE DRILL INSERTS - SUPER HSS T15
SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL, pointe SM - Super HSS T15
CUSPIDI DI FORATURA SM-POINT - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelteQ uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

cutting conditions : p.A376

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM105062	SM110062	SM115062
	63/64	25.00	.9843		SM155250	SM160250	SM165250
	1	25.40	1.0000		SM105100	SM110100	SM115100
	1-1/64	25.80	1.0156		SM105101	SM110101	SM115101
		26.00	1.0236		SM155260	SM160260	SM165260
	1-1/32	26.19	1.0312		SM105102	SM110102	SM115102
	1-3/64	26.59	1.0469		SM105103	SM110103	SM115103
	1-1/16	26.99	1.0625		SM105104	SM110104	SM115104
		27.00	1.0630		SM155270	SM160270	SM165270
	1-3/32	27.78	1.0938		SM105106	SM110106	SM115106
		28.00	1.1024		SM155280	SM160280	SM165280
	1-7/64	28.18	1.1094		SM105107	SM110107	SM115107
	1-1/8	28.58	1.1250		SM105108	SM110108	SM115108
		29.00	1.1417		SM155290	SM160290	SM165290
	1-5/32	29.37	1.1562		SM105110	SM110110	SM115110
		30.00	1.1811		SM155300	SM160300	SM165300
	1-3/16	30.16	1.1875		SM105112	SM110112	SM115112
	1-7/32	30.96	1.2188		SM105114	SM110114	SM115114
		31.00	1.2205		SM155310	SM160310	SM165310
	1-1/4	31.75	1.2500		SM105116	SM110116	SM115116
		32.00	1.2598		SM155320	SM160320	SM165320
	1-9/32	32.54	1.2812		SM105118	SM110118	SM115118
		33.00	1.2992		SM155330	SM160330	SM165330
	1-5/16	33.34	1.3125		SM105120	SM110120	SM115120
		34.00	1.3386		SM155340	SM160340	SM165340
	1-11/32	34.13	1.3438		SM105122	SM110122	SM115122
	1-3/8	34.93	1.3750		SM105124	SM110124	SM115124
		35.00	1.3780		SM155350	SM160350	SM165350

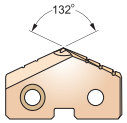
◎ : Excellent ○ : Good

ISO																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	○	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15
Plaquettes SPADE DRILL, pointe SM - Super HSS T15
CUSPIDI DI FORATURA SM-POINT - SUPER HSS T15



- For use in high nickel alloys and materials over 280 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelteQ uerschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

cutting conditions : p.A376

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4062	6.4 (1/4)	SM105126	SM110126	SM115126
		36.00	1.4173		SM155360	SM160360	SM165360
	1-7/16	36.51	1.4375		SM105128	SM110128	SM115128
		37.00	1.4567		SM155370	SM160370	SM165370
	1-15/32	37.31	1.4688		SM105130	SM110130	SM115130
		38.00	1.4961		SM155380	SM160380	SM165380
	1-1/2	38.10	1.5000		SM105132	SM110132	SM115132
	1-17/32	38.89	1.5312		SM105134	SM110134	SM115134
		39.00	1.5354		SM155390	SM160390	SM165390
	1-9/16	39.69	1.5625		SM105136	SM110136	SM115136
		40.00	1.5748		SM155400	SM160400	SM165400
	1-19/32	40.48	1.5938		SM105138	SM110138	SM115138
		41.00	1.6142		SM155410	SM160410	SM165410
	1-5/8	41.28	1.6250		SM105140	SM110140	SM115140
		42.00	1.6535		SM155420	SM160420	SM165420
	1-21/32	42.07	1.6562		SM105142	SM110142	SM115142
	1-11/16	42.86	1.6875		SM105144	SM110144	SM115144
		43.00	1.6929		SM155430	SM160430	SM165430
	1-23/32	43.66	1.7188		SM105146	SM110146	SM115146
		44.00	1.7323		SM155440	SM160440	SM165440
	1-3/4	44.45	1.7500		SM105148	SM110148	SM115148
		45.00	1.7717		SM155450	SM160450	SM165450
	1-25/32	45.24	1.7812		SM105150	SM110150	SM115150
		46.00	1.8110		SM155460	SM160460	SM165460
	1-13/16	46.04	1.8125		SM105152	SM110152	SM115152
	1-27/32	46.83	1.8438		SM105154	SM110154	SM115154
		47.00	1.8504		SM155470	SM160470	SM165470
	1-7/8	47.63	1.8750		SM105156	SM110156	SM115156

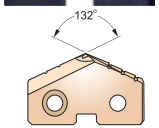
◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	○	◎

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48

SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48
Plaquettes SPADE DRILL, pointe SM - HSS Premium M48
CUSPIDI, SM-POINT - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350~500 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350~500 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

cutting conditions : p.A377

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48 TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	SM555095	SM560095	SM565095
	3/8	9.53	.3750		SM505024	SM510024	SM515024
		9.80	.3858		SM555098	SM560098	SM565098
	25/64	9.92	.3906		SM505025	SM510025	SM515025
		10.00	.3937		SM555100	SM560100	SM565100
		10.20	.4016		SM555102	SM560102	SM565102
	13/32	10.32	.4062		SM505026	SM510026	SM515026
		10.50	.4134		SM555105	SM560105	SM565105
	27/64	10.72	.4219		SM505027	SM510027	SM515027
		10.80	.4252		SM555108	SM560108	SM565108
		11.00	.4331		SM555110	SM560110	SM565110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	SM505028	SM510028	SM515028
		11.50	.4528		SM555115	SM560115	SM565115
	29/64	11.51	.4531		SM505029	SM510029	SM515029
	15/32	11.91	.4688		SM505030	SM510030	SM515030
		12.00	.4724		SM555120	SM560120	SM565120
	31/64	12.30	.4844		SM505031	SM510031	SM515031
		12.50	.4921		SM555125	SM560125	SM565125
	1/2	12.70	.5000		SM505032	SM510032	SM515032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	SM555130	SM560130	SM565130
	33/64	13.10	.5156		SM505033	SM510033	SM515033
	17/32	13.49	.5312		SM505034	SM510034	SM515034
		13.50	.5315		SM555135	SM560135	SM565135
	35/64	13.89	.5469		SM505035	SM510035	SM515035
		14.00	.5512		SM555140	SM560140	SM565140
	9/16	14.29	.5625		SM505036	SM510036	SM515036
		14.50	.5709		SM555145	SM560145	SM565145
	37/64	14.68	.5781		SM505037	SM510037	SM515037
		15.00	.5906		SM555150	SM560150	SM565150
	19/32	15.08	.5938		SM505038	SM510038	SM515038
	39/64	15.48	.6094		SM505039	SM510039	SM515039
		15.50	.6102		SM555155	SM560155	SM565155
	5/8	15.88	.6250		SM505040	SM510040	SM515040
		16.00	.6299		SM555160	SM560160	SM565160

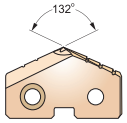
◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎				○	◎	○	◎	○	◎

ISO																				
	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48

- SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48
- Plaquettes SPADE DRILL, pointe SM - HSS Premium M48
- CUSPIDI, SM-POINT - PREMIUM HSS M48



- For use in high temperature alloys and materials with 350~500 Brinell.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350~500 Brinell
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

cutting conditions : p.A377

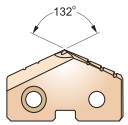
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM505041	SM510041	SM515041
		16.50	.6496		SM555165	SM560165	SM565165
	21/32	16.67	.6562		SM505042	SM510042	SM515042
		17.00	.6693		SM555170	SM560170	SM565170
	43/64	17.07	.6719		SM505043	SM510043	SM515043
	11/16	17.46	.6875		SM505044	SM510044	SM515044
		17.50	.6890		SM555175	SM560175	SM565175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	SM505045	SM510045	SM515045
		18.00	.7087		SM555180	SM560180	SM565180
	23/32	18.26	.7188		SM505046	SM510046	SM515046
		18.50	.7283		SM555185	SM560185	SM565185
	47/64	18.65	.7344		SM505047	SM510047	SM515047
		19.00	.7480		SM555190	SM560190	SM565190
	3/4	19.05	.7500		SM505048	SM510048	SM515048
	49/64	19.45	.7656		SM505049	SM510049	SM515049
		19.50	.7677		SM555195	SM560195	SM565195
	25/32	19.84	.7812		SM505050	SM510050	SM515050
		20.00	.7874		SM555200	SM560200	SM565200
	51/64	20.24	.7969		SM505051	SM510051	SM515051
		20.50	.8071		SM555205	SM560205	SM565205
	13/16	20.64	.8125		SM505052	SM510052	SM515052
		21.00	.8268		SM555210	SM560210	SM565210
	27/32	21.43	.8438		SM505054	SM510054	SM515054
	55/64	21.83	.8594		SM505055	SM510055	SM515055
		22.00	.8661		SM555220	SM560220	SM565220
	7/8	22.23	.8750		SM505056	SM510056	SM515056
	57/64	22.62	.8906		SM505057	SM510057	SM515057
		23.00	.9055		SM555230	SM560230	SM565230
	29/32	23.02	.9062		SM505058	SM510058	SM515058
	59/64	23.42	.9219		SM505059	SM510059	SM515059
	15/16	23.81	.9375		SM505060	SM510060	SM515060
		24.00	.9449		SM555240	SM560240	SM565240

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎				○	◎	○	◎	○	◎	

ISO																					
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

S ADE D ILLS
SERIES
SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48
SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48
Plaquettes SPADE DRILL, pointe SM - HSS Premium M48
CUSPIDI, SM-POINT - PREMIUM HSS M48



For use in high temperature alloys and materials with 350~500 Brinell.
Improved stability and hole straightness by newly developed thinning design.
Less thrust force and excellent self-centering.
Any non-standard size available.
Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350~500 Brinell
Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

Cutting conditions : p.A377

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. PREMIUM HSS M48 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM505062	SM510062	SM515062
	63/64	25.00	.9843		SM555250	SM560250	SM565250
	1	25.40	1.0000		SM505100	SM510100	SM515100
	1-1/64	25.80	1.0156		SM505101	SM510101	SM515101
		26.00	1.0236		SM555260	SM560260	SM565260
	1-1/32	26.19	1.0312		SM505102	SM510102	SM515102
	1-3/64	26.59	1.0469		SM505103	SM510103	SM515103
	1-1/16	26.99	1.0625		SM505104	SM510104	SM515104
		27.00	1.0630		SM555270	SM560270	SM565270
	1-3/32	27.78	1.0938		SM505106	SM510106	SM515106
		28.00	1.1024		SM555280	SM560280	SM565280
	1-7/64	28.18	1.1094		SM505107	SM510107	SM515107
	1-1/8	28.58	1.1250		SM505108	SM510108	SM515108
		29.00	1.1417		SM555290	SM560290	SM565290
	1-5/32	29.37	1.1562		SM505110	SM510110	SM515110
		30.00	1.1811		SM555300	SM560300	SM565300
	1-3/16	30.16	1.1875		SM505112	SM510112	SM515112
	1-7/32	30.96	1.2188		SM505114	SM510114	SM515114
		31.00	1.2205		SM555310	SM560310	SM565310
	1-1/4	31.75	1.2500		SM505116	SM510116	SM515116
		32.00	1.2598		SM555320	SM560320	SM565320
	1-9/32	32.54	1.2812		SM505118	SM510118	SM515118
		33.00	1.2992		SM555330	SM560330	SM565330
	1-5/16	33.34	1.3125		SM505120	SM510120	SM515120
		34.00	1.3386		SM555340	SM560340	SM565340
	1-11/32	34.13	1.3438		SM505122	SM510122	SM515122
	1-3/8	34.93	1.3750		SM505124	SM510124	SM515124
		35.00	1.3780		SM555350	SM560350	SM565350

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎				○	◎	○	◎	○	◎	

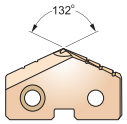
ISO																					
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	◎	◎	◎	◎			◎			

S ADE D ILLS

SERIES

SM-POINT SPADE DRILL INSERTS for CAST IRON - CARBIDE K10

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K10
- Plaquettes SPADE DRILL, pointe SM pour la fonte - Carbure K10
- CUSPIDI SM-POINT - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A378

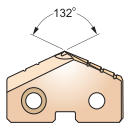
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K10 TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	SM655095	SM660095	SM665095
	3/8	9.53	.3750		SM605024	SM610024	SM615024
		9.80	.3858		SM655098	SM660098	SM665098
	25/64	9.92	.3906		SM605025	SM610025	SM615025
		10.00	.3937		SM655100	SM660100	SM665100
		10.20	.4016		SM655102	SM660102	SM665102
	13/32	10.32	.4062		SM605026	SM610026	SM615026
		10.50	.4134		SM655105	SM660105	SM665105
	27/64	10.72	.4219		SM605027	SM610027	SM615027
		10.80	.4252		SM655108	SM660108	SM665108
		11.00	.4331		SM655110	SM660110	SM665110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	SM605028	SM610028	SM615028
		11.50	.4528		SM655115	SM660115	SM665115
	29/64	11.51	.4531		SM605029	SM610029	SM615029
	15/32	11.91	.4688		SM605030	SM610030	SM615030
		12.00	.4724		SM655120	SM660120	SM665120
	31/64	12.30	.4844		SM605031	SM610031	SM615031
		12.50	.4921		SM655125	SM660125	SM665125
	1/2	12.70	.5000		SM605032	SM610032	SM615032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	SM655130	SM660130	SM665130
	33/64	13.10	.5156		SM605033	SM610033	SM615033
	17/32	13.49	.5312		SM605034	SM610034	SM615034
		13.50	.5315		SM655135	SM660135	SM665135
	35/64	13.89	.5469		SM605035	SM610035	SM615035
		14.00	.5512		SM655140	SM660140	SM665140
	9/16	14.29	.5625		SM605036	SM610036	SM615036
		14.50	.5709		SM655145	SM660145	SM665145
	37/64	14.68	.5781		SM605037	SM610037	SM615037
		15.00	.5906		SM655150	SM660150	SM665150
	19/32	15.08	.5938		SM605038	SM610038	SM615038
	39/64	15.48	.6094		SM605039	SM610039	SM615039
		15.50	.6102		SM655155	SM660155	SM665155
	5/8	15.88	.6250		SM605040	SM610040	SM615040
		16.00	.6299		SM655160	SM660160	SM665160

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended															◎	◎	◎	◎	◎	◎	

ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

S ADE D ILLS
SERIES
SM-POINT SPADE DRILL INSERTS for CAST IRON - CARBIDE K10
SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K10
Plaquettes SPADE DRILL, pointe SM pour la fonte - Carbure K10
CUSPIDI SM-POINT - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K10 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM605041	SM610041	SM615041
		16.50	.6496		SM655165	SM660165	SM665165
	21/32	16.67	.6562		SM605042	SM610042	SM615042
		17.00	.6693		SM655170	SM660170	SM665170
	43/64	17.07	.6719		SM605043	SM610043	SM615043
	11/16	17.46	.6875		SM605044	SM610044	SM615044
		17.50	.6890		SM655175	SM660175	SM665175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	SM605045	SM610045	SM615045
		18.00	.7087		SM655180	SM660180	SM665180
	23/32	18.26	.7188		SM605046	SM610046	SM615046
		18.50	.7283		SM655185	SM660185	SM665185
	47/64	18.65	.7344		SM605047	SM610047	SM615047
		19.00	.7480		SM655190	SM660190	SM665190
	3/4	19.05	.7500		SM605048	SM610048	SM615048
	49/64	19.45	.7656		SM605049	SM610049	SM615049
		19.50	.7677		SM655195	SM660195	SM665195
	25/32	19.84	.7812		SM605050	SM610050	SM615050
		20.00	.7874		SM655200	SM660200	SM665200
	51/64	20.24	.7969		SM605051	SM610051	SM615051
		20.50	.8071		SM655205	SM660205	SM665205
	13/16	20.64	.8125		SM605052	SM610052	SM615052
		21.00	.8268		SM655210	SM660210	SM665210
	27/32	21.43	.8438		SM605054	SM610054	SM615054
	55/64	21.83	.8594		SM605055	SM610055	SM615055
		22.00	.8661		SM655220	SM660220	SM665220
	7/8	22.23	.8750		SM605056	SM610056	SM615056
	57/64	22.62	.8906		SM605057	SM610057	SM615057
		23.00	.9055		SM655230	SM660230	SM665230
	29/32	23.02	.9062		SM605058	SM610058	SM615058
	59/64	23.42	.9219		SM605059	SM610059	SM615059
	15/16	23.81	.9375		SM605060	SM610060	SM615060
		24.00	.9449		SM655240	SM660240	SM665240

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended															◎	◎	◎	◎	◎	◎	

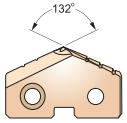
ISO	N Aluminum-wrought alloy					N Aluminum-cast, alloyed					N Copper and Copper Alloys (Bronze / Brass)					N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

S ADE D ILLS

SERIES

SM-POINT SPADE DRILL INSERTS for CAST IRON - CARBIDE K10

SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K10
Plaquettes SPADE DRILL, pointe SM pour la fonte - Carbure K10
CUSPIDI SM-POINT - MD K10



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K10 TiN	EDP No. CARBIDE K10 TiCN	EDP No. CARBIDE K10 TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM605062	SM610062	SM615062
	63/64	25.00	.9843		SM655250	SM660250	SM665250
	1	25.40	1.0000		SM605100	SM610100	SM615100
	1-1/64	25.80	1.0156		SM605101	SM610101	SM615101
		26.00	1.0236		SM655260	SM660260	SM665260
	1-1/32	26.19	1.0312		SM605102	SM610102	SM615102
	1-3/64	26.59	1.0469		SM605103	SM610103	SM615103
	1-1/16	26.99	1.0625		SM605104	SM610104	SM615104
		27.00	1.0630		SM655270	SM660270	SM665270
	1-3/32	27.78	1.0938		SM605106	SM610106	SM615106
		28.00	1.1024		SM655280	SM660280	SM665280
	1-7/64	28.18	1.1094		SM605107	SM610107	SM615107
	1-1/8	28.58	1.1250		SM605108	SM610108	SM615108
		29.00	1.1417		SM655290	SM660290	SM665290
	1-5/32	29.37	1.1562		SM605110	SM610110	SM615110
		30.00	1.1811		SM655300	SM660300	SM665300
	1-3/16	30.16	1.1875		SM605112	SM610112	SM615112
	1-7/32	30.96	1.2188		SM605114	SM610114	SM615114
		31.00	1.2205		SM655310	SM660310	SM665310
	1-1/4	31.75	1.2500		SM605116	SM610116	SM615116
		32.00	1.2598		SM655320	SM660320	SM665320
	1-9/32	32.54	1.2812		SM605118	SM610118	SM615118
		33.00	1.2992		SM655330	SM660330	SM665330
	1-5/16	33.34	1.3125		SM605120	SM610120	SM615120
		34.00	1.3386		SM655340	SM660340	SM665340
	1-11/32	34.13	1.3438		SM605122	SM610122	SM615122
	1-3/8	34.93	1.3750		SM605124	SM610124	SM615124
		35.00	1.3780		SM655350	SM660350	SM665350

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

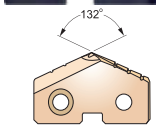
ISO	N Aluminum-wrought alloy				N Aluminum-cast, alloyed				N Copper and Copper Alloys (Bronze / Brass)				N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

S ADE D ILLS

SERIES

SM-POINT SPADE DRILL INSERTS - CARBIDE K20

SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K20
Plaquettes SPADE DRILL, pointe SM - Carbure K20
CUSPIDI SM-POINT - MD K20



- High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	EDP No. CARBIDE K20 TiCN	EDP No. CARBIDE K20 TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	SM755095	SM760095	SM765095
	3/8	9.53	.3750		SM705024	SM710024	SM715024
		9.80	.3858		SM755098	SM760098	SM765098
	25/64	9.92	.3906		SM705025	SM710025	SM715025
		10.00	.3937		SM755100	SM760100	SM765100
		10.20	.4016		SM755102	SM760102	SM765102
	13/32	10.32	.4062		SM705026	SM710026	SM715026
		10.50	.4134		SM755105	SM760105	SM765105
	27/64	10.72	.4219		SM705027	SM710027	SM715027
		10.80	.4252		SM755108	SM760108	SM765108
		11.00	.4331		SM755110	SM760110	SM765110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	SM705028	SM710028	SM715028
		11.50	.4528		SM755115	SM760115	SM765115
	29/64	11.51	.4531		SM705029	SM710029	SM715029
	15/32	11.91	.4688		SM705030	SM710030	SM715030
		12.00	.4724		SM755120	SM760120	SM765120
	31/64	12.30	.4844		SM705031	SM710031	SM715031
		12.50	.4921		SM755125	SM760125	SM765125
	1/2	12.70	.5000		SM705032	SM710032	SM715032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	SM755130	SM760130	SM765130
	33/64	13.10	.5156		SM705033	SM710033	SM715033
	17/32	13.49	.5312		SM705034	SM710034	SM715034
		13.50	.5315		SM755135	SM760135	SM765135
	35/64	13.89	.5469		SM705035	SM710035	SM715035
		14.00	.5512		SM755140	SM760140	SM765140
	9/16	14.29	.5625		SM705036	SM710036	SM715036
		14.50	.5709		SM755145	SM760145	SM765145
	37/64	14.68	.5781		SM705037	SM710037	SM715037
		15.00	.5906		SM755150	SM760150	SM765150
	19/32	15.08	.5938		SM705038	SM710038	SM715038
	39/64	15.48	.6094		SM705039	SM710039	SM715039
		15.50	.6102		SM755155	SM760155	SM765155
	5/8	15.88	.6250		SM705040	SM710040	SM715040
		16.00	.6299		SM755160	SM760160	SM765160

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

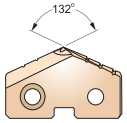
ISO	N Aluminum-wrought alloy				N Aluminum-cast, alloyed				N Copper and Copper Alloys (Bronze / Brass)				N Non Metallic Materials		S Heat Resistant Super Alloys					S Titanium Alloys		H Hardened steel		H Chilled Cast Iron	H Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

S ADE D ILLS

SERIES

SM-POINT SPADE DRILL INSERTS - CARBIDE K20

SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K20
Plaquettes SPADE DRILL, pointe SM - Carbure K20
CUSPIDI SM-POINT - MD K20



- For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferba

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

cutting conditions : p.A378

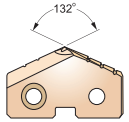
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	TiCN	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM705041	SM710041	SM715041
		16.50	.6496		SM755165	SM760165	SM765165
	21/32	16.67	.6562		SM705042	SM710042	SM715042
		17.00	.6693		SM755170	SM760170	SM765170
	43/64	17.07	.6719		SM705043	SM710043	SM715043
	11/16	17.46	.6875		SM705044	SM710044	SM715044
		17.50	.6890		SM755175	SM760175	SM765175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	SM705045	SM710045	SM715045
		18.00	.7087		SM755180	SM760180	SM765180
	23/32	18.26	.7188		SM705046	SM710046	SM715046
		18.50	.7283		SM755185	SM760185	SM765185
	47/64	18.65	.7344		SM705047	SM710047	SM715047
		19.00	.7480		SM755190	SM760190	SM765190
	3/4	19.05	.7500		SM705048	SM710048	SM715048
	49/64	19.45	.7656		SM705049	SM710049	SM715049
		19.50	.7677		SM755195	SM760195	SM765195
	25/32	19.84	.7812		SM705050	SM710050	SM715050
		20.00	.7874		SM755200	SM760200	SM765200
	51/64	20.24	.7969		SM705051	SM710051	SM715051
		20.50	.8071		SM755205	SM760205	SM765205
	13/16	20.64	.8125		SM705052	SM710052	SM715052
		21.00	.8268		SM755210	SM760210	SM765210
	27/32	21.43	.8438		SM705054	SM710054	SM715054
	55/64	21.83	.8594		SM705055	SM710055	SM715055
		22.00	.8661		SM755220	SM760220	SM765220
	7/8	22.23	.8750		SM705056	SM710056	SM715056
	57/64	22.62	.8906		SM705057	SM710057	SM715057
		23.00	.9055		SM755230	SM760230	SM765230
	29/32	23.02	.9062		SM705058	SM710058	SM715058
	59/64	23.42	.9219		SM705059	SM710059	SM715059
	15/16	23.81	.9375		SM705060	SM710060	SM715060
		24.00	.9449		SM755240	SM760240	SM765240

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

S ADE D ILLS
SERIES
SM-POINT SPADE DRILL INSERTS - CARBIDE K20
SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K20
Plaquettes SPADE DRILL, pointe SM - Carbure K20
CUSPIDI SM-POINT - MD K20



- For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferba

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK		D73 - 115	

cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	TiCN	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM705062	SM710062	SM715062
	63/64	25.00	.9843		SM755250	SM760250	SM765250
	1	25.40	1.0000		SM705100	SM710100	SM715100
	1-1/64	25.80	1.0156		SM705101	SM710101	SM715101
		26.00	1.0236		SM755260	SM760260	SM765260
	1-1/32	26.19	1.0312		SM705102	SM710102	SM715102
	1-3/64	26.59	1.0469		SM705103	SM710103	SM715103
	1-1/16	26.99	1.0625		SM705104	SM710104	SM715104
		27.00	1.0630		SM755270	SM760270	SM765270
	1-3/32	27.78	1.0938		SM705106	SM710106	SM715106
		28.00	1.1024		SM755280	SM760280	SM765280
	1-7/64	28.18	1.1094		SM705107	SM710107	SM715107
	1-1/8	28.58	1.1250		SM705108	SM710108	SM715108
		29.00	1.1417		SM755290	SM760290	SM765290
	1-5/32	29.37	1.1562		SM705110	SM710110	SM715110
		30.00	1.1811		SM755300	SM760300	SM765300
	1-3/16	30.16	1.1875		SM705112	SM710112	SM715112
	1-7/32	30.96	1.2188		SM705114	SM710114	SM715114
		31.00	1.2205		SM755310	SM760310	SM765310
	1-1/4	31.75	1.2500		SM705116	SM710116	SM715116
		32.00	1.2598		SM755320	SM760320	SM765320
	1-9/32	32.54	1.2812		SM705118	SM710118	SM715118
		33.00	1.2992		SM755330	SM760330	SM765330
	1-5/16	33.34	1.3125		SM705120	SM710120	SM715120
		34.00	1.3386		SM755340	SM760340	SM765340
	1-11/32	34.13	1.3438		SM705122	SM710122	SM715122
	1-3/8	34.93	1.3750		SM705124	SM710124	SM715124
		35.00	1.3780		SM755350	SM760350	SM765350

◎ : Excellent ○ : Good

ISO																					
												M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○	

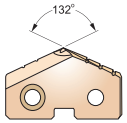
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

S ADE D ILLS

SERIES

SM-POINT SPADE DRILL INSERTS - CARBIDE K20

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL K20
- Plaquettes SPADE DRILL, pointe SM - Carbure K20
- CUSPIDI SM-POINT - MD K20



- For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferba

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A378

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE K20 TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4062	6.4 (1/4)	SM705126	SM710126	SM715126
		36.00	1.4173		SM755360	SM760360	SM765360
	1-7/16	36.51	1.4375		SM705128	SM710128	SM715128
		37.00	1.4567		SM755370	SM760370	SM765370
	1-15/32	37.31	1.4688		SM705130	SM710130	SM715130
		38.00	1.4961		SM755380	SM760380	SM765380
	1-1/2	38.10	1.5000		SM705132	SM710132	SM715132
	1-17/32	38.89	1.5312		SM705134	SM710134	SM715134
		39.00	1.5354		SM755390	SM760390	SM765390
	1-9/16	39.69	1.5625		SM705136	SM710136	SM715136
		40.00	1.5748		SM755400	SM760400	SM765400
	1-19/32	40.48	1.5938		SM705138	SM710138	SM715138
		41.00	1.6142		SM755410	SM760410	SM765410
	1-5/8	41.28	1.6250		SM705140	SM710140	SM715140
		42.00	1.6535		SM755420	SM760420	SM765420
	1-21/32	42.07	1.6562		SM705142	SM710142	SM715142
	1-11/16	42.86	1.6875		SM705144	SM710144	SM715144
		43.00	1.6929		SM755430	SM760430	SM765430
	1-23/32	43.66	1.7188		SM705146	SM710146	SM715146
		44.00	1.7323		SM755440	SM760440	SM765440
	1-3/4	44.45	1.7500		SM705148	SM710148	SM715148
		45.00	1.7717		SM755450	SM760450	SM765450
	1-25/32	45.24	1.7812		SM705150	SM710150	SM715150
		46.00	1.8110		SM755460	SM760460	SM765460
	1-13/16	46.04	1.8125		SM705152	SM710152	SM715152
	1-27/32	46.83	1.8438		SM705154	SM710154	SM715154
		47.00	1.8504		SM755470	SM760470	SM765470
	1-7/8	47.63	1.8750		SM705156	SM710156	SM715156

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

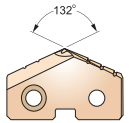
ISO																						
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎					◎				◎	◎	◎	◎	◎			○			

S ADE D ILLS

SERIES

SM-POINT SPADE DRILL INSERTS - CARBIDE P40

- SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
- Plaquettes SPADE DRILL, pointe SM - Carbure P40
- CUSPIDI SM-POINT - MD P40



- For general use in carbon steels and alloys steels.
- Improved stability and hole straightness by newly developed thinning design.
- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A380

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	TiCN	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	SM855095	SM860095	SM865095
	3/8	9.53	.3750		SM805024	SM810024	SM815024
		9.80	.3858		SM855098	SM860098	SM865098
	25/64	9.92	.3906		SM805025	SM810025	SM815025
		10.00	.3937		SM855100	SM860100	SM865100
		10.20	.4016		SM855102	SM860102	SM865102
	13/32	10.32	.4062		SM805026	SM810026	SM815026
		10.50	.4134		SM855105	SM860105	SM865105
	27/64	10.72	.4219		SM805027	SM810027	SM815027
		10.80	.4252		SM855108	SM860108	SM865108
		11.00	.4331		SM855110	SM860110	SM865110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	SM805028	SM810028	SM815028
		11.50	.4528		SM855115	SM860115	SM865115
	29/64	11.51	.4531		SM805029	SM810029	SM815029
	15/32	11.91	.4688		SM805030	SM810030	SM815030
		12.00	.4724		SM855120	SM860120	SM865120
	31/64	12.30	.4844		SM805031	SM810031	SM815031
		12.50	.4921		SM855125	SM860125	SM865125
	1/2	12.70	.5000		SM805032	SM810032	SM815032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	SM855130	SM860130	SM865130
	33/64	13.10	.5156		SM805033	SM810033	SM815033
	17/32	13.49	.5312		SM805034	SM810034	SM815034
		13.50	.5315		SM855135	SM860135	SM865135
	35/64	13.89	.5469		SM805035	SM810035	SM815035
		14.00	.5512		SM855140	SM860140	SM865140
	9/16	14.29	.5625		SM805036	SM810036	SM815036
		14.50	.5709		SM855145	SM860145	SM865145
	37/64	14.68	.5781		SM805037	SM810037	SM815037
		15.00	.5906		SM855150	SM860150	SM865150
	19/32	15.08	.5938		SM805038	SM810038	SM815038
	39/64	15.48	.6094		SM805039	SM810039	SM815039
		15.50	.6102		SM855155	SM860155	SM865155
	5/8	15.88	.6250		SM805040	SM810040	SM815040
		16.00	.6299		SM855160	SM860160	SM865160

◎ : Excellent ○ : Good

ISO																					
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO																						
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

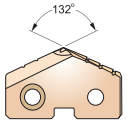
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

SERIES

SM-POINT SPADE DRILL INSERTS - CARBIDE P40

SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
Plaquettes SPADE DRILL, pointe SM - Carbure P40
CUSPIDI SM-POINT - MD P40



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- Less thrust force and excellent self-centering.
- Any non-standard size available.
- Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK		D73 - 115	

cutting conditions : p.A380

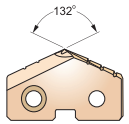
Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	EDP No. CARBIDE P40 TiCN	EDP No. CARBIDE P40 TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	SM805041	SM810041	SM815041
		16.50	.6496		SM855165	SM860165	SM865165
	21/32	16.67	.6562		SM805042	SM810042	SM815042
		17.00	.6693		SM855170	SM860170	SM865170
	43/64	17.07	.6719		SM805043	SM810043	SM815043
	11/16	17.46	.6875		SM805044	SM810044	SM815044
		17.50	.6890		SM855175	SM860175	SM865175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	SM805045	SM810045	SM815045
		18.00	.7087		SM855180	SM860180	SM865180
	23/32	18.26	.7188		SM805046	SM810046	SM815046
		18.50	.7283		SM855185	SM860185	SM865185
	47/64	18.65	.7344		SM805047	SM810047	SM815047
		19.00	.7480		SM855190	SM860190	SM865190
	3/4	19.05	.7500		SM805048	SM810048	SM815048
	49/64	19.45	.7656		SM805049	SM810049	SM815049
		19.50	.7677		SM855195	SM860195	SM865195
	25/32	19.84	.7812		SM805050	SM810050	SM815050
		20.00	.7874		SM855200	SM860200	SM865200
	51/64	20.24	.7969		SM805051	SM810051	SM815051
		20.50	.8071		SM855205	SM860205	SM865205
	13/16	20.64	.8125		SM805052	SM810052	SM815052
		21.00	.8268		SM855210	SM860210	SM865210
	27/32	21.43	.8438		SM805054	SM810054	SM815054
	55/64	21.83	.8594		SM805055	SM810055	SM815055
		22.00	.8661		SM855220	SM860220	SM865220
	7/8	22.23	.8750		SM805056	SM810056	SM815056
	57/64	22.62	.8906		SM805057	SM810057	SM815057
		23.00	.9055		SM855230	SM860230	SM865230
	29/32	23.02	.9062		SM805058	SM810058	SM815058
	59/64	23.42	.9219		SM805059	SM810059	SM815059
	15/16	23.81	.9375		SM805060	SM810060	SM815060
		24.00	.9449		SM855240	SM860240	SM865240

◎ : Excellent ○ : Good

ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO																						
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

S ADE D ILLS
SERIES
SM-POINT SPADE DRILL INSERTS - CARBIDE P40
SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
Plaquettes SPADE DRILL, pointe SM - Carbure P40
CUSPIDI SM-POINT - MD P40



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- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK		D73 - 115	

cutting conditions : p.A380

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	EDP No. CARBIDE P40 TiCN	EDP No. CARBIDE P40 TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	SM805062	SM810062	SM815062
	63/64	25.00	.9843		SM855250	SM860250	SM865250
	1	25.40	1.0000		SM805100	SM810100	SM815100
	1-1/64	25.80	1.0156		SM805101	SM810101	SM815101
		26.00	1.0236		SM855260	SM860260	SM865260
	1-1/32	26.19	1.0312		SM805102	SM810102	SM815102
	1-3/64	26.59	1.0469		SM805103	SM810103	SM815103
	1-1/16	26.99	1.0625		SM805104	SM810104	SM815104
		27.00	1.0630		SM855270	SM860270	SM865270
	1-3/32	27.78	1.0938		SM805106	SM810106	SM815106
		28.00	1.1024		SM855280	SM860280	SM865280
	1-7/64	28.18	1.1094		SM805107	SM810107	SM815107
	1-1/8	28.58	1.1250		SM805108	SM810108	SM815108
		29.00	1.1417		SM855290	SM860290	SM865290
	1-5/32	29.37	1.1562		SM805110	SM810110	SM815110
		30.00	1.1811		SM855300	SM860300	SM865300
	1-3/16	30.16	1.1875		SM805112	SM810112	SM815112
	1-7/32	30.96	1.2188		SM805114	SM810114	SM815114
		31.00	1.2205		SM855310	SM860310	SM865310
	1-1/4	31.75	1.2500		SM805116	SM810116	SM815116
		32.00	1.2598		SM855320	SM860320	SM865320
	1-9/32	32.54	1.2812		SM805118	SM810118	SM815118
		33.00	1.2992		SM855330	SM860330	SM865330
	1-5/16	33.34	1.3125		SM805120	SM810120	SM815120
		34.00	1.3386		SM855340	SM860340	SM865340
	1-11/32	34.13	1.3438		SM805122	SM810122	SM815122
	1-3/8	34.93	1.3750		SM805124	SM810124	SM815124
		35.00	1.3780		SM855350	SM860350	SM865350

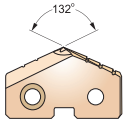
◎ : Excellent ○ : Good

ISO																					
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO																						
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

SM-POINT SPADE DRILL INSERTS - CARBIDE P40

SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL P40
Plaquettes SPADE DRILL, pointe SM - Carbure P40
CUSPIDI SM-POINT - MD P40



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- Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- Jede Abmessung außerhalb des Kataloges lieferbar

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A380

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. CARBIDE P40 TiN	TiCN	TiAlN
3 Ø34.37 (1.353) to Ø47.80 (1.882)	1-13/32	35.72	1.4062	6.4 (1/4)	SM805126	SM810126	SM815126
		36.00	1.4173		SM855360	SM860360	SM865360
	1-7/16	36.51	1.4375		SM805128	SM810128	SM815128
		37.00	1.4567		SM855370	SM860370	SM865370
	1-15/32	37.31	1.4688		SM805130	SM810130	SM815130
		38.00	1.4961		SM855380	SM860380	SM865380
	1-1/2	38.10	1.5000		SM805132	SM810132	SM815132
	1-17/32	38.89	1.5312		SM805134	SM810134	SM815134
		39.00	1.5354		SM855390	SM860390	SM865390
	1-9/16	39.69	1.5625		SM805136	SM810136	SM815136
		40.00	1.5748		SM855400	SM860400	SM865400
	1-19/32	40.48	1.5938		SM805138	SM810138	SM815138
		41.00	1.6142		SM855410	SM860410	SM865410
	1-5/8	41.28	1.6250		SM805140	SM810140	SM815140
		42.00	1.6535		SM855420	SM860420	SM865420
	1-21/32	42.07	1.6562		SM805142	SM810142	SM815142
	1-11/16	42.86	1.6875		SM805144	SM810144	SM815144
		43.00	1.6929		SM855430	SM860430	SM865430
	1-23/32	43.66	1.7188		SM805146	SM810146	SM815146
		44.00	1.7323		SM855440	SM860440	SM865440
	1-3/4	44.45	1.7500		SM805148	SM810148	SM815148
		45.00	1.7717		SM855450	SM860450	SM865450
	1-25/32	45.24	1.7812		SM805150	SM810150	SM815150
		46.00	1.8110		SM855460	SM860460	SM865460
	1-13/16	46.04	1.8125		SM805152	SM810152	SM815152
	1-27/32	46.83	1.8438		SM805154	SM810154	SM815154
		47.00	1.8504		SM855470	SM860470	SM865470
	1-7/8	47.63	1.8750		SM805156	SM810156	SM815156

◎ : Excellent ○ : Good

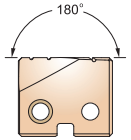
ISO																				
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO																						
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				○	○	○	○	○			◎			

S ADE D ILLS
SERIES

SPADE DRILL INSERTS - SUPER COBALT T15 FLAT BOTTOM

SPADE DRILL BOHRER-EINSÄTZE - SUPER COBALT T15 (FLACH-NUT)
Plaquettes SPADE DRILL à fond plat - Super Cobalt T15
INSERTI SPADE DRILL - SUPER HSS T15 FONDO PIATTO



Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	INDEXABLE DRILL HOLDER	D245 - 246	-	-
○	ER COLLET CHUCK	D73 - 115		

cutting conditions : p.A379

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	Hardslick	TiAlN
Y Ø9.50 (.374) to Ø11.07 (.436)		9.50	.3740	2.4 (3/32)	S2155095	S2170095	S2165095
	3/8	9.53	.3750		S2105024	S2120024	S2115024
		9.80	.3858		S2155098	S2170098	S2165098
	25/64	9.92	.3906		S2105025	S2120025	S2115025
		10.00	.3937		S2155100	S2170100	S2165100
		10.20	.4016		S2155102	S2170102	S2165102
	13/32	10.32	.4062		S2105026	S2120026	S2115026
		10.50	.4134		S2155105	S2170105	S2165105
	27/64	10.72	.4219		S2105027	S2120027	S2115027
		10.80	.4252		S2155108	S2170108	S2165108
		11.00	.4331		S2155110	S2170110	S2165110
Z Ø11.11(.437) to Ø12.95(.510)	7/16	11.11	.4375	2.4 (3/32)	S2105028	S2120028	S2115028
		11.50	.4528		S2155115	S2170115	S2165115
	29/64	11.51	.4531		S2105029	S2120029	S2115029
	15/32	11.91	.4688		S2105030	S2120030	S2115030
		12.00	.4724		S2155120	S2170120	S2165120
	31/64	12.30	.4844		S2105031	S2120031	S2115031
		12.50	.4921		S2155125	S2170125	S2165125
	1/2	12.70	.5000		S2105032	S2120032	S2115032
0 Ø12.98 (.511) to Ø17.65 (.695)		13.00	.5118	3.2 (1/8)	S2155130	S2170130	S2165130
	33/64	13.10	.5156		S2105033	S2120033	S2115033
	17/32	13.49	.5312		S2105034	S2120034	S2115034
		13.50	.5315		S2155135	S2170135	S2165135
	35/64	13.89	.5469		S2105035	S2120035	S2115035
		14.00	.5512		S2155140	S2170140	S2165140
	9/16	14.29	.5625		S2105036	S2120036	S2115036
		14.50	.5709		S2155145	S2170145	S2165145
	37/64	14.68	.5781		S2105037	S2120037	S2115037
		15.00	.5906		S2155150	S2170150	S2165150
	19/32	15.08	.5938		S2105038	S2120038	S2115038
	39/64	15.48	.6094		S2105039	S2120039	S2115039
		15.50	.6102		S2155155	S2170155	S2165155
	5/8	15.88	.6250		S2105040	S2120040	S2115040
		16.00	.6299		S2155160	S2170160	S2165160

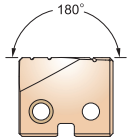
◎ : Excellent ○ : Good

ISO																						
												M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	◎	◎

ISO																						
	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

SPADE DRILL INSERTS - SUPER COBALT T15 FLAT BOTTOM

SPADE DRILL BOHRER-EINSÄTZE - SUPER COBALT T15 (FLACH-NUT)
Plaquettes SPADE DRILL à fond plat - Super Cobalt T15
INSERTI SPADE DRILL - SUPER HSS T15 FONDO PIATTO



Cutting conditions : p.A379

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	Hardslick	TiAlN
0 Ø12.98(.511) to Ø17.65(.695)	41/64	16.27	.6406	3.2 (1/8)	S2105041	S2120041	S2115041
		16.50	.6496		S2155165	S2170165	S2165165
	21/32	16.67	.6562		S2105042	S2120042	S2115042
		17.00	.6693		S2155170	S2170170	S2165170
	43/64	17.07	.6719		S2105043	S2120043	S2115043
	11/16	17.46	.6875		S2105044	S2120044	S2115044
		17.50	.6890		S2155175	S2170175	S2165175
1 Ø17.53 (.690) to Ø24.38 (.960)	45/64	17.86	.7031	4.0 (5/32)	S2105045	S2120045	S2115045
		18.00	.7087		S2155180	S2170180	S2165180
	23/32	18.26	.7188		S2105046	S2120046	S2115046
		18.50	.7283		S2155185	S2170185	S2165185
	47/64	18.65	.7344		S2105047	S2120047	S2115047
		19.00	.7480		S2155190	S2170190	S2165190
	3/4	19.05	.7500		S2105048	S2120048	S2115048
	49/64	19.45	.7656		S2105049	S2120049	S2115049
		19.50	.7677		S2155195	S2170195	S2165195
	25/32	19.84	.7812		S2105050	S2120050	S2115050
		20.00	.7874		S2155200	S2170200	S2165200
	51/64	20.24	.7969		S2105051	S2120051	S2115051
		20.50	.8071		S2155205	S2170205	S2165205
	13/16	20.64	.8125		S2105052	S2120052	S2115052
		21.00	.8268		S2155210	S2170210	S2165210
	27/32	21.43	.8438		S2105054	S2120054	S2115054
	55/64	21.83	.8594		S2105055	S2120055	S2115055
		22.00	.8661		S2155220	S2170220	S2165220
	7/8	22.23	.8750		S2105056	S2120056	S2115056
	57/64	22.62	.8906		S2105057	S2120057	S2115057
		23.00	.9055		S2155230	S2170230	S2165230
	29/32	23.02	.9062		S2105058	S2120058	S2115058
	59/64	23.42	.9219		S2105059	S2120059	S2115059
	15/16	23.81	.9375		S2105060	S2120060	S2115060
		24.00	.9449		S2155240	S2170240	S2165240

◎ : Excellent ○ : Good

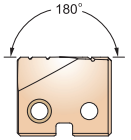
ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	○	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

S ADE D ILLS
SERIES

SPADE DRILL INSERTS - SUPER COBALT T15 FLAT BOTTOM

SPADE DRILL BOHRER-EINSÄTZE - SUPER COBALT T15 (FLACH-NUT)
Plaquettes SPADE DRILL à fond plat - Super Cobalt T15
INSERTI SPADE DRILL - SUPER HSS T15 FONDO PIATTO



Cutting conditions : p.A379

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	INDEXABLE DRILL HOLDER	D245 - 246	-	-
	ER COLLET CHUCK	D73 - 115		

Series Min. to Max. mm (inch)	Diameter Inch (inch)	Diameter Metric (mm)	Diameter Decimal (inch)	Thick Metric (mm, inch)	EDP No. SUPER HSS T15 TiN	Hardslick	TiAlN
2 Ø24.41 (.961) to Ø35.05 (1.380)	31/32	24.61	.9688	4.8 (3/16)	S2105062	S2120062	S2115062
	63/64	25.00	.9843		S2105063	S2120063	S2115063
	1	25.40	1.0000		S2105100	S2120100	S2115100
	1-1/64	25.80	1.0156		S2105101	S2120101	S2115101
		26.00	1.0236		S2155260	S2170260	S2165260
	1-1/32	26.19	1.0312		S2105102	S2120102	S2115102
	1-3/64	26.59	1.0469		S2105103	S2120103	S2115103
	1-1/16	26.99	1.0625		S2105104	S2120104	S2115104
		27.00	1.0630		S2155270	S2170270	S2165270
	1-3/32	27.78	1.0938		S2105106	S2120106	S2115106
		28.00	1.1024		S2155280	S2170280	S2165280
	1-7/64	28.18	1.1094		S2105107	S2120107	S2115107
	1-1/8	28.58	1.1250		S2105108	S2120108	S2115108
		29.00	1.1417		S2155290	S2170290	S2165290
	1-5/32	29.37	1.1562		S2105110	S2120110	S2115110
		30.00	1.1811		S2155300	S2170300	S2165300
	1-3/16	30.16	1.1875		S2105112	S2120112	S2115112
	1-7/32	30.96	1.2188		S2105114	S2120114	S2115114
		31.00	1.2205		S2155310	S2170310	S2165310
	1-1/4	31.75	1.2500		S2105116	S2120116	S2115116
		32.00	1.2598		S2155320	S2170320	S2165320
	1-9/32	32.54	1.2812		S2105118	S2120118	S2115118
		33.00	1.2992		S2155330	S2170330	S2165330
	1-5/16	33.34	1.3125		S2105120	S2120120	S2115120
		34.00	1.3386		S2155340	S2170340	S2165340
	1-11/32	34.13	1.3438		S2105122	S2120122	S2115122
	1-3/8	34.93	1.3750		S2105124	S2120124	S2115124
		35.00	1.3780		S2155350	S2170350	S2165350

◎ : Excellent ○ : Good

ISO																					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎	○	○	○	○	○	○	○	○	◎	○	◎	○	◎

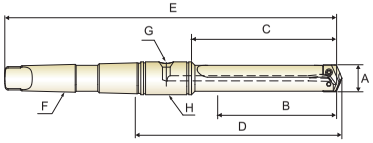
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○					○				◎	○	○	○	○			○			

S ADE D ILLS

STSMT SERIES

TAPER SHANK HOLDERS

HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



SHORT LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0STSMT02I	3/8 ~ 27/64	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	PR110048
Z	ZZ0STSMT02I	7/16 ~ 1/2	1-1/4	2-1/32	3-15/32	6-5/16	#2	1/16	PR110048
0	Z00STSMT02I	33/64 ~ 11/16	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	PR110048
0.5	Z05STSMT02I	39/64 ~ 11/16	1-3/8	2-3/16	3-41/64	6-15/32	#2	1/16	PR110048
1	Z10STSMT03I	45/64 ~ 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	PR110100
	Z10STSMT04I	45/64 ~ 15/16	2-3/4	3-7/8	5-43/64	10-5/32	#4	1/8	PR110100
1.5	Z15STSMT03I	55/64 ~ 15/16	2-3/4	3-7/8	5-39/64	9-5/32	#3	1/8	PR110100
	Z15STSMT04I	55/64 ~ 15/16	2-3/4	3-7/8	5-43/64	10-5/32	#4	1/8	PR110100
2	Z20STSMT03I	31/32 ~ 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	PR110100
	Z20STSMT04I	31/32 ~ 1-3/8	3-3/8	4-1/2	6-19/64	10-25/32	#4	1/8	PR110100
2.5	Z25STSMT03I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	6-15/64	9-25/32	#3	1/8	PR110100
	Z25STSMT04I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	6-37/64	11-1/16	#4	1/4	PR110116
3	Z30STSMT04I	1-13/32 ~ 1-7/8	4-3/4	6	8-1/8	12-9/16	#4	1/4	PR110116
	Z30STSMT05I	1-13/32 ~ 1-7/8	4-3/4	6	8-1/8	13-13/16	#5	1/4	PR110148
4	Z40STSMT04I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	8-5/8	13-1/16	#4	1/4	PR110116
	Z40STSMT05I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	8-5/8	14-5/16	#5	1/4	PR110148
5	Z50STSMT05I	2-1/2 ~ 3-1/2	6-3/4	8-1/2	11-5/16	16-15/16	#5	1/2	PR110216
7	Z70STSMT05I	3-17/32 ~ 4-1/2	6-3/4	8-7/8	11-11/16	17-5/16	#5	1/2	PR110216

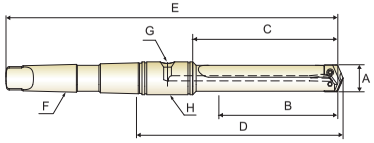
▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

S ADE D ILLS

ITSMT SERIES
ITHMT SERIES

TAPER SHANK HOLDERS

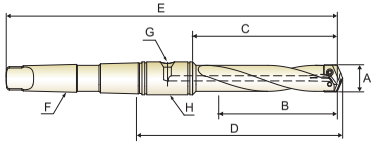
HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



INTERMEDIATE LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
1	Z10ITSMT03I	45/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
1.5	Z15ITSMT03I	55/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
2	Z20ITSMT04I	31/32 ~ 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	PR110100
2.5	Z25ITSMT04I	1-3/16 ~ 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	PR110116
3	Z30ITSMT04I	1-13/32 ~ 1-7/8	6-1/2	7-3/4	9-7/8	14-5/16	#4	1/4	PR110116

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)



INTERMEDIATE LENGTH - Helical Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
1	Z10ITHMT03I	45/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
1.5	Z15ITHMT03I	55/64 ~ 15/16	4-3/4	5-7/8	7-39/64	11-5/32	#3	1/8	PR110100
2	Z20ITHMT04I	31/32 ~ 1-3/8	5-3/8	6-1/2	8-19/64	12-25/32	#4	1/8	PR110100
2.5	Z25ITHMT04I	1-3/16 ~ 1-3/8	5-3/8	6-1/2	8-37/64	13-1/16	#4	1/4	PR110116

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

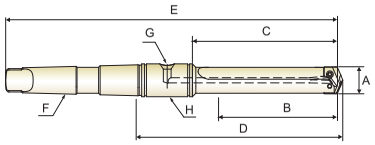
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

SDSMT SERIES

TAPER SHANK HOLDERS

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



STANDARD LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0SDSMT02I	3/8 ~ 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
Z	ZZ0SDSMT02I	7/16 ~ 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
0	Z00SDSMT02I	33/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
0.5	Z05SDSMT02I	39/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
1	Z10SDSMT03I	45/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z10SDSMT04I	45/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
1.5	Z15SDSMT03I	55/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z15SDSMT04I	55/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
2	Z20SDSMT03I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z20SDSMT04I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	PR110100
2.5	Z25SDSMT03I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z25SDSMT04I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-37/64	15-1/16	#4	1/4	PR110116
3	Z30SDSMT04I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	11-5/8	16-1/16	#4	1/4	PR110116
	Z30SDSMT05I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	11-5/8	17-5/16	#5	1/4	PR110148
4	Z40SDSMT04I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	12-5/8	17-1/16	#4	1/4	PR110116
	Z40SDSMT05I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	12-5/8	18-5/16	#5	1/4	PR110148
5	Z50SDSMT05I	2-1/2 ~ 3-1/2	10-3/4	12-1/2	15-5/16	20-15/16	#5	1/2	PR110216
7	Z70SDSMT05I	3-17/32 ~ 4-1/2	10-3/4	12-7/8	15-11/16	21-5/16	#5	1/2	PR110216

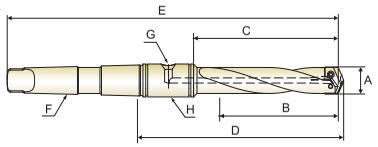
▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

S ADE D ILLS

SDHMT SERIES

TAPER SHANK HOLDERS

- HALTER MIT MORSEKEGEL
- Porte-plaquette à queue cône morse
- PUNTE CON ATTACCO CM



STANDARD LENGTH - Helical Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0SDHMT02I	3/8 ~ 27/64	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
Z	ZZ0SDHMT02I	7/16 ~ 1/2	2-3/8	3-5/32	4-19/32	7-7/16	#2	1/16	PR110048
0	Z00SDHMT02I	33/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
0.5	Z05SDHMT02I	39/64 ~ 11/16	2-1/2	3-5/16	4-49/64	7-19/32	#2	1/16	PR110048
1	Z10SDHMT03I	45/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z10SDHMT04I	45/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
1.5	Z15SDHMT03I	55/64 ~ 15/16	6-3/4	7-7/8	9-39/64	13-5/32	#3	1/8	PR110100
	Z15SDHMT04I	55/64 ~ 15/16	6-3/4	7-7/8	9-43/64	14-5/32	#4	1/8	PR110100
2	Z20SDHMT03I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z20SDHMT04I	31/32 ~ 1-3/8	7-3/8	8-1/2	10-19/64	14-25/32	#4	1/8	PR110100
2.5	Z25SDHMT03I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-15/64	13-25/32	#3	1/8	PR110100
	Z25SDHMT04I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	10-37/64	15-1/16	#4	1/4	PR110116

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

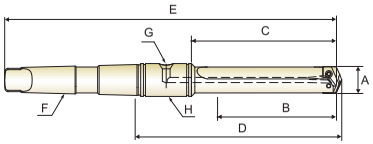
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

E SMT SERIES
E HMT SERIES

TAPER SHANK HOLDERS

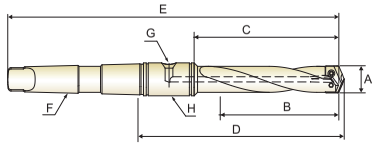
HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



EXTENDED LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0EXSMT02I	3/8 ~ 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
Z	ZZ0EXSMT02I	7/16 ~ 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
0	Z00EXSMT02I	33/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
0.5	Z05EXSMT02I	39/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
1	Z10EXSMT03I	45/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
1.5	Z15EXSMT03I	55/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
2	Z20EXSMT04I	31/32 ~ 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/8	PR110100
2.5	Z25EXSMT04I	1-3/16 ~ 1-3/8	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	PR110116
3	Z30EXSMT04I	1-13/32 ~ 1-7/8	13-3/4	15	17-1/8	21-9/16	#4	1/4	PR110116
4	Z40EXSMT05I	1-29/32 ~ 2-9/16	16-5/8	18	20-1/8	25-13/16	#5	1/4	PR110148
5	Z50EXSMT05I	2-1/2 ~ 3-1/2	18-1/4	20	22-13/16	28-7/16	#5	1/2	PR110216
7	Z70EXSMT05I	3-17/32 ~ 4-1/2	21-7/8	24	26-13/16	32-7/16	#5	1/2	PR110216

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)



EXTENDED LENGTH - Helical Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0EXHMT02I	3/8 ~ 27/64	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
Z	ZZ0EXHMT02I	7/16 ~ 1/2	4-3/8	5-5/32	6-19/32	9-7/16	#2	1/16	PR110048
0	Z00EXHMT02I	33/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
0.5	Z05EXHMT02I	39/64 ~ 11/16	4-1/2	5-5/16	6-49/64	9-19/32	#2	1/16	PR110048
1	Z10EXHMT03I	45/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
1.5	Z15EXHMT03I	55/64 ~ 15/16	10-3/4	11-7/8	13-39/64	17-5/32	#3	1/8	PR110100
2	Z20EXHMT04I	31/32 ~ 1-3/8	11-3/8	12-1/2	14-15/64	18-25/32	#4	1/8	PR110100
2.5	Z25EXHMT04I	1-3/16 ~ 1-3/8	11-3/8	12-1/2	14-37/64	19-1/16	#4	1/4	PR110116

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

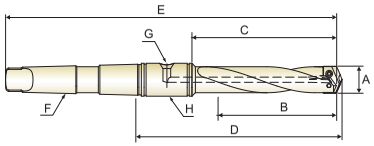
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

LGHMT SERIES

TAPER SHANK HOLDERS

HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



LONG LENGTH - Helical Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
0	Z00LGHMT02I	33/64 ~ 11/16	7	7-13/16	9-17/64	12-3/32	#2	1/16	PR110048
0.5	Z05LGHMT02I	39/64 ~ 11/16	7	7-13/16	9-17/64	12-3/32	#2	1/16	PR110048

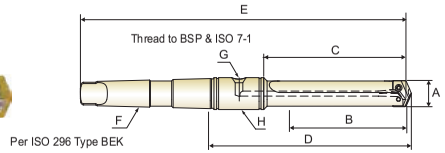
▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

S ADE D ILLS

STSMT SERIES
ITHMT SERIES

TAPER SHANK HOLDERS

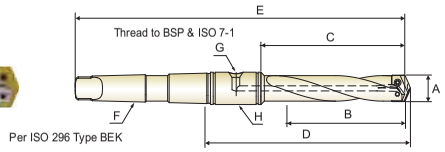
HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



SHORT LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0STSMT02M	9.5 ~ 11.0	31.8	51.5	88.0	160.3	#2	1/16	PR120190
Z	ZZ0STSMT02M	11.5 ~ 12.5	31.8	51.5	88.0	160.3	#2	1/16	PR120190
0	Z00STSMT02M	13.0 ~ 17.5	35.0	55.5	92.4	164.3	#2	1/16	PR120190
0.5	Z05STSMT02M	15.5 ~ 17.5	35.0	55.5	92.4	164.3	#2	1/16	PR120190
1	Z10STSMT03M	18.0 ~ 24.0	69.8	98.4	142.5	232.5	#3	1/8	PR120254
1.5	Z15STSMT03M	22.0 ~ 24.0	69.8	98.4	142.5	232.5	#3	1/8	PR120254
2	Z20STSMT04M	25.0 ~ 35.0	85.7	114.3	160.4	273.8	#4	1/8	PR120254
2.5	Z25STSMT04M	30.0 ~ 35.0	85.7	114.3	167.6	281.0	#4	1/4	PR120317
3	Z30STSMT04M	36.0 ~ 47.0	120.6	152.4	206.4	319.1	#4	1/4	PR120317
4	Z40STSMT05M	48.0 ~ 65.0	130.1	165.1	219.1	363.5	#5	1/4	PR120444
5	Z50STSMT05M	64.0 ~ 88.0	171.5	215.9	287.3	430.2	#5	1/2	PR120571
7	Z70STSMT05M	90.0 ~ 114.0	171.5	225.4	296.8	439.7	#5	1/2	PR120571

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)



INTERMEDIATE LENGTH - Helical Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
1	Z10ITHMT03M	18.0 ~ 24.0	120.7	149.2	193.3	283.3	#3	1/8	PR120254
1.5	Z15ITHMT03M	22.0 ~ 24.0	120.7	149.2	193.3	283.3	#3	1/8	PR120254
2	Z20ITHMT04M	25.0 ~ 35.0	136.5	165.1	211.2	324.6	#4	1/8	PR120254
2.5	Z25ITHMT04M	30.0 ~ 35.0	136.5	165.1	218.4	331.8	#4	1/4	PR120317
3	Z30ITHMT04M	36.0 ~ 47.0	165.1	196.9	250.9	363.6	#4	1/4	PR120317

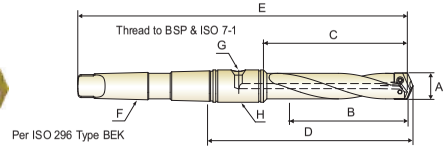
▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

S ADE D ILLS

SDHMT SERIES

TAPER SHANK HOLDERS

HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



STANDARD LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0SDHMT02M	9.5 ~ 11.0	60.3	80.2	116.7	188.9	#2	1/16	PR120190
Z	ZZ0SDHMT02M	11.5 ~ 12.5	60.3	80.2	116.7	188.9	#2	1/16	PR120190
0	Z00SDHMT02M	13.0 ~ 17.5	63.5	84.1	121.0	192.9	#2	1/16	PR120190
0.5	Z05SDHMT02M	15.5 ~ 17.5	63.5	84.1	121.0	192.9	#2	1/16	PR120190
1	Z10SDHMT03M	18.0 ~ 24.0	171.5	200.0	244.1	334.2	#3	1/8	PR120254
1.5	Z15SDHMT03M	22.0 ~ 24.0	171.5	200.0	244.1	334.2	#3	1/8	PR120254
2	Z20SDHMT04M	25.0 ~ 35.0	187.3	215.9	262.0	375.4	#4	1/8	PR120254
2.5	Z25SDHMT04M	30.0 ~ 35.0	187.3	215.9	269.2	382.6	#4	1/4	PR120317
3	Z30SDHMT04M	36.0 ~ 47.0	209.5	241.3	295.3	408.0	#4	1/4	PR120317
4	Z40SDHMT05M	48.0 ~ 65.0	231.8	266.7	320.7	465.1	#5	1/4	PR120444
5	Z50SDHMT05M	64.0 ~ 88.0	273.1	317.5	388.9	531.8	#5	1/2	PR120571
7	Z70SDHMT05M	90.0 ~ 114.0	273.1	327.0	398.5	541.3	#5	1/2	PR120571

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for inernal cooling. (See page 324)

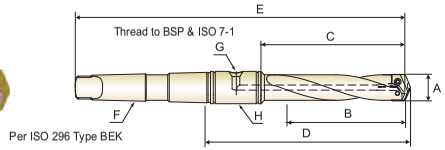
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SPADE DRILLS

E HMT SERIES
E SMT SERIES

TAPER SHANK HOLDERS

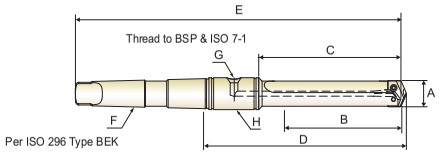
HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



EXTENDED LENGTH - Helical Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	ZY0EXHMT02M	9.5 ~ 11.0	111.1	130.9	167.4	239.7	#2	1/16	PR120190
Z	ZZ0EXHMT02M	11.5 ~ 12.5	111.1	130.9	167.4	239.7	#2	1/16	PR120190
0	Z00EXHMT02M	13.0 ~ 17.5	114.3	135.0	171.8	243.7	#2	1/16	PR120190
0.5	Z05EXHMT02M	15.5 ~ 17.5	114.3	135.0	171.8	243.7	#2	1/16	PR120190
1	Z10EXHMT03M	18.0 ~ 24.0	273.1	301.6	345.7	435.8	#3	1/8	PR120254
1.5	Z15EXHMT03M	22.0 ~ 24.0	273.1	301.6	345.7	435.8	#3	1/8	PR120254
2	Z20EXHMT04M	25.0 ~ 35.0	289.0	317.5	363.6	477.0	#4	1/8	PR120254
2.5	Z25EXHMT04M	30.0 ~ 35.0	289.0	317.5	370.8	484.2	#4	1/4	PR120317

▶You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)



EXTENDED LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
3	Z30EXSMT04M	36.0 ~ 47.0	349.3	381.0	435.0	547.7	#4	1/4	PR120317
4	Z40EXSMT05M	48.0 ~ 65.0	422.3	457.2	511.2	655.6	#5	1/4	PR120444
5	Z50EXSMT05M	64.0 ~ 88.0	463.6	508.0	579.4	722.3	#5	1/2	PR120571
7	Z70EXSMT05M	90.0 ~ 114.0	555.6	609.6	681.1	823.9	#5	1/2	PR120571

▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

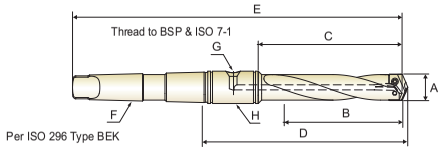
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SPADE DRILLS

LGHMT SERIES

TAPER SHANK HOLDERS

HALTER MIT MORSEKEGEL
Porte-plaquette à queue cône morse
PUNTE CON ATTACCO CM



LONG LENGTH - Helical Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
0	Z00LGHMT02M	13.0 ~ 17.5	177.8	198.5	235.3	307.2	#2	1/16	PR120190
0.5	Z05LGHMT02M	15.5 ~ 17.5	177.8	198.5	235.3	307.2	#2	1/16	PR120190

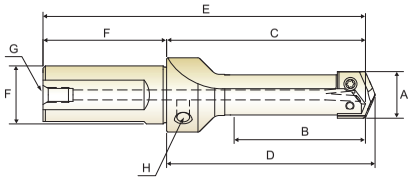
▶ You can also apply **RCA**(**R**otary **C**oolant **A**dapter) for internal cooling. (See page 324)

S ADE D ILLS

S S SERIES
STS SERIES

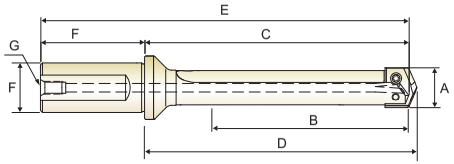
FLANGED STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
Porte-plaquette à collerette queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



STUB LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap	
							Dia.	Length	Rear	Side
		A	B	C	D	E	F		G	H
Y	ZY0SBSF063I	3/8 ~ 27/64	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	1/8
Z	ZZ0SBSF063I	7/16 ~ 1/2	3/4	1-7/8	1-31/32	3-3/4	5/8	1-7/8	1/16	1/8
0	Z00SBSF075I	33/64 ~ 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	1/8
0.5	Z05SBSF075I	39/64 ~ 11/16	7/8	1-7/8	1-63/64	3-29/32	3/4	2-1/32	1/8	1/8
1	Z10SBSF100I	45/64 ~ 15/16	1-7/8	2-63/64	3-1/8	5-17/64	1	2-9/32	1/8	1/8
1.5	Z15SBSF100I	55/64 ~ 15/16	2-1/4	3-31/64	3-5/8	5-49/64	1	2-9/32	1/8	1/8
2	Z20SBSF125I	31/32 ~ 1-3/8	2-1/4	3-31/64	3-5/8	5-49/64	1-1/4	2-9/32	1/4	1/8
2.5	Z25SBSF125I	1-3/16 ~ 1-3/8	3-5/8	4-55/64	5	7-9/64	1-1/4	2-9/32	1/4	1/8
3	Z30SBSF150I	1-13/32 ~ 1-7/8	3	4-59/64	5-7/64	7-39/64	1-1/2	2-11/16	1/4	1/4



SHORT LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0STSF075I	3/8 ~ 27/64	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8
Z	ZZ0STSF075I	7/16 ~ 1/2	1-1/4	2-13/32	2-1/2	4-7/16	3/4	2-1/32	1/8
0	Z00STSF075I	33/64 ~ 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8
0.5	Z05STSF075I	39/64 ~ 11/16	1-3/8	2-1/2	2-39/64	4-17/32	3/4	2-1/32	1/8
1	Z10STSF100I	45/64 ~ 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8
1.5	Z15STSF100I	55/64 ~ 15/16	2-5/8	4-7/32	4-23/64	6-1/2	1	2-9/32	1/8
2	Z20STSF125I	31/32 ~ 1-3/8	3-3/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4
2.5	Z25STSF125I	1-3/16 ~ 1-3/8	3-3/8	5-1/16	5-13/64	7-11/32	1-1/4	2-9/32	1/4
3	Z30STSF150I	1-13/32 ~ 1-7/8	4-3/4	6-13/16	7	9-1/2	1-1/2	2-11/16	1/4
4	Z40STSF150I	1-29/32 ~ 2-9/16	5-1/8	7-1/16	7-1/4	9-3/4	1-1/2	2-11/16	1/4

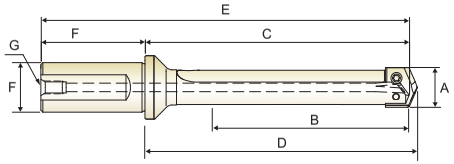
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

ITS SERIES
ITH SERIES

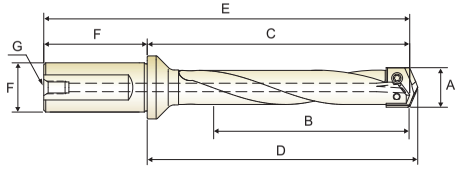
FLANGED STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
Porte-plaquette à collerette queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



INTERMEDIATE LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	Z10ITSF100I	45/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
1.5	Z15ITSF100I	55/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
2	Z20ITSF125I	31/32 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
2.5	Z25ITSF125I	1-3/16 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
3	Z30ITSF150I	1-13/32 ~ 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4



INTERMEDIATE LENGTH - Helical Flute (Inch)

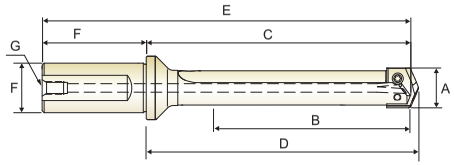
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	Z10ITHF100I	45/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
1.5	Z15ITHF100I	55/64 ~ 15/16	4-5/8	6-3/32	6-15/64	8-3/8	1	2-9/32	1/8
2	Z20ITHF125I	31/32 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
2.5	Z25ITHF125I	1-3/16 ~ 1-3/8	5-3/8	7-1/16	7-13/64	9-11/32	1-1/4	2-9/32	1/4
3	Z30ITHF150I	1-13/32 ~ 1-7/8	6-1/2	8-9/16	8-3/4	11-1/4	1-1/2	2-11/16	1/4

S ADE D ILLS

SDS SERIES
SDH SERIES

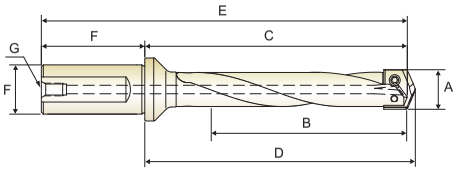
FLANGED STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
Porte-plaquette à collerette queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



STANDARD LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0SDSF075I	3/8 ~ 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
Z	ZZ0SDSF075I	7/16 ~ 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
0	Z00SDSF075I	33/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
0.5	Z05SDSF075I	39/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
1	Z10SDSF100I	45/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
1.5	Z15SDSF100I	55/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
2	Z20SDSF125I	31/32 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
2.5	Z25SDSF125I	1-3/16 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
3	Z30SDSF150I	1-13/32 ~ 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4
4	Z40SDSF150I	1-29/32 ~ 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4



STANDARD LENGTH - Helical Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0SDHF075I	3/8 ~ 27/64	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
Z	ZZ0SDHF075I	7/16 ~ 1/2	2-3/8	3-17/32	3-5/8	5-9/16	3/4	2-1/32	1/8
0	Z00SDHF075I	33/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
0.5	Z05SDHF075I	39/64 ~ 11/16	2-1/2	3-5/8	3-47/64	5-21/32	3/4	2-1/32	1/8
1	Z10SDHF100I	45/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
1.5	Z15SDHF100I	55/64 ~ 15/16	6-5/8	8-3/32	8-15/64	10-3/8	1	2-9/32	1/8
2	Z20SDHF125I	31/32 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
2.5	Z25SDHF125I	1-3/16 ~ 1-3/8	7-3/8	9-1/16	9-13/64	11-11/32	1-1/4	2-9/32	1/4
3	Z30SDHF150I	1-13/32 ~ 1-7/8	8-1/4	10-5/16	10-1/2	13	1-1/2	2-11/16	1/4
4	Z40SDHF150I	1-29/32 ~ 2-9/16	9-1/8	11-1/16	11-1/4	13-3/4	1-1/2	2-11/16	1/4

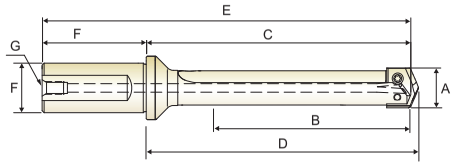
CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

E S SERIES
E H SERIES

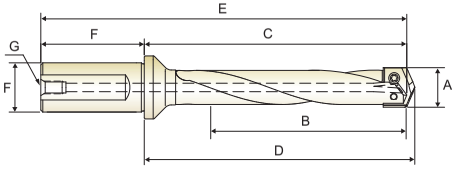
FLANGED STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
Porte-plaquette à collerette queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



EXTENDED LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0EXSF075I	3/8 ~ 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
Z	ZZ0EXSF075I	7/16 ~ 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
0	Z00EXSF075I	33/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
0.5	Z05EXSF075I	39/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
1	Z10EXSF100I	45/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
1.5	Z15EXSF100I	55/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
2	Z20EXSF125I	31/32 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4
2.5	Z25EXSF125I	1-3/16 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4



EXTENDED LENGTH - Helical Flute (Inch)

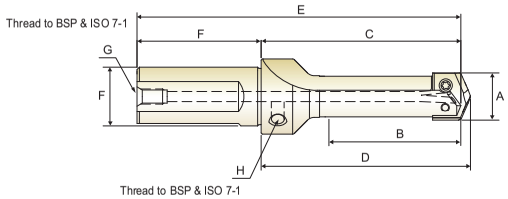
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0EXHF075I	3/8 ~ 27/64	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
Z	ZZ0EXHF075I	7/16 ~ 1/2	4-3/8	5-17/32	5-5/8	7-9/16	3/4	2-1/32	1/8
0	Z00EXHF075I	33/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
0.5	Z05EXHF075I	39/64 ~ 11/16	4-1/2	5-5/8	5-47/64	7-21/32	3/4	2-1/32	1/8
1	Z10EXHF100I	45/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
1.5	Z15EXHF100I	55/64 ~ 15/16	10-5/8	12-3/32	12-15/64	14-3/8	1	2-9/32	1/8
2	Z20EXHF125I	31/32 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4
2.5	Z25EXHF125I	1-3/16 ~ 1-3/8	11-3/8	13-1/16	13-13/64	15-11/32	1-1/4	2-9/32	1/4

S ADE D ILLS

S S SERIES
STS SERIES

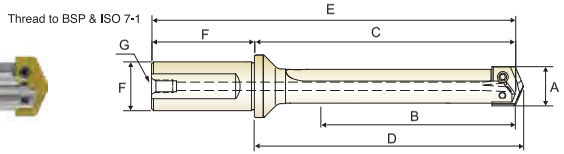
FLANGED STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
Porte-plaquette à collerette queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



STUB LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap	
							Dia.	Length	Rear	Side
		A	B	C	D	E	F		G	H
Y	ZY0SBSF016M	9.5 ~ 11.0	19.1	47.6	50.0	95.6	16.0	48.0	1/16	1/8
Z	ZZ0SBSF016M	11.5 ~ 12.5	19.1	47.6	50.0	95.6	16.0	48.0	1/16	1/8
0	Z00SBSF020M	13.0 ~ 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8	1/8
0.5	Z05SBSF020M	15.5 ~ 17.5	22.2	47.6	50.4	97.6	20.0	50.0	1/8	1/8
1	Z10SBSF025M	18.0 ~ 24.0	47.6	75.8	79.4	131.8	25.0	56.0	1/8	1/8
1.5	Z15SBSF025M	22.0 ~ 24.0	57.2	88.5	92.1	144.5	25.0	56.0	1/8	1/8
2	Z20SBSF032M	25.0 ~ 35.0	57.2	88.5	92.1	148.5	32.0	60.0	1/4	1/8
2.5	Z25SBSF032M	30.0 ~ 35.0	92.1	123.4	127.0	183.4	32.0	60.0	1/4	1/8
3	Z30SBSF040M	36.0 ~ 47.0	76.2	125.0	129.8	195.0	40.0	70.0	1/4	1/4



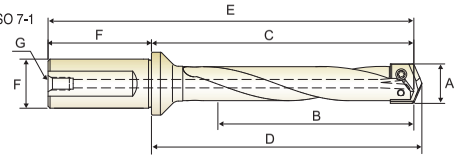
SHORT LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0STSF020M	9.5 ~ 11.0	31.8	61.1	63.5	111.1	20.0	50.0	1/8
Z	ZZ0STSF020M	11.5 ~ 12.5	31.8	61.1	63.5	111.1	20.0	50.0	1/8
0	Z00STSF020M	13.0 ~ 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8
0.5	Z05STSF020M	15.5 ~ 17.5	34.9	63.5	66.3	113.5	20.0	50.0	1/8
1	Z10STSF025M	18.0 ~ 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8
1.5	Z15STSF025M	22.0 ~ 24.0	66.7	107.2	110.7	163.2	25.0	56.0	1/8
2	Z20STSF032M	25.0 ~ 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4
2.5	Z25STSF032M	30.0 ~ 35.0	85.7	128.6	132.2	188.6	32.0	60.0	1/4
3	Z30STSF040M	36.0 ~ 47.0	120.7	173.0	177.8	243.0	40.0	70.0	1/4
4	Z40STSF040M	48.0 ~ 65.0	130.2	179.4	184.0	249.4	40.0	70.0	1/4

S ADE D ILLS

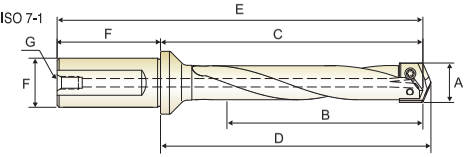
ITH SERIES
SDH SERIES

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
Porte-plaquette à collerette queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



INTERMEDIATE LENGTH - Helical Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	Z10ITHF025M	18.0 ~ 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8
1.5	Z15ITHF025M	22.0 ~ 24.0	117.5	154.8	158.4	210.8	25.0	56.0	1/8
2	Z20ITHF032M	25.0 ~ 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4
2.5	Z25ITHF032M	30.0 ~ 35.0	136.5	179.4	183.0	239.4	32.0	60.0	1/4
3	Z30ITHF040M	36.0 ~ 47.0	165.1	217.5	222.3	287.5	40.0	70.0	1/4



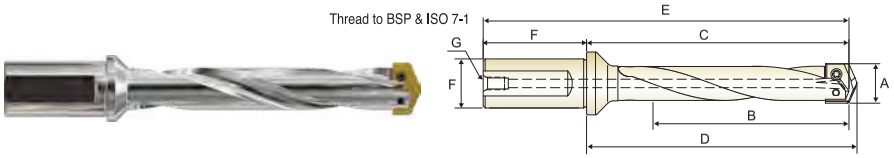
STANDARD LENGTH - Helical Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0SDHF020M	9.5 ~ 11.0	60.3	89.7	92.1	139.7	20.0	50.0	1/8
Z	ZZ0SDHF020M	11.5 ~ 12.5	60.3	89.7	92.1	139.7	20.0	50.0	1/8
0	Z00SDHF020M	13.0 ~ 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8
0.5	Z05SDHF020M	15.5 ~ 17.5	63.5	92.1	94.9	142.1	20.0	50.0	1/8
1	Z10SDHF025M	18.0 ~ 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8
1.5	Z15SDHF025M	22.0 ~ 24.0	168.3	205.6	209.2	261.6	25.0	56.0	1/8
2	Z20SDHF032M	25.0 ~ 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4
2.5	Z25SDHF032M	30.0 ~ 35.0	187.3	230.2	233.8	290.2	32.0	60.0	1/4
3	Z30SDHF040M	36.0 ~ 47.0	209.6	261.9	266.7	331.9	40.0	70.0	1/4
4	Z40SDHF040M	48.0 ~ 65.0	231.8	281.0	285.8	351.0	40.0	70.0	1/4

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

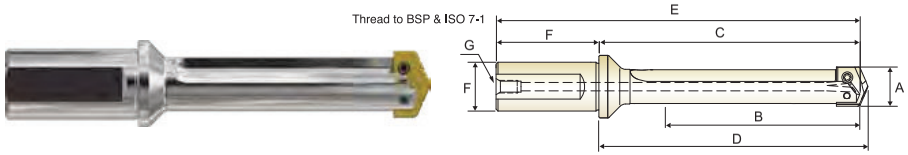
FLANGED STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE
Porte-plaquette à collerette queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



EXTENDED LENGTH - Helical Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0EXHF020M	9.5 ~ 11.0	111.1	140.5	142.9	190.5	20.0	50.0	1/8
Z	ZZ0EXHF020M	11.5 ~ 12.5	111.1	140.5	142.9	190.5	20.0	50.0	1/8
0	Z00EXHF020M	13.0 ~ 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8
0.5	Z05EXHF020M	15.5 ~ 17.5	114.3	142.9	145.7	192.9	20.0	50.0	1/8
1	Z10EXHF025M	18.0 ~ 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8
1.5	Z15EXHF025M	22.0 ~ 24.0	269.9	307.2	310.8	363.2	25.0	56.0	1/8
2	Z20EXHF032M	25.0 ~ 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4
2.5	Z25EXHF032M	30.0 ~ 35.0	288.9	331.8	335.4	391.8	32.0	60.0	1/4

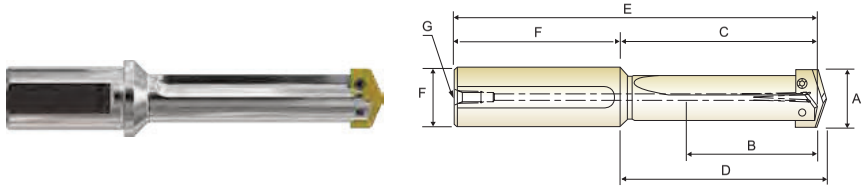


EXTENDED LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
3	Z30EXSF040M	36.0 ~ 47.0	349.3	401.6	406.4	471.6	40.0	70.0	1/4
4	Z40EXSF040M	48.0 ~ 65.0	422.3	471.5	476.3	541.5	40.0	70.0	1/4

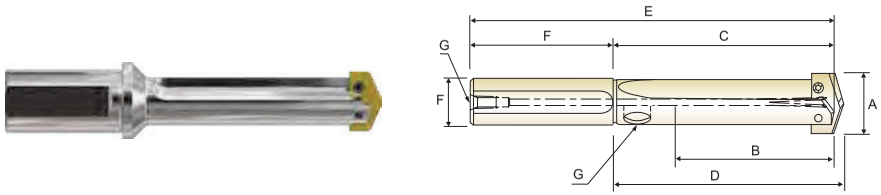
STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT
Porte-plaquette à queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



SHORT LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0STSS075I	3/8 ~ 27/64	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8
Z	ZZ0STSS075I	7/16 ~ 1/2	1-1/4	2-1/32	2-1/8	4-13/32	3/4	2-3/8	1/8
0	Z00STSS075I	33/64 ~ 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8
0.5	Z05STSS075I	39/64 ~ 11/16	1-3/8	2-3/16	2-19/64	4-9/16	3/4	2-3/8	1/8



SHORT LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	* Z10STSS075I	45/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8
	Z10STSS100I	45/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8
1.5	* Z15STSS075I	55/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	3/4	3	1/8
	Z15STSS100I	55/64 ~ 15/16	2-5/8	3-7/8	4-1/64	6-7/8	1	3	1/8
2	Z20STSS100I	31/32 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8
	Z20STSS125I	31/32 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8
2.5	* Z25STSS100I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1	3-1/2	1/8
	Z25STSS125I	1-3/16 ~ 1-3/8	3-3/8	4-1/2	4-41/64	8	1-1/4	3-1/2	1/8
3	Z30STSS125I	1-13/32 ~ 1-7/8	4-3/4	6	6-3/16	10	1-1/4	4	1/4
	Z30STSS150I	1-13/32 ~ 1-7/8	4-3/4	6	6-3/16	10	1-1/2	4	1/4
4	Z40STSS150I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-1/2	4	1/4
	Z40STSS175I	1-29/32 ~ 2-9/16	5-1/8	6-1/2	6-11/16	10-1/2	1-3/4	4	1/4
5	Z50STSS200I	2-1/2 ~ 3-1/2	6-3/4	8-1/2	8-3/4	12-1/2	2	4	1/2

▶ * Flanged type

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
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DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
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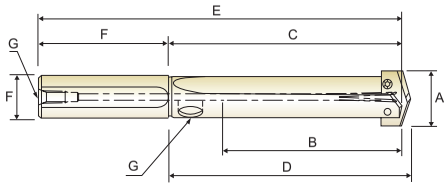
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

ITSS SERIES

STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT
Porte-plaquette à queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



INTERMEDIATE LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	Z10ITSS100I	45/64 ~ 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8
1.5	Z15ITSS100I	55/64 ~ 15/16	4-5/8	5-7/8	6-1/64	8-7/8	1	3	1/8
2	Z20ITSS125I	31/32 ~ 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8
2.5	Z25ITSS125I	1-3/16 ~ 1-3/8	5-3/8	6-1/2	6-41/64	10	1-1/4	3-1/2	1/8
3	Z30ITSS150I	1-13/32 ~ 1-7/8	6-1/2	7-3/4	7-15/16	11-3/4	1-1/2	4	1/4

CARBIDE
HSS
i-ONE DRILLS
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DREAM DRILLS -PRO
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STRAIGHT SHANK HOLDERS

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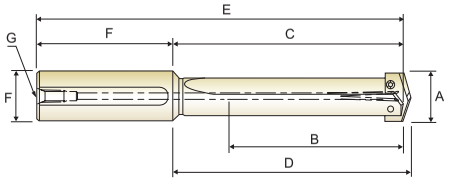
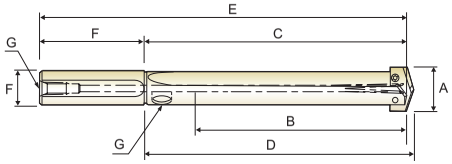
Porte-plaquette à queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



STANDARD LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0SDSS075I	3/8 ~ 27/64	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8
Z	ZZ0SDSS075I	7/16 ~ 1/2	2-3/8	3-5/32	3-1/4	5-17/32	3/4	2-3/8	1/8
0	Z00SDSS075I	33/64 ~ 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8
0.5	Z05SDSS075I	39/64 ~ 11/16	2-1/2	3-5/16	3-27/64	5-11/16	3/4	2-3/8	1/8



STANDARD LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	* Z10SDSS075I	45/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8
	Z10SDSS100I	45/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8
1.5	* Z15SDSS075I	55/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	3/4	3	1/8
	Z15SDSS100I	55/64 ~ 15/16	6-5/8	7-7/8	8-1/64	10-7/8	1	3	1/8
2	Z20SDSS100I	31/32 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8
	Z20SDSS125I	31/32 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8
2.5	* Z25SDSS100I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1	3-1/2	1/8
	Z25SDSS125I	1-3/16 ~ 1-3/8	7-3/8	8-1/2	8-41/64	12	1-1/4	3-1/2	1/8
3	Z30SDSS125I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/4	4	1/4
	Z30SDSS150I	1-13/32 ~ 1-7/8	8-1/4	9-1/2	9-11/16	13-1/2	1-1/2	4	1/4
4	Z40SDSS150I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-1/2	4	1/4
	Z40SDSS175I	1-29/32 ~ 2-9/16	9-1/8	10-1/2	10-11/16	14-1/2	1-3/4	4	1/4
5	Z50SDSS200I	2-1/2 ~ 3-1/2	10-3/4	12-1/2	12-3/4	16-1/2	2	4	1/2
7	Z70SDSS300I	3-17/32 ~ 4-1/2	10-3/4	12-7/8	13-1/8	17-7/8	3	5	1/2

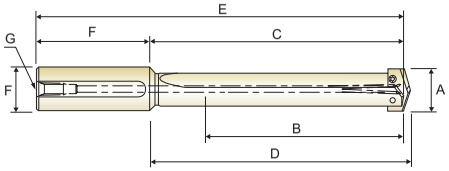
▶ * Flanged type

S ADE D ILLS

E SS SERIES

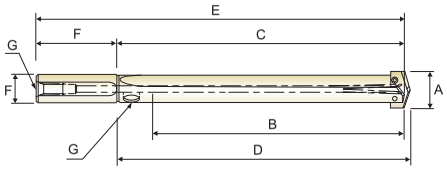
STRAIGHT SHANK HOLDERS

HALTER MIT ZYLINDERSCHAFT
Porte-plaquette à queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO



EXTENDED LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	ZY0EXSS075I	3/8 ~ 27/64	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8
Z	ZZ0EXSS075I	7/16 ~ 1/2	4-3/8	5-5/32	5-1/4	7-17/32	3/4	2-3/8	1/8
0	Z00EXSS075I	33/64 ~ 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8
0.5	Z05EXSS075I	39/64 ~ 11/16	4-1/2	5-5/16	5-27/64	7-11/16	3/4	2-3/8	1/8



EXTENDED LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
1	Z10EXSS100I	45/64 ~ 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8
1.5	Z15EXSS100I	55/64 ~ 15/16	10-5/8	11-7/8	12-1/64	14-7/8	1	3	1/8
2	Z20EXSS125I	31/32 ~ 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8
2.5	Z25EXSS125I	1-3/16 ~ 1-3/8	11-3/8	12-1/2	12-41/64	16	1-1/4	3-1/2	1/8
3	Z30EXSS125I	1-13/32 ~ 1-7/8	13-3/4	15	15-3/16	19	1-1/4	4	1/4
4	Z40EXSS150I	1-29/32 ~ 2-9/16	16-5/8	18	18-3/16	22	1-1/2	4	1/4
5	Z50EXSS200I	2-1/2 ~ 3-1/2	18-1/4	20	20-1/4	24	2	4	1/2
7	Z70EXSS300I	3-17/32 ~ 4-1/2	21-7/8	24	24-1/4	29	3	5	1/2

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
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S ADE D ILLS

LGSS SERIES

STRAIGHT SHANK HOLDERS

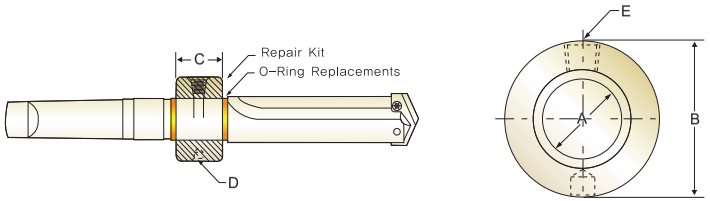
HALTER MIT ZYLINDERSCHAFT
Porte-plaquette à queue cylindrique
PUNTE ATTACCO CILINDRICO FLANGIATO

LONG LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
0	Z00LGSS075I	33/64 ~ 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8
0.5	Z05LGSS075I	39/64 ~ 11/16	7	7-13/16	7-59/64	10-3/16	3/4	2-3/8	1/8

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

HOLDER ACCESSORIES
ROTARY COOLANT ADAPTER (RCA) AND ACCESSORIES



In

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B	C	D	E		
PR110048	3/4	1-3/4	7/8	5/16-NC	◈1/8	PR210048	PR310048
PR110100	1	2-1/8	1-1/8	5/16-NC	◈1/8	PR210100	PR310100
PR110116	1-1/4	2-1/2	1-3/8	3/8-NC	◈1/4	PR210116	PR310116
PR110148	1-3/4	3	1-3/8	3/8-NC	◈1/4	PR210148	PR310148
PR110216	2-1/4	3-3/4	1-3/4	1/2-NC	◈1/2	PR210216	PR310216

Met

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B	C	D	E		
PR120190	19.05	44.45	22.23	M8 ×1.25	◈1/8	PR220190	PR320190
PR120254	25.40	53.97	28.57	M8 ×1.25	◈1/8	PR220254	PR320254
PR120317	31.75	63.50	34.92	M10 ×1.5	◈1/4	PR220317	PR320317
PR120444	44.45	76.20	34.92	M10 ×1.5	◈1/4	PR220444	PR320444
PR120571	57.15	95.27	44.45	M12 ×1.75	◈1/2	PR220571	PR320571

◈ Thread to BSP & ISO 7-1

TO SC E S

Holder Series	Item No.	TORX Hand Driver	Drill Range Used With	
			Inch	Metric
Y	J07Y0010	J05Y0070	3/8 ~ 27/64	9.5 mm ~ 11.0 mm
Z	J07Z0110		7/16 ~ 1/2	11.5 mm ~ 12.5 mm
0	J0800210	J0500080	33/64 ~ 11/16	13.0 mm ~ 17.5 mm
0.5	J0805310		39/64 ~ 11/16	15.5 mm ~ 17.5 mm
1	J0910410	J0510090	45/64 ~ 15/16	18.0 mm ~ 24.0 mm
1.5	J0915510		55/64 ~ 15/16	22.0 mm ~ 24.0 mm
2	J1520610	J0520150	31/32 ~ 1-3/8	25.0 mm ~ 35.0 mm
2.5	J1525710		1-3/16 ~ 1-3/8	30.0 mm ~ 35.0 mm
3,4	J2030810	J0530200	1-13/32 ~ 2-9/16	36.0 mm ~ 65.0 mm
5 ~ 8	J2550910	J0550250	2-1/2 ~ 4-1/2	64.0 mm ~ 114.0 mm

** Note : Replacement screws sold in packages(10 screws per package)

S ADE D ILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

SPADE DRILL HSS-M4

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)						
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	Ø48-65	Ø66-114
P	1	Non-alloy steel	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	6	Low alloy steel	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
M	12	Stainless steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46
	13		20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46
	14		24	29	34	0.14	0.20	0.23	0.26	0.36	0.41	0.50
K	15	Grey cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	16		29	35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	17	Nodular cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	18		35	44	52	0.13	0.17	0.23	0.3	0.35	0.43	0.50
	19	Malleable cast iron	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
	20		35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
N	21	Aluminum-wrought alloy	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	95	128	142	0.19	0.31	0.43	0.53	0.64	0.74	0.79

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
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DREAM DRILLS -HIGH FEED
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DREAM DRILLS -INOX
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GOLD-P DRILLS
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STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
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COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

SPADE DRILL HSS-T15

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)						
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	Ø48-65	Ø66-114
P	1	Non-alloy steel	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	6	Low alloy steel	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	8		39	47	53	0.09	0.15	0.22	0.28	0.38	0.41	0.50
	9		36	43	46	0.08	0.15	0.21	0.27	0.38	0.40	0.51
	10	High alloyed steel, and tool steel	25	34	36	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	11		19	27	29	0.08	0.14	0.18	0.19	0.25	0.29	0.34
M	12	Stainless steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46
	13		20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46
	14		24	29	34	0.14	0.20	0.23	0.26	0.36	0.41	0.50
K	15	Grey cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	16		29	35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	17	Nodular cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	18		35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
	19	Malleable cast iron	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
	20		35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
N	21	Aluminum-wrought alloy	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	95	128	142	0.19	0.31	0.43	0.53	0.64	0.74	0.79
S	31	Heat Resistant Super Alloys	9	11	12	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	32		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	33		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	34		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	35		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
H	38	Hardened steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

S ADE D ILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

SPADE DRILL HSS-M48

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)						
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47	Ø48-65	Ø66-114
P	1	Non-alloy steel	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	2		49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	3		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	4		45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	6	Low alloy steel	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
	7		41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	8		39	47	53	0.09	0.15	0.22	0.28	0.38	0.41	0.50
	9		36	43	46	0.08	0.15	0.21	0.27	0.38	0.40	0.51
	10	High alloyed steel, and tool steel	25	34	36	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	11		19	27	29	0.08	0.14	0.18	0.19	0.25	0.29	0.34
K	15	Grey cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	16		29	35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	17	Nodular cast iron	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	18		35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
	19	Malleable cast iron	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
	20		35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
N	21	Aluminum-wrought alloy	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.70
	22		92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.70
	27	Copper and Copper Alloys (Bronze / Brass)	95	128	142	0.19	0.31	0.43	0.53	0.64	0.74	0.79
S	31	Heat Resistant Super Alloys	9	11	12	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	32		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	33		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	34		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	35		8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
H	38	Hardened steel	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

S ADE D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

SPADE DRILL CARBIDE-K10

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)				
			TiN	TiCN	TiAlN	Ø9.5~12.5	Ø13~17.5	Ø18~24	Ø25~35	Ø36~47
K	15	Grey cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	16		56	70	79	0.13	0.18	0.23	0.28	0.33
	17	Nodular cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	18		66	81	93	0.13	0.15	0.28	0.33	0.37
	19	Malleable cast iron	98	125	137	0.18	0.30	0.37	0.46	0.56
	20		66	81	93	0.13	0.15	0.28	0.33	0.37

SPADE DRILL CARBIDE-K20

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)				
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47
P	1	Non-alloy steel	94	110	119	0.20	0.24	0.31	0.42	0.46
	2		76	82	96	0.15	0.22	0.29	0.36	0.40
	3		66	70	84	0.15	0.22	0.28	0.36	0.40
	4		66	70	84	0.15	0.22	0.28	0.36	0.40
	6	Low alloy steel	73	81	88	0.15	0.23	0.29	0.38	0.42
	7		66	73	81	0.15	0.21	0.28	0.37	0.41
	8		62	70	78	0.12	0.20	0.27	0.33	0.40
	9		53	58	64	0.10	0.18	0.23	0.30	0.38
	10	High alloyed steel, and tool steel	50	56	67	0.09	0.18	0.22	0.28	0.31
	11		37	46	50	0.09	0.18	0.22	0.28	0.31
M	12	Stainless steel	38	43	47	0.10	0.18	0.20	0.24	0.30
	13		38	43	47	0.10	0.18	0.20	0.24	0.30
	14		43	49	55	0.12	0.20	0.23	0.27	0.35
K	15	Grey cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	16		56	70	79	0.13	0.18	0.23	0.28	0.33
	17	Nodular cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	18		66	81	93	0.13	0.15	0.28	0.33	0.37
	19	Malleable cast iron	98	125	137	0.18	0.30	0.37	0.46	0.56
	20		66	81	93	0.13	0.15	0.28	0.33	0.37
N	21	Aluminum-wrought alloy	366	396	427	0.24	0.38	0.45	0.50	0.53
	22		244	290	291	0.22	0.33	0.40	0.45	0.48
	27	Copper and Copper Alloys (Bronze / Brass)	136	168	193	0.15	0.24	0.29	0.39	0.47
S	31	Heat Resistant Super Alloys	50	55	62	0.19	0.19	0.21	0.24	0.30
	32		38	44	46	0.15	0.17	0.20	0.21	0.25
	33		38	44	46	0.15	0.17	0.20	0.21	0.25
	34		38	44	46	0.15	0.17	0.20	0.21	0.25
	35		38	44	46	0.15	0.17	0.20	0.21	0.25
H	38	Hardened steel	38	43	47	0.10	0.18	0.20	0.24	0.30

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

S ADE D ILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

SPADE DRILL FLAT BOTTOM HSS-T15

ISO	VDI 3323	Material Description	Vc(m/min)		Feed(mm/rev)			
			TiN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35
P	1	Non-alloy steel	54	60	0.12	0.18	0.22	0.30
	2		46	55	0.10	0.15	0.19	0.27
	3		45	50	0.10	0.15	0.18	0.27
	4		42	46	0.08	0.14	0.17	0.22
	6	Low alloy steel	45	46	0.10	0.16	0.19	0.29
	7		40	45	0.10	0.13	0.18	0.28
	8		38	42	0.07	0.12	0.18	0.22
	9		34	37	0.06	0.12	0.17	0.22
	10	High alloyed steel, and tool steel	27	29	0.07	0.12	0.15	0.20
	11		22	23	0.07	0.12	0.15	0.20
M	12	Stainless steel	23	25	0.13	0.15	0.18	0.22
	13		23	25	0.13	0.15	0.18	0.22
	14		26	29	0.17	0.18	0.20	0.23
K	15	Grey cast iron	51	60	0.12	0.21	0.29	0.40
	16		38	48	0.10	0.14	0.20	0.25
	17	Nodular cast iron	51	60	0.12	0.21	0.29	0.40
	18		38	48	0.10	0.14	0.20	0.25
	19	Malleable cast iron	56	66	0.13	0.25	0.35	0.41
	20		38	48	0.10	0.14	0.20	0.25
N	21	Aluminum-wrought alloy	208	213	0.17	0.28	0.36	0.43
	22		112	121	0.17	0.28	0.36	0.41
	27	Copper and Copper Alloys (Bronze / Brass)	48	70	0.15	0.26	0.37	0.45
S	31	Heat Resistant Super Alloys	20	10	0.06	0.14	0.16	0.19
	32		7	9	0.06	0.11	0.14	0.15
	33		7	9	0.06	0.11	0.14	0.15
	34		7	9	0.06	0.11	0.14	0.15
	35		7	9	0.06	0.11	0.14	0.15
H	38	Hardened steel	23	25	0.13	0.15	0.18	0.22

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

S ADE D ILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

SPADE DRILL CARBIDE-P40

ISO	VDI 3323	Material Description	Vc(m/min)			Feed(mm/rev)				
			TiN	TiCN	TiAlN	Ø9.5-12.5	Ø13-17.5	Ø18-24	Ø25-35	Ø36-47
P	1	Non-alloy steel	94	110	119	0.20	0.24	0.31	0.42	0.46
	2		76	82	96	0.15	0.22	0.29	0.36	0.40
	3		66	70	84	0.15	0.22	0.28	0.36	0.40
	4		66	70	84	0.15	0.22	0.28	0.36	0.40
	6	Low alloy steel	73	81	88	0.15	0.23	0.29	0.38	0.42
	7		66	73	81	0.15	0.21	0.28	0.37	0.41
	8		62	70	78	0.12	0.20	0.27	0.33	0.40
	9		53	58	64	0.10	0.18	0.23	0.30	0.38
	10	High alloyed steel, and tool steel	50	56	67	0.09	0.18	0.22	0.28	0.31
	11		37	46	50	0.09	0.18	0.22	0.28	0.31
M	12	Stainless steel	38	43	47	0.10	0.18	0.20	0.24	0.30
	13		38	43	47	0.10	0.18	0.20	0.24	0.30
	14		43	49	55	0.12	0.20	0.23	0.27	0.35
K	15	Grey cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	16		56	70	79	0.13	0.18	0.23	0.28	0.33
	17	Nodular cast iron	95	101	125	0.17	0.26	0.32	0.42	0.53
	18		66	81	93	0.13	0.15	0.28	0.33	0.37
	19	Malleable cast iron	98	125	137	0.18	0.30	0.37	0.46	0.56
	20		66	81	93	0.13	0.15	0.28	0.33	0.37
N	21	Aluminum-wrought alloy	366	396	427	0.24	0.38	0.45	0.50	0.53
	22		244	290	291	0.22	0.33	0.40	0.45	0.48
	27	Copper and Copper Alloys (Bronze / Brass)	136	168	193	0.15	0.24	0.29	0.39	0.47
S	31	Heat Resistant Super Alloys	50	55	62	0.19	0.19	0.21	0.24	0.30
	32		38	44	46	0.15	0.17	0.20	0.21	0.25
	33		38	44	46	0.15	0.17	0.20	0.21	0.25
	34		38	44	46	0.15	0.17	0.20	0.21	0.25
	35		38	44	46	0.15	0.17	0.20	0.21	0.25
H	38	Hardened steel	38	43	47	0.10	0.18	0.20	0.24	0.30

▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

REAMERS

REIBAHLEN

- **Carbide NC Machine Reamers**
  HSS Hand Reamers, HSS-E Chucking Reamers
- **Hartmetall NC Maschinenreibahlen**
  HSS-Handreibahlen, HSS-E Spannfutter-Reibahlen

SELE TION G IDE

HOLEMAKING TOOLS

SERIES	K4101	K4111
HOLE TYPE		
FLUTE TYPE	Straight	LH Spiral
SIZE MIN	D2.0	D2.0
SIZE MAX	D20.0	D20.0
PAGE	A384	A385
SURFACE TREATMENT	Bright	

CARBIDE, HSS & HSS-E REAMERS

Carbide NC Machine Reamers
HSS Hand Reamers
HSS-E Chucking Reamers

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A405

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	K4101	K4111
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C	Annealed	270	28	○	○
	5		About 0.75% C	Quenched & Tempered	300	32	○	○
	6	Low alloy steel		Annealed	180	10	◎	◎
	7			Quenched & Tempered	275	29	◎	◎
	8			Quenched & Tempered	300	32	○	○
	9			Quenched & Tempered	350	38		
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○
	14		Austenitic		180	10	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎
	16		Pearlitic (Martensitic)		260	26	○	○
	17	Nodular cast iron	Ferritic		160	3	◎	◎
	18		Pearlitic		250	25	○	○
	19	Malleable cast iron	Ferritic		130		◎	◎
	20		Pearlitic		230	21	○	○
N	21	Aluminum-wrought alloy	Not Curable		60		○	○
	22		Curable	Hardened	100		○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○
	27		CuZn, CuSnZn (Brass)		90		○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

K1143	K1153	K2101	K2111	K2121	K2102	K2112	K21B1
Straight	LH Spiral	Straight	LH Spiral	LH Spiral (Quick Spiral)	Straight	LH Spiral	LH Spiral
D2.0	D2.0	D2.0	D2.0	D4.0	D10.0	D10.0	D2.0
D60.0	D60.0	D20.0	D20.0	D20.0	D50.0	D50.0	D20.0
A386	A388	A390	A392	A394	A395	A397	A399
Bright							

ISO	VDI 3323	K1143	K1153	K2101	K2111	K2121	K2102	K2112	K21B1
P	1	○	○	◎	◎	○	◎	◎	◎
	2	○	○	◎	◎	○	◎	◎	◎
	3			○	○		○	○	○
	4			○	○		○	○	○
	5								
	6	○	○	◎	◎	○	◎	◎	◎
	7			○	○		○	○	○
	8								
	9								
	10			○	○		○	○	○
	11								
M	12			○	○		○	○	○
	13			○	○		○	○	○
	14			○	○		○	○	○
K	15			○	○		○	○	○
	16			○	○		○	○	○
	17			○	○		○	○	○
	18			○	○		○	○	○
	19			○	○		○	○	○
	20			○	○		○	○	○
N	21	○	○	○	○	◎	○	○	○
	22	○	○	○	○	◎	○	○	○
	23	○	○	○	○	◎	○	○	○
	24	○	○	○	○	◎	○	○	○
	25								
	26	○	○	○	○	◎	○	○	○
	27	○	○	○	○	◎	○	○	○
	28	○	○	○	○	◎	○	○	○
	29								
	30								
S	31								
	32								
	33								
	34								
	35								
	36								
	37								
H	38								
	39								
	40								
	41								

EAME S

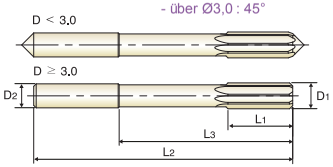
K 0 SERIES

CARBIDE, NC MACHINE REAMERS - STRAIGHT FLUTES

VHM, NC-MASCHINENREIBAHLEN - GERADEGENUTET
ALÉSOIRS CARBURE MACHINE CN - ENTRÉE DROITE
ALESATORI A MACCHINA IN MD - ELICA DRITTA

- ▶ Material - Up to Ø12.0 : Solid Carbide
  - Over Ø12.0 : Carbide Head Brazed
- ▶ Straight Flutes, Right Hand Cut
- ▶ Unequal Flute Spacing
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank : DIN 6535-HA
- ▶ Chamfer Angle - D<3.0 : 15°
  - D≥3.0 : 45°

- ▶ Material - bis Ø12,0 : VHM
  - über Ø12,0 : gelötete VHM-Köpfe
- ▶ geradegenutet, rechtsschneidend
- ▶ Ungleichteilung
- ▶ Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft : DIN 6535-HA
- ▶ Anschnittwinkel - bis Ø3,0 : 15°
  - über Ø3,0 : 45°



CARBIDE | H7 | 15° (D<3.0) | 45° (D≥3.0) | Bright | p.A405

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Cutting Length L1	Neck Length L3	Overall Length L2	No. of Flute
K410100200	2.0	4	11	20	50	4
K410100250	2.5	4	14	26	57	4
K410100300	3.0	4	15	31	61	6
K410100350	3.5	4	18	36	70	6
K410100400	4.0	4	19	42	75	6
K410100450	4.5	6	21	46	80	6
K410100500	5.0	6	23	51	86	6
K410100550	5.5	6	26	56	93	6
K410100600	6.0	6	26	56	93	6
K410100650	6.5	8	28	62	101	6
K410100700	7.0	8	31	68	109	6
K410100750	7.5	8	31	68	109	6
K410100800	8.0	8	33	74	117	6
K410100850	8.5	10	33	74	117	6
K410100900	9.0	10	36	80	125	6
K410100950	9.5	10	36	80	125	6
K410101000	10.0	10	38	86	133	6
K410101050	10.5	12	38	86	133	6
K410101100	11.0	12	41	95	142	6
K410101200	12.0	12	44	104	151	6
K410101300	13.0	16	44	104	151	6
K410101400	14.0	16	47	108	160	8
K410101500	15.0	16	50	110	162	8
K410101600	16.0	16	52	118	170	8
K410101700	17.0	20	54	121	175	8
K410101800	18.0	20	56	128	182	8
K410101900	19.0	20	58	129	189	8
K410102000	20.0	20	60	135	195	8

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S

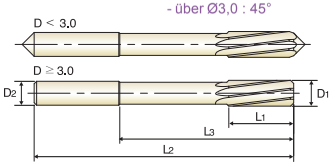
K SERIES

CARBIDE, NC MACHINE REAMERS - LH SPIRAL FLUTES

VHM, NC-MASCHINENREIBAHLEN - SPIRALGENUTET mit LINKSDRALL
ALÉSOIRS CARBURE MACHINE CN - HÉLICE À GAUCHE
ALESATORI A MACCHINA IN MD - ELICA SINISTRA

- ▶ Material - Up to Ø12.0 : Solid Carbide
  - Over Ø12.0 : Carbide Head Brazed
- ▶ Left Spiral Flutes, Right Hand Cut
- ▶ Unequal Flute Spacing
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank : DIN 6535-HA
- ▶ Chamfer Angle - D<3.0 : 15°
  - D≥3.0 : 45°

- ▶ Material - bis Ø12,0 : VHM
  - über Ø12,0 : gelötete VHM-Köpfe
- ▶ linksspiralig, rechtsschneidend
- ▶ Ungleichteilung
- ▶ Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft : DIN 6535-HA
- ▶ Anschnittwinkel - bis Ø3,0 : 15°
  - über Ø3,0 : 45°



CARBIDE | H7 | LH7° | 15° (D<3.0) | 45° (D≥3.0) | Bright | p.A405

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Cutting Length L1	Neck Length L3	Overall Length L2	No. of Flute
K411100200	2.0	4	11	20	50	4
K411100250	2.5	4	14	26	57	4
K411100300	3.0	4	15	31	61	6
K411100350	3.5	4	18	36	70	6
K411100400	4.0	4	19	42	75	6
K411100450	4.5	6	21	46	80	6
K411100500	5.0	6	23	51	86	6
K411100550	5.5	6	26	56	93	6
K411100600	6.0	6	26	56	93	6
K411100650	6.5	8	28	62	101	6
K411100700	7.0	8	31	68	109	6
K411100750	7.5	8	31	68	109	6
K411100800	8.0	8	33	74	117	6
K411100850	8.5	10	33	74	117	6
K411100900	9.0	10	36	80	125	6
K411100950	9.5	10	36	80	125	6
K411101000	10.0	10	38	86	133	6
K411101050	10.5	12	38	86	133	6
K411101100	11.0	12	41	95	142	6
K411101200	12.0	12	44	104	151	6
K411101300	13.0	16	44	104	151	6
K411101400	14.0	16	47	108	160	8
K411101500	15.0	16	50	110	162	8
K411101600	16.0	16	52	118	170	8
K411101700	17.0	20	54	121	175	8
K411101800	18.0	20	56	128	182	8
K411101900	19.0	20	58	129	189	8
K411102000	20.0	20	60	135	195	8

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	○	○	◎	◎	○		○		○	○	○	◎	○	◎	○	◎	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

EAME S

K SERIES

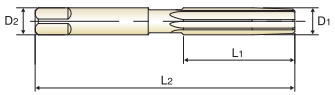
HSS, HAND REAMERS - STRAIGHT FLUTES

HSS, HANDREIBAHLEN - GERADEGENUTET
ALÉSOIRS HSS À MAIN - HÉLICE À GAUCHE
ALESATORI A MANO IN HSS - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter ≒ Nominal Reamer Diameter
- ▶ Straight Flutes / Right Hand Cut
- ▶ Chamfer Angle- tapered
- ▶ Type of center - Up to Ø3.75 : external centers
  - Over Ø3.75 : internal centers

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø = Nomineller Reibahlen-Ø
- ▶ Geradegenutet / Rechtsschneidend
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen
  - über Ø3,75 mm : Zentrierung

DIN 206-A



Hole type

$D_1=D_2$

HSS | DIN 206 | H7 | Bright

Recommended ToolHolder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Reamer Diameter D	Flute Length L1	Overall Length L2	No. of Flute
K114300200	2.0	25	50	4
K114300220	2.2	27	54	4
K114300250	2.5	29	58	4
K114300280	2.8	31	62	4
K114300300	3.0	31	62	6
K114300320	3.2	33	66	6
K114300350	3.5	35	71	6
K114300400	4.0	38	76	6
K114300450	4.5	41	81	6
K114300500	5.0	44	87	6
K114300550	5.5	47	93	6
K114300600	6.0	47	93	6
K114300700	7.0	54	107	6
K114300800	8.0	58	115	6
K114300900	9.0	62	124	6
K114301000	10.0	66	133	6
K114301100	11.0	71	142	6
K114301200	12.0	76	152	6
K114301300	13.0	76	152	6
K114301400	14.0	81	163	8
K114301500	15.0	81	163	8
K114301600	16.0	87	175	8
K114301700	17.0	87	175	8
K114301800	18.0	93	188	8
K114301900	19.0	93	188	8
K114302000	20.0	100	201	8
K114302200	22.0	107	215	8
K114302400	24.0	115	231	8

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○				○														

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S
K SERIES
HSS, HAND REAMERS - STRAIGHT FLUTES
HSS, HANDREIBAHLEN - GERADEGENUTET
ALÉSOIRS HSS À MAIN - ENTRÉE DROITE
ALESATORI A MANO IN HSS - ELICA DRITTA
▶ O.D. Tolerances : DIN 1420 for H7
▶ Shank Diameter ≒ Nominal Reamer Diameter
▶ Straight Flutes / Right Hand Cut
▶ Chamfer Angle- tapered
▶ Type of center - Up to Ø3.75 : external centers
- Over Ø3.75 : internal centers
▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
▶ Schaft-Ø = Nomineller Reibahlen-Ø
▶ Geradegenutet / Rechtsschneidend
▶ Anschnittwinkel - Konisch
▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen
- über Ø3,75 mm : Zentrierung
DIN 206-A
Hole type
$D_1=D_2$
HSS | DIN 206 | H7 | Bright
Recommended ToolHolder | Plain Shank | Page | ER COLLET CHUCK | D73-115
Unit : mm

EDP No.	Reamer Diameter D	Flute Length L1	Overall Length L2	No. of Flute
K114302500	25.0	115	231	8
K114302600	26.0	115	231	8
K114302700	27.0	124	247	10
K114302800	28.0	124	247	10
K114302900	29.0	124	247	10
K114303000	30.0	124	247	10
K114303100	31.0	133	265	10
K114303200	32.0	133	265	10
K114303300	33.0	133	265	10
K114303400	34.0	142	284	10
K114303500	35.0	142	284	10
K114303600	36.0	142	284	10
K114303700	37.0	142	284	10
K114303800	38.0	152	305	10
K114303810	38.1	152	305	10
K114303900	39.0	152	305	10
K114304000	40.0	152	305	10
K114304100	41.0	152	305	12
K114304200	42.0	152	305	12
K114304300	43.0	163	326	12
K114304400	44.0	163	326	12
K114304500	45.0	163	326	12
K114304600	46.0	163	326	12
K114304700	47.0	163	326	12
K114304800	48.0	174	347	12
K114304900	49.0	174	347	12
K114305200	52.0	174	347	12
K114306000	60.0	184	367	12

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○				○														

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

EAME S

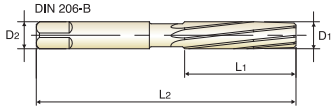
K SERIES

HSS, HAND REAMERS - LH SPIRAL FLUTES

HSS, HAND REAMERS - LH SPIRAL FLUTES
ALÉSOIRS HSS À MAIN - HÉLICE À GAUCHE
ALESATORI A MANO IN HSS - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420, H7
- ▶ Shank Diameter ≒ Nominal Reamer Diameter
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle- tapered
- ▶ Type of center - Up to Ø3.75 : external centers
  - Over Ø3.75 : internal centers

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø = Nomineller Reibahlen-Ø
- ▶ Spiralgenutet mit Linksdrall / Rechtsschneidend
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen
  - über Ø3,75 mm : Zentrierung



Hole type

D1=D2

HSS | DIN 206 | H7 | LH7° | Bright

Recommended ToolHolder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Reamer Diameter D	Flute Length L1	Overall Length L2	No. of Flute
K115300200	2.0	25	50	4
K115300220	2.2	27	54	4
K115300250	2.5	29	58	4
K115300280	2.8	31	62	4
K115300300	3.0	31	62	6
K115300320	3.2	33	66	6
K115300350	3.5	35	71	6
K115300400	4.0	38	76	6
K115300450	4.5	41	81	6
K115300500	5.0	44	87	6
K115300550	5.5	47	93	6
K115300600	6.0	47	93	6
K115300700	7.0	54	107	6
K115300800	8.0	58	115	6
K115300900	9.0	62	124	6
K115301000	10.0	66	133	6
K115301100	11.0	71	142	6
K115301200	12.0	76	152	6
K115301300	13.0	76	152	6
K115301400	14.0	81	163	8
K115301500	15.0	81	163	8
K115301600	16.0	87	175	8
K115301700	17.0	87	175	8
K115301800	18.0	93	188	8
K115301900	19.0	93	188	8
K115302000	20.0	100	201	8
K115302200	22.0	107	215	8
K115302400	24.0	115	231	8

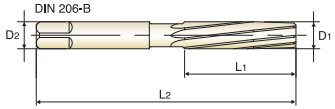
▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○				○														

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S
K SERIES
HSS, HAND REAMERS - LH SPIRAL FLUTES
HSS, HAND REAMERS - LH SPIRAL FLUTES
ALÉSOIRS HSS À MAIN - HÉLICE À GAUCHE
ALESATORI A MANO IN HSS - ELICA SINISTRA
▶ O.D. Tolerances : DIN 1420, H7
▶ Shank Diameter ≒ Nominal Reamer Diameter
▶ LH Spiral Flutes / Right Hand Cut
▶ Chamfer Angle- tapered
▶ Type of center - Up to Ø3.75 : external centers
- Over Ø3.75 : internal centers
▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
▶ Schaft-Ø = Nomineller Reibahlen-Ø
▶ Geradegenutet / Rechtsschneidend
▶ Anschnittwinkel - Konisch
▶ Zentrierungsart - bis Ø3,75 mm : Zentrierungszapfen
- über Ø3,75 mm : Zentrierung



Hole type

D1=D2
HSS | DIN 206 | H7 | LH7° | Bright
Recommended ToolHolder | Plain Shank | Page | ER COLLET CHUCK | D73-115
Unit : mm

EDP No.	Reamer Diameter D	Flute Length L1	Overall Length L2	No. of Flute
K115302500	25.0	115	231	8
K115302600	26.0	115	231	8
K115302700	27.0	124	247	10
K115302800	28.0	124	247	10
K115302900	29.0	124	247	10
K115303000	30.0	124	247	10
K115303100	31.0	133	265	10
K115303200	32.0	133	265	10
K115303300	33.0	133	265	10
K115303400	34.0	142	284	10
K115303500	35.0	142	284	10
K115303600	36.0	142	284	10
K115303700	37.0	142	284	10
K115303800	38.0	152	305	10
K115303810	38.1	152	305	10
K115303900	39.0	152	305	10
K115304000	40.0	152	305	10
K115304100	41.0	152	305	12
K115304200	42.0	152	305	12
K115304300	43.0	163	326	12
K115304400	44.0	163	326	12
K115304500	45.0	163	326	12
K115304600	46.0	163	326	12
K115304700	47.0	163	326	12
K115304800	48.0	174	347	12
K115304900	49.0	174	347	12
K115305200	52.0	174	347	12
K115306000	60.0	184	367	12

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○				○														

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S

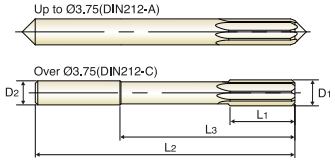
K 0 SERIES

HSS-E, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTES

HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - GERADEGENUTET
ALÉSOIRS HSS-E MACHINE DROIT- ENTRÉE DROITE
ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA DRITTA

- O.D. Tolerances : DIN 1420 for H7
- Shank Diameter Tolerances : h8
- Straight Flute / Right Hand Cut
- Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°

- Schneiden-Ø Toleranzen : DIN 1420 für H7
- Schaft-Ø Toleranzen : h8
- Geradegenutet / Rechtsschneidend
- Anschnittwinkel - bis Ø3,75 mm : 15°
  - über Ø3,75 mm : 45°



Hole type

HSS-E | DIN 212 | H7 | 15° (up to Ø3.75) | 45° (over Ø3.75) | Bright | p.A406

Recommended ToolHolder: ER COLLET CHUCK — Plain Shank D73-115 — Page

Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Cutting Length L1	Neck Length L3	Overall Length L2	No. of Flute
K210100200	2.0	2	11	-	49	4
K210100220	2.2	2.2	12	-	53	4
K210100250	2.5	2.5	14	-	57	4
K210100260	2.6	2.6	14	-	57	4
K210100280	2.8	2.8	15	-	61	4
K210100300	3.0	3	15	-	61	6
K210100310	3.1	3.1	16	-	65	6
K210100320	3.2	3.2	16	-	65	6
K210100350	3.5	3.5	18	-	70	6
K210100360	3.6	3.6	18	-	70	6
K210100370	3.7	3.7	18	-	70	6
K210100400	4.0	4	19	42	75	6
K210100430	4.3	4.5	21	46	80	6
K210100450	4.5	4.5	21	46	80	6
K210100460	4.6	4.5	21	46	80	6
K210100500	5.0	5	23	51	86	6
K210100550	5.5	5.6	26	56	93	6
K210100560	5.6	5.6	26	56	93	6
K210100600	6.0	5.6	26	56	93	6
K210100650	6.5	6.3	28	62	101	6
K210100700	7.0	7.1	31	68	109	6
K210100720	7.2	7.1	31	68	109	6
K210100800	8.0	8	33	74	117	6
K210100830	8.3	8	33	74	117	6
K210100850	8.5	8	33	74	117	6
K210100900	9.0	9	36	80	125	6

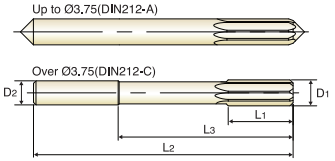
▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S
K 0 SERIES
HSS-E, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTES
HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - GERADEGENUTET
ALÉSOIRS HSS-E MACHINE DROIT- ENTRÉE DROITE
ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA DRITTA
- O.D. Tolerances : DIN 1420 for H7
- Shank Diameter Tolerances : h8
- Straight Flute / Right Hand Cut
- Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°
- Schneiden-Ø Toleranzen : DIN 1420 für H7
- Schaft-Ø Toleranzen : h8
- Geradegenutet / Rechtsschneidend
- Anschnittwinkel - bis Ø3,75 mm : 15°
  - über Ø3,75 mm : 45°



Hole type

HSS-E | DIN 212 | H7 | 15° (up to Ø3.75) | 45° (over Ø3.75) | Bright | p.A406
Recommended ToolHolder: ER COLLET CHUCK — Plain Shank D73-115 — Page
Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Cutting Length L1	Neck Length L3	Overall Length L2	No. of Flute
K210100950	9.5	9	36	80	125	6
K210101000	10.0	10	38	86	133	6
K210101050	10.5	10	38	86	133	6
K210101100	11.0	10	41	95	142	6
K210101200	12.0	10	44	104	151	6
K210101300	13.0	10	44	104	151	6
K210101400	14.0	12.5	47	108	160	8
K210101500	15.0	12.5	50	110	162	8
K210101600	16.0	12.5	52	118	170	8
K210101700	17.0	14	54	121	175	8
K210101800	18.0	14	56	128	182	8
K210101900	19.0	16	58	129	189	8
K210102000	20.0	16	60	135	195	8

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

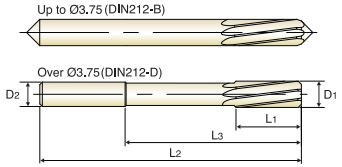
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

HSS-E, STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES

HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRALL
ALÉSOIRS HSS-E MACHINE DROIT- HÉLICE À GAUCHE
ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA SINISTRA

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø Toleranzen : h8
- ▶ Spiralgenutet mit Linksdrall / Rechtsschneidend
- ▶ Anschnittwinkel - bis Ø3,75 mm : 15°
  - über Ø3,75 mm : 45°



Hole type

HSS-E | DIN 212 | H7 | LH7° | 15° (up to Ø3.75) | 45° (over Ø3.75) | Bright | p.A406

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Cutting Length L1	Neck Length L3	Overall Length L2	No. of Flute
K211100200	2.0	2	11	-	49	4
K211100220	2.2	2.2	12	-	53	4
K211100250	2.5	2.5	14	-	57	4
K211100260	2.6	2.6	14	-	57	4
K211100280	2.8	2.8	15	-	61	4
K211100300	3.0	3	15	-	61	6
K211100310	3.1	3.1	16	-	65	6
K211100320	3.2	3.2	16	-	65	6
K211100350	3.5	3.5	18	-	70	6
K211100360	3.6	3.6	18	-	70	6
K211100370	3.7	3.7	18	-	70	6
K211100400	4.0	4	19	42	75	6
K211100430	4.3	4.5	21	46	80	6
K211100450	4.5	4.5	21	46	80	6
K211100460	4.6	4.5	21	46	80	6
K211100500	5.0	5	23	51	86	6
K211100550	5.5	5.6	26	56	93	6
K211100560	5.6	5.6	26	56	93	6
K211100600	6.0	5.6	26	56	93	6
K211100650	6.5	6.3	28	62	101	6
K211100700	7.0	7.1	31	68	109	6
K211100720	7.2	7.1	31	68	109	6
K211100800	8.0	8	33	74	117	6
K211100830	8.3	8	33	74	117	6

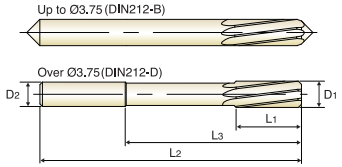
▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S
K SERIES
HSS-E, STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES
HSS-E, MASCHINENREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRALL
ALÉSOIRS HSS-E MACHINE DROIT- HÉLICE À GAUCHE
ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA SINISTRA
▶ O.D. Tolerances : DIN 1420 for H7
▶ Shank Diameter Tolerances : h8
▶ LH Spiral Flutes / Right Hand Cut
▶ Chamfer Angle - Up to Ø3.75 : 15°
- Over Ø3.75 : 45°
▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
▶ Schaft-Ø Toleranzen : h8
▶ Spiralgenutet mit Linksdrall / Rechtsschneidend
▶ Anschnittwinkel - bis Ø3,75 mm : 15°
- über Ø3,75 mm : 45°



Hole type

HSS-E | DIN 212 | H7 | LH7° | 15° (up to Ø3.75) | 45° (over Ø3.75) | Bright | p.A406

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Cutting Length L1	Neck Length L3	Overall Length L2	No. of Flute
K211100850	8.5	8	33	74	117	6
K211100900	9.0	9	36	80	125	6
K211100950	9.5	9	36	80	125	6
K211101000	10.0	10	38	86	133	6
K211101050	10.5	10	38	86	133	6
K211101100	11.0	10	41	95	142	6
K211101200	12.0	10	44	104	151	6
K211101300	13.0	10	44	104	151	6
K211101400	14.0	12.5	47	108	160	8
K211101500	15.0	12.5	50	110	162	8
K211101600	16.0	12.5	52	118	170	8
K211101700	17.0	14	54	121	175	8
K211101800	18.0	14	56	128	182	8
K211101900	19.0	16	58	129	189	8
K211102000	20.0	16	60	135	195	8

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S

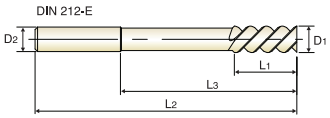
K SERIES

HSS-E, STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES (QUICK SPIRAL)

HSS-E, MASCHINEN - SCHÄLREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRAL
ALÉSOIRS HSS-E MACHINE DROIT- HÉLICE À GAUCHE (HÉLICE RAPIDE)
ALESATORI IN HSS-E, ATTACCO CILINDRICO - ELICA RAPIDA, SINISTRA

- O.D. Tolerances : DIN 1420 for H7
- Shank Diameter Tolerances : h8
- Chamfer Angle - tapered
- LH High Spiral Flutes / Right Hand Cut

- Schneiden-Ø Toleranzen : DIN 1420 für H7
- Schaft-Ø Toleranzen : h8
- Anschnittwinkel - Konisch
- Spiralgenutet mit Linksdrall / Rechtsschneidend



Hole type

HSS-E | DIN 212 | H7 | LH45° | FORM E | Bright P.A406

Recommended ToolHolder: ER COLLET CHUCK — Plain Shank D73-115

Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Cutting Length L1	Neck Length L3	Overall Length L2	No. of Flute
K212100400	4.0	4	19	42	75	3
K212100450	4.5	4.5	21	46	80	3
K212100500	5.0	5	23	51	86	3
K212100550	5.5	5.6	26	56	93	3
K212100600	6.0	5.6	26	56	93	3
K212100650	6.5	6.3	28	62	101	3
K212100700	7.0	7.1	31	68	109	3
K212100800	8.0	8	33	74	117	3
K212100850	8.5	8	33	74	117	3
K212100900	9.0	9	36	80	125	3
K212100950	9.5	9	36	80	125	3
K212101000	10.0	10	38	86	133	3
K212101100	11.0	10	41	95	142	3
K212101200	12.0	10	44	104	151	3
K212101300	13.0	10	44	104	151	3
K212101400	14.0	12.5	47	108	160	4
K212101500	15.0	12.5	50	110	162	4
K212101600	16.0	12.5	52	118	170	4
K212101700	17.0	14	54	121	175	4
K212101800	18.0	14	56	128	182	4
K212101900	19.0	16	58	129	189	4
K212102000	20.0	16	60	135	195	4

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○				○														

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎		◎	◎	◎													

EAME S

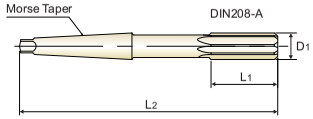
K 0 SERIES

HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - STRAIGHT FLUTES

HSS-E, MASCHINENREIBAHLE mit MK - GERADEGENUTET
ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - ENTRÉE DROITE
ALESATORI IN HSS-E, ATTACCO CONICO - TAGLIENTI DRITTI

- O.D. Tolerances : DIN 1420 for H7
- Straight Flute / Right Hand Cut
- Chamfer Angle : 45°

- Schneiden-Ø Toleranzen : DIN 1420 für H7
- Geradegenutet / Rechtsschneidend
- Anschnittwinkel : 45°



Hole type

HSS-E | DIN 208 | H7 | 45° | Bright p.A406

Recommended ToolHolder: ER COLLET CHUCK — Plain Shank D73-115

Unit : mm

EDP No.	Reamer Diameter D1	No. of Morse Taper	Cutting Length L1	Overall Length L2	No. of Flute
K210201000	10.0	1	38	168	6
K210201100	11.0	1	41	175	6
K210201200	12.0	1	44	182	6
K210201300	13.0	1	44	182	6
K210201400	14.0	1	47	189	8
K210201500	15.0	2	50	204	8
K210201600	16.0	2	52	210	8
K210201700	17.0	2	54	214	8
K210201800	18.0	2	56	219	8
K210201900	19.0	2	58	223	8
K210202000	20.0	2	60	228	8
K210202100	21.0	2	62	232	8
K210202200	22.0	2	64	237	8
K210202300	23.0	2	66	241	8
K210202400	24.0	3	68	268	8
K210202500	25.0	3	68	268	8
K210202600	26.0	3	70	273	8
K210202700	27.0	3	71	277	10
K210202800	28.0	3	71	277	10
K210202900	29.0	3	73	281	10
K210203000	30.0	3	73	281	10
K210203100	31.0	3	75	285	10
K210203200	32.0	4	77	317	10
K210203400	34.0	4	78	321	10
K210203500	35.0	4	78	321	10
K210203600	36.0	4	79	325	10

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

EAME S

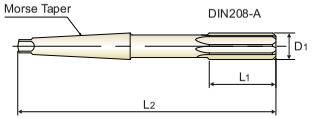
K 0 SERIES

HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - STRAIGHT FLUTES

HSS-E, MASCHINENREIBAHLE mit MK - GERADEGENUTET
ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - ENTRÉE DROITE
ALESATORI IN HSS-E, ATTACCO CONICO - TAGLIENTI DRITTI

- O.D. Tolerances : DIN 1420 for H7
- Straight Flute / Right Hand Cut
- Chamfer Angle : 45°

- Schneiden-Ø Toleranzen : DIN 1420 für H7
- Geradegenutet / Rechtsschneidend
- Anschnittwinkel : 45°



Hole type

HSS-E | DIN 208 | H7 | 45° | Bright p.A406

Recommended ToolHolder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Reamer Diameter D1	No. of Morse Taper	Cutting Length L1	Overall Length L2	No. of Flute
K210203800	38.0	4	81	329	10
K210204000	40.0	4	81	329	10
K210204100	41.0	4	82	333	12
K210204200	42.0	4	82	333	12
K210204300	43.0	4	83	336	12
K210204400	44.0	4	83	336	12
K210204500	45.0	4	83	336	12
K210204600	46.0	4	84	340	12
K210204700	47.0	4	84	340	12
K210204800	48.0	4	86	344	12
K210205000	50.0	4	86	344	12

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S

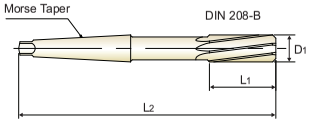
K SERIES

HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - LH SPIRAL FLUTES

HSS-E, MASCHINENREIBAHLE mit MK - SPIRALGENUTET mit LINKSDRALL
ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - HÉLICE À GAUCHE
ALESATORI IN HSS-E, ATTACCO CONICO - ELICA SINISTRA

- O.D. Tolerances : DIN 1420 for H7
- LH Spiral Flutes / Right Hand Cut
- Chamfer Angle : 45°

- Schneiden-Ø Toleranzen : DIN 1420 für H7
- Spiralgenutet mit Linksdrall / Rechtsschneidend
- Anschnittwinkel : 45°



Hole type

HSS-E | DIN 208 | H7 | LH7° | 45° | Bright p.A406

Recommended ToolHolder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

Unit : mm

EDP No.	Reamer Diameter D1	No. of Morse Taper	Cutting Length L1	Overall Length L2	No. of Flute
K211201000	10.0	1	38	168	6
K211201100	11.0	1	41	175	6
K211201200	12.0	1	44	182	6
K211201300	13.0	1	44	182	6
K211201400	14.0	1	47	189	8
K211201500	15.0	2	50	204	8
K211201600	16.0	2	52	210	8
K211201700	17.0	2	54	214	8
K211201800	18.0	2	56	219	8
K211201900	19.0	2	58	223	8
K211202000	20.0	2	60	228	8
K211202100	21.0	2	62	232	8
K211202200	22.0	2	64	237	8
K211202300	23.0	2	66	241	8
K211202400	24.0	3	68	268	8
K211202500	25.0	3	68	268	8
K211202600	26.0	3	70	273	8
K211202700	27.0	3	71	277	10
K211202800	28.0	3	71	277	10
K211202900	29.0	3	73	281	10
K211203000	30.0	3	73	281	10
K211203100	31.0	3	75	285	10
K211203200	32.0	4	77	317	10
K211203400	34.0	4	78	321	10
K211203500	35.0	4	78	321	10
K211203600	36.0	4	79	325	10

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

EAME S

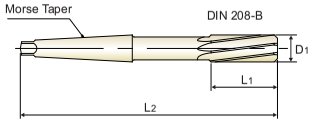
K SERIES

HSS-E, MORSE TAPER SHANK CHUCKING REAMERS - LH SPIRAL FLUTES

HSS-E, MASCHINENREIBAHLE mit MK - SPIRALGENUTET mit LINKSDRALL
ALÉSOIRS HSS-E MACHINE QUEUE CONIQUE - HÉLICE À GAUCHE
ALESATORI IN HSS-E, ATTACCO CONICO - ELICA SINISTRA

- O.D. Tolerances : DIN 1420 for H7
- LH Spiral Flutes / Right Hand Cut
- Chamfer Angle : 45°

- Schneiden-Ø Toleranzen : DIN 1420 für H7
- Spiralgenutet mit Linksdrall / Rechtsschneidend
- Anschnittwinkel : 45°



Hole type

HSS-E | DIN 208 | H7 | LH7° | 45° | Bright

p.A406

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Reamer Diameter D1	No. of Morse Taper	Cutting Length L1	Overall Length L2	No. of Flute
K211203800	38.0	4	81	329	10
K211204000	40.0	4	81	329	10
K211204100	41.0	4	82	333	12
K211204200	42.0	4	82	333	12
K211204300	43.0	4	83	336	12
K211204400	44.0	4	83	336	12
K211204500	45.0	4	83	336	12
K211204600	46.0	4	84	340	12
K211204700	47.0	4	84	340	12
K211204800	48.0	4	86	344	12
K211205000	50.0	4	86	344	12

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S

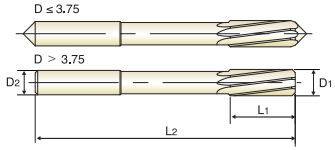
K SERIES

HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø

HSS-E, NC-MASCHINENREIBAHLEN mit GERADZAHLIGEN SCHAFT Ø
ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- O.D. Tolerances
  Whole-number Ø and 1/10 size : DIN 1420 for H7
  1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm
  from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- Shank Diameter Tolerances : h6
- LH Spiral Flutes / Right Hand Cut
- Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°

- Ø Toleranzen:
  ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7
  1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm
  von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- Schaft-Durchmesser Toleranzen : h6
- linksspiralig/ rechtsscheidend
- Anschnittwinkel - bis Ø3,75 : 15°
  - über Ø3,75 : 45°



Hole type

HSS-E | H7 | LH7° | 15° (up to Ø3.75) | 45° (over Ø3.75) | Bright

p.A406

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Reamer Diameter D1	Shank Diameter D2	Flute Length L1	Overall Length L2
K21B100200	2.0	2	11	49
K21B100201	2.01	2	11	49
K21B100202	2.02	2	11	49
K21B100203	2.03	2	11	49
K21B100210	2.1	2	11	49
K21B100220	2.2	3	12	53
K21B100230	2.3	3	12	53
K21B100240	2.4	3	14	57
K21B100247	2.47	3	14	57
K21B100248	2.48	3	14	57
K21B100249	2.49	3	14	57
K21B100250	2.5	3	14	57
K21B100251	2.51	3	14	57
K21B100252	2.52	3	14	57
K21B100253	2.53	3	14	57
K21B100260	2.6	3	14	57
K21B100270	2.7	3	15	61
K21B100280	2.8	3	15	61
K21B100290	2.9	3	15	61
K21B100297	2.97	3	15	61
K21B100298	2.98	3	15	61
K21B100299	2.99	3	15	61
K21B100300	3.0	3	15	61
K21B100301	3.01	4	16	65

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S

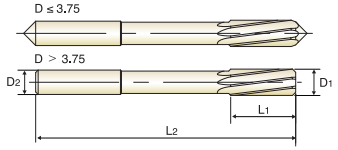
K SERIES

HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø

HSS-E, NC-MASCHINENREIBAHLEN mit GERADZAHLIGEN SCHAFT Ø
ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- O.D. Tolerances
  Whole-number Ø and 1/10 size : DIN 1420 for H7
  1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm
  from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- Shank Diameter Tolerances : h6
- LH Spiral Flutes / Right Hand Cut
- Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°

- Ø Toleranzen:
  ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7
  1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm
  von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- Schaft-Durchmesser Toleranzen : h6
- linksspiralig/ rechtsscheidend
- Anschnittwinkel - bis Ø3,75 : 15°
  - über Ø3,75 : 45°



Hole type

HSS-E | H7 | LH7° | 15° | 45° | Bright

up to Ø3.75 over Ø3.75

p.A406

Recommended ToolHolder	Plain Shank	Page
ER COLLET CHUCK		D73-115

Unit : mm

EDP No.	Reamer Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
K21B100302	3.02	4	16	65
K21B100303	3.03	4	16	65
K21B100310	3.1	4	16	65
K21B100320	3.2	4	16	65
K21B100330	3.3	4	16	65
K21B100340	3.4	4	18	70
K21B100350	3.5	4	18	70
K21B100360	3.6	4	18	70
K21B100370	3.7	4	18	70
K21B100380	3.8	4	19	75
K21B100390	3.9	4	19	75
K21B100397	3.97	4	19	75
K21B100398	3.98	4	19	75
K21B100399	3.99	4	19	75
K21B100400	4.0	4	19	75
K21B100401	4.01	4	19	75
K21B100402	4.02	4	19	75
K21B100403	4.03	4	19	75
K21B100410	4.1	4	19	75
K21B100420	4.2	4	19	75
K21B100430	4.3	5	21	80
K21B100440	4.4	5	21	80
K21B100450	4.5	5	21	80
K21B100460	4.6	5	21	80

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◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S
K SERIES
HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø
HSS-E, NC-MASCHINENREIBAHLEN mit GERADZAHLIGEN SCHAFT Ø
ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI
O.D. Tolerances
Whole-number Ø and 1/10 size : DIN 1420 for H7
1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm
from Ø5.97 to Ø12.03 : +0.005/-0.000mm
Shank Diameter Tolerances : h6
LH Spiral Flutes / Right Hand Cut
Chamfer Angle - Up to Ø3.75 : 15°
- Over Ø3.75 : 45°
Ø Toleranzen:
ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7
1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm
von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
Schaft-Durchmesser Toleranzen : h6
linksspiralig/ rechtsscheidend
Anschnittwinkel - bis Ø3,75 : 15°
- über Ø3,75 : 45°
Hole type
HSS-E | H7 | LH7° | 15° | 45° | Bright
up to Ø3.75 over Ø3.75
p.A406
Recommended ToolHolder | Plain Shank | Page
ER COLLET CHUCK | | D73-115
Unit : mm

EDP No.	Reamer Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
K21B100470	4.7	5	21	80
K21B100480	4.8	5	23	86
K21B100490	4.9	5	23	86
K21B100497	4.97	5	23	86
K21B100498	4.98	5	23	86
K21B100499	4.99	5	23	86
K21B100500	5.0	5	23	86
K21B100501	5.01	5	23	86
K21B100502	5.02	5	23	86
K21B100503	5.03	5	23	86
K21B100510	5.1	5	23	86
K21B100520	5.2	5	23	86
K21B100530	5.3	5	23	86
K21B100540	5.4	6	26	93
K21B100550	5.5	6	26	93
K21B100560	5.6	6	26	93
K21B100570	5.7	6	26	93
K21B100580	5.8	6	26	93
K21B100590	5.9	6	26	93
K21B100597	5.97	6	26	93
K21B100598	5.98	6	26	93
K21B100599	5.99	6	26	93
K21B100600	6.0	6	26	93
K21B100601	6.01	6	28	101

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

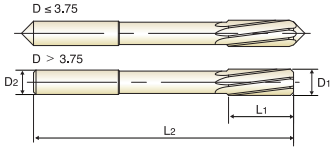
YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø

HSS-E, NC-MASCHINENREIBAHLEN mit GERADZAHLIGEN SCHAFT Ø
ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- O.D. Tolerances
  Whole-number Ø and 1/10 size : DIN 1420 for H7
  1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm
  from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- Shank Diameter Tolerances : h6
- LH Spiral Flutes / Right Hand Cut
- Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°

- Ø Toleranzen:
  ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7
  1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm
  von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- Schaft-Durchmesser Toleranzen : h6
- linksspiralig/ rechtsscheidend
- Anschnittwinkel - bis Ø3,75 : 15°
  - über Ø3,75 : 45°



Hole type

HSS-E | H7 | LH7° | 15° | 45° | Bright

up to Ø3.75 over Ø3.75

p.A406

Recommended ToolHolder	Plain Shank	Page
ER COLLET CHUCK	D73-115	

Unit : mm

EDP No.	Reamer Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
K21B100602	6.02	6	28	101
K21B100603	6.03	6	28	101
K21B100610	6.1	6	28	101
K21B100620	6.2	6	28	101
K21B100630	6.3	6	28	101
K21B100640	6.4	6	28	101
K21B100650	6.5	6	28	101
K21B100660	6.6	6	28	101
K21B100670	6.7	6	28	101
K21B100680	6.8	8	31	109
K21B100690	6.9	8	31	109
K21B100700	7.0	8	31	109
K21B100710	7.1	8	31	109
K21B100720	7.2	8	31	109
K21B100730	7.3	8	31	109
K21B100740	7.4	8	31	109
K21B100750	7.5	8	31	109
K21B100760	7.6	8	33	117
K21B100770	7.7	8	33	117
K21B100780	7.8	8	33	117
K21B100790	7.9	8	33	117
K21B100797	7.97	8	33	117
K21B100798	7.98	8	33	117
K21B100799	7.99	8	33	117

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

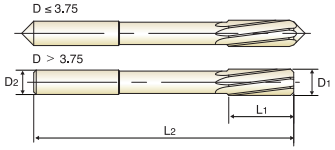
EAME S
K SERIES

HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø

HSS-E, NC-MASCHINENREIBAHLEN mit GERADZAHLIGEN SCHAFT Ø
ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- O.D. Tolerances
  Whole-number Ø and 1/10 size : DIN 1420 for H7
  1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm
  from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- Shank Diameter Tolerances : h6
- LH Spiral Flutes / Right Hand Cut
- Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°

- Ø Toleranzen:
  ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7
  1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm
  von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- Schaft-Durchmesser Toleranzen : h6
- linksspiralig/ rechtsscheidend
- Anschnittwinkel - bis Ø3,75 : 15°
  - über Ø3,75 : 45°



Hole type

HSS-E | H7 | LH7° | 15° | 45° | Bright

up to Ø3.75 over Ø3.75

p.A406

Recommended ToolHolder	Plain Shank	Page
ER COLLET CHUCK	D73-115	

Unit : mm

EDP No.	Reamer Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
K21B100800	8.0	8	33	117
K21B100801	8.01	8	33	117
K21B100802	8.02	8	33	117
K21B100803	8.03	8	33	117
K21B100810	8.1	8	33	117
K21B100820	8.2	8	33	117
K21B100830	8.3	8	33	117
K21B100840	8.4	8	33	117
K21B100850	8.5	8	33	117
K21B100860	8.6	10	36	125
K21B100870	8.7	10	36	125
K21B100880	8.8	10	36	125
K21B100890	8.9	10	36	125
K21B100900	9.0	10	36	125
K21B100901	9.01	10	36	125
K21B100902	9.02	10	36	125
K21B100903	9.03	10	36	125
K21B100910	9.1	10	36	125
K21B100920	9.2	10	36	125
K21B100930	9.3	10	36	125
K21B100940	9.4	10	36	125
K21B100950	9.5	10	36	125
K21B100960	9.6	10	38	133
K21B100970	9.7	10	38	133

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

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TECHNICAL DATA

EAME S

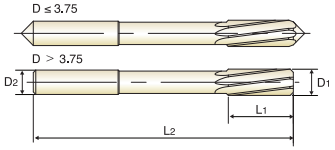
K SERIES

HSS-E, NC MACHINE REAMERS WITH WHOLE-NUMBER SHANK Ø

HSS-E, NC-MASCHINENREIBAHLEN mit GERADZAHLIGEN SCHAFT Ø
ALÉSOIRS HSS-E MACHINE CN AVEC DIFFÉRENTES TOLÉRANCES DE QUEUE
ALESATORI A MACCHINA IN HSS-E CON GAMMA Ø NOMINALI

- O.D. Tolerances
  Whole-number Ø and 1/10 size : DIN 1420 for H7
  1/100 size : from Ø2.01 to Ø5.03 : +0.004/-0.000mm
  from Ø5.97 to Ø12.03 : +0.005/-0.000mm
- Shank Diameter Tolerances : h6
- LH Spiral Flutes / Right Hand Cut
- Chamfer Angle - Up to Ø3.75 : 15°
  - Over Ø3.75 : 45°

- Ø Toleranzen:
  ganzzahlige Ø und 1/10 Größen : DIN 1420 für H7
  1/100 Größen : ab Ø2,01 bis Ø5,03 : +0.004/-0.000mm
  von Ø5,97 bis Ø12,03 : +0.005/-0.000mm
- Schaft-Durchmesser Toleranzen : h6
- linksspiralig/ rechtsscheidend
- Anschnittwinkel - bis Ø3,75 : 15°
  - über Ø3,75 : 45°



Hole type

HSS-E | H7 | LH7° | 15° | 45° | Bright | p.A406

up to Ø3.75 over Ø3.75

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No.	Reamer Diameter D_1	Shank Diameter D_2	Flute Length L_1	Overall Length L_2
K21B100980	9.8	10	38	133
K21B100990	9.9	10	38	133
K21B100997	9.97	10	38	133
K21B100998	9.98	10	38	133
K21B100999	9.99	10	38	133
K21B101000	10.0	10	38	133
K21B101001	10.01	10	38	133
K21B101002	10.02	10	38	133
K21B101003	10.03	10	38	133
K21B101100	11.0	10	41	142
K21B101197	11.97	10	41	151
K21B101198	11.98	10	41	151
K21B101199	11.99	10	41	151
K21B101200	12.0	10	44	151
K21B101201	12.01	10	44	151
K21B101202	12.02	10	44	151
K21B101203	12.03	10	44	151
K21B101300	13.0	10	44	151
K21B101400	14.0	14	47	160
K21B101500	15.0	14	50	162
K21B101600	16.0	14	52	170
K21B101700	17.0	14	54	175
K21B101800	18.0	14	56	182
K21B101900	19.0	16	58	189
K21B102000	20.0	16	60	195

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		◎	○			○		○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○		○	○	○													

EAME S

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

K 0 K SERIES

CARBIDE, NC MACHINE REAMERS

Vc = m/min
FEED = mm/rev

ISO	VDI 3323	Material Description	Vc	Feed 2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1	Non-alloy steel	18	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	2		17	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	3		15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	4		15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	5		15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	6	Low alloy steel	17	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	7		14	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	8		14	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	10	High alloyed steel, and tool steel	13	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
M	12	Stainless steel	8	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	13		7	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	14		6	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
K	15	Grey cast iron	20	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	16		15	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	17	Nodular cast iron	18	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	18		13	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	19	Malleable cast iron	18	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.20-0.24	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	20		13	0.08-0.10	0.10-0.12	0.12-0.16	0.16-0.20	0.2-0.240	0.24-0.28	0.28-0.32	0.32-0.36	0.36-0.40
N	21	Aluminum-wrought alloy	30	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50
	22		30	0.1-0.130	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50
	23	Aluminum-cast, alloyed	30	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50
	24		25	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50
	26	Copper and Copper Alloys (Bronze / Brass)	25	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50
	27		22	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50
	28		23	0.10-0.13	0.13-0.16	0.16-0.20	0.20-0.25	0.25-0.30	0.30-0.35	0.35-0.40	0.40-0.45	0.45-0.50

EAME S

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

K 0 K K / K 0 K SERIES — HSS-E, STRAIGHT & LH SPIRAL FLUTE CHUCKING REAMERS / HSS-E, NC MACHINE REAMERS

RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed 2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0	45.0	50.0
P	1	Non-alloy steel	14	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
	2		14	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
	3		10	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	4		8	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	6	Low alloy steel	12	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	7		8	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	10	High alloyed steel, and tool steel	6	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
M	12	Stainless steel	6	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
	13		5	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
	14		4	0.03-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20	0.20-0.22	0.22-0.24	0.24-0.26	0.26-0.28	0.28-0.30
K	15	Grey cast iron	14	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
	16		11	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	17	Nodular cast iron	12	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
	18		10	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
	19	Malleable cast iron	12	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.32	0.32-0.35	0.35-0.38	0.38-0.41	0.41-0.44	0.44-0.47	0.47-0.50
	20		10	0.05-0.07	0.07-0.09	0.09-0.11	0.11-0.13	0.13-0.15	0.15-0.17	0.17-0.19	0.19-0.21	0.21-0.23	0.23-0.25	0.25-0.27	0.27-0.29	0.29-0.31	0.31-0.34	0.34-0.37	0.37-0.40
N	21	Aluminum-wrought alloy	18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	22		18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	23	Aluminum-cast, alloyed	18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	24		17	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	26	Copper and Copper Alloys (Bronze / Brass)	18	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	27		16	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60
	28		20	0.10-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37	0.37-0.40	0.40-0.43	0.43-0.46	0.46-0.49	0.49-0.52	0.52-0.56	0.56-0.60

K SERIES — HSS-E, CHUCKING REAMERS - QUICK SPIRAL

ISO	VDI 3323	Material Description	Vc	Feed 2.0	4.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1	Non-alloy steel	18	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	2		16	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32	0.32-0.36	0.36-0.40
	6	Low alloy steel	14	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
N	21	Aluminum-wrought alloy	20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	22		20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	23	Aluminum-cast, alloyed	20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	24		18	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	26	Copper and Copper Alloys (Bronze / Brass)	19	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	27		18	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60
	28		20	0.15-0.20	0.20-0.25	0.25-0.30	0.30-0.36	0.36-0.42	0.42-0.48	0.48-0.54	0.54-0.60

O NTERSINKS

SENKER

- For Deburring, Chamfering and Countersinking
- Zum Entgraten, Anfasen und Senken

SELE TION G IDE

HOLEMAKING TOOLS

HSS & HSSCo8
O NTERSINKS

For Deburring, Chamfering and Countersinking

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A415

SERIES	C1109 C3109	C1119 C3119	C1136 C3136	C1139 C3139	C1132 C3132
STANDARD	-	-	DIN334C	DIN335C	-
POINT ANGLE	90°	90°	60°	90°	120°
SIZE MIN	D10.0	D10.0	D6.3	D4.3	D8.0
SIZE MAX	D50.0	D50.0	D25.0	D31.0	D25.0
PAGE	A410	A411	A412	A413	A414
SURFACE TREATMENT	Bright		Bright		

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	C1109 C3109	C1119 C3119	C1136 C3136	C1139 C3139	C1132 C3132	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	◎	◎	◎	1
	2		About 0.45% C	Annealed	190	13	○	○	◎	◎	◎	2
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○	○	○	3
	4		About 0.75% C	Annealed	270	28	○	○	○	○	○	4
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	○	5
	6	Low alloy steel		Annealed	180	10						6
	7			Quenched & Tempered	275	29						7
	8			Quenched & Tempered	300	32						8
	9			Quenched & Tempered	350	38						9
	10	High alloyed steel, and tool steel		Annealed	200	15						10
	11			Quenched & Tempered	325	35						11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○	○	12
	13		Martensitic	Quenched & Tempered	240	23	○	○	○	○	○	13
	14		Austenitic		180	10	○	○	○	○	○	14
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	◎	◎	◎	15
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	○	16
	17	Nodular cast iron	Ferritic		160	3	○	○	○	○	○	17
	18		Pearlitic		250	25	○	○	○	○	○	18
	19	Malleable cast iron	Ferritic		130		○	○	○	○	○	19
	20		Pearlitic		230	21	○	○	○	○	○	20
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	◎	◎	◎	21
	22		Curable	Hardened	100		○	○	○	○	○	22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○	○	23
	24		≤ 12% Si, Curable	Hardened	90		○	○	○	○	○	24
	25		> 12% Si, Not Curable		130		○	○	○	○	○	25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○	○	26
	27		CuZn, CuSnZn (Brass)		90		○	○	○	○	○	27
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○	○	○	28
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic									29
	30		Rubber, Wood, etc.									30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15						31
	32			Cured	280	30						32
	33		Ni or Co Based	Annealed	250	25						33
	34			Cured	350	38						34
	35			Cast	320	34						35
	36	Titanium Alloys	Pure Titanium		400 Rm							36
	37		Alpha + Beta Alloys	Hardened	1050 Rm							37
H	38	Hardened steel		Hardened	550	55						38
	39			Hardened	630	60						39
	40	Chilled Cast Iron		Cast	400	42						40
	41	Hardened Cast Iron		Hardened	550	55						41

COUNTE SINKS

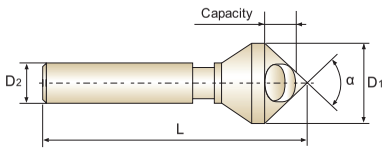
0 SERIES
0 SERIES

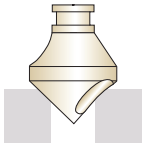
HSS & HSSCo8, DEBURRING TOOL with HOLE

HSS, QUERLOCHSENKER
FRAISE HSS À ÉBAVURER À TROU
SVASATORI CON FORO - HSS

- For light metals and plastics.
- For deburring and small chamfers.
- Best surface finish.
- Works without vibrations.

- Für Leichtmetall und Plastik
- Zum Entgraten und Abfasen
- Bestes Oberflächenfinish
- Arbeitet ohne Vibration





STD Bright p.A415

Recommended ToolHolder	Plain Shank	Page
ER COLLET CHUCK		D73-115

Unit : mm

EDP No. (uncoating) HSSCo8	EDP No. (uncoating) HSS	Point Angle α	Cutter Diameter D_1	Shank Diameter D_2	Overall Length L(±1)	Capacity min/max
C1109100	C3109100	90°	10.0	6	45	2 - 5
C1109150	C3109150	90°	15.0	8	55	6 - 14
C1109200	C3109200	90°	20.0	10	65	8 - 18
C1109250	C3109250	90°	25.0	12	78	10 - 23
C1109300	C3109300	90°	30.0	12	88	12 - 28
C1109350	C3109350	90°	35.0	16	110	14 - 33
C1109400	C3109400	90°	40.0	16	115	16 - 38
C1109450	C3109450	90°	45.0	16	120	18 - 43
C1109500	C3109500	90°	50.0	16	130	20 - 48

▶TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
+0.3/-0	h9	+0/-1

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○							○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○													

COUNTE SINKS

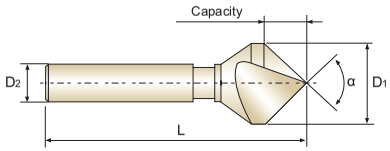
SERIES
SERIES

HSS & HSSCo8, SINGLE FLUTE CHAMFERING CUTTERS

HSS, EINSCHNEIDEN KEGELSENKER
FRAISE HSS À CHANFREINER 1 DENT
SVASATORI MONOTAGLIENTE - HSS

- For wood and hard plastics.
- Can drill in sheet materials.
- Easy to resharp.
- Works without vibrations.

- Für Holz und Hartplastik
- Kann in Bleche bohren
- Leicht nachzuschärfen
- Arbeitet ohne Vibration



STD Bright p.A415

Recommended ToolHolder	Plain Shank	Page
ER COLLET CHUCK		D73-115

Unit : mm

EDP No. (uncoating) HSSCo8	EDP No. (uncoating) HSS	Point Angle α	Cutter Diameter D_1	Shank Diameter D_2	Overall Length L(±1)	Capacity min/max
C1119100	C3119100	90°	10.0	6	45	1 - 10
C1119150	C3119150	90°	15.0	8	55	2 - 15
C1119200	C3119200	90°	20.0	10	65	2 - 20
C1119250	C3119250	90°	25.0	12	78	3 - 25
C1119300	C3119300	90°	30.0	12	88	3 - 30
C1119350	C3119350	90°	35.0	16	110	4 - 35
C1119400	C3119400	90°	40.0	16	115	5 - 40
C1119450	C3119450	90°	45.0	16	120	10 - 45
C1119500	C3119500	90°	50.0	16	130	12 - 50

▶TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
+0.3/-0	h9	+0/-1

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○							○	○	○	○	○	○	○	○	○

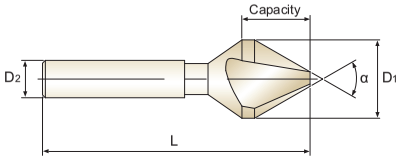
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○													

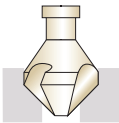
HSS & HSSCo8, THREE FLUTE COUNTERSINKS (60°)

HSS, DREISCHNEIDEN KEGELSENKER (60°)
FRAISE HSS À CHANFREINER 3 DENTS (60°)
SVASATORI A TRE TAGLIENTI - HSS (60°)

- ▶ Self-centering(3 flutes)
- ▶ For deburring, chamfering and countersinking
- ▶ Hand using
- ▶ Longitudinal chamfers and contouring
- ▶ Works without vibrations

- ▶ Selbstzentrierend
- ▶ Besonders geeignet zum 90˚ Ansenken für Senkkopfschrauben
- ▶ Manueller Einsatz möglich
- ▶ Zum Entgraten von Längs- und Profilkanten
- ▶ Arbeitet ohne Vibration





DIN 334 C | Bright | p.A416

Recommended ToolHolder	Plain Shank	Page
ER COLLET CHUCK	D73-115	

Unit : mm

EDP No. (uncoating) HSSCo8	EDP No. (uncoating) HSS	Point Angle α	Cutter Diameter D1	Shank Diameter D2	Overall Length L(±1)	Capacity min/max
C1136063	C3136063	60°	6.3	5	45	1.6~6.3
C1136080	C3136080	60°	8.0	6	50	2.0~8.0
C1136100	C3136100	60°	10.0	6	50	2.5~10.0
C1136125	C3136125	60°	12.5	8	56	3.2~12.5
C1136160	C3136160	60°	16.0	10	63	4.0~16.0
C1136200	C3136200	60°	20.0	10	67	5.0~20.0
C1136250	C3136250	60°	25.0	10	71	6.3~25.0

▶TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(˚)
±0.05	h9	+0/-1

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○							○	○	○	◎	○	○	○	○	○

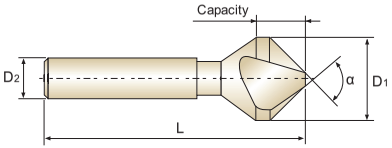
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	○	○	○	○	○	○	○													

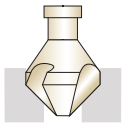
HSS & HSSCo8, THREE FLUTE COUNTERSINKS (90°)

HSS, DREISCHNEIDEN KEGELSENKER (90°)
FRAISE HSS À CHANFREINER 3 DENTS (90°)
SVASATORI A TRE TAGLIENTI - HSS (90°)

- ▶ Self-centering(3 flutes).
- ▶ Designed for 90˚capscrews countersinking.
- ▶ Hand using.
- ▶ Longitudinal chamfers and contouring.
- ▶ Works without vibrations

- ▶ Selbstzentrierend
- ▶ Besonders geeignet zum 90˚ Ansenken für Senkkopfschrauben
- ▶ Manueller Einsatz möglich
- ▶ Zum Entgraten von Längs- und Profilkanten
- ▶ Arbeitet ohne Vibration





DIN 334 C | Bright | p.A416

Recommended ToolHolder	Plain Shank	Page
ER COLLET CHUCK	D73-115	

Unit : mm

EDP No. (uncoating) HSSCo8	EDP No. (uncoating) HSS	Point Angle α	Cutter Diameter D1	Shank Diameter D2	Overall Length L(±1)	Capacity min/max
C1139043	C3139043	90°	4.3	4	40	1.3 - 4.3
C1139050	C3139050	90°	5.0	4	40	1.5 - 5.0
C1139060	C3139060	90°	6.0	5	45	1.5 - 6.0
C1139063	C3139063	90°	6.3	5	45	1.5 - 6.3
C1139070	C3139070	90°	7.0	6	50	1.8 - 7.0
C1139080	C3139080	90°	8.0	6	50	2.0 - 8.0
C1139083	C3139083	90°	8.3	6	50	2.0 - 8.3
C1139100	C3139100	90°	10.0	6	50	2.5 - 10.0
C1139104	C3139104	90°	10.4	6	50	2.5 - 10.4
C1139115	C3139115	90°	11.5	8	56	2.8 - 11.5
C1139124	C3139124	90°	12.4	8	56	2.8 - 12.4
C1139150	C3139150	90°	15.0	10	60	3.2 - 15.0
C1139165	C3139165	90°	16.5	10	60	3.2 - 16.5
C1139190	C3139190	90°	19.0	10	63	3.5 - 19.0
C1139205	C3139205	90°	20.5	10	63	3.5 - 20.5
C1139230	C3139230	90°	23.0	10	67	3.8 - 23.0
C1139250	C3139250	90°	25.0	10	67	3.8 - 25.0
C1139300	C3139300	90°	30.0	12	71	4.2 - 30.0
C1139310	C3139310	90°	31.0	12	71	4.2 - 31.0

▶TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(˚)
±0.05	h9	+0/-1

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○							○	○	○	◎	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	○	○	○	○	○	○	○													

COUNTE SINKS

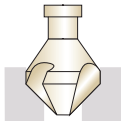
SERIES
SERIES

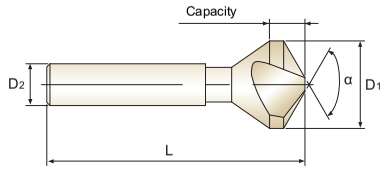
HSS & HSSCo8, THREE FLUTE COUNTERSINKS (120°)

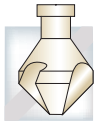
HSS, DREISCHNEIDEN KEGELSENKER (120°)
FRAISE HSS À CHANFREINER 3 DENTS (120°)
SVASATORI A TRE TAGLIENTI - HSS (120°)

- ▶ Self-centering(3 flutes)
- ▶ For deburring, chamfering and countersinking
- ▶ Hand using
- ▶ Longitudinal chamfers and contouring
- ▶ Works without vibrations

- ▶ Selbstzentrierend
- ▶ Zum Entgraten, Abfasen und Senkkopfschrauben
- ▶ Manueller Einsatz möglich
- ▶ Zum Entgraten von Längs- und Profilkanten
- ▶ Arbeitet ohne Vibration







STD Bright p.A416

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

Unit : mm

EDP No. (uncoating) HSSCo8	EDP No. (uncoating) HSS	Point Angle α	Cutter Diameter D_1	Shank Diameter D_2	Overall Length L(±1)	Capacity min/max
C1132080	C3132080	120°	8.0	6	49	2.0~8.0
C1132125	C3132125	120°	12.5	8	54	2.8~12.5
C1132160	C3132160	120°	16.0	10	57	3.2~16.0
C1132200	C3132200	120°	20.0	10	59	3.5~20.0
C1132250	C3132250	120°	25.0	10	65	3.8~25.0

▶TiN & TiCN coating are available on your request.

Cutter Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)	Point Angle Tolerance(°)
±0.05	h9	+0/-1

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○							○	○	○	◎	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	○	○	○	○	○	○	○													

COUNTE SINKS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

0 0 SERIES

DEBURRING TOOL with HOLE 1 FLUTE CHAMFERING CUTTERS

RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed 10.0	15.0	20.0	25.0	30.0	40.0	50.0
P	1	Non-alloy steel	40	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	2		40	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30
	3		25	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27
	4		18	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20
	5		18	0.06-0.08	0.08-0.10	0.10-0.12	0.12-0.14	0.14-0.16	0.16-0.18	0.18-0.20
M	12	Stainless steel	8	0.05-0.07	0.07-0.09	0.07-0.09	0.09-0.11	0.09-0.11	0.11-0.14	0.11-0.14
	13		7	0.05-0.07	0.07-0.09	0.07-0.09	0.09-0.11	0.09-0.11	0.11-0.14	0.11-0.14
	14		6	0.05-0.07	0.07-0.09	0.07-0.09	0.09-0.11	0.09-0.11	0.11-0.14	0.11-0.14
K	15	Grey cast iron	28	0.13-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.34
	16		24	0.12-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33
	17	Nodular cast iron	24	0.13-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.34
	18		20	0.12-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33
	19	Malleable cast iron	24	0.13-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.34
	20		20	0.12-0.14	0.14-0.17	0.17-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33
N	21	Aluminum-wrought alloy	56	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36
	22		56	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36
	23	Aluminum-cast, alloyed	54	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36
	24		52	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36
	25		50	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36
	26	Copper and Copper Alloys (Bronze / Brass)	38	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37
	27		35	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.31	0.31-0.34	0.34-0.37
	28		25	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.30	0.30-0.33	0.33-0.36

COUNTE SINKS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEID A AMETE

6 6 SERIES

3 FLUTE COUNTERSINKS

RPM = rev./min.
FEED = mm/rev.

ISO	VDI 3323	Material Description	Vc	Feed 5.0	10.0	15.0	20.0	25.0	30.0	40.0	50.0
P	1	Non-alloy steel	20	0.12-0.16	0.16-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	0.33-0.37	0.37-0.41
	2		20	0.12-0.16	0.16-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	0.33-0.37	0.37-0.41
	3		13	0.10-0.14	0.14-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.39
	4		10	0.06-0.10	0.10-0.14	0.14-0.17	0.17-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35
	5		10	0.06-0.10	0.10-0.14	0.14-0.17	0.17-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35
M	12	Stainless steel	6	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15
	13		5	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15
	14		4	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15
K	15	Grey cast iron	22	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32
	16		17	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31
	17	Nodular cast iron	17	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32
	18		15	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31
	19	Malleable cast iron	17	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32
	20		15	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31
N	21	Aluminum-wrought alloy	42	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	22		42	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	23	Aluminum-cast, alloyed	39	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	24		37	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42
	25		35	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45
	26	Copper and Copper Alloys (Bronze / Brass)	28	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42
	27		25	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42
	28		15	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42

i-ONE DRILLS
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DREAM DRILLS -GENERAL
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COUNTER SINKS
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TECHNICAL DATA

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr
YG-1 CO., LTD.

O NTER ORES

FLACHSENKER

- For Machining Screw Head Seats
- Zur Herstellung von Schraubenkopfsenkungen

SELE TION G IDE

HOLEMAKING TOOLS

SERIES	EL950		
TYPE	MEDIUM	FINE	BEOFRE THREADING
PILOT DIA.	3.4~14.0	3.2~13.0	2.5~10.2
CUTTER DIA.	6.0~20.0		
PAGE	A419		
SURFACE TREATMENT	Bright		

HSS-E
O NTER ORES

For Machining Screw Head Seats

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A421

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎
	2		About 0.45% C	Annealed	190	13	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎
	4		About 0.75% C	Annealed	270	28	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎
	6	Low alloy steel		Annealed	180	10	◎
	7			Quenched & Tempered	275	29	◎
	8			Quenched & Tempered	300	32	◎
	9			Quenched & Tempered	350	38	○
	10	High alloyed steel, and tool steel		Annealed	200	15	◎
	11			Quenched & Tempered	325	35	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	
	13		Martensitic	Quenched & Tempered	240	23	
	14		Austenitic		180	10	
K	15	Grey cast iron	Pearlitic / ferritic		180	10	
	16		Pearlitic (Martensitic)		260	26	
	17	Nodular cast iron	Ferritic		160	3	
	18		Pearlitic		250	25	
	19	Malleable cast iron	Ferritic		130		
	20		Pearlitic		230	21	
N	21	Aluminum-wrought alloy	Not Curable		60		○
	22		Curable	Hardened	100		○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○
	24		≤ 12% Si, Curable	Hardened	90		○
	25		> 12% Si, Not Curable		130		
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		
	27		CuZn, CuSnZn (Brass)		90		
	28		CuSn, lead-free copper and electrolytic copper		100		
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				
	30		Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	
	32			Cured	280	30	
	33		Ni or Co Based	Annealed	250	25	
	34			Cured	350	38	
	35			Cast	320	34	
	36	Titanium Alloys	Pure Titanium		400 Rm		
	37		Alpha + Beta Alloys	Hardened	1050 Rm		
H	38	Hardened steel		Hardened	550	55	
	39			Hardened	630	60	
	40	Chilled Cast Iron		Cast	400	42	
	41	Hardened Cast Iron		Hardened	550	55	

COUNTE O ES

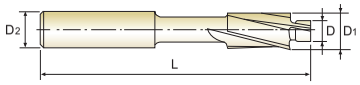
EL 0 SERIES

HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

HSS-E, 3 SCHNEIDEN FLACHSENKER MIT FESTEM FÜHRUNGSZAPFEN
FRAISES À LAMER HSS-E 3 DENTS TÊTE DE VIS À 180°
LAMATORI A TRE TAGLIENTI IN HSS-E per sedi di viti a testa cilindrica a 180°

▶ The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.

▶ Die Flachsenker mit festem Führungszapfen dienen dem 180° Ansenken für Zylinderkopfschrauben und Auswerferstiften in Formen



HSS-E | DIN 373 | 3 | PLAIN | Bright p.A421

Recommended ToolHolder	Plain Shank	Page
	ER COLLET CHUCK	D73-115

MEDI M

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter	Cutter Diameter	Shank Diameter	Overall Length
PLAIN	PLAIN		D(e8)	D1(z9)	D2(h9)	L
EL950003	YG54M3-M	M3	3.4	6.0	5	71
EL950035	YG54M3.5-M	M3.5	3.9	6.5	5	71
EL950004	YG54M4-M	M4	4.5	8.0	5	71
EL950005	YG54M5-M	M5	5.5	10.0	8	80
EL950006	YG54M6-M	M6	6.6	11.0	8	80
EL950008	YG54M8-M	M8	9.0	15.0	12.5	100
EL950010	YG54M10-M	M10	11.0	18.0	12.5	100
EL950012	YG54M12-M	M12	14.0	20.0	12.5	100

INE

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter	Cutter Diameter	Shank Diameter	Overall Length
PLAIN	PLAIN		D(e8)	D1(z9)	D2(h9)	L
EL950901	YG54M3-F	M3	3.2	6.0	5	71
EL950902	YG54M3.5-F	M3.5	3.7	6.5	5	71
EL950903	YG54M4-F	M4	4.3	8.0	5	71
EL950904	YG54M5-F	M5	5.3	10.0	8	80
EL950905	YG54M6-F	M6	6.4	11.0	8	80
EL950906	YG54M8-F	M8	8.4	15.0	12.5	100
EL950907	YG54M10-F	M10	10.5	18.0	12.5	100
EL950908	YG54M12-F	M12	13.0	20.0	12.5	100

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○																	

CARBIDE
HSS
i-ONE DRILLS
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DREAM DRILLS -GENERAL
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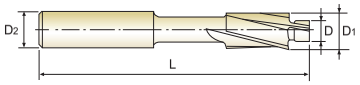
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

HSS-E, 3 SCHNEIDEN FLACHSENKER MIT FESTEM FÜHRUNGSZAPFEN
FRAISES À LAMER HSS-E 3 DENTS TÊTE DE VIS À 180°
LAMATORI A TRE TAGLIENTI IN HSS-E per sedi di viti a testa cilindrica a 180°

▶ The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.

▶ Die Flachsenker mit festem Führungszapfen dienen dem 180° Ansenken für Zylinderkopfschrauben und Auswerferstiften in Formen



HSS-E | DIN 373 | 3 | PLAIN | Bright | p.A421

Recommended ToolHolder — Plain Shank — Page — ER COLLET CHUCK — D73-115

E ORE THREADING

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter	Cutter Diameter	Shank Diameter	Overall Length
PLAIN	PLAIN		D(e8)	D1(z9)	D2(h9)	L
EL950909	YG54M3-T	M3	2.5	6.0	5	71
EL950910	YG54M3.5-T	M3.5	2.9	6.5	5	71
EL950911	YG54M4-T	M4	3.3	8.0	5	71
EL950912	YG54M5-T	M5	4.2	10.0	8	80
EL950913	YG54M6-T	M6	5.0	11.0	8	80
EL950914	YG54M8-T	M8	6.8	15.0	12.5	100
EL950915	YG54M10-T	M10	8.5	18.0	12.5	100
EL950916	YG54M12-T	M12	10.2	20.0	12.5	100

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜				
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18
Tolerance range in ㎛ / Toleranzwerte in ㎛				
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59
h9	0 - 25	0 - 30	0 - 36	0 - 43

Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜				
	from 6 to 10 von 6 bis 10	over 10 to 14 über 10 bis 14	over 14 to 18 über 14 bis 18	over 18 to 24 über 18 bis 24
Tolerance range in ㎛ / Toleranzwerte in ㎛				
z9	+ 78 + 42	+ 93 + 50	+ 103 + 60	+ 125 + 73

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○																	

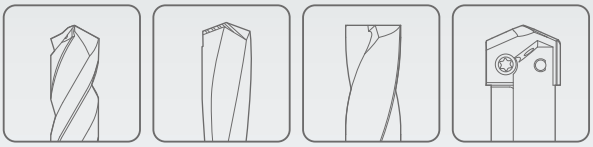
EL 0 SERIES HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Cutter Diameter (Ø)							
				6.0	6.5	8.0	10.0	11.0	15.0	18.0	20.0
P	1	Non-alloy steel	Vc	25	25	25	25	25	25	25	25
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1326	1224	995	796	723	531	442	398
			FEED	322	297	242	258	234	172	167	150
	2		Vc	24	24	24	24	24	24	24	24
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1273	1175	955	764	694	509	424	382
			FEED	309	286	232	248	225	165	160	144
	3		Vc	18	18	18	18	18	18	18	18
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	955	881	716	573	521	382	318	286
			FEED	232	214	174	186	169	124	120	108
	4		Vc	18	18	18	18	18	18	18	18
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	955	881	716	573	521	382	318	286
			FEED	232	214	174	186	169	124	120	108
	5		Vc	18	18	18	18	18	18	18	18
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	955	881	716	573	521	382	318	286
			FEED	232	214	174	186	169	124	120	108
	6	Low alloy steel	Vc	24	24	24	24	24	24	24	24
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1273	1175	955	764	694	509	424	382
			FEED	309	286	232	248	225	165	160	144
	7		Vc	18	18	18	18	18	18	18	18
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	955	881	716	573	521	382	318	286
			FEED	232	214	174	186	169	124	120	108
	8		Vc	18	18	18	18	18	18	18	18
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	955	881	716	573	521	382	318	286
			FEED	232	214	174	186	169	124	120	108
	9		Vc	15	15	15	15	15	15	15	15
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	796	735	597	477	434	318	265	239
			FEED	193	178	145	155	141	103	100	90
	10	High alloyed steel, and tool steel	Vc	24	24	24	24	24	24	24	24
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1273	1175	955	764	694	509	424	382
			FEED	309	286	232	248	225	165	160	144
	11		Vc	18	18	18	18	18	18	18	18
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	955	881	716	573	521	382	318	286
			FEED	232	214	174	186	169	124	120	108
N	21	Aluminum-wrought alloy	Vc	30	30	30	30	30	30	30	30
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1592	1469	1194	955	868	637	531	477
			FEED	382	353	286	315	286	210	207	186
	22		Vc	30	30	30	30	30	30	30	30
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1592	1469	1194	955	868	637	531	477
			FEED	382	353	286	315	286	210	207	186
	23	Aluminum-cast, alloyed	Vc	20	20	20	20	20	20	20	20
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1061	979	796	637	579	424	354	318
			FEED	255	235	191	210	191	140	138	124
	24		Vc	20	20	20	20	20	20	20	20
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
			RPM	1061	979	796	637	579	424	354	318
			FEED	255	235	191	210	191	140	138	124

i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

Global Cutting Tool Leader YG



HOLEMAKING

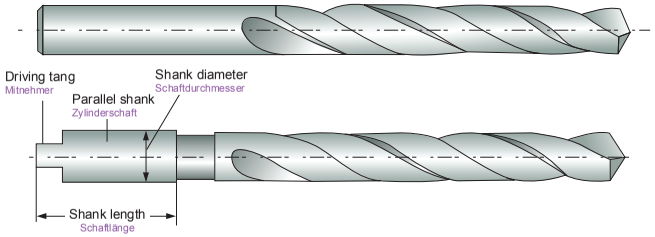
Leading Through Innovation

DRILLS

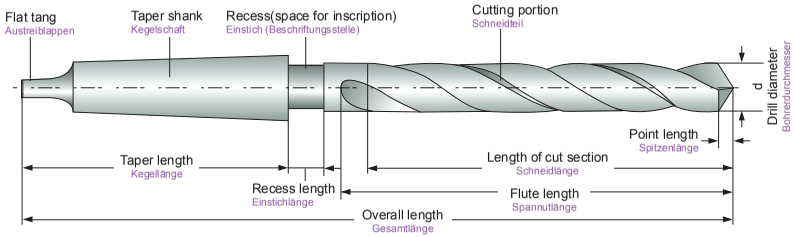
TE HNI AL DATA

TECHNISCHE DATEN

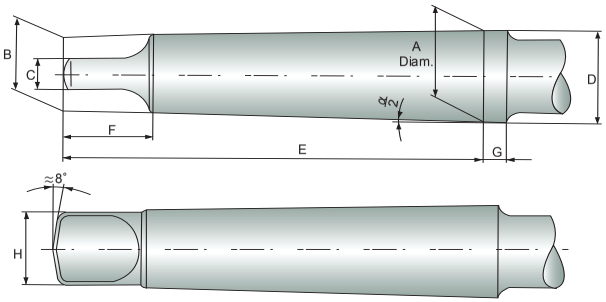
TWIST DRILL WITH PARALLEL SHANK
SPIRALBOHRER MIT ZYLINDERSCHAFT



TWIST DRILL WITH TAPER SHANK
SPIRALBOHRER MIT KEGELSCHAFT

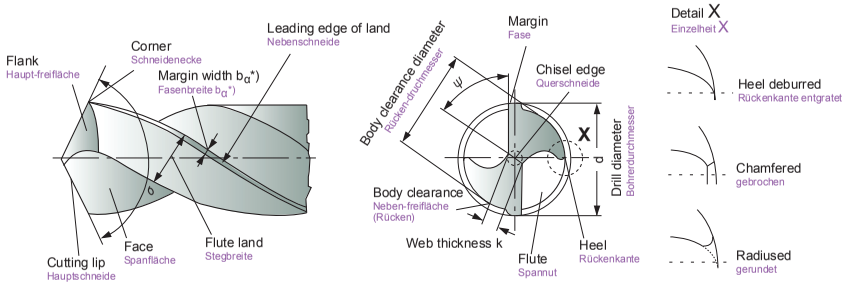


GENERAL DIMENSIONS OF MORSE TAPER SHANKS
TOLERANZEN DES KEGELSCHAFTES



Morse Taper Shank Morsekegelschaft	A mm	B mm	C(h13) mm	D mm	E mm	F(max.) mm	G mm	H(max.) mm	α/2
No.1	12.065	9	5.2	12.2	62	13.5	3.5	8.7	1°25'43"
No.2	17.780	14	6.3	18.0	75	16	5	13.5	1°25'50"
No.3	23.825	19.1	7.9	24.1	94	20	5	18.5	1°26'16"
No.4	31.267	25.2	11.9	31.6	117.5	24	6.5	24.5	1°29'15"
No.5	44.399	36.5	15.9	44.7	149.5	29	6.5	35.7	1°30'26"
No.6	63.348	52.4	19	63.8	210	40	8	51	1°29'36"

CUTTING PORTION
SCHNEIDTEIL



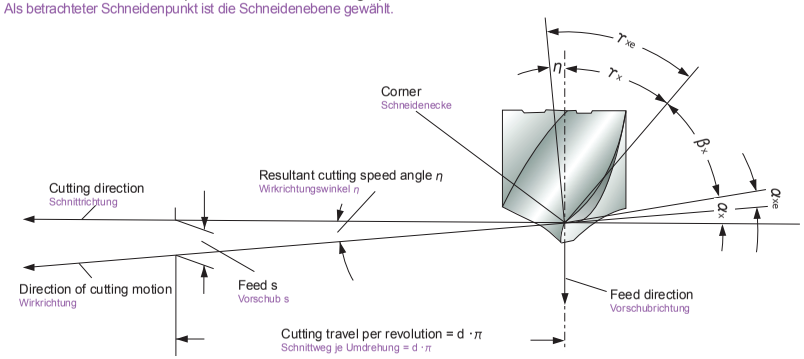
σ = Point angle (sigma) Spitzenwinkel (Sigma)

ψ = Chisel edge angle (psi) Querschneidenwinkel(Psi)

* In the context of cutting technology, land width b_α is the body clearance land width which is to be by b_{fan}, see DIN 6581.
Die Fasenbreite b_α ist bei zerspanungstechnischen Betrachtungen die Fasenbreite der Nebenfreifläche und mit b_{fan} zu bezeichnen, siehe DIN 6581.

ANGLE AT THE CUTTING EDGES
WINKEL AN DEN SCHNEIDEN

The corner has been adopted as the observed edge point.
Als betrachteter Schneidenpunkt ist die Schneidenebene gewählt.



α_x = Side clearance angle (alpha) Seitenfreiwinkel (Alpa)

α_{xe} = Effective side clearance angle Wirk-Seitenfreiwin

β_x = Side wedge angle (beta) Seitenkeilwinkel (Beta)

τ_x = Front rake angle (gamma) Seitenspanwinkel (Gamma)

τ_{xe} = Working front rake angle Wirk-Seitenspanwinkel

η = Resultant cutting speed angle (eta) Wirkrichtungswinkel (Eta)

Clearance angle α, wedge angle β and rake angle τ are measured in the tool orthogonal plane. For details, see DIN 6581, definitions of metal-cutting technology; geometry at the tool edge.

Freiwinkel α, keilwinkel β und Spanwinkel τ werden in der keilmeβebene gemessen.
Einzelheiten siehe DIN 6581, Begriffe der Zerspantechnik; Geometrie am Schneidkeil des Werkzeuges.

WEB THICKNESS K
KERNDICKE K

Test values : The web thickness according to Fig. 1 shall not be less than the minimum value k_{min} indicated in Fig. 2.
Prüfwerte : Die kerndicke nach Bild 1 soll den Bild 2 angegebenen Mindestwert k_{min} nicht unterschreiten.
Test point : At the point of the drill. **Prüfstelle :** An der Bohrerspitze
Testing equipment : Slide gauge with measuring points. **Prüfmittel :** Meßschieber (Schieblehre) mit Messerspitzen

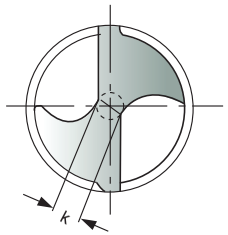


Figure 1. Web thickness k
Bild 1. kerndicke k

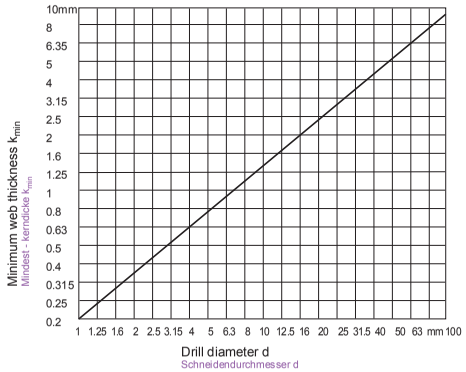


Figure 2. Web thickness k_{min}
Bild 2. Kerndicke k_{min}

MARGIN WIDTH b_α
Fasenbreite b_α

Test values : The land width as in Fig. 3 shall lie within the limitting values indicated in Fig. 4.
Prüfwerte : Die Fasenbreite nach Bild 3 soll im Bereich der Grenzwerte liegen, die im Bild 4 angegeben sind.
Test point : 5mm behind the corner **Prüfstell :** 5mm hinter der Schneidenecke
Testing equipment : Slide gauge **Prüfmittel :** Meßschieber

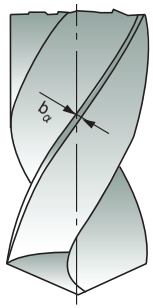


Figure 3. Margin width b_α
Bild 3. Fasenbreite b_α

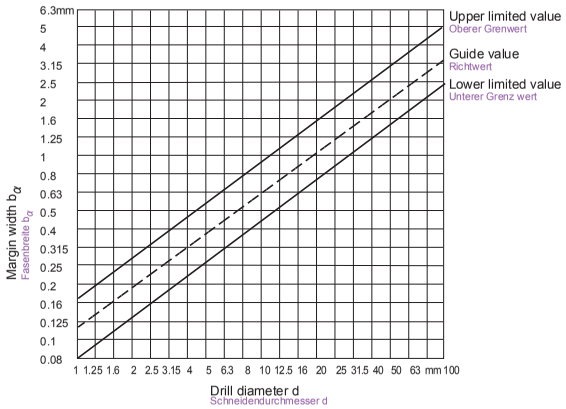


Figure 4. Margin width b_α
Bild 4. Fasenbreite b_α

ANGLE ON TWIST DRILLS
WINKEL AN SPIRALBOHRERN

(1) Side rake angle γ_f (Helix angle)
Seitenspanwinkel (Spiralwinkel) γ_f

Recommended test value : Recommended ranges depending on the tool types N,H and W according to DIN 1836 and the diameter of the drill included in Fig. 5.
Empfohlene Prüfwerte : Empfohlene Bereiche in Abhängigkeit der Werzeugtypen N, H und W nach DIN 1836 und des Schneidendurchmessers sind in Bild 5.

Test point : At the corner, see Fig. 6.
Prüfstell : An der Schneidenecke, siehe Bild 6

Testing equipment : According to VDI Guideline 3331 Part 1, Section Margin width b_α
Prüfmittel : Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite b_α

Note : The side rake angle γ_f is measured in place of the orthogonal rake angle γ_O found in the wedge measuring plane (see DIN 6581), as this changes along the cutting edge (becoming smaller towards the point of the drill).
Anmerkung : Der Seitenspanwinkel γ_f wird an Stelle des in der Keilmeßebene befindlichen Orthogonal-Spanwinkels γ_O (Siehe DIN 6581) gemessen, da sich dieser entlang der Hauptschneide Verändert (er wird zur Bohrerspitze hin kleiner)

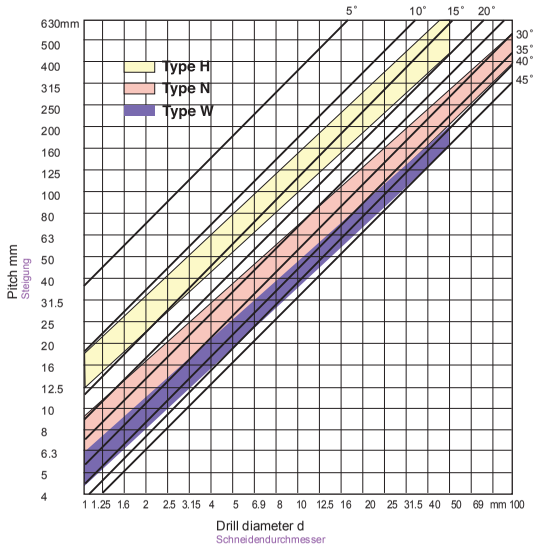


Figure 6. Side rake angle γ_f
Build 6. Seitenspanwinkel γ_f

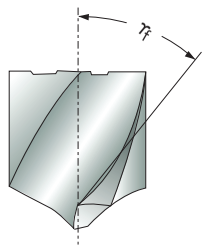


Figure 5. Side rake angle γ_f
Build 5. Seitenspanwinkel γ_f

(2) Point angle σ
Spitzenwinkel σ

Test value : Usual execution for tool types N and H : σ=118°,
for tool type W : σ=130°
Prüfwerte : Regelausführung bei Werkzeugtyp N und H : σ=118°
bei Werkzeugtyp W : σ=130°

Test point : At the cutting, see Fig. 7.
Prüfstelle : An den Hauptschneiden, siehe Bild 7.

Testing equipment : According to VDI Guideline 3331 Part 1, Section Margin width b_α.
Prüfmittel : Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite b_α.

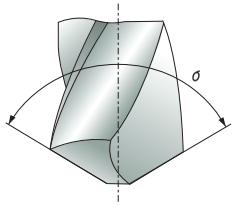


Figure 7. Point angle σ
Bild 7. Spitzenwinkel σ

RESHARPENING TWIST DRILLS
NACHSCHLEIFEN VON SPIRALBOHRERN

(1) Drills are worn off irregularly. It should be sharpened prior to developing into excessive wear.
Unregelmäßiger Verschleiß von Bohrern. Bohrer soll vor übermäßigern Verschleiß nachgeschilffen werden.

(2) Resharpening (Nachschleifen)
① Grind the correct point angle to suit your application.(figure 8)
Den für Ihre Anwendung passenden korrekten Spltzenwinkel schleifen (Bild 8)
② Check that both cutting lips have the same angle. On a 130° point, each lip should be 65° toward the axis. The point must be on center, i.e., the chisel edge must produce cutting lips of equal length.(figure 8)
Überprüfen, dass beide Hauptschneiden den gleichen Winkel haben. Bei einem 130° Spitzenwinkel, sollte jede Hauptschneide 65° haben (Bild 8)
③ Grind Primary relief and Secondary clearance.(figure 9)
Primärer Hinterschliff und Sekundärer Freiwinkel (Bild 9)
④ Grind web thinning. (figure 10)
Den ausgespitzten Kern schleifen (Bild 10)

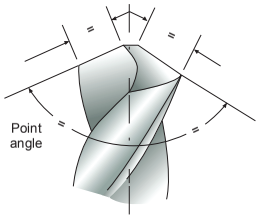


Figure 8
Bild 8

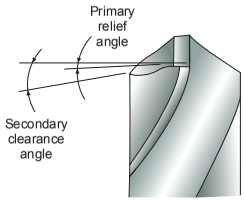


Figure 9
Bild 9

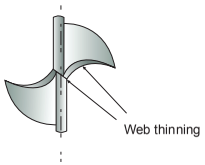
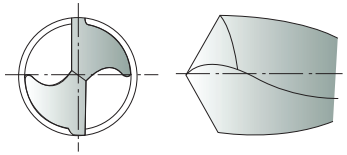


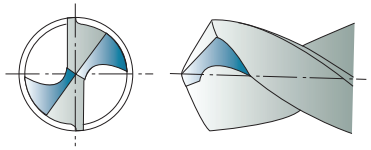
Figure 10
Bild 10

WEB THINNING
KEGELMANTELSCHLIFF

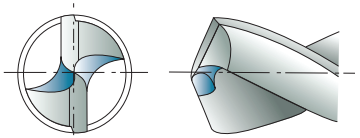
(1) Without thinning
Normalanschliff
Suitable for drill of general purpose.
Thanks to thin web thickness, web thinning is not needed.
This without web thinning type is applied to design of drills for mild steels, alloy steels, cast iron, stainless steels, titanium, inconel, etc. and conventional cutting conditons.
Zum Bohren für allgemeine Zwecke.
Dank dünner Kerndicke, ist Kegelmantelanschliff nicht nötig.
Geeignet für Stahl, Stahl-Legierungen, Gusseisen, Edeistahl, Tian, Inconel usw, und für konventionelle Schneidbedingungen



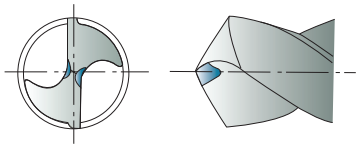
(2) Type C thinning (DIN1412 FORM C, SPLIT POINT)
DiN 1412 Form C kegelmantelanschliff mit Kreuzanschliff
Because Split point enables good centering when drilling and breaks the chips, chip removals are easy.
Suitable for drill design in high hardened tough materials, i.e, heat treated steels, titanium alloys, stainless steels, incoroy inconel, nimonic, etc.
Da Kreuzanschliff gute Zentrierung und Spanbruch während des Bohrens ermöglicht, wird die Spanentfernung erleichtert.
Geeignet für zähe Werkstücke oder Werkstücke mit hoher Härte, z.B. hitzebehandelten Stahl, Titan-Legierungen, Edelstahl, Incoroy Inconel, Nimonic usw.



(3) Type R thinning (HELICAL THINNING)
Form R Kegelmantelanschliff (Spiralanschliff)
Helical thinning ensures to frequent chip breaking and removal. The different direction force of cutting edges and helical thinning parts enable that chips curl, break and remove through the flutes. In addition, helical thinning makes the chip room up to center, remove the chisel and enables good centering
Häufiger Spanbruch und Spanentfernung durch Spiralanschliff, es wird ausreichend Raum für Späne geschaffen, und gute Zentrierung ist möglich.



(4) Type A thinning (DIN1412 FORM A)
DIN 1412 Form A Kegelmantelanschliff mit ausgespitzer Querschneide
A type thinnings makes thin chisel, good chip removal and favorable centering.
This type is the easiest type to grind the thinning. In narrow web and wide fluted drills, keeping of the rigidity and smooth chip removal are possible.
Diese Form hat eine dünne Querschneide, dadurch ist gute Spanentfernung und Zentrierung möglich.
Der Kegelmantelschliff ist bei dieser Form am einfachsten nachszuchleifen, Ein enger Kern und breite Schneiden erhalten die Stabilität.

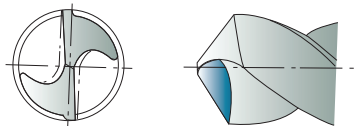


i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
REAMERS
COUNTER SINKS
COUNTER BORES
TECHNICAL DATA

(5) Type B thinning (DIN1412 FORM B)

DIN 1412 Form B Kegelmantelanschliff mit ausgespitzer Querschneide

In case of work materials with low cutting resistance and good chip removal, i.e., cast iron, aluminum, plastic etc., B type thinning is suitable.
Especially when drills for high hardended steels are designed, this type is applied to decrease rake angle and avoid chipping of cutting lips.

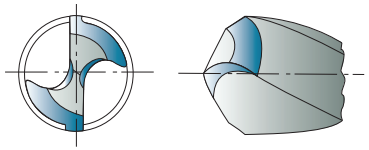


Geeignet für Werkstücke mit geringem Schneidwiderstand und guter Spanentfernung, z.B. Gusseisen, Aluminium, Plastik usw.
Diese Form wird besonders dann angewendet, wenn der Bohrer für Stähle mit hoher Härte produziert wurde, da dadurch der Seitenspanwinkel verkleinert wird und Brüche an der Schneidkante vermieden werden.

(6) Type D thinning (DIN1412 FORM D)

DIN 1412 Form D Kegelmantelanschliff mit ausgespitzern Kern

Grey cast iron thinning; bevelling of external edges strengthens the cutting edge.
Used for medium to high grey cast iron hardness and for abrasives.

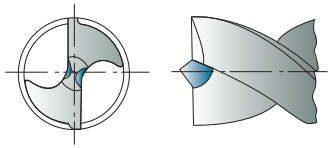


GG-Anschliff; Fasen auf dem Steg verstärken die Schneidkante.
Geeignet für medium bis hohe Härte GG und für abrasive Materialien.

(7) Type E thinning (DIN1412 FORM E)

DIN 1412 Form E Zentrumspitze

Center drill bit thinning; ensures optimal center drilling and does not leave burs in through holes.
As the bit and cutting edges are delicate, this bit should be used far drilling thin sheet metal.



Zentrisches Bohren, Niedrige Gratbildung, Geeignet zum Bohren von dünnen Blechen und Rohren.

Surface Finishes for high speed steels Twist Drills
Oberflächenbeschaffenbeit von HSS-Spiralbohrern

(1) Bright Finish Helle Beschaffenheit

Drills with a bright finish are without surface treatment and ground condition.
Especially bright finished drills are used in machining of non ferrous materials.
Ohne Oberflächenbehandlung, geeignet zum Bearbeiten von Nichteisen Materiallen.

(2) Coloring (Gold color) Farbe (Bernstein)

The coloring is a thin oxide layer formed on the tool surfaces. Dies ist eine dünne Oxidschicht.
This is often applied to cobalt high speed steels twist drills. Geeignet für Kobalt-HSS-Spiralbohrer.

(3) Steam Tempered (black oxide finish) Dampfoxidierte Ausführung

This is a black oxide layer 1-2㎛ formed on the tool surfaces.
Steam Tempered treated drill is the result of a steam tempering operation. Because the oxide layer retains some coolant on the tool surface, and aids chip flow, helps to dissipate heat, steam homo treated drills are recommended for ferrous applications.
Eine schwarze Oxidschicht 1-2㎛.
Da die Oxidschicht Kühlmitteleigenschaften auf der Werkzeugoberfläche beinhaltet und den Spanfluss verbessert und die Hitze verteilt, sind diese Bohrer für die Bearbeitung von Metal-Werkstücken empfohlen.

TECHNICAL DATA

COATING
BESCHICHTUNGEN

The use of coated cutting tools reduce production costs.
For example
- Avoidance of machine downtime due to premature tool wear.
- Higher cutting capabilities to reduce actual machining times.
- Reproducible tool life.
- Improvement of component surface quality.

Durch den Gebrauch von beschichteten Werkzeugen werden Produktionskosten reduziert, z.B.
- Vermeidung von Maschinen-Ausfallzeiten wegen frühzeitigem Verschieiß des Bohrers.
- Höhere Bohrleistung, dadurch Verminderung von Arbeitszeit.
- Längere Standzeit.
- Verbesserte Oberflächengüte des Werkstücks.

(1) TiN Coating TiN (Titan-Nitrid) Beschichtung

Titanium Nitride gives the tool a higher performance in comparison to traditional non-coated drills.
TiN coating, with good all-around properties, is recommended for the general application.
Bessere Leistung im Vergleich zu unbeschichteten Werkzeugen
TiN-Beschichtung, mit guten Allround-Eigenschaften, empfohlen für die allgemeine Anwendung

(2) TiCN (Titanium Carbon Nitride) coating TiCN (Titan karbon Nitrid) Beschichtung

TiCN coating should be employed when severe thermodynamic stress is expected, for example when drilling in high hardened steels or in mild steels with high speed and feed.
Diese Beschichtung soll bei extremen thermodynamischen Bedingungen verwendet werden, z.B. bei Bohren von Stählen mit hoher Härte und Stähle mit hoher Geschwindigkeit und Vorschub.

(3) TiAlN (Titanium Alumium Nitride) coating TiAlN (Titan Aluminium Nitrid) Beschichtung

The addition of Aluminum to the Titanium Nitride produces an increase in hardness and an exceptional increase in resistance to oxidation at high temperature.
TiAlN coating is applied to drilling with severe thermal stress on cutting edges when continuous non-step feed, dry cutting or high speed cutting.
Der Zusatz von Aluminium zum Titan-Nitrid ermöglicht eine höhere Härte und einen auß erordentlich guten Widerstand gegen Oxidation und hohe Temperaturen.
Geeignet zum Bohren unter extremen thermischen Bedingungen auf der Hauptschneide bei kontinuierlichem Vorschub, Trockenschnitt oder Hochgeschwindigkeitsbohren.

(4) X Coating X Beschichtung

- Coating with low hardness drop at high temperatures and stability against thermal oxidation
- Coating for superior dry and wet machining performance at high cutting speed
- Wide range of application field with stable layer structure

- Beschichtung mit geringem Härteverlust bei hohen Temperaturen und Stabilität gegen thermische Oxidation
- Hervorragende Beschichtung für Trocken- und Nassbearbeitung bei hohen Schnittgeschwindigkeiten
- Breites Anwendungsspektrum durch stabilem Schichtaufbau

(5) H Coating H Beschichtung

- AlCrN-based coating, superior mechanical properties compared to TiAl-based coating
- Improved wear resistance compared to TiAl-based, and superior physical properties(high temperature
- hardness and breaking strength)
- Superior adhesion and surface roughness, and uniform tool wear characteristics with multi-layer coating
- Possible machining with minimum quantity of coolant and dry machining to reduce production costs

- Beschichtung auf AlCrN-Basis, dadurch überlegene mechanische Eigenschaften im Vergleich zu Beschichtungen auf TiAl-Basis
- Verbesserte Verschleißfestigkeit im Vergleich zu TiAl-Beschichtungen und überlegene physikalische Eigenschaften (Hochtemperaturhärte und Bruchfestigkeit)
- Hervorragende Haftung und Oberflächenrauhigkeit sowie gleichmäßiger Werkzeugverschleiß durch mehrlagige Beschichtung
- Ermöglicht Bearbeitung mit Minimalmengenschmierung und Trockenbearbeitung zur Senkung der Produktionskosten

(6) Z Coating Z Beschichtung

- Nanocomposite optimized among coatings for high hardness steel machining with Si grade coating
- Superior machinability at high temperatures and used in milling and drilling finishing processes
- Superior surface roughness and wear resistance for a very wide machining application
- Superior physical properties of hardness, adhesion and oxidation resistance at high temperatures

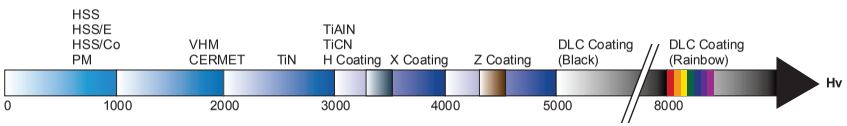
- Optimierte nanokomposit Beschichtung mit Si-Anteil für die Bearbeitung von hochharten Stählen
- Hervorragende Zerspanleistung bei hohen Temperaturen und bei Fräs- und Bohrbearbeitungsprozessen
- Hervorragende Oberflächenrauhigkeit und Verschleißfestigkeit für ein sehr breites Anwendungsspektrum
- Hervorragende physikalische Eigenschaften wie Härte, Haftung und Oxidationsbeständigkeit bei hohen Temperaturen

(7) DLC Coating DLC Beschichtung

- Suitable coating for extreme wear conditions and fast sliding speed without use of coolant
- Possible coating with high-speed machining and superior wear resistance
- Minimizes friction losses, suitable for engine components such as fuel injection system, valve train and piston

- Geeignete Beschichtung für extreme Verschleißbedingungen und hohe Gleitgeschwindigkeiten ohne Verwendung von Kühlmittel
- Beschichtung für die Hochgeschwindigkeitsbearbeitung bei überlegener Verschleißfestigkeit
- Minimale Reibung, für Motorkomponenten wie Kraftstoffeinspritzsystem, Ventiltrieb und Kolben

Properties	TiN	TiCN	TiAlN	X Coating	H Coating	Z Coating	DLC Coating	
Coating color Beschichtungsfarbe	Gold - yellow	Blue - grey	Violet - grey	Blue grey	Copper	Copper	Black	Rainbow
Hardness (Hv 0.05) härtegrad (Hv 0.05)	2300	3000	3000	3,200	3,000	4,500	5,000	8,000
Coating thickness (㎛) Beschichtungsdicke (㎛)	1~4	1~4	1~5	1 ~ 5	1 ~ 5	1 ~ 4	1 ~ 3	0.1 ~ 0.5
Max. working temperature (°C) Max. Arbeitstemperatur (°C)	600	400	800	1,100	1,100	900	500	600
Coefficient of friction against steels (dry) Reibungskoeffizient für stahl (trocken)	0.4	0.4	0.4	0.35	0.25	0.4	~ 0.1	~ 0.1



TECHNICAL DATA

(5) Selection of coating Verschiedene Beschichtungen

Properties	HSS TWIST DRILLS	CARBIDE DRILLS
Steels < 1000 N/mm² Stahls < 1000 N/mm²	H, Z, X Coating	H, Z, X Coating
Steels > 1000 N/mm² Stahls > 1000 N/mm²	H, Z, X Coating	Z, H Coating
Stainless steels Edelstäle	H, Z, X Coating	Z, H Coating
Cast iron Gusseisen	H, Z, X Coating	H, Z, X Coating
Al-wrought alloys Al-Knetlegierungen	DLC	DLC
Al-cast alloys Al-Gusslegierungen	DLC	DLC
Copper (pure) Kupfer (pur)	DLC	DLC
Brass Messing	DLC	DLC
Bronze Bronze	DLC	DLC

DRILL SIZES BEFORE TAPPING
DURCHMESSER FÜR BOHRWERKZEUGE FÜR GEWINDEKERNLÖCHER

(1) Metric - ISO threads coarse pitch Metrisch - ISO Gewinde, grobverzahnt

Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter
		M3	2.5	**M11**	9.5	**M30**	26.5
M1	0.75	**M3.5**	2.9	**M12**	10.2	**M33**	29.5
M1.2	0.95	**M4**	3.3	**M14**	12.0	**M36**	32.0
M1.4	1.1	**M5**	4.2	**M16**	14.0	**M39**	35.0
M1.6	1.25	**M6**	5.0	**M18**	15.5	**M42**	37.5
M1.8	1.45	**M7**	6.0	**M20**	17.5	**M45**	40.5
M2	1.6	**M8**	6.8	**M22**	19.5	**M48**	43.0
M2.2	1.75	**M9**	7.8	**M24**	21.0	**M52**	47.0
M2.5	2.05	**M10**	8.5	**M27**	24.0	**M56**	50.5

TECHNICAL DATA

(2) Metric ISO threads fine pitch

Metrisch - ISO Gewinde, feinverzahnt

Nominal diameter	Tap Pitch	Drill diameter
2.5	0.35	2.15
3	0.35	2.65
3.5	0.35	3.15
4	0.5	3.5
4.5	0.5	4
5	0.5	4.5
5.5	0.5	5
6	0.75	5.2
7	0.75	6.2
8	0.75	7.2
8	1	7
9	0.75	8.2
9	1	8
10	0.75	9.2
10	1	9
10	1.25	8.8
11	0.75	10.2
11	1	10
12	1	11
12	1.25	10.8
12	1.5	10.5
14	1	13
14	1.25	12.8
14	1.5	12.5
15	1	14
15	1.5	13.5
16	1	15
16	1.5	14.5
17	1	16
17	1.5	15.5
18	1	17
18	1.5	16.5
18	2	16
20	1	19
20	1.5	18.5
20	2	18
22	1	21
22	1.5	20.5
22	2	20
24	1	23
24	1.5	22.5
24	2	22
25	1	24
25	1.5	23.5

Nominal diameter	Tap Pitch	Drill diameter
25	2	23
26	1.5	24.5
27	1	26
27	1.5	25.5
27	2	25
28	1	27
28	1.5	26.5
28	2	26
30	1	29
30	1.5	28.5
30	2	28
30	3	27
32	1.5	30.5
32	2	30
33	1.5	31.5
33	2	31
33	3	30
35	1.5	33.5
36	1.5	34.5
36	2	34
36	3	33
38	1.5	36.5
39	1.5	37.5
39	2	37
39	3	36
40	1.5	38.5
40	2	38
40	3	37
42	1.5	40.5
42	2	40
42	3	39
45	1.5	43.5
45	2	43
45	3	42
48	1.5	46.5
48	2	46
48	3	45
50	1.5	48.5
50	2	48
50	3	47
52	1.5	50.5
52	2	50
52	3	49

TECHNICAL DATA

(3) WITHWORTH pipe threads (BSP)

WITHWORTH Rohrgewinde (BSP)

Nominal size	Drill diameter	Nominal size	Drill diameter
inches	mm	inches	mm
G1/8	8.8	G1-1/4	39.5
G1/4	11.8	G1-3/8	42.0
G3/8	15.25	G1-1/2	45.0
G1/2	19.0	G1-3/4	51.0
G5/8	21.0	G2	57.0
G3/4	24.5	G2-1/4	63.0
G7/8	28.25	G2-1/2	73.0
G1	30.75	G2-3/4	79.0
G11/8	35.5	G3	85.0

(4) American unified coarse threads

Amerikanischer Standard, Grobverzahnung

UNC	Drill diameter		UNC	Drill diameter	
	inches	mm		inches	mm
No. 1	53	1.51	**7/16**	U	9.35
No. 2	50	1.78	**1/2**	27/64	10.71
No. 3	47	1.99	**9/16**	31/64	12.30
No. 4	43	2.26	**5/8**	17/32	13.49
No. 5	38	2.58	**3/4**	21/32	16.67
No. 6	36	2.71	**7/8**	49/64	19.44
No. 8	29	3.45	**1**	7/8	22.22
No. 10	25	3.8	**1-1/8**	63/64	25.00
No. 12	16	4.5	**1-1/4**	1-7/64	28.18
1/4	7	5.11	**1-3/8**	1-7/32	30.95
5/16	F	6.53	**1-1/2**	1-11/32	34.13
3/8	5/16	7.94			

(5) American unified fine threads

Amerikanischer Standard, Feinverzahnung

NF	Drill diameter		NF	Drill diameter	
	inches	mm		inches	mm
No. 0	3/64	1.19	**3/8**	Q	8.43
No. 1	53	1.51	**7/16**	25/64	9.92
No. 2	50	1.78	**1/2**	29/64	11.51
No. 3	45	2.08	**9/16**	33/64	13.10
No. 4	42	2.37	**5/8**	37/64	14.86
No. 5	37	2.64	**3/4**	11/16	17.46
No. 6	33	2.87	**7/8**	13/16	20.64
No. 8	29	3.45	**1**	59/64	23.42
No. 10	21	4.04	**1-1/8**	1-3/64	26.59
No. 12	14	4.62	**1-1/4**	1-11/32	29.76
1/4	3	5.41	**1-3/8**	1-19/32	32.94
5/16	1	6.91	**1-1/2**	1-27/64	36.11

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
DREAM DRILLS -GENERAL
DREAM DRILLS -HIGH FEED
DREAM DRILLS -FLAT BOTTOM
DREAM DRILLS -INOX
DREAM DRILLS -ALU
DREAM DRILLS -MQL
DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
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TECHNICAL DATA

TECHNICAL DATA

ISO TOLERANCE
ISO TOLERANZ

㎛=1/1000mm

Diameter (mm)	1 - 3 from to	3 - 6 over to	6 - 10 over to	10 - 18 over to	18 - 30 over to	30 - 50 over to
Tolerance range in ㎛ / Toleranzwerte in ㎛						
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16
h7	0 - 10	0 - 12	0 - 15	0 - 18	0 - 21	+0/-0.025
h8	0 - 14	0 - 18	0 - 22	0 - 27	0 - 33	+0/-0.039
m7	+ 12 + 2	+ 16 + 4	+ 21 + 6	+ 25 + 7	+ 29 + 8	+ 34 + 9

TROUBLE SHOOTING IN DRILLING
PROBLEME UND ABHILFE

Occurrence of trouble	Cause of trouble	Countermeasures
Drill will not enter work **Bohrer dringt nicht durch werkstück**	1. Drill is dull. 2. Lip relief too small. 3. Too thick a web. 1. Bohrer ist stumpf 2. Hauptschneide ist zu klein 3. Kern ist zu dick	1. Grind lip relief sufficiently. 2. Grind web thinning. 3. Choose a drill with narrow web. 1. Schleifen der Hauptschneide 2. Kegeimantel schleifen 3. Bohrer mit engerem kern wählen
Margin chipping **Fasenbruch**	1.Oversized jig bushing. 1. Bohrbuchse ist zu ungleich.	1. Choose the suitable jig bushing for drill diameter 1. Den passenden Bohrbuchse wählen.
Cutting lip breaks **Bruch der Hauptschneide**	1. Lip relief too much. 2. Feed too heavy. 1. Zu große Entlastung der Hauptschneide 2. Vorschub zu stark	1. Grind lip relief sufficiently. 2. Decrease feed rate. 1. Schleifen der Hauptschneide 2. Vorschub verringern
Tang breaks **Bruch der Austrieblappen am kagelschaft**	1. Imperfect fit between taper shank and socket. 2. Burred or Badly worn sockets. 1. Befestigung zwischen Morsekegel und Aufnahme ungenügend 2. Verschleiß der Aufnahme	1. Clean the dirt or chips in sockets. 2. Change the worn sockets to new ones. 1. Schmutz oder Späne in der Aufnahme entfernen 2. Aufnahme wechseln

TECHNICAL DATA

Occurrence of trouble	Cause of trouble	Countermeasures
Drill breaks in brass **Bohrer bricht in Messing**	1. Unsuitable drill 2. Flutes clogged with chips 1. Unpassender Bohrer 2. Schneiden durch Späne verstopft	1. Choose the suitable drill for work material. 1. Den passenden Bohrer wählen
Chipping of drill center **Brüche auf der Querschneide**	1. Lip relief too much. 2. Feed too heavy. 1. Zu große Entlastung der Hauptschneide 2. Vorschub zu stark	1. Grind lip relief sufficiently. 2. Decrease feed rate. 1. Schleifen der Hauptschneide 2. Vorschub verringern
Hole oversize **Übergröße des Lochs**	1. Unequal angle or length of cutting edges. 2. Loosen spindle. 1. Ungleicher Winkel oder Länge der Hauptschneiden 2. Lockere Spindel	1. Resharpening point, choose correct drills. 2. Tighten spindle sufficiently. 1. Nachschleifen der Bohrspitze, passenden Bohrer wählen 2. Spindel ausreichend befestigen
Outer corners broken down. **Brüche in der Schneidenecke**	1. Cutting speed too high. 2. Hard spots in work material. 3. Flutes clogged with chips. 4. Too wear of drills. 1. Schnittgeschwindigkeit zu hoch 2. Harte Flächen im Werkstück 3. Schneiden durch Späne verstopft 4. Verschieiß des Bohrers zu groß	1. Grind point to suit work material. 2. Decrease the feed rates. 3. Resharpening early beforce too wear. 1. Bohrspitge nachschleifen und ans Werkstück anpassen 2. Vorschub verringern 3. Nachschleifen vor zu groß ern Verschleiß
Large chip of one flute and small chip of other flute **Ungleiche Späne auf den Schneiden**	1. Improperly ground point. 2. Only one lip doing all the cutting 1. Bohrspitze nicht richtig geschliffen 2. Nur eine Schneide bohrt	1. Properly grind point. 2. Grind point with same point angle and length of lip 3. Grind with small lip height. 1. Bohrspitze richtig schleifen 2. Bohrspitze mit dern gleichen Spitzenwinkel und Länge nachschleifen 3. Schleifen mit geringer Hauptschneidenhöhe
Hole rough **Grobes Loch**	1. Improperly ground point. 2. Unenough coolant supply 3. Too much feed. 4. Fixture not rigid. 1. Bohrspitze nicht richtig geschliffen 2. Ungenügende Kühlmittelzufuhr 3. Vorschub zu hoch 4. Befestigung nicht stabil	1. Properly grind point. 2. Supply coolant enough. 3. Decrease the feed rate. 4. Tighten the fixture or replace. 1. Bohrspitze richtig schleifen 2. Genügend Kühlmittel züfuren 3. Vorschub verringern 4. Befestigung stabilisieren oder erneuern

CARBIDE
HSS
i-ONE DRILLS
i-DREAM DRILLS
DREAM DRILLS -PRO
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DREAM DRILLS for HIGH HARDENED STEELS
GENERAL CARBIDE DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
SUPER-GP DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
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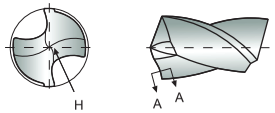
TECHNICAL DATA

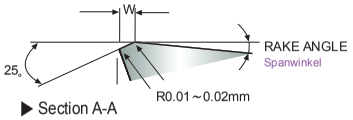
CHARACTERISTIC OF DREAM DRILLS
MERKMALE VON DREAM BOHRER

- YG-1's Dream Drill Series are suitable for high speed and accurate drilling operations by special design and high quality.
  YG-1's DREAM Bohrer Serien sind durch ihre spezielle konstruktion und höchste Genauigkeit geeignet zum Hochgeschwindigkeitsbohren und für genaue Bohrvorgänge.
- Good performance for Steels, Cast Irons, Tool steels, Alloy steels and Stainless steels.
  Gute Leistung bei Stählen, Grauguss, Werkzeugstählen, Stahllegierungen sowie bei Rost-und Säurebeständigen Stählen.
- Rapid chip evacuation and excellent chip breaking can be achieved by special designed cutting edges on point and chip breakers on leading edges.
  Schnelle Spanabfuhr und hervorragender Spanbruch durch speziell entwickelte Schneidengeometrien und Spanbrechern.
- High accuracy and stability.
  Hohe Genauigkeit und Stabilität.
- Longer tool life with TiAlN coating.
  Höhere Standzeiten mit TiAlN-Beschichtungen.
- Self-centering
  Selbstzentrierend

HONING GUIDE OF DREAM DRILLS
HINWEIS ZUM HONEN VON DREAM BOHRER

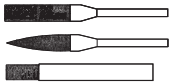
■ **Dimension of Honing**
Abmessung beim Honen





▶ Section A-A

■ **Scraper**
Schaben



for Roughing (#140)
Grob

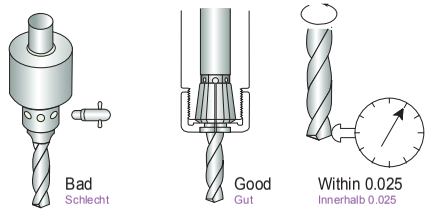
for Finishing (#230～#400)
Finish

Work Material	Alloy Steels	Mild Steels	Cast Iron
W(mm)	0.15～0.2	0.1～0.15	0.03

▶The dimension W of stocked products is 0.1～0.15.
Das Maß w ist bei lagerhaltigen Produkten 0.1～0.15.

TECHNICAL DATA

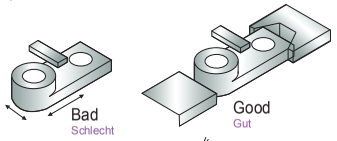
USE OF DREAM DRILLS
VERWENDUNG VON DREAM BOHRER

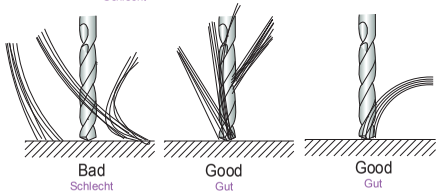


▶ Chucking with spring collet correctly.
Richtiges Spannen mit Spannzangen.

▶ Radial run out at cutting lip must not exceed 0.025 mm.
Radialer Rundlauf und der Schneidlippe darf nicht 0.025 überschreiten.

▶ Tighten clamp of work piece.
Sicheres Spannen des Werkstückes

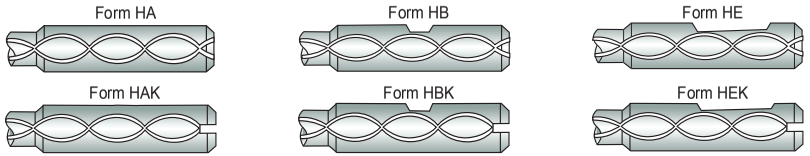




▶ Supply coolant enough to the entrance of hole.
Ausreichend Kühlmittelzufluss am Bohrloch.

▶ When using Dream Drills with Coolant holes, supply high pressure coolant.
Beim Verwenden von DREAM BOHRER mit Kühlkanal wird Hochdruckkühlung benötigt.

SHANK TYPE DREAM DRILLS WITH COOLANT HOLES
SCHAFTAUSFÜHRUNG DREAM BOHRER MIT KÜHLKANAL



▶ Shank Type of stocked products is Form HA.
Schaftausführung von lagerhaltigen Produkten ist HA.

▶ Other shank types are available on your request.
Andere Schaftausführungen können geliefert werden.

i-ONE DRILLS
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TECHNICAL DATA

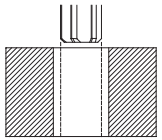
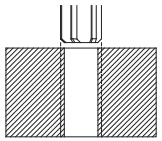
TECHNICAL DATA

REAMING - ALLOWANCE
REIBEN - AUFMASS

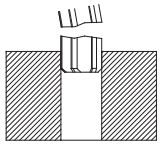
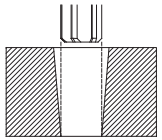
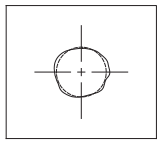
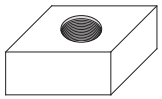
Unit : mm

Size Range Größenbereich	Up to Ø6	Ø6 ~ Ø10	Ø10 ~ Ø16	Ø16 ~ Ø25	Over Ø25
Removal Amount Zu entfernender Bereich	0.1 ~ 0.2	0.2 ~ 0.3	0.2 ~ 0.4	0.3 ~ 0.5	0.3 ~ 0.6

REAMING - TROUBLE SHOOTING
REIBEN - FEHLERBEHEBUNG

Problem Problem		Cause Ursache
Hole diameter too large Bohrungsdurchmesser zu groß		1. Run out error of the machine spindle, the chuck, or the tool. 2. Damaged adaptor. 3. Cutting speed and feed too high. 4. Build-up edges. 1. Rundlauffehler der Maschinenspindel, des Spannfutters oder des Werkzeugs. 2. Beschädigte Aufnahme. 3. Zu hohe Schnittgeschwindigkeit und zu hoher Vorschub. 4. Aufbauschneide
Hole diameter too small Bohrungsdurchmesser zu klein		1. Wrong tool tolerance or the tool is worn out. 2. Ductile material, that tightens after the reaming. 3. Insufficient cooling, or to low oil concentration. 4. Reaming stock is too little. 5. Cutting speed and feed too low. 1. Falsche Werkzeugtoleranz oder das Werkzeug ist verschlissen. 2. Duktiles Material, das sich nach dem Reiben verfestigt. 3. Unzureichende Kühlung, oder zu geringe Ölkonzentration. 4. Das Reibaufmaß ist zu gering. 5. Schnittgeschwindigkeit und Vorschub zu niedrig.

TECHNICAL DATA

Problem Problem		Cause Ursache
Reamer jams or breaks Reibahle klemmt oder bricht		1. Back taper is too small. 2. Position to pilot hole incorrect. 3. Pre-hole is too small. 4. Cutting speed and feed too high. 1.Die Verjüngung ist zu klein. 2. Position zur Vorbohrung ist falsch. 3. Die Vorbohrung ist zu klein. 4. Schnittgeschwindigkeit und Vorschub zu hoch.
Hole tapered Bohrung kegelig		1. Concentricity of pilot hole and reaming tool unsatisfactory. 2. Positioning accuracy of pre-hole insufficient. 1.Konzentrizität der Vorbohrung und Reibwerkzeug unbefriedigend. 2.Positioniergenauigkeit der Vorbohrung ungenügend.
Hole out of center or Chatter marks in hole Bohrung außerhalb der Mitte oder Rattermarken in der Bohrung		1. Cutting speed and feed too low. 2. Reaming tool running out of center. 3. Reaming stock is too small. 1.Schnittgeschwindigkeit und Vorschub zu niedrig. 2.Reibwerkzeug läuft aus der Mitte. 3.Das Reibaufmaß ist zu klein.
Feed marks in hole Vorschubspuren in der Bohrung		1. Cutting speed and feed too low 2. Build-up edges. 3. Inadequate chip evacuation 4. Insufficient lubrication. 1.Schnittgeschwindigkeit und Vorschub zu niedrig 2.Aufbauschneide. 3.Unzureichender Späneabtransport 4.Unzureichende Schmierung.

CARBIDE
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THREADING TOOLS

SOLID CARBIDE THREAD MILLS (with & without Coolant Holes)

HSS-PM SYNCHRO TAPS (Spiral Flute, Spiral Point, Straight Flute & Cold Forming)

HSS-PM PRIME TAPS (Spiral Flute & Spiral Point Tap)

HSS-E & HSS-PM COMBO TAPS (Spiral Flute & Spiral Point Tap)

HSS & HSS-E YG TAP GENERAL

HSS-E & HSS-PM YG TAP STEEL

SOLID CARBIDE & HSS-E YG TAP HARDENED

HSS-E & HSS-PM YG TAP INOX

SOLID CARBIDE & HSS-E YG TAP CAST IRON

HSS-E YG TAP ALU

HSS-PM YG TAP Ti Ni

HSS-E & HSS-PM YG TAP FORMING

HSS-E NUT TAPS

HSS-E SCREW THREAD INSERT TAPS

HSS & HSS-E PIPE TAPS

YG-1 CO., LTD.

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HSS-PM & HSS-E MACHINE TAPS	HSS-PM **SYNCHRO TAPS** (Spiral Flute, Spiral Point, Straight Flute & Cold Forming) For High Speed Tapping on Rigid CNC Machine	SYNCHRO TAPS
	HSS-PM **PRIME TAPS** (Spiral Flute & Spiral Point Tap) Excellent Performance on Various Work Materials	PRIME TAPS
	HSS-E & HSS-PM **COMBO TAPS** (Spiral Flute & Spiral Point Tap) For Multi Purpose Tapping	COMBO TAPS
HSS MACHINE & HAND TAPS	HSS & HSS-E **YG TAP GENERAL** Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation	YG TAP GENERAL
HSS MACHINE TAPS	HSS-E & HSS-PM **YG TAP STEEL** For Steel Materials but also other Long Chip Forming Materials	YG TAP STEEL
SOLID CARBIDE & HSS MACHINE TAPS	SOLID CARBIDE & HSS-E **YG TAP HARDENED** For Hardened Steels Applications to Control the Continuous and Red-glowing Chips	YG TAP HARDENED
HSS MACHINE TAPS	HSS-E & HSS-PM **YG TAP INOX** For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher	YG TAP INOX
SOLID CARBIDE & HSS MACHINE TAPS	SOLID CARBIDE & HSS-E **YG TAP CAST IRON** For Cast Iron or Similar Work Materials	YG TAP CAST IRON
HSS MACHINE TAPS	HSS-E **YG TAP ALU** For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations	YG TAP ALU
	HSS-PM **YG TAP Ti Ni** For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief	YG TAP Ti Ni
	HSS-E & HSS-PM **YG TAP FORMING** Tapping by Forming Soft Materials	YG TAP FORMING
	HSS-E **NUT TAPS** Nut Tapping Machines	NUT TAPS
	HSS-E **SCREW THREAD INSERT** TAPS Tapping STI Threads of Soft Materials	STI TAPS
HSS PIPE TAPS	HSS & HSS-E **PIPE TAPS** Tapping Whitworth Pipe threads	PIPE TAPS
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SELECTION GUIDE

YG THREADING TOOLS

THREAD MILLS

TYPE	Thread Mill without Coolant Hole				Thread Mill with Coolant Hole		
THREAD FORM	M	MF	UNC	UNF	M	MF	BSP(G)
HOLE TYPE	Max. 2.0xD Blind /Through Hole	Max. 1.5xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	Max. 1.5xD Blind /Through Hole	-
TOOL MATERIAL	CARBIDE						
FLUTE TYPE	Helix						
HELIX ANGLE	R15						
SERIES NO.	L1211 (p.B34)	L1212 (p.B35)	L1213 (p.B36)	L1214 (p.B37)	L4211 (p.B38)	L4212 (p.B39)	L6215 (p.B40)
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN
MODEL							

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	L1211	L1212	L1213	L1214	L4211	L4212	L6215
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎	◎
	11		325	35	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎	◎
	16		260	26	◎	◎	◎	◎	◎	◎	◎
	17	Nodular Cast Iron	160	3	◎	◎	◎	◎	◎	◎	◎
	18		250	25	◎	◎	◎	◎	◎	◎	◎
	19	Malleable cast iron	130		◎	◎	◎	◎	◎	◎	◎
	20		230	21	◎	◎	◎	◎	◎	◎	◎
N	21	Aluminum-wrought alloy	60		◎	◎	◎	◎	◎	◎	◎
	22		100		◎	◎	◎	◎	◎	◎	◎
	23	Aluminum-cast, alloyed	75		◎	◎	◎	◎	◎	◎	◎
	24		90		◎	◎	◎	◎	◎	◎	◎
	25		130		◎	◎	◎	◎	◎	◎	◎
	26	Copper and Copper Alloys (Bronze / Brass)	110		◎	◎	◎	◎	◎	◎	◎
	27		90		◎	◎	◎	◎	◎	◎	◎
	28		100		◎	◎	◎	◎	◎	◎	◎
	29	Non Metallic Materials			◎	◎	◎	◎	◎	◎	◎
	30				◎	◎	◎	◎	◎	◎	◎
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○	○
	32		280	30	○	○	○	○	○	○	○
	33		250	25	○	○	○	○	○	○	○
	34		350	38	○	○	○	○	○	○	○
	35		320	34	○	○	○	○	○	○	○
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○	○
	37		1050 Rm		○	○	○	○	○	○	○
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42							
	41	Hardened Cast Iron	550	55							

THREAD MILLS

TYPE	Thread Mill with Coolant Hole & Chamfer					Miniature Thread Mill		Miniature Thread Mill for Hard Materials		Drill & Thread Mill with Chamfer
THREAD FORM	M	MF	UNC	UNF	NPT	M	UNC	M	UNC	M
HOLE TYPE	Max. 2.0xD Blind /Through Hole	Max. 1.5xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	-	Max. 2.0xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole	Max. 2.0xD Blind /Through Hole
TOOL MATERIAL	CARBIDE									
FLUTE TYPE	Helix					Helix		Straight		Helix
HELIX ANGLE	R15					R15		—		R25
SERIES NO.	L4271 (p.B41)	L4272 (p.B42)	L4273 (p.B43)	L4274 (p.B44)	L4276 (p.B45)	L12D1 (p.B46)	L12D3 (p.B47)	L19E1 (p.B48)	L19E3 (p.B49)	L41A1 / L42A1 (p.B50)
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	AlTiN	AlTiN	Bright / TiAlN
MODEL										

ISO	VDI 3323	L4271	L4272	L4273	L4274	L4276	L12D1	L12D3	L19E1	L19E3	L41A1 / L42A1
P	1	◎	◎	◎	◎	◎	◎	◎			
	2	◎	◎	◎	◎	◎	◎	◎			
	3	◎	◎	◎	◎	◎	◎	◎			
	4	◎	◎	◎	◎	◎	◎	◎			
	5	◎	◎	◎	◎	◎	◎	◎			
	6	◎	◎	◎	◎	◎	◎	◎	○	○	
	7	◎	◎	◎	◎	◎	◎	◎	○	○	
	8	◎	◎	◎	◎	◎	◎	◎	○	○	
	9	◎	◎	◎	◎	◎	◎	◎	○	○	
	10	◎	◎	◎	◎	◎	◎	◎	○	○	
	11	◎	◎	◎	◎	◎	◎	◎	○	○	
M	12	○	○	○	○	○	○	○	○	○	
	13	○	○	○	○	○	○	○	○	○	
	14	○	○	○	○	○	○	○	○	○	
K	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	16	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	18	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	19	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	20	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
N	21	◎	◎	◎	◎	◎	◎	◎			◎
	22	◎	◎	◎	◎	◎	◎	◎			◎
	23	◎	◎	◎	◎	◎	◎	◎			◎
	24	◎	◎	◎	◎	◎	◎	◎			◎
	25	◎	◎	◎	◎	◎	◎	◎			◎
	26	◎	◎	◎	◎	◎	◎	◎			◎
	27	◎	◎	◎	◎	◎	◎	◎			◎
	28	◎	◎	◎	◎	◎	◎	◎			◎
	29	◎	◎	◎	◎	◎	◎	◎			◎
	30	◎	◎	◎	◎	◎	◎	◎			◎
S	31	○	○	○	○	○	○	○	◎	◎	
	32	○	○	○	○	○	○	○	◎	◎	
	33	○	○	○	○	○	○	○	◎	◎	
	34	○	○	○	○	○	○	○	◎	◎	
	35	○	○	○	○	○	○	○	◎	◎	
	36	○	○	○	○	○	○	○	○	○	
	37	○	○	○	○	○	○	○	○	○	
H	38								◎	◎	
	39								◎	◎	
	40								◎	◎	
	41								◎	◎	

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

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YG THREADING TOOLS

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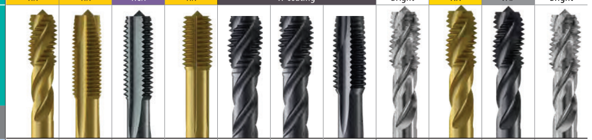
		SYNCHRO TAPS				PRIME TAP			COMBO TAPS			
HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.0xD Blind/ Through Hole	Max. 3.0xD Blind/ Through Hole	Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole			
TOOL MATERIAL		HSS-PM				HSS-PM			HSS-E			
CHAMFER LEAD ACC. TO DIN2197		C	B	C	C	C	E	B	C	C	C	C
FLUTE TYPE		Spiral Flute	Spiral Point	Straight Flute	Cold Forming	Spiral Flute	Spiral Flute	Spiral Point	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute
SPIRAL FLUTE ANGLE		R45	-	-	-	R45	R45	–	R40	R40	R40	R40
SERIES: M	DIN371/376	TTS31 (p.B57)	TTS33 (p.B58)	TKS35 (p.B59)	TTS37 (p.B60)	TRE30 (p.B65)	TRE34 (p.B66)	TRJ15 (p.B71)	TC804 (p.B82)	TD804 (p.B82)	TB804 (p.B82)	TCE05 (p.B84)
M	DIN352											
M	DIN357/LONG											
MF	DIN374					TRE31 (p.B67)		TRJ16 (p.B72)	TC844 (p.B89)	TD844 (p.B89)	TB844 (p.B89)	TCE09 (p.B91)
MF	DIN2181											
UNC	DIN371/376					TRE32 (p.B69)		TRJ17 (p.B74)	TC824 (p.B99)	TD824 (p.B99)	TB824 (p.B99)	TCE01 (p.B100)
UNC	DIN351											
UNF	DIN371/374					TRE33 (p.B70)		TRJ18 (p.B75)	TC864 (p.B101)	TD864 (p.B101)	TB864 (p.B101)	TCE02 (p.B102)
UNF	DIN2181											
BSW	DIN2182/2183											
BSW	DIN351											
G(BSP)	DIN5156/5157											
EG-M	DIN371/376											
EG-UNC	DIN371/376											
EG-UNF	DIN371/374											
SURFACE TREATMENT		TiN	TiN	TiCN	TiN	X-coating			Bright	TiN	VAP	Bright

MODEL



ISO	VDI 3323	Material Description	HB	HRc	TTS31	TTS33	TKS35	TTS37	TRE30	TRE34	TRJ15	TC804	TD804	TB804	TCE05
P	1	Non-alloy steel	125		◎	◎	○	◎	○	○	○	○	○	○	○
P	2	Non-alloy steel	190	13	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎
P	3	Non-alloy steel	250	25	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎
P	4	Non-alloy steel	270	28	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎
P	5	Non-alloy steel	300	32					◎	◎	◎	◎	◎	◎	◎
P	6	Low alloy steel	180	10	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎
P	7	Low alloy steel	275	29	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎
P	8	Low alloy steel	300	32					◎	◎	◎	◎	◎	◎	◎
P	9	Low alloy steel	350	38					○	○	○	◎	◎	◎	◎
P	10	High alloyed steel, and tool steel	200	15					○	○	○	○	○	○	○
P	11	High alloyed steel, and tool steel	325	35					○	○	○				
M	12	Stainless steel	200	15	◎	◎		◎	◎	◎	◎	◎	◎	◎	◎
M	13	Stainless steel	240	23	◎	◎		◎	◎	◎	◎	◎	◎	◎	◎
M	14	Stainless steel	180	10	○	○		◎	◎	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	180	10	○	○	◎		○	○	○	◎	◎	◎	◎
K	16	Grey cast iron	260	26			◎		○	○	○	◎	◎	◎	◎
K	17	Nodular cast iron	160	3	◎	◎	◎		◎	◎	◎	◎	◎	◎	◎
K	18	Nodular cast iron	250	25			◎		◎	◎	◎	◎	◎	◎	◎
K	19	Malleable cast iron	130				○								
K	20	Malleable cast iron	230	21			○								
N	21	Aluminum-wrought alloy	60					◎	○	○	○				
N	22	Aluminum-wrought alloy	100					◎	○	○	○				
N	23	Aluminum-cast, alloyed	75		◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎
N	24	Aluminum-cast, alloyed	90		◎	◎	○	◎	◎	◎	◎				
N	25	Aluminum-cast, alloyed	130		◎	◎	○	○	○	○	○				
N	26	Copper and Copper Alloys (Bronze / Brass)	110		◎	◎			◎	◎	◎	◎	◎	◎	◎
N	27	Copper and Copper Alloys (Bronze / Brass)	90						◎	◎	◎	◎	◎	◎	◎
N	28	Copper and Copper Alloys (Bronze / Brass)	100		○	○		◎	◎	◎	◎	◎	◎	◎	◎
N	29	Non Metallic Materials													
N	30	Non Metallic Materials													
S	31	Heat Resistant Super Alloys	200	15											
S	32	Heat Resistant Super Alloys	280	30											
S	33	Heat Resistant Super Alloys	250	25											
S	34	Heat Resistant Super Alloys	350	38											
S	35	Heat Resistant Super Alloys	320	34											
S	36	Titanium Alloys	400 Rm												
S	37	Titanium Alloys	1050 Rm												
H	38	Hardened steel	550	55											
H	39	Hardened steel	630	60											
H	40	Chilled Cast Iron	400	42											
H	41	Hardened Cast Iron	550	55											

COMBO TAPS

HOLE TYPE		Max. 2.5xD Blind Hole															
TOOL MATERIAL		HSS-E														HSS-PM	
CHAMFER LEAD		C	C	C	C	C	C	C	C	C	C	C	C	C	E	C	C
FLUTE TYPE		Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute
SPIRAL FLUTE ANGLE		R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R45	R45
M	DIN371/376	TDE05 (p.B84)	TBE05 (p.B84)	TCE06 (p.B85)	TDE06 (p.B85)	TBE06 (p.B85)	TCE07 (p.B86)	TDE07 (p.B86)	TBE07 (p.B86)	TCE08 (p.B87)	TDE08 (p.B87)	TBE08 (p.B87)	TC804-IC (p.B93)		TC807 (p.B94)	TB744 (p.B96)	TQ744 (p.B96)
M	DIN352																
M	DIN357/LONG													TC633 (p.B95)			
MF	DIN374	TDE09 (p.B91)														TB754 (p.B98)	TQ754 (p.B83)
MF	DIN2181																
UNC	DIN371/376	TDE01 (p.B100)															
UNC	DIN351																
UNF	DIN371/374	TDE02 (p.B102)															
UNF	DIN2181																
BSW	DIN2182/2183																
BSW	DIN351																
G(BSP)	DIN5156/5157																
EG-M	DIN371/376																
EG-UNC	DIN371/376																
EG-UNF	DIN371/374																
SURFACE TREATMENT		TiN	VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	Bright	Bright	VAP	VAP

ISO	No.	TDE05	TBE05	TCE06	TDE06	TBE06	TCE07	TDE07	TBE07	TCE08	TDE08	TBE08	TC804-IC	TC633	TC807	TB744	TQ744
P	1	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
P	2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	5	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	6	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	7	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	8	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	9	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	10	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
P	11																
M	12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	16	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	18	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	19																
K	20																
N	21																
N	22																
N	23	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	24																
N	25																
N	26	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	27	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
N	29																
N	30																
S	31																
S	32																
S	33																
S	34																
S	35																
S	36																
S	37																
H	38																
H	39																
H	40																
H	41																

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COMBO TAPS

HOLE TYPE		Max. 3.0xD Through Hole							
TOOL MATERIAL		HSS-E							
CHAMFER LEAD ACC. TO DIN2197		B	B	B	B	B	B	B	B
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE		–	–	–	–	–	–	–	–
SERIES M	DIN371/376	TC814 (p.B104)	TD814 (p.B104)	TB814 (p.B104)	TCJ05 (p.B105)	TDJ05 (p.B105)	TBJ05 (p.B105)	TCJ06 (p.B106)	TDJ06 (p.B106)
M	DIN352								
M	DIN357/LONG								
MF	DIN374	TC854 (p.B109)	TD854 (p.B109)	TB854 (p.B109)	TCJ09 (p.B112)	TDJ09 (p.B112)			
MF	DIN2181								
UNC	DIN371/376	TC834 (p.B119)	TD834 (p.B119)	TB834 (p.B119)	TCJ01 (p.B120)	TDJ01 (p.B120)			
UNC	DIN351								
UNF	DIN371/374	TC874 (p.B121)	TD874 (p.B121)	TB874 (p.B121)	TCJ02 (p.B122)	TDJ02 (p.B122)			
UNF	DIN2181								
BSW	DIN2182/2183								
BSW	DIN351								
G(BSP)	DIN5156/5157								
EG-M	DIN371/376								
EG-UNC	DIN371/376								
EG-UNF	DIN371/374								
SURFACE TREATMENT		Bright	TiN	VAP	Bright	TiN	VAP	Bright	TiN
MODEL									

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◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRc	TC814	TD814	TB814	TCJ05	TDJ05	TBJ05	TCJ06	TDJ06
P	1	Non-alloy steel	125		○	○	○	○	○	○	○	○
P	2	Non-alloy steel	190	13	◎	◎	◎	◎	◎	◎	◎	◎
P	3	Non-alloy steel	250	25	◎	◎	◎	◎	◎	◎	◎	◎
P	4	Non-alloy steel	270	28	◎	◎	◎	◎	◎	◎	◎	◎
P	5	Non-alloy steel	300	32	◎	◎	◎	◎	◎	◎	◎	◎
P	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎
P	7	Low alloy steel	275	29	◎	◎	◎	◎	◎	◎	◎	◎
P	8	Low alloy steel	300	32	◎	◎	◎	◎	◎	◎	◎	◎
P	9	Low alloy steel	350	38	◎	◎	◎	◎	◎	◎	◎	◎
P	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○	○	○
P	11	High alloyed steel, and tool steel	325	35								
M	12	Stainless steel	200	15	◎	◎	◎	◎	◎	◎	◎	◎
M	13	Stainless steel	240	23	◎	◎	◎	◎	◎	◎	◎	◎
M	14	Stainless steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	180	10	◎	◎	◎	◎	◎	◎	◎	◎
K	16	Grey cast iron	260	26	◎	◎	◎	◎	◎	◎	◎	◎
K	17	Nodular cast iron	160	3	◎	◎	◎	◎	◎	◎	◎	◎
K	18	Nodular cast iron	250	25	◎	◎	◎	◎	◎	◎	◎	◎
K	19	Malleable cast iron	130									
K	20	Malleable cast iron	230	21								
N	21	Aluminum-wrought alloy	60									
N	22	Aluminum-wrought alloy	100									
N	23	Aluminum-cast, alloyed	75		◎	◎	◎	◎	◎	◎	◎	◎
N	24	Aluminum-cast, alloyed	90									
N	25	Aluminum-cast, alloyed	130									
N	26	Copper and Copper Alloys (Bronze / Brass)	110		◎	◎	◎	◎	◎	◎	◎	◎
N	27	Copper and Copper Alloys (Bronze / Brass)	90		◎	◎	◎	◎	◎	◎	◎	◎
N	28	Copper and Copper Alloys (Bronze / Brass)	100		◎	◎	◎	◎	◎	◎	◎	◎
N	29	Non Metallic Materials										
N	30	Non Metallic Materials										
S	31	Heat Resistant Super Alloys	200	15								
S	32	Heat Resistant Super Alloys	280	30								
S	33	Heat Resistant Super Alloys	250	25								
S	34	Heat Resistant Super Alloys	350	38								
S	35	Heat Resistant Super Alloys	320	34								
S	36	Titanium Alloys	400 Rm									
S	37	Titanium Alloys	1050 Rm									
H	38	Hardened steel	550	55								
H	39	Hardened steel	630	60								
H	40	Chilled Cast Iron	400	42								
H	41	Hardened Cast Iron	550	55								

COMBO TAPS

HOLE TYPE		Max. 3.0xD Through Hole										
TOOL MATERIAL		HSS-E									HSS-PM	
CHAMFER LEAD ACC. TO DIN2197		B	B	B	B	B	B	B	B	B	B	B
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE		–	–	–	–	–	–	–	–	–	–	–
M	DIN371/376	TBJ06 (p.B106)	TCJ07 (p.B107)	TDJ07 (p.B107)	TBJ07 (p.B107)	TCJ08 (p.B108)	TDJ08 (p.B108)	TBJ08 (p.B108)	TC814-IC (p.B114)		TB428 (p.B116)	TQ428 (p.B114)
M	DIN352											
M	DIN357/LONG									TC445 (p.B115)		
MF	DIN374										TB438 (p.B118)	TQ438 (p.B117)
MF	DIN2181											
UNC	DIN371/376											
UNC	DIN351											
UNF	DIN371/374											
UNF	DIN2181											
BSW	DIN2182/2183											
BSW	DIN351											
G(BSP)	DIN5156/5157											
EG-M	DIN371/376											
EG-UNC	DIN371/376											
EG-UNF	DIN371/374											
SURFACE TREATMENT		VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	Bright	VAP	VAP

ISO	VDI 3323	TBJ06	TCJ07	TDJ07	TBJ07	TCJ08	TDJ08	TBJ08	TC814-IC	TC445	TB428	TQ428
P	1	○	○	○	○	○	○	○	○	○		
P	2	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	3	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	4	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	5	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	6	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	7	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	8	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	9	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	10	○	○	○	○	○	○	○	○	○		
P	11											
M	12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	15	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	16	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	17	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	18	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	19											
K	20											
N	21											
N	22											
N	23	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	24											
N	25											
N	26	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	27	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
N	29											
N	30											
S	31											
S	32											
S	33											
S	34											
S	35											
S	36											
S	37											
H	38											
H	39											
H	40											
H	41											

COMBO TAP SETS

Combo Spiral Flute Taps	
TB804SET5	TC804SET7
VAP	Bright
5pcs	7pcs

Combo Spiral Flute Taps + Gold-P Drill

TD804SET7-GLP195

TiN

14pcs

P.113

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THREADING TOOLS

YG TAP GENERAL

HOLE TYPE	Max. 2.5xD Blind Hole			Max. 3.0xD Through Hole		
TOOL MATERIAL	HSS-E					
CHAMFER LEAD ACC. TO DIN2197	C	C	C	B	B	B
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE	R40	R40	R20	–	–	–
SERIES						
M – DIN371/376	TC711 (p.B132)	TD711 (p.B133)	TC517 (p.B141)	TC127 (p.B143)	TD127 (p.B144)	TC227 (p.B153)
M – DIN352			TC612 (p.B142)	TC122 (p.B145)		
M – DIN357/LONG						
MF – DIN374	TC411 (p.B134)	TD411 (p.B136)		TC222 (p.B146)	TD222 (p.B148)	
MF – DIN2181						
UNC – DIN371/376	TC144 (p.B138)			TC214 (p.B150)		
UNC – DIN351						
UNF – DIN371/374	TC124 (p.B139)			TC234 (p.B151)		
UNF – DIN2181						
BSW – DIN2182/2183	TC134 (p.B140)			TC224 (p.B152)		
BSW – DIN351						
G(BSP) – DIN5156/5157						
EG-M – DIN371/376						
EG-UNC – DIN371/376						
EG-UNF – DIN371/374						
SURFACE TREATMENT	Bright	TiN	Bright	Bright	TiN	Bright
MODEL						

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ISO	VDI 3323	Material Description	HB	HRc	TC711	TD711	TC517	TC127	TD127	TC227
P	1	Non-alloy steel	125		○	○	○	○	○	○
P	2	Non-alloy steel	190	13	◎	◎	◎	◎	◎	◎
P	3	Non-alloy steel	250	25	◎	◎	◎	◎	◎	◎
P	4	Non-alloy steel	270	28	◎	◎	◎	◎	◎	◎
P	5	Non-alloy steel	300	32	○	○	○	○	○	○
P	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎
P	7	Low alloy steel	275	29	◎	◎	◎	◎	◎	◎
P	8	Low alloy steel	300	32	○	○	○	○	○	○
P	9	High alloyed steel, and tool steel	350	38						
P	10	High alloyed steel, and tool steel	200	15						
P	11	High alloyed steel, and tool steel	325	35						
M	12	Stainless steel	200	15	○	○	○	○	○	○
M	13	Stainless steel	240	23	○	○	○	○	○	○
M	14	Stainless steel	180	10						
K	15	Grey cast iron	180	10						
K	16	Grey cast iron	260	26						
K	17	Nodular cast iron	160	3	◎	◎	◎	◎	◎	◎
K	18	Nodular cast iron	250	25	◎	◎	◎	◎	◎	◎
K	19	Malleable cast iron	130							
K	20	Malleable cast iron	230	21						
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○
N	22	Aluminum-wrought alloy	100							
N	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○
N	24	Aluminum-cast, alloyed	90		○	○	○	○	○	○
N	25	Aluminum-cast, alloyed	130		◎	◎	◎	◎	◎	◎
N	26	Copper and Copper Alloys (Bronze / Brass)	110		○	○	○	○	○	○
N	27	Copper and Copper Alloys (Bronze / Brass)	90							
N	28	Copper and Copper Alloys (Bronze / Brass)	100		◎	◎	◎	◎	◎	◎
N	29	Non Metallic Materials								
N	30	Non Metallic Materials								
S	31	Heat Resistant Super Alloys	200	15						
S	32	Heat Resistant Super Alloys	280	30						
S	33	Heat Resistant Super Alloys	250	25						
S	34	Heat Resistant Super Alloys	350	38						
S	35	Heat Resistant Super Alloys	320	34						
S	36	Titanium Alloys	400 Rm							
S	37	Titanium Alloys	1050 Rm							
H	38	Hardened steel	550	55						
H	39	Hardened steel	630	60						
H	40	Chilled Cast Iron	400	42						
H	41	Hardened Cast Iron	550	55						

YG TAP GENERAL

HOLE TYPE	Max. 3.0xD Through Hole		Max. 1.5xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole					
TOOL MATERIAL	HSS								
CHAMFER LEAD ACC. TO DIN2197	B	C	C	I / II / III	I / III	I / II / III	I / III	I / II / III	I / II / III
FLUTE TYPE	Spiral Point	Spiral Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute
SPIRAL FLUTE ANGLE	–	L20	–	–	–	–	–	–	Left Hand Cut
M – DIN371/376	TD227 (p.B154)	TC211 (p.B155)	TC463 (p.B156)						
M – DIN352				T7109 (p.B159)					T7343 (p.B166)
M – DIN357/LONG									
MF – DIN374			TC473 (p.B157)						
MF – DIN2181					T7309 (p.B161)				
UNC – DIN371/376			TC424 (p.B158)						
UNC – DIN351						T7363 (p.B163)			
UNF – DIN371/374									
UNF – DIN2181							T7509 (p.B164)		
BSW – DIN2182/2183									
BSW – DIN351								T7609 (p.B165)	
G(BSP) – DIN5156/5157									
EG-M – DIN371/376									
EG-UNC – DIN371/376									
EG-UNF – DIN371/374									
SURFACE TREATMENT	TiN	Bright	Bright	Bright	Bright	Bright	Bright	Bright	Bright
MODEL									

ISO	VDI 3323	Material Description	HB	HRc	TD227	TC211	TC463	T7109	T7309	T7363	T7509	T7609	T7343
P	1	Non-alloy steel	125		○	○	○	○	○	○	○	○	○
P	2	Non-alloy steel	190	13	◎	◎	○	○	○	○	○	○	○
P	3	Non-alloy steel	250	25	◎	◎	○	○	○	○	○	○	○
P	4	Non-alloy steel	270	28	◎	◎	○	○	○	○	○	○	○
P	5	Non-alloy steel	300	32	○	○	○						
P	6	Low alloy steel	180	10	◎	◎	○	○	○	○	○	○	○
P	7	Low alloy steel	275	29	◎	◎	○	○	○	○	○	○	○
P	8	Low alloy steel	300	32	○	○	○						
P	9	High alloyed steel, and tool steel	350	38									
P	10	High alloyed steel, and tool steel	200	15									
P	11	High alloyed steel, and tool steel	325	35									
M	12	Stainless steel	200	15	○	○	○						
M	13	Stainless steel	240	23	○	○	○						
M	14	Stainless steel	180	10									
K	15	Grey cast iron	180	10			○						
K	16	Grey cast iron	260	26			○						
K	17	Nodular cast iron	160	3	◎	◎	○	○	○	○	○	○	○
K	18	Nodular cast iron	250	25	◎	◎	○	○	○	○	○	○	○
K	19	Malleable cast iron	130										
K	20	Malleable cast iron	230	21									
N	21	Aluminum-wrought alloy	60		○	○							
N	22	Aluminum-wrought alloy	100										
N	23	Aluminum-cast, alloyed	75		○	○							
N	24	Aluminum-cast, alloyed	90		○	○							
N	25	Aluminum-cast, alloyed	130		◎	◎	○	○	○	○	○	○	○
N	26	Copper and Copper Alloys (Bronze / Brass)	110		○	○	○	○	○	○	○	○	○
N	27	Copper and Copper Alloys (Bronze / Brass)	90				○	○	○	○	○	○	○
N	28	Copper and Copper Alloys (Bronze / Brass)	100		◎	◎							
N	29	Non Metallic Materials											
N	30	Non Metallic Materials											
S	31	Heat Resistant Super Alloys	200	15									
S	32	Heat Resistant Super Alloys	280	30									
S	33	Heat Resistant Super Alloys	250	25									
S	34	Heat Resistant Super Alloys	350	38									
S	35	Heat Resistant Super Alloys	320	34									
S	36	Titanium Alloys	400 Rm										
S	37	Titanium Alloys	1050 Rm										
H	38	Hardened steel	550	55									
H	39	Hardened steel	630	60									
H	40	Chilled Cast Iron	400	42									
H	41	Hardened Cast Iron	550	55									

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THREADING TOOLS

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			YG TAP GENERAL		YG TAP STEEL		
HOLE TYPE			Max. 2.0xD Blind/Through Hole		Max. 2.5xD Blind Hole		
TOOL MATERIAL			HSS	HSS-E	HSS-PM		HSS-E
CHAMFER LEAD ACC. TO DIN2197			I / II / III	I / II / III	C	C	C
FLUTE TYPE			Straight Flute	Straight Flute	Spiral Flute	Spiral Flute	Spiral Flute
SPIRAL FLUTE ANGLE			–	–	R40	R40	R40
SERIES	M	DIN371/376			TQ823 (p.B174)	TR823 (p.B175)	TC312 (p.B176)
		DIN352	TB373 (p.B167)	TC353 (p.B168)			
		DIN357/LONG					
	MF	DIN374					TC413 (p.B180)
		DIN2181					
	UNC	DIN371/376					TC174 (p.B182)
		DIN351					
	UNF	DIN371/374					TC184 (p.B184)
		DIN2181					
	BSW	DIN2182/2183					
		DIN351					
	G(BSP)	DIN5156/5157					
	EG-M	DIN371/376					
	EG-UNC	DIN371/376					
	EG-UNF	DIN371/374					
SURFACE TREATMENT			VAP	Bright	VAP	Bright	Bright
MODEL							

ISO	VDI 3323	Material Description	HB	HRc	TB373	TC353	TQ823	TR823	TC312	TC413	TC174	TC184
P	1	Non-alloy steel	125		○	○						
	2		190	13	○	○	○	○	○			
	3		250	25	○	○	○	○	○			
	4		270	28	○	○	○	○	○			
	5		300	32			◎	◎	◎			
	6	Low alloy steel	180	10	○	○	○	○	○			
	7		275	29	○	○	○	○	○			
	8		300	32			◎	◎	◎			
	9		350	38			◎	◎	◎			
	10	High alloyed steel, and tool steel	200	15			○	○	○			
	11		325	35								
M	12	Stainless steel	200	15	○							
	13		240	23	○							
	14		180	10	○		○	○	○			
K	15	Grey cast iron	180	10								
	16		260	26								
	17	Nodular cast iron	160	3								
	18		250	25								
	19	Malleable cast iron	130									
	20		230	21								
N	21	Aluminum-wrought alloy	60									
	22		100									
	23	Aluminum-cast, alloyed	75									
	24		90									
	25		130									
	26	Copper and Copper Alloys (Bronze / Brass)	110									
	27		90									
	28		100									
	29	Non Metallic Materials										
	30											
S	31	Heat Resistant Super Alloys	200	15			○	○	○			
	32		280	30								
	33		250	25								
	34		350	38								
	35		320	34								
	36	Titanium Alloys	400 Rm				○	○	○			
	37		1050 Rm									
H	38	Hardened steel	550	55								
	39		630	60								
	40	Chilled Cast Iron	400	42								
	41	Hardened Cast Iron	550	55								

	YG TAP STEEL									
HOLE TYPE	Max. 2.5xD Blind Hole				Max. 3.0xD Through Hole					
TOOL MATERIAL	HSS-E				HSS-PM		HSS-E			
CHAMFER LEAD ACC. TO DIN2197	C	C	C	C	B	B	B	B	B	B
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE	R40	R40	R40	R40	-	-	-	-	-	-
SERIES	TD312 (p.B177)	TB312 (p.B178)	TY312 (p.B179)	TB913 (p.B185)	TQ863 (p.B186)	TR863 (p.B187)	TC422 (p.B188)	TD422 (p.B189)	TE422 (p.B190)	TY422 (p.B191)
	TD413 (p.B181)						TC263 (p.B192)	TD263 (p.B193)		
	TD174 (p.B183)						TC244 (p.B194)	TD244 (p.B195)		
							TC254 (p.B196)			
SURFACE TREATMENT	TiN	VAP	TiAlN	VAP	VAP	Bright	Bright	TiN	Nitride	TiAlN
MODEL										

ISO	VDI 3323	Material Description	HB	HRc	TD312	TB312	TY312	TB913	TQ863	TR863	TC422	TD422	TE422	TY422
P	1	Non-alloy steel	125											
	2		190	13	○	○	○	○	○	○	○	○	○	○
	3		250	25	○	○	○	○	○	○	○	○	○	○
	4		270	28	○	○	○	○	○	○	○	○	○	○
	5		300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	○	○	○	○	○	○	○	○	○	○
	7		275	29	○	○	○	○	○	○	○	○	○	○
	8		300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○	○	○	○	○
	11		325	35										
M	12	Stainless steel	200	15					○	○	○	○	○	○
	13		240	23					○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10										
	16		260	26										
	17	Nodular cast iron	160	3										
	18		250	25										
	19	Malleable cast iron	130											
	20		230	21										
N	21	Aluminum-wrought alloy	60											
	22		100											
	23	Aluminum-cast, alloyed	75											
	24		90											
	25		130											
	26	Copper and Copper Alloys (Bronze / Brass)	110											
	27		90											
	28		100											
	29	Non Metallic Materials												
	30													
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○	○	○	○	○
	32		280	30										
	33		250	25										
	34		350	38										
	35		320	34										
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○	○	○	○	○
	37		1050 Rm											
H	38	Hardened steel	550	55										
	39		630	60										
	40	Chilled Cast Iron	400	42										
	41	Hardened Cast Iron	550	55										

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THREADING TOOLS

YG TAP HARDENED

HOLE TYPE			Max. 2.0xD Blind / Through Hole		Max. 2.5xD Blind Hole			Max. 3.0xD Through Hole	
TOOL MATERIAL			CARBIDE		HSS-E				
CHAMFER LEAD ACC. TO DIN2197			C	D	C	C	C	B	B
FLUTE TYPE			Straight Flute	Straight Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE			-	-	R40	R40	R40	-	-
SERIES	M	DIN371/376	T0997-TIC (p.B202)	T0999-TIC (p.B203)	TC313 (p.B204)	TB313 (p.B205)	TY313 (p.B206)	TC283 (p.B207)	TY283 (p.B208)
		DIN352							
		DIN357/LONG							
	MF	DIN374							
		DIN2181							
	UNC	DIN371/376							
		DIN351							
	UNF	DIN371/374							
		DIN2181							
	BSW	DIN2182/2183							
		DIN351							
	G(BSP)	DIN5156/5157							
	EG-M	DIN371/376							
	EG-UNC	DIN371/376							
	EG-UNF	DIN371/374							
SURFACE TREATMENT			TiCN	TiCN	Bright	VAP	TiAlN	Bright	TiAlN
MODEL									

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ISO	VDI 3323	Material Description	HB	HRc							
P	1	Non-alloy steel	125								
	2		190	13							
	3		250	25							
	4		270	28							
	5		300	32							
	6	Low alloy steel	180	10							
	7		275	29			○	○	○	○	○
	8		300	32			○	○	○	○	○
	9		350	38	○	○	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15							
	11		325	35							
M	12	Stainless steel	200	15							
	13		240	23							
	14		180	10			○	○	○	○	○
K	15	Grey cast iron	180	10							
	16		260	26							
	17	Nodular cast iron	160	3							
	18		250	25							
	19	Malleable cast iron	130								
	20		230	21							
N	21	Aluminum-wrought alloy	60								
	22		100								
	23	Aluminum-cast, alloyed	75								
	24		90								
	25		130								
	26	Copper and Copper Alloys (Bronze / Brass)	110				○	○	○	○	○
	27		90								
	28		100								
	29	Non Metallic Materials									
	30										
S	31	Heat Resistant Super Alloys	200	15							
	32		280	30							
	33		250	25							
	34		350	38							
	35		320	34							
	36	Titanium Alloys	400 Rm								
	37		1050 Rm								
H	38	Hardened steel	550	55	◎	◎					
	39		630	60	◎	◎					
	40	Chilled Cast Iron	400	42	◎	◎					
	41	Hardened Cast Iron	550	55	◎	◎					

YG TAP INOX

HOLE TYPE	Max. 2.0xD Blind Hole			Max. 2.5xD Blind Hole									
TOOL MATERIAL	HSS-E	HSS-PM		HSS-E							HSS-PM		
CHAMFER LEAD ACC. TO DIN2197	C	C	C	C	C	C	C	C	C	C	B	B	
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	
SPIRAL FLUTE ANGLE	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	–	–	
SERIES	TB711 (p.B214)	TQ813 (p.B215)	TR813 (p.B216)	TB914 (p.B217)	TI914 (p.B217)	TBE15 (p.B218)	TBE16 (p.B219)	TBE17 (p.B220)	TBE18 (p.B221)	TCH14 (p.B222)	TQ853 (p.B223)	TR853 (p.B224)	M
				TB183 (p.B227)									MF
				TB904 (p.B228)									UNC
				TB924 (p.B229)									UNF
													BSW
													G(BSP)
													EG-M
													EG-UNC
													EG-UNF
SURFACE TREATMENT	VAP	VAP	Bright	VAP	TiCN	VAP	VAP	VAP	VAP	HardSlick	VAP	Bright	
MODEL													
1	◎	○	○	◎	◎	◎	◎	◎	◎	◎	○	○	P
2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
3		○	○	○	○	○	○	○	○	○	○	○	
4		○	○	○	○	○	○	○	○	○	○	○	
5													
6		○	○	○	○	○	○	○	○	○	○	○	
7													
8													
9													
10													
11													
12	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	M
13	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
14	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
15													K
16													
17													
18													
19													
20													
21	○												N
22													
23													
24													
25													
26													
27													
28	○												
29													
30													
31		○	○	○	○	○	○	○	○	○	○	○	S
32													
33													
34													
35													
36		○	○	○	○	○	○	○	○	○	○	○	
37													
38													H
39													
40													
41													

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THREADING TOOLS

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			YG TAP INOX		YG TAP CAST IRON				
HOLE TYPE			Max. 2.5xD Blind Hole		Max. 2.0xD Blind / Through Hole				
TOOL MATERIAL			HSS-E		CARBIDE	HSS-E			
CHAMFER LEAD ACC. TO DIN2197			B	B	C	C	C	C	C
FLUTE TYPE			Spiral Point	Spiral Point	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute
SPIRAL FLUTE ANGLE			–	–	-	-	-	-	-
SERIES	M	DIN371/376	TB623 (p.B225)	TCH23 (p.B226)	T0993 (p.B237)	TE821 (p.B238)	TD821 (p.B239)	TI821 (p.B240)	TY821 (p.B241)
		DIN352							
		DIN357/LONG							
	MF	DIN374	TB123 (p.B230)			TE403 (p.B242)			
		DIN2181							
	UNC	DIN371/376	TB264 (p.B231)			TE434 (p.B243)			
		DIN351							
	UNF	DIN371/374	TB274 (p.B232)			TE454 (p.B244)			
		DIN2181							
	BSW	DIN2182/2183							
		DIN351							
	G(BSP)	DIN5156/5157							
	EG-M	DIN371/376							
	EG-UNC	DIN371/376							
	EG-UNF	DIN371/374							
SURFACE TREATMENT			VAP	HardSlick	Bright	Nitride	TiN	TiCN	TiAlN
MODEL									

ISO	VDI 3323	Material Description	HB	HRc	YG TAP INOX VAP	YG TAP INOX HardSlick	YG TAP CAST IRON Bright	Nitride	TiN	TiCN	TiAlN
P	1	Non-alloy steel	125		◎	◎					
	2		190	13	◎	◎					
	3		250	25	○	○					
	4		270	28	○	○					
	5		300	32							
	6	Low alloy steel	180	10	○	○					
	7		275	29							
	8		300	32							
	9		350	38							
	10	High alloyed steel, and tool steel	200	15							
	11		325	35							
M	12	Stainless steel	200	15	◎	◎					
	13		240	23	◎	◎					
	14		180	10	◎	◎					
K	15	Grey cast iron	180	10			◎	◎	◎	◎	◎
	16		260	26			◎	◎	◎	◎	◎
	17	Nodular cast iron	160	3			◎	◎	◎	◎	◎
	18		250	25			◎	◎	◎	◎	◎
	19	Malleable cast iron	130				○	○	○	○	○
	20		230	21			○	○	○	○	○
N	21	Aluminum-wrought alloy	60								
	22		100				◎				
	23	Aluminum-cast, alloyed	75								
	24		90				◎				
	25		130								
	26	Copper and Copper Alloys (Bronze / Brass)	110								
	27		90					○	◎	◎	◎
	28		100								
	29	Non Metallic Materials									
	30										
S	31	Heat Resistant Super Alloys	200	15	○	○					
	32		280	30							
	33		250	25							
	34		350	38							
	35		320	34							
	36	Titanium Alloys	400 Rm		○	○					
	37		1050 Rm								
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42			◎				
	41	Hardened Cast Iron	550	55							

	YG TAP ALU							YG TAP Ti Ni			
HOLE TYPE	Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole		Max. 2.0xD Blind/Through Hole			Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole	
TOOL MATERIAL	HSS-E							HSS-PM			
CHAMFER LEAD ACC. TO DIN2197	C	C	B	B	C	C	C	C	C	B	B
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Straight Flute	Straight Flute	Straight Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE	R45	R40	-	-	-	-	-	R25	R25	-	-
SERIES M DIN371/376	TC163 (p.B250)	TE953 (p.B251)	TC622 (p.B255)	TE943 (p.B256)	TC433 (p.B257)	TE443 (p.B258)	TY433 (p.B259)	TM903 (p.B264)	TZ903 (p.B265)	TM293 (p.B266)	TZ293 (p.B267)
MF DIN374	TC963 (p.B252)										
UNC DIN371/376	TC169 (p.B253)										
UNF DIN371/374	TC170 (p.B254)										
SURFACE TREATMENT	Bright	Nitride	Bright	Nitride	Bright	Nitride	TiAlN	Bright	TiAlN	Bright	TiAlN
MODEL											

ISO	VDI 3323	YG TAP ALU Bright	Nitride	Bright	Nitride	Bright	Nitride	TiAlN	YG TAP Ti Ni Bright	TiAlN	Bright	TiAlN
P	1	○		○								
	2	○		○								
	3	○	○	○	○							
	4											
	5											
	6											
	7								○	○	○	○
	8								○	○	○	○
	9								○	○	○	○
	10											
	11											
M	12											
	13											
	14											
K	15											
	16											
	17											
	18											
	19											
	20											
N	21	◎	○	◎	○							
	22	◎	○	◎	○							
	23	◎	○	◎	○							
	24	◎	○	◎	○							
	25		◎		◎							
	26					◎	◎	◎				
	27	○		○		○	○	○				
	28					○		○				
	29											
	30											
S	31								○	○	○	○
	32										○	○
	33										○	○
	34										○	○
	35										○	○
	36								○	○	○	○
	37								◎	◎	◎	◎
H	38											
	39											
	40										○	○
	41											

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THREADING TOOLS

YG TAP Ti Ni

HOLE TYPE			Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole			
TOOL MATERIAL			HSS-PM						
CHAMFER LEAD ACC. TO DIN2197			C	C	B	B	C	C	B	B
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE			R40	R40	-	-	R40	R40	-	-
SERIES	M	DIN371/376	TM933 (p.B268)	TZ933 (p.B269)	TM923 (p.B270)	TZ923 (p.B271)	TQ833 (p.B272)	TR833 (p.B273)	TQ873 (p.B274)	TR873 (p.B275)
		DIN352								
		DIN357/LONG								
	MF	DIN374								
		DIN2181								
	UNC	DIN371/376								
		DIN351								
	UNF	DIN371/374								
		DIN2181								
	BSW	DIN2182/2183								
		DIN351								
	G(BSP)	DIN5156/5157								
	EG-M	DIN371/376								
	EG-UNC	DIN371/376								
	EG-UNF	DIN371/374								
SURFACE TREATMENT			Bright	TiAlN	Bright	TiAlN	VAP	Bright	VAP	Bright
MODEL										

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ISO	VDI 3323	Material Description	HB	HRc	TM933	TZ933	TM923	TZ923	TQ833	TR833	TQ873	TR873
P	1	Non-alloy steel	125									
	2		190	13								
	3		250	25								
	4		270	28								
	5		300	32								
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15								
	11		325	35								
M	12	Stainless steel	200	15								
	13		240	23								
	14		180	10								
K	15	Grey cast iron	180	10								
	16		260	26								
	17	Nodular cast iron	160	3								
	18		250	25								
	19	Malleable cast iron	130									
	20		230	21								
N	21	Aluminum-wrought alloy	60									
	22		100									
	23	Aluminum-cast, alloyed	75									
	24		90									
	25		130									
	26	Copper and Copper Alloys (Bronze / Brass)	110									
	27		90									
	28		100									
	29	Non Metallic Materials										
	30											
S	31	Heat Resistant Super Alloys	200	15	◎	◎	◎	◎	◎	◎	◎	◎
	32		280	30	◎	◎	◎	◎	◎	◎	◎	◎
	33		250	25	◎	◎	◎	◎	◎	◎	◎	◎
	34		350	38	◎	◎	◎	◎	◎	◎	◎	◎
	35		320	34	◎	◎	◎	◎	◎	◎	◎	◎
	36	Titanium Alloys	400 Rm						○	○	○	○
	37		1050 Rm		○	○	○	○	◎	◎	◎	◎
H	38	Hardened steel	550	55				○				
	39		630	60								
	40	Chilled Cast Iron	400	42			○	○			○	○
	41	Hardened Cast Iron	550	55								

YG TAP FORMING

HOLE TYPE			Max. 3.0xD Blind / Through Hole								
TOOL MATERIAL			HSS-E		HSS-PM	HSS-E		HSS-PM	HSS-E		
CHAMFER LEAD ACC. TO DIN2197			C	C	C	C	C	C	C	C	C
FLUTE TYPE			-	-	-	-	-	-	-	-	-
SPIRAL FLUTE ANGLE			-	-	-	-	-	-	-	-	-
SERIES	M	DIN371/376	TD703 (p.B280)	TE703 (p.B281)	TY703 (p.B282)	TQ703 (p.B283)	TD713 (p.B284)	TE713 (p.B285)	TQ723 (p.B286)	TE723 (p.B287)	TD723 (p.B288)
		DIN352									
		DIN357/LONG									
	MF	DIN374	TD733 (p.B289)	TE733 (p.B290)							
		DIN2181									
	UNC	DIN371/376	TD704 (p.B291)	TE704 (p.B292)							
		DIN351									
	UNF	DIN371/374									
		DIN2181									
	BSW	DIN2182/2183									
		DIN351									
	G(BSP)	DIN5156/5157									
	EG-M	DIN371/376									
	EG-UNC	DIN371/376									
	EG-UNF	DIN371/374									
SURFACE TREATMENT			TiN	Nitride	TiAlN	VAP	TiN	Nitride	VAP	Nitride	TiN
MODEL											

ISO	VDI 3323	Material Description	HB	HRc	TD703	TE703	TY703	TQ703	TD713	TE713	TQ723	TE723	TD723
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎
	4		270	28									
	5		300	32									
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎
	7		275	29									
	8		300	32									
	9		350	38									
	10	High alloyed steel, and tool steel	200	15									
	11		325	35									
M	12	Stainless steel	200	15	○	○	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10									
	16		260	26									
	17	Nodular cast iron	160	3									
	18		250	25									
	19	Malleable cast iron	130										
	20		230	21									
N	21	Aluminum-wrought alloy	60		◎	◎	◎	◎	◎	◎	◎	◎	◎
	22		100		◎	◎	◎	◎	◎	◎	◎	◎	◎
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○	○	○
	24		90		○	○	○	○	○	○	○	○	○
	25		130										
	26	Copper and Copper Alloys (Bronze / Brass)	110		○	○	○	○	○	○	○	○	○
	27		90										
	28		100		○	○	◎	○	◎	○	○	○	◎
	29	Non Metallic Materials											
	30												
S	31	Heat Resistant Super Alloys	200	15									
	32		280	30									
	33		250	25									
	34		350	38									
	35		320	34									
	36	Titanium Alloys	400 Rm										
	37		1050 Rm										
H	38	Hardened steel	550	55									
	39		630	60									
	40	Chilled Cast Iron	400	42									
	41	Hardened Cast Iron	550	55									

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THREADING TOOLS

			NUT TAPS	SCREW THREAD INSERT TAPS		PIPE TAPS	
HOLE TYPE			Max. 2.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max.2.0xD Blind/Thoughhole	Max. 2.5xD Blind Hole
TOOL MATERIAL			HSS-E	HSS-E		HSS	HSS-E
CHAMFER LEAD ACC. TO DIN2197			Long	C	B	I/III	C
FLUTE TYPE			Straight Flute	Spiral Flute	Spiral Point	Straight Flute	Spiral Flute
SPIRAL FLUTE ANGLE			–	R40	–	–	R40
SERIES	M	DIN371/376					
		DIN352					
		DIN357/LONG	TC803 (p.B297)				
	MF	DIN374					
		DIN2181					
	UNC	DIN371/376					
		DIN351					
	UNF	DIN371/374					
		DIN2181					
	BSW	DIN2182/2183					
		DIN351					
	G(BSP)	DIN5156/5157				T7709 (p.B309)	TC728 (p.B310)
	EG-M	DIN371/376		TC909 (p.B301)	TC973 (p.B302)		
	EG-UNC	DIN371/376		TC944 (p.B303)	TC934 (p.B304)		
	EG-UNF	DIN371/374			TC954 (p.B305)		
SURFACE TREATMENT			Bright	Bright	Bright	Bright	Bright
MODEL							

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ISO	VDI 3323	Material Description	HB	HRc	NUT TAPS	SCREW THREAD INSERT TAPS		PIPE TAPS	
P	1	Non-alloy steel	125		○	○	○	○	
	2		190	13	○	○	○	○	◎
	3		250	25	○	○	○	○	◎
	4		270	28	○				◎
	5		300	32					
	6	Low alloy steel	180	10	○			○	◎
	7		275	29	○				◎
	8		300	32					
	9		350	38					
	10	High alloyed steel, and tool steel	200	15					
	11		325	35					
M	12	Stainless steel	200	15					
	13		240	23					
	14		180	10					
K	15	Grey cast iron	180	10				○	
	16		260	26				○	
	17	Nodular cast iron	160	3	○				◎
	18		250	25	○				◎
	19	Malleable cast iron	130						
	20		230	21					
N	21	Aluminum-wrought alloy	60			◎	◎	○	○
	22		100			◎	◎	○	○
	23	Aluminum-cast, alloyed	75			◎	◎	○	○
	24		90			◎	◎		○
	25		130		○				◎
	26	Copper and Copper Alloys (Bronze / Brass)	110		○				◎
	27		90		○	◎	◎		○
	28		100						
	29	Non Metallic Materials							
	30								
S	31	Heat Resistant Super Alloys	200	15					
	32		280	30					
	33		250	25					
	34		350	38					
	35		320	34					
	36	Titanium Alloys	400 Rm						
	37		1050 Rm						
H	38	Hardened steel	550	55					
	39		630	60					
	40	Chilled Cast Iron	400	42					
	41	Hardened Cast Iron	550	55					

	PIPE TAPS				
	Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole		
	HSS-E				
	C	C	B		
	Spiral Flute	Spiral Flute	Spiral Point		
	R40	R40	-		
M					
MF					
UNC					
UNF					
BSW					
G(BSP)	TC729 (p.B311)	TB514 (p.B312)	TC727 (p.B313)		
EG-M					
EG-UNC					
EG-UNF					
SURFACE TREATMENT	Bright	VAP	Bright		
MODEL					

				1	P	
		◎		2		
		◎	◎	3		
			◎	4		
				5		
	○		◎	6		
	○		◎	7		
	◎			8		
	◎			9		
				10		
				11		
		◎		12	M	
		◎		13		
	○	◎		14		
				15	K	
				16		
			◎	17		
			◎	18		
				19		
				20		
			○	21	N	
			○	22		
			○	23		
			○	24		
			◎	25		
			◎	26		
			○	27		
				28		
				29		
				30		
				31	S	
				32		
				33		
				34		
				35		
				36		
				37		
				38	H	
				39		
				40		
				41		

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

CUTTING SPEED TABLE **SCHNITTGESCHWINDIGKEITSTABELLE**
Cutting Speeds m/min. into revolutions per minute

TOOL R.P.M. (rev/min)																
Tool Dia.	Cutting Speed (m/min)															
	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
1	318	637	955	1274	1592	1910	2548	3185	3822	4777	6396	7962	9554	12739	15924	19108
2	159	318	478	637	796	955	1274	1592	1911	2388	3185	3981	4777	6369	7962	9554
3	106	212	318	425	531	637	849	1062	1274	1592	2123	2654	3185	4246	5308	6369
4	80	159	239	318	398	478	637	796	955	1194	1592	1990	2389	3185	3981	4777
5	64	127	191	255	318	382	510	637	764	955	1274	1592	1911	2548	3185	3822
6	53	106	159	212	265	318	425	531	637	796	1062	1327	1592	2123	2653	3185
8	40	80	119	159	199	239	318	398	478	597	796	955	1194	1592	1990	2388
10	31	64	96	127	159	191	255	318	382	478	637	796	955	1274	1592	1911
12	26	53	80	106	133	159	212	265	318	398	531	663	796	1062	1327	1592
14	23	45	68	91	114	136	182	227	273	341	455	569	682	910	1137	1365
16	20	40	60	80	100	119	159	199	239	299	398	498	597	796	995	1194
18	18	35	53	71	88	106	142	177	212	265	354	442	531	708	885	1062
20	16	32	48	64	80	96	127	159	191	239	318	398	478	637	796	955
25	13	25	38	51	64	76	102	127	153	191	255	318	382	510	637	764
30	11	21	32	42	53	64	85	106	127	159	212	265	318	425	531	637
35	9	18	27	36	45	55	73	91	109	136	182	227	273	364	455	546
40	8	16	24	32	40	48	64	80	96	119	159	199	239	118	398	478

RPM = rev/min
V = m/min
D = Dia.(mm)

$$V = \frac{RPM \cdot \pi \cdot D}{1000}$$

$$RPM = \frac{1000 \cdot V}{\pi \cdot D}$$

The applied High Speed Steels holds a grant of good wear resistance and toughness. Therefore YG-1 normally delivers taps with bright and unfinished surface. For certain materials, various surface treatments provide higher advantage in machining.

STEAM TEMPERED

Steam Tempered is a Fe3O4-oxyd-coating which reduces friction between the tool and workpiece, also preventing cold welding.

NITRIDING NI

Recommend surface treatment for machining materials that affect wear abrasion, such as grey cast iron, alu-alloys with high Si-percentages (more than 10%).

Below are the various surface treatments for excellent finish surfaces suitable for many applications. The surface treatments are produced and developed within the company.

T N OATING

TiN-coating yields a hardness of approx. 2,300 HV and also a heat resistant up to approx. 600°C. The current coating is an excellent all-round coating for normal applications.
Colour : Golden Coefficient of friction against steel : 0.4

T N OATING

TiCN takes place of TiN when the conditions require the coating to have a different hardness and toughness.
The TiCN brings advantages for machining very difficult steels or cutting interrupted bores.
The TiCN-coating has a hardness of approx. 3,000 HV, but is heat resistance only holds up to approx. 400°C, meaning that the TiCN needs an excellent cooling system for a long service life.
Colour : Blue-Grey Coefficient of friction against steel : 0.4

T AIN OATING

A special coating for machining abrasive materials such as grey cast iron, alu-alloys with silicon, fiber reinforced plastics, etc., or machining at high temperatures with insufficient cooling, or at high speeds ≥ 600m/min. TiAIN has a hardness of approx. 3,000 HV and is heat resistant up to approx. 800°C.
Colour : Violet-Grey Coefficient of friction against steel : 0.4

H OATING

Hardslick combines the advantages of an extremely hard, thermally stable TiAIN-coating with the sliding and lubricating properties of an outer WC/C(Tungsten carbide/carbon)-coating in a novel way. The Hardslick coating has a hardness of approx. 3,000 HV and is temperature-resistant up to approx. 800°C.
Colour : Violet-Grey Coefficient of friction against steel : 0.2

E AMPLES OR APPLI ATION MATERIAL GRO PS

11	Magnetic Soft Steels < 400 N/mm²
1.1013	RFe 100
1.1014	RFe 80
1.1015	RFe 60
1.0718	9 S MnPb 28

12	Structure/Case Carburizing Steels < 700 N/mm²
1.0037	St 37-2
1.0050	St 50-2
1.0060	St 60-2
1.0070	St 70-2
1.0401	C 15
1.1141	Ck 15

13	Plain Carbon Steels < 850 N/mm²
1.0501	C 35
1.0503	C 45
1.0535	C 55
1.0601	C 60
1.1181	Ck 35
1.1191	Ck 45

14	Alloy Steels < 850 N/mm²
1.2080	X210Cr12
1.2363	X100CrMoV5-1
1.3243	S 6-5-2-5
1.3343	S 6-5-2
1.7218	25CrMo4
1.7220	34CrMo4

15	Alloy, Hardened & Tempered Steels < 1,200 N/mm²
1.2581	X30WCrV9 3
1.2622	X60WCrMoV9
1.2550	60WCrV7
1.6580	30CrNiMo8
1.7361	32CrMo12
1.8515	31CrMo12

16	Alloy, Hardened & Tempered Steels > 1,200 N/mm²
To this group belong most of the materials of group 15, but present a higher tensile strength.	

21	Free machining stainless Steels < 850 N/mm²
1.4005	X12CrS13
1.4006	X10Cr13
1.4016	X6Cr17
1.4104	X12CrMoS17
1.4305	X10CrNiS18 9

22	Austenitic stainless Steels < 850 N/mm²
1.4301	X5CrNi18 10
1.4406	X2CrNiMoN17 12 2
1.4435	X2CrNiMo18 14 3
1.4541	X6CrNiTi18 10
1.4571	X6CrNiMoTi17 12 2
1.4828	X15CrNiSi20 12

23	Matensitic/Ferritic/Fer.-Aus. Stainless Steels < 1,000 N/mm²
1.4112	X90CrMoV18
1.4125	X105CrMo17
1.4002	X6CrAl13
1.4512	X6CrTi12
1.4582	X4CrNiMoNb25 7
1.4821	X20CrNiSi25 4

31	Grey graphite cast irons < 500 N/mm²
0.6015	GG-15
0.6020	GG-20
0.6025	GG-25
0.6030	GG-30
0.6035	GG-35
0.6040	GG-40

32	Grey graphite cast irons < 1,000 N/mm²
0.6020	GG-20
0.6025	GG-25
0.6030	GG-30
0.6035	GG-35
0.6040	GG-40

33	Nodular graphite, Malleable cast irons < 700 N/mm²
0.7040	GGG-40
0.7043	GGG-40.3
0.7050	GGG-50
0.7060	GGG-60
0.8040	GTW-40
0.8065	GTW-65

34	Nodular graphite, Malleable cast irons < 1,000 N/mm²
0.7040	GGG-40
0.7043	GGG-40.3
0.7050	GGG-50
0.7060	GGG-60
0.7070	GGG-70
0.7080	GGG-80

41	Titanium unalloys < 700 N/mm²
3.7024	Ti99.5
3.7034	Ti99.7
3.7035	Ti2
3.7055	Ti99.4
3.7064	Ti99.2
3.7065	Ti4

42	Titanium alloys < 900 N/mm²
	TiA14Mn4
3.7114	TiA15Sn2
3.7124	TiCu2
3.7164	TiA16V4
3.7174	TiA16V6Sn2

43	Titanium alloys < 1,300 N/mm²
3.7124	TiCu2
3.7144	TiA16Sn2Zr4Mo2
3.7154	TiAl6Zr5
3.7164	TiA16V4
3.7174	TiA16V6Sn2
3.7184	TiAl4Mo4Sn2

51	Nickel unalloys < 500 N/mm²
2.1504	NiAlBz
2.4042	Ni99CSi
2.4060	Ni99.6
2.4062	Ni99.4Fe

52	Heat resisting Nickel alloys < 900 N/mm²
2.4360	Monel 400
2.4374	Monel 500
2.4665	Hastelloy X
2.4812	Hastelloy C
2.4816	Inconel 600
1.4876	Incoloy 800

53	Heat resisting Nickel alloys < 1,400 N/mm²
2.4631	Nimonic80A
2.4632	Nimonic90
2.4634	Nimonic105
2.4662	Nimonic901
2.4668	Inconel 718
2.4669	Inconel X-750

61	Copper unalloys < 350 N/mm²
2.0060	E-Cu57
2.0070	SE-Cu
2.0090	SF-Cu
2.1356	CuMn3
2.1522	CuSi2Mn

62	Short chip Brass, Bronze copper alloys < 700N/mm²
2.0360	CuZn40 (Ms60)
2.0380	CuZn39Pb2 (Ms58)
2.0410	CuZn44Pb2
2.0580	CuZn40Mn1Pb
2.1086	G-CuSn10Zn
2.1096	G-CuSn5ZnPb

63	Long chip Brass, Bronze copper alloys < 700 N/mm²
2.0250	CuZn20
2.0321	CuZn37
2.1020	CuSn6
2.1080	CuSn6Zn6
2.1245	CuBel.7
2.1293	CuCrZr

64	Cu-Al-Fe alloys < 1,500 N/mm²

71	Aluminum-Magnesium unalloys < 350 N/mm²
3.0250	Al99.5H
3.0280	Al99.8H
3.0305	Al99.9
3.3308	Al99.9Mg0.5

72	Aluminum alloys, Si < 1.5% < 600 N/mm²
3.0515	AlMn1
3.0525	AlMn1Mg0.5
3.1325	AlCuMg1
3.3315	AlMg1
3.3241	G-AlMg3Si
3.3292	GD-AlMg9

73	Aluminum alloys, 0.5-10% Si < 600 N/mm²
3.2134	G-AlSi5Cu1Mg
3.2152	GD-AlSi6Cu4
3.2162	GD-AlSi8Cu3
3.2373	G-AlSi9Mg

74	Aluminum alloys, Si > 10% < 600 N/mm²
3.2381	G-AlSi10Mg
3.2383	G-AlSi10Mg(Cu)
3.2581	G-AlSi12
3.2583	G-AlSi12(Cu)
3.5662	G-MgA16
3.5812	G-MgA18Zn1

81	Thermoplastics
Delrin(POM)	
Teflon	
Nylon	

82	Thermosseting plastics
Bakelit	
Novopan	

83	Reinforced plastics materials
Glass fiber reinforced	
Thermo and Duroplastics	

Referance:DIN

MATERIAL GRO P

STANDARDS

GERMANY W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
10 - STEEL					
11 - Magnetic soft steels - Hardness < 120 HB 30 - Tensile strength < 400 N/mm²					
1.1013	RFe 100		OSOA12	EN2	
1.1014	RFe 80				
1.1015	RFe 60		230Mo7	EN1	
1.0718	9 S MnPb 28				
12 - Structural steels - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²					
12.1 - Structural steels					
1.0034	RSt 34-2	A34-2 EN	1449 34/20 HR		
1.0035	St 33	A33	Fe 310-0		
1.0036	St 37-2		060A35	EN3A,4,5,6,7,8	
1.0037	RSt 37-2				
1.0044	St 44-2				
1.0050	St 50-2		4360-50B	EN 207	
1.0060	St 60-2				
1.0070	St 70-2				
1.0116	St 37-3				
1.0144	St 44-3				
12.2 - Case carburizing steels					
1.0301	C 10	AF 34 C 10	040 A 10		M 1010
1.0401	C 15	AF 37 C 12	080 A 15		M 1015
1.1121	Ck 10	XC 10	040 A 10		1010
1.1141	Ck 15	XC 12	040 A 15		1015
1.5732	14 Ni Cr 10	14 NC 11			3415
1.7015	15 Cr 3	12 C 3	523 M 15		5015
1.7131	16 Mn Cr 5	16 MC 4	527 M 17	EN 32	5115
1.7147	20 Mn Cr 5	20 MC 5			5120
12.3 - Free machining steels					
1.0710	15 S 10				
1.0715	9 S Mn 28	S 250	230 M 07		1213
1.0718	9 S Mn Pb 28	S 250 Pb			12 L 13
1.0721	10 S 20	10 F1	210 M 15		1108 1109
1.0722	10 S Pb 20	10 Pb F 2			11 L 08
1.0723	15 S 20	.....	210 A 15		
1.0726	35 S 20	35 MF 6	212 M 36		1140
1.0727	45 S 20	45 MF 4			1146
1.0736	9 S Mn 36	S 300			1215
1.0737	9 S Mn Pb 36	S 300 Pb			12 L 14
12.4 - Cast structural steels					
1.0416	GS - 38				
1.0446	GS - 45				
1.0552	GS - 52				
1.0553	GS - 60	E 36 - 3			
1.0554	GS - 70				
13 - Plain carbon steels - tempered					
13.1 - Steels, tempered - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²					
1.0402	C 22	1 C 22	070 M 20		M 1023
1.0501	C 35	1 C 35	080 A 32		1035
1.0503	C 45	1 C 45	060 A 47		1045
1.0535	C 55	1 C 55	070 M 55		1055
1.0601	C 60	1 C 60	060 A 62	EN 43	1060
1.1157	40 Mn 4	35 M 5	150 M 36		1035 1041
1.1151	Ck 22	2 C 22	055 M 15		1020 1023
1.1181	Ck 35	2 C 35	080 A 35		1035 1038
1.1191	Ck 45	2 C 45	080 M 46	EN 9, 10	1045
1.1203	Ck 55	2 C 55	060 A 57		1055
1.1221	Ck 60	2 C 60	060 A 62		1060 1064

MATERIAL GRO P

STANDARDS

GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
14 - Alloy steels - Hardness < 250 HB 30, < 25 HRC - Tensile strength < 850 N/mm²					
14.1 - Cold work tool steels					
1.2056	90 Cr 3				
1.2067	100 Cr 6	Y 100 C 6	BL 3		L 1 L 3
1.2080	X 210 Cr 12	Z 200 C 12	BD 3		D3
1.2083	X 42 Cr 13	Z 40 C 14			420
1.2363	X 100 CrMoV5 1	Z 100 CDV 5	BA 2		A 2
1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	BD 2		D 2
1.2510	100 MnCrW 4	90 MWCV 5	BO 1		O1
1.2550	60 WCrV 7	55WC 20	BS 1		S1
1.2823	70 Si 7				
1.2826	60 Mn Si Cr 4				
1.2842	90 MnCrV 8	90 MV 8	BO 2		O 2
14.2 - High speed steels					
1.3202	S 12-4-4-5	Z 130 WKCV 12-05-04-04	BT 15		T 15
1.3207	S 10-4-3-10	Z130 WKCDV10-10-04-04-03	BT 42		T 42
1.3243	S 6-5-2-5	Z85 WDKCV 06-05-05-04-02	BM 35		M 35
1.3247	S 2-10-1-8	Z110 DKCWV 09-08-04-02-01	BM 42		M 42
1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2		M 2
1.3344	S 6-5-3	Z 120 WDCV 06-05-04-03			M 3 / 2
1.3348	S 2-9-2	Z 100 DCWV 09-04-02-02			M 7
ASP 23	(S 6-5-3)				
ASP 30					
ASP 60					
14.3 - Alloy steels					
1.5919	GS-15Cr Ni 6	16 NC 6			3115
1.7218	GS-25Cr Mo 4	25 C D 4	70 8A 25		4130
1.7220	GS-34Cr Mo 4	35 C D 4	70 8A 37		4135 4137
1.7379	GS-18 Cr Mo 9 10				
14.4 - Tempered steels					
1.0503	C 45	1 C 45	060 A 47		1045
1.7220	34 Cr Mo 4	34 Cr Mo 4	708 A 37		4135, 4137
1.7225	42 Cr Mo 4	42 CD 4	708 A 42	EN 16, 17, 19	4140, 4142
1.7228	50 Cr Mo 4	50 Cr Mo 4	708 A 47		4150
14.5 - Nitriding steels					
1.7779	20 Cr Mo V 13.5				
1.8504	34 Cr Al 6				
1.8506	34 Cr Al S 5				
1.8507	34 Cr Al Mo 5	30 CAD 6.12			A 355 Cl.D
1.8509	41 Cr Al Mo 7	40 CAD 6.12	905 M 39		A 355 Cl.A
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm²					
15.1 - Alloy steels for tools					
1.2311	40 Cr Mn Mo 7				
1.2312	40 Cr Mn Mo S 86				
1.2436	X 210 Cr W 12	Z 200 CW 12			
1.2711	54 Ni Cr Mo V 6				
1.2713	55 Ni Cr Mo V 6	55 NCDV 7	826 M 40	S 95, S 97, S 98	L 6
1.2714	56 Ni Cr Mo V 7				
1.2743	60 Ni Cr Mo V 12 4				
1.2766	35 Ni Cr Mo 16				
15.2 - Alloy steels for hot work					
1.2343	X 38 Cr Mo V 5 1	Z 38 CDV 5	BH 11		H 11
1.2344	X 40 Cr Mo V 5 1	Z 40 CDV 5	BH 13		H 13
1.2365	X 32 Cr Mo V 3 3	32 DCV 28	BH 10		H 10
1.2367	X 40 Cr Mo V 5 3	Z 38 CDV 5.3			
1.2581	X 30 W Cr V 9 3	Z 30 WCV 9.3	BH 21		H 21
1.2622	X 60 W Cr Mo V 9				
1.2678	X 45 CoCrWV 5 5 5				
1.2550	60 WCr V 7	55 WC 20	BS 1		S 1
1.2567	X 30 W Cr V 5 3	Z 32 WCV 5			

MATERIAL GRO P

STANDARDS

GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
15.3 - Hardened tempered steels - Hardness may be different according to presentation and dimensions of material					
1.5864	35 Ni Cr 18				
1.6580	30 Cr Ni Mo 8	30 Cr Ni Mo 8			
1.7361	32 Cr Mo 12	30 CD 12	722 M 24		
1.7707	30 Cr Mo V 9				
1.8161	58 Cr V 4				
15.4 - Nitriding steels					
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
1.8519	31 Cr Mo V 9		830 M 31		
1.8523	39 Cr Mo V 13 9		897 M 39		
1.8550	34 Cr Al Ni 7		826 M 40		
16 - Alloy steels / Hardened tempered steels - Hardness > 38 HRC - Tensile strength > 1,200 N/mm²					
To this group belong most of the materials of group 15, but present a higher tensile strength					
20 - STAINLESS STEELS					
21 - Free machining stainless steels - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²					
1.4104	X 12 Cr Mo S 17	Z 13 CF 17	416 S 37	EN 56	430 F
1.4305	X 10 Cr Ni S 18 09	Z 8 CNF 18-09	303 S 21	EN 60	303
22 - Austenitic stainless steels - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²					
1.4300	X 12 Cr Ni 18 8		320 S 12		
1.4301	X 5 Cr Ni 18 10	Z 6 CN 18-09	304 S 15	EN 80, EN 58 + C	304
1.4311	X 2 CrNiN 18 10	Z 3 CN 18-07 Az	304 S 61		304 LN
1.4406	X 2 CrNiMoN 17 12 2	Z 3 CND 17 11 02	316 S 61		316 LN
1.4433	X 2 CrNiMo 18 15		316 S		
1.4435	X 2 CrNiMo 18 14 3	Z3 CND 17-12-03	316 S 11		316 L
1.4539	X 1 CrNiMoCu 25 20 5	Z 1 NCDU 25-20	321 S 17		UNS N08904
1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18 10	321 S 18	EN 58 J, 316	321
1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNDT 17 12	320 S 18		316 Ti
1.4573	X 10 CrNiMoTi 18 12		320 S 33		
1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20-12	309 S 24		309
22.1 - Cast austenitic stainless steels					
1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M	304 C 15(LT196)		CF-8
1.4313	G-X 5 CrNi 13 4	Z 8 CD 17-01	425 C 12		CA 6 -NM
1.4408	G-X 6 CrNiMo 18 10		316 C 16(LT196)		CF-8M
1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12M	318 C 17		
23 - Martensitic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,000 N/mm²					
1.4021	X 20 Cr 13	Z 20 C 13	420 S 37		420
1.4034	X 46 Cr 13	Z 44 C 14	(420 S 45)		
1.4057	X 20 CrNi 17 2	Z 15 CN 16-02	431 S 29		431
1.4112	X 90 CrMoV 18				
1.4116	X 45 CrMoV 15			EN 58, b.e.j.t	
1.4125	X 105 CrMo 17	Z 100 CD 17		Duplex alloys	440 C
1.4718	X 45 CrSi 9 3	Z 45 CS 9	401 S 45		HNV 3
1.4747	X 80 CrNiSi 20	Z 80 CSN 20-02	443 S 65		HNV 6
1.4086	G-X 120 Cr 29				
1.4106	G-X 10 CrMo 13				
1.4138	G-X 120 CrMo 29 2				
24 - Ferritic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²					
1.4002	X 6 Cr Al 13	Z 8 CA 12	405 S 17		405
1.4006	X 10 Cr 13	Z 10 C 13	410 C 21		410
1.4016	X 6 Cr 17	Z 8 C 17	430 S 17		430
1.4510	X 6 Cr Ti 17	Z 8 CT 17			430 Ti
1.4512	X 6 Cr Ti 12	Z 6 CT 12	409 S 19		409
25 - Ferritic-Austenitic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²					
1.4460	X 8 CrNiMo 27 5	Z 5 CND 27-05 Az			329
1.4582	X 4 CrNiMoNb 25 7				
1.4821	X 20 CrNiSi 25 4				

MATERIAL GRO P

STANDARDS

GERMANY W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
30 - CAST IRONS					
31 - Grey graphite cast irons - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²					
0.6010	GG-10	Ft 10 D			A 48-20 B
0.6015	GG-15	Ft 20 D	Grade 150	Grey cast iron soft	A 48-25 B
0.6020	GG-20	Ft 25 D	Grade 220		A 48-30 B
0.6025	GG-25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG-30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG-35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG-40	Ft 40 D	Grade 400		A 48-60 B
31.1 - Meehanite - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²					
.....	GF - 150				
.....	GD - 260				
32 - Grey graphite cast irons - Hardness 150 - 300 HB 30 - Tensile strength 500 - 1,000 N/mm²					
0.6020	GG - 20	Ft 25 D	Grade 220	Grey cast iron hard	A 48-30 B
0.6025	GG - 25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG - 30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG - 35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG - 40	Ft 40 D	Grade 400		A 48-60 B
32.1 - Meehanite - Hardness 150-300 HB 30 - Tensile strength 500-1,000 N/mm²					
.....	GF - 150				
.....	GD - 260				
15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm²					
0.7033	GGG-35.3				
0.7040	GGG-40	FGS 400-12	420 / 12		60-40-18
0.7043	GGG-40.3	FGS 370-17	370 / 17		
0.7050	GGG-50	FGS 500-7	500 / 7		65-45-12
0.7060	GGG-60	FGS 600-3	600 / 3	S.G.iron, Meehanite	80-55-06
0.8035	GTW-35		700/2,30g/72	Black & White Heart	
0.8040	GTW-40				
0.8045	GTW-45				
0.8065	GTW-65				
0.8135	GTS-35				
0.8145	GTS-45				
0.8155	GTS-55				
0.8165	GTS-65				
33.1 - Meehanite - Hardness < 200 HB 30 -Tensile strength < 700 N/mm²					
SF 400					
SPF 600					
34 - Nodular graphite, tempered malleable cast irons - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm²					
0.7070	GGG-70	FGS 700-2	700 / 2	S.G.iron,Meehanite	100-70-03
0.7080	GGG-80	FGS 800-2	800 / 2	Black & White Heart	120-90-02
And materials from group 33 tempered					
34.1 - Meehanite - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm²					
	SH 800		420/12, P 440/7		
	SH 1000				
40 - TITANIUM					
41 - Titanium, unalloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²					
3.7024.1LN	Ti 99.5				
3.7034.1LN	Ti 99.7				
3.7035	Ti 2				
3.7055	Ti 99.4		TA 1-9	Ti 99.0	
3.7064.1LN	Ti 99.2				
3.7065	Ti 4				
3.7255	Ti 3 Pd				

MATERIAL GRO P

STANDARDS

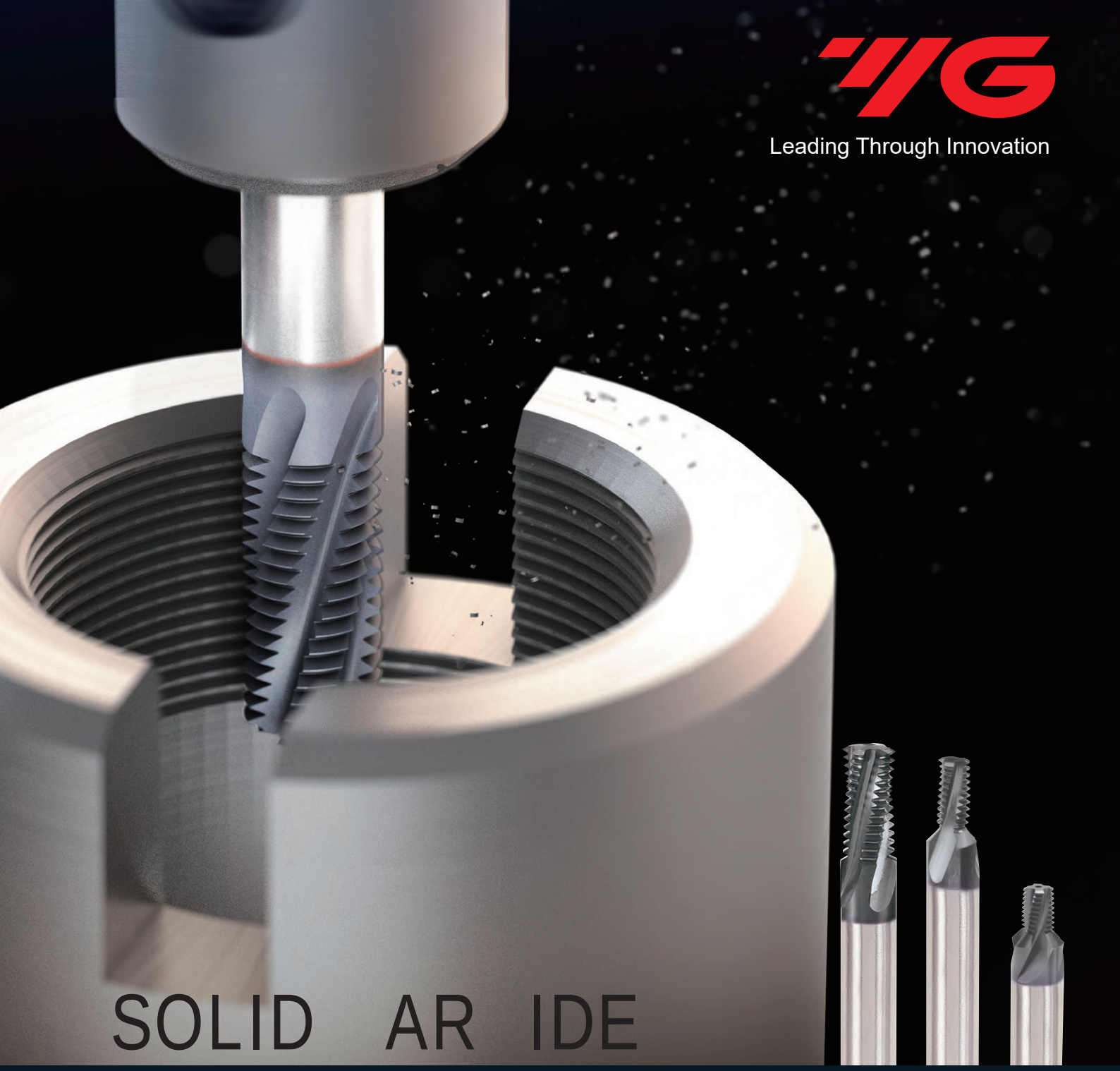
GERMANY W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
42 - Titanium, alloys - Hardness < 270 HB 30 - Tensile strength < 900 N/mm²					
	Ti Al 4 Mn 4				
3.7144 LN	Ti Al 5 Sn 2				
3.7124 LN	Ti Cu 2		TA 10-14, TA 17	Ti - 2AL	
3.7164 LN	Ti Al 6 V 4		TA 18		
3.7174 LN	Ti Al 6 V 6 Sn 2				
43 - Titanium, alloys - Hardness 270-300 HB 30 - Tensile strength 900-1,300 N/mm²					
3.7124 LN	Ti Cu 2				
3.7144 LN	Ti Al 6 Sn 2 Zr4 Mo2			Ti AL	
3.7154 LN	Ti Al 6 Zr 5		TA 10-13, TA 28	3.7174LN, 3.7148LN	
3.7164 LN	Ti Al 6 V 4				
3.7174 LN	Ti Al 6 V Sn 2				
3.7184 LN	Ti Al 4 Mo 4 Sn 2				
50 - NICKEL					
51 - Nickel, unalloys - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²					
2.1504 LN	Ni Al Bz				
2.4042	Ni 99 CSi		NA 11, NA 12	Nickel 200	
2.4060	Ni 99.6			Nickel 270	
2.4062	Ni 99.4 Fe				
52 - Heat resisting nickel alloys - Hardness < 270 HB 30 - Tensile strength < 900 N/mm²					
2.4360 LN	Monel 400				
2.4374 LN	Monel 500				
2.4617	Hastelloy B 2			Nimonic 75	
2.4665	Hastelloy X		HR 203		
2.4812	Hastelloy C		3027-76	Hastelloy C	
2.4816	Inconel 600			Haynes Alloys 263	
1.4876	Incoloy 800				
2.4983	Udimet 500				
53 - Heat resisting nickel alloys - Hardness 270-410 HB 30 - Tensile strength 900-1,400 N/mm²					
2.4631	Nimonic 80 A			Nimonic 80	
2.4632	Nimonic 90				
2.4634	Nimonic 105				
2.4662	Nimonic 901		HR 8		
2.4668	Inconel 718		HR 401, 601	Rene 41	
2.4669	Inconel X-750				
2.4670 LN	Nimocast 713				
2.4674 LN	Nimocast PK 24				
2.4856	Inconel 625				
2.6554 LN	Waspaloy				
60 - COPPER					
61 - Copper, unalloys - Hardness < 100 HB 30 - Tensile strength < 350 N/mm²					
2.0060	E - Cu 57				
2.0070	SE - Cu			Commercially Pure	
2.0090	SF - Cu		C 101		
2.1356	Cu Mn 3				
2.1522	Cu Si 2 Mn				
62 - Short chip copper alloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²					
62.1 - Brass					
2.0360	Cu Zn 40(MS 60)				
2.0380	Cu Zn 39 Pb 2 (MS 58)		CZ120, CZ109		
2.0410	Cu Zn 44 Pb 2		PB104		
2.0561	Cu Zn 40 Al 1			2.1030, 2.1080	
2.0580	Cu Zn 40 Mn 1 Pb				
2.0771	Cu Ni 7 Zn 39 Mn 5 Pb3				
62.2 - Bronzes					
2.1086	G-Cu Sn 10 Zn				
2.1093	G-Cu Sn 6 Zn Ni				
2.1096	G-Cu Sn 5 Zn Pb				

MATERIAL GRO P

STANDARDS

GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
63 - Long chip copper alloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm^2					
63.1 - Brass					
2.0250	Cu Zn 20				
2.0265	Cu Zn 30				
2.0321	Cu Zn 37		CZ108, CZ106		
2.0335	Cu Zn 36 (Ms 63)				
63.2 - Bronzes					
2.1020	Cu Sn 6				
2.1030	Cu Sn 8				
2.1080	Cu Sn 6 Zn 6				
63.3 - Copper alloys tempered by forging					
2.1245	Cu Be 1.7				
2.1247	Cu Be 2				
2.1293	Cu Cr Zr				
64 - Cu - Al - Fe alloys Hardness < 440 HB 30 - Tensile strength < 1,500 N/mm^2					
70 - ALUMINIUM - MAGNESIUM					
71 - Aluminum - Magnesium, unalloys - Hardness < 100 HB 30 - Tensile strength < 350 N/mm^2					
3.0250	Al 99.5 H				
3.0280	Al 99.8 H				
3.0305	Al 99.9				
3.3308	Al 99.9 Mg 0.5				
72 - Aluminum alloys, Si < 1.5% - Hardness < 180 HB 30 - Tensile strength < 600 N/mm^2					
72.1 - Forging aluminum alloys					
3.0515	Al Mn 1				
3.0516	S-Al Mn				
3.0525	Al Mn 1 Mg 0.5				
3.0615	Al Mg Si Pb				
3.1325	Al Cu Mg 1				
3.1355	Al Cu Mg 2				
3.3315	Al Mg 1				
3.3535	Al Mg 3				
3.4365	Al Zn Mg Cu 1.5				
72.2 - Cast aluminum alloys					
3.1841	G - Al Cu 4 Ti				
3.3241	G - Al Mg 3 Si				
3.3292	GD - Al Mg 9				
73 - Aluminum alloys, 0.5-10% Si - Hardness < 180 HB 30 - Tensile strength < 600 N/mm^2					
73.1 - Cast aluminum alloys					
3.2134	G - Al Si 5 Cu 1 Mg				
3.2152	GD - Al Si 6 Cu 4				
3.2162	GD - Al Si 8 Cu 3				
3.2373	G - Al Si 9 Mg				
74 - Aluminum alloys, Si > 10% - Hardnes < 180 HB 30 - Tensile strength < 600 N/mm^2					
74.1 - Cast aluminum alloys					
3.2381	G - Al Si 10 Mg				
3.2383	G - Al Si 10 Mg (Cu)				
3.2581	G - Al Si 12				
3.2583	G - Al Si 12 (Cu)				
3.2982	GD - Al Si 12 (Cu)				
74.2 - Cast aluminum - magnesium alloys					
3.5106	G - Mg Ag 3 SE 2 Zr 1				
3.5662	G - Mg Al 6				
3.5812	G - Mg Al 8 Zn 1				
3.5912	G - Mg Al 9 Zn 1				

Leading Through Innovation



THREAD MILLS

GE INDE R SER

- **Threading Large Diameter in High Quality Available with Chamfer**
- **Zur Fertigung von Gewinden mit großen Durchmessern in hoher Qualität, verfügbar mit Fase**

SELE TION G IDE

YG THREADING TOOLS

SOLID CARBIDE THREAD MILLS

Threading Large Diameter in High Quality
Available with Chamfer

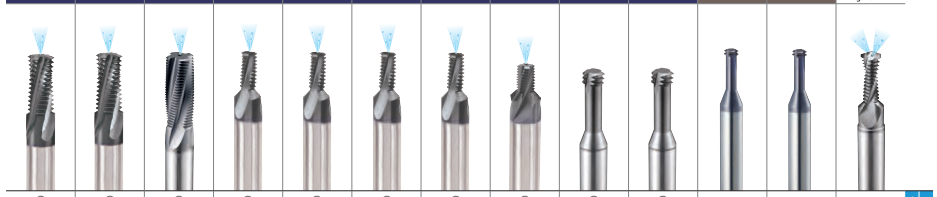
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B52

TYPE	Thread Mill without Coolant Hole			
THREAD FORM	M	MF	UNC	UNF
HOLE TYPE	Max. 2.0xD Blind / Through Hole	Max. 1.5xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole
TOOL MATERIAL	CARBIDE			
FLUTE TYPE	Helix			
HELIX ANGLE	R15			
SERIES NO.	L1211 (p.B34)	L1212 (p.B35)	L1213 (p.B36)	L1214 (p.B37)
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN
MODEL				

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	M	MF	UNC	UNF
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎
	11			Quenched & Tempered	325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○	○	○
	14		Austenitic		180	10	○	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎	◎
	17	Nodular Cast Iron	Ferritic		160	3	◎	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎	◎
	19	Malleable cast iron	Ferritic		130		◎	◎	◎	◎
	20		Pearlitic		230	21	◎	◎	◎	◎
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎	◎	◎
	22		Curable	Hardened	100		◎	◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎	◎	◎
	25		> 12% Si, Not Curable		130		◎	◎	◎	◎
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		◎	◎	◎	◎
	27		CuZn, CuSnZn (Brass)		90		◎	◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper		100		◎	◎	◎	◎
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				◎	◎	◎	◎
	30		Rubber, Wood, etc.				◎	◎	◎	◎
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○
	32			Cured	280	30	○	○	○	○
	33		Ni or Co Based	Annealed	250	25	○	○	○	○
	34			Cured	350	38	○	○	○	○
	35			Cast	320	34	○	○	○	○
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm		○	○	○	○
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

TYPE	Thread Mill with Coolant Hole			Thread Mill with Coolant Hole & Chamfer					Miniature Thread Mill		Miniature Thread Mill for Hard Materials		Drill & Thread Mill with Chamfer
THREAD FORM	M	MF	BSP(G)	M	MF	UNC	UNF	NPT	M	UNC	M	UNC	M
HOLE TYPE	Max. 2.0xD Blind / Through Hole	Max. 1.5xD Blind / Through Hole	-	Max. 2.0xD Blind / Through Hole	Max. 1.5xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole	-	Max. 2.0xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole	Max. 2.0xD Blind / Through Hole
TOOL MATERIAL	CARBIDE												
FLUTE TYPE	Helix			Helix					Helix		Straight		Helix
HELIX ANGLE	R15			R15					R15		-		R25
SERIES NO.	L4211 (p.B38)	L4212 (p.B39)	L6215 (p.B40)	L4271 (p.B41)	L4272 (p.B42)	L4273 (p.B43)	L4274 (p.B44)	L4276 (p.B45)	L12D1 (p.B46)	L12D3 (p.B47)	L19E1 (p.B48)	L19E3 (p.B49)	L41A1 / L42A1 (p.B50)
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	AlTiN	AlTiN	Bright / TiAlN
MODEL													

ISO	M	MF	BSP(G)	M	MF	UNC	UNF	NPT	M	UNC	M	UNC	M	VDI 3323
P	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				1
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				2
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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				5
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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○		7
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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○		9
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○		10
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○		11
M	○	○	○	○	○	○	○	○	○	○	○	○		12
	○	○	○	○	○	○	○	○	○	○	○	○		13
	○	○	○	○	○	○	○	○	○	○	○	○		14
K	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	15
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N	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	21
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S	○	○	○	○	○	○	○	○	○	○	◎	◎		31
	○	○	○	○	○	○	○	○	○	○	◎	◎		32
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	○	○	○	○	○	○	○	○	○	○	○	○		36
	○	○	○	○	○	○	○	○	○	○	○	○		37
H											◎	◎		38
											◎	◎		39
											◎	◎		40
											◎	◎		41

TH EAD MILLS

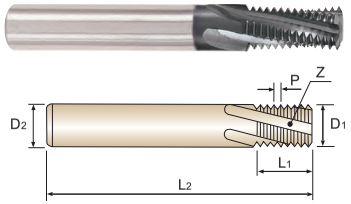
L SERIES

M Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13

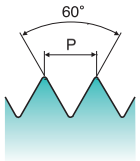
VOLLHARTMETALL GEWINDEFRÄSER für ISO METRISCHES INNENGEWINDE - DIN 13
FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13
Filettature interne, ISO metriche, passo grosso - DIN 13

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
2×D



Material groups MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B52

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
○	POWER MILLING CHUCK			D161-176
○	ER COLLET CHUCK SK SLIM CHUCK			D73-115 D183-201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN		P	D1	D2	L1	L2	Z
L1211200	M3	0.5	**2.2**	6	5	57	3
L1211240	M4	0.7	**2.9**	6	7	57	3
L1211280	M5	0.8	**3.8**	6	8	57	3
L1211310	M6	1.0	**4.5**	6	13	57	3
L1211360	M8	1.25	**6.0**	6	17.5	65	3
L1211420	M10	1.5	**7.5**	8	21	72	4
L1211500	M12	1.75	**9.5**	10	26.25	80	4
L1211540	M14	2.0	**10.0**	10	30	83	4
L1211600	M16	2.0	**12.0**	12	34	92	4
L1211650	M18	2.5	**14.0**	14	37.5	92	5
L1211700	M20	2.5	**16.0**	16	42.5	105	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32		29	32	38		35		23			26		25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

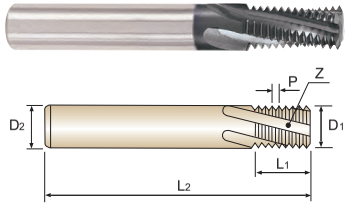
L SERIES

M Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13

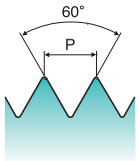
VOLLHARTMETALL GEWINDEFRÄSER für ISO METRISCH - FEIN INNENGEWINDE - DIN 13
FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13
Filettature interne, ISO metriche, passo grosso - DIN 13

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
1.5×D



Material groups MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B52

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
○	POWER MILLING CHUCK			D161-176
○	ER COLLET CHUCK SK SLIM CHUCK			D73-115 D183-201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN		P	D1	D2	L1	L2	Z
L1212370	M8	1.0	**6.0**	6	13	57	3
L1212380	M8	0.75	**6.0**	6	12.75	57	3
L1212440	M10	1.0	**8.0**	8	16	63	4
L1212510	M12	1.5	**9.5**	10	19.5	72	4
L1212520	M12	1.25	**9.5**	10	18.75	72	4
L1212530	M12	1.0	**9.5**	10	19	72	4
L1212550	M14	1.5	**10.0**	10	22.5	83	4
L1212570	M14	1.0	**10.0**	10	22	83	4
L1212610	M16	1.5	**12.0**	12	25.5	83	4
L1212620	M16	1.0	**12.0**	12	25	83	4
L1212670	M18	1.5	**14.0**	14	28.5	92	5
L1212680	M18	1.0	**14.0**	14	28	92	5
L1212720	M20	1.5	**16.0**	16	31.5	92	5
L1212730	M20	1.0	**16.0**	16	31	92	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32		29	32	38		35		23			26		25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TH EAD MILLS

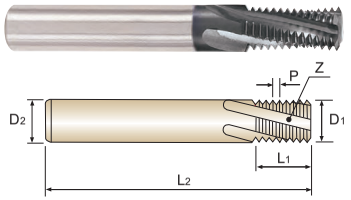
L SERIES

N Solid Carbide Thread Mill for UNC Internal Thread - ANSI B 1.1

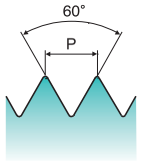
VOLLHARTMETALL GEWINDEFRÄSER für UNC INNENGEWINDE, ANSI B 1.1
FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE INTER UNC - ANSI B 1.1
Filettature interne, unificato, passo grosso - ANSI B 1.1

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
2×D



Material groups: MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B52

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN			D1	D2	L1	L2	Z
L1213400	1/4	20	**4.5**	6	14	57	3
L1213440	5/16	18	**5.8**	6	16.9	65	3
L1213480	3/8	16	**7.0**	8	20.6	72	4
L1213520	7/16	14	**8.0**	8	23.6	72	4
L1213560	1/2	13	**9.5**	10	27.4	80	4
L1213600	9/16	12	**10.0**	10	31.8	83	4
L1213640	5/8	11	**12.0**	12	34.6	92	4
L1213700	3/4	10	**14.0**	14	40.6	104	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

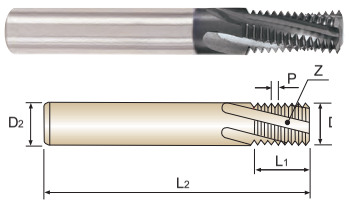
L SERIES

N Solid Carbide Thread Mill for UNF Internal Thread - ANSI B 1.1

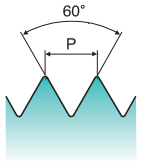
VOLLHARTMETALL GEWINDEFRÄSER für UNF INNENGEWINDE, ANSI B 1.1
FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE INTER UNC - ANSI B 1.1
Filettature interne, unificato, passo grosso - ANSI B 1.1

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
2×D



Material groups: MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B52

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN			D1	D2	L1	L2	Z
L1214420	1/4	28	**5.0**	6	13.6	57	3
L1214460	5/16	24	**6.0**	6	16.9	65	3
L1214500	3/8	24	**8.0**	8	20.1	72	4
L1214540	7/16	20	**8.0**	8	24.1	72	4
L1214580	1/2	20	**10.0**	10	26.7	80	4
L1214620	9/16	18	**12.0**	12	29.6	83	4
L1214660	5/8	18	**12.0**	12	33.9	92	4
L1214720	3/4	16	**14.0**	14	39.7	104	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TH EAD MILLS

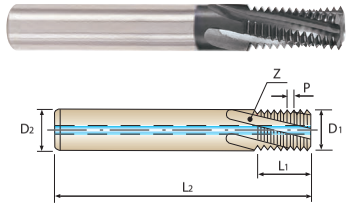
L SERIES

M Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13

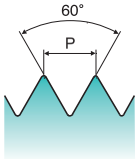
VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL für ISO METRISCHES INNENGEWINDE - DIN 13
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE ISO INTER MÉTRIQUE - DIN13
Con fori di lubrificazione, Filettature interne, ISO metriche, passo grosso - DIN 13

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
2×D



Material groups MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B52

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN		P	D1	D2	L1	L2	Z
L4211310	M6	1.0	**4.5**	6	13.0	57	3
L4211360	M8	1.25	**6.0**	6	17.5	65	3
L4211420	M10	1.5	**7.5**	8	21.0	72	4
L4211500	M12	1.75	**9.5**	10	26.25	80	4
L4211540	M14	2.0	**10.0**	10	30.0	83	4
L4211600	M16	2.0	**12.0**	12	34.0	92	4
L4211700	M20	2.5	**16.0**	16	42.5	105	5

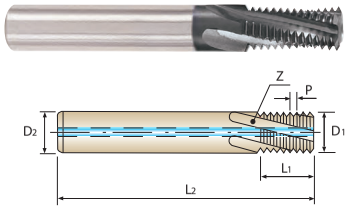
* Other coatings are available on your request

◎ : Excellent ○ : Good

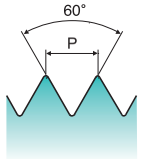
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS
L SERIES
M Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13
VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL für ISO METRISCH - FEIN INNENGEWINDE - DIN 13
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE ISO INTER MÉTRIQUE - DIN13
Con fori di lubrificazione, Filettature interne, ISO metriche, passo grosso - DIN 13
▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.
▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
1.5×D



Material groups MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B52
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201
Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN		P	D1	D2	L1	L2	Z
L4212370	M8	1.0	**6.0**	6	13.0	57	3
L4212380	M8	0.75	**6.0**	6	12.75	57	3
L4212440	M10	1.0	**8.0**	8	16.0	63	4
L4212510	M12	1.5	**9.5**	10	19.5	72	4
L4212520	M12	1.25	**9.5**	10	18.75	72	4
L4212530	M12	1.0	**9.5**	10	19.0	72	4
L4212550	M14	1.5	**10.0**	10	22.5	83	4
L4212570	M14	1.0	**10.0**	10	22.0	83	4
L4212610	M16	1.5	**12.0**	12	25.5	83	4
L4212620	M16	1.0	**12.0**	12	25.0	83	4
L4212670	M18	1.5	**14.0**	14	28.5	92	5
L4212680	M18	1.0	**14.0**	14	28.0	92	5
L4212720	M20	1.5	**16.0**	16	31.5	92	5
L4212730	M20	1.0	**16.0**	16	31.0	92	5

* Other coatings are available on your request
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

L6 SERIES

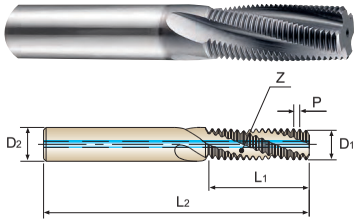
SP G

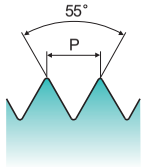
Solid Carbide Thread Mill with Coolant Hole for BSP(G) Internal/External Thread

VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL für BSP (G) INNEN- /AUSSENGEWINDE
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE INTERNE/EXTERNE BSP(G)
Fresa con fori di lubrificazione, filettature interne ed esterne, BSP(G)

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.





Material groups MU | CARBIDE | DIN 6535HA | R1 | TiAlN | p.B52

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN			D1	D2	L1	L2	Z
L6215020	1/16	28	5.9	6	16.3	65	3
L6215200	1/8	28	7.9	8	20.0	70	4
L6215400	1/4	19	9.9	10	26.7	80	4
L6215480	3/8	19	13.9	14	33.4	92	4
L6215560	1/2	14	15.9	16	43.5	104	5
L6215700	3/4	14	17.9	18	34.5	100	5
L6215780	1	11	19.9	20	34.6	100	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

L SERIES

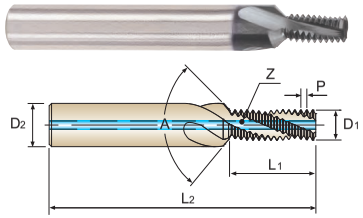
M

Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13

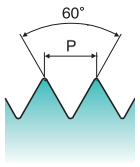
VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL & FASE für METRISCHES INNENGEWINDE - DIN 13
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE ISO INTER MÉTRIQUE DIN13
Con fori di lubrificazione e taglienti per smussi, filettature interne, ISO metriche - DIN 13

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
2×D



Material groups MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B52

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117- 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
TiAlN		P	D1	D2	L1	L2	A	Z
L4271310	M6	1.0	4.8	8	12.4	62	90°	3
L4271360	M8	1.25	6.5	10	16.8	74	90°	3
L4271420	M10	1.5	8.2	12	20.15	80	90°	4
L4271500	M12	1.75	9.9	14	25.25	90	90°	4
L4271540	M14	2.0	11.6	16	28.85	100	90°	4
L4271600	M16	2.0	13.6	18	32.85	102	90°	4

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

L SERIES

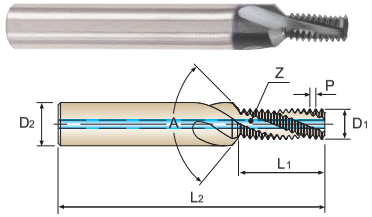
M

Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13

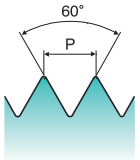
VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL & FASE für METRISCH - FEIN INNENGEWINDE - DIN 13
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE ISO INTER MÉTRIQUE DIN13
Con fori di lubrificazione e taglienti per smussi, filettature interne, ISO metriche, passo fine - DIN 13

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
1.5×D



Material groups: MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN

p.B52

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
○ POWER MILLING CHUCK			D161 - 176
○ ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
TiAlN		P	D1	D2	L1	L2	A	Z
L4272370	M8	1.0	**6.7**	10	12.4	74	90°	3
L4272430	M10	1.25	**8.3**	12	15.9	80	90°	4
L4272440	M10	1.0	**8.7**	12	15.4	80	90°	4
L4272510	M12	1.5	**10.0**	14	18.65	90	90°	4
L4272520	M12	1.25	**10.3**	14	18.3	80	90°	4
L4272530	M12	1.0	**10.7**	14	18.4	90	90°	4
L4272550	M14	1.5	**12.0**	16	21.65	100	90°	4
L4272610	M16	1.5	**14.0**	18	24.65	102	90°	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32		29	32	38		35		23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

L SERIES

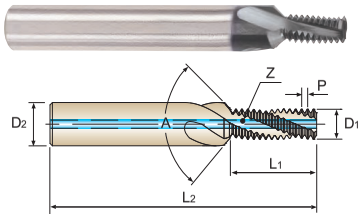
N

Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNC Internal Thread - ANSI B 1.1

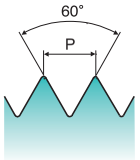
VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL & FASE für UNC INNENGEWINDE - ANSI B 1.1
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER UNC - ANSI B 1.1
Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo grosso - ANSI B 1.1

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
2×D



Material groups: MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN

p.B53

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D117- 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎ POWER MILLING CHUCK			D161 - 176
○ ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
TiAlN			D1	D2	L1	L2	A	Z
L4273400	1/4	20	**4.8**	8	13.3	62	90°	3
L4273440	5/16	18	**6.2**	10	16.18	74	90°	3
L4273480	3/8	16	**7.6**	12	19.8	80	90°	4
L4273520	7/16	14	**8.9**	12	22.62	80	90°	4
L4273560	1/2	13	**10.3**	14	26.32	90	90°	4
L4273600	9/16	12	**11.7**	16	30.63	100	90°	4
L4273640	5/8	11	**13.1**	18	33.41	102	90°	4
L4273700	3/4	10	**16.0**	20	39.29	110	90°	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32		29	32	38		35		23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TH EAD MILLS

L SERIES

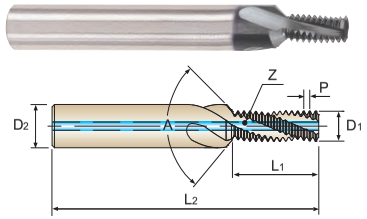
N

Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNF Internal Thread - ANSI B 1.1

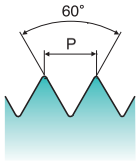
VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL & FASE für UNF INNENGEWINDE - ANSI B 1.1
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER UNC - ANSI B 1.1
Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo fine - ANSI B 1.1

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth
2×D



Material groups MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAIN | p.B53

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
○	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
TiAlN			D1	D2	L1	L2	A	Z
L4274420	1/4	28	**5.1**	8	13.21	62	90°	3
L4274460	5/16	24	**6.5**	10	16.37	74	90°	3
L4274500	3/8	24	**8.1**	12	19.54	80	90°	4
L4274540	7/16	20	**9.4**	12	22.19	80	90°	4
L4274580	1/2	20	**11.0**	14	26	90	90°	4
L4274620	9/16	18	**12.4**	16	28.88	100	90°	4
L4274660	5/8	18	**14.0**	18	33.12	102	90°	5
L4274720	3/4	16	**17.0**	20	38.86	110	90°	5

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

L 6 SERIES

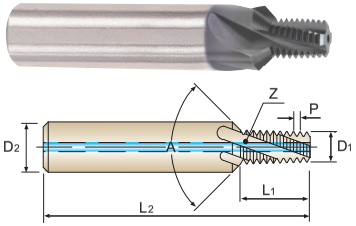
NPT

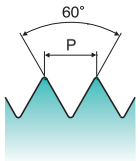
Solid Carbide Thread Mill with Coolant Hole & Chamfer for NPT Thread - ANSI B 1.20.1

VOLLHARTMETALL GEWINDEFRÄSER mit KÜHLKANAL & FASE für NPT INNENGEWINDE - ANSI B 1.20.1
FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER NPT - ANSI B 1.20.1
Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo fine - ANSI B 1.1

▶ Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

▶ Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.





Material groups MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAIN | p.B53

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
○	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	Angle	No. of Flute
TiAlN			D1	D2	L1	L2	A	Z
L4276020	NPT1/16	27	**5.9**	10	8.9	64	90°	3
L4276200	NPT1/8	27	**7.8**	12	8.9	70	90°	4
L4276400	NPT1/4	18	**10.05**	16	13.4	81	90°	4
L4276480	NPT3/8	18	**13.45**	18	13.4	81	90°	4

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

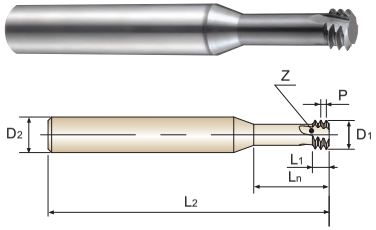
TH EAD MILLS

L D SERIES

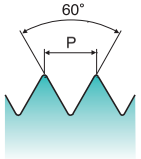
M Solid Carbide Miniature Thread Mill for ISO Metric Internal Thread - DIN13

VOLLHARTMETALL MINI-GEWINDEFRÄSER für ISO METRISCHE INNENGEWINDE - DIN13
FRAISES A FILETER À TOURBILLONNER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13
Mini frese per filettature interne ISO metriche passo grosso - DIN 13

▶ Short thread length ▶ Kurze Gewindelänge



Thread Depth
2×D



Material groups: MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B53

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
TiAlN		P	D1	D2	L1	Ln	L2	Z
L12D1010	M1	0.25	**0.70**	3	0.75	2.1	30	3
L12D1050	M1.2	0.25	**0.90**	3	0.75	2.5	30	3
L12D1070	M1.4	0.3	**1.04**	3	0.90	2.9	30	3
L12D1090	M1.6	0.35	**1.18**	3	1.05	3.4	30	3
L12D1130	M2	0.4	**1.52**	6	1.2	4.2	57	3
L12D1150	M2.2	0.45	**1.66**	6	1.35	4.6	57	3
L12D1170	M2.5	0.45	**1.96**	6	1.35	5.3	57	3
L12D1200	M3	0.5	**2.4**	6	1.5	6.3	57	3
L12D1240	M4	0.7	**3.16**	6	2.1	8.4	57	3
L12D1280	M5	0.8	**4.04**	6	2.4	10.5	57	3
L12D1310	M6	1.0	**4.8**	6	3.0	12.6	57	3
L12D1360	M8	1.25	**6.5**	8	3.75	16.8	63	3
L12D1420	M10	1.5	**8.2**	10	4.5	21.0	73	3
L12D1500	M12	1.75	**9.9**	10	5.25	25.2	73	3

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

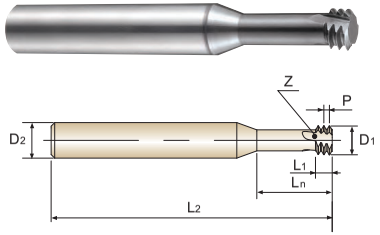
TH EAD MILLS

L D SERIES

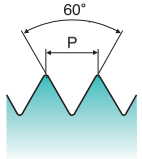
N Solid Carbide Miniature Thread Mill for UNC Internal Thread - ANSI B 1.1

VOLLHARTMETALL MINI-GEWINDEFRÄSER für UNC INNENGEWINDE - ANSI B 1.1
FRAISES A FILETER À TOURBILLONNER CARBURE MONOBLOC POUR FILETAGE POUR FILETAGE INTER UNC- ANSI B 1.1
Mini frese per filettature interne unificato passo grosso - ANSI B 1.1

▶ Short thread length ▶ Kurze Gewindelänge



Thread Depth
2×D



Material groups: MU | CARBIDE | DIN 6535HA | 6 | R1 | TiAlN | p.B53

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117- 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
TiAlN			D1	D2	L1	Ln	L2	Z
L12D3040	#1	64	**1.38**	6	1.19	3.9	57	3
L12D3080	#2	56	**1.64**	6	1.36	4.6	57	3
L12D3160	#4	40	**2.08**	6	1.91	6.0	57	3
L12D3240	#6	32	**2.55**	6	2.38	7.4	57	3
L12D3280	#8	32	**3.21**	6	2.38	8.7	57	3
L12D3320	#10	24	**3.56**	6	3.18	10.1	57	3
L12D3360	#12	24	**4.22**	6	3.18	11.5	57	3
L12D3400	1/4	20	**4.83**	6	3.81	13.3	57	3
L12D3440	5/16	18	**6.24**	8	4.23	16.7	63	3
L12D3480	3/8	16	**7.62**	8	4.76	20.0	63	3
L12D3520	7/16	14	**8.94**	10	5.44	23.3	73	3

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○				

TH EAD MILLS

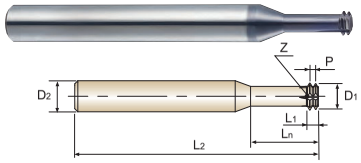
L E SERIES

M — Solid Carbide Miniature Thread Mill for Hard Materials, ISO Metric Internal Thread - DIN13

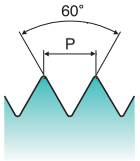
VOLLHARTMETALL MINI-GEWINDEFRÄSER für GEHÄRTETE MATERIALIEN, ISO METRISCHE INNENGEWINDE - DIN13
FRAISES À TOURBILLONNER CARBURE MONOBLOC POUR MATÉRIAUX DURS, FILETAGE ISO INTER MÉTRIQUE - DIN13
Mini frese per acciai temprati ISO metriche passo grosso - DIN 13

- ▶ Short thread length
- ▶ Straight Flute
- ▶ The work direction is from top to bottom (Climb Milling)
- ▶ For hard materials up to HRc62
- ▶ **Left hand Cut (CNC code : M04)**

- ▶ Kurze Gewindelänge
- ▶ Linksschneidend, geradegenutet
- ▶ Die Fräsrichtung ist von oben nach unten (Gleichlauf)
- ▶ Für gehärtete Materialien bis zu HRc62
- ▶ **Linksschneidend (CNC Befehl : M04)**



Thread Depth
2×D



Material groups **HR** CARBIDE DIN 6535HA 6 AlTiN p.B53

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
AlTiN		P	D1	D2	L1	Ln	L2	Z
L19E1130	M2	0.4	**1.52**	6	0.8	4.2	57	4
L19E1150	M2.2	0.45	**1.66**	6	0.9	4.6	57	4
L19E1170	M2.5	0.45	**1.96**	6	0.9	5.3	57	4
L19E1200	M3	0.5	**2.4**	6	1.0	6.3	57	4
L19E1240	M4	0.7	**3.16**	6	1.4	8.4	57	4
L19E1280	M5	0.8	**4.04**	6	1.6	10.5	57	4
L19E1310	M6	1.0	**4.8**	6	2.0	12.6	57	5
L19E1360	M8	1.25	**6.5**	8	2.5	16.8	63	5
L19E1420	M10	1.5	**8.2**	10	3.0	21.0	73	6
L19E1500	M12	1.75	**9.9**	10	3.5	25.2	73	6

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎

TH EAD MILLS

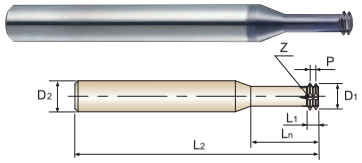
L E SERIES

N — Solid Carbide Miniature Thread Mill for Hard Materials, UNC Internal Thread - ANSI B 1.1

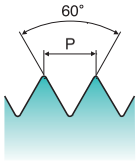
VOLLHARTMETALL MINI-GEWINDEFRÄSER für GEHÄRTETE MATERIALIEN, UNC INNENGEWINDE - ANSI B 1.1
FRAISES À TOURBILLONNER CARBURE MONOBLOC POUR MATÉRIAUX DURS POUR FILETAGE INTER UNC - ANSI B 1.1
Mini frese per acciai temprati unificato passo grosso - ANSI B 1.1

- ▶ Short thread length
- ▶ Straight Flute
- ▶ The work direction is from top to bottom (Climb Milling)
- ▶ For hard materials up to HRc62
- ▶ **Left hand Cut (CNC code : M04)**

- ▶ Kurze Gewindelänge
- ▶ Linksschneidend, geradegenutet
- ▶ Die Fräsrichtung ist von oben nach unten (Gleichlauf)
- ▶ Für gehärtete Materialien bis zu HRc62
- ▶ **Linksschneidend (CNC Befehl : M04)**



Thread Depth
2×D



Material groups **HR** CARBIDE DIN 6535HA 6 AlTiN p.B53

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
AlTiN			D1	D2	L1	Ln	L2	Z
L19E3080	#2	56	**1.64**	6	0.91	4.6	57	4
L19E3160	#4	40	**2.08**	6	1.27	6.0	57	4
L19E3240	#6	32	**2.55**	6	1.59	7.4	57	4
L19E3280	#8	32	**3.21**	6	1.59	8.7	57	4
L19E3320	#10	24	**3.56**	6	2.12	10.1	57	4
L19E3360	#12	24	**4.22**	6	2.12	11.5	57	4
L19E3400	1/4	20	**4.83**	6	2.54	13.3	57	5
L19E3440	5/16	18	**6.24**	8	2.82	16.7	63	5
L19E3480	3/8	16	**7.62**	8	3.18	20.0	63	6
L19E3520	7/16	14	**8.94**	10	3.63	23.3	73	6

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TH EAD MILLS

UNCOATED L A SERIES
TiAlN L A SERIES

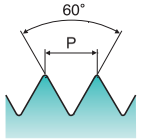
M Solid Carbide Drill and Thread Mill with Chamfer for ISO Metric Internal Thread - DIN 13

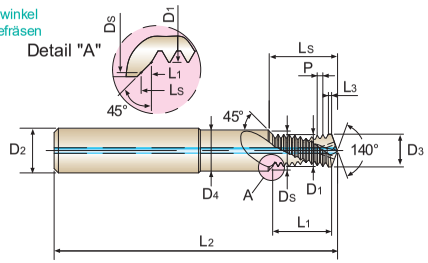
VOLLHARTMETALL BOHRGEWINDEFRÄSER MIT SENKFASE für ISO METRISCHE INNENGEWINDE - DIN 13
FRAISES À FILETER ET À PERCER CARBURE MONOBLOC AVEC CHANFREIN POUR FILETAGE INTER - DIN13
Fresa fora, filetta e smussa , filettature interne, ISO metriche passo grosso - DIN 13

- ▶ No. of Flute : 2
- ▶ Drill Point : 140° / Countersink : 90°
- ▶ Drilling, Chamfering and Thread milling

- ▶ Anz. der Nuten : 2
- ▶ 140° Spitzenwinkel, 90° Senkwinkel
- ▶ Bohren, Senken und Gewindefräsen

Thread Depth
2×D





Material groups GG | Material groups Al | CARBIDE | DIN 6535HA | 6 | right TiAlN | p.B53

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D1 7 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK			D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

Unit : mm

EDP No. Bright	EDP No. TiAlN	Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Effect. Diameter Ds	Drill Diameter D3	Max. C'sink D4	Thread Length L1	Effect. Length Ls	Drill Length L3	Overall Length L2
L41A1310	L42A1310	M6	1.0	4.75	8	6.3	5.00	6.6	13.00	14.68	1.00	62
L41A1360	L42A1360	M8	1.25	6.35	10	8.3	6.75	9.0	16.27	18.48	1.25	74
L41A1420	L42A1420	M10	1.5	7.95	12	10.3	8.50	11.0	21.05	23.77	1.50	79
L41A1500	L42A1500	M12	1.75	9.95	14	12.3	10.25	13.5	24.21	27.25	1.50	89
L41A1540	L42A1540	M14	2.0	11.20	16	14.3	12.00	15.5	29.58	33.32	1.50	102

* Other coatings are available on your request

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎											

TH EAD MILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

T M

unit : mm

Materials	Hardness (HB)	Strength (N/mm²)	Feed per Tooth (fz) Cutter Diameter ≤Ø8.0	Feed per Tooth (fz) Cutter Diameter >Ø8.0
Low Carbon Steels	≤ 200	≤ 700	0.02 - 0.04	0.04 - 0.10
Medium Carbon Steels High Carbon Steels	≤ 250	≤ 850	0.02 - 0.04	0.04 - 0.10
Alloy Steels	≤ 250	≤ 850	0.02 - 0.04	0.04 - 0.10
Heat Treated Steels	≤ 400	≤ 1400	0.02 - 0.04	0.04 - 0.10
Stainless Steels	≤ 300	≤ 1000	0.01 - 0.02	0.02 - 0.06
Cast Iron	≤ 300	≤ 1000	0.02 - 0.04	0.04 - 0.10
Chrome-Nickel Alloys Titanium Alloys	≤ 350	≤ 1200	0.01 - 0.02	0.02 - 0.06
Non Ferrous Materials	≤ 200	≤ 700	0.03 - 0.07	0.05 - 0.10

D T M

unit : mm

Material	Hardness (HB)	Strength (N/mm²)	Fz(Thread Milling) -Feed per Tooth Cutter Diameter ≤Ø8.0	Fz(Thread Milling) -Feed per Tooth Cutter Diameter >Ø8.0	Fdr(Drilling) - Feed per revolution Cutter Diameter ≤Ø8.0	Fdr(Drilling) - Feed per revolution Cutter Diameter >Ø8.0
Cast Iron	≤ 200	≤ 700	0.03-0.08	0.08-0.12	0.10-0.20	0.20-0.25
Aluminium Aluminium-alloy Magnesium	≤ 180	≤ 600	0.05-0.10	0.10-0.15	0.10-0.20	0.20-0.30
Plastics	-	-	0.05-0.10	0.10-0.15	0.10-0.20	0.20-0.30

H M M T M

unit : mm

Material	Hardness	Strength (N/mm²)	Feed(mm/tooth) Cutter Diameter ≤Ø6.0	Feed(mm/tooth) Cutter Diameter >Ø6.0
Alloy Steel	295-415HB	1000-1400	0.02-0.04	0.04-0.06
Stainless Steel	280-415HB	950-1250	0.02-0.04	0.04-0.06
Cast Iron	≤ HB300	≤ 1000	0.03-0.05	0.05-0.07
Chrome-Nickel Alloys Titanium Alloys	≤ HB445	≤ 1500	0.02-0.03	0.03-0.05
Hardened Material	45-50HRc		0.03-0.05	0.05-0.07
	51-55HRc		0.02-0.04	0.04-0.06
	56-62HRc		0.01-0.03	0.03-0.05

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TH EAD MILLS

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	L1211	L1212	L1213	L1214	L4211	L4212	L6215	L4271	L4272
					Vc (m/min)								
P	1	Non-alloy steel	125		80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	2		190	13	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	3		250	25	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	4		270	28	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	5		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	6	Low alloy steel	180	10	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	7		275	29	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	8		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	9		350	38	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	10	High alloyed steel, and tool steel	200	15	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	11		325	35	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
M	12	Stainless steel	200	15	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80
	13		240	23	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80
	14		180	10	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80
K	15	Grey cast iron	180	10	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	16		260	26	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	17	Nodular cast iron	160	3	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	18		250	25	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	19	Malleable cast iron	130		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
	20		230	21	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
N	21	Aluminum-wrought alloy	60		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	22		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	23	Aluminum-cast, alloyed	75		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	24		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	25		130		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	26	Copper and Copper Alloys (Bronze / Brass)	110		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	27		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	28		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	29	Non Metallic Materials			100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	30				100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
S	31	Heat Resistant Super Alloys	200	15	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	32		280	30	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	33		250	25	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	34		350	38	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	35		320	34	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	36	Titanium Alloys	400Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
	37		1050Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60
H	38	Hardened steel	550	55						25-60	25-60		
	39		630	60						25-50	25-50		
	40	Chilled Cast Iron	400	42						25-70	25-70		
	41	Hardened Cast Iron	550	55						25-60	25-60		

TH EAD MILLS
ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	L4273	L4274	L4276	L12D1	L12D3	L19E1	L19E3	L41A1 L42A1
					Vc (m/min)							
P	1	Non-alloy steel	125		80-120	80-120	80-120	80-120	80-120			
	2		190	13	80-120	80-120	80-120	80-120	80-120			
	3		250	25	80-120	80-120	80-120	80-120	80-120			
	4		270	28	80-120	80-120	80-120	80-120	80-120			
	5		300	32	80-120	80-120	80-120	80-120	80-120			
	6	Low alloy steel	180	10	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	7		275	29	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	8		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	9		350	38	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	10	High alloyed steel, and tool steel	200	15	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	11		325	35	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
M	12	Stainless steel	200	15	40-80	40-80	40-80	40-80	40-80	40-80	40-80	
	13		240	23	40-80	40-80	40-80	40-80	40-80	40-80	40-80	
	14		180	10	40-80	40-80	40-80	40-80	40-80	40-80	40-80	
K	15	Grey cast iron	180	10	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
	16		260	26	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
	17	Nodular cast iron	160	3	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
	18		250	25	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
	19	Malleable cast iron	130		50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
	20		230	21	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
N	21	Aluminum-wrought alloy	60		100-300	100-300	100-300	100-300	100-300			100-300
	22		100		100-300	100-300	100-300	100-300	100-300			100-300
	23	Aluminum-cast, alloyed	75		100-300	100-300	100-300	100-300	100-300			100-300
	24		90		100-300	100-300	100-300	100-300	100-300			100-300
	25		130		100-300	100-300	100-300	100-300	100-300			100-300
	26	Copper and Copper Alloys (Bronze / Brass)	110		100-300	100-300	100-300	100-300	100-300			100-300
	27		90		100-300	100-300	100-300	100-300	100-300			100-300
	28		100		100-300	100-300	100-300	100-300	100-300			100-300
	29	Non Metallic Materials			100-300	100-300	100-300	100-300	100-300			80-150
	30				100-300	100-300	100-300	100-300	100-300			80-150
S	31	Heat Resistant Super Alloys	200	15	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	32		280	30	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	33		250	25	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	34		350	38	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	35		320	34	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	36	Titanium Alloys	400Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	37		1050Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	
H	38	Hardened steel	550	55						25-60	25-60	
	39		630	60						25-50	25-50	
	40	Chilled Cast Iron	400	42						25-70	25-70	
	41	Hardened Cast Iron	550	55						25-60	25-60	

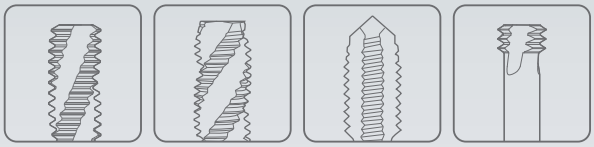
TO CALCULATE SPEED & FEED RATES
SCHNITTGESCHWINDIGKEIT & VORSCHUB KALKULIEREN

Calculate R.P.M of Cutter	Calculate Feed per Revolution	Finally Calculate Feed at Tool Center Line
$n = \frac{1000 \times V}{d \times \pi}$	$F_1 = Fz \times Z \times N$	$F_2 = \frac{F_1 \times (D - d)}{D}$

N	RPM
V	Recommended Cutting Speed
d	Diameter of Cutter
Fz	Recommended Feed per Tooth
Z	Number of Teeth
F_2	Feed at Center Line of Cutting
F_1	Feed at Cutting Edge
D	Major Diameter of Component

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

SYN HRO TAPS

S G

- **For High Speed Tapping on Rigid CNC Machine**
- **Für Hochgeschwindigkeits-Gewindebohren auf starren CNC-Maschinen**

SELE TION G IDE

THREADING TOOLS

HSS-PM
SYN HRO TAPS

For High Speed Tapping on Rigid CNC Machine

HOLE TYPE			Max.2.5xD Blind Hole	Max.3.0xD Through Hole	Max.2.0xD Blind/Through Hole	Max.3.0xD Blind/Through Hole
TOOL MATERIAL			HSS-PM			
CHAMFER LEAD ACC. TO DIN2197			C	B	C	C
FLUTE TYPE			Spiral Flute	Spiral Point	Straight Flute	Cold Forming
SPIRAL FLUTE ANGLE			R45	-	-	-
SERIES	M	DIN371/376	TTS31 (p.B57)	TTS33 (p.B58)	TKS35 (p.B59)	TTS37 (p.B60)
		DIN352				
		DIN357/LONG				
	MF	DIN374				
		DIN2181				
	UNC	DIN371/376				
		DIN351				
	UNF	DIN371/374				
		DIN2181				
	BSW	DIN2182/2183				
		DIN351				
	G(BSP)	DIN5156/5157				
	EG-M	DIN371/376				
	EG-UNC	DIN371/376				
	EG-UNF	DIN371/374				
SURFACE TREATMENT			TiN	TiN	TiCN	TiN
MODEL						

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B61

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc				
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	○	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	○	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	○	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	○	◎
	5		About 0.75% C	Quenched & Tempered	300	32				
	6	Low alloy steel		Annealed	180	10	◎	◎	○	◎
	7			Quenched & Tempered	275	29	◎	◎	○	◎
	8			Quenched & Tempered	300	32				
	9			Quenched & Tempered	350	38				
	10	High alloyed steel, and tool steel		Annealed	200	15				
	11			Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎		◎
	13		Martensitic	Quenched & Tempered	240	23	◎	◎		◎
	14		Austenitic		180	10	○	○		◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	◎	
	16		Pearlitic (Martensitic)		260	26			◎	
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	
	18		Pearlitic		250	25			◎	
	19	Malleable cast iron	Ferritic		130				○	
	20		Pearlitic		230	21			○	
N	21	Aluminum-wrought alloy	Not Curable		60					◎
	22		Curable	Hardened	100					◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	○	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎	○	◎
	25		> 12% Si, Not Curable		130		◎	◎	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		◎	◎		
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100		○	○		◎
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

S NCH O TA S

TTS SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

- ▶ Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- ▶ Up to 3 times faster in tapping compared to conventional taps
- ▶ For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- ▶ High precision threads

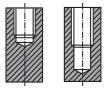
- ▶ Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- ▶ Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- ▶ Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- ▶ Hoch präzise Gewinde

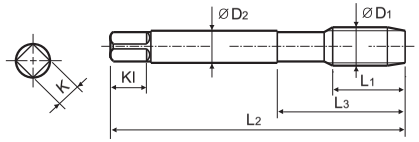
DIN 371

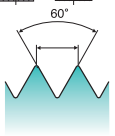
DIN 376

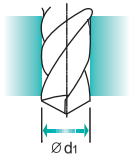
Hole type

2.5×D









Material groups GS | HSS PM | DIN 371/376 | 6H | 6 | C | R | TiN | p.B61

Recommended TodHolder — Plain Shank — Page — SYNCHRO TAPPING CHUCK D203-210

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TTS31206	6	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	TTS31246	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	TTS31286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TTS31316	10	80	30	6	4.9	8	3	5
M8	× 1.25	TTS31366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TTS31426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TTS31506	18	110	44	9	7	10	3	10.2
M14	× 2	TTS31546	20	110	44	11	9	12	3	12
M16	× 2	TTS31606	20	110	44	12	9	12	3	14
M18	× 2.5	TTS31656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TTS31706	25	140	54	16	12	15	4	17.5

▶DIN 371(M3~M10) and DIN 376(M11~M20)
▶Coating(TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎					◎	◎	○	○		◎			

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended			◎	◎	◎	◎		○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

S NCH O TA S

TTS SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

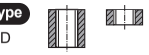
- ▶ Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- ▶ Up to 3 times faster in tapping compared to conventional taps
- ▶ For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- ▶ High precision threads

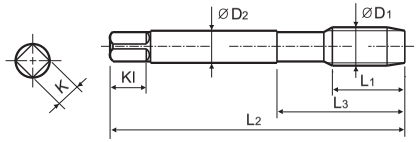
- ▶ Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- ▶ Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- ▶ Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- ▶ Hoch präzise Gewinde

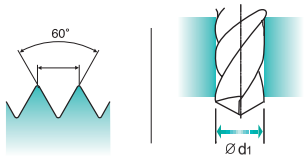
DIN 371

DIN 376

Hole type
3.0×D







Material groups **GS** | HSS PM | DIN 371/376 | 6H | 6 | TiN

p.B61

Recommended ToolHolder — Plain Shank — Page — SYNCHRO TAPPING CHUCK D203-210

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	**TTS33206**	5	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	**TTS33246**	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	**TTS33286**	8	70	25	6	4.9	8	3	4.2
M6	× 1	**TTS33316**	10	80	30	6	4.9	8	3	5
M8	× 1.25	**TTS33366**	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	**TTS33426**	15	100	39	10	8	11	3	8.5
M12	× 1.75	**TTS33506**	18	110	44	9	7	10	4	10.2
M14	× 2	**TTS33546**	20	110	44	11	9	12	4	12
M16	× 2	**TTS33606**	20	110	44	12	9	12	4	14
M18	× 2.5	**TTS33656**	25	125	50	14	11	14	4	15.5
M20	× 2.5	**TTS33706**	25	140	54	16	12	15	4	17.5

▶DIN 371(M3~M10) and DIN 376(M11~M20)
▶Coating(TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎					◎	◎	○	○		◎			

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎	◎	◎	◎		○													

S NCH O TA S

TKS SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

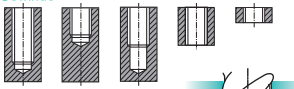
- ▶ Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- ▶ Up to 3 times faster in tapping compared to conventional taps
- ▶ For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- ▶ High precision threads

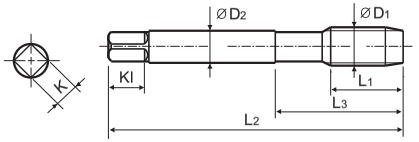
- ▶ Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- ▶ Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- ▶ Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- ▶ Hoch präzise Gewinde

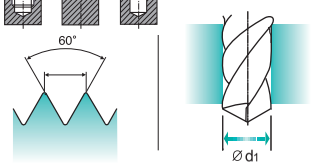
DIN 371

DIN 376

Hole type
2.0×D







Material groups **GG** | HSS PM | DIN 371/376 | 6H | 6 | C | TiCN

p.B61

Recommended ToolHolder — Plain Shank — Page — SYNCHRO TAPPING CHUCK D203-210

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	**TKS35206**	5	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	**TKS35246**	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	**TKS35286**	8	70	25	6	4.9	8	3	4.2
M6	× 1	**TKS35316**	10	80	30	6	4.9	8	3	5
M8	× 1.25	**TKS35366**	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	**TKS35426**	15	100	39	10	8	11	4	8.5
M12	× 1.75	**TKS35506**	18	110	44	9	7	10	4	10.2
M14	× 2	**TKS35546**	20	110	44	11	9	12	4	12
M16	× 2	**TKS35606**	20	110	44	12	9	12	4	14
M18	× 2.5	**TKS35656**	25	125	50	14	11	14	4	15.5
M20	× 2.5	**TKS35706**	25	140	54	16	12	15	4	17.5

▶DIN 371(M3~M10) and DIN 376(M11~M20)
▶Coating(TiAlN) is available on your reqest.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○								◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			○	○	○																

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

S NCH O TA S

TTS SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

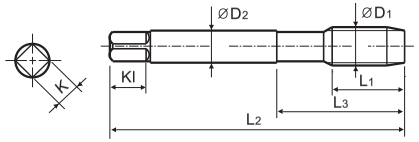
Cold forming taps
Gewindeformer

- ▶ Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- ▶ Up to 3 times faster in tapping compared to conventional taps
- ▶ For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- ▶ High precision threads

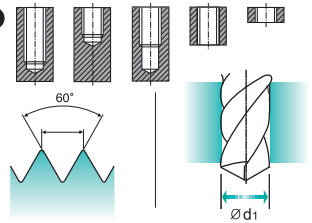
- ▶ Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewi ndebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- ▶ Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- ▶ Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- ▶ Hoch präzise Gewinde

DIN 371

DIN 376



Hole type
3.0×D



Material groups **GV** | HSS PM | DIN 371/376 | 6H | 6 | C | TiN | p.B61

Recommended ToolHolder — Plain Shank — Page — SYNCHRO TAPPING CHUCK D203-210

Recommended cutting : P.69

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Ød1
M3	× 0.5	**TTS37206**	5	56	18	3.5	2.7	6	2.8
M4	× 0.7	**TTS37246**	7	63	21	4.5	3.4	6	3.7
M5	× 0.8	**TTS37286**	8	70	25	6	4.9	8	4.65
M6	× 1	**TTS37316**	10	80	30	6	4.9	8	5.55
M8	× 1.25	**TTS37366**	13	90	35	8	6.2	9	7.4
M10	× 1.5	**TTS37426**	15	100	39	10	8	11	9.3
M12	× 1.75	**TTS37506**	18	110	44	9	7	10	11.2

▶DIN 371(M3~M10) and DIN 376(M11~M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎		◎	◎					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	○			◎													

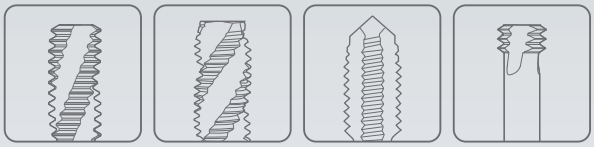
S NCH O TA S

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TTS31	TTS33	TKS35	TTS37
					Vc (m/min)			
P	1	Non-alloy steel	125		41-46	41-46	41-46	41-46
	2		190	13	41-46	41-46	41-46	41-46
	3		250	25	35-40	35-40	35-40	35-40
	4		270	28	28-33	28-33	28-33	28-33
	5		300	32				
	6	Low alloy steel	180	10	28-33	28-33	28-33	28-33
	7		275	29	28-33	28-33	28-33	28-33
M	12	Stainless steel	200	15	18-23	18-23		18-23
	13		240	23	13-18	13-18		13-18
	14		180	10	10-14	10-14		10-14
K	15	Grey cast iron	180	10	28-33	28-33	28-33	
	16		260	26			13-18	
	17	Nodular cast iron	160	3	28-33	28-33	28-33	
	18		250	25			13-18	
	19	Malleable cast iron	130				28-33	
	20		230	21			13-18	
N	21	Aluminum-wrought alloy	60					28-33
	22		100					28-33
	23	Aluminum-cast, alloyed	75		41-46	41-46	41-46	41-46
	24		90		41-46	41-46	41-46	41-46
	25		130		30-35	30-35	30-35	30-35
	26	Copper and Copper Alloys (Bronze / Brass)	110		45-50	45-50		
	27		90					
	28		100		25-30	25-30		25-30

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

Leading Through Innovation

PRIME TAPS

PRIME GEWINDEBOHRER

- Premium Spiral Point and Spiral Flute Taps for CNC Machines
- High and Reliable Performance on Various Ductile Materials
- Premium Gerade- und Spiralgenutete Gewindebohrer
- Ausgezeichnete und zuverlässige Leistung in verschiedenen Werkstoffen

SELE TION G IDE

THREADING TOOLS

HSS-PM
PRIME TAPS

Premium Spiral Point and Spiral Flute Taps for CNC Machines
High and Reliable Performance on Various Ductile Materials

HOLE TYPE			Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole
TOOL MATERIAL			HSS-PM		
CHAMFER LEAD ACC. TO DIN2197			C	E	B
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Point
SPIRAL FLUTE ANGLE			R45	R45	-
SERIES	M	DIN371/376	TRE30 (p.B65)	TRE34 (p.B66)	TRJ15 (p.B71)
		DIN352			
		DIN357/LONG			
	MF	DIN374	TRE31 (p.B67)		TRJ16 (p.B72)
		DIN2181			
	UNC	DIN371/376	TRE32 (p.B69)		TRJ17 (p.B74)
		DIN351			
	UNF	DIN371/374	TRE33 (p.B70)		TRJ18 (p.B75)
		DIN2181			
	BSW	DIN2182/2183			
		DIN351			
	G(BSP)	DIN5156/5157			
	EG-M	DIN371/376			
	EG-UNC	DIN371/376			
	EG-UNF	DIN371/374			
SURFACE TREATMENT			X-coating		
MODEL					

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B76

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC			
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎
	9			Quenched & Tempered	350	38	○	○	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○
	11			Quenched & Tempered	325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎
	13		Martensitic	Quenched & Tempered	240	23	◎	◎	◎
	14		Austenitic		180	10	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	◎
	16		Pearlitic (Martensitic)		260	26	○	○	◎
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎
	19	Malleable cast iron	Ferritic		130				
	20		Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○
	22		Curable	Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎	◎
	25		> 12% Si, Not Curable		130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		◎	◎	◎
	27		CuZn, CuSnZn (Brass)		90		◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper		100		◎	◎	◎
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

IME TA S

TRE 0 SERIES

M ISO Metric Coarse Threads DIN13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

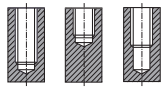
- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

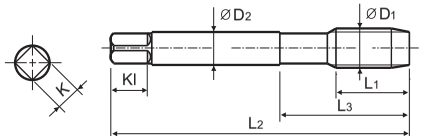
- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu gro β e Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

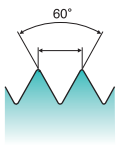
DIN 371

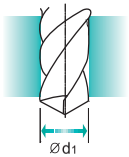
DIN 376

Hole type
2.5×D









Material groups: MU | HSS PM | DIN 371/376 | 6H | 6 | C | R | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2 x	0.4	TRE30136GS	3.2	45.0	13.0	2.8	2.1	5.0	2	1.6
M2.5 x	0.45	TRE30176GS	3.6	50.0	15.0	2.8	2.1	5.0	2	2.1
M3 x	0.5	TRE30206GS	4.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M3.5 x	0.6	TRE30226GS	4.8	56.0	20.0	4.0	3.0	6.0	3	2.9
M4 x	0.7	TRE30246GS	5.6	63.0	21.0	4.5	3.4	6.0	3	3.3
M5 x	0.8	TRE30286GS	6.4	70.0	25.0	6.0	4.9	8.0	3	4.2
M6 x	1.0	TRE30316GS	8.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M7 x	1.0	TRE30346GS	10.0	80.0	30.0	7.0	5.5	8.0	3	6.0
M8 x	1.25	TRE30366GS	13.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M9 x	1.25	TRE30396GS	13.0	90.0	35.0	9.0	7.0	10.0	3	7.8
M10 x	1.5	TRE30426GS	15.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12 x	1.75	TRE30506GS	18.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14 x	2.0	TRE30546GS	20.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16 x	2.0	TRE30606GS	20.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M18 x	2.5	TRE30656GS	25.0	125.0	50.0	14.0	11.0	14.0	4	15.5
M20 x	2.5	TRE30706GS	25.0	140.0	54.0	16.0	12.0	15.0	4	17.5
M22 x	2.5	TRE30746GS	25.0	140.0	54.0	18.0	14.5	17.0	4	19.5
M24 x	3.0	TRE30786GS	30.0	160.0	60.0	18.0	14.5	17.0	4	21.0

▶DIN 371(M2~M10) and DIN 376(M12~M24)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	○	○	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

IME TA S

TRE SERIES

M ISO Metric Coarse Threads DIN13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

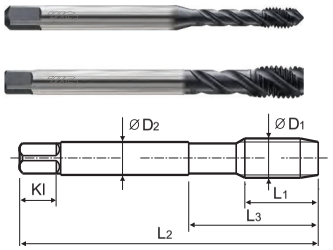
Machine taps
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

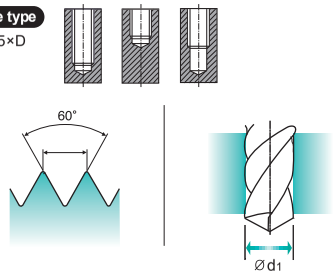
- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu gro ß e Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

DIN 371

DIN 376



Hole type
2.5×D



Material groups **MU** | HSS PM | DIN 371/376 | 6H | 6 | R | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	x 0.4	TRE34136GS	3.2	45.0	13.0	2.8	2.1	5.0	2	1.6
M3	x 0.5	TRE34206GS	4.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M4	x 0.7	TRE34246GS	5.6	63.0	21.0	4.5	3.4	6.0	3	3.3
M5	x 0.8	TRE34286GS	6.4	70.0	25.0	6.0	4.9	8.0	3	4.2
M6	x 1.0	TRE34316GS	8.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M8	x 1.25	TRE34366GS	13.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M10	x 1.5	TRE34426GS	15.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12	x 1.75	TRE34506GS	18.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14	x 2.0	TRE34546GS	20.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16	x 2.0	TRE34606GS	20.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M20	x 2.5	TRE34706GS	25.0	140.0	54.0	16.0	12.0	15.0	4	17.5

▶DIN 371(M2~M10) and DIN 376(M12~M20)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	○	○	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

IME TA S

TRE SERIES

M ISO Metric Fine Threads DIN13

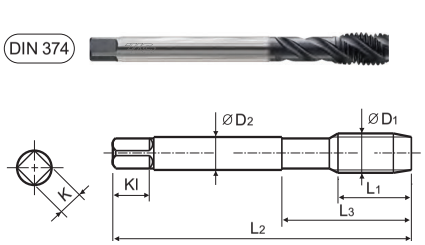
MMetrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

Machine taps
Maschinengewindebohrer

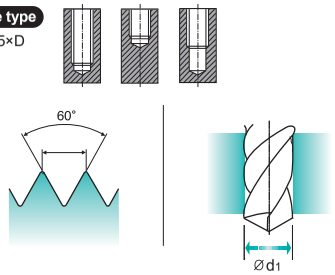
- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu gro ß e Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

DIN 374



Hole type
2.5×D



Material groups **MU** | HSS PM | DIN 37 | 6H | 6 | C | R | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	x 0.5	TRE31256GS	5.6	63.0	21.0	2.8	2.1	5.0	3	3.5
M4	x 0.35	TRE31696GS	5.6	63.0	21.0	2.8	2.1	5.0	3	3.7
M5	x 0.5	TRE31296GS	6.4	70.0	25.0	3.5	2.7	6.0	3	4.5
M6	x 0.75	TRE31326GS	8.0	80.0	30.0	4.5	3.4	6.0	3	5.3
M6	x 0.5	TRE31336GS	8.0	80.0	30.0	4.5	3.4	6.0	3	5.5
M8	x 1.0	TRE31376GS	10.0	90.0	36.0	6.0	4.9	8.0	3	7.0
M8	x 0.75	TRE31386GS	10.0	80.0	30.0	6.0	4.9	8.0	3	7.3
M9	x 1.0	TRE31406GS	10.0	90.0	36.0	7.0	5.5	8.0	3	8.0
M9	x 0.75	TRE31416GS	10.0	80.0	30.0	7.0	5.5	8.0	3	8.3
M10	x 1.25	TRE31436GS	13.0	100.0	40.0	7.0	5.5	8.0	3	8.8
M10	x 1.0	TRE31446GS	10.0	90.0	36.0	7.0	5.5	8.0	3	9.0
M10	x 0.75	TRE31456GS	10.0	90.0	36.0	7.0	5.5	8.0	3	9.3
M12	x 1.5	TRE31516GS	15.0	100.0	40.0	9.0	7.0	10.0	3	10.5
M12	x 1.25	TRE31526GS	15.0	100.0	40.0	9.0	7.0	10.0	3	10.8
M12	x 1.0	TRE31536GS	15.0	100.0	40.0	9.0	7.0	10.0	3	11.0
M14	x 1.5	TRE31556GS	15.0	100.0	40.0	11.0	9.0	12.0	3	12.5
M14	x 1.25	TRE31566GS	15.0	100.0	40.0	11.0	9.0	12.0	3	12.8
M14	x 1.0	TRE31576GS	15.0	100.0	40.0	11.0	9.0	12.0	3	13.0
M16	x 1.5	TRE31616GS	15.0	100.0	40.0	12.0	9.0	12.0	3	14.5
M16	x 1.0	TRE31626GS	15.0	100.0	40.0	12.0	9.0	12.0	3	15.0

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	○	○	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

IME TA S

TRE SERIES

M ISO Metric Fine Threads DIN13

- MMetrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps
Maschinengewindebohrer

- ▶ High performance on various ductile materials
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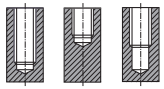
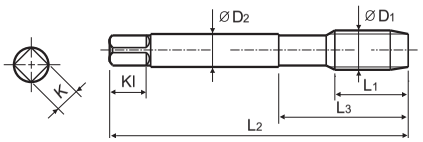
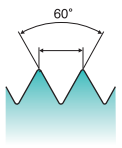
- ▶ Speziell entwickelt, um zu gro β e Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

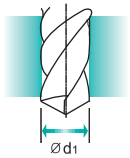
DIN 374

Hole type
2.5×D









Material groups MU | HSS PM | DIN 37 | 6H | 6 | C | R | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	Pitch P	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M18 x	2.0	TRE31666GS	20.0	125.0	50.0	14.0	11.0	14.0	4	16.0
M18 x	1.5	TRE31676GS	15.0	110.0	44.0	14.0	11.0	14.0	4	16.5
M18 x	1.0	TRE31686GS	15.0	110.0	44.0	14.0	11.0	14.0	4	17.0
M20 x	2.0	TRE31716GS	20.0	140.0	54.0	16.0	12.0	15.0	4	18.0
M20 x	1.5	TRE31726GS	15.0	125.0	50.0	16.0	12.0	15.0	4	18.5
M20 x	1.0	TRE31736GS	15.0	125.0	50.0	16.0	12.0	15.0	4	19.0
M22 x	2.0	TRE31756GS	20.0	140.0	54.0	18.0	14.5	17.0	4	20.0
M22 x	1.5	TRE31766GS	15.0	125.0	50.0	18.0	14.5	17.0	4	20.5
M22 x	1.0	TRE31776GS	15.0	125.0	50.0	18.0	14.5	17.0	4	21.0
M24 x	2.0	TRE31796GS	20.0	140.0	54.0	18.0	14.5	17.0	4	22.0
M24 x	1.5	TRE31806GS	15.0	140.0	54.0	18.0	14.5	17.0	4	22.5
M24 x	1.0	TRE31816GS	15.0	140.0	54.0	18.0	14.5	17.0	4	23.0

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	○	○	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

IME TA S
TRE SERIES

N Unified Coarse Threads

- Unified Grobgewinde
- UNC
- Unificato passo fine

Machine taps
Maschinengewindebohrer

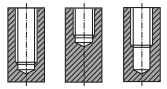
- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

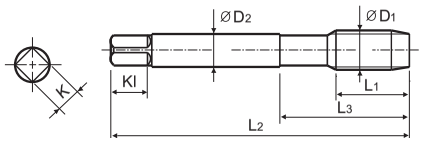
- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu gro β e Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

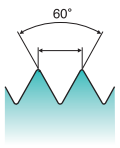
DIN 371

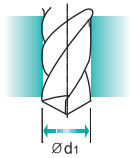
DIN 376

Hole type
2.5×D









Material groups MU | HSS PM | DIN 371/376 | 2 | 6 | C | R | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	TPI	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4 -	40 UNC	TRE32162GS	5.1	56.0	18.0	3.5	2.7	6.0	2	2.30
#5 -	40 UNC	TRE32202GS	5.1	56.0	18.0	3.5	2.7	6.0	3	2.60
#6 -	32 UNC	TRE32242GS	6.4	56.0	20.0	4.0	3.0	6.0	3	2.80
#8 -	32 UNC	TRE32282GS	6.4	63.0	21.0	4.5	3.4	6.0	3	3.40
#10 -	24 UNC	TRE32322GS	8.5	70.0	25.0	6.0	4.9	8.0	3	3.90
#12 -	24 UNC	TRE32362GS	8.5	80.0	30.0	6.0	4.9	8.0	3	4.50
1/4 -	20 UNC	TRE32402GS	10.2	80.0	30.0	7.0	5.5	8.0	3	5.10
5/16 -	18 UNC	TRE32442GS	14.2	90.0	35.0	8.0	6.2	9.0	3	6.60
3/8 -	16 UNC	TRE32482GS	15.9	100.0	39.0	9.0	7.0	10.0	3	8.00
7/16 -	14 UNC	TRE32522GS	18.2	100.0	40.0	8.0	6.2	9.0	3	9.40
1/2 -	13 UNC	TRE32562GS	19.6	110.0	44.0	9.0	7.0	10.0	3	10.80
9/16 -	12 UNC	TRE32602GS	21.2	110.0	44.0	11.0	9.0	12.0	3	12.20
5/8 -	11 UNC	TRE32642GS	23.1	110.0	44.0	12.0	9.0	12.0	3	13.60
3/4 -	10 UNC	TRE32702GS	25.4	125.0	50.0	14.0	11.0	14.0	4	16.50
7/8 -	9 UNC	TRE32742GS	28.3	140.0	54.0	18.0	14.5	17.0	4	19.50
1 -	8 UNC	TRE32782GS	31.8	160.0	60.0	20.0	16.0	19.0	4	22.20

▶ DIN 371(#4~3/8) and DIN 376(7/16~1)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	○	○	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

IME TA S

TRE SERIES

N Unified Fine Threads

Unified Grobgewinde
UNF
Unificato passo fine

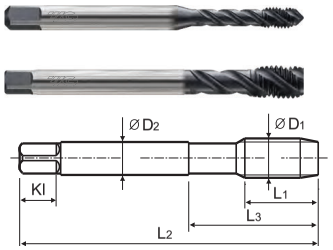
Machine taps
Maschinengewindebohrer

▶ High performance on various ductile materials
▶ Specially designed to prevent oversized threads and reduce gauging problems

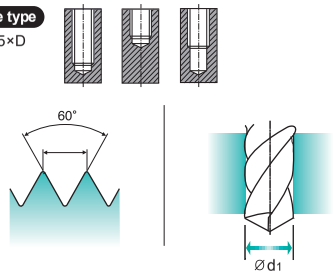
▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
▶ Speziell entwickelt, um zu gro β e Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

DIN 371

DIN 374



Hole type
2.5×D



Material groups **MU** | HSS PM | DIN 371/37 | 2 | 6 | C | R | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	TPI	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48 UNF	TRE33182GS	5.1	56.0	18.0	3.5	2.7	6.0	2	2.40
#5	44 UNF	TRE33222GS	5.1	56.0	18.0	3.5	2.7	6.0	3	2.70
#6	40 UNF	TRE33262GS	6.4	56.0	20.0	4.0	3.0	6.0	3	2.90
#8	36 UNF	TRE33302GS	6.4	63.0	21.0	4.5	3.4	6.0	3	3.50
#10	32 UNF	TRE33342GS	8.5	70.0	25.0	6.0	4.9	8.0	3	4.10
#12	28 UNF	TRE33382GS	8.5	80.0	30.0	6.0	4.9	8.0	3	4.60
1/4	28 UNF	TRE33422GS	10.2	80.0	30.0	7.0	5.5	8.0	3	5.50
5/16	24 UNF	TRE33462GS	10.6	90.0	35.0	8.0	6.2	9.0	3	6.90
3/8	24 UNF	TRE33502GS	10.6	100.0	39.0	9.0	7.0	10.0	3	8.50
7/16	20 UNF	TRE33542GS	12.7	100.0	40.0	8.0	6.2	9.0	3	9.90
1/2	20 UNF	TRE33582GS	12.7	100.0	40.0	9.0	7.0	10.0	3	11.50
9/16	18 UNF	TRE33622GS	14.2	100.0	40.0	11.0	9.0	12.0	3	12.90
5/8	18 UNF	TRE33662GS	14.2	100.0	40.0	12.0	9.0	12.0	3	14.50
3/4	16 UNF	TRE33722GS	15.9	110.0	44.0	14.0	11.0	14.0	4	17.50
7/8	14 UNF	TRE33762GS	18.2	125.0	50.0	18.0	14.5	17.0	4	20.50
1	12 UNF	TRE33802GS	21.2	140.0	54.0	20.0	16.0	19.0	4	23.20

▶ DIN 371(#4~3/8) and DIN 374(7/16~1)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	○	○	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

IME TA S

TR SERIES

M ISO Metric Coarse Threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

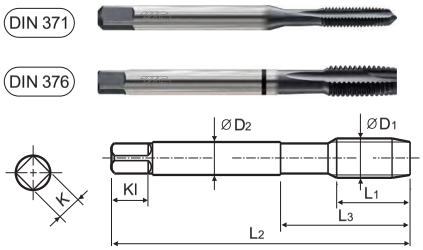
Machine taps
Maschinengewindebohrer

▶ High performance on various ductile materials
▶ Specially designed to prevent oversized threads and reduce gauging problems

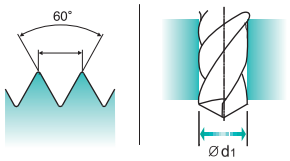
▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
▶ Speziell entwickelt, um zu gro β e Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

DIN 371

DIN 376



Hole type
3.0×D



Material groups **MU** | HSS PM | DIN 371/376 | 6H | 6 | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	Pitch P	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	0.4	TRJ15136GS	8.0	45.0	13.0	2.8	2.1	5.0	2	1.6
M2.5	0.45	TRJ15176GS	9.0	50.0	15.0	2.8	2.1	5.0	2	2.1
M3	0.5	TRJ15206GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M3.5	0.6	TRJ15226GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.9
M4	0.7	TRJ15246GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.3
M5	0.8	TRJ15286GS	15.0	70.0	25.0	6.0	4.9	8.0	3	4.2
M6	1.0	TRJ15316GS	17.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M7	1.0	TRJ15346GS	17.0	80.0	30.0	7.0	5.5	8.0	3	6.0
M8	1.25	TRJ15366GS	20.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M9	1.25	TRJ15396GS	20.0	90.0	35.0	9.0	7.0	10.0	3	7.8
M10	1.5	TRJ15426GS	22.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12	1.75	TRJ15506GS	24.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14	2.0	TRJ15546GS	26.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16	2.0	TRJ15606GS	27.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M18	2.5	TRJ15656GS	30.0	125.0	50.0	14.0	11.0	14.0	3	15.5
M20	2.5	TRJ15706GS	32.0	140.0	54.0	16.0	12.0	15.0	3	17.5
M22	2.5	TRJ15746GS	32.0	140.0	54.0	18.0	14.5	17.0	3	19.5
M24	3.0	TRJ15786GS	34.0	160.0	60.0	18.0	14.5	17.0	3	21.0

▶DIN 371(M2~M10) and DIN 376(M12~M24)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

IME TA S

TR 6 SERIES

M ISO Metric Fine Threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

- High performance on various ductile materials
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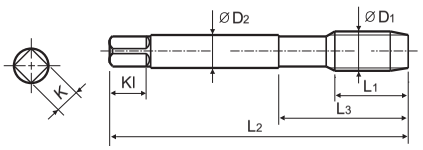
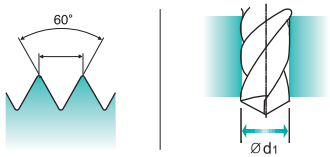
- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

DIN 374

Hole type
3.0×D





Material groups **MU** | HSS PM | DIN 37 | 6H | 6 | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	Pitch P	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M4 x	0.5	TRJ16256GS	10.0	63.0	21.0	2.8	2.1	5.0	3	3.5
M4 x	0.35	TRJ16696GS	10.0	63.0	21.0	2.8	2.1	5.0	3	3.7
M5 x	0.5	TRJ16296GS	11.0	70.0	25.0	3.5	2.7	6.0	3	4.5
M6 x	0.75	TRJ16326GS	13.0	80.0	30.0	4.5	3.4	6.0	3	5.3
M6 x	0.5	TRJ16336GS	13.0	80.0	30.0	4.5	3.4	6.0	3	5.5
M8 x	1.0	TRJ16376GS	17.0	90.0	36.0	6.0	4.9	8.0	3	7.0
M8 x	0.75	TRJ16386GS	14.0	80.0	30.0	6.0	4.9	8.0	3	7.3
M9 x	1.0	TRJ16406GS	20.0	90.0	36.0	7.0	5.5	8.0	3	8.0
M9 x	0.75	TRJ16416GS	17.0	80.0	36.0	7.0	5.5	8.0	3	8.3
M10 x	1.25	TRJ16436GS	22.0	100.0	40.0	7.0	5.5	8.0	3	8.8
M10 x	1.0	TRJ16446GS	18.0	90.0	36.0	7.0	5.5	8.0	3	9.0
M10 x	0.75	TRJ16456GS	18.0	90.0	36.0	7.0	5.5	8.0	3	9.3
M12 x	1.5	TRJ16516GS	22.0	100.0	40.0	9.0	7.0	10.0	3	10.5
M12 x	1.25	TRJ16526GS	22.0	100.0	40.0	9.0	7.0	10.0	3	10.8
M12 x	1.0	TRJ16536GS	18.0	100.0	40.0	9.0	7.0	10.0	3	11.0
M14 x	1.5	TRJ16556GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.5
M14 x	1.25	TRJ16566GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.8
M14 x	1.0	TRJ16576GS	18.0	100.0	40.0	11.0	9.0	12.0	3	13.0
M16 x	1.5	TRJ16616GS	22.0	100.0	40.0	12.0	9.0	12.0	3	14.5
M16 x	1.0	TRJ16626GS	18.0	100.0	40.0	12.0	9.0	12.0	3	15.0

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

IME TA S

TR 6 SERIES

M ISO Metric Fine Threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

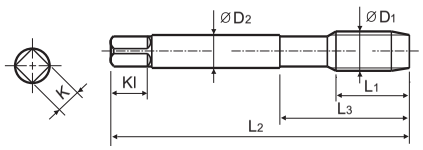
Machine taps
Maschinengewindebohrer

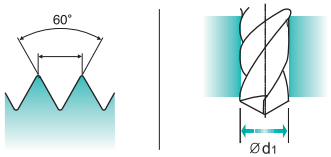
- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

DIN 374

Hole type
3.0×D





Material groups **MU** | HSS PM | DIN 37 | 6H | 6 | X Coating | p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	Pitch P	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M18 x	2.0	TRJ16666GS	26.0	125.0	50.0	14.0	11.0	14.0	3	16.0
M18 x	1.5	TRJ16676GS	25.0	110.0	44.0	14.0	11.0	14.0	3	16.5
M18 x	1.0	TRJ16686GS	20.0	110.0	44.0	14.0	11.0	14.0	3	17.0
M20 x	2.0	TRJ16716GS	27.0	140.0	54.0	16.0	12.0	15.0	3	18.0
M20 x	1.5	TRJ16726GS	25.0	125.0	50.0	16.0	12.0	15.0	3	18.5
M20 x	1.0	TRJ16736GS	20.0	125.0	50.0	16.0	12.0	15.0	3	19.0
M22 x	2.0	TRJ16756GS	27.0	140.0	54.0	18.0	14.5	17.0	3	20.0
M22 x	1.5	TRJ16766GS	25.0	125.0	50.0	18.0	14.5	17.0	3	20.5
M22 x	1.0	TRJ16776GS	20.0	125.0	50.0	18.0	14.5	17.0	3	21.0
M24 x	2.0	TRJ16796GS	27.0	140.0	54.0	18.0	14.5	17.0	3	22.0
M24 x	1.5	TRJ16806GS	27.0	140.0	54.0	18.0	14.5	17.0	3	22.5
M24 x	1.0	TRJ16816GS	20.0	140.0	54.0	18.0	14.5	17.0	3	23.0

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

IME TA S

TR SERIES

N Unified Coarse Threads

Unified Grobgewinde
UNC
Unificato passo fine

Machine taps
Maschinengewindebohrer

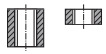
- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

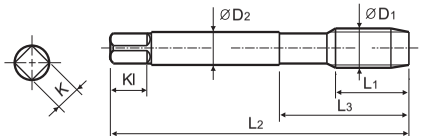
- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu groβe Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

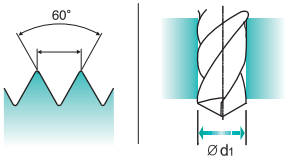
DIN 371

DIN 376

Hole type
3.0×D







Material groups **MU** | HSS PM | DIN 371/376 | 2 | 6 | X Coating

p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	TPI	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 40 UNC	TRJ17162GS	11.0	56.0	18.0	3.5	2.7	6.0	2	2.30
#5	- 40 UNC	TRJ17202GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.60
#6	- 32 UNC	TRJ17242GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.80
#8	- 32 UNC	TRJ17282GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.40
#10	- 24 UNC	TRJ17322GS	15.0	70.0	25.0	6.0	4.9	8.0	3	3.90
#12	- 24 UNC	TRJ17362GS	16.0	80.0	30.0	6.0	4.9	8.0	3	4.50
1/4	- 20 UNC	TRJ17402GS	17.0	80.0	30.0	7.0	5.5	8.0	3	5.10
5/16	- 18 UNC	TRJ17442GS	20.0	90.0	35.0	8.0	6.2	9.0	3	6.60
3/8	- 16 UNC	TRJ17482GS	22.0	100.0	39.0	9.0	7.0	10.0	3	8.00
7/16	- 14 UNC	TRJ17522GS	22.0	100.0	40.0	8.0	6.2	9.0	3	9.40
1/2	- 13 UNC	TRJ17562GS	25.0	110.0	44.0	9.0	7.0	10.0	3	10.80
9/16	- 12 UNC	TRJ17602GS	26.0	110.0	44.0	11.0	9.0	12.0	3	12.20
5/8	- 11 UNC	TRJ17642GS	27.0	110.0	44.0	12.0	9.0	12.0	3	13.60
3/4	- 10 UNC	TRJ17702GS	30.0	125.0	50.0	14.0	11.0	14.0	3	16.50
7/8	- 9 UNC	TRJ17742GS	32.0	140.0	54.0	18.0	14.5	17.0	3	19.50
1	- 8 UNC	TRJ17782GS	36.0	160.0	60.0	20.0	16.0	19.0	3	22.20

▶DIN371 (#4~3/8) and DIN376 (7/16~1)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

IME TA S

TR SERIES

N Unified Fine Threads

Unified Grobgewinde
UNF
Unificato passo fine

Machine taps
Maschinengewindebohrer

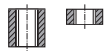
- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

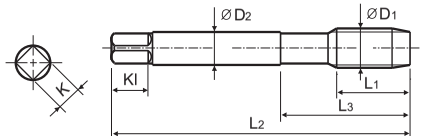
- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu groβe Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

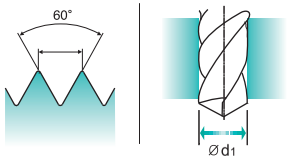
DIN 371

DIN 374

Hole type
3.0×D







Material groups **MU** | HSS PM | DIN 371/37 | 2 | 6 | X Coating

p.B76

Recommended ToolHolder

	Plain Shank	Page
◎	SYNCHRO TAPPING CHUCK	D203 -210
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	TPI	EDP No. X-coating	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 48 UNF	TRJ18182GS	11.0	56.0	18.0	3.5	2.7	6.0	2	2.40
#5	- 44 UNF	TRJ18222GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.70
#6	- 40 UNF	TRJ18262GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.90
#8	- 36 UNF	TRJ18302GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.50
#10	- 32 UNF	TRJ18342GS	15.0	70.0	25.0	6.0	4.9	8.0	3	4.10
#12	- 28 UNF	TRJ18382GS	16.0	80.0	30.0	6.0	4.9	8.0	3	4.60
1/4	- 28 UNF	TRJ18422GS	17.0	80.0	30.0	7.0	5.5	8.0	3	5.50
5/16	- 24 UNF	TRJ18462GS	17.0	90.0	35.0	8.0	6.2	9.0	3	6.90
3/8	- 24 UNF	TRJ18502GS	18.0	100.0	39.0	9.0	7.0	10.0	3	8.50
7/16	- 20 UNF	TRJ18542GS	22.0	100.0	40.0	8.0	6.2	9.0	3	9.90
1/2	- 20 UNF	TRJ18582GS	22.0	100.0	40.0	9.0	7.0	10.0	3	11.50
9/16	- 18 UNF	TRJ18622GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.90
5/8	- 18 UNF	TRJ18662GS	22.0	100.0	40.0	12.0	9.0	12.0	3	14.50
3/4	- 16 UNF	TRJ18722GS	25.0	110.0	44.0	14.0	11.0	14.0	3	17.50
7/8	- 14 UNF	TRJ18762GS	26.0	125.0	50.0	18.0	14.5	17.0	3	20.50
1"	- 12 UNF	TRJ18802GS	28.0	140.0	54.0	20.0	16.0	19.0	3	23.20

▶DIN371 (#4~3/8) and DIN374 (7/16~1)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

PRIME TAPS

RE OMMENDED TTING ONDITIONS
EMP OHLENE S HNEIDKONDITIONEN

					TRE30, TRE31, TRE32 TRE33, TRE34	TRJ15, TRJ16 TRJ17, TRJ18
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)	
P	1	Non-alloy steel	125		5-20	15-45
	2		190	13	10-50	10-55
	3		250	25	10-50	10-55
	4		270	28	15-40	15-50
	5		300	32	15-40	15-50
	6	Low alloy steel	180	10	8-30	8-30
	7		275	29	8-30	8-30
	8		300	32	8-30	8-30
	9		350	38	8-30	8-30
	10	High alloyed steel, and tool steel	200	15	8-30	8-30
	11		325	35	8-30	8-30
M	12	Stainless steel	200	15	5-15	8-20
	13		240	23	5-15	8-20
	14		180	10	5-15	8-20
K	15	Grey cast iron	180	10	15-35	15-35
	16		260	26	15-35	15-35
	17	Nodular cast iron	160	3	15-35	15-35
	18		250	25	15-35	15-35
N	21	Aluminum-wrought alloy	60		15-35	15-35
	22		100		15-35	15-35
	23	Aluminum-cast, alloyed	75		15-35	15-35
	24		90		15-35	15-35
	25		130		15-35	15-35
	26	Copper and Copper Alloys (Bronze / Brass)	110		15-35	15-35
	27		90		15-35	15-35
	28		100		15-35	15-35

OM O TAPS

OM O GE INDE OHRER

- **For Multi Purpose Tapping**
- **Für Mehrbereichs-Gewindebohren**

SELE TION G IDE

YG THREADING TOOLS

HSS-E & HSS-PM

OM O TAPS

For Multi Purpose Tapping

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B110

HOLE TYPE			Max. 2.5xD Blind Hole					
TOOL MATERIAL			HSS-E					
CHAMFER LEAD ACC. TO DIN2197			C	C	C	C	C	C
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute
SPIRAL FLUTE ANGLE			R40	R40	R40	R40	R40	R40
SERIES	M	DIN371/376	TC804 (p.B82)	TD804 (p.B82)	TB804 (p.B82)	TCE05 (p.B84)	TDE05 (p.B84)	TBE05 (p.B84)
		DIN352						
		DIN357/LONG						
	MF	DIN374	TC844 (p.B89)	TD844 (p.B89)	TB844 (p.B89)	TCE09 (p.B91)	TDE09 (p.B91)	
		DIN2181						
	UNC	DIN371/376	TC824 (p.B99)	TD824 (p.B99)	TB824 (p.B99)	TCE01 (p.B100)	TDE01 (p.B100)	
		DIN351						
	UNF	DIN371/374	TC864 (p.B101)	TD864 (p.B101)	TB864 (p.B101)	TCE02 (p.B102)	TDE02 (p.B102)	
		DIN2181						
	BSW	DIN2182/2183						
		DIN351						
	G(BSP)	DIN5156/5157						
	EG-M	DIN371/376						
	EG-UNC	DIN371/376						
	EG-UNF	DIN371/374						
SURFACE TREATMENT			Bright	TiN	VAP	Bright	TiN	VAP
MODEL								

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC						
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○	○	○	○
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○	○	○
	11			Quenched & Tempered	325	35						
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎	◎	◎	◎
	13		Martensitic	Quenched & Tempered	240	23	◎	◎	◎	◎	◎	◎
	14		Austenitic		180	10	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎	◎	◎	◎
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎	◎	◎	◎
	19	Malleable cast iron	Ferritic		130							
	20		Pearlitic		230	21						
N	21	Aluminum-wrought alloy	Not Curable		60							
	22		Curable	Hardened	100							
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎	◎	◎	◎
	24		≤ 12% Si, Curable	Hardened	90							
	25		> 12% Si, Not Curable		130							
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		◎	◎	◎	◎	◎	◎
	27		CuZn, CuSnZn (Brass)		90		◎	◎	◎	◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper		100		◎	◎	◎	◎	◎	◎
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic									
	30		Rubber, Wood, etc.									
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15						
	32			Cured	280	30						
	33		Ni or Co Based	Annealed	250	25						
	34			Cured	350	38						
	35			Cast	320	34						
	36	Titanium Alloys	Pure Titanium		400 Rm							
	37		Alpha + Beta Alloys	Hardened	1050 Rm							
H	38	Hardened steel		Hardened	550	55						
	39			Hardened	630	60						
	40	Chilled Cast Iron		Cast	400	42						
	41	Hardened Cast Iron		Hardened	550	55						

HOLE TYPE			Max. 2.5xD Blind Hole													
TOOL MATERIAL			HSS-E												HSS-PM	
CHAMFER LEAD ACC. TO DIN2197			C	C	C	C	C	C	C	C	C	C	C	E	C	C
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute
SPIRAL FLUTE ANGLE			R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R40	R45	R45
SERIES	M	DIN371/376	TCE06 (p.B85)	TDE06 (p.B85)	TBE06 (p.B85)	TCE07 (p.B86)	TDE07 (p.B86)	TBE07 (p.B86)	TCE08 (p.B87)	TDE08 (p.B87)	TBE08 (p.B87)	TC804-IC (p.B93)		TC807 (p.B94)	TB744 (p.B96)	TQ744 (p.B96)
		DIN352														
		DIN357/LONG											TC633 (p.B95)			
	MF	DIN374													TB754 (p.B98)	TQ754 (p.B83)
		DIN2181														
	UNC	DIN371/376														
		DIN351														
	UNF	DIN371/374														
		DIN2181														
	BSW	DIN2182/2183														
		DIN351														
	G(BSP)	DIN5156/5157														
	EG-M	DIN371/376														
	EG-UNC	DIN371/376														
	EG-UNF	DIN371/374														
SURFACE TREATMENT			Bright	TiN	VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	Bright	Bright	VAP	VAP
MODEL																

ISO	VDI 3323																
P	1	○	○	○	○	○	○	○	○	○	○	○	○	○			1
	2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	2
	3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			3
	4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	4
	5	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			5
	6	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	6
	7	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	7
	8	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			8
	9	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			9
	10	○	○	○	○	○	○	○	○	○	○	○	○	○			10
	11																11
M	12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	12
	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	13
	14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	14
K	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			15
	16	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			16
	17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			17
	18	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			18
	19																19
	20																20
N	21																21
	22																22
	23	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			23
	24																24
	25																25
	26	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			26
	27	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			27
	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	28
	29																29
	30																30
S	31																31
	32																32
	33																33
	34																34
	35																35
	36																36
	37																37
H	38																38
	39																39
	40																40
	41																41

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

SELE TION G IDE

THREADING TOOLS

HSS-E & HSS-PM
OM O TAPS

For Multi Purpose Tapping

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B110

HOLE TYPE		Max. 3.0xD Through Hole					
TOOL MATERIAL		HSS-E					
CHAMFER LEAD ACC. TO DIN2197		B	B	B	B	B	B
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE		-	-	-	-	-	-
SERIES M	DIN371/376	TC814 (p.B104)	TD814 (p.B104)	TB814 (p.B104)	TCJ05 (p.B105)	TDJ05 (p.B105)	TBJ05 (p.B105)
M	DIN352						
M	DIN357/LONG						
MF	DIN374	TC854 (p.B109)	TD854 (p.B109)	TB854 (p.B109)	TCJ09 (p.B112)	TDJ09 (p.B112)	
MF	DIN2181						
UNC	DIN371/376	TC834 (p.B119)	TD834 (p.B119)	TB834 (p.B119)	TCJ01 (p.B120)	TDJ01 (p.B120)	
UNC	DIN351						
UNF	DIN371/374	TC874 (p.B121)	TD874 (p.B121)	TB874 (p.B121)	TCJ02 (p.B122)	TDJ02 (p.B122)	
UNF	DIN2181						
BSW	DIN2182/2183						
BSW	DIN351						
G(BSP)	DIN5156/5157						
EG-M	DIN371/376						
EG-UNC	DIN371/376						
EG-UNF	DIN371/374						
SURFACE TREATMENT		Bright	TiN	VAP	Bright	TiN	VAP
MODEL							

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	TC814	TD814	TB814	TCJ05	TDJ05	TBJ05
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○	○	○	○
P	2	Non-alloy steel	About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎
P	3	Non-alloy steel	About 0.45% C	Quenched&Tempered	250	25	◎	◎	◎	◎	◎	◎
P	4	Non-alloy steel	About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎
P	5	Non-alloy steel	About 0.75% C	Quenched&Tempered	300	32	◎	◎	◎	◎	◎	◎
P	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎
P	7	Low alloy steel		Quenched&Tempered	275	29	◎	◎	◎	◎	◎	◎
P	8	Low alloy steel		Quenched&Tempered	300	32	◎	◎	◎	◎	◎	◎
P	9	Low alloy steel		Quenched&Tempered	350	38	◎	◎	◎	◎	◎	◎
P	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○	○	○
P	11	High alloyed steel, and tool steel		Quenched&Tempered	325	35						
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎	◎	◎	◎
M	13	Stainless steel	Martensitic	Quenched&Tempered	240	23	◎	◎	◎	◎	◎	◎
M	14	Stainless steel	Austenitic		180	10	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎	◎
K	16	Grey cast iron	Pearlitic (Martensitic)		260	26	◎	◎	◎	◎	◎	◎
K	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎	◎
K	18	Nodular cast iron	Pearlitic		250	25	◎	◎	◎	◎	◎	◎
K	19	Malleable cast iron	Ferritic		130							
K	20	Malleable cast iron	Pearlitic		230	21						
N	21	Aluminum-wrought alloy	Not Curable		60							
N	22	Aluminum-wrought alloy	Curable	Hardened	100							
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎	◎	◎	◎
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	Hardened	90							
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable		130							
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		◎	◎	◎	◎	◎	◎
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90		◎	◎	◎	◎	◎	◎
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper		100		◎	◎	◎	◎	◎	◎
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic									
N	30	Non Metallic Materials	Rubber, Wood, etc.									
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15						
S	32	Heat Resistant Super Alloys	Fe Based	Cured	280	30						
S	33	Heat Resistant Super Alloys	Ni or Co Based	Annealed	250	25						
S	34	Heat Resistant Super Alloys	Ni or Co Based	Cured	350	38						
S	35	Heat Resistant Super Alloys	Ni or Co Based	Cast	320	34						
S	36	Titanium Alloys	Pure Titanium		400 Rm							
S	37	Titanium Alloys	Alpha + Beta Alloys	Hardened	1050 Rm							
H	38	Hardened steel		Hardened	550	55						
H	39	Hardened steel		Hardened	630	60						
H	40	Chilled Cast Iron		Cast	400	42						
H	41	Hardened Cast Iron		Hardened	550	55						

HOLE TYPE		Max. 3.0xD Through Hole												
TOOL MATERIAL		HSS-E											HSS-PM	
CHAMFER		B	B	B	B	B	B	B	B	B	B	B	B	B
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE		-	-	-	-	-	-	-	-	-	-	-	-	-
M	DIN371/376	TCJ06 (p.B106)	TDJ06 (p.B106)	TBJ06 (p.B106)	TCJ07 (p.B107)	TDJ07 (p.B107)	TBJ07 (p.B107)	TCJ08 (p.B108)	TDJ08 (p.B108)	TBJ08 (p.B108)	TC814-IC (p.B114)		TB428 (p.B116)	TQ428 (p.B116)
M	DIN352													
M	DIN357/LONG											TC445 (p.B115)		
MF	DIN374												TB438 (p.B118)	TQ438 (p.B117)
MF	DIN2181													
UNC	DIN371/376													
UNC	DIN351													
UNF	DIN371/374													
UNF	DIN2181													
BSW	DIN2182/2183													
BSW	DIN351													
G(BSP)	DIN5156/5157													
EG-M	DIN371/376													
EG-UNC	DIN371/376													
EG-UNF	DIN371/374													
SURFACE TREATMENT		Bright	TiN	VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	Bright	VAP	VAP

ISO	VDI 3323	TCJ06	TDJ06	TBJ06	TCJ07	TDJ07	TBJ07	TCJ08	TDJ08	TBJ08	TC814-IC	TC445	TB428	TQ428
P	1	○	○	○	○	○	○	○	○	○	○	○		
P	2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	5	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	6	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	7	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
P	8	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	9	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
P	10	○	○	○	○	○	○	○	○	○	○	○		
P	11													
M	12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	16	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	18	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
K	19													
K	20													
N	21													
N	22													
N	23	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	24													
N	25													
N	26	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	27	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
N	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○
N	29													
N	30													
S	31													
S	32													
S	33													
S	34													
S	35													
S	36													
S	37													
H	38													
H	39													
H	40													
H	41													

COMBO TAP SETS

Combo Spiral Flute Taps	
TB804SET5	TC804SET7
VAP	Bright
5pcs	7pcs

Combo Spiral Flute Taps + Gold-P Drill
TD804SET7-GLP195
TiN
14pcs

P.493

COM O TA S

Vap	T 0	SERIES
Bright	T 0	SERIES
TiN	TD 0	SERIES

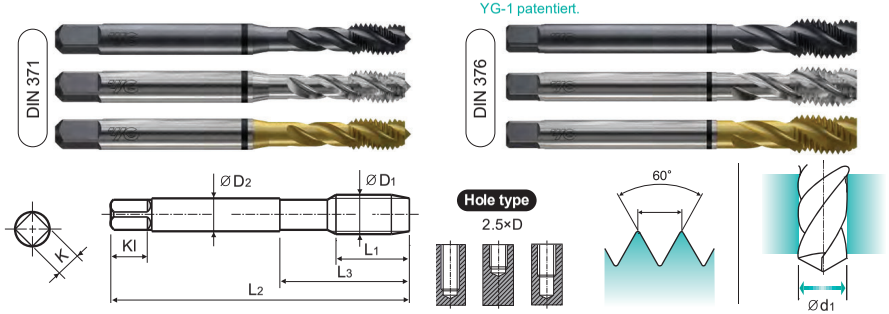
M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 6H | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TB804136	TC804136	TD804136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB804156	TC804156	TD804156	8	45	13	2.8	2.1	5	3	1.75
M2.3	× 0.4	TB804196	TC804196	TD804196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB804176	TC804176	TD804176	9	50	15	2.8	2.1	5	3	2.05
M2.6	× 0.45	TB804496	TC804496	TD804496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB804206	TC804206	TD804206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB804226	TC804226	TD804226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB804246	TC804246	TD804246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB804266	TC804266	TD804266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB804286	TC804286	TD804286	8	70	25	6	4.9	8	3	4.2
M6	× 1.0	TB804316	TC804316	TD804316	10	80	30	6	4.9	8	3	5
M7	× 1.0	TB804346	TC804346	TD804346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB804366	TC804366	TD804366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB804396	TC804396	TD804396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB804426	TC804426	TD804426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB804466	TC804466	TD804466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB804506	TC804506	TD804506	18	110	44	9	7	10	3	10.2
M14	× 2.0	TB804546	TC804546	TD804546	20	110	44	11	9	12	3	12
M16	× 2.0	TB804606	TC804606	TD804606	20	110	44	12	9	12	3	14
M18	× 2.5	TB804656	TC804656	TD804656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB804706	TC804706	TD804706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB804746	TC804746	TD804746	25	140	54	18	14.5	17	4	19.5
M24	× 3.0	TB804786	TC804786	TD804786	30	160	60	18	14.5	17	4	21
M27	× 3.0	TB804866	TC804866	TD804866	30	160	60	20	16	19	4	24

▶ NEXT PAGE

▶DIN 371(M2~M10) and DIN 376(M11~M52)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

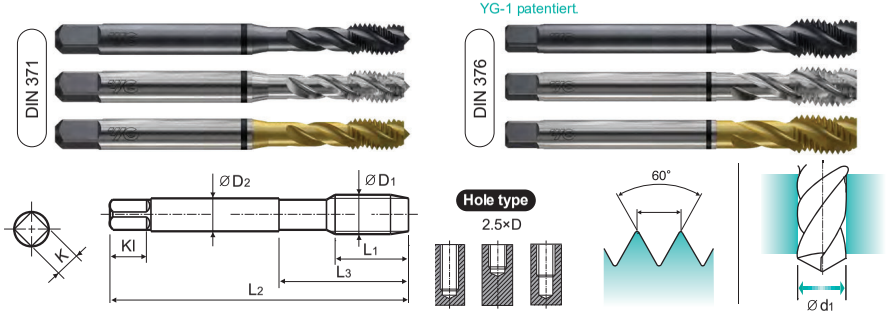
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T 0	SERIES
Bright	T 0	SERIES
TiN	TD 0	SERIES

M ISO Metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 6H | 6 | C | R | ap right TiN | p.B124
Recommended ToolHolder
	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213
Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M30	× 3.5	TB804946	TC804946	TD804946	35	180	70	22	18	21	4	26.5
M33	x 3.5	-	TC804A46	TD804A46	35	180	70	25	20	23	4	29.5
M36	x 4.0	-	TC804B36	TD804B36	40	200	80	28	22	25	4	32.0
M39	x 4.0	-	TC804C06	TD804C06	40	200	80	32	24	27	4	35.0
M42	x 4.5	-	TC804C86	TD804C86	45	200	85	32	24	27	4	37.5
M45	x 4.5	-	TC804D56	TD804D56	45	220	85	36	29	32	4	40.5
M48	x 5.0	-	TC804E26	TD804E26	50	250	90	36	29	32	4	43.0
M52	x 5.0	-	TC804F36	TD804F36	50	250	90	40	32	35	4	47.0

▶DIN 371(M2~M10) and DIN 376(M11~M52)
* The other coating(TiCN or TiAlN) is available on your request.

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T E0 SERIES
Bright	T E0 SERIES
TiN	TDE0 SERIES

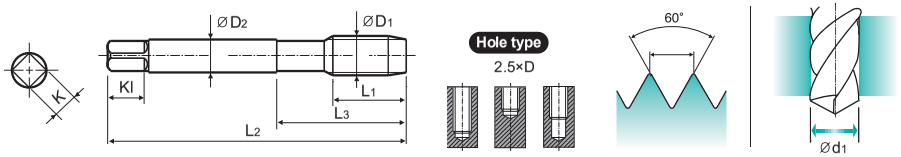
M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups **MU** | HSS-E | DIN 371/376 | H | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2 ×	0.4	TBE05136	TCE05136	TDE05136	8	45	13	2.8	2.1	5	3	1.6
M2.2 ×	0.45	TBE05156	TCE05156	TDE05156	8	45	13	2.8	2.1	5	3	1.75
M2.3 ×	0.4	TBE05196	TCE05196	TDE05196	8	45	13	2.8	2.1	5	3	1.9
M2.5 ×	0.45	TBE05176	TCE05176	TDE05176	9	50	15	2.8	2.1	5	3	2.05
M2.6 ×	0.45	TBE05496	TCE05496	TDE05496	9	50	15	2.8	2.1	5	3	2.1
M3 ×	0.5	TBE05206	TCE05206	TDE05206	6	56	18	3.5	2.7	6	3	2.5
M3.5 ×	0.6	TBE05226	TCE05226	TDE05226	7	56	20	4	3	6	3	2.9
M4 ×	0.7	TBE05246	TCE05246	TDE05246	7	63	21	4.5	3.4	6	3	3.3
M4.5 ×	0.75	TBE05266	TCE05266	TDE05266	8	70	25	6	4.9	8	3	3.7
M5 ×	0.8	TBE05286	TCE05286	TDE05286	8	70	25	6	4.9	8	3	4.2
M6 ×	1	TBE05316	TCE05316	TDE05316	10	80	30	6	4.9	8	3	5
M7 ×	1	TBE05346	TCE05346	TDE05346	10	80	30	7	5.5	8	3	6
M8 ×	1.25	TBE05366	TCE05366	TDE05366	13	90	35	8	6.2	9	3	6.8
M9 ×	1.25	TBE05396	TCE05396	TDE05396	13	90	35	9	7	10	3	7.8
M10 ×	1.5	TBE05426	TCE05426	TDE05426	15	100	39	10	8	11	3	8.5
M11 ×	1.5	TBE05466	TCE05466	TDE05466	17	100	40	8	6.2	9	3	9.5
M12 ×	1.75	TBE05506	TCE05506	TDE05506	18	110	44	9	7	10	3	10.2
M14 ×	2	TBE05546	TCE05546	TDE05546	20	110	44	11	9	12	3	12
M16 ×	2	TBE05606	TCE05606	TDE05606	20	110	44	12	9	12	3	14
M18 ×	2.5	TBE05656	TCE05656	TDE05656	25	125	50	14	11	14	4	15.5
M20 ×	2.5	TBE05706	TCE05706	TDE05706	25	140	54	16	12	15	4	17.5
M22 ×	2.5	TBE05746	TCE05746	TDE05746	25	140	54	18	14.5	17	4	19.5
M24 ×	3	TBE05786	TCE05786	TDE05786	30	160	60	18	14.5	17	4	21
M27 ×	3	TBE05866	TCE05866	TDE05866	30	160	60	20	16	19	4	24
M30 ×	3.5	TBE05946	TCE05946	TDE05946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

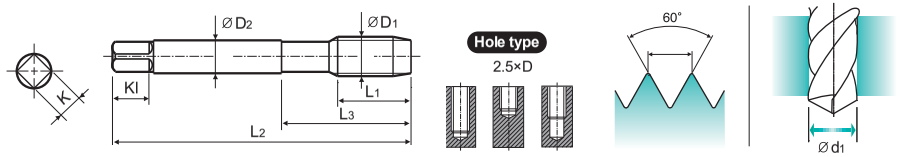
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T E06 SERIES
Bright	T E06 SERIES
TiN	TDE06 SERIES

M ISO Metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups **MU** | HSS-E | DIN 371/376 | 6H | 1 | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2 ×	0.4	TBE06136	TCE06136	TDE06136	8	45	13	2.8	2.1	5	3	1.7
M2.2 ×	0.45	TBE06156	TCE06156	TDE06156	8	45	13	2.8	2.1	5	3	1.85
M2.3 ×	0.4	TBE06196	TCE06196	TDE06196	8	45	13	2.8	2.1	5	3	2
M2.5 ×	0.45	TBE06176	TCE06176	TDE06176	9	50	15	2.8	2.1	5	3	2.15
M2.6 ×	0.45	TBE06496	TCE06496	TDE06496	9	50	15	2.8	2.1	5	3	2.2
M3 ×	0.5	TBE06206	TCE06206	TDE06206	6	56	18	3.5	2.7	6	3	2.6
M3.5 ×	0.6	TBE06226	TCE06226	TDE06226	7	56	20	4	3	6	3	3
M4 ×	0.7	TBE06246	TCE06246	TDE06246	7	63	21	4.5	3.4	6	3	3.4
M4.5 ×	0.75	TBE06266	TCE06266	TDE06266	8	70	25	6	4.9	8	3	3.8
M5 ×	0.8	TBE06286	TCE06286	TDE06286	8	70	25	6	4.9	8	3	4.3
M6 ×	1	TBE06316	TCE06316	TDE06316	10	80	30	6	4.9	8	3	5.1
M7 ×	1	TBE06346	TCE06346	TDE06346	10	80	30	7	5.5	8	3	6.1
M8 ×	1.25	TBE06366	TCE06366	TDE06366	13	90	35	8	6.2	9	3	6.9
M9 ×	1.25	TBE06396	TCE06396	TDE06396	13	90	35	9	7	10	3	7.9
M10 ×	1.5	TBE06426	TCE06426	TDE06426	15	100	39	10	8	11	3	8.6
M11 ×	1.5	TBE06466	TCE06466	TDE06466	17	100	40	8	6.2	9	3	9.6
M12 ×	1.75	TBE06506	TCE06506	TDE06506	18	110	44	9	7	10	3	10.3
M14 ×	2	TBE06546	TCE06546	TDE06546	20	110	44	11	9	12	3	12.1
M16 ×	2	TBE06606	TCE06606	TDE06606	20	110	44	12	9	12	3	14.1
M18 ×	2.5	TBE06656	TCE06656	TDE06656	25	125	50	14	11	14	4	15.6
M20 ×	2.5	TBE06706	TCE06706	TDE06706	25	140	54	16	12	15	4	17.6
M22 ×	2.5	TBE06746	TCE06746	TDE06746	25	140	54	18	14.5	17	4	19.6
M24 ×	3	TBE06786	TCE06786	TDE06786	30	160	60	18	14.5	17	4	21.1
M27 ×	3	TBE06866	TCE06866	TDE06866	30	160	60	20	16	19	4	24.1
M30 ×	3.5	TBE06946	TCE06946	TDE06946	35	180	70	22	18	21	4	26.6

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COM O TA S

Vap	T E0	SERIES
Bright	T E0	SERIES
TiN	TDE0	SERIES

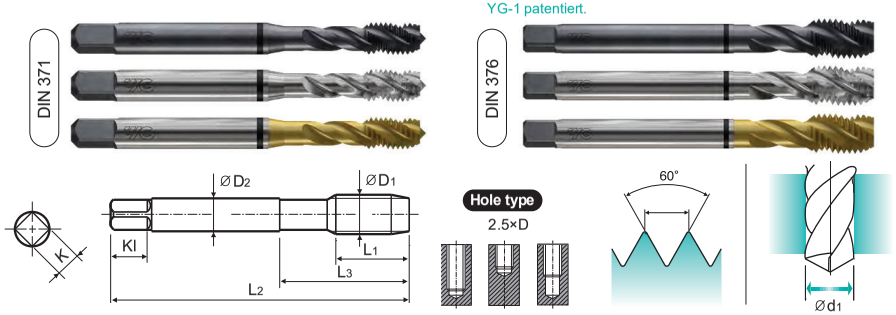
M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups **MU** | HSS-E | DIN 371/376 | 6 | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	Bright	TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TBE07136	TCE07136	TDE07136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE07156	TCE07156	TDE07156	8	45	13	2.8	2.1	5	3	1.75
M2.3	× 0.4	TBE07196	TCE07196	TDE07196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE07176	TCE07176	TDE07176	9	50	15	2.8	2.1	5	3	2.05
M2.6	× 0.45	TBE07496	TCE07496	TDE07496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE07206	TCE07206	TDE07206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE07226	TCE07226	TDE07226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE07246	TCE07246	TDE07246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE07266	TCE07266	TDE07266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE07286	TCE07286	TDE07286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE07316	TCE07316	TDE07316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE07346	TCE07346	TDE07346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE07366	TCE07366	TDE07366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE07396	TCE07396	TDE07396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE07426	TCE07426	TDE07426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE07466	TCE07466	TDE07466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE07506	TCE07506	TDE07506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE07546	TCE07546	TDE07546	20	110	44	11	9	12	3	12
M16	× 2	TBE07606	TCE07606	TDE07606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE07656	TCE07656	TDE07656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE07706	TCE07706	TDE07706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE07746	TCE07746	TDE07746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE07786	TCE07786	TDE07786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE07866	TCE07866	TDE07866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE07946	TCE07946	TDE07946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T E0	SERIES
Bright	T E0	SERIES
TiN	TDE0	SERIES

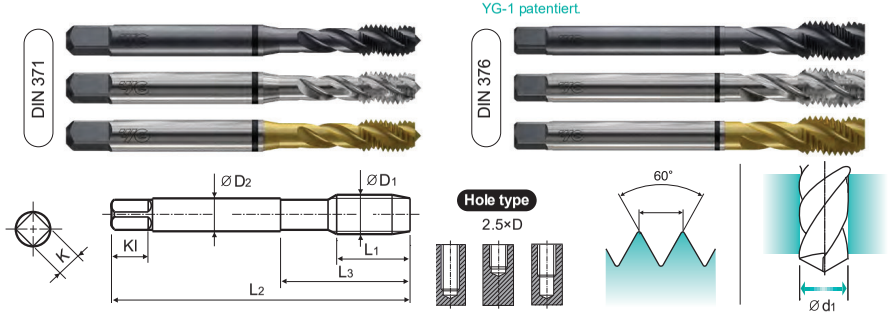
M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups **MU** | HSS-E | DIN 371/376 | 7 | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	Bright	TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TBE08136	TCE08136	TDE08136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE08156	TCE08156	TDE08156	8	45	13	2.8	2.1	5	3	1.75
M2.3	× 0.4	TBE08196	TCE08196	TDE08196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE08176	TCE08176	TDE08176	9	50	15	2.8	2.1	5	3	2.05
M2.6	× 0.45	TBE08496	TCE08496	TDE08496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE08206	TCE08206	TDE08206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE08226	TCE08226	TDE08226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE08246	TCE08246	TDE08246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE08266	TCE08266	TDE08266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE08286	TCE08286	TDE08286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE08316	TCE08316	TDE08316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE08346	TCE08346	TDE08346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE08366	TCE08366	TDE08366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE08396	TCE08396	TDE08396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE08426	TCE08426	TDE08426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE08466	TCE08466	TDE08466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE08506	TCE08506	TDE08506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE08546	TCE08546	TDE08546	20	110	44	11	9	12	3	12
M16	× 2	TBE08606	TCE08606	TDE08606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE08656	TCE08656	TDE08656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE08706	TCE08706	TDE08706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE08746	TCE08746	TDE08746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE08786	TCE08786	TDE08786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE08866	TCE08866	TDE08866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE08946	TCE08946	TDE08946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

M ISO Metric fine threads DIN 13

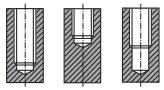
- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

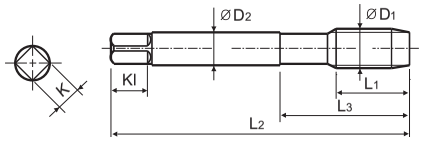
Machine taps
Maschinengewindebohrer

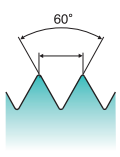
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

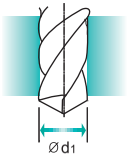
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
2.5×D









Material groups **MU** | HSS-E | DIN 37 | 6H | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TB844256	TC844256	TD844256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB844296	TC844296	TD844296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB844326	TC844326	TD844326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB844336	TC844336	TD844336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB844356	TC844356	TD844356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1.0	TB844376	TC844376	TD844376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TB844386	TC844386	TD844386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB844436	TC844436	TD844436	16	100	40	7	5.5	8	3	8.8
M10	× 1.0	TB844446	TC844446	TD844446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TB844456	TC844456	TD844456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB844516	TC844516	TD844516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TB844526	TC844526	TD844526	15	100	40	9	7	10	3	10.8
M12	× 1.0	TB844536	TC844536	TD844536	11	100	40	9	7	10	3	11
M14	× 1.5	TB844556	TC844556	TD844556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TB844566	TC844566	TD844566	15	100	40	11	9	12	3	12.8
M14	× 1.0	TB844576	TC844576	TD844576	11	100	40	11	9	12	3	13
M16	× 1.5	TB844616	TC844616	TD844616	15	100	40	12	9	12	3	14.5
M16	× 1.0	TB844626	TC844626	TD844626	12	100	40	12	9	12	3	15
M18	× 1.5	TB844676	TC844676	TD844676	17	110	44	14	11	14	4	16.5
M18	× 1.0	TB844686	TC844686	TD844686	13	110	44	14	11	14	4	17
M20	× 1.5	TB844726	TC844726	TD844726	17	125	50	16	12	15	4	18.5
M20	× 1.0	TB844736	TC844736	TD844736	14	125	50	16	12	15	4	19
M22	× 1.5	TB844766	TC844766	TD844766	17	125	50	18	14.5	17	4	20.5
M22	× 1.0	TB844776	TC844776	TD844776	14	125	50	18	14.5	17	4	21

* The other coating(TiCN or TiAlN) is available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

M ISO Metric fine threads DIN 13

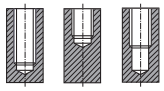
- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

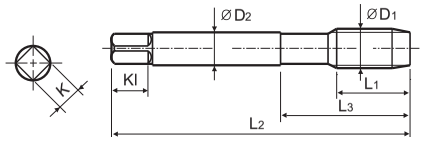
Machine taps
Maschinengewindebohrer

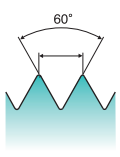
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

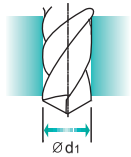
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
2.5×D









Material groups MU | HSS-E | DIN 37 | 6H | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M24	× 2.0	TB844796	TC844796	TD844796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TB844806	TC844806	TD844806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TB844856	TC844856	TD844856	20	140	54	18	14.5	17	4	24.5
M27	× 2.0	TB844876	TC844876	TD844876	20	140	54	20	16	19	4	25
M27	× 1.5	TB844886	TC844886	TD844886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TB844916	TC844916	TD844916	20	140	54	20	16	19	4	26.5
M30	× 2	TB844966	TC844966	TD844966	22	150	57	22	18	21	4	28
M30	× 1.5	TB844976	TC844976	TD844976	22	150	57	22	18	21	4	28.5
M32	x 2.0	-	TC844A16	TD844A16	22	150	57	22	18	21	4	30.0
M32	x 1.5	-	TC844A26	TD844A26	22	150	57	22	18	21	4	30.5
M33	x 2.0	-	TC844A66	TD844A66	24	160	60	25	20	23	4	31.0
M33	x 1.5	-	TC844A76	TD844A76	24	160	60	25	20	23	4	31.5
M34	x 1.5	-	TC844A96	TD844A96	24	170	70	28	22	25	4	32.5
M35	x 1.5	-	TC844B16	TD844B16	24	170	70	28	22	25	4	33.5
M36	x 3.0	-	TC844B46	TD844B46	30	200	80	28	22	25	4	33.0
M36	x 2.0	-	TC844B56	TD844B56	24	170	70	28	22	25	4	34.0
M36	x 1.5	-	TC844B66	TD844B66	24	170	70	28	22	25	4	34.5
M38	x 1.5	-	TC844B86	TD844B86	24	170	70	28	22	25	4	36.5
M39	x 1.5	-	TC844C36	TD844C36	25	170	70	32	24	27	4	37.5
M40	x 1.5	-	TC844C66	TD844C66	25	170	70	32	24	27	4	38.5
M42	x 3.0	-	TC844D06	TD844D06	30	200	80	32	24	27	4	39.0
M42	x 2.0	-	TC844D16	TD844D16	25	170	70	32	24	27	4	40.0
M42	x 1.5	-	TC844D26	TD844D26	25	170	70	32	24	27	4	40.5
M45	x 1.5	-	TC844D96	TD844D96	26	180	80	36	29	32	4	43.5

* The other coating(TiCN or TiAlN) is available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

M ISO Metric fine threads DIN 13

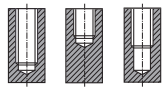
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

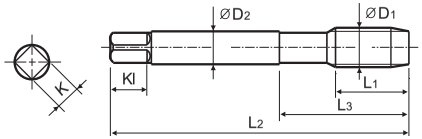
Machine taps
Maschinengewindebohrer

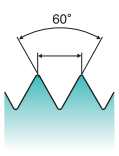
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

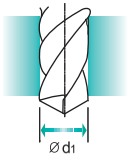
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
2.5×D









Material groups **MU** | HSS-E | DIN 37 | 6H | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M48	x 3.0	-	TC844E56	TD844E56	36	225	90	36	29	32	4	45.0
M48	x 2.0	-	TC844E66	TD844E66	28	190	80	36	29	32	4	46.0
M48	x 1.5	-	TC844E76	TD844E76	28	190	80	36	29	32	4	46.5
M50	x 1.5	-	TC844F16	TD844F16	28	190	80	36	29	32	4	48.5
M52	x 3.0	-	TC844F56	TD844F56	36	225	90	40	32	35	4	49.0
M52	x 2.0	-	TC844F66	TD844F66	28	190	80	40	32	35	4	50.0
M52	x 1.5	-	TC844F76	TD844F76	28	190	80	40	32	35	4	50.5

* The other coating(TiCN or TiAlN) is available on your request.

* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Bright	T E0	SERIES
TiN	TDE0	SERIES

M ISO Metric fine threads DIN 13

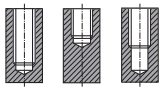
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

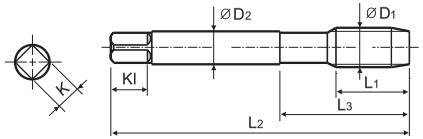
Machine taps
Maschinengewindebohrer

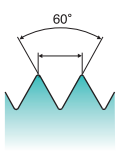
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

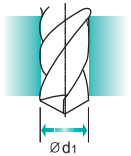
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
2.5×D









Material groups **MU** | HSS-E | DIN 37 | 6 | 6 | C | R | ap right TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TCE09256	TDE09256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TCE09296	TDE09296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TCE09326	TDE09326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TCE09336	TDE09336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TCE09356	TDE09356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TCE09376	TDE09376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TCE09386	TDE09386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TCE09436	TDE09436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TCE09446	TDE09446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TCE09456	TDE09456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TCE09516	TDE09516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TCE09526	TDE09526	15	100	40	9	7	10	3	10.8
M12	× 1	TCE09536	TDE09536	11	100	40	9	7	10	3	11
M14	× 1.5	TCE09556	TDE09556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TCE09566	TDE09566	15	100	40	11	9	12	3	12.8
M14	× 1	TCE09576	TDE09576	11	100	40	11	9	12	3	13
M16	× 1.5	TCE09616	TDE09616	15	100	40	12	9	12	3	14.5
M16	× 1	TCE09626	TDE09626	12	100	40	12	9	12	3	15
M18	× 1.5	TCE09676	TDE09676	17	110	44	14	11	14	4	16.5
M18	× 1	TCE09686	TDE09686	13	110	44	14	11	14	4	17
M20	× 1.5	TCE09726	TDE09726	17	125	50	16	12	15	4	18.5
M20	× 1	TCE09736	TDE09736	14	125	50	16	12	15	4	19
M22	× 1.5	TCE09766	TDE09766	17	125	50	18	14.5	17	4	20.5
M22	× 1	TCE09776	TDE09776	14	125	50	18	14.5	17	4	21

* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COM O TA S

Bright T E0 SERIES
TiN TDE0 SERIES

M ISO Metric fine threads DIN 13

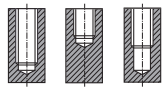
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

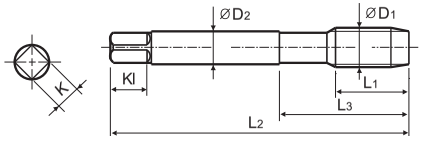
Machine taps
Maschinengewindebohrer

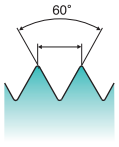
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

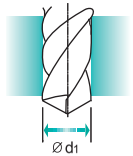
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
2.5×D









Material groups **MU** | HSS-E | DIN 37 | 6 | 6 | C | R | right | TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M24	× 2	TCE09796	TDE09796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TCE09806	TDE09806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TCE09856	TDE09856	20	140	54	18	14.5	17	4	24.5
M27	× 2	TCE09876	TDE09876	20	140	54	20	16	19	4	25
M27	× 1.5	TCE09886	TDE09886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TCE09916	TDE09916	20	140	54	20	16	19	4	26.5
M30	× 2	TCE09966	TDE09966	22	150	57	22	18	21	4	28
M30	× 1.5	TCE09976	TDE09976	22	150	57	22	18	21	4	28.5

* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

T 0 I SERIES

M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

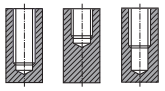
Machine taps
Maschinengewindebohrer

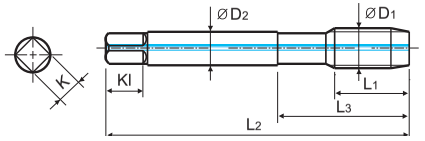
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

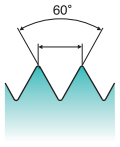
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

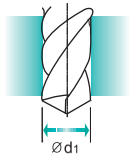
with Internal Coolant

Hole type
2.5×D









Material groups **MU** | HSS-E | DIN 371/376 | 6H | 6 | C | R | Bright | p.B124

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M6	× 1	TC804316IC	10	80	30	6	4.9	8	3	5
M8	× 1.25	TC804366IC	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TC804426IC	15	100	39	10	8	11	3	8.5
M12	× 1.75	TC804506IC	18	110	44	9	7	10	3	10.2
M14	× 2	TC804546IC	20	110	44	11	9	12	3	12
M16	× 2	TC804606IC	20	110	44	12	9	12	3	14
M18	× 2.5	TC804656IC	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC804706IC	25	140	54	16	12	15	4	17.5

▶DIN 371(M6~M10) and DIN 376(M12~M20)
* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COMBO TAPS

T 0 SERIES

M ISO Metric coarse threads DIN 13

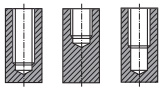
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

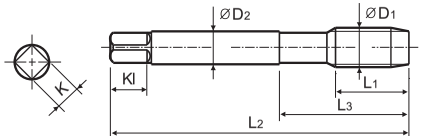
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

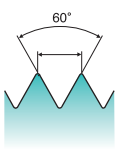
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

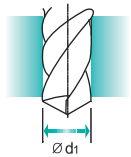
Hole type
2.5×D



Short Chamfer







Material groups **MU** | HSS-E | DIN 371/376 | 6H | 6 | R | Bright | p.B124

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC807136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC807156	8	45	13	2.8	2.1	5	3	1.75
M2.3	× 0.4	TC807196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC807176	9	50	15	2.8	2.1	5	3	2.05
M2.6	× 0.45	TC807496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC807206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC807226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC807246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC807266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC807286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC807316	10	80	30	6	4.9	8	3	5
M7	× 1	TC807346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC807366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC807396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC807426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC807466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC807506	18	110	44	9	7	10	3	10.2
M14	× 2	TC807546	20	110	44	11	9	12	3	12
M16	× 2	TC807606	20	110	44	12	9	12	3	14
M18	× 2.5	TC807656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC807706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC807746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC807786	30	160	60	18	14.5	17	4	21
M27	× 3	TC807866	30	160	60	20	16	19	4	24
M30	× 3.5	TC807946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COMBO TAPS

T 6 SERIES

M ISO Metric coarse threads DIN 13

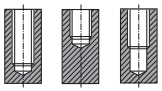
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

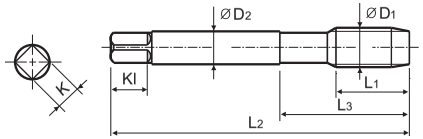
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

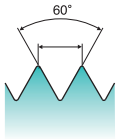
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

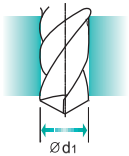
Hole type
2.5×D



Long Shank







Material groups **MU** | HSS-E | LON | 6H | 6 | C | R | Bright | p.B124

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TC633206	11	100	18	3.5	2.7	6	3	2.5
M4	× 0.7	TC633246	13	125	21	4.5	3.4	6	3	3.3
M5	× 0.8	TC633286	15	140	25	6	4.9	8	3	4.2
M6	× 1	TC633316	17	160	30	6	4.9	8	3	5
M8	× 1.25	TC633366	20	180	35	6	4.9	8	3	6.8
M10	× 1.5	TC633426	22	200	39	7	5.5	8	3	8.5
M12	× 1.75	TC633506	24	220	44	9	7	10	3	10.2
M14	× 2	TC633546	26	220	44	11	9	12	3	12
M16	× 2	TC633606	27	220	44	12	9	12	3	14
M20	× 2.5	TC633706	32	280	54	16	12	15	4	17.5

* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COMBO TAPS

T SERIES

T SERIES

M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

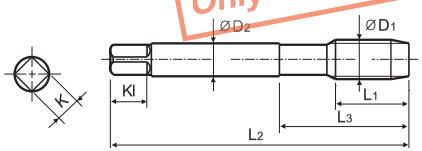
▶ Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

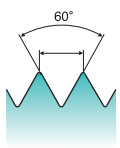
DIN 371

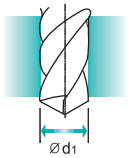
DIN 376

Hole type

Only available till stock runs out







Material groups **VA** | HSS PM | HSS-E | DIN 371/376 | 6H | 6 | R | Vap | up to M12 over M12 | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M2	× 0.4	TQ744136	8	45	13	2.8	2.1	5	2	1.6
▲ M2.2	× 0.45	TQ744156	8	45	13	2.8	2.1	5	2	1.75
▲ M2.3	× 0.4	TQ744196	8	45	13	2.8	2.1	5	2	1.9
▲ M2.5	× 0.45	TQ744176	9	50	15	2.8	2.1	5	2	2.05
▲ M2.6	× 0.45	TQ744496	9	50	15	2.8	2.1	5	2	2.1
▲ M3	× 0.5	TQ744206	6	56	18	3.5	2.7	6	3	2.5
▲ M3.5	× 0.6	TQ744226	7	56	20	4	3	6	3	2.9
▲ M4	× 0.7	TQ744246	7	63	21	4.5	3.4	6	3	3.3
▲ M4.5	× 0.75	TQ744266	8	70	25	6	4.9	8	3	3.7
▲ M5	× 0.8	TQ744286	8	70	25	6	4.9	8	3	4.2
▲ M6	× 1	TQ744316	10	80	30	6	4.9	8	3	5
▲ M7	× 1	TQ744346	10	80	30	7	5.5	8	3	6
▲ M8	× 1.25	TQ744366	13	90	35	8	6.2	9	3	6.8
▲ M9	× 1.25	TQ744396	13	90	35	9	7	10	3	7.8
▲ M10	× 1.5	TQ744426	15	100	39	10	8	11	3	8.5
▲ M11	× 1.5	TQ744466	17	100	40	8	6.2	9	3	9.5
▲ M12	× 1.75	TQ744506	18	110	44	9	7	10	3	10.2
▲ M14	× 2	TB744546	20	110	44	11	9	12	3	12
▲ M16	× 2	TB744606	20	110	44	12	9	12	3	14
▲ M18	× 2.5	TB744656	25	125	50	14	11	14	4	15.5
▲ M20	× 2.5	TB744706	25	140	54	16	12	15	4	17.5
▲ M22	× 2.5	TB744746	25	140	54	18	14.5	17	4	19.5
▲ M24	× 3	TB744786	30	160	60	18	14.5	17	4	21
▲ M27	× 3	TB744866	30	160	60	20	16	19	4	24
▲ M30	× 3.5	TB744946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶HSS-PM(M2~M12/TQ744) and HSS-E(M14~M30/TB744)
* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○		○		○	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended								○													

COMBO TAPS

T SERIES

M ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

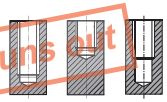
Machine taps
Maschinengewindebohrer

▶ For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

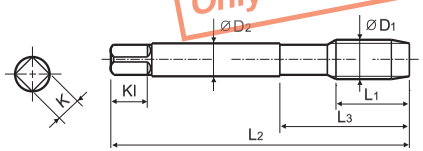
▶ Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

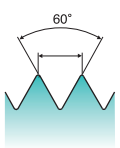
DIN 374

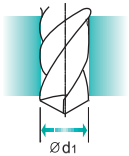
Hole type



Only available till stock runs out







Material groups **VA** | HSS PM | DIN 37 | 6H | 6 | C | R | Vap | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M4	× 0.5	TQ754256	5	63	21	2.8	2.1	5	3	3.5
▲ M5	× 0.5	TQ754296	5	70	25	3.5	2.7	6	3	4.5
▲ M6	× 0.75	TQ754326	8	80	30	4.5	3.4	6	3	5.2
▲ M6	× 0.5	TQ754336	5	80	30	4.5	3.4	6	3	5.5
▲ M7	× 0.75	TQ754356	10	80	30	5.5	4.3	7	3	6.2
▲ M8	× 1	TQ754376	10	90	36	6	4.9	8	3	7
▲ M8	× 0.75	TQ754386	8	80	30	6	4.9	8	3	7.2
▲ M10	× 1.25	TQ754436	16	100	40	7	5.5	8	3	8.8
▲ M10	× 1	TQ754446	10	90	36	7	5.5	8	3	9
▲ M10	× 0.75	TQ754456	10	90	36	7	5.5	8	3	9.2
▲ M12	× 1.5	TQ754516	15	100	40	9	7	10	3	10.5
▲ M12	× 1.25	TQ754526	15	100	40	9	7	10	3	10.8
▲ M12	× 1	TQ754536	11	100	40	9	7	10	3	11

* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○		○		○	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended								○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COMBO TAPS

T SERIES

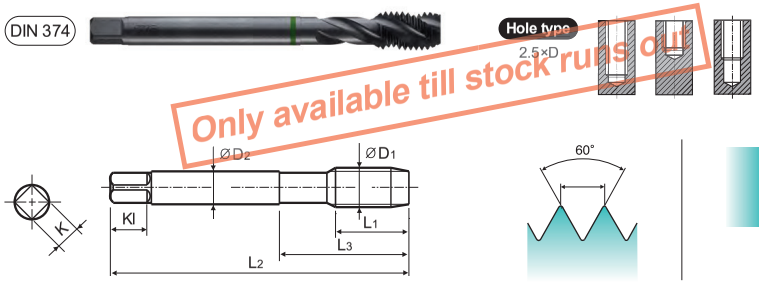
M — ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

Machine taps
Maschinengewindebohrer

▶ For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups VA | HSS-E | DIN 37 | 6H | 6 | C | R | Vap p.B125

Recommended ToolHolder — Plain Shank — Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
▲ M14 × 1.5		TB754556	15	100	40	11	9	12	3	12.5
▲ M14 × 1.25		TB754566	15	100	40	11	9	12	3	12.8
▲ M14 × 1		TB754576	11	100	40	11	9	12	3	13
▲ M16 × 1.5		TB754616	15	100	40	12	9	12	3	14.5
▲ M16 × 1		TB754626	12	100	40	12	9	12	3	15
▲ M18 × 1.5		TB754676	17	110	44	14	11	14	4	16.5
▲ M18 × 1		TB754686	13	110	44	14	11	14	4	17
▲ M20 × 1.5		TB754726	17	125	50	16	12	15	4	18.5
▲ M20 × 1		TB754736	14	125	50	16	12	15	4	19
▲ M22 × 1.5		TB754766	17	125	50	18	14.5	17	4	20.5
▲ M22 × 1		TB754776	14	125	50	18	14.5	17	4	21
▲ M24 × 2		TB754796	20	140	54	18	14.5	17	4	22
▲ M24 × 1.5		TB754806	20	140	54	18	14.5	17	4	22.5
▲ M26 × 1.5		TB754856	20	140	54	18	14.5	17	4	24.5
▲ M27 × 2		TB754876	20	140	54	20	16	19	4	25
▲ M27 × 1.5		TB754886	20	140	54	20	16	19	4	25.5
▲ M28 × 1.5		TB754916	20	140	54	20	16	19	4	26.5
▲ M30 × 2		TB754966	22	150	57	22	18	21	4	28
▲ M30 × 1.5		TB754976	22	150	57	22	18	21	4	28.5

* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○		○		○	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended								○													

Vap T SERIES
Bright T SERIES
TiN TD SERIES

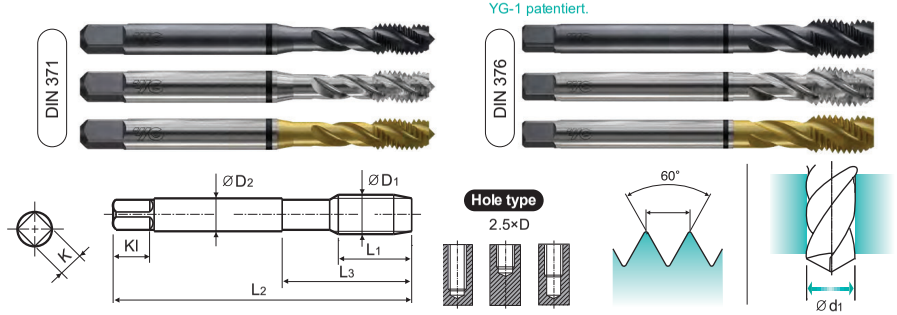
N — Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo fine

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 2 | 6 | C | R | ap right TiN p.B124

Recommended ToolHolder — Plain Shank — Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Vap	Bright	TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	40 UNC	TB824162	TC824162	TD824162	6	56	18	3.5	2.7	6	3	2.3
#5	40 UNC	TB824202	TC824202	TD824202	7	56	18	3.5	2.7	6	3	2.6
#6	32 UNC	TB824242	TC824242	TD824242	7	56	20	4	3	6	3	2.85
#8	32 UNC	TB824282	TC824282	TD824282	8	63	21	4.5	3.4	6	3	3.5
#10	24 UNC	TB824322	TC824322	TD824322	10	70	25	6	4.9	8	3	3.9
#12	24 UNC	TB824362	TC824362	TD824362	10	80	30	6	4.9	8	3	4.5
1/4	20 UNC	TB824402	TC824402	TD824402	13	80	30	7	5.5	8	3	5.2
5/16	18 UNC	TB824442	TC824442	TD824442	14	90	35	8	6.2	9	3	6.6
3/8	16 UNC	TB824482	TC824482	TD824482	16	100	39	9	7	10	3	8
7/16	14 UNC	TB824522	TC824522	TD824522	17	100	40	8	6.2	9	3	9.4
1/2	13 UNC	TB824562	TC824562	TD824562	20	110	44	9	7	10	3	10.75
9/16	12 UNC	TB824602	TC824602	TD824602	20	110	44	11	9	12	3	12.25
5/8	11 UNC	TB824642	TC824642	TD824642	22	110	44	12	9	12	3	13.5
3/4	10 UNC	TB824702	TC824702	TD824702	25	125	50	14	11	14	4	16.5
7/8	9 UNC	TB824742	TC824742	TD824742	27	140	54	18	14.5	17	4	19.5
1	8 UNC	TB824782	TC824782	TD824782	30	160	60	20	16	19	4	22.25

▶DIN 371(#4~3/8) and DIN 376(7/16~1)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Bright T E0 SERIES
TiN TDE0 SERIES

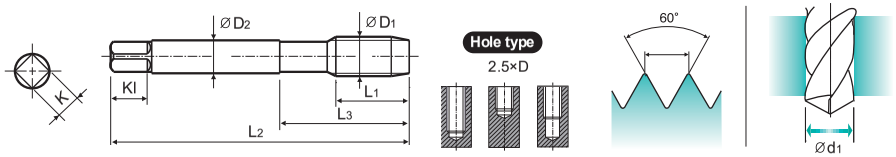
N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo fine

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 3 | 6 | C | R | right | TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	40 UNC	TCE01162	TDE01162	6	56	18	3.5	2.7	6	3	2.3
#5	40 UNC	TCE01202	TDE01202	7	56	18	3.5	2.7	6	3	2.6
#6	32 UNC	TCE01242	TDE01242	7	56	20	4	3	6	3	2.85
#8	32 UNC	TCE01282	TDE01282	8	63	21	4.5	3.4	6	3	3.5
#10	24 UNC	TCE01322	TDE01322	10	70	25	6	4.9	8	3	3.9
#12	24 UNC	TCE01362	TDE01362	10	80	30	6	4.9	8	3	4.5
1/4	20 UNC	TCE01402	TDE01402	13	80	30	7	5.5	8	3	5.2
5/16	18 UNC	TCE01442	TDE01442	14	90	35	8	6.2	9	3	6.6
3/8	16 UNC	TCE01482	TDE01482	16	100	39	9	7	10	3	8
7/16	14 UNC	TCE01522	TDE01522	17	100	40	8	6.2	9	3	9.4
1/2	13 UNC	TCE01562	TDE01562	20	110	44	9	7	10	3	10.75
9/16	12 UNC	TCE01602	TDE01602	20	110	44	11	9	12	3	12.25
5/8	11 UNC	TCE01642	TDE01642	22	110	44	12	9	12	3	13.5
3/4	10 UNC	TCE01702	TDE01702	25	125	50	14	11	14	4	16.5
7/8	9 UNC	TCE01742	TDE01742	27	140	54	18	14.5	17	4	19.5
1	8 UNC	TCE01782	TDE01782	30	160	60	20	16	19	4	22.25

▶DIN 371(#4~3/8) and DIN 376(7/16~1)
* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap T 6 SERIES
Bright T 6 SERIES
TiN TD 6 SERIES

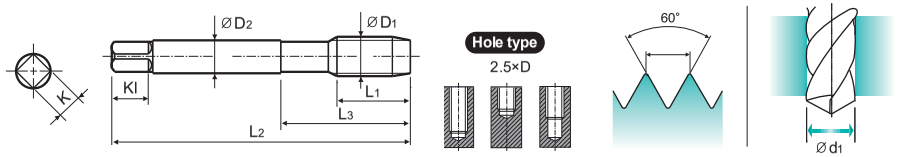
N Unified fine threads

Unified Grobgewinde
UNF
Unificato passo fine

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 2 | 6 | C | R | ap right | TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE ØD1	TPI	EDP No. Vap	EDP No. Bright	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	TB864182	TC864182	TD864182	6	56	18	3.5	2.7	6	3	2.4
#5	44UNF	TB864222	TC864222	TD864222	7	56	18	3.5	2.7	6	3	2.7
#6	40UNF	TB864262	TC864262	TD864262	7	56	20	4	3	6	3	3
#8	36UNF	TB864302	TC864302	TD864302	8	63	21	4.5	3.4	6	3	3.5
#10	32UNF	TB864342	TC864342	TD864342	10	70	25	6	4.9	8	3	4.1
#12	28UNF	TB864382	TC864382	TD864382	10	80	30	6	4.9	8	3	4.7
1/4	28UNF	TB864422	TC864422	TD864422	10	80	30	7	5.5	8	3	5.5
5/16	24UNF	TB864462	TC864462	TD864462	10	90	35	8	6.2	9	3	6.9
3/8	24UNF	TB864502	TC864502	TD864502	10	100	39	9	7	10	3	8.5
7/16	20UNF	TB864542	TC864542	TD864542	13	100	40	8	6.2	9	3	9.9
1/2	20UNF	TB864582	TC864582	TD864582	13	100	40	9	7	10	3	11.5
9/16	18UNF	TB864622	TC864622	TD864622	15	100	40	11	9	12	3	12.9
5/8	18UNF	TB864662	TC864662	TD864662	15	100	40	12	9	12	3	14.5
3/4	16UNF	TB864722	TC864722	TD864722	17	110	44	14	11	14	4	17.5
7/8	14UNF	TB864762	TC864762	TD864762	17	125	50	18	14.5	17	4	20.5
1	12UNF	TB864802	TC864802	TD864802	20	140	54	20	16	19	4	23.25

▶DIN 371(#4~3/8) and DIN 374(7/16~1)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Bright T E0 SERIES
TiN TDE0 SERIES

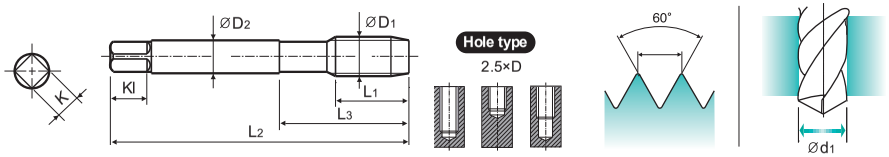
N Unified fine threads

- Unified Grobgewinde
- UNF
- Unificato passo fine

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 3 | 6 | C | R | right | TiN | p.B124

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	TCE02182	TDE02182	6	56	18	3.5	2.7	6	3	2.4
#5	44UNF	TCE02222	TDE02222	7	56	18	3.5	2.7	6	3	2.7
#6	40UNF	TCE02262	TDE02262	7	56	20	4	3	6	3	3
#8	36UNF	TCE02302	TDE02302	8	63	21	4.5	3.4	6	3	3.5
#10	32UNF	TCE02342	TDE02342	10	70	25	6	4.9	8	3	4.1
#12	28UNF	TCE02382	TDE02382	10	80	30	6	4.9	8	3	4.7
1/4	28UNF	TCE02422	TDE02422	10	80	30	7	5.5	8	3	5.5
5/16	24UNF	TCE02462	TDE02462	10	90	35	8	6.2	9	3	6.9
3/8	24UNF	TCE02502	TDE02502	10	100	39	9	7	10	3	8.5
7/16	20UNF	TCE02542	TDE02542	13	100	40	8	6.2	9	3	9.9
1/2	20UNF	TCE02582	TDE02582	13	100	40	9	7	10	3	11.5
9/16	18UNF	TCE02622	TDE02622	15	100	40	11	9	12	3	12.9
5/8	18UNF	TCE02662	TDE02662	15	100	40	12	9	12	3	14.5
3/4	16UNF	TCE02722	TDE02722	17	110	44	14	11	14	4	17.5
7/8	14UNF	TCE02762	TDE02762	17	125	50	18	14.5	17	4	20.5
1	12UNF	TCE02802	TDE02802	20	140	54	20	16	19	4	23.25

▶DIN 371(#4~3/8) and DIN 374(7/16~1)
* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap T SERIES
Bright T SERIES
TiN TD SERIES

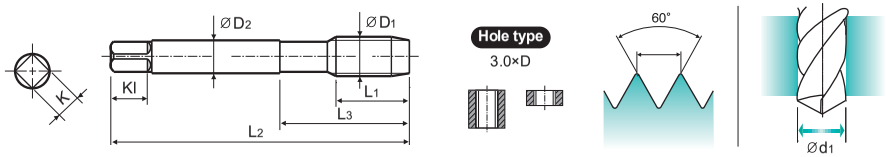
M ISO Metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 6H | 6 | ap | right | TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	EDP No. Bright	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TB814136	TC814136	TD814136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB814156	TC814156	TD814156	8	45	13	2.8	2.1	5	3	1.75
M2.3	× 0.4	TB814196	TC814196	TD814196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB814176	TC814176	TD814176	9	50	15	2.8	2.1	5	3	2.05
M2.6	× 0.45	TB814496	TC814496	TD814496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB814206	TC814206	TD814206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB814226	TC814226	TD814226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TB814246	TC814246	TD814246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB814266	TC814266	TD814266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB814286	TC814286	TD814286	15	70	25	6	4.9	8	3	4.2
M6	× 1.0	TB814316	TC814316	TD814316	17	80	30	6	4.9	8	3	5
M7	× 1.0	TB814346	TC814346	TD814346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TB814366	TC814366	TD814366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB814396	TC814396	TD814396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TB814426	TC814426	TD814426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TB814466	TC814466	TD814466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB814506	TC814506	TD814506	24	110	44	9	7	10	3	10.2
M14	× 2.0	TB814546	TC814546	TD814546	26	110	44	11	9	12	3	12
M16	× 2.0	TB814606	TC814606	TD814606	27	110	44	12	9	12	3	14
M18	× 2.5	TB814656	TC814656	TD814656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TB814706	TC814706	TD814706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TB814746	TC814746	TD814746	32	140	54	18	14.5	17	4	19.5

▶DIN 371(M2~M10) and DIN 376(M11~M52)
* The other coating(TiCN or TiAlN) is available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COM O TA S

Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

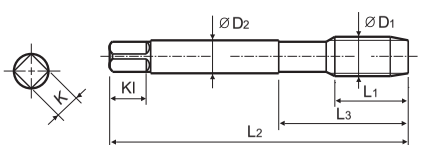
M ISO Metric coarse threads DIN 13

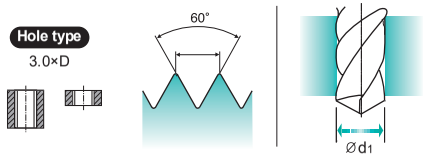
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.





Material groups **MU** | HSS-E | DIN 371/376 | 6H | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M24	× 3.0	TB814786	TC814786	TD814786	34	160	60	18	14.5	17	4	21
M27	× 3.0	TB814866	TC814866	TD814866	36	160	60	20	16	19	4	24
M30	× 3.5	TB814946	TC814946	TD814946	40	180	70	22	18	21	4	26.5
M33	x 3.5	-	TC814A46	TD814A46	40	180	70	25	20	23	4	29.5
M36	x 4.0	-	TC814B36	TD814B36	50	200	80	28	22	25	4	32.0
M39	x 4.0	-	TC814C06	TD814C06	50	200	80	32	24	27	4	35.0
M42	x 4.5	-	TC814C86	TD814C86	56	200	85	32	24	27	4	37.5
M45	x 4.5	-	TC814D56	TD814D56	58	220	85	36	29	32	4	40.5
M48	x 5.0	-	TC814E26	TD814E26	65	250	90	36	29	32	4	43.0
M52	x 5.0	-	TC814F36	TD814F36	65	250	90	40	32	35	4	47.0

▶DIN 371(M2~M10) and DIN 376(M11~M52)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T 0	SERIES
Bright	T 0	SERIES
TiN	TD 0	SERIES

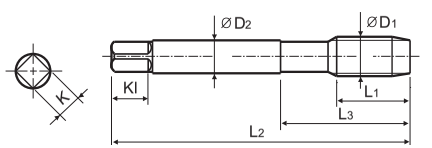
M ISO Metric coarse threads DIN 13

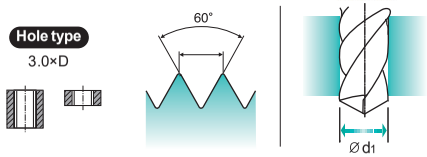
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.





Material groups **MU** | HSS-E | DIN 371/376 | H | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TBJ05136	TCJ05136	TDJ05136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBJ05156	TCJ05156	TDJ05156	8	45	13	2.8	2.1	5	3	1.75
M2.3	× 0.4	TBJ05196	TCJ05196	TDJ05196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBJ05176	TCJ05176	TDJ05176	9	50	15	2.8	2.1	5	3	2.05
M2.6	× 0.45	TBJ05496	TCJ05496	TDJ05496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBJ05206	TCJ05206	TDJ05206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBJ05226	TCJ05226	TDJ05226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TBJ05246	TCJ05246	TDJ05246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBJ05266	TCJ05266	TDJ05266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBJ05286	TCJ05286	TDJ05286	15	70	25	6	4.9	8	3	4.2
M6	× 1.0	TBJ05316	TCJ05316	TDJ05316	17	80	30	6	4.9	8	3	5
M7	× 1.0	TBJ05346	TCJ05346	TDJ05346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TBJ05366	TCJ05366	TDJ05366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBJ05396	TCJ05396	TDJ05396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TBJ05426	TCJ05426	TDJ05426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TBJ05466	TCJ05466	TDJ05466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBJ05506	TCJ05506	TDJ05506	24	110	44	9	7	10	3	10.2
M14	× 2.0	TBJ05546	TCJ05546	TDJ05546	26	110	44	11	9	12	3	12
M16	× 2.0	TBJ05606	TCJ05606	TDJ05606	27	110	44	12	9	12	3	14
M18	× 2.5	TBJ05656	TCJ05656	TDJ05656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TBJ05706	TCJ05706	TDJ05706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TBJ05746	TCJ05746	TDJ05746	32	140	54	18	14.5	17	4	19.5
M24	× 3.0	TBJ05786	TCJ05786	TDJ05786	34	160	60	18	14.5	17	4	21
M27	× 3.0	TBJ05866	TCJ05866	TDJ05866	36	160	60	20	16	19	4	24
M30	× 3.5	TBJ05946	TCJ05946	TDJ05946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COM O TA S

Vap	T	06 SERIES
Bright	T	06 SERIES
TiN	TD	06 SERIES

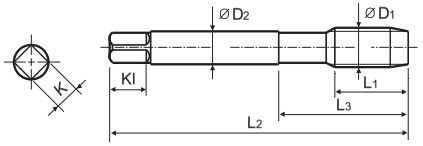
M ISO Metric coarse threads DIN 13

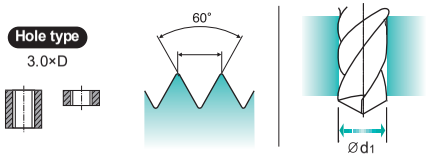
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.





Material groups **MU** | HSS-E | DIN 371/376 | 6H | 1 | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2 ×	0.4	TBJ06136	TCJ06136	TDJ06136	8	45	13	2.8	2.1	5	3	1.7
M2.2 ×	0.45	TBJ06156	TCJ06156	TDJ06156	8	45	13	2.8	2.1	5	3	1.85
M2.3 ×	0.4	TBJ06196	TCJ06196	TDJ06196	8	45	13	2.8	2.1	5	3	2
M2.5 ×	0.45	TBJ06176	TCJ06176	TDJ06176	9	50	15	2.8	2.1	5	3	2.15
M2.6 ×	0.45	TBJ06496	TCJ06496	TDJ06496	9	50	15	2.8	2.1	5	3	2.2
M3 ×	0.5	TBJ06206	TCJ06206	TDJ06206	11	56	18	3.5	2.7	6	3	2.6
M3.5 ×	0.6	TBJ06226	TCJ06226	TDJ06226	12	56	20	4	3	6	3	3
M4 ×	0.7	TBJ06246	TCJ06246	TDJ06246	13	63	21	4.5	3.4	6	3	3.4
M4.5 ×	0.75	TBJ06266	TCJ06266	TDJ06266	14	70	25	6	4.9	8	3	3.8
M5 ×	0.8	TBJ06286	TCJ06286	TDJ06286	15	70	25	6	4.9	8	3	4.3
M6 ×	1.0	TBJ06316	TCJ06316	TDJ06316	17	80	30	6	4.9	8	3	5.1
M7 ×	1.0	TBJ06346	TCJ06346	TDJ06346	17	80	30	7	5.5	8	3	6.1
M8 ×	1.25	TBJ06366	TCJ06366	TDJ06366	20	90	35	8	6.2	9	3	6.9
M9 ×	1.25	TBJ06396	TCJ06396	TDJ06396	20	90	35	9	7	10	3	7.9
M10 ×	1.5	TBJ06426	TCJ06426	TDJ06426	22	100	39	10	8	11	3	8.6
M11 ×	1.5	TBJ06466	TCJ06466	TDJ06466	22	100	40	8	6.2	9	3	9.6
M12 ×	1.75	TBJ06506	TCJ06506	TDJ06506	24	110	44	9	7	10	3	10.3
M14 ×	2.0	TBJ06546	TCJ06546	TDJ06546	26	110	44	11	9	12	3	12.1
M16 ×	2.0	TBJ06606	TCJ06606	TDJ06606	27	110	44	12	9	12	3	14.1
M18 ×	2.5	TBJ06656	TCJ06656	TDJ06656	30	125	50	14	11	14	4	15.6
M20 ×	2.5	TBJ06706	TCJ06706	TDJ06706	32	140	54	16	12	15	4	17.6
M22 ×	2.5	TBJ06746	TCJ06746	TDJ06746	32	140	54	18	14.5	17	4	19.6
M24 ×	3.0	TBJ06786	TCJ06786	TDJ06786	34	160	60	18	14.5	17	4	21.1
M27 ×	3.0	TBJ06866	TCJ06866	TDJ06866	36	160	60	20	16	19	4	24.1
M30 ×	3.5	TBJ06946	TCJ06946	TDJ06946	40	180	70	22	18	21	4	26.6

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

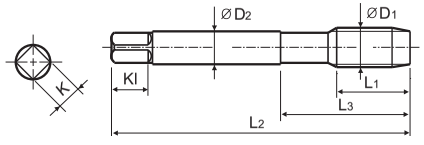
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

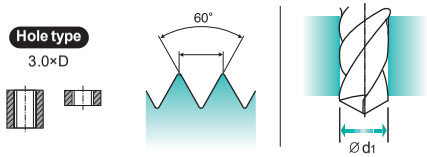
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T	0 SERIES
Bright	T	0 SERIES
TiN	TD	0 SERIES

M ISO Metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.





Material groups **MU** | HSS-E | DIN 371/376 | 6 | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2 ×	0.4	TBJ07136	TCJ07136	TDJ07136	8	45	13	2.8	2.1	5	3	1.6
M2.2 ×	0.45	TBJ07156	TCJ07156	TDJ07156	8	45	13	2.8	2.1	5	3	1.75
M2.3 ×	0.4	TBJ07196	TCJ07196	TDJ07196	8	45	13	2.8	2.1	5	3	1.9
M2.5 ×	0.45	TBJ07176	TCJ07176	TDJ07176	9	50	15	2.8	2.1	5	3	2.05
M2.6 ×	0.45	TBJ07496	TCJ07496	TDJ07496	9	50	15	2.8	2.1	5	3	2.1
M3 ×	0.5	TBJ07206	TCJ07206	TDJ07206	11	56	18	3.5	2.7	6	3	2.5
M3.5 ×	0.6	TBJ07226	TCJ07226	TDJ07226	12	56	20	4	3	6	3	2.9
M4 ×	0.7	TBJ07246	TCJ07246	TDJ07246	13	63	21	4.5	3.4	6	3	3.3
M4.5 ×	0.75	TBJ07266	TCJ07266	TDJ07266	14	70	25	6	4.9	8	3	3.7
M5 ×	0.8	TBJ07286	TCJ07286	TDJ07286	15	70	25	6	4.9	8	3	4.2
M6 ×	1.0	TBJ07316	TCJ07316	TDJ07316	17	80	30	6	4.9	8	3	5
M7 ×	1.0	TBJ07346	TCJ07346	TDJ07346	17	80	30	7	5.5	8	3	6
M8 ×	1.25	TBJ07366	TCJ07366	TDJ07366	20	90	35	8	6.2	9	3	6.8
M9 ×	1.25	TBJ07396	TCJ07396	TDJ07396	20	90	35	9	7	10	3	7.8
M10 ×	1.5	TBJ07426	TCJ07426	TDJ07426	22	100	39	10	8	11	3	8.5
M11 ×	1.5	TBJ07466	TCJ07466	TDJ07466	22	100	40	8	6.2	9	3	9.5
M12 ×	1.75	TBJ07506	TCJ07506	TDJ07506	24	110	44	9	7	10	3	10.2
M14 ×	2.0	TBJ07546	TCJ07546	TDJ07546	26	110	44	11	9	12	3	12
M16 ×	2.0	TBJ07606	TCJ07606	TDJ07606	27	110	44	12	9	12	3	14
M18 ×	2.5	TBJ07656	TCJ07656	TDJ07656	30	125	50	14	11	14	4	15.5
M20 ×	2.5	TBJ07706	TCJ07706	TDJ07706	32	140	54	16	12	15	4	17.5
M22 ×	2.5	TBJ07746	TCJ07746	TDJ07746	32	140	54	18	14.5	17	4	19.5
M24 ×	3.0	TBJ07786	TCJ07786	TDJ07786	34	160	60	18	14.5	17	4	21
M27 ×	3.0	TBJ07866	TCJ07866	TDJ07866	36	160	60	20	16	19	4	24
M30 ×	3.5	TBJ07946	TCJ07946	TDJ07946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COM O TA S

Vap	T 0	SERIES
Bright	T 0	SERIES
TiN	TD 0	SERIES

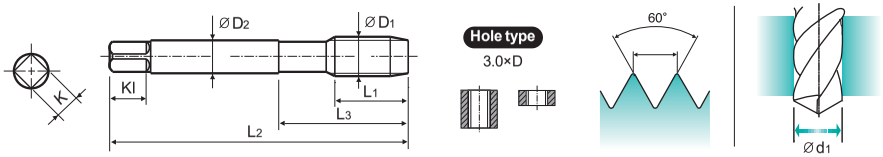
M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 371/376 | 7 | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TBJ08136	TCJ08136	TDJ08136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBJ08156	TCJ08156	TDJ08156	8	45	13	2.8	2.1	5	3	1.75
M2.3	× 0.4	TBJ08196	TCJ08196	TDJ08196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBJ08176	TCJ08176	TDJ08176	9	50	15	2.8	2.1	5	3	2.05
M2.6	× 0.45	TBJ08496	TCJ08496	TDJ08496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBJ08206	TCJ08206	TDJ08206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBJ08226	TCJ08226	TDJ08226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TBJ08246	TCJ08246	TDJ08246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBJ08266	TCJ08266	TDJ08266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBJ08286	TCJ08286	TDJ08286	15	70	25	6	4.9	8	3	4.2
M6	× 1.0	TBJ08316	TCJ08316	TDJ08316	17	80	30	6	4.9	8	3	5
M7	× 1.0	TBJ08346	TCJ08346	TDJ08346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TBJ08366	TCJ08366	TDJ08366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBJ08396	TCJ08396	TDJ08396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TBJ08426	TCJ08426	TDJ08426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TBJ08466	TCJ08466	TDJ08466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBJ08506	TCJ08506	TDJ08506	24	110	44	9	7	10	3	10.2
M14	× 2.0	TBJ08546	TCJ08546	TDJ08546	26	110	44	11	9	12	3	12
M16	× 2.0	TBJ08606	TCJ08606	TDJ08606	27	110	44	12	9	12	3	14
M18	× 2.5	TBJ08656	TCJ08656	TDJ08656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TBJ08706	TCJ08706	TDJ08706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TBJ08746	TCJ08746	TDJ08746	32	140	54	18	14.5	17	4	19.5
M24	× 3.0	TBJ08786	TCJ08786	TDJ08786	34	160	60	18	14.5	17	4	21
M27	× 3.0	TBJ08866	TCJ08866	TDJ08866	36	160	60	20	16	19	4	24
M30	× 3.5	TBJ08946	TCJ08946	TDJ08946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

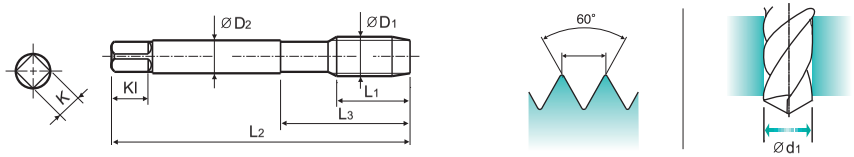
M ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups MU | HSS-E | DIN 37 | 6H | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TB854256	TC854256	TD854256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB854296	TC854296	TD854296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB854326	TC854326	TD854326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB854336	TC854336	TD854336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB854356	TC854356	TD854356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1.0	TB854376	TC854376	TD854376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TB854386	TC854386	TD854386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB854436	TC854436	TD854436	22	100	40	7	5.5	8	3	8.8
M10	× 1.0	TB854446	TC854446	TD854446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TB854456	TC854456	TD854456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB854516	TC854516	TD854516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TB854526	TC854526	TD854526	22	100	40	9	7	10	3	10.8
M12	× 1.0	TB854536	TC854536	TD854536	18	100	40	9	7	10	3	11
M14	× 1.5	TB854556	TC854556	TD854556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TB854566	TC854566	TD854566	22	100	40	11	9	12	3	12.8
M14	× 1.0	TB854576	TC854576	TD854576	22	100	40	11	9	12	3	13
M16	× 1.5	TB854616	TC854616	TD854616	22	100	40	12	9	12	3	14.5
M16	× 1.0	TB854626	TC854626	TD854626	18	100	40	12	9	12	3	15
M18	× 1.5	TB854676	TC854676	TD854676	25	110	44	14	11	14	4	16.5
M18	× 1.0	TB854686	TC854686	TD854686	20	110	44	14	11	14	4	17

* The other coating(TiCN or TiAlN) is available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COM O TA S

Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

M ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

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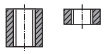
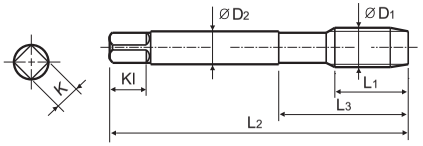
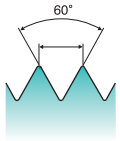
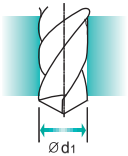
Hole type
3.0×D









Material groups **MU** | HSS-E | DIN 37 | 6H | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M20 ×	1.5	TB854726	TC854726	TD854726	25	125	50	16	12	15	4	18.5
M20 ×	1.0	TB854736	TC854736	TD854736	20	125	50	16	12	15	4	19
M22 ×	1.5	TB854766	TC854766	TD854766	25	125	50	18	14.5	17	4	20.5
M22 ×	1.0	TB854776	TC854776	TD854776	20	125	50	18	14.5	17	4	21
M24 ×	2.0	TB854796	TC854796	TD854796	27	140	54	18	14.5	17	4	22
M24 ×	1.5	TB854806	TC854806	TD854806	27	140	54	18	14.5	17	4	22.5
M26 ×	1.5	TB854856	TC854856	TD854856	28	140	54	18	14.5	17	4	24.5
M27 ×	2.0	TB854876	TC854876	TD854876	28	140	54	20	16	19	4	25
M27 ×	1.5	TB854886	TC854886	TD854886	28	140	54	20	16	19	4	25.5
M28 ×	1.5	TB854916	TC854916	TD854916	28	140	54	20	16	19	4	26.5
M30 ×	2.0	TB854966	TC854966	TD854966	30	150	57	22	18	21	4	28
M30 ×	1.5	TB854976	TC854976	TD854976	30	150	57	22	18	21	4	28.5
M32 x	2.0	-	TC854A16	TD854A16	30	150	57	22	18	21	4	30.0
M32 x	1.5	-	TC854A26	TD854A26	30	150	57	22	18	21	4	30.5
M33 x	2.0	-	TC854A66	TD854A66	33	160	60	25	20	23	4	31.0
M33 x	1.5	-	TC854A76	TD854A76	32	160	60	25	20	23	4	31.5
M34 x	1.5	-	TC854A96	TD854A96	33	170	70	28	22	25	4	32.5
M35 x	1.5	-	TC854B16	TD854B16	33	170	70	28	22	25	4	33.5
M36 x	3.0	-	TC854B46	TD854B46	45	200	80	28	22	25	4	33.0
M36 x	2.0	-	TC854B56	TD854B56	33	170	70	28	22	25	4	34.0
M36 x	1.5	-	TC854B66	TD854B66	33	170	70	28	22	25	4	34.5
M38 x	1.5	-	TC854B86	TD854B86	33	170	70	28	22	25	4	36.5

* The other coating(TiCN or TiAlN) is available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

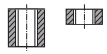
Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

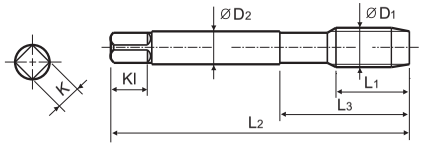
M ISO Metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer

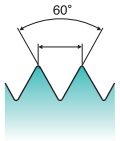
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

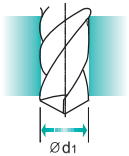
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
3.0×D









Material groups MU | HSS-E | DIN 37 | 6H | 6 | ap right TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M39 x	1.5	-	TC854C36	TD854C36	33	170	70	32	24	27	4	37.5
M40 x	1.5	-	TC854C66	TD854C66	33	170	70	32	24	27	4	38.5
M42 x	3.0	-	TC854D06	TD854D06	45	200	80	32	24	27	4	39.0
M42 x	2.0	-	TC854D16	TD854D16	33	170	70	32	24	27	4	40.0
M42 x	1.5	-	TC854D26	TD854D26	33	170	70	32	24	27	4	40.5
M45 x	1.5	-	TC854D96	TD854D96	33	180	80	36	29	32	4	43.5
M48 x	3.0	-	TC854E56	TD854E56	45	225	90	36	29	32	4	45.0
M48 x	2.0	-	TC854E66	TD854E66	36	190	80	36	29	32	4	46.0
M48 x	1.5	-	TC854E76	TD854E76	36	190	80	36	29	32	4	46.5
M50 x	1.5	-	TC854F16	TD854F16	36	190	80	36	29	32	4	48.5
M52 x	3.0	-	TC854F56	TD854F56	45	225	90	40	32	35	4	49.0
M52 x	2.0	-	TC854F66	TD854F66	36	190	80	40	32	35	4	50.0
M52 x	1.5	-	TC854F76	TD854F76	36	190	80	40	32	35	4	50.5

* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

Bright T 0 SERIES
TiN TD 0 SERIES

M ISO Metric fine threads DIN 13

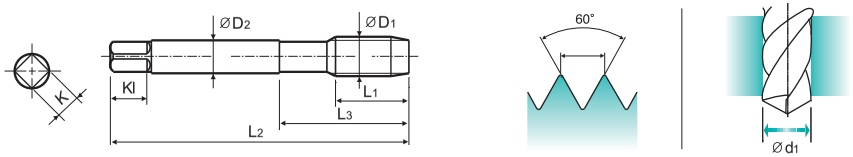
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
3.0×D



Material groups MU | HSS-E | DIN 37 | 6 | 6 | right | TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK		D215 -220
TAPPING CHUCK		D221 -228
ONE STEP TAPPING CHUCK		D211 -213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TCJ09256	TDJ09256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TCJ09296	TDJ09296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TCJ09326	TDJ09326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TCJ09336	TDJ09336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TCJ09356	TDJ09356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TCJ09376	TDJ09376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TCJ09386	TDJ09386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TCJ09436	TDJ09436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TCJ09446	TDJ09446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TCJ09456	TDJ09456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TCJ09516	TDJ09516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TCJ09526	TDJ09526	22	100	40	9	7	10	3	10.8
M12	× 1	TCJ09536	TDJ09536	18	100	40	9	7	10	3	11
M14	× 1.5	TCJ09556	TDJ09556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TCJ09566	TDJ09566	22	100	40	11	9	12	3	12.8
M14	× 1.0	TCJ09576	TDJ09576	22	100	40	11	9	12	3	13
M16	× 1.5	TCJ09616	TDJ09616	22	100	40	12	9	12	3	14.5
M16	× 1	TCJ09626	TDJ09626	18	100	40	12	9	12	3	15
M18	× 1.5	TCJ09676	TDJ09676	25	110	44	14	11	14	4	16.5
M18	× 1	TCJ09686	TDJ09686	20	110	44	14	11	14	4	17

* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S
Bright T 0 SERIES
TiN TD 0 SERIES
M ISO Metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.
DIN 374
Hole type 3.0×D
Material groups MU | HSS-E | DIN 37 | 6 | 6 | right | TiN | p.B125
Recommended ToolHolder
TAPPING ER CHUCK D215 -220
TAPPING CHUCK D221 -228
ONE STEP TAPPING CHUCK D211 -213
Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M20	× 1.5	TCJ09726	TDJ09726	25	125	50	16	12	15	4	18.5
M20	× 1	TCJ09736	TDJ09736	20	125	50	16	12	15	4	19
M22	× 1.5	TCJ09766	TDJ09766	25	125	50	18	14.5	17	4	20.5
M22	× 1	TCJ09776	TDJ09776	20	125	50	18	14.5	17	4	21
M24	× 2	TCJ09796	TDJ09796	27	140	54	18	14.5	17	4	22
M24	× 1.5	TCJ09806	TDJ09806	27	140	54	18	14.5	17	4	22.5
M26	× 1.5	TCJ09856	TDJ09856	28	140	54	18	14.5	17	4	24.5
M27	× 2	TCJ09876	TDJ09876	28	140	54	20	16	19	4	25
M27	× 1.5	TCJ09886	TDJ09886	28	140	54	20	16	19	4	25.5
M28	× 1.5	TCJ09916	TDJ09916	28	140	54	20	16	19	4	26.5
M30	× 2	TCJ09966	TDJ09966	30	150	57	22	18	21	4	28
M30	× 1.5	TCJ09976	TDJ09976	30	150	57	22	18	21	4	28.5

* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COMBO TAPS

T SERIES

M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13, AVEC ARROSAGE CENTRAL
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

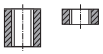
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

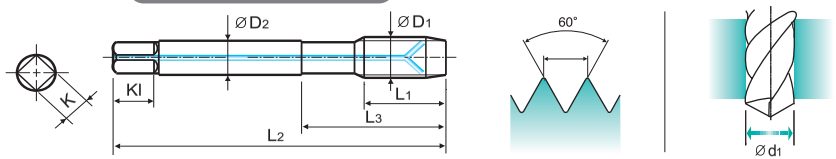
DIN 371

DIN 376

Hole type
3.0×D



with Internal Coolant



Material groups MU | HSS-E | DIN 371/376 | 6H | 6 | Bright

p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M6	× 1	TC814316IC	17	80	30	6	4.9	8	3	5
M8	× 1.25	TC814366IC	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TC814426IC	22	100	39	10	8	11	3	8.5
M12	× 1.75	TC814506IC	24	110	44	9	7	10	3	10.2
M14	× 2	TC814546IC	26	110	44	11	9	12	3	12
M16	× 2	TC814606IC	27	110	44	12	9	12	3	14
M18	× 2.5	TC814656IC	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC814706IC	32	140	54	16	12	15	4	17.5

▶DIN 371(M6~M10) and DIN 376(M12~M20)
* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COMBO TAPS

T SERIES

M ISO Metric coarse threads DIN 13

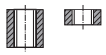
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

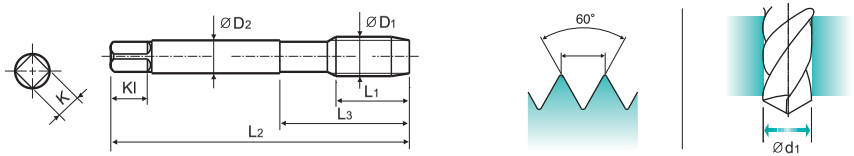
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
3.0×D



Long Shank



Material groups MU | HSS-E | LON | 6H | 6 | Bright

p.B125

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TC445206	11	100	18	3.5	2.7	6	3	2.5
M4	× 0.7	TC445246	13	125	21	4.5	3.4	6	3	3.3
M5	× 0.8	TC445286	15	140	25	6	4.9	8	3	4.2
M6	× 1	TC445316	17	160	30	6	4.9	8	3	5
M8	× 1.25	TC445366	20	180	35	6	4.9	8	3	6.8
M10	× 1.5	TC445426	22	200	39	7	5.5	8	3	8.5
M12	× 1.75	TC445506	24	220	44	9	7	10	3	10.2
M14	× 2	TC445546	26	220	44	11	9	12	3	12
M16	× 2	TC445606	27	220	44	12	9	12	3	14
M20	× 2.5	TC445706	32	280	54	16	12	15	4	17.5

* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COM O TA S

T SERIES
T SERIES

M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

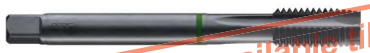
Machine taps
Maschinengewindebohrer

▶ For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

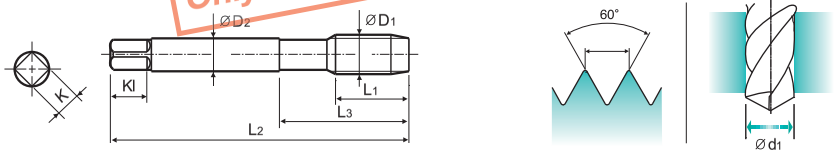
DIN 371

DIN 376



Hole type 3.0×D

Only available till stock runs out



Material groups **VA** | HSS PM (up to M12) | HSS-E (over M12) | DIN 371/376 | 6H | 6 | Vap | p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK		D215 -220
TAPPING CHUCK		D221 -228
ONE STEP TAPPING CHUCK		D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M2	× 0.4	TQ428136	8	45	13	2.8	2.1	5	3	1.6
▲ M2.2	× 0.45	TQ428156	8	45	13	2.8	2.1	5	3	1.75
▲ M2.3	× 0.4	TQ428196	8	45	13	2.8	2.1	5	3	1.9
▲ M2.5	× 0.45	TQ428176	9	50	15	2.8	2.1	5	3	2.05
▲ M2.6	× 0.45	TQ428496	9	50	15	2.8	2.1	5	3	2.1
▲ M3	× 0.5	TQ428206	11	56	18	3.5	2.7	6	3	2.5
▲ M3.5	× 0.6	TQ428226	12	56	20	4	3	6	3	2.9
▲ M4	× 0.7	TQ428246	13	63	21	4.5	3.4	6	3	3.3
▲ M4.5	× 0.75	TQ428266	14	70	25	6	4.9	8	3	3.7
▲ M5	× 0.8	TQ428286	15	70	25	6	4.9	8	3	4.2
▲ M6	× 1	TQ428316	17	80	30	6	4.9	8	3	5
▲ M7	× 1	TQ428346	17	80	30	7	5.5	8	3	6
▲ M8	× 1.25	TQ428366	20	90	35	8	6.2	9	3	6.8
▲ M9	× 1.25	TQ428396	20	90	35	9	7	10	3	7.8
▲ M10	× 1.5	TQ428426	22	100	39	10	8	11	3	8.5
▲ M11	× 1.5	TQ428466	22	100	40	8	6.2	9	3	9.5
▲ M12	× 1.75	TQ428506	24	110	44	9	7	10	3	10.2
▲ M14	× 2	TB428546	26	110	44	11	9	12	3	12
▲ M16	× 2	TB428606	27	110	44	12	9	12	3	14
▲ M18	× 2.5	TB428656	30	125	50	14	11	14	4	15.5
▲ M20	× 2.5	TB428706	32	140	54	16	12	15	4	17.5
▲ M22	× 2.5	TB428746	32	140	54	18	14.5	17	4	19.5
▲ M24	× 3	TB428786	34	160	60	18	14.5	17	4	21
▲ M27	× 3	TB428866	36	160	60	20	16	19	4	24
▲ M30	× 3.5	TB428946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶HSS-PM(M2~M12/TQ428) and HSS-E(M14~M30/TB428)
* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○		○		○	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended								○													

COM O TA S

T SERIES

M ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

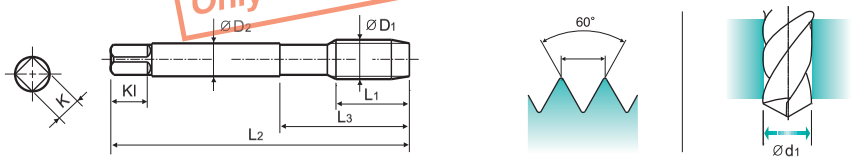
▶ For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

DIN 374

Hole type 3.0×D

Only available till stock runs out



Material groups **VA** | HSS PM | DIN 37 | 6H | 6 | Vap | p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK		D215 -220
TAPPING CHUCK		D221 -228
ONE STEP TAPPING CHUCK		D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M4	× 0.5	TQ438256	10	63	21	2.8	2.1	5	3	3.5
▲ M5	× 0.5	TQ438296	11	70	25	3.5	2.7	6	3	4.5
▲ M6	× 0.75	TQ438326	13	80	30	4.5	3.4	6	3	5.2
▲ M6	× 0.5	TQ438336	13	80	30	4.5	3.4	6	3	5.5
▲ M7	× 0.75	TQ438356	14	80	30	5.5	4.3	7	3	6.2
▲ M8	× 1	TQ438376	17	90	36	6	4.9	8	3	7
▲ M8	× 0.75	TQ438386	14	80	30	6	4.9	8	3	7.2
▲ M10	× 1.25	TQ438436	22	100	40	7	5.5	8	3	8.8
▲ M10	× 1	TQ438446	18	90	36	7	5.5	8	3	9
▲ M10	× 0.75	TQ438456	18	90	36	7	5.5	8	3	9.2
▲ M12	× 1.5	TQ438516	22	100	40	9	7	10	3	10.5
▲ M12	× 1.25	TQ438526	22	100	40	9	7	10	3	10.8
▲ M12	× 1	TQ438536	18	100	40	9	7	10	3	11

* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○		○		○	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended								○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COMBO TAPS

T SERIES

M — ISO Metric fine threads DIN 13

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

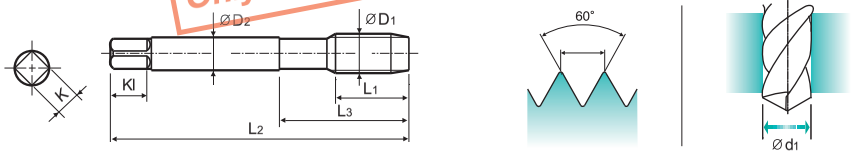
▶ For stainless steels and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

DIN 374

Hole type 3.0×D

Only available till stock runs out



Material groups: VA | HSS-E | DIN 37 | 6H | 6 | Vap

p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M14 × 1.5		TB438556	22	100	40	11	9	12	3	12.5
▲ M14 × 1.25		TB438566	22	100	40	11	9	12	3	12.8
▲ M14 × 1.0		TB438576	22	100	40	11	9	12	3	13
▲ M16 × 1.5		TB438616	22	100	40	12	9	12	3	14.5
▲ M16 × 1		TB438626	18	100	40	12	9	12	3	15
▲ M18 × 1.5		TB438676	25	110	44	14	11	14	4	16.5
▲ M18 × 1		TB438686	20	110	44	14	11	14	4	17
▲ M20 × 1.5		TB438726	25	125	50	16	12	15	4	18.5
▲ M20 × 1		TB438736	20	125	50	16	12	15	4	19
▲ M22 × 1.5		TB438766	25	125	50	18	14.5	17	4	20.5
▲ M22 × 1		TB438776	20	125	50	18	14.5	17	4	21
▲ M24 × 2		TB438796	27	140	54	18	14.5	17	4	22
▲ M24 × 1.5		TB438806	27	140	54	18	14.5	17	4	22.5
▲ M26 × 1.5		TB438856	28	140	54	18	14.5	17	4	24.5
▲ M27 × 2		TB438876	28	140	54	20	16	19	4	25
▲ M27 × 1.5		TB438886	28	140	54	20	16	19	4	25.5
▲ M28 × 1.5		TB438916	28	140	54	20	16	19	4	26.5
▲ M30 × 2		TB438966	30	150	57	22	18	21	4	28
▲ M30 × 1.5		TB438976	30	150	57	22	18	21	4	28.5

* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○		○		○	○					◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended								○													

COMBO TAPS

Vap	T	SERIES
Bright	T	SERIES
TiN	TD	SERIES

N — Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

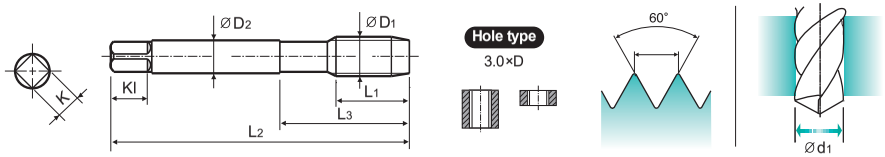
Machine taps
Maschinengewindebohrer

▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

DIN 371

DIN 376



Material groups: MU | HSS-E | DIN 371/376 | 2 | 6 | ap right TiN

p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215 -220	
TAPPING CHUCK	D221 -228	
ONE STEP TAPPING CHUCK	D211 -213	

Unit : mm

SIZE	TPI	EDP No.			Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	Bright	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	– 40 UNC	TB834162	TC834162	TD834162	11	56	18	3.5	2.7	6	3	2.3
#5	– 40 UNC	TB834202	TC834202	TD834202	11	56	18	3.5	2.7	6	3	2.6
#6	– 32 UNC	TB834242	TC834242	TD834242	12	56	20	4	3	6	3	2.85
#8	– 32 UNC	TB834282	TC834282	TD834282	13	63	21	4.5	3.4	6	3	3.5
#10	– 24 UNC	TB834322	TC834322	TD834322	15	70	25	6	4.9	8	3	3.9
#12	– 24 UNC	TB834362	TC834362	TD834362	16	80	30	6	4.9	8	3	4.5
1/4	– 20 UNC	TB834402	TC834402	TD834402	17	80	30	7	5.5	8	3	5.2
5/16	– 18 UNC	TB834442	TC834442	TD834442	20	90	35	8	6.2	9	3	6.6
3/8	– 16 UNC	TB834482	TC834482	TD834482	22	100	39	9	7	10	3	8
7/16	– 14 UNC	TB834522	TC834522	TD834522	22	100	40	8	6.2	9	3	9.4
1/2	– 13 UNC	TB834562	TC834562	TD834562	25	110	44	9	7	10	3	10.75
9/16	– 12 UNC	TB834602	TC834602	TD834602	26	110	44	11	9	12	3	12.25
5/8	– 11 UNC	TB834642	TC834642	TD834642	27	110	44	12	9	12	3	13.5
3/4	– 10 UNC	TB834702	TC834702	TD834702	30	125	50	14	11	14	4	16.5
7/8	– 9 UNC	TB834742	TC834742	TD834742	32	140	54	18	14.5	17	4	19.5
1	– 8 UNC	TB834782	TC834782	TD834782	36	160	60	20	16	19	4	22.25

▶DIN 371(#4~3/8) and DIN 376(7/16~1)

* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COMBO TAPS

Bright T 0 SERIES
TiN TD 0 SERIES

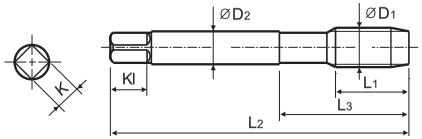
N Unified coarse threads

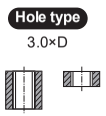
- Unified Grobgewinde
- UNC
- Unificato passo grosso

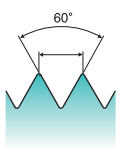
Machine taps
Maschinengewindebohrer

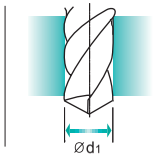
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.









Material groups **MU** | HSS-E | DIN 371/376 | 3 | 6 | right | TiN p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215-220	
TAPPING CHUCK	D221-228	
ONE STEP TAPPING CHUCK	D211-213	

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	40UNC	TCJ01162	TDJ01162	11	56	18	3.5	2.7	6	3	2.3
#5	40UNC	TCJ01202	TDJ01202	11	56	18	3.5	2.7	6	3	2.6
#6	32UNC	TCJ01242	TDJ01242	12	56	20	4	3	6	3	2.85
#8	32UNC	TCJ01282	TDJ01282	13	63	21	4.5	3.4	6	3	3.5
#10	24UNC	TCJ01322	TDJ01322	15	70	25	6	4.9	8	3	3.9
#12	24UNC	TCJ01362	TDJ01362	16	80	30	6	4.9	8	3	4.5
1/4	20UNC	TCJ01402	TDJ01402	17	80	30	7	5.5	8	3	5.2
5/16	18UNC	TCJ01442	TDJ01442	20	90	35	8	6.2	9	3	6.6
3/8	16UNC	TCJ01482	TDJ01482	22	100	39	9	7	10	3	8
7/16	14UNC	TCJ01522	TDJ01522	22	100	40	8	6.2	9	3	9.4
1/2	13UNC	TCJ01562	TDJ01562	25	110	44	9	7	10	3	10.75
9/16	12UNC	TCJ01602	TDJ01602	26	110	44	11	9	12	3	12.25
5/8	11UNC	TCJ01642	TDJ01642	27	110	44	12	9	12	3	13.5
3/4	10UNC	TCJ01702	TDJ01702	30	125	50	14	11	14	4	16.5
7/8	9UNC	TCJ01742	TDJ01742	32	140	54	18	14.5	17	4	19.5
1	8UNC	TCJ01782	TDJ01782	36	160	60	20	16	19	4	22.25

▶DIN 371(#4~3/8) and DIN 376(7/16~1)
* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COMBO TAPS

Vap T SERIES
Bright T SERIES
TiN TD SERIES

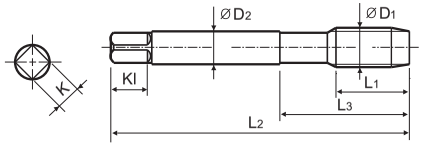
N Unified fine threads

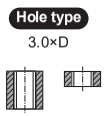
- Unified Feingewindea
- UNF
- Unificato passo grosso

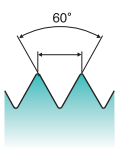
Machine taps
Maschinengewindebohrer

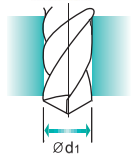
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.









Material groups **MU** | HSS-E | DIN 371/376 | 2 | 6 | ap | right | TiN p.B125

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK	D215-220	
TAPPING CHUCK	D221-228	
ONE STEP TAPPING CHUCK	D211-213	

Unit : mm

SIZE ØD1	TPI	EDP No. Vap	EDP No. Bright	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	TB874182	TC874182	TD874182	11	56	18	3.5	2.7	6	3	2.4
#5	44UNF	TB874222	TC874222	TD874222	11	56	18	3.5	2.7	6	3	2.7
#6	40UNF	TB874262	TC874262	TD874262	12	56	20	4	3	6	3	3
#8	36UNF	TB874302	TC874302	TD874302	13	63	21	4.5	3.4	6	3	3.5
#10	32UNF	TB874342	TC874342	TD874342	15	70	25	6	4.9	8	3	4.1
#12	28UNF	TB874382	TC874382	TD874382	16	80	30	6	4.9	8	3	4.7
1/4	28UNF	TB874422	TC874422	TD874422	17	80	30	7	5.5	8	3	5.5
5/16	24UNF	TB874462	TC874462	TD874462	17	90	35	8	6.2	9	3	6.9
3/8	24UNF	TB874502	TC874502	TD874502	18	100	39	9	7	10	3	8.5
7/16	20UNF	TB874542	TC874542	TD874542	22	100	40	8	6.2	9	3	9.9
1/2	20UNF	TB874582	TC874582	TD874582	22	100	40	9	7	10	3	11.5
9/16	18UNF	TB874622	TC874622	TD874622	22	100	40	11	9	12	3	12.9
5/8	18UNF	TB874662	TC874662	TD874662	22	100	40	12	9	12	3	14.5
3/4	16UNF	TB874722	TC874722	TD874722	25	110	44	14	11	14	4	17.5
7/8	14UNF	TB874762	TC874762	TD874762	26	125	50	18	14.5	17	4	20.5
1	12UNF	TB874802	TC874802	TD874802	28	140	54	20	16	19	4	23.25

▶DIN 371(#4~3/8) and DIN 374(7/16~1)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

COMBO TAPS

Bright T 0 SERIES
TiN TD 0 SERIES

N Unified fine threads

Unified Grobgewinde
UNF
Unificato passo grosso

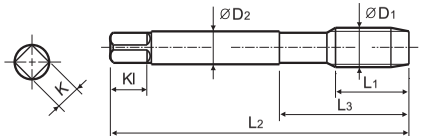
Machine taps
Maschinengewindebohrer

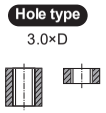
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

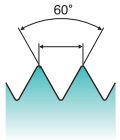
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

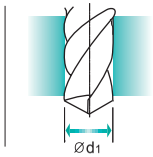
DIN 371

DIN 374









Material groups **MU** | HSS-E | DIN 371/376 | 3 | 6 | right | TiN | p.B125

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 48 UNF	TCJ02182	TDJ02182	11	56	18	3.5	2.7	6	3	2.4
#5	- 44 UNF	TCJ02222	TDJ02222	11	56	18	3.5	2.7	6	3	2.7
#6	- 40 UNF	TCJ02262	TDJ02262	12	56	20	4	3	6	3	3
#8	- 36 UNF	TCJ02302	TDJ02302	13	63	21	4.5	3.4	6	3	3.5
#10	- 32 UNF	TCJ02342	TDJ02342	15	70	25	6	4.9	8	3	4.1
#12	- 28 UNF	TCJ02382	TDJ02382	16	80	30	6	4.9	8	3	4.7
1/4	- 28 UNF	TCJ02422	TDJ02422	17	80	30	7	5.5	8	3	5.5
5/16	- 24 UNF	TCJ02462	TDJ02462	17	90	35	8	6.2	9	3	6.9
3/8	- 24 UNF	TCJ02502	TDJ02502	18	100	39	9	7	10	3	8.5
7/16	- 20 UNF	TCJ02542	TDJ02542	22	100	40	8	6.2	9	3	9.9
1/2	- 20 UNF	TCJ02582	TDJ02582	22	100	40	9	7	10	3	11.5
9/16	- 18 UNF	TCJ02622	TDJ02622	22	100	40	11	9	12	3	12.9
5/8	- 18 UNF	TCJ02662	TDJ02662	22	100	40	12	9	12	3	14.5
3/4	- 16 UNF	TCJ02722	TDJ02722	25	110	44	14	11	14	4	17.5
7/8	- 14 UNF	TCJ02762	TDJ02762	26	125	50	18	14.5	17	4	20.5
1	- 12 UNF	TCJ02802	TDJ02802	28	140	54	20	16	19	4	23.25

▶DIN 371(#4~3/8) and DIN 374(7/16~1)
* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○		◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

COMBO TAPS

Combo Spiral Flute Tap Set

TB804SET5

TC804SET7

Set No.	Series	Surface Treatment	Size	Quantity
TB804SET5	TB804	VAP	M5, M6, M8, M10, M12	5 pcs
TC804SET7	TC804	Bright	M3, M4, M5, M6, M8, M10, M12	7 pcs

Combo Spiral Flute Tap + Gold-P Drill (HSS-E, DIN 338, Straight Shank, 135˚ Split Point, Jobber Length) Set

TD804SET7-GLP195

Set No.	Series	Surface Treatment	Size							Quantity
TD804SET7-GLP195	TD804	TiN	M3	M4	M5	M6	M8	M10	M12	14pcs
	DLGP195	TiN	2.5	3.3	4.2	5	6.8	8.5	10.2	

COMBO TAPS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TC804 TC844 TC824 TC864	TD804 TD844 TD824 TD864	TB804 TB844 TB824 TB864	TCE05 TCE09 TCE01 TCE02	TDE05 TDE09 TDE01 TDE02	TBE05	TCE06	TDE06	TBE06
					Vc (m/min)								
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	18-24	12-18
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5
	10	High alloyed steel, and tool steel	200	15	3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	10-15	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	6-8	4-6
K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	35-40	25-35
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	12-17	8-12
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20

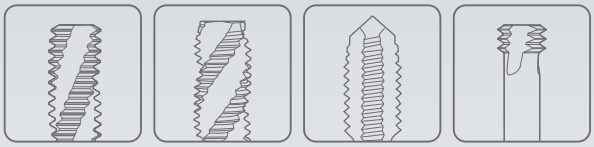
ISO	VDI 3323	Material Description	HB	HRc	TCE07	TDE07	TBE07	TCE08	TDE08	TBE08	TC804-IC	TC633	TC807
					Vc (m/min)								
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	12-18	12-18
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10	6-10
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10	6-10
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5	3-5
	10	High alloyed steel, and tool steel	200	15	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5	3-5
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	7-10	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	4-6	4-6
K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	5-8
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	5-8
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	25-35	25-35
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	8-12	8-12
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20

COMBO TAPS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TB744 TB754 TQ744 TQ754	TC814 TC854 TC834 TC874	TD814 TD854 TD834 TD874	TB814 TB854 TB834 TB874	TCJ05 TCJ09 TCJ01 TCJ02	TDJ05 TDJ09 TDJ01 TDJ02	TBJ05	TCJ06	TDJ06	TBJ06
					Vc (m/min)									
P	1	Non-alloy steel	125			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	2		190	13	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	3		250	25		12-18	18-24	12-18	12-18	18-24	12-18	12-18	18-24	12-18
	4		270	28	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	5		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	6	Low alloy steel	180	10	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	7		275	29	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	8		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	9		350	38		3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5
	10	High alloyed steel, and tool steel	200	15		3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5
M	12	Stainless steel	200	15	7-10	7-10	10-15	7-10	7-10	10-15	7-10	7-10	10-15	7-10
	13		240	23	5-8	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	14		180	10	4-6	4-6	6-8	4-6	4-6	6-8	4-6	4-6	6-8	4-6
K	15	Grey cast iron	180	10		10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	16		260	26		5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	17	Nodular cast iron	160	3		10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	18		250	25		5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
N	23	Aluminum-cast, alloyed	75			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110			25-35	35-40	25-35	25-35	35-40	25-35	25-35	35-40	25-35
	27		90			8-12	12-17	8-12	8-12	12-17	8-12	8-12	12-17	8-12
	28		100		15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20

ISO	VDI 3323	Material Description	HB	HRc	TCJ07	TDJ07	TBJ07	TCJ08	TDJ08	TBJ08	TC814-IC	TC445	TB428 TB438	TQ428 TQ438
					Vc (m/min)									
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20		
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	12-18		
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10		
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10		
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5		
	10	High alloyed steel, and tool steel	200	15	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5		
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	7-10	7-10	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	5-8	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	4-6	4-6	4-6
K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15		
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8		
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15		
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8		
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20		
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	25-35		
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	8-12		
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20	15-20

Global Cutting Tool Leader YG



THREADING

YG TAP GENERAL

YG G

- **Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation**
- **Geeignet für das Gewindeschneiden von Grund- und Durchgangsbohrungen aufgrund der Nutengeometrie und der hervorragenden Spanabfuhr**

SELE TION G IDE

YG THREADING TOOLS

HSS & HSS-E
YG TAP
GENERAL

Suitable for Tapping Blind / Through Holes
due to Flute Geometry and Excellent Chip Evacuation

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B169

HOLE TYPE							Max. 2.5xD Blind Hole			Max. 3.0xD Through Hole						Max. 2.0xD Blind/Through Hole							
TOOL MATERIAL							HSS-E			HSS-E													
CHAMFER LEAD ACC. TO DIN2197							C	C	C	B	B	B	B	C	C								
FLUTE TYPE							Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Flute	Straight Flute								
SPIRAL FLUTE ANGLE							R40	R40	R20	-	-	-	-	L20	-								
SERIES	M	DIN371/376					TC711 (p.B132)	TD711 (p.B133)	TC517 (p.B141)	TC127 (p.B143)	TD127 (p.B144)	TC227 (p.B153)	TD227 (p.B154)	TC211 (p.B155)	TC463 (p.B156)								M
		DIN352							TC612 (p.B142)	TC122 (p.B145)													
		DIN357/LONG																					
	MF	DIN374					TC411 (p.B134)	TD411 (p.B136)		TC222 (p.B146)	TD222 (p.B148)				TC473 (p.B157)								MF
		DIN2181																					
	UNC	DIN371/376					TC144 (p.B138)			TC214 (p.B150)					TC424 (p.B158)								UNC
		DIN351																					
	UNF	DIN371/374					TC124 (p.B139)			TC234 (p.B151)													UNF
		DIN2181																					
	BSW	DIN2182/2183					TC134 (p.B140)			TC224 (p.B152)													BSW
		DIN351																					
	G(BSP)	DIN5156/5157																					G(BSP)
	EG-M	DIN371/376																					EG-M
	EG-UNC	DIN371/376																					EG-UNC
	EG-UNF	DIN371/374																					EG-UNF
SURFACE TREATMENT							Bright	TiN	Bright	Bright	TiN	Bright	TiN	Bright	Bright								
MODEL																							
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc																	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○	○	○	○	○	○	○								1
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎	◎	◎	○								2
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	◎	◎	○								3
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎	◎	◎	○								4
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	○	○	○	○	○								5
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎	◎	◎	○								6
	7			Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎	◎	◎	○								7
	8			Quenched & Tempered	300	32	○	○	○	○	○	○	○	○	○								8
	9			Quenched & Tempered	350	38																	9
	10	High alloyed steel, and tool steel		Annealed	200	15																	10
	11			Quenched & Tempered	325	35																	11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○	○	○	○	○	○								12
	13		Martensitic	Quenched & Tempered	240	23	○	○	○	○	○	○	○	○	○								13
	14		Austenitic		180	10																	14
K	15	Grey cast iron	Pearlitic / ferritic		180	10									○								15
	16		Pearlitic (Martensitic)		260	26									○								16
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎	◎	◎	◎	○								17
	18		Pearlitic		250	25	◎	◎	◎	◎	◎	◎	◎	◎	○								18
	19	Malleable cast iron	Ferritic		130																		19
	20		Pearlitic		230	21																	20
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○	○	○	○	○									21
	22		Curable	Hardened	100																		22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○	○	○	○	○									23
	24		≤ 12% Si, Curable	Hardened	90		○	○	○	○	○	○	○	○									24
	25		> 12% Si, Not Curable		130		◎	◎	◎	◎	◎	◎	◎	◎	○								25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○	○	○	○	○	○								26
	27		CuZn, CuSnZn (Brass)		90										○								27
	28		CuSn, lead-free copper and electrolytic copper		100		◎	◎	◎	◎	◎	◎	◎	◎									28
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic																				29
	30		Rubber, Wood, etc.																				30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15																	31
	32			Cured	280	30																	32
	33		Ni or Co Based	Annealed	250	25																	33
	34			Cured	350	38																	34
	35			Cast	320	34																	35
	36	Titanium Alloys	Pure Titanium		400 Rm																		36
	37		Alpha + Beta Alloys	Hardened	1050 Rm																		37
H	38	Hardened steel		Hardened	550	55																	38
	39			Hardened	630	60																	39
	40	Chilled Cast Iron		Cast	400	42																	40
	41	Hardened Cast Iron		Hardened	550	55																	41

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

SELE TION G IDE

YG THREADING TOOLS

HSS & HSS-E
YG TAP GENERAL

Suitable for Tapping Blind / Through Holes
due to Flute Geometry and Excellent Chip Evacuation

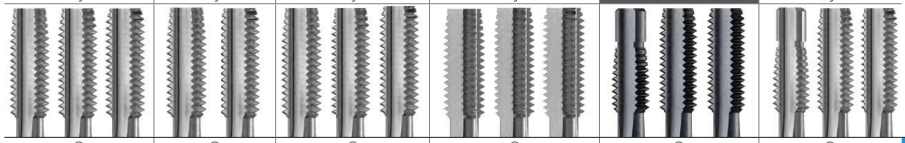
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B169

HOLE TYPE			Max. 2.0xD Blind/Through Hole	
TOOL MATERIAL			HSS	
CHAMFER LEAD ACC. TO DIN2197			I / II / III	I / III
FLUTE TYPE			Straight Flute	Straight Flute
SPIRAL FLUTE ANGLE			-	-
	M	DIN371/376		
		DIN352	T7109 (p.B159)	
		DIN357/LONG		
	MF	DIN374		
		DIN2181		T7309 (p.B161)
	UNC	DIN371/376		
		DIN351		
	UNF	DIN371/374		
		DIN2181		
	BSW	DIN2182/2183		
		DIN351		
	G(BSP)	DIN5156/5157		
	EG-M	DIN371/376		
	EG-UNC	DIN371/376		
	EG-UNF	DIN371/374		
SURFACE TREATMENT			Bright	Bright
MODEL				

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc		
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○
	2		About 0.45% C	Annealed	190	13	○	○
	3		About 0.45% C	Quenched & tempered	250	25	○	○
	4		About 0.75% C	Annealed	270	28	○	○
	5		About 0.75% C	Quenched & tempered	300	32		
	6	Low alloy steel		Annealed	180	10	○	○
	7			Quenched & tempered	275	29	○	○
	8			Quenched & tempered	300	32		
	9			Quenched & tempered	350	38		
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10		
	16		Pearlitic (Martensitic)		260	26		
	17	Nodular cast iron	Ferritic		160	3	○	○
	18		Pearlitic		250	25	○	○
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60			
	22		Curable	Hardened	100			
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			
	24		≤ 12% Si, Curable	Hardened	90			
	25		> 12% Si, Not Curable		130		○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○
	27		CuZn, CuSnZn (Brass)		90		○	○
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

Max. 2.0xD Blind/Through Hole						
HSS				HSS-E		
I / II / III	I / III	I / II / III	I / II / III	I / II / III	I / II / III	
Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute	
-	-	-	Left Hand Cut	-	-	
						M
			T7343 (p.B166)	TB373 (p.B167)	TC353 (p.B168)	M
						MF
						MF
T7363 (p.B163)						UNC
						UNF
	T7509 (p.B164)					UNF
						BSW
		T7609 (p.B165)				BSW
						G(BSP)
						EG-M
						EG-UNC
						EG-UNF
Bright	Bright	Bright	Bright	VAP	Bright	
						
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○	○	○	○	○	○	3
○	○	○	○	○	○	4
						5
○	○	○	○	○	○	6
○	○	○	○	○	○	7
						8
						9
						10
						11
				○		12
				○		13
				○		14
						15
						16
○	○	○	○			17
○	○	○	○			18
						19
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						21
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						23
						24
○	○	○	○			25
○	○	○	○			26
○	○	○	○			27
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G TA GENE AL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

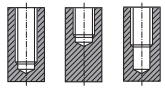
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

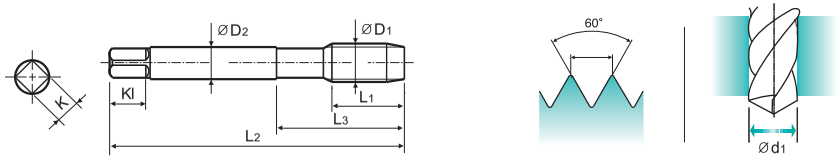
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups **GS** | HSS | DIN 371/376 | 6H | 60° | C | R | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC711136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC711196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC711496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC711206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC711226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC711246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC711266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC711286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC711316	10	80	30	6	4.9	8	3	5
M7	× 1	TC711346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC711366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC711396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC711426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC711466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC711506	18	110	44	9	7	10	3	10.2
M14	× 2	TC711546	20	110	44	11	9	12	3	12
M16	× 2	TC711606	20	110	44	12	9	12	3	14
M18	× 2.5	TC711656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC711706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC711746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC711786	30	160	60	18	14.5	17	4	21
M27	× 3	TC711866	30	160	60	20	16	19	4	24
M30	× 3.5	TC711946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

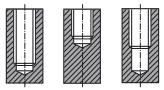
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

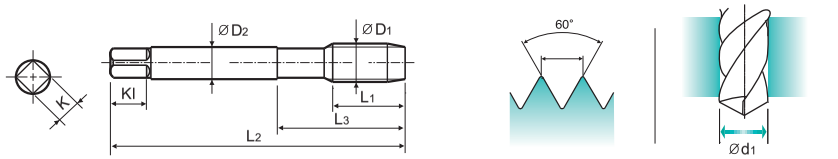
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups **GS** | HSS | DIN 371/376 | 6H | 60° | C | R | TiN | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TD711136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD711196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD711496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD711206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD711226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TD711246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD711266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD711286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TD711316	10	80	30	6	4.9	8	3	5
M7	× 1	TD711346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TD711366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD711396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TD711426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TD711466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD711506	18	110	44	9	7	10	3	10.2
M14	× 2	TD711546	20	110	44	11	9	12	3	12
M16	× 2	TD711606	20	110	44	12	9	12	3	14
M18	× 2.5	TD711656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TD711706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TD711746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TD711786	30	160	60	18	14.5	17	4	21
M27	× 3	TD711866	30	160	60	20	16	19	4	24
M30	× 3.5	TD711946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

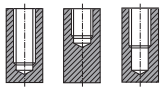
Machine taps
Maschinengewindebohrer

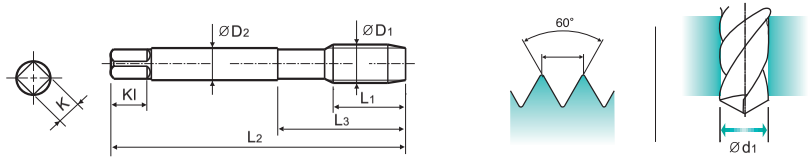
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

▶ Geeignet zum Gewinden von Sacklöchem dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 374

Hole type
2.5×D





Material groups GS | HSS | DIN 37 | 6H | 60° | C | R | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC411256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC411296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC411326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC411336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC411356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC411376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TC411386	8	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC411936	5	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC411436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TC411446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TC411456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC411516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TC411526	15	100	40	9	7	10	3	10.8
M12	× 1	TC411536	11	100	40	9	7	10	3	11
M14	× 1.5	TC411556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC411566	15	100	40	11	9	12	3	12.8
M14	× 1	TC411576	11	100	40	11	9	12	3	13
M16	× 1.5	TC411616	15	100	40	12	9	12	3	14.5
M16	× 1	TC411626	12	100	40	12	9	12	3	15
M18	× 1.5	TC411676	17	110	44	14	11	14	4	16.5
M18	× 1	TC411686	13	110	44	14	11	14	4	17

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL
T SERIES
M ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.
DIN 374
Hole type
2.5×D
Material groups GS | HSS | DIN 37 | 6H | 60° | C | R | Bright | p.B169
Recommended ToolHolder
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213
Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M20	× 1.5	TC411726	17	125	50	16	12	15	4	18.5
M20	× 1	TC411736	14	125	50	16	12	15	4	19
M22	× 1.5	TC411766	17	125	50	18	14.5	17	4	20.5
M22	× 1	TC411776	14	125	50	18	14.5	17	4	21
M24	× 2	TC411796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TC411806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TC411856	20	140	54	18	14.5	17	4	24.5
M27	× 2	TC411876	20	140	54	20	16	19	4	25
M27	× 1.5	TC411886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TC411916	20	140	54	20	16	19	4	26.5
M30	× 2	TC411966	22	150	57	22	18	21	4	28
M30	× 1.5	TC411976	22	150	57	22	18	21	4	28.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

TD SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

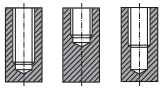
Machine taps
Maschinengewindebohrer

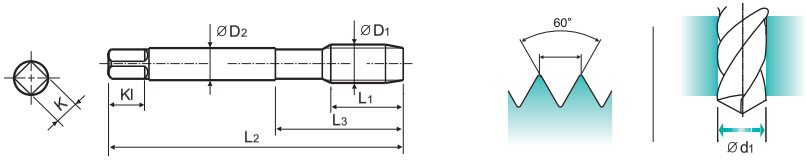
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

▶ Geeignet zum Gewinden von Sacklöchem dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 374

Hole type
2.5×D





Material groups GS | HSS | DIN 37 | 6H | 60° | C | R | TiN | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TD411256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD411296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD411326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD411336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD411356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD411376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TD411386	8	80	30	6	4.9	8	3	7.2
M8	× 0.5	TD411936	5	80	30	6	4.9	8	3	7.5
M10	× 1.25	TD411436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TD411446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TD411456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD411516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TD411526	15	100	40	9	7	10	3	10.8
M12	× 1	TD411536	11	100	40	9	7	10	3	11
M14	× 1.5	TD411556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TD411566	15	100	40	11	9	12	3	12.8
M14	× 1	TD411576	11	100	40	11	9	12	3	13
M16	× 1.5	TD411616	15	100	40	12	9	12	3	14.5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL
TD SERIES
M ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.
DIN 374
Hole type
2.5×D
Material groups GS | HSS | DIN 37 | 6H | 60° | C | R | TiN | p.B169
Recommended ToolHolder
Plain Shank Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213
Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M16	× 1	TD411626	12	100	40	12	9	12	3	15
M18	× 1.5	TD411676	17	110	44	14	11	14	4	16.5
M18	× 1	TD411686	13	110	44	14	11	14	4	17
M20	× 1.5	TD411726	17	125	50	16	12	15	4	18.5
M20	× 1	TD411736	14	125	50	16	12	15	4	19
M22	× 1.5	TD411766	17	125	50	18	14.5	17	4	20.5
M22	× 1	TD411776	14	125	50	18	14.5	17	4	21
M24	× 2	TD411796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TD411806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TD411856	20	140	54	18	14.5	17	4	24.5
M27	× 2	TD411876	20	140	54	20	16	19	4	25
M27	× 1.5	TD411886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TD411916	20	140	54	20	16	19	4	26.5
M30	× 2	TD411966	22	150	57	22	18	21	4	28
M30	× 1.5	TD411976	22	150	57	22	18	21	4	28.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo grosso

Machine taps
Maschinengewindebohrer

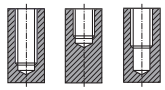
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

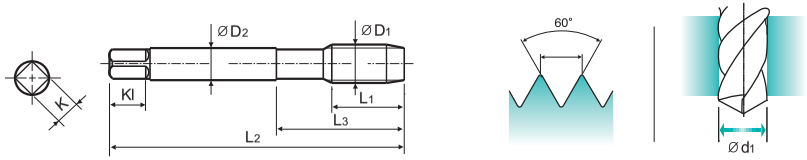
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups GS | HSS | DIN 371/376 | 2 | 60° | C | R | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	-40UNC	TC144162	6	56	18	3.5	2.7	6	3	2.3
#5	-40UNC	TC144202	7	56	18	3.5	2.7	6	3	2.6
#6	-32UNC	TC144242	7	56	20	4	3	6	3	2.85
#8	-32UNC	TC144282	8	63	21	4.5	3.4	6	3	3.5
#10	-24UNC	TC144322	10	70	25	6	4.9	8	3	3.9
#12	-24UNC	TC144362	10	80	30	6	4.9	8	3	4.5
1/4	-20UNC	TC144402	13	80	30	7	5.5	8	3	5.2
5/16	-18UNC	TC144442	14	90	35	8	6.2	9	3	6.6
3/8	-16UNC	TC144482	16	100	39	9	7	10	3	8
7/16	-14UNC	TC144522	17	100	40	8	6.2	9	3	9.4
1/2	-13UNC	TC144562	20	110	44	9	7	10	3	10.75
9/16	-12UNC	TC144602	20	110	44	11	9	12	3	12.25
5/8	-11UNC	TC144642	22	110	44	12	9	12	3	13.5
3/4	-10UNC	TC144702	25	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC144742	27	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC144782	30	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC144822	35	180	65	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

T SERIES

N Unified fine threads

Unified Feingewinde
UNF
Unificato passo grosso

Machine taps
Maschinengewindebohrer

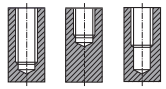
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

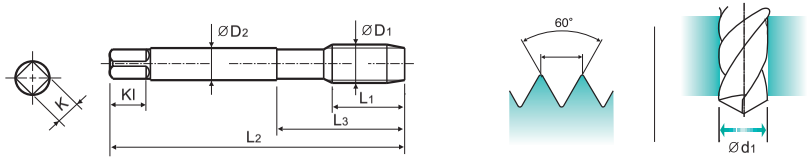
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 374

Hole type
2.5×D





Material groups GS | HSS | DIN 371/37 | 2 | 60° | C | R | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	-48UNF	TC124182	6	56	18	3.5	2.7	6	3	2.4
#5	-44UNF	TC124222	7	56	18	3.5	2.7	6	3	2.7
#6	-40UNF	TC124262	7	56	20	4	3	6	3	3
#8	-36UNF	TC124302	8	63	21	4.5	3.4	6	3	3.5
#10	-32UNF	TC124342	10	70	25	6	4.9	8	3	4.1
#12	-28UNF	TC124382	10	80	30	6	4.9	8	3	4.7
1/4	-28UNF	TC124422	10	80	30	7	5.5	8	3	5.5
5/16	-24UNF	TC124462	10	90	35	8	6.2	9	3	6.9
3/8	-24UNF	TC124502	10	100	39	9	7	10	3	8.5
7/16	-20UNF	TC124542	13	100	40	8	6.2	9	3	9.9
1/2	-20UNF	TC124582	13	100	40	9	7	10	3	11.5
9/16	-18UNF	TC124622	15	100	40	11	9	12	3	12.9
5/8	-18UNF	TC124662	15	100	40	12	9	12	3	14.5
3/4	-16UNF	TC124722	17	110	44	14	11	14	4	17.5
7/8	-14UNF	TC124762	17	125	50	18	14.5	17	4	20.5
1	-12UNF	TC124802	20	140	54	18	14.5	17	4	23.25
1-1/8	-12UNF	TC124842	22	150	60	22	18	21	4	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

S Whitworth threads

Whitworth Gewinde
BSW
Unificato passo grosso

Machine taps
Maschinengewindebohrer

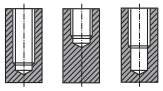
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

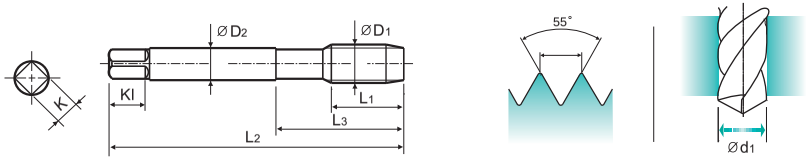
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 2182

DIN 2183

Hole type
2.5×D





Material groups GS | HSS | DIN 21 2/21 3 | C | R | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
W1/8	- 40	TC134200	7	56	18	3.5	2.7	6	3	2.5
W5/32	- 32	TC134280	7	63	21	4.5	3.4	6	3	3.1
W3/16	- 24	TC134320	10	70	25	6	4.9	8	3	3.6
W7/32	- 24	TC134360	10	80	30	6	4.9	8	3	4.4
W1/4	- 20	TC134400	13	80	30	7	5.5	8	3	5.1
W5/16	- 18	TC134440	14	90	35	8	6.2	9	3	6.5
W3/8	- 16	TC134480	16	100	39	9	7	10	3	7.9
W7/16	- 14	TC134520	17	100	40	8	6.2	9	3	9.3
W1/2	- 12	TC134560	20	110	44	9	7	10	3	10.5
W9/16	- 12	TC134600	20	110	44	11	9	12	3	12
W5/8	- 11	TC134640	22	110	40	12	9	12	3	13.5
W3/4	- 10	TC134700	25	125	50	14	11	14	4	16.5
W7/8	- 9	TC134740	27	140	54	18	14.5	17	4	19.25
W1	- 8	TC134780	30	160	60	20	16	19	4	22
W1-1/8	- 7	TC134820	35	180	65	22	18	21	4	24.75

▶DIN 2182(W1/8~W3/8) and DIN 2183(W7/16~W1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

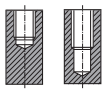
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

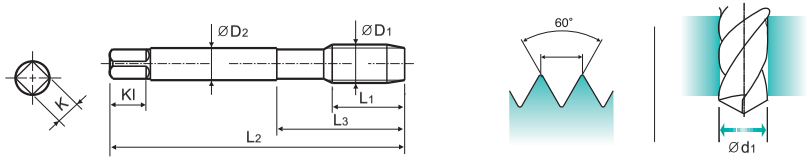
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups GS | HSS | DIN 371/376 | 6H | 60° | C | R2 | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TC517136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC517156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC517196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC517176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC517496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC517206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC517226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC517246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC517266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC517286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC517316	10	80	30	6	4.9	8	3	5
M7	× 1	TC517346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC517366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC517396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC517426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC517466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC517506	18	110	44	9	7	10	3	10.2
M14	× 2	TC517546	20	110	44	11	9	12	3	12
M16	× 2	TC517606	20	110	44	12	9	12	3	14
M18	× 2.5	TC517656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC517706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC517746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC517786	30	160	60	18	14.5	17	4	21
M27	× 3	TC517866	30	160	60	20	16	19	4	24
M30	× 3.5	TC517946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T 6 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

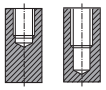
Machine taps
Maschinengewindebohrer

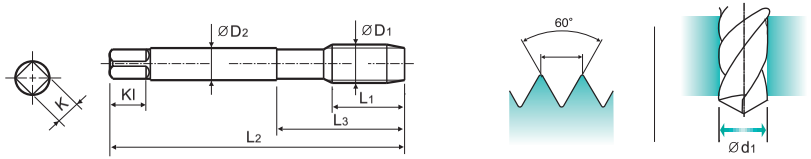
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 352

Hole type
2.5×D





Material groups GS | HSS | DIN 3 2 | 6H | 60° | C | R2 | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TC612206	11	40	18	3.5	2.7	6	3	2.5
M4	× 0.7	TC612246	13	45	21	4.5	3.4	6	3	3.3
M5	× 0.8	TC612286	16	52	26	6	4.9	8	3	4.2
M6	× 1	TC612316	18	56	27	6	4.9	8	3	5
M8	× 1.25	TC612366	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TC612426	22	70	38	7	5.5	8	3	8.5
M12	× 1.75	TC612506	24	80	45	9	7	10	3	10.2
M14	× 2	TC612546	26	80	45	11	9	12	3	12
M16	× 2	TC612606	27	80	45	12	9	12	3	14
M18	× 2.5	TC612656	30	95	58	14	11	14	4	15.5
M20	× 2.5	TC612706	32	95	58	16	12	15	4	17.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

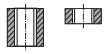
Machine taps
Maschinengewindebohrer

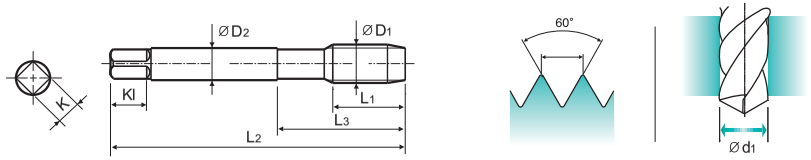
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 371

Hole type
3.0×D





Material groups GS | HSS | DIN 371 | 6H | 60° | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC127136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC127156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC127196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC127176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC127496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC127206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC127226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC127246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC127266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC127286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC127316	17	80	30	6	4.9	8	3	5
M7	× 1	TC127346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC127366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC127396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC127426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC127466	22	100	39	11	9	12	3	9.5
M12	× 1.75	TC127506	24	110	44	12	9	12	3	10.2

▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

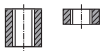
Machine taps
Maschinengewindebohrer

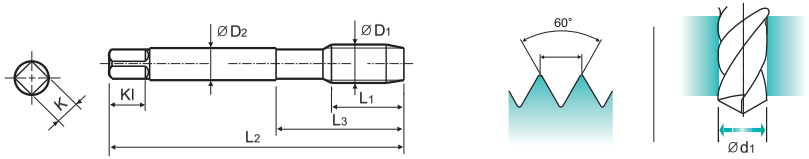
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 371

Hole type
3.0×D





Material groups GS | HSS | DIN 371 | 6H | 60° | TiN | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TD127136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD127156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD127196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD127176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD127496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD127206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD127226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TD127246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD127266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD127286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TD127316	17	80	30	6	4.9	8	3	5
M7	× 1	TD127346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TD127366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD127396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TD127426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TD127466	22	100	39	11	9	12	3	9.5
M12	× 1.75	TD127506	24	110	44	12	9	12	3	10.2

▶ *DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

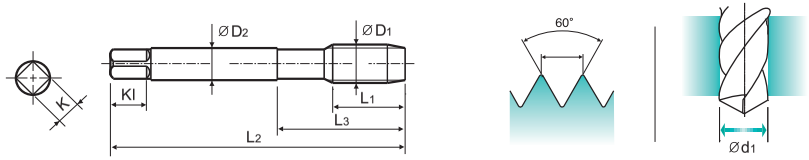
Machine taps
Maschinengewindebohrer

▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 352

Hole type
3.0×D



Material groups GS | HSS | DIN 3 2 | 6H | 60° | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC122136	8	36	13	2.8	2.1	5	3	1.6
M2.5	× 0.45	TC122176	9	40	15	2.8	2.1	5	3	2.05
M3	× 0.5	TC122206	11	40	18	3.5	2.7	6	3	2.5
M4	× 0.7	TC122246	13	45	21	4.5	3.4	6	3	3.3
M5	× 0.8	TC122286	16	52	26	6	4.9	8	3	4.2
M6	× 1	TC122316	18	56	27	6	4.9	8	3	5
M8	× 1.25	TC122366	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TC122426	22	70	38	7	5.5	8	3	8.5
M12	× 1.75	TC122506	24	80	45	9	7	10	3	10.2
M14	× 2	TC122546	26	80	45	11	9	12	3	12
M16	× 2	TC122606	27	80	45	12	9	12	3	14

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

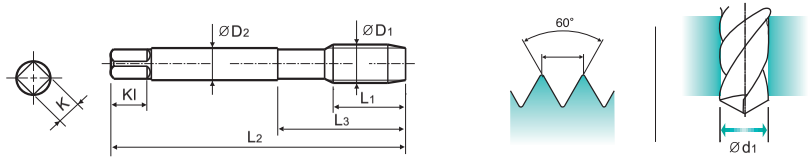
Machine taps
Maschinengewindebohrer

▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 374

Hole type
3.0×D



Material groups GS | HSS | DIN 37 | 6H | 60° | Bright

p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC222256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC222296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC222326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC222336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC222356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC222376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC222386	14	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC222936	14	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC222436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC222446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC222456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC222516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC222526	22	100	40	9	7	10	3	10.8
M12	× 1	TC222536	18	100	40	9	7	10	3	11
M14	× 1.5	TC222556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC222566	22	100	40	11	9	12	3	12.8
M14	× 1	TC222576	18	100	40	11	9	12	3	13

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL
T SERIES
M ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13
Machine taps
Maschinengewindebohrer
▶ Suitable for through hole in more cutting speed than other taps due to thick web.
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.
DIN 374
Hole type
3.0×D
Material groups GS | HSS | DIN 37 | 6H | 60° | Bright
p.B169
Recommended ToolHolder
Plain Shank Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213
Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M16	× 1.5	TC222616	22	100	40	12	9	12	3	14.5
M16	× 1	TC222626	18	100	40	12	9	12	3	15
M18	× 1.5	TC222676	25	110	44	14	11	14	4	16.5
M18	× 1	TC222686	20	110	44	14	11	14	4	17
M20	× 1.5	TC222726	25	125	50	16	12	15	4	18.5
M20	× 1	TC222736	20	125	50	16	12	15	4	19
M22	× 1.5	TC222766	25	125	50	18	14.5	17	4	20.5
M22	× 1	TC222776	20	125	50	18	14.5	17	4	21
M24	× 2	TC222796	27	140	54	18	14.5	17	4	22
M24	× 1.5	TC222806	27	140	54	18	14.5	17	4	22.5
M26	× 1.5	TC222856	28	140	54	18	14.5	17	4	24.5
M27	× 2	TC222876	28	140	54	20	16	19	4	25
M27	× 1.5	TC222886	28	140	54	20	16	19	4	25.5
M28	× 1.5	TC222916	28	140	54	20	16	19	4	26.5
M30	× 2	TC222966	30	150	57	22	18	21	4	28
M30	× 1.5	TC222976	30	150	57	22	18	21	4	28.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

TD SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

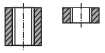
Machine taps
Maschinengewindebohrer

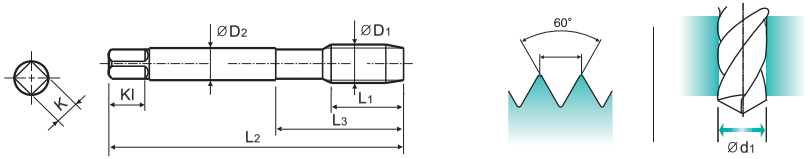
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 374

Hole type
3.0×D





Material groups GS | HSS | DIN 37 | 6H | 60° | TiN

p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TD222256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD222296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD222326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD222336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD222356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD222376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TD222386	14	80	30	6	4.9	8	3	7.2
M8	× 0.5	TD222936	14	80	30	6	4.9	8	3	7.5
M10	× 1.25	TD222436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TD222446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TD222456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD222516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TD222526	22	100	40	9	7	10	3	10.8
M12	× 1	TD222536	18	100	40	9	7	10	3	11
M14	× 1.5	TD222556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TD222566	22	100	40	11	9	12	3	12.8
M14	× 1	TD222576	18	100	40	11	9	12	3	13
M16	× 1.5	TD222616	22	100	40	12	9	12	3	14.5

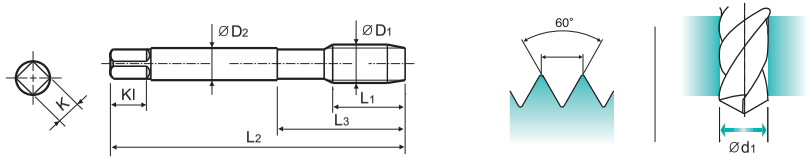
▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL
TD SERIES
M ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13
Machine taps
Maschinengewindebohrer
▶ Suitable for through hole in more cutting speed than other taps due to thick web.
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.
DIN 374
Hole type
3.0×D



Material groups GS | HSS | DIN 37 | 6H | 60° | TiN
p.B169
Recommended ToolHolder
	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213
Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M16	× 1	TD222626	18	100	40	12	9	12	3	15
M18	× 1.5	TD222676	25	110	44	14	11	14	4	16.5
M18	× 1	TD222686	20	110	44	14	11	14	4	17
M20	× 1.5	TD222726	25	125	50	16	12	15	4	18.5
M20	× 1	TD222736	20	125	50	16	12	15	4	19
M22	× 1.5	TD222766	25	125	50	18	14.5	17	4	20.5
M22	× 1	TD222776	20	125	50	18	14.5	17	4	21
M24	× 2	TD222796	27	140	54	18	14.5	17	4	22
M24	× 1.5	TD222806	27	140	54	18	14.5	17	4	22.5
M26	× 1.5	TD222856	28	140	54	18	14.5	17	4	24.5
M27	× 2	TD222876	28	140	54	20	16	19	4	25
M27	× 1.5	TD222886	28	140	54	20	16	19	4	25.5
M28	× 1.5	TD222916	28	140	54	20	16	19	4	26.5
M30	× 2	TD222966	30	150	57	22	18	21	4	28
M30	× 1.5	TD222976	30	150	57	22	18	21	4	28.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo grosso

Machine taps
Maschinengewindebohrer

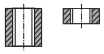
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

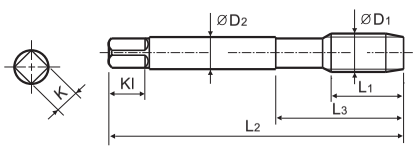
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

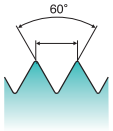
DIN 371

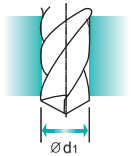
DIN 376

Hole type
3.0×D









Material groups GS | HSS | DIN 371/376 | 2 | 60° | Bright p.B169

Recommended ToolHolder — Plain Shank — Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.161

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	40UNC	TC214162	11	56	18	3.5	2.7	6	3	2.3
#5	40UNC	TC214202	11	56	18	3.5	2.7	6	3	2.6
#6	32UNC	TC214242	12	56	20	4	3	6	3	2.85
#8	32UNC	TC214282	13	63	21	4.5	3.4	6	3	3.5
#10	24UNC	TC214322	15	70	25	6	4.9	8	3	3.9
#12	24UNC	TC214362	16	80	30	6	4.9	8	3	4.5
1/4	20UNC	TC214402	17	80	30	7	5.5	8	3	5.2
5/16	18UNC	TC214442	20	90	35	8	6.2	9	3	6.6
3/8	16UNC	TC214482	22	100	39	9	7	10	3	8
7/16	14UNC	TC214522	22	100	40	8	6.2	9	3	9.4
1/2	13UNC	TC214562	25	110	44	9	7	10	3	10.75
9/16	12UNC	TC214602	26	110	44	11	9	12	3	12.25
5/8	11UNC	TC214642	27	110	44	12	9	12	3	13.5
3/4	10UNC	TC214702	30	125	50	14	11	14	4	16.5
7/8	9UNC	TC214742	32	140	54	18	14.5	17	4	19.5
1	8UNC	TC214782	36	160	60	20	16	19	4	22.25
1-1/8	7UNC	TC214822	40	180	70	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

T SERIES

N Unified fine threads

Unified Feingewinde
UNF
Unificato passo fine

Machine taps
Maschinengewindebohrer

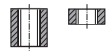
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

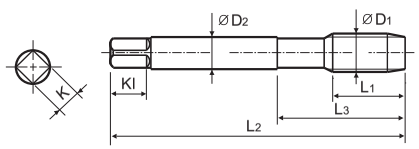
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

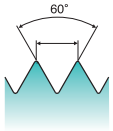
DIN 371

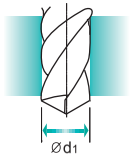
DIN 374

Hole type
3.0×D









Material groups GS | HSS | DIN 371/37 | 2 | 60° | Bright p.B169

Recommended ToolHolder — Plain Shank — Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.161

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	TC234182	11	56	18	3.5	2.7	6	3	2.4
#5	44UNF	TC234222	11	56	18	3.5	2.7	6	3	2.7
#6	40UNF	TC234262	12	56	20	4	3	6	3	3
#8	36UNF	TC234302	13	63	21	4.5	3.4	6	3	3.5
#10	32UNF	TC234342	15	70	25	6	4.9	8	3	4.1
#12	28UNF	TC234382	16	80	30	6	4.9	8	3	4.7
1/4	28UNF	TC234422	17	80	30	7	5.5	8	3	5.5
5/16	24UNF	TC234462	17	90	35	8	6.2	9	3	6.9
3/8	24UNF	TC234502	18	100	39	9	7	10	3	8.5
7/16	20UNF	TC234542	22	100	40	8	6.2	9	3	9.9
1/2	20UNF	TC234582	22	100	40	9	7	10	3	11.5
9/16	18UNF	TC234622	22	100	40	11	9	12	3	12.9
5/8	18UNF	TC234662	22	100	40	12	9	12	3	14.5
3/4	16UNF	TC234722	25	110	44	14	11	14	4	17.5
7/8	14UNF	TC234762	26	125	50	18	14.5	17	4	20.5
1	12UNF	TC234802	28	140	54	18	14.5	17	4	23.25
1-1/8	12UNF	TC234842	30	150	60	22	18	21	4	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

S Whitworth threads

Whitworth Gewinde
BSW
Filettatura Whitworth

Machine taps
Maschinengewindebohrer

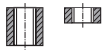
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

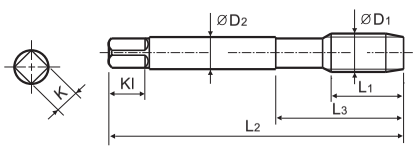
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

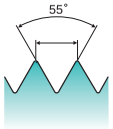
DIN 2182

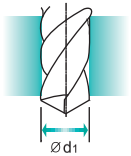
DIN 2183

Hole type 3.0×D









Material groups GS HSS DIN 21 2/21 3 Bright p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
W1/8	40	TC224200	11	56	18	3.5	2.7	6	3	2.5
W5/32	32	TC224280	13	63	21	4.5	3.4	6	3	3.1
W3/16	24	TC224320	15	70	25	6	4.9	8	3	3.6
W7/32	24	TC224360	16	80	30	6	4.9	8	3	4.4
W1/4	20	TC224400	17	80	30	7	5.5	8	3	5.1
W5/16	18	TC224440	20	90	35	8	6.2	9	3	6.5
W3/8	16	TC224480	22	100	39	9	7	10	3	7.9
W7/16	14	TC224520	22	100	40	8	6.2	9	3	9.3
W1/2	12	TC224560	25	110	44	9	7	10	3	10.5
W9/16	12	TC224600	26	110	44	11	9	12	3	12
W5/8	11	TC224640	27	110	44	12	9	12	3	13.5
W3/4	10	TC224700	30	125	50	14	11	14	4	16.5
W7/8	9	TC224740	32	140	54	18	14.5	17	4	19.25
W1	8	TC224780	36	160	60	20	16	19	4	22
W1-1/8	7	TC224820	40	180	65	22	18	21	4	24.75

▶DIN 2182(W1/8~W3/8) and DIN 2183(W7/16~W1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

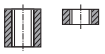
Machine taps
Maschinengewindebohrer

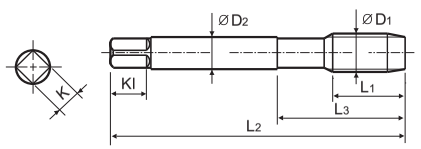
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

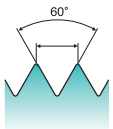
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

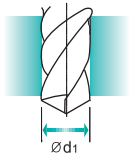
DIN 376

Hole type 3.0×D









Material groups GS HSS DIN 376 6H 60° Bright p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M3	× 0.5	TC227206	11	56	18	2.2	1.8	5	3	2.5
M3.5	× 0.6	TC227226	12	56	20	2.5	2.1	5	3	2.9
M4	× 0.7	TC227246	13	63	21	2.8	2.1	5	3	3.3
M4.5	× 0.75	TC227266	14	70	25	3.5	2.7	6	3	3.7
M5	× 0.8	TC227286	15	70	25	3.5	2.7	6	3	4.2
M6	× 1	TC227316	17	80	30	4.5	3.4	6	3	5
M7	× 1	TC227346	17	80	30	5.5	4.3	7	3	6
M8	× 1.25	TC227366	20	90	36	6	4.9	8	3	6.8
M9	× 1.25	TC227396	20	90	36	7	5.5	8	3	7.8
M10	× 1.5	TC227426	22	100	40	7	5.5	8	3	8.5
M11	× 1.5	TC227466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC227506	24	110	44	9	7	10	3	10.2
M14	× 2	TC227546	26	110	44	11	9	12	3	12
M16	× 2	TC227606	27	110	44	12	9	12	3	14
M18	× 2.5	TC227656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC227706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC227746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC227786	34	160	60	18	14.5	17	4	21
M27	× 3	TC227866	36	160	60	20	16	19	4	24
M30	× 3.5	TC227946	40	180	70	22	18	21	4	26.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

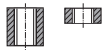
Machine taps
Maschinengewindebohrer

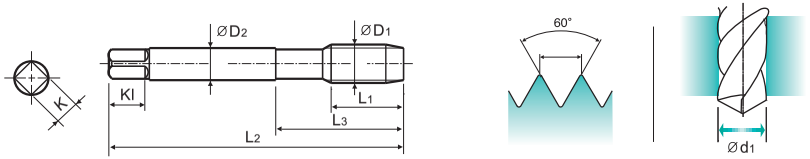
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 376

Hole type
3.0×D





Material groups GS | HSS | DIN 376 | 6H | 60° | TiN | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.161

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TD227206	11	56	18	2.2	1.8	5	3	2.5
M3.5	× 0.6	TD227226	12	56	20	2.5	2.1	5	3	2.9
M4	× 0.7	TD227246	13	63	21	2.8	2.1	5	3	3.3
M4.5	× 0.75	TD227266	14	70	25	3.5	2.7	6	3	3.7
M5	× 0.8	TD227286	15	70	25	3.5	2.7	6	3	4.2
M6	× 1	TD227316	17	80	30	4.5	3.4	6	3	5
M7	× 1	TD227346	17	80	30	5.5	4.3	7	3	6
M8	× 1.25	TD227366	20	90	36	6	4.9	8	3	6.8
M9	× 1.25	TD227396	20	90	36	7	5.5	8	3	7.8
M10	× 1.5	TD227426	22	100	40	7	5.5	8	3	8.5
M11	× 1.5	TD227466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD227506	24	110	44	9	7	10	3	10.2
M14	× 2	TD227546	26	110	44	11	9	12	3	12
M16	× 2	TD227606	27	110	44	12	9	12	3	14
M18	× 2.5	TD227656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TD227706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TD227746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TD227786	34	160	60	18	14.5	17	4	21
M27	× 3	TD227866	36	160	60	20	16	19	4	24
M30	× 3.5	TD227946	40	180	70	22	18	21	4	26.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

G TA GENE AL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

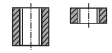
▶ Left spiral flute and right hand thread tap to push chips ahead in powerful than spiral point taps.

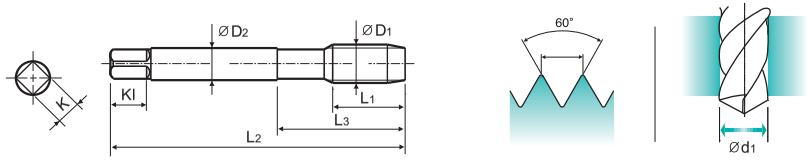
▶ Rechtsschneidender Gewindebohrer mit Linksdrall um kraftvoller nach vorne zu entspanen als mit Gewindebohrern mit Rechtsdrall.

DIN 371

DIN 376

Hole type
3.0×D





Material groups GS | HSS | DIN 371/376 | 6H | 60° | C | Bright | L2 | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.161

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC211136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC211156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC211196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC211176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC211496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC211206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC211226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC211246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC211266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC211286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC211316	17	80	30	6	4.9	8	3	5
M7	× 1	TC211346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC211366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC211396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC211426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC211466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC211506	24	110	44	9	7	10	3	10.2
M14	× 2	TC211546	26	110	44	11	9	12	3	12
M16	× 2	TC211606	27	110	44	12	9	12	3	14
M18	× 2.5	TC211656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC211706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC211746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC211786	34	160	60	18	14.5	17	4	21
M27	× 3	TC211866	36	160	60	20	16	19	4	24
M30	× 3.5	TC211946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T 6 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

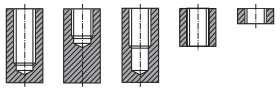
▶ Suitable for tapping shallow holes and the blind holes having enough chip space at the bottom of holes.

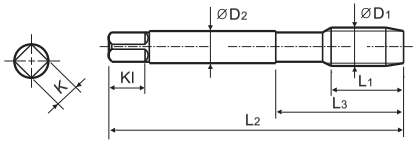
▶ Geeignet zum Schneiden von kurzem Durchgangsgewinde und in Sacklöchern mit ausreichendem Raum für Späne am Bohrungsgrund.

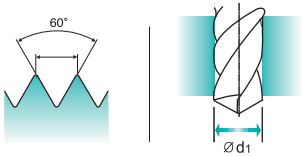
DIN 371

DIN 376

Hole type
2.0×D







Material groups GS | HSS | DIN 371/376 | 6H | 60° | C | Bright p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC463136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC463156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC463196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC463176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC463496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC463206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC463226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC463246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC463266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC463286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC463316	17	80	30	6	4.9	8	3	5
M7	× 1	TC463346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC463366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC463396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC463426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC463466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC463506	24	110	44	9	7	10	3	10.2
M14	× 2	TC463546	26	110	44	11	9	12	3	12
M16	× 2	TC463606	27	110	44	12	9	12	3	14
M18	× 2.5	TC463656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC463706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC463746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC463786	34	160	60	18	14.5	17	4	21
M27	× 3	TC463866	36	160	60	20	16	19	4	24
M30	× 3.5	TC463946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○				○	○		○	○	○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

G TA GENE AL

T SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

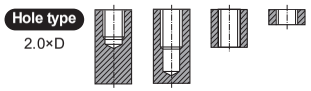
Machine taps
Maschinengewindebohrer

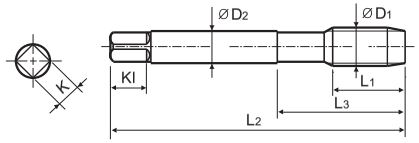
▶ Suitable for tapping shallow holes.

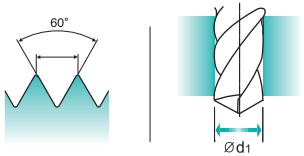
▶ Geeignet zum Gewindeschneiden flacher Sacklöcher.

DIN 374

Hole type
2.0×D







Material groups GS | HSS | DIN 37 | 6H | 60° | C | Bright p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC473256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC473296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC473326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC473336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC473356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC473376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC473386	14	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC473936	14	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC473436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC473446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC473456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC473516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC473526	22	100	40	9	7	10	3	10.8
M12	× 1	TC473536	18	100	40	9	7	10	3	11
M14	× 1.5	TC473556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC473566	22	100	40	11	9	12	3	12.8
M14	× 1	TC473576	18	100	40	11	9	12	3	13
M16	× 1.5	TC473616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TC473676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TC473726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TC473766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC473806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○				○	○		○	○	○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

N — Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

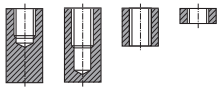
▶ Suitable for tapping shallow holes.

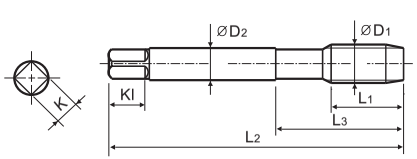
▶ Geeignet zum Gewindeschneiden flacher Sacklöcher.

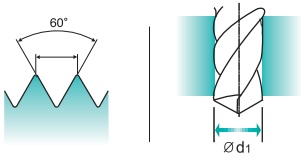
DIN 371

DIN 376

Hole type
2.0×D







Material groups **GS** | HSS | DIN 371/376 | 2 | 60° | C | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.161

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4 -	40UNC	TC424162	11	56	18	3.5	2.7	6	3	2.3
#5 -	40UNC	TC424202	11	56	18	3.5	2.7	6	3	2.6
#6 -	32UNC	TC424242	12	56	20	4	3	6	3	2.85
#8 -	32UNC	TC424282	13	63	21	4.5	3.4	6	3	3.5
#10 -	24UNC	TC424322	15	70	25	6	4.9	8	3	3.9
#12 -	24UNC	TC424362	16	80	30	6	4.9	8	3	4.5
1/4 -	20UNC	TC424402	17	80	30	7	5.5	8	3	5.2
5/16 -	18UNC	TC424442	20	90	35	8	6.2	9	3	6.6
3/8 -	16UNC	TC424482	22	100	39	9	7	10	3	8
7/16 -	14UNC	TC424522	22	100	40	8	6.2	9	3	9.4
1/2 -	13UNC	TC424562	25	110	44	9	7	10	3	10.75
9/16 -	12UNC	TC424602	26	110	44	11	9	12	3	12.25
5/8 -	11UNC	TC424642	27	110	44	12	9	12	3	13.5
3/4 -	10UNC	TC424702	30	125	50	14	11	14	4	16.5
7/8 -	9UNC	TC424742	32	140	54	18	14.5	17	4	19.5
1 -	8UNC	TC424782	36	160	60	20	16	19	4	22.25
1-1/8 -	7UNC	TC424822	40	180	70	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1- 1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○				○	○		○	○	○	○		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

G TA GENE AL

T 0 SERIES

M — ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

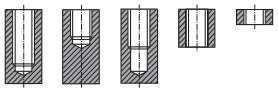
Sets of taps
Gewindebohrer -Satz

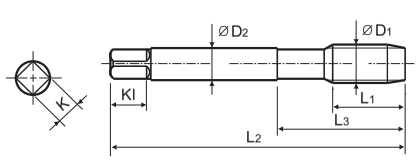
▶ This tap is a serial hand tap in set, First, Second and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

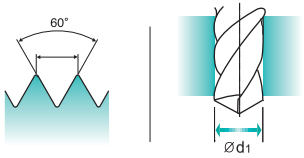
▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden

First
Second
Bottoming

Hole type
2.0×D







Material groups **GS** | HSS | DIN 3 2 | 6H | 60° | I/II/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	T7109139	8	36	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	T7109159	9	36	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	T7109199	9	36	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	T7109179	9	40	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	T7109499	9	40	15	2.8	2.1	5	3	2.1
M3	× 0.5	T7109209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	T7109229	13	45	21	4	3	6	3	2.9
M4	× 0.7	T7109249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	T7109269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	T7109289	16	52	26	6	4.9	8	3	4.2
M5.5	× 0.9	T7109N69	18	56	27	6	4.9	8	3	4.6
M6	× 1	T7109319	18	56	27	6	4.9	8	3	5
M7	× 1	T7109349	18	56	28.5	6	4.9	8	3	6
M8	× 1.25	T7109369	20	63	34	6	4.9	8	3	6.8
M9	× 1.25	T7109399	20	63	34	7	5.5	8	4	7.8
M10	× 1.5	T7109429	22	70	38	7	5.5	8	4	8.5
M11	× 1.5	T7109469	22	70	38	8	6.2	9	4	9.5
M12	× 1.75	T7109509	24	80	45	9	7	10	4	10.2
M14	× 2	T7109549	26	80	45	11	9	12	4	12
M16	× 2	T7109609	27	80	45	12	9	12	4	14
M18	× 2.5	T7109659	30	95	58	14	11	14	4	15.5
M20	× 2.5	T7109709	32	95	58	16	12	15	4	17.5

▶*DIN profile not ISO

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○			○	○									○	○		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T 0 SERIES

M ISO metric coarse threads DIN 13

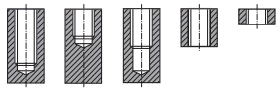
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

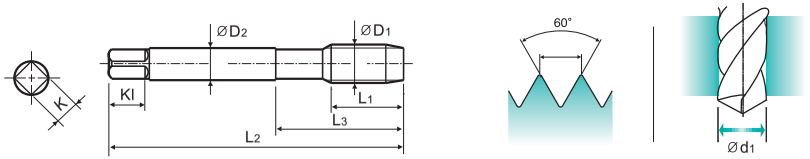
Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type
2.0×D





Material groups GS | HSS | DIN 3 2 | 6H | 60° | I/II/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M22	× 2.5	T7109749	32	100	62	18	14.5	17	4	19.5
M24	× 3	T7109789	34	110	69	18	14.5	17	4	21
M27	× 3	T7109869	36	110	69	20	16	19	4	24
M30	× 3.5	T7109949	40	125	77	22	18	21	4	26.5
M33	× 3.5	T7109A49	40	125	77	25	20	23	4	29.5
M36	× 4	T7109B39	50	150	88	28	22	25	4	32
M39	× 4	T7109C09	50	150	88	32	24	27	4	35
M42	× 4.5	T7109C89	56	150	88	32	24	27	4	37.5
M45	× 4.5	T7109D59	58	160	93	36	29	32	4	40.5
M48	× 5	T7109E29	65	180	102	36	29	32	4	43
M52	× 5	T7109F39	65	180	102	40	32	35	4	47

▶*DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

G TA GENE AL

T 0 SERIES

M ISO metric fine threads DIN 13

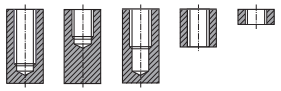
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

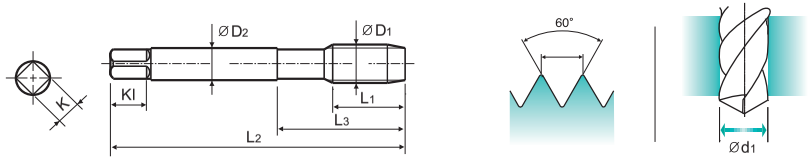
Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Handgewindebohrersatz mit Vor- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type
2.0×D





Material groups GS | HSS | DIN 21 1 | 6H | 60° | I/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.35	T7309219	9	40	18	3.5	2.7	6	3	2.65
M4	× 0.5	T7309259	10	45	18	4.5	3.4	6	3	3.5
M5	× 0.5	T7309299	13	52	22	6	4.9	8	3	4.5
M6	× 0.75	T7309329	14	56	24	6	4.9	8	3	5.2
M6	× 0.5	T7309339	13	56	24	6	4.9	8	3	5.5
M7	× 0.75	T7309359	14	56	27	6	4.9	8	3	6.2
M8	× 1	T7309379	17	63	27	6	4.9	8	3	7
M8	× 0.75	T7309389	14	63	27	6	4.9	8	3	7.2
M8	× 0.5	T7309939	14	63	27	6	4.9	8	3	7.5
M9	× 1	T7309409	17	63	27	7	5.5	8	4	8
M10	× 1.25	T7309439	22	70	32	7	5.5	8	4	8.8
M10	× 1	T7309449	18	63	27	7	5.5	8	4	9
M10	× 0.75	T7309459	18	63	27	7	5.5	8	4	9.2
M11	× 1	T7309479	18	63	27	8	6.2	9	4	10
M12	× 1.5	T7309519	20	70	32	9	7	10	4	10.5
M12	× 1.25	T7309529	20	70	32	9	7	10	4	10.8
M12	× 1	T7309539	18	70	32	9	7	10	4	11
M13	× 1.5	T7309N19	20	70	32	11	9	12	4	11.5
M13	× 1	T7309N29	18	70	32	11	9	12	4	12
M14	× 1.5	T7309559	20	70	32	11	9	12	4	12.5
M14	× 1.25	T7309569	20	70	32	11	9	12	4	12.8
M14	× 1	T7309579	18	70	32	11	9	12	4	13
M15	× 1.5	T7309589	20	70	32	12	9	12	4	13.5
M15	× 1	T7309599	18	70	32	12	9	12	4	14
M16	× 1.5	T7309619	20	70	32	12	9	12	4	14.5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T 0 SERIES

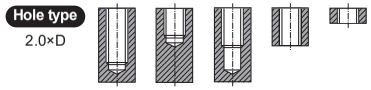
M — ISO metric fine threads DIN 13

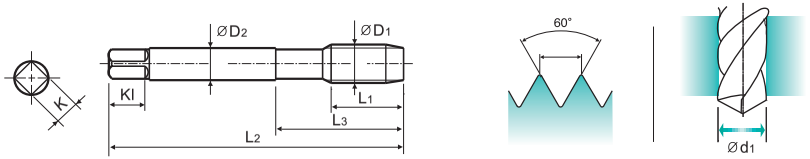
Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Handgewindebohrersatz mit Vor- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.





Material groups **GS** | HSS | DIN 21 1 | 6H | 60° | I/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M16	× 1	T7309629	18	70	32	12	9	12	4	15
M18	× 2	T7309669	22	80	35	14	11	14	4	16
M18	× 1.5	T7309679	22	80	35	14	11	14	4	16.5
M18	× 1	T7309689	18	80	35	14	11	14	4	17
M20	× 2	T7309719	22	80	35	16	12	15	4	18
M20	× 1.5	T7309729	22	80	35	16	12	15	4	18.5
M20	× 1	T7309739	18	80	35	16	12	15	4	19
M22	× 2	T7309759	22	80	35	18	14.5	17	4	20
M22	× 1.5	T7309769	22	80	35	18	14.5	17	4	20.5
M22	× 1	T7309779	18	80	35	18	14.5	17	4	21
M24	× 2	T7309799	22	90	40	18	14.5	17	4	22
M24	× 1.5	T7309809	22	90	40	18	14.5	17	4	22.5
M24	× 1	T7309819	18	90	40	18	14.5	17	4	23
M25	× 1.5	T7309839	22	90	40	18	14.5	17	4	23.5
M25	× 1	T7309849	18	90	40	18	14.5	17	4	24
M26	× 1.5	T7309859	22	90	40	18	14.5	17	4	24.5
M26	× 1	T7309N59	18	90	40	18	14.5	17	4	25
M27	× 2	T7309879	22	90	40	20	16	19	4	25
M27	× 1.5	T7309889	22	90	40	20	16	19	4	25.5
M27	× 1	T7309899	18	90	40	20	16	19	4	26
M28	× 2	T7309909	22	90	40	20	16	19	4	26
M28	× 1.5	T7309919	22	90	40	20	16	19	4	26.5
M30	× 2	T7309969	22	90	40	22	18	21	4	28
M30	× 1.5	T7309979	22	90	40	22	18	21	4	28.5
M30	× 1	T7309989	18	90	40	22	18	21	4	29

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

G TA GENE AL

T 6 SERIES

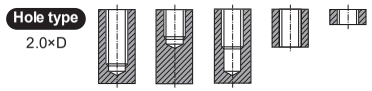
N — Unified coarse threads

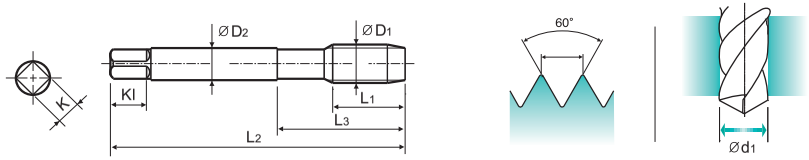
Unified Grobgewinde
UNC
Unificato passo grosso

Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.





Material groups **GS** | HSS | DIN 3 1 | 2 | 60° | I/II/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1		TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#2	-	56UNC	T7363089	9	36	13	2.8	2.1	5	3	1.8
#3	-	48UNC	T7363129	10	40	15	2.8	2.1	5	3	2.1
#4	-	40UNC	T7363169	10	42	18	3.5	2.7	6	3	2.3
#5	-	40UNC	T7363209	10	42	18	3.5	2.7	6	3	2.6
#6	-	32UNC	T7363249	11	45	18	4	3	6	3	2.85
#8	-	32UNC	T7363289	12	48	23	4.5	3.4	6	3	3.5
#10	-	24UNC	T7363329	14	52	26	6	4.9	6	3	3.9
#12	-	24UNC	T7363369	16	56	27	6	4.9	8	3	4.5
1/4	-	20UNC	T7363409	16	56	27	6	4.9	8	3	5.2
5/16	-	18UNC	T7363449	20	63	34	6	4.9	8	3	6.6
3/8	-	16UNC	T7363489	22	70	38	7	5.5	8	4	8
7/16	-	14UNC	T7363529	22	70	38	8	6.2	9	4	9.4
1/2	-	13UNC	T7363569	25	80	45	9	7	10	4	10.75
9/16	-	12UNC	T7363609	26	80	45	11	9	12	4	12.25
5/8	-	11UNC	T7363649	27	90	55	12	9	12	4	13.5
3/4	-	10UNC	T7363709	32	105	65	14	11	14	4	16.5
7/8	-	9UNC	T7363749	32	110	69	18	14.5	17	4	19.5
1	-	8UNC	T7363789	36	110	69	20	16	19	4	22.25
1-1/8	-	7UNC	T7363829	40	125	77	22	18	21	4	25
1-1/4	-	7UNC	T7363869	40	125	77	25	20	23	4	28.25
1-1/8	-	6UNC	T7363909	50	150	88	28	22	25	4	30.75
1-1/2	-	6UNC	T7363949	50	150	88	32	24	27	4	34
1-3/4	-	5UNC	T7363B89	58	160	93	36	29	32	4	39.5
2	-	4½UNC	T7363D29	65	180	102	40	32	35	4	45.25

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T 0 SERIES

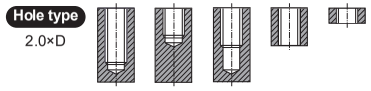
N — Unified fine threads

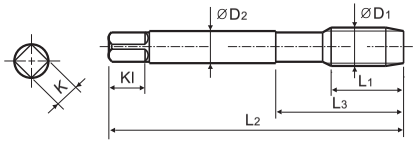
- Unified Feingewinde
- UNF
- Unificato passo fine

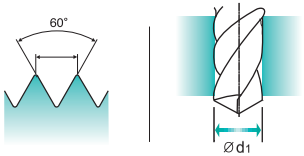
Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Handgewindebohrersatz mit Vor- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.







Material groups **GS** | HSS | DIN 21 1 | 2 | 60° | I/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 48 UNF	T7509189	10	42	18	3.5	2.7	6	3	2.4
#5	- 44 UNF	T7509229	10	42	18	3.5	2.7	6	3	2.7
#6	- 40 UNF	T7509269	11	45	18	4	3	6	3	3
#8	- 36 UNF	T7509309	12	48	23	4.5	3.4	6	3	3.5
#10	- 32 UNF	T7509349	14	52	22	6	4.9	8	3	4.1
#12	- 28 UNF	T7509389	16	56	24	6	4.9	8	3	4.7
1/4	- 28 UNF	T7509429	16	56	24	6	4.9	8	3	5.5
5/16	- 24 UNF	T7509469	17	63	27	6	4.9	8	3	6.9
3/8	- 24 UNF	T7509509	18	63	27	7	5.5	8	4	8.5
7/16	- 20 UNF	T7509549	20	70	32	8	6.2	9	4	9.9
1/2	- 20 UNF	T7509589	20	70	32	9	7	10	4	11.5
9/16	- 18 UNF	T7509629	20	70	32	11	9	12	4	12.9
5/8	- 18 UNF	T7509669	20	70	32	12	9	12	4	14.5
3/4	- 16 UNF	T7509729	22	80	38	14	11	14	4	17.5
7/8	- 14 UNF	T7509769	22	80	38	18	14.5	17	4	20.5
1	- 12 UNF	T7509809	22	90	40	18	14.5	17	4	23.25
1-1/8	- 12 UNF	T7509849	22	90	40	22	18	21	4	26.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

G TA GENE AL

T 60 SERIES

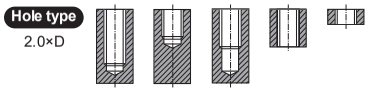
S — Whitworth threads

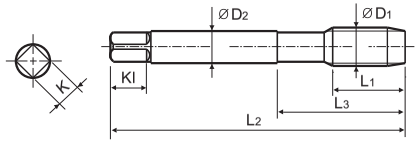
- Whitworth Gewinde
- BSW
- Filettatura Whitworth

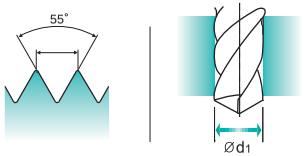
Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.







Material groups **GS** | HSS | DIN 3 1 | I/II/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
W3/32	- 48	T7609129	10	40	15	2.8	2.1	5	3	1.8
W1/8	- 40	T7609209	10	42	18	3.5	2.7	6	3	2.5
W5/32	- 32	T7609289	12	48	23	4.5	3.4	6	3	3.1
W3/16	- 24	T7609329	14	52	26	6	4.9	8	3	3.6
W7/32	- 24	T7609369	16	56	27	6	4.9	8	3	4.4
W1/4	- 20	T7609409	16	56	27	6	4.9	8	3	5.1
W5/16	- 18	T7609449	20	63	34	6	4.9	8	3	6.5
W3/8	- 16	T7609489	22	70	38	7	5.5	8	4	7.9
W7/16	- 14	T7609529	22	70	38	8	6.2	9	4	9.3
W1/2	- 12	T7609569	25	80	45	9	7	10	4	10.5
W9/16	- 12	T7609609	26	80	45	11	9	12	4	12
W5/8	- 11	T7609649	27	90	55	12	9	12	4	13.5
W3/4	- 10	T7609709	32	105	65	14	11	14	4	16.5
W7/8	- 9	T7609749	32	110	69	18	14.5	17	4	19.25
W1	- 8	T7609789	36	110	69	20	16	19	4	22
W1-1/8	- 7	T7609829	40	125	77	22	18	21	4	24.75
W1-1/4	- 7	T7609869	40	125	77	25	20	23	4	27.75
W1-3/8	- 6	T7609909	50	150	88	28	22	25	4	30.5
W1-1/2	- 6	T7609949	50	150	88	32	24	27	4	33.5
W1-5/8	- 5	T7609B29	56	150	88	32	24	27	4	35.5
W1-3/4	- 5	T7609B89	58	160	93	36	29	32	4	39
W1-7/8	- 4½	T7609C69	65	180	102	36	29	32	4	41.5
W2	- 4½	T7609D29	65	180	102	40	32	35	4	44.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

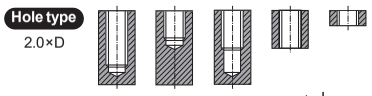
M LH ISO metric coarse threads DIN 13

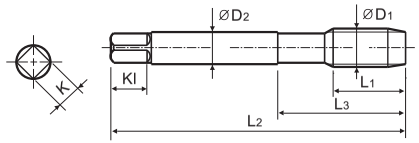
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

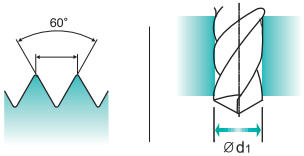
Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.







Material groups **GS** | HSS | DIN 3 2 | 6H | 60° | I/II/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK		D215-220
TAPPING CHUCK		D221-228
ONE STEP TAPPING CHUCK		D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	T7343209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	T7343229	13	45	21	4	3	6	3	2.9
M4	× 0.7	T7343249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	T7343269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	T7343289	16	52	26	6	4.9	8	3	4.2
M6	× 1	T7343319	18	56	27	6	4.9	8	3	5
M8	× 1.25	T7343369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	T7343429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	T7343509	24	80	45	9	7	10	4	10.2
M14	× 2	T7343549	26	80	45	11	9	12	4	12
M16	× 2	T7343609	27	80	45	12	9	12	4	14
M18	× 2.5	T7343659	30	95	58	14	11	14	4	15.5
M20	× 2.5	T7343709	32	95	58	16	12	15	4	17.5
M22	× 2.5	T7343749	32	100	62	18	14.5	17	4	19.5
M24	× 3	T7343789	34	110	69	18	14.5	17	4	21
M27	× 3	T7343869	36	110	69	20	16	19	4	24
M30	× 3.5	T7343949	40	125	77	22	18	21	4	26.5

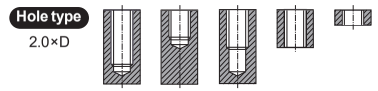
▶ LH=Left hand thread

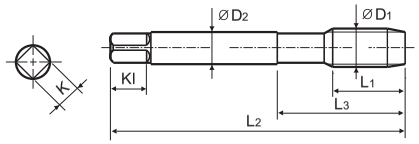
◎ : Excellent ○ : Good

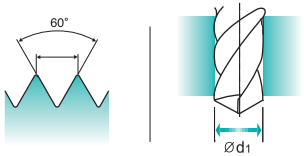
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended					○	○	○														

G TA GENE AL
T SERIES
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Sets of taps
Gewindebohrer-Satz
▶ This tap is a serial hand tap in set, First, Second and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.
▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.







Material groups **GS** | HSS | DIN 3 2 | 6H | 60° | I/II/III | Vap | p.B169

Recommended ToolHolder

	Plain Shank	Page
TAPPING ER CHUCK		D215-220
TAPPING CHUCK		D221-228
ONE STEP TAPPING CHUCK		D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TB373209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB373229	13	45	21	4	3	6	3	2.9
M4	× 0.7	TB373249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB373269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	TB373289	16	52	26	6	4.9	8	3	4.2
M6	× 1	TB373319	18	56	27	6	4.9	8	3	5
M8	× 1.25	TB373369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TB373429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	TB373509	24	80	45	9	7	10	4	10.2
M14	× 2	TB373549	26	80	45	11	9	12	4	12
M16	× 2	TB373609	27	80	45	12	9	12	4	14
M18	× 2.5	TB373659	30	95	58	14	11	14	4	15.5
M20	× 2.5	TB373709	32	95	58	16	12	15	4	17.5

▶ First with pilot guide

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA GENE AL

T SERIES

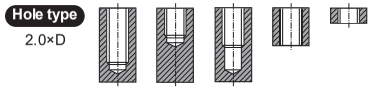
M ISO metric coarse threads DIN 13

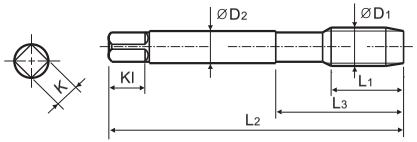
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

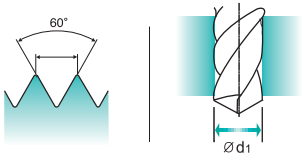
Sets of taps
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only..

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.







Material groups **VG** | HSS | DIN 3 2 | 6H | 60° | I/II/III | Bright | p.B169

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TC353209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC353229	13	45	21	4	3	6	3	2.9
M4	× 0.7	TC353249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC353269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	TC353289	16	52	26	6	4.9	8	3	4.2
M6	× 1	TC353319	18	56	27	6	4.9	8	3	5
M8	× 1.25	TC353369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TC353429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	TC353509	24	80	45	9	7	10	4	10.2
M14	× 2	TC353549	26	80	45	11	9	12	4	12
M16	× 2	TC353609	27	80	45	12	9	12	4	14
M18	× 2.5	TC353659	30	95	58	14	11	14	4	15.5
M20	× 2.5	TC353709	32	95	58	16	12	15	4	17.5

▶ First with pilot guide

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○													

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

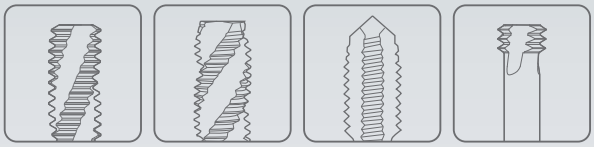
G TA GENE AL

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TC711 TC411 TC144 TC124 TC134	TD711 TD411	TC517 TC612	TC127 TC122 TC222 TC214 TC234 TC224	TD127 TD222	TC227	TD227	TC211	TC463 TC473 TC424
					Vc (m/min)								
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	18-24	12-18	12-18
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10
M	12	Stainless steel	200	15	7-10	10-13	7-10	7-10	10-13	7-10	10-13	7-10	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8
K	15	Grey cast iron	180	10									10-15
	16		260	26									5-8
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8
N	21	Aluminum-wrought alloy	60		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	
	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	
	24		90		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	
	25		130		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	35-40	25-35	25-35
	27		90										8-12
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

Leading Through Innovation

HSS E HSS PM

YG TAP STEEL

YG G S

- **For Steel Materials but also other Long Chip Forming Materials**
- **Für Stahlwerkstoffe, aber auch andere langspanende Werkstoffe**

SELE TION G IDE

YG THREADING TOOLS

HSS-E & HSS-PM
YG TAP STEEL

For Steel Materials but also other Long Chip Forming Materials

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B197

HOLE TYPE			Max. 2.5xD Blind Hole			
TOOL MATERIAL			HSS-PM		HSS-E	
CHAMFER LEAD ACC. TO DIN2197			C	C	C	C
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute
SPIRAL FLUTE ANGLE			R40	R40	R40	R40
SERIES	M	DIN371/376	TQ823 (p.B174)	TR823 (p.B175)	TC312 (p.B176)	TD312 (p.B177)
		DIN352				
		DIN357/LONG				
	MF	DIN374			TC413 (p.B180)	TD413 (p.B181)
		DIN2181				
	UNC	DIN371/376			TC174 (p.B182)	TD174 (p.B183)
		DIN351				
	UNF	DIN371/374			TC184 (p.B184)	
		DIN2181				
	BSW	DIN2182/2183				
		DIN351				
	G(BSP)	DIN5156/5157				
	EG-M	DIN371/376				
	EG-UNC	DIN371/376				
	EG-UNF	DIN371/374				
SURFACE TREATMENT			VAP	Bright	Bright	TiN
MODEL						

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc				
P	1	Non-alloy steel	About 0.15% C	Annealed	125					
	2		About 0.45% C	Annealed	190	13	○	○	○	○
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○	○
	4		About 0.75% C	Annealed	270	28	○	○	○	○
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	○	○	○	○
	7			Quenched & Tempered	275	29	○	○	○	○
	8			Quenched & Tempered	300	32	◎	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○
	11			Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10	○	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10				
	16		Pearlitic (Martensitic)		260	26				
	17	Nodular cast iron	Ferritic		160	3				
	18		Pearlitic		250	25				
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

	Max. 2.5xD Blind Hole			Max. 3.0xD Through Hole					
	HSS-E			HSS-PM		HSS-E			
	C	C	C	B	B	B	B	B	B
	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point
	R40	R40	R40	-	-	-	-	-	-
M	TB312 (p.B178)	TY312 (p.B179)	TB913 (p.B185)	TQ863 (p.B186)	TR863 (p.B187)	TC422 (p.B188)	TD422 (p.B189)	TE422 (p.B190)	TY422 (p.B191)
MF						TC263 (p.B192)	TD263 (p.B193)		
UNC						TC244 (p.B194)	TD244 (p.B195)		
UNF						TC254 (p.B196)			
BSW									
G(BSP)									
EG-M									
EG-UNC									
EG-UNF									
SURFACE TREATMENT	VAP	TiAlN	VAP	VAP	Bright	Bright	TiN	Nitride	TiAlN
MODEL									

ISO	VDI 3323									
P	1									
	2	○	○	○	○	○	○	○	○	○
	3	○	○	○	○	○	○	○	○	○
	4	○	○	○	○	○	○	○	○	○
	5	◎	◎	◎	◎	◎	◎	◎	◎	◎
	6	○	○	○	○	○	○	○	○	○
	7	○	○	○	○	○	○	○	○	○
	8	◎	◎	◎	◎	◎	◎	◎	◎	◎
	9	◎	◎	◎	◎	◎	◎	◎	◎	◎
	10	○	○	○	○	○	○	○	○	○
	11									
M	12				○	○	○	○	○	○
	13				○	○	○	○	○	○
	14	○	○	○	○	○	○	○	○	○
K	15									
	16									
	17									
	18									
	19									
	20									
N	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									
S	31	○	○	○	○	○	○	○	○	○
	32									
	33									
	34									
	35									
	36	○	○	○	○	○	○	○	○	○
	37									
H	38									
	39									
	40									
	41									

G TA STEEL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

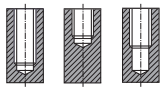
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

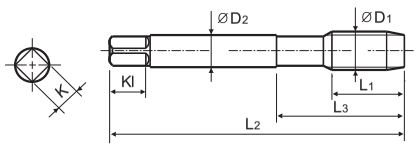
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

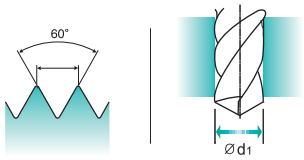
DIN 371

DIN 376

Hole type
2.5×D







Material groups VG | HSS PM | DIN 371/376 | 6H | 60° | C | R40 | Vap | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TQ823136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ823156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ823176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ823206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ823226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ823246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ823266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ823286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ823316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ823346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ823366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ823426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ823506	18	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TR SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

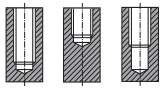
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

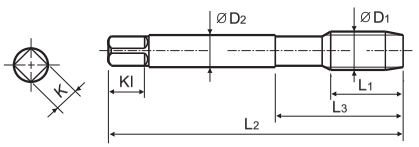
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

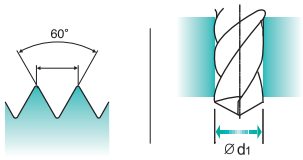
DIN 371

DIN 376

Hole type
2.5×D







Material groups VG | HSS PM | DIN 371/376 | 6H | 60° | C | R40 | Bright | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TR823136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR823156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR823176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR823206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR823226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TR823246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR823266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR823286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TR823316	10	80	30	6	4.9	8	3	5
M7	× 1	TR823346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TR823366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR823426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TR823506	18	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

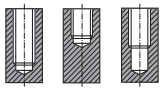
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

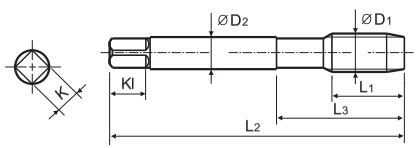
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

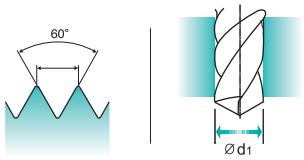
DIN 371

DIN 376

Hole type
2.5×D







Material groups VG | HSS | DIN 371/376 | 6H | 60° | C | R40 | Bright | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC312316	10	80	30	6	4.9	8	3	5
M7	× 1	TC312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC312506	18	110	44	9	7	10	3	10.2
M14	× 2	TC312546	20	110	44	11	9	12	3	12
M16	× 2	TC312606	20	110	44	12	9	12	3	14
M18	× 2.5	TC312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC312786	30	160	60	18	14.5	17	4	21
M27	× 3	TC312866	30	160	60	20	16	19	4	24
M30	× 3.5	TC312946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

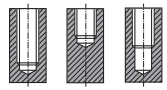
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

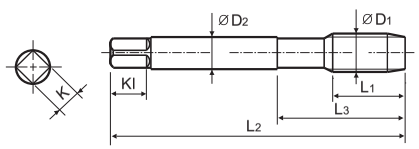
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

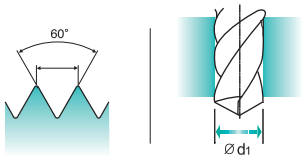
DIN 371

DIN 376

Hole type
2.5×D







Material groups VG | HSS | DIN 371/376 | 6H | 60° | C | R40 | Bright | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TD312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TD312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TD312316	10	80	30	6	4.9	8	3	5
M7	× 1	TD312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TD312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TD312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TD312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD312506	18	110	44	9	7	10	3	10.2
M14	× 2	TD312546	20	110	44	11	9	12	3	12
M16	× 2	TD312606	20	110	44	12	9	12	3	14
M18	× 2.5	TD312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TD312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TD312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TD312786	30	160	60	18	14.5	17	4	21
M27	× 3	TD312866	30	160	60	20	16	19	4	24
M30	× 3.5	TD312946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

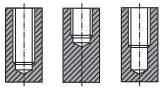
▶ Suitable for threading blind holes due to excellent chip evacuation of tempered steels or similar work materials.

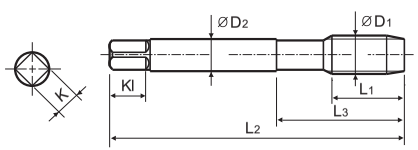
▶ Geeignet zum Gewinden von Sacklöchern dank ausgezeichneter Spanabfuhr von angelassenen Stählen oder ähnlichen Werkstoffen.

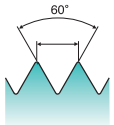
DIN 371

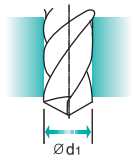
DIN 376

Hole type
2.5×D









Material groups VG | HSS | DIN 371/376 | 6H | 60° | C | R40 | Vap | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TB312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB312316	10	80	30	6	4.9	8	3	5
M7	× 1	TB312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB312466	17	100	40	8	6.2	12	3	9.5
M12	× 1.75	TB312506	18	110	44	9	7	10	3	10.2
M14	× 2	TB312546	20	110	44	11	9	12	3	12
M16	× 2	TB312606	20	110	44	12	9	12	3	14
M18	× 2.5	TB312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB312786	30	160	60	18	14.5	17	4	21
M27	× 3	TB312866	30	160	60	20	16	19	4	24
M30	× 3.5	TB312946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TY SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

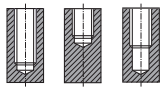
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

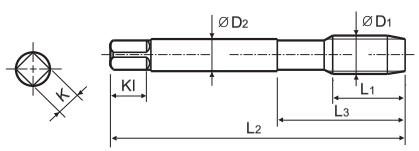
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

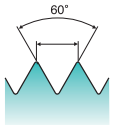
DIN 371

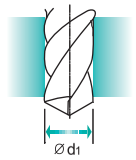
DIN 376

Hole type
2.5×D









Material groups VG | HSS | DIN 371/376 | 6H | 60° | C | R40 | TiAlN | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. TiAlN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TY312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TY312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TY312316	10	80	30	6	4.9	8	3	5
M7	× 1	TY312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TY312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TY312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TY312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY312506	18	110	44	9	7	10	3	10.2
M14	× 2	TY312546	20	110	44	11	9	12	3	12
M16	× 2	TY312606	20	110	44	12	9	12	3	14
M18	× 2.5	TY312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TY312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TY312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TY312786	30	160	60	18	14.5	17	4	21
M27	× 3	TY312866	30	160	60	20	16	19	4	24
M30	× 3.5	TY312946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

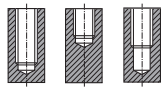
Machine taps
Maschinengewindebohrer

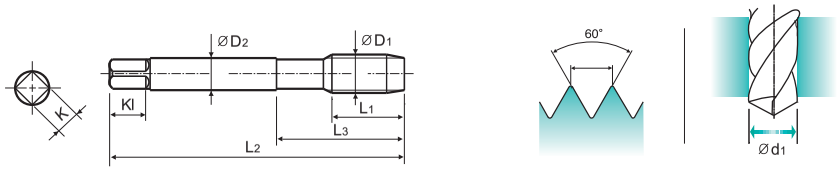
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 374

Hole type
2.5×D





Material groups VG | HSS | DIN 37 | 6H | 60° | C | R40 | Bright | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC413256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC413296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC413326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC413336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC413356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC413376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TC413386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TC413436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TC413446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TC413456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC413516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TC413526	15	100	40	9	7	10	3	10.8
M12	× 1	TC413536	11	100	40	9	7	10	3	11
M14	× 1.5	TC413556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC413566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TC413616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TC413676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TC413726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TC413766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC413806	20	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TD SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

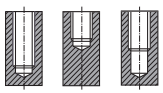
Machine taps
Maschinengewindebohrer

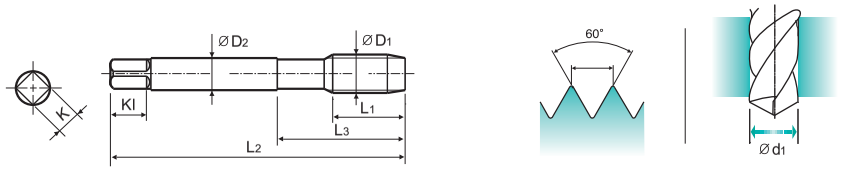
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 374

Hole type
2.5×D





Material groups VG | HSS | DIN 37 | 6H | 60° | C | R40 | TiN | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TD413256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD413296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD413326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD413336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD413356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD413376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TD413386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TD413436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TD413446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TD413456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD413516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TD413526	15	100	40	9	7	10	3	10.8
M12	× 1	TD413536	11	100	40	9	7	10	3	11
M14	× 1.5	TD413556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TD413566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TD413616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TD413676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TD413726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TD413766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TD413806	20	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T SERIES

N Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

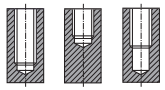
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

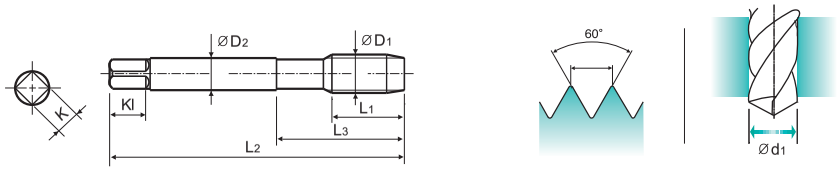
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups **VG** | HSS | DIN 371/376 | 2 | 60° | C | R40 | Bright | p.B197

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	40UNC	TC174162	6	56	18	3.5	2.7	6	3	2.3
#5	40UNC	TC174202	7	56	18	3.5	2.7	6	3	2.6
#6	32UNC	TC174242	7	56	20	4	3	6	3	2.85
#8	32UNC	TC174282	8	63	21	4.5	3.4	6	3	3.5
#10	24UNC	TC174322	10	70	25	6	4.9	8	3	3.9
#12	24UNC	TC174362	10	80	30	6	4.9	8	3	4.5
1/4	20UNC	TC174402	13	80	30	7	5.5	8	3	5.2
5/16	18UNC	TC174442	14	90	35	8	6.2	9	3	6.6
3/8	16UNC	TC174482	16	100	39	9	7	10	3	8
7/16	14UNC	TC174522	17	100	40	8	6.2	9	3	9.4
1/2	13UNC	TC174562	20	110	44	9	7	10	3	10.75
9/16	12UNC	TC174602	20	110	44	11	9	12	3	12.25
5/8	11UNC	TC174642	22	110	44	12	9	12	3	13.5
3/4	10UNC	TC174702	25	125	50	14	11	14	4	16.5
7/8	9UNC	TC174742	27	140	54	18	14.5	17	4	19.5
1	8UNC	TC174782	30	160	60	20	16	19	4	22.25
1-1/8	7UNC	TC174822	35	180	65	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TD SERIES

N Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

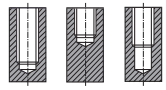
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

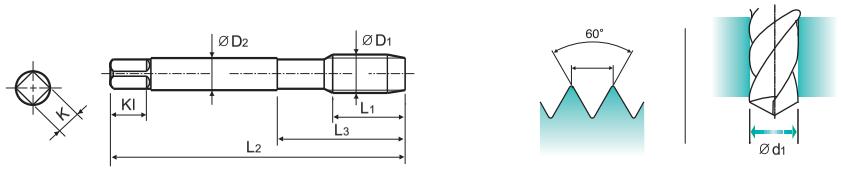
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups **VG** | HSS | DIN 371/376 | 2 | 60° | C | R40 | TiN | p.B197

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	40UNC	TD174162	6	56	18	3.5	2.7	6	3	2.3
#5	40UNC	TD174202	7	56	18	3.5	2.7	6	3	2.6
#6	32UNC	TD174242	7	56	20	4	3	6	3	2.85
#8	32UNC	TD174282	8	63	21	4.5	3.4	6	3	3.5
#10	24UNC	TD174322	10	70	25	6	4.9	8	3	3.9
#12	24UNC	TD174362	10	80	30	6	4.9	8	3	4.5
1/4	20UNC	TD174402	13	80	30	7	5.5	8	3	5.2
5/16	18UNC	TD174442	14	90	35	8	6.2	9	3	6.6
3/8	16UNC	TD174482	16	100	39	9	7	10	3	8
7/16	14UNC	TD174522	17	100	40	8	6.2	9	3	9.4
1/2	13UNC	TD174562	20	110	44	9	7	10	3	10.75
9/16	12UNC	TD174602	20	110	44	11	9	12	3	12.25
5/8	11UNC	TD174642	22	110	44	12	9	12	3	13.5
3/4	10UNC	TD174702	25	125	50	14	11	14	4	16.5
7/8	9UNC	TD174742	27	140	54	18	14.5	17	4	19.5
1	8UNC	TD174782	30	160	60	20	16	19	4	22.25
1-1/8	7UNC	TD174822	35	180	65	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T SERIES

N Unified fine threads

- Unified Feingewinde
- UNF
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

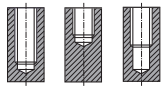
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

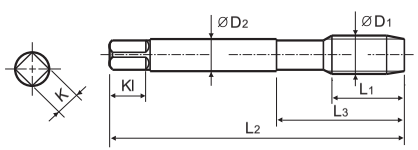
▶ Geeignet zum Gewinden von Sacklöchem dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

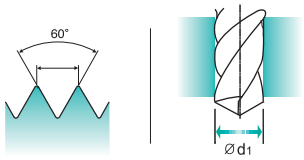
DIN 371

DIN 374

Hole type
2.5×D







Material groups **VG** | HSS | DIN 371/37 | 2 | 60° | C | R40 | Bright | p.B197

Recommended ToolHolder: Plain Shank — TAPPING ER CHUCK D215-220; TAPPING CHUCK D221-228; ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 48UNF	TC184182	6	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TC184222	7	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TC184262	7	56	20	4	3	6	3	3
#8	- 36UNF	TC184302	8	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TC184342	10	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TC184382	10	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TC184422	10	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TC184462	10	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TC184502	10	100	39	9	7	10	3	8.5
7/16	- 20UNF	TC184542	13	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TC184582	13	100	40	9	7	10	3	11.5
9/16	- 18UNF	TC184622	15	100	40	11	9	12	3	12.9
5/8	- 18UNF	TC184662	15	100	40	12	9	12	3	14.5
3/4	- 16UNF	TC184722	17	110	44	14	11	14	4	17.5
7/8	- 14UNF	TC184762	17	125	50	18	14.5	17	4	20.5
1	- 12UNF	TC184802	20	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TC184842	22	150	60	22	18	21	4	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

T SERIES

M ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

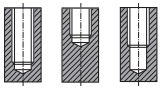
▶ With recessed threads for machine tapping of deep blind holes.
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

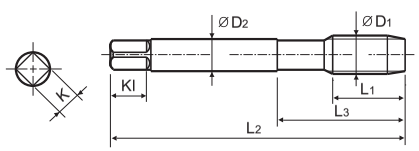
▶ Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

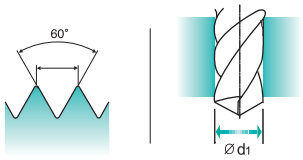
DIN 371

DIN 376

Hole type
2.5×D







Material groups **VG** | HSS | DIN 371/376 | 6H | 60° | C | R40 | Vap | p.B197

Recommended ToolHolder: Plain Shank — TAPPING ER CHUCK D215-220; TAPPING CHUCK D221-228; ONE STEP TAPPING CHUCK D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TB913136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB913156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB913196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB913176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB913496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB913206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB913226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB913246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB913266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB913286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB913316	10	80	30	6	4.9	8	3	5
M7	× 1	TB913346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB913366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB913396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB913426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB913466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB913506	18	110	44	9	7	10	3	10.2
M14	× 2	TB913546	20	110	44	11	9	12	3	12
M16	× 2	TB913606	20	110	44	12	9	12	3	14
M18	× 2.5	TB913656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB913706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB913746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB913786	30	160	60	18	14.5	17	4	21
M27	× 3	TB913866	30	160	60	20	16	19	4	24
M30	× 3.5	TB913946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○				○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T 6 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

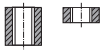
▶ Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

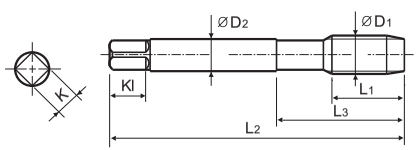
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

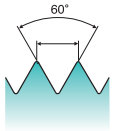
DIN 371

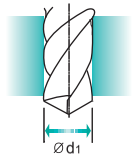
DIN 376

Hole type
3.0×D









Material groups: VG | HSS PM | DIN 371/376 | 6H | 60° | Vap | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.189

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TQ863136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ863156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ863176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ863206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ863226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ863246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ863266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ863286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ863316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ863346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ863366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ863426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ863506	24	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TR 6 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

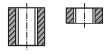
▶ Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

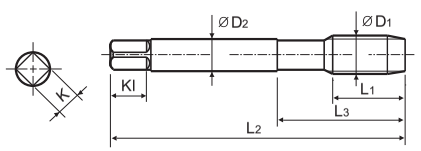
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

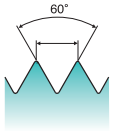
DIN 371

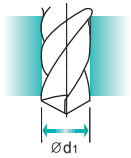
DIN 376

Hole type
3.0×D









Material groups: VG | HSS PM | DIN 371/376 | 6H | 60° | Bright | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.189

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TR863136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR863156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR863176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR863206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR863226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR863246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR863266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR863286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR863316	17	80	30	6	4.9	8	3	5
M7	× 1	TR863346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR863366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR863426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR863506	24	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

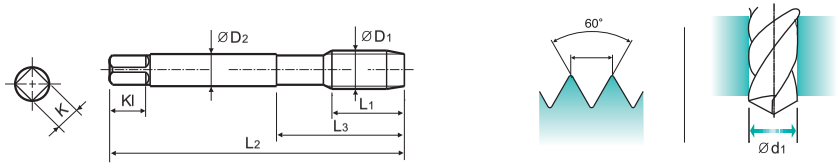
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 371

DIN 376

Hole type
3.0×D



Material groups **VG** | HSS | DIN 371/376 | 6H | 60° | Bright

p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TC422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC422316	17	80	30	6	4.9	8	3	5
M7	× 1	TC422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC422506	24	110	44	9	7	10	3	10.2
M14	× 2	TC422546	26	110	44	11	9	12	3	12
M16	× 2	TC422606	27	110	44	12	9	12	3	14
M18	× 2.5	TC422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC422786	34	160	60	18	14.5	17	4	21
M27	× 3	TC422866	36	160	60	20	16	19	4	24
M30	× 3.5	TC422946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

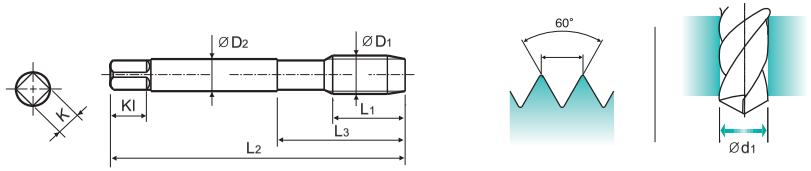
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 371

DIN 376

Hole type
3.0×D



Material groups **VG** | HSS | DIN 371/376 | 6H | 60° | TiN

p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TD422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TD422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TD422316	17	80	30	6	4.9	8	3	5
M7	× 1	TD422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TD422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TD422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TD422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD422506	24	110	44	9	7	10	3	10.2
M14	× 2	TD422546	26	110	44	11	9	12	3	12
M16	× 2	TD422606	27	110	44	12	9	12	3	14
M18	× 2.5	TD422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TD422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TD422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TD422786	34	160	60	18	14.5	17	4	21
M27	× 3	TD422866	36	160	60	20	16	19	4	24
M30	× 3.5	TD422946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

TE SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

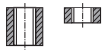
▶ Recommended for tapping abrasive materials due to nitriding, not suitable for tapping tough or high strength materials.

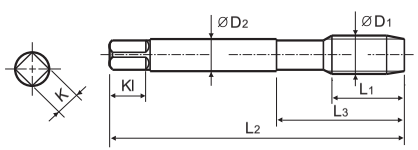
▶ Empfohlen für das Gewindeschneiden verschleißfordernder Werkstoffe wegen der Nitrierung; nicht geeignet für das Gewinden zaher oder hochfester Werkstoffe.

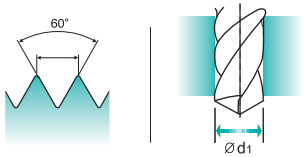
DIN 371

DIN 376

Hole type
3.0×D







Material groups **VG** | HSS | DIN 371/376 | 6H | 60° | Nitride

p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	**TE422136**	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	**TE422156**	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	**TE422196**	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	**TE422176**	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	**TE422496**	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	**TE422206**	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	**TE422226**	12	56	20	4	3	6	3	2.9
M4	× 0.7	**TE422246**	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	**TE422266**	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	**TE422286**	15	70	25	6	4.9	8	3	4.2
M6	× 1	**TE422316**	17	80	30	6	4.9	8	3	5
M7	× 1	**TE422346**	17	80	30	7	5.5	8	3	6
M8	× 1.25	**TE422366**	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	**TE422396**	20	90	35	9	7	10	3	7.8
M10	× 1.5	**TE422426**	22	100	39	10	8	11	3	8.5
M11	× 1.5	**TE422466**	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	**TE422506**	24	110	44	9	7	10	3	10.2
M14	× 2	**TE422546**	26	110	44	11	9	12	3	12
M16	× 2	**TE422606**	27	110	44	12	9	12	3	14
M18	× 2.5	**TE422656**	30	125	50	14	11	14	4	15.5
M20	× 2.5	**TE422706**	32	140	54	16	12	15	4	17.5
M22	× 2.5	**TE422746**	32	140	54	18	14.5	17	4	19.5
M24	× 3	**TE422786**	34	160	60	18	14.5	17	4	21
M27	× 3	**TE422866**	36	160	60	20	16	19	4	24
M30	× 3.5	**TE422946**	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TY SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

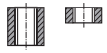
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

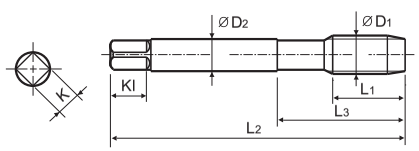
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

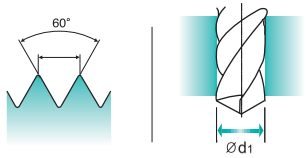
DIN 371

DIN 376

Hole type
3.0×D







Material groups **VG** | HSS | DIN 371/376 | 6H | 60° | TiAlN

p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	**TY422136**	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	**TY422156**	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	**TY422196**	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	**TY422176**	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	**TY422496**	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	**TY422206**	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	**TY422226**	12	56	20	4	3	6	3	2.9
M4	× 0.7	**TY422246**	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	**TY422266**	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	**TY422286**	15	70	25	6	4.9	8	3	4.2
M6	× 1	**TY422316**	17	80	30	6	4.9	8	3	5
M7	× 1	**TY422346**	17	80	30	7	5.5	8	3	6
M8	× 1.25	**TY422366**	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	**TY422396**	20	90	35	9	7	10	3	7.8
M10	× 1.5	**TY422426**	22	100	39	10	8	11	3	8.5
M11	× 1.5	**TY422466**	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	**TY422506**	24	110	44	9	7	10	3	10.2
M14	× 2	**TY422546**	26	110	44	11	9	12	3	12
M16	× 2	**TY422606**	27	110	44	12	9	12	3	14
M18	× 2.5	**TY422656**	30	125	50	14	11	14	4	15.5
M20	× 2.5	**TY422706**	32	140	54	16	12	15	4	17.5
M22	× 2.5	**TY422746**	32	140	54	18	14.5	17	4	19.5
M24	× 3	**TY422786**	34	160	60	18	14.5	17	4	21
M27	× 3	**TY422866**	36	160	60	20	16	19	4	24
M30	× 3.5	**TY422946**	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T 6 SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

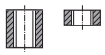
Machine taps
Maschinengewindebohrer

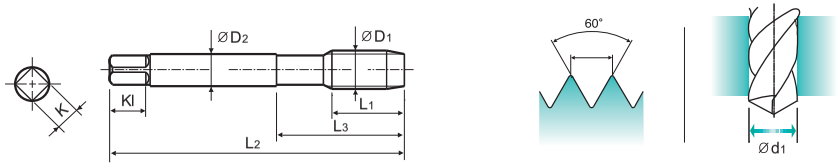
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 374

Hole type 3.0×D





Material groups VG | HSS | DIN 37 | 6H | 60° | Bright

p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC263256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC263296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC263326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC263336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC263356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC263376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC263386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TC263436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC263446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC263456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC263516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC263526	22	100	40	9	7	10	3	10.8
M12	× 1	TC263536	18	100	40	9	7	10	3	11
M14	× 1.5	TC263556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC263566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TC263616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TC263676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TC263726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TC263766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC263806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TD 6 SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

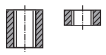
Machine taps
Maschinengewindebohrer

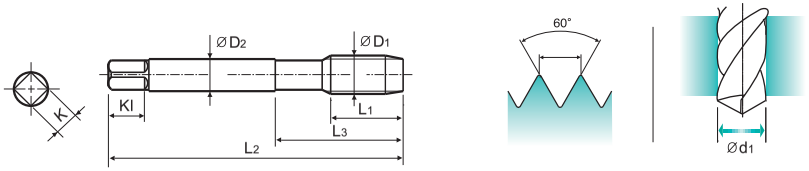
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 374

Hole type 3.0×D





Material groups VG | HSS | DIN 37 | 6H | 60° | TiN

p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TD263256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD263296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD263326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD263336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD263356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD263376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TD263386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TD263436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TD263446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TD263456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD263516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TD263526	22	100	40	9	7	10	3	10.8
M12	× 1	TD263536	18	100	40	9	7	10	3	11
M14	× 1.5	TD263556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TD263566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TD263616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TD263676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TD263726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TD263766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TD263806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T SERIES

N Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

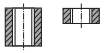
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

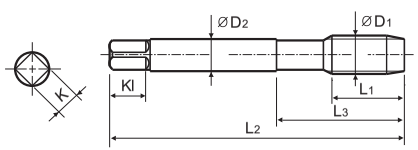
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

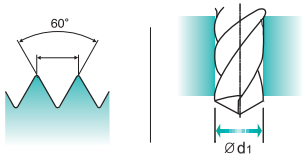
DIN 371

DIN 376

Hole type 3.0×D







Material groups **VG** | HSS | DIN 371/376 | 2 | 60° | Bright | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 40UNC	TC244162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC244202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC244242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TC244282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC244322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC244362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC244402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC244442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC244482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TC244522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC244562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC244602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC244642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC244702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC244742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC244782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC244822	40	180	70	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

TD SERIES

N Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

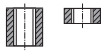
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

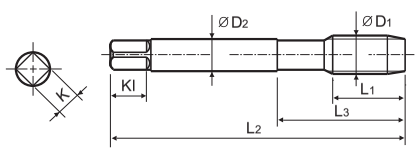
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

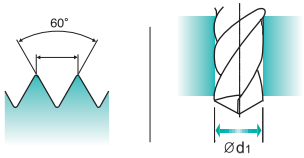
DIN 371

DIN 376

Hole type 3.0×D







Material groups **VG** | HSS | DIN 371/376 | 2 | 60° | TiN | p.B197

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. TiN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 40UNC	TD244162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TD244202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TD244242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TD244282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TD244322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TD244362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TD244402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TD244442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TD244482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TD244522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TD244562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TD244602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TD244642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TD244702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TD244742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TD244782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TD244822	40	180	70	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA STEEL

T SERIES

N Unified fine threads

- Unified Feingewinde
- UNF
- Unificato passo fine

Machine taps
Maschinengewindebohrer

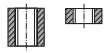
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

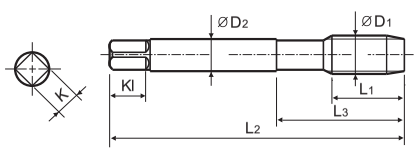
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

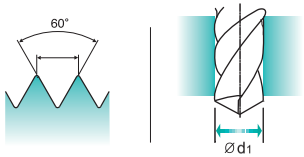
DIN 371

DIN 374

Hole type
3.0×D







Material groups **VG** | HSS | DIN 371/37 | 2 | 60° | Bright | p.B197

Recommended Toolholder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.189

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	TC254182	11	56	18	3.5	2.7	6	3	2.4
#5	44UNF	TC254222	11	56	18	3.5	2.7	6	3	2.7
#6	40UNF	TC254262	12	56	20	4	3	6	3	3
#8	36UNF	TC254302	13	63	21	4.5	3.4	6	3	3.5
#10	32UNF	TC254342	15	70	25	6	4.9	8	3	4.1
#12	28UNF	TC254382	16	80	30	6	4.9	8	3	4.7
1/4	28UNF	TC254422	17	80	30	7	5.5	8	3	5.5
5/16	24UNF	TC254462	17	90	35	8	6.2	9	3	6.9
3/8	24UNF	TC254502	18	100	39	9	7	10	3	8.5
7/16	20UNF	TC254542	22	100	40	8	6.2	9	3	9.9
1/2	20UNF	TC254582	22	100	40	9	7	10	3	11.5
9/16	18UNF	TC254622	22	100	40	11	9	12	3	12.9
5/8	18UNF	TC254662	22	100	40	12	9	12	3	14.5
3/4	16UNF	TC254722	25	110	44	14	11	14	4	17.5
7/8	14UNF	TC254762	26	125	50	18	14.5	17	4	20.5
1	12UNF	TC254802	28	140	54	18	14.5	17	4	23.25
1-1/8	12UNF	TC254842	30	150	60	22	18	21	4	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		○	○	○	◎	○	○	◎	◎	○		○	○	○						

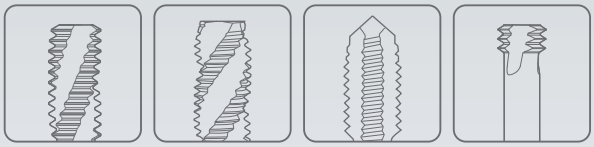
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA STEEL

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TQ823	TR823	TC312 TC413 TC174 TC184	TD312 TD413 TD174	TB312	TY312	TB913	TQ863	TR863	TC422 TC263 TC244 TC254	TD422 TD263 TD244	TE422	TY422
					Vc (m/min)												
P	1	Non-alloy steel	125														
	2		190	13	15-20	15-20	15-20	20-25	15-20	20-25	15-20	15-20	15-20	15-20	15-20	20-25	20-25
	3		250	25	12-18	12-18	12-18	18-24	12-18	18-24	12-18	12-18	12-18	12-18	12-18	18-24	18-24
	4		270	28	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	5		300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	6-10	10-14	10-14
	6	Low alloy steel	180	10	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	7		275	29	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	8		300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	6-10	10-14	10-14
	9		350	38	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	3-5	5-7	5-7
	10	High alloyed steel, and tool steel	200	15	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	3-5	5-7	5-7
M	12	Stainless steel	200	15								7-10	7-10	7-10	7-10	10-15	10-15
	13		240	23								5-8	5-8	5-8	5-8	8-11	8-11
	14		180	10	4-6	4-6	4-6	6-8	4-6	6-8	4-6	4-6	4-6	4-6	4-6	6-8	6-8
S	31	Heat Resistant Super Alloys	200	15	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	36	Titanium Alloys	400Rm		10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20

Global Cutting Tool Leader YG



THREADING

Leading Through Innovation

SOLID AR IDE HSS E

YG TAP HARDENED

YG HAHN GEH RTET

- **For Hardened Steels Applications to Control the Continuous and Red-glowing Chips**
- **Für gehärtete Stähle zur Kontrolle der kontinuierlichen und rotglühenden Späne**

SELE TION G IDE

YG THREADING TOOLS

SOLID CARBIDE & HSS-E
YG TAP HARDENED

For Hardened Steels Applications
to Control the Continuous and Red-glowing Chips

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B209

HOLE TYPE			Max. 2.0xD Blind / Through Hole	
TOOL MATERIAL			CARBIDE	
CHAMFER LEAD ACC. TO DIN2197			C	D
FLUTE TYPE			Straight Flute	Straight Flute
SPIRAL FLUTE ANGLE			-	-
MODEL	M	DIN371/376	T0997-TIC (p.B202)	T0999-TIC (p.B203)
		DIN352		
		DIN357/LONG		
	MF	DIN—374		
		DIN2181		
	UNC	DIN371/376		
		DIN351		
	UNF	DIN371/374		
		DIN2181		
	BSW	DIN2182/2183		
		DIN351		
	G(BSP)	DIN5156/5157		
	EG-M	DIN371/376		
	EG-UNC	DIN371/376		
	EG-UNF	DIN371/374		
SURFACE TREATMENT			TiCN	TiCN
MODEL				

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	T0997-TIC (p.B202)	T0999-TIC (p.B203)
P	1	Non-alloy steel	About 0.15% C	Annealed	125			
	2		About 0.45% C	Annealed	190	13		
	3		About 0.45% C	Quenched & Tempered	250	25		
	4		About 0.75% C	Annealed	270	28		
	5		About 0.75% C	Quenched & Tempered	300	32		
	6	Low alloy steel		Annealed	180	10		
	7			Quenched & Tempered	275	29		
	8			Quenched & Tempered	300	32		
	9			Quenched & Tempered	350	38	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10		
	16		Pearlitic (Martensitic)		260	26		
	17	Nodular cast iron	Ferritic		160	3		
	18		Pearlitic		250	25		
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60			
	22		Curable	Hardened	100			
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			
	24		≤ 12% Si, Curable	Hardened	90			
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55	◎	◎
	39			Hardened	630	60	◎	◎
	40	Chilled Cast Iron		Cast	400	42	◎	◎
	41	Hardened Cast Iron		Hardened	550	55	◎	◎

			Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole	
			HSS-E		HSS-E	
C	C	C	B	B		
Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point		
R40	R40	R40	-	-		
TC313 (p.B204)	TB313 (p.B205)	TY313 (p.B206)	TC283 (p.B207)	TY283 (p.B208)		
					M	
					MF	
					UNC	
					UNF	
					BSW	
					G(BSP)	
					EG-M	
					EG-UNC	
					EG-UNF	
Bright	VAP	TiAlN	Bright	TiAlN		
					1	P
					2	
					3	
					4	
					5	
					6	
○	○	○	○	○	7	
○	○	○	○	○	8	
◎	◎	◎	◎	◎	9	
					10	
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G TA HA DENED

T0 TI SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

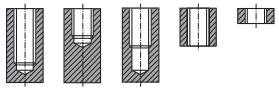
▶ Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for hardened steels (HRc50~60)

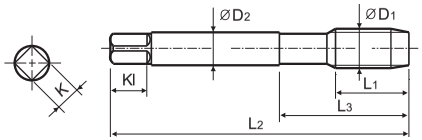
▶ VHM-Gewindebohrer ermöglichen aufgrund ihrer höheren Härte bessere Standzeiten als HSS-Gewindebohrer. Geeignet für gehärtete Stähle (HRc50~60)

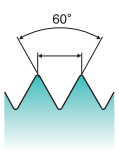
DIN 371

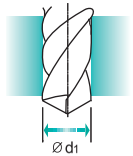
DIN 376

Hole type
2.0×D









Material groups **HR** | CARBIDE | DIN 371/376 | 6H | 60° | C | TiCN | p.B209

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	T0997206TIC	11	56	18	3.5	2.7	6	4	2.55
M4	× 0.7	T0997246TIC	13	63	21	4.5	3.4	6	4	3.4
M5	× 0.8	T0997286TIC	15	70	25	6	4.9	8	4	4.3
M6	× 1	T0997316TIC	17	80	30	6	4.9	8	5	5.1
M8	× 1.25	T0997366TIC	20	90	35	8	6.2	9	5	6.9
M10	× 1.5	T0997426TIC	22	100	39	10	8	11	5	8.6
M12	× 1.75	T0997506TIC	24	110	–	9	7	12	5	10.4
M14	× 2	T0997546TIC	26	110	–	11	9	12	6	12.2
M16	× 2	T0997606TIC	27	110	–	12	9	12	6	14.2
M18	× 2.5	T0997656TIC	30	125	–	14	11	14	6	15.7
M20	× 2.5	T0997706TIC	32	140	–	16	12	15	6	17.7

▶DIN 371(M3~M10) and DIN 376(M12~M20)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended									○											

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		◎	◎	◎	◎

G TA HA DENED
T0 TI SERIES
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
▶ Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for hardened steels (HRc50~60)
▶ VHM-Gewindebohrer ermöglichen aufgrund ihrer höheren Härte bessere Standzeiten als HSS-Gewindebohrer. Geeignet für gehärtete Stähle (HRc50~60)
DIN 371
DIN 376
Hole type
2.0×D
Material groups HR | CARBIDE | DIN 371/376 | 6H | 60° | D | TiCN | p.B209
Recommended ToolHolder
Plain Shank Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213
Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	T0999206TIC	11	56	18	3.5	2.7	6	4	2.55
M4	× 0.7	T0999246TIC	13	63	21	4.5	3.4	6	4	3.4
M5	× 0.8	T0999286TIC	15	70	25	6	4.9	8	4	4.3
M6	× 1	T0999316TIC	17	80	30	6	4.9	8	5	5.1
M8	× 1.25	T0999366TIC	20	90	35	8	6.2	9	5	6.9
M10	× 1.5	T0999426TIC	22	100	39	10	8	11	5	8.6
M12	× 1.75	T0999506TIC	24	110	–	9	7	12	5	10.4
M14	× 2	T0999546TIC	26	110	–	11	9	12	6	12.2
M16	× 2	T0999606TIC	27	110	–	12	9	12	6	14.2
M18	× 2.5	T0999656TIC	30	125	–	14	11	14	6	15.7
M20	× 2.5	T0999706TIC	32	140	–	16	12	15	6	17.7

▶DIN 371(M3~M10) and DIN 376(M12~M20)
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended									○											

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																		◎	◎	◎	◎

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA HA DENED

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

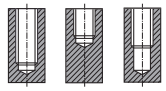
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

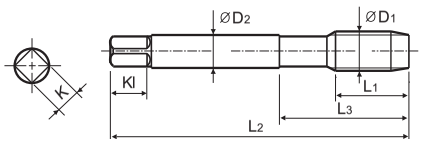
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

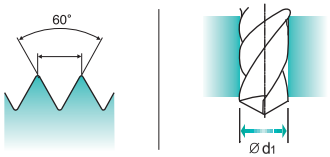
DIN 371

DIN 376

Hole type
2.5×D







Material groups **HR** | HSS | DIN 371/376 | 6H | 60° | C | Bright

p.B209

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TC313136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC313196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC313496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC313206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC313226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC313246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC313266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC313286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC313316	10	80	30	6	4.9	8	3	5
M7	× 1	TC313346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC313366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC313396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC313426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC313466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC313506	18	110	44	9	7	10	3	10.2
M14	× 2	TC313546	20	110	44	11	9	12	3	12
M16	× 2	TC313606	20	110	44	12	9	12	3	14
M18	× 2.5	TC313656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC313706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC313746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC313786	30	160	60	18	14.5	17	4	21
M27	× 3	TC313866	30	160	60	20	16	19	4	24
M30	× 3.5	TC313946	35	180	70	22	18	21	4	26.5

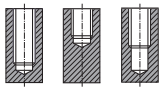
▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

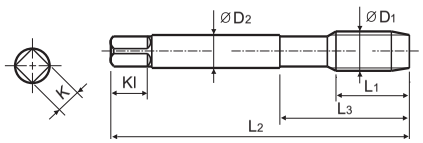
◎ : Excellent ○ : Good

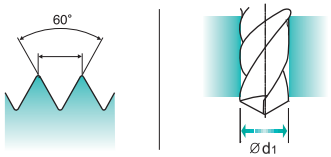
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎					○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

G TA HA DENED
T SERIES
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.
DIN 371
DIN 376
Hole type
2.5×D







Material groups **HR** | HSS | DIN 371/376 | 6H | 60° | C | Vap

p.B209

Recommended ToolHolder
	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213
Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TB313136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB313196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB313496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB313206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB313226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB313246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB313266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB313286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB313316	10	80	30	6	4.9	8	3	5
M7	× 1	TB313346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB313366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB313396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB313426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB313466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB313506	18	110	44	9	7	10	3	10.2
M14	× 2	TB313546	20	110	44	11	9	12	3	12
M16	× 2	TB313606	20	110	44	12	9	12	3	14
M18	× 2.5	TB313656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB313706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB313746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB313786	30	160	60	18	14.5	17	4	21
M27	× 3	TB313866	30	160	60	20	16	19	4	24
M30	× 3.5	TB313946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎					○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA HA DENED

TY SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

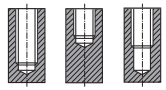
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

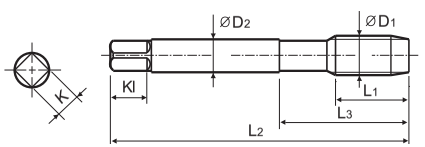
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

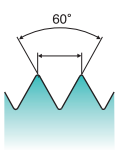
DIN 371

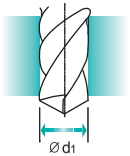
DIN 376

Hole type
2.5×D









Material groups **HR** | HSS | DIN 371/376 | 6H | 60° | C | TiAlN

p.B209

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TY313136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY313196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY313496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY313206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY313226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TY313246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY313266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY313286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TY313316	10	80	30	6	4.9	8	3	5
M7	× 1	TY313346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TY313366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY313396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TY313426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TY313466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY313506	18	110	44	9	7	10	3	10.2
M14	× 2	TY313546	20	110	44	11	9	12	3	12
M16	× 2	TY313606	20	110	44	12	9	12	3	14
M18	× 2.5	TY313656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TY313706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TY313746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TY313786	30	160	60	18	14.5	17	4	21
M27	× 3	TY313866	30	160	60	20	16	19	4	24
M30	× 3.5	TY313946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎					○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

G TA HA DENED

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

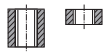
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

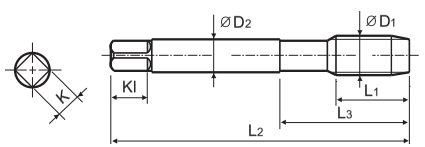
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

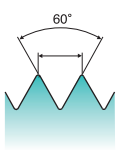
DIN 371

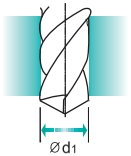
DIN 376

Hole type
3.0×D









Material groups **HR** | HSS | DIN 371/376 | 6H | 60° | Bright

p.B209

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TC283136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC283156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC283196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC283176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC283496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC283206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC283226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC283246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC283266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC283286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC283316	17	80	30	6	4.9	8	3	5
M7	× 1	TC283346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC283366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC283396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC283426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC283466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC283506	24	110	44	9	7	10	3	10.2
M14	× 2	TC283546	26	110	44	11	9	12	3	12
M16	× 2	TC283606	27	110	44	12	9	12	3	14
M18	× 2.5	TC283656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC283706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC283746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC283786	34	160	60	18	14.5	17	4	21
M27	× 3	TC283866	36	160	60	20	16	19	4	24
M30	× 3.5	TC283946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended								○	○	◎				○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA HA DENED

TY SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

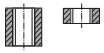
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

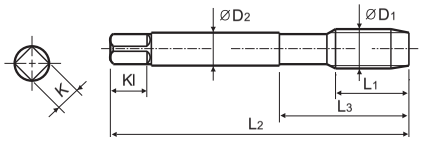
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

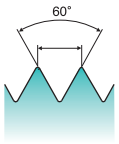
DIN 371

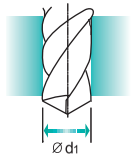
DIN 376

Hole type
3.0×D









Material groups **HR** | HSS | DIN 371/376 | 6H | 60° | TiAlN

p.B209

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TY283136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY283156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY283196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY283176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY283496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY283206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY283226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TY283246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY283266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY283286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TY283316	17	80	30	6	4.9	8	3	5
M7	× 1	TY283346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TY283366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY283396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TY283426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TY283466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY283506	24	110	44	9	7	10	3	10.2
M14	× 2	TY283546	26	110	44	11	9	12	3	12
M16	× 2	TY283606	27	110	44	12	9	12	3	14
M18	× 2.5	TY283656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TY283706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TY283746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TY283786	34	160	60	18	14.5	17	4	21
M27	× 3	TY283866	36	160	60	20	16	19	4	24
M30	× 3.5	TY283946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎					○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

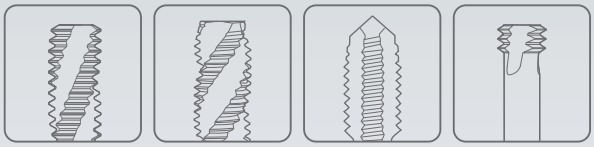
G TA HA DENED

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	T0997-TIC	T0999-TIC	TC313 TB313 TY313	TC283 TY283
					Vc (m/min)			
P	7	Non-alloy steel	275	29			10-15	10-15
	8		300	32			6-10	6-10
	9		350	38	5-8	5-8	3-5	3-5
M	14	Stainless steel	180	10			4-6	4-6
N	26	Copper and Copper Alloys (Bronze / Brass)	110				25-35	25-35
H	38	Hardened steel	550	55	3-7	3-7		
	39		630	60	3-7	3-7		
	40	Chilled Cast Iron	400	42	3-7	3-7		
	41	Hardened Cast Iron	550	55	3-7	3-7		

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

Leading Through Innovation

HSS E HSS PM

YG TAP INO

YG G INO

- **For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher**
- **Für nichtrostende Stähle mit lamellarer, unregelmäßiger Spänebildung, bei denen die Schnittkräfte größer sind.**

SELE TION G IDE

YG THREADING TOOLS

HSS-E & HSS-PM YG TAP INO

For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher

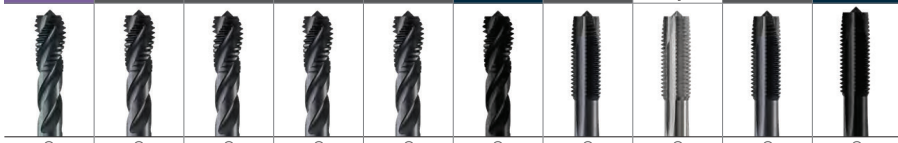
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B233

HOLE TYPE			Max. 2.0xD Blind Hole	Max. 2.5xD Blind Hole		
TOOL MATERIAL			HSS-E	HSS-PM		HSS-E
CHAMFER LEAD ACC. TO DIN2197			C	C	C	C
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute
SPIRAL FLUTE ANGLE			R40	R40	R40	R40
SERIES	M	DIN371/376	TB711 (p.B214)	TQ813 (p.B215)	TR813 (p.B216)	TB914 (p.B217)
		DIN352				
		DIN357/LONG				
	MF	DIN374				TB183 (p.B227)
		DIN2181				
	UNC	DIN371/376				TB904 (p.B228)
		DIN351				
	UNF	DIN371/374				TB924 (p.B229)
		DIN2181				
	BSW	DIN2182/2183				
		DIN351				
	G(BSP)	DIN5156/5157				
	EG-M	DIN371/376				
	EG-UNC	DIN371/376				
	EG-UNF	DIN371/374				
SURFACE TREATMENT			VAP	VAP	Bright	VAP
MODEL						

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	M	MF	UNC	UNF	BSW	G(BSP)	EG-M	EG-UNC	EG-UNF
							TICN	VAP	VAP	VAP	VAP	HardSlick	VAP	Bright	VAP	HardSlick
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	○	○	◎	◎	◎	○	○	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25		○	○	○	○	○	○	○	○	○
	4		About 0.75% C	Annealed	270	28		○	○	○	○	○	○	○	○	○
	5		About 0.75% C	Quenched & Tempered	300	32										
	6	Low alloy steel		Annealed	180	10		○	○	○	○	○	○	○	○	○
	7			Quenched & Tempered	275	29										
	8			Quenched & Tempered	300	32										
	9			Quenched & Tempered	350	38										
	10	High alloyed steel, and tool steel		Annealed	200	15										
	11			Quenched & Tempered	325	35										
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	◎	◎	◎	◎	◎	◎	◎	◎	◎
	13		Martensitic	Quenched & Tempered	240	23	○	◎	◎	◎	◎	◎	◎	◎	◎	◎
	14		Austenitic		180	10	○	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10										
	16		Pearlitic (Martensitic)		260	26										
	17	Nodular cast iron	Ferritic		160	3										
	18		Pearlitic		250	25										
	19	Malleable cast iron	Ferritic		130											
	20		Pearlitic		230	21										
N	21	Aluminum-wrought alloy	Not Curable		60		○									
	22		Curable	Hardened	100											
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75											
	24		≤ 12% Si, Curable	Hardened	90											
	25		> 12% Si, Not Curable		130											
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110											
	27		CuZn, CuSnZn (Brass)		90											
	28		CuSn, lead-free copper and electrolytic copper		100		○									
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic													
	30		Rubber, Wood, etc.													
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		○	○	○	○	○	○	○	○	○
	32			Cured	280	30										
	33		Ni or Co Based	Annealed	250	25										
	34			Cured	350	38										
	35			Cast	320	34										
	36	Titanium Alloys	Pure Titanium		400 Rm			○	○	○	○	○	○	○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm											
H	38	Hardened steel		Hardened	550	55										
	39			Hardened	630	60										
	40	Chilled Cast Iron		Cast	400	42										
	41	Hardened Cast Iron		Hardened	550	55										

	Max. 2.5xD Blind Hole						Max. 3.0xD Through Hole			
TOOL MATERIAL	HSS-E						HSS-PM		HSS-E	
CHAMFER LEAD ACC. TO DIN2197	C	C	C	C	C	C	B	B	B	B
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE	R40	R40	R40	R40	R40	R40	-	-	-	-
M	TI914 (p.B217)	TBE15 (p.B218)	TBE16 (p.B219)	TBE17 (p.B220)	TBE18 (p.B221)	TCH14 (p.B222)	TQ853 (p.B223)	TR853 (p.B224)	TB623 (p.B225)	TCH23 (p.B226)
MF									TB123 (p.B230)	
UNC									TB264 (p.B231)	
UNF									TB274 (p.B232)	
BSW										
G(BSP)										
EG-M										
EG-UNC										
EG-UNF										
SURFACE TREATMENT	TICN	VAP	VAP	VAP	VAP	HardSlick	VAP	Bright	VAP	HardSlick
MODEL										

ISO	VDI 3323	M	MF	UNC	UNF	BSW	G(BSP)	EG-M	EG-UNC	EG-UNF
P	1	◎	◎	◎	◎	◎	◎	○	○	◎	◎
	2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	3	○	○	○	○	○	○	○	○	○	○
	4	○	○	○	○	○	○	○	○	○	○
	5										
	6	○	○	○	○	○	○	○	○	○	○
	7										
	8										
	9										
	10										
	11										
M	12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	15										
	16										
	17										
	18										
	19										
	20										
N	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										
S	31	○	○	○	○	○	○	○	○	○	○
	32										
	33										
	34										
	35										
	36	○	○	○	○	○	○	○	○	○	○
	37										
H	38										
	39										
	40										
	41										

G TA INO

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

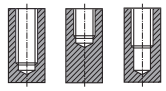
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

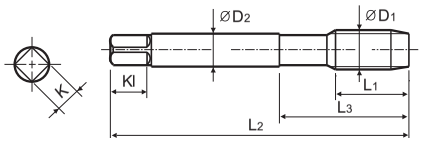
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

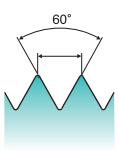
DIN 371

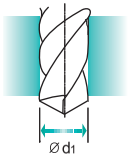
DIN 376

Hole type
2.0×D









Material groups **NW** | HSS-E | DIN 371/376 | 6H | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TB711136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB711196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB711496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB711206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB711226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB711246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB711266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB711286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB711316	10	80	30	6	4.9	8	3	5
M7	× 1	TB711346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB711366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB711396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB711426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB711466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB711506	18	110	44	9	7	10	3	10.2
M14	× 2	TB711546	20	110	44	11	9	12	3	12
M16	× 2	TB711606	20	110	44	12	9	12	3	14
M18	× 2.5	TB711656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB711706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB711746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB711786	30	160	60	18	14.5	17	4	21
M27	× 3	TB711866	30	160	60	20	16	19	4	24
M30	× 3.5	TB711946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

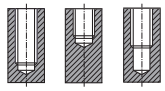
◎ : Excellent ○ : Good

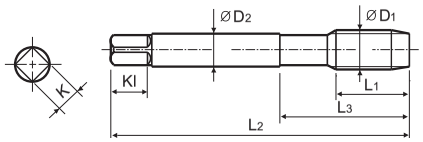
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎										○	○	○						

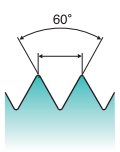
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○							○													

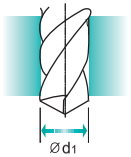
G TA INO
T SERIES
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.
DIN 371
DIN 376

Hole type
2.5×D









Material groups **VA** | HSS PM | DIN 371/376 | 6H | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TQ813136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ813156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ813176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ813206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ813226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ813246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ813266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ813286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ813316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ813346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ813366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ813426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ813506	18	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

TR SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

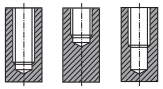
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

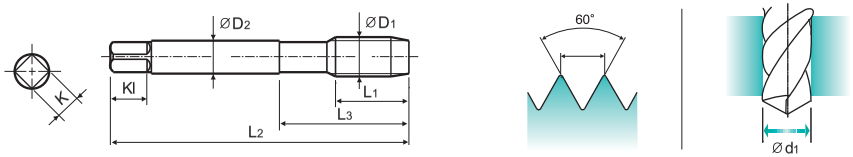
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups VA | HSS PM | DIN 371/376 | 6H | 60° | C | R40 | Bright | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TR813136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR813156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR813176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR813206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR813226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TR813246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR813266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR813286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TR813316	10	80	30	6	4.9	8	3	5
M7	× 1	TR813346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TR813366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR813426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TR813506	18	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO

Vap T SERIES
TiCN TI SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

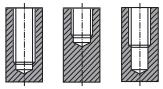
▶ With recessed threads for machine tapping of deep blind holes.
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

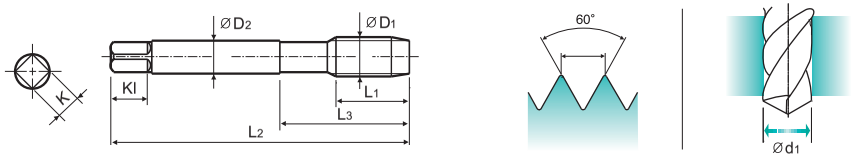
▶ Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type
2.5×D





Material groups VA NW | HSS | DIN 371/376 | 6H | 60° | C | R40 | Vap TiCN | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TB914136	TI914136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB914156	TI914156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB914196	TI914196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB914176	TI914176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB914496	TI914496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB914206	TI914206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB914226	TI914226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB914246	TI914246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB914266	TI914266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB914286	TI914286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB914316	TI914316	10	80	30	6	4.9	8	3	5
M7	× 1	TB914346	TI914346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB914366	TI914366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB914396	TI914396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB914426	TI914426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB914466	TI914466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB914506	TI914506	18	110	44	9	7	10	3	10.2
M12	× 1.75	TB914506F4	TI914506F4	18	110	44	9	7	10	4	10.2
M14	× 2	TB914546	TI914546	20	110	44	11	9	12	3	12
M14	× 2	TB914546F4	TI914546F4	20	110	44	11	9	12	4	12
M16	× 2	TB914606	TI914606	20	110	44	12	9	12	3	14
M16	× 2	TB914606F4	TI914606F4	20	110	44	12	9	12	4	14
M18	× 2.5	TB914656	TI914656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB914706	TI914706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB914746	TI914746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB914786	TI914786	30	160	60	18	14.5	17	4	21
M27	× 3	TB914866	TI914866	30	160	60	20	16	19	4	24
M30	× 3.5	TB914946	TI914946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

T E SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

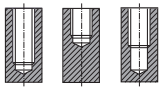
- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

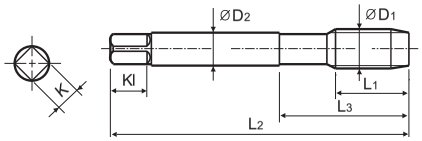
- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

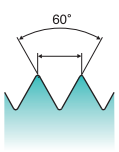
DIN 371

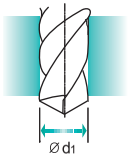
DIN 376

Hole type
2.5×D









Material groups: VA NW | HSS | DIN 371/376 | H | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	**TBE15136**	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	**TBE15156**	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	**TBE15196**	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	**TBE15176**	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	**TBE15496**	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	**TBE15206**	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	**TBE15226**	7	56	20	4	3	6	3	2.9
M4	× 0.7	**TBE15246**	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	**TBE15266**	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	**TBE15286**	8	70	25	6	4.9	8	3	4.2
M6	× 1	**TBE15316**	10	80	30	6	4.9	8	3	5
M7	× 1	**TBE15346**	10	80	30	7	5.5	8	3	6
M8	× 1.25	**TBE15366**	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	**TBE15396**	13	90	35	9	7	10	3	7.8
M10	× 1.5	**TBE15426**	15	100	39	10	8	11	3	8.5
M11	× 1.5	**TBE15466**	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	**TBE15506**	18	110	44	9	7	10	3	10.2
M14	× 2	**TBE15546**	20	110	44	11	9	12	3	12
M16	× 2	**TBE15606**	20	110	44	12	9	12	3	14
M18	× 2.5	**TBE15656**	25	125	50	14	11	14	4	15.5
M20	× 2.5	**TBE15706**	25	140	54	16	12	15	4	17.5
M22	× 2.5	**TBE15746**	25	140	54	18	14.5	17	4	19.5
M24	× 3	**TBE15786**	30	160	60	18	14.5	17	4	21
M27	× 3	**TBE15866**	30	160	60	20	16	19	4	24
M30	× 3.5	**TBE15946**	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO

T E 6 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

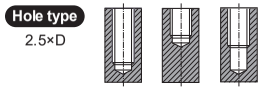
- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

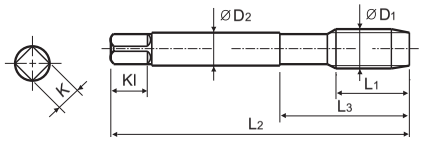
- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

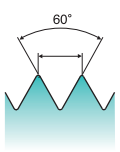
DIN 371

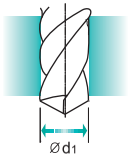
DIN 376

Hole type
2.5×D









Material groups: VA NW | HSS | DIN 371/376 | 6H | 1 | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	**TBE16136**	8	45	13	2.8	2.1	5	3	1.7
M2.2	× 0.45	**TBE16156**	8	45	13	2.8	2.1	5	3	1.85
*M2.3	× 0.4	**TBE16196**	8	45	13	2.8	2.1	5	3	2
M2.5	× 0.45	**TBE16176**	9	50	15	2.8	2.1	5	3	2.15
*M2.6	× 0.45	**TBE16496**	9	50	15	2.8	2.1	5	3	2.2
M3	× 0.5	**TBE16206**	6	56	18	3.5	2.7	6	3	2.6
M3.5	× 0.6	**TBE16226**	7	56	20	4	3	6	3	3
M4	× 0.7	**TBE16246**	7	63	21	4.5	3.4	6	3	3.4
M4.5	× 0.75	**TBE16266**	8	70	25	6	4.9	8	3	3.8
M5	× 0.8	**TBE16286**	8	70	25	6	4.9	8	3	4.3
M6	× 1	**TBE16316**	10	80	30	6	4.9	8	3	5.1
M7	× 1	**TBE16346**	10	80	30	7	5.5	8	3	6.1
M8	× 1.25	**TBE16366**	13	90	35	8	6.2	9	3	6.9
M9	× 1.25	**TBE16396**	13	90	35	9	7	10	3	7.9
M10	× 1.5	**TBE16426**	15	100	39	10	8	11	3	8.6
M11	× 1.5	**TBE16466**	17	100	40	8	6.2	9	3	9.6
M12	× 1.75	**TBE16506**	18	110	44	9	7	10	3	10.3
M14	× 2	**TBE16546**	20	110	44	11	9	12	3	12.1
M16	× 2	**TBE16606**	20	110	44	12	9	12	3	14.1
M18	× 2.5	**TBE16656**	25	125	50	14	11	14	4	15.6
M20	× 2.5	**TBE16706**	25	140	54	16	12	15	4	17.6
M22	× 2.5	**TBE16746**	25	140	54	18	14.5	17	4	19.6
M24	× 3	**TBE16786**	30	160	60	18	14.5	17	4	21.1
M27	× 3	**TBE16866**	30	160	60	20	16	19	4	24.1
M30	× 3.5	**TBE16946**	35	180	70	22	18	21	4	26.6

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

T E SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

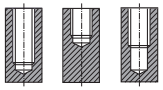
- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

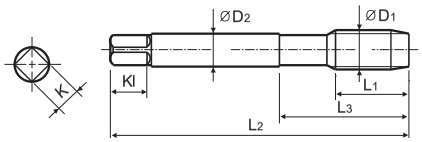
- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

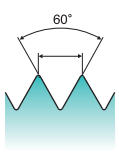
DIN 371

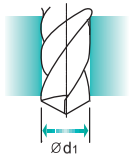
DIN 376

Hole type
2.5×D









Material groups VA NW | HSS | DIN 371/376 | 6 | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TBE17136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE17156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE17196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE17176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE17496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE17206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE17226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE17246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE17266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE17286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE17316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE17346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE17366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE17396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE17426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE17466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE17506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE17546	20	110	44	11	9	12	3	12
M16	× 2	TBE17606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE17656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE17706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE17746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE17786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE17866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE17946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO
T E SERIES
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ With recessed threads for machine tapping of deep blind holes.
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.
▶ Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.
DIN 371
DIN 376
Hole type
2.5×D
Material groups VA NW | HSS | DIN 371/376 | 7 | 60° | C | R40 | Vap | p.B233
Recommended ToolHolder
Plain Shank Page
TAPPING ER CHUCK D215-220
TAPPING CHUCK D221-228
ONE STEP TAPPING CHUCK D211-213
Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TBE18136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE18156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE18196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE18176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE18496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE18206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE18226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE18246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE18266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE18286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE18316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE18346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE18366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE18396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE18426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE18466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE18506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE18546	20	110	44	11	9	12	3	12
M16	× 2	TBE18606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE18656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE18706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE18746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE18786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE18866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE18946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

T H SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

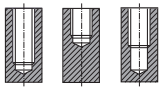
▶ With recessed threads for machine tapping of deep blind holes.
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

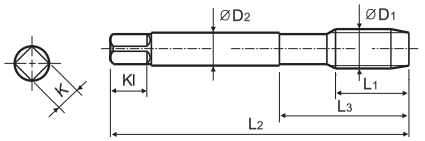
▶ Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

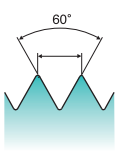
DIN 371

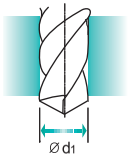
DIN 376

Hole type
2.5×D









Material groups VA NW | HSS | DIN 371/376 | 6H | 60° | C | R40 | Hardslick | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Hardslick	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TCH14136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TCH14156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TCH14196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TCH14176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TCH14496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TCH14206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TCH14226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TCH14246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TCH14266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TCH14286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TCH14316	10	80	30	6	4.9	8	3	5
M7	× 1	TCH14346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TCH14366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TCH14396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TCH14426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TCH14466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TCH14506	18	110	44	9	7	10	3	10.2
M14	× 2	TCH14546	20	110	44	11	9	12	3	12
M16	× 2	TCH14606	20	110	44	12	9	12	3	14
M18	× 2.5	TCH14656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TCH14706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TCH14746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TCH14786	30	160	60	18	14.5	17	4	21
M27	× 3	TCH14866	30	160	60	20	16	19	4	24
M30	× 3.5	TCH14946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

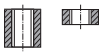
▶ Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

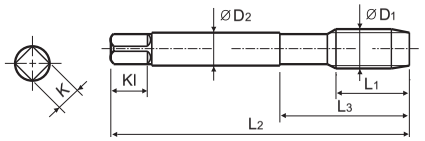
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

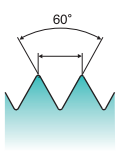
DIN 371

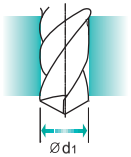
DIN 376

Hole type
3.0×D









Material groups VA | HSS PM | DIN 371/376 | 6H | 60° | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TQ853136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ853156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ853176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ853206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ853226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ853246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ853266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ853286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ853316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ853346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ853366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ853426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ853506	24	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

TR SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

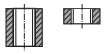
▶ Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

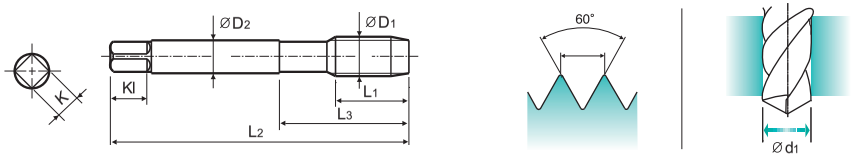
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

DIN 371

DIN 376

Hole type
3.0×D





Material groups: VA | HSS PM | DIN 371/376 | 6H | 60° | Bright

p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TR853136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR853156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR853176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR853206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR853226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR853246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR853266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR853286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR853316	17	80	30	6	4.9	8	3	5
M7	× 1	TR853346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR853366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR853426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR853506	24	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO

T 6 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

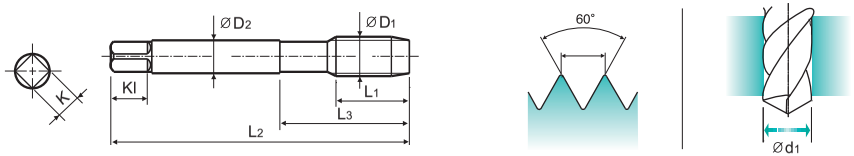
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 371

DIN 376

Hole type
3.0×D



Material groups: VA NW | HSS | DIN 371/376 | 6H | 60° | Vap

p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TB623136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB623156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB623196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB623176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB623496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB623206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB623226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TB623246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB623266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB623286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TB623316	17	80	30	6	4.9	8	3	5
M7	× 1	TB623346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TB623366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB623396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TB623426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TB623466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB623506	24	110	44	9	7	10	4	10.2
M14	× 2	TB623546	26	110	44	11	9	12	4	12
M16	× 2	TB623606	27	110	44	12	9	12	4	14
M18	× 2.5	TB623656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TB623706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TB623746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TB623786	34	160	60	18	14.5	17	4	21
M27	× 3	TB623866	36	160	60	20	16	19	4	24
M30	× 3.5	TB623946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

T H SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

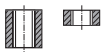
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

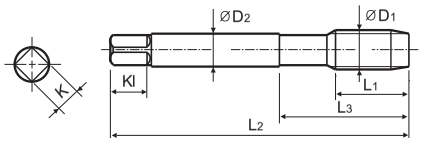
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

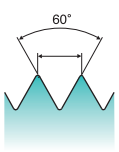
DIN 371

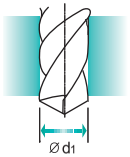
DIN 376

Hole type
3.0×D









Material groups VA NW | HSS | DIN 371/376 | 6H | 60° | Hardslick | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Hardslick	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TCH23136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TCH23156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TCH23196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TCH23176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TCH23496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TCH23206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TCH23226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TCH23246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TCH23266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TCH23286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TCH23316	17	80	30	6	4.9	8	3	5
M7	× 1	TCH23346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TCH23366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TCH23396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TCH23426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TCH23466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TCH23506	24	110	44	9	7	10	4	10.2
M14	× 2	TCH23546	26	110	44	11	9	12	4	12
M16	× 2	TCH23606	27	110	44	12	9	12	4	14
M18	× 2.5	TCH23656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TCH23706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TCH23746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TCH23786	34	160	60	18	14.5	17	4	21
M27	× 3	TCH23866	36	160	60	20	16	19	4	24
M30	× 3.5	TCH23946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO

T SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

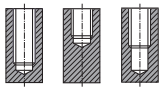
Machine taps
Maschinengewindebohrer

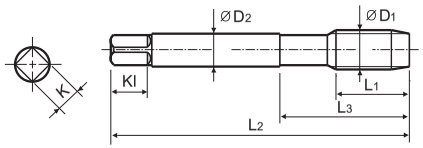
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

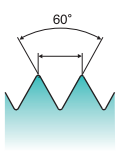
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

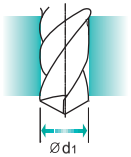
DIN 374

Hole type
2.5×D









Material groups VA NW | HSS | DIN 37 | 6H | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TB183256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB183296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB183326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB183336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB183356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TB183376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TB183386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB183436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TB183446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TB183456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB183516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TB183526	15	100	40	9	7	10	3	10.8
M12	× 1	TB183536	11	100	40	9	7	10	3	11
M14	× 1.5	TB183556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TB183566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TB183616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TB183676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TB183726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TB183766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TB183806	20	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

T 0 SERIES

N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo grosso

Machine taps
Maschinengewindebohrer

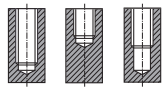
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

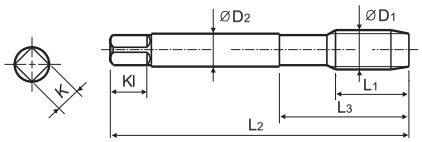
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

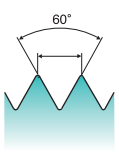
DIN 371

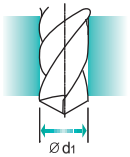
DIN 376

Hole type
2.5×D









Material groups VA NW | HSS | DIN 371/376 | 2 | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4 -	40UNC	TB904162	6	56	18	3.5	2.7	6	3	2.3
#5 -	40UNC	TB904202	7	56	18	3.5	2.7	6	3	2.6
#6 -	32UNC	TB904242	7	56	20	4	3	6	3	2.85
#8 -	32UNC	TB904282	8	63	21	4.5	3.4	6	3	3.5
#10 -	24UNC	TB904322	10	70	25	6	4.9	8	3	3.9
#12 -	24UNC	TB904362	10	80	30	6	4.9	8	3	4.5
1/4 -	20UNC	TB904402	13	80	30	7	5.5	8	3	5.2
5/16 -	18UNC	TB904442	14	90	35	8	6.2	9	3	6.6
3/8 -	16UNC	TB904482	16	100	39	9	7	10	3	8
7/16 -	14UNC	TB904522	17	100	40	8	6.2	9	3	9.4
1/2 -	13UNC	TB904562	20	110	44	9	7	10	3	10.75
9/16 -	12UNC	TB904602	20	110	44	11	9	12	3	12.25
5/8 -	11UNC	TB904642	22	110	44	12	9	12	3	13.5
3/4 -	10UNC	TB904702	25	125	50	14	11	14	4	16.5
7/8 -	9UNC	TB904742	27	140	54	18	14.5	17	4	19.5
1 -	8UNC	TB904782	30	160	60	20	16	19	4	22.25
1-1/8 -	7UNC	TB904822	35	180	65	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO

T SERIES

N Unified fine threads

Unified Feingewinde
UNF
Unificato passo grosso

Machine taps
Maschinengewindebohrer

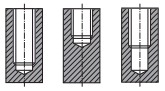
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

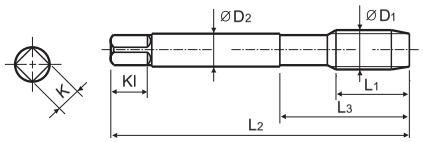
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

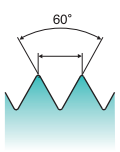
DIN 371

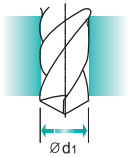
DIN 374

Hole type
2.5×D









Material groups VA NW | HSS | DIN 371/37 | 2 | 60° | C | R40 | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4 -	48UNF	TB924182	6	56	18	3.5	2.7	6	3	2.4
#5 -	44UNF	TB924222	7	56	18	3.5	2.7	6	3	2.7
#6 -	40UNF	TB924262	7	56	20	4	3	6	3	3
#8 -	36UNF	TB924302	8	63	21	4.5	3.4	6	3	3.5
#10 -	32UNF	TB924342	10	70	25	6	4.9	8	3	4.1
#12 -	28UNF	TB924382	10	80	30	6	4.9	8	3	4.7
1/4 -	28UNF	TB924422	10	80	30	7	5.5	8	3	5.5
5/16 -	24UNF	TB924462	10	90	35	8	6.2	9	3	6.9
3/8 -	24UNF	TB924502	10	100	39	9	7	10	3	8.5
7/16 -	20UNF	TB924542	13	100	40	8	6.2	9	3	9.9
1/2 -	20UNF	TB924582	13	100	40	9	7	10	3	11.5
9/16 -	18UNF	TB924622	15	100	40	11	9	12	3	12.9
5/8 -	18UNF	TB924662	15	100	40	12	9	12	3	14.5
3/4 -	16UNF	TB924722	17	110	44	14	11	14	4	17.5
7/8 -	14UNF	TB924762	17	125	50	18	14.5	17	4	20.5
1 -	12UNF	TB924802	20	140	54	18	14.5	17	4	23.25
1-1/8 -	12UNF	TB924842	22	150	60	22	18	21	4	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

T SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

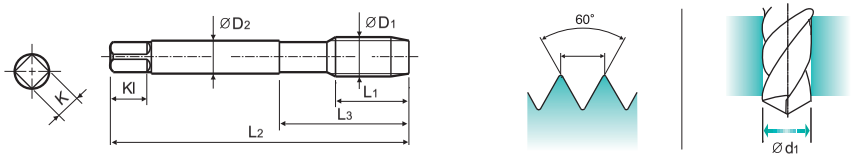
Machine taps
Maschinengewindebohrer

▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 374

Hole type
3.0×D



Material groups VA NW | HSS | DIN 37 | 6H | 60° | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M4	× 0.5	TB123256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB123296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB123326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB123336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB123356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TB123376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TB123386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB123436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TB123446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TB123456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB123516	22	100	40	9	7	10	4	10.5
M12	× 1.25	TB123526	22	100	40	9	7	10	3	10.8
M12	× 1	TB123536	18	100	40	9	7	10	3	11
M14	× 1.5	TB123556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TB123566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TB123616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TB123676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TB123726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TB123766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TB123806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

G TA INO

T 6 SERIES

N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo grosso

Machine taps
Maschinengewindebohrer

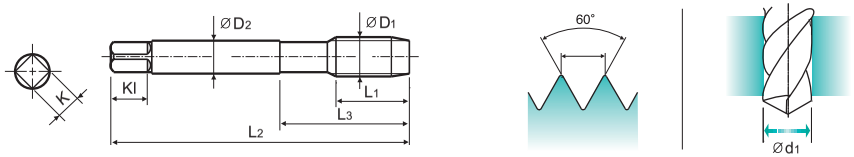
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

DIN 371

DIN 376

Hole type
3.0×D



Material groups VA NW | HSS | DIN 371/376 | 2 | 60° | Vap | p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 40UNC	TB264162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TB264202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TB264242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TB264282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TB264322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TB264362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TB264402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TB264442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TB264482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TB264522	22	100	44	8	6.2	9	3	9.4
1/2	- 13UNC	TB264562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TB264602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TB264642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TB264702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TB264742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TB264782	36	160	60	20	16	17	4	22.25
1-1/8	- 7UNC	TB264822	40	180	70	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA INO

T SERIES

N Unified fine threads

Unified Feingewinde
UNF
Unificato passo fine

Machine taps
Maschinengewindebohrer

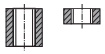
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

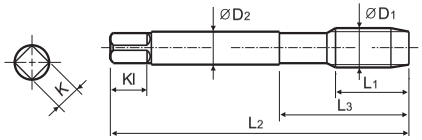
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

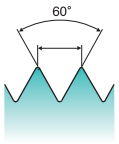
DIN 371

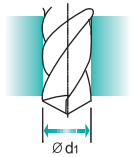
DIN 374

Hole type
3.0×D









Material groups: VA NW | HSS | DIN 371/37 | 2 | 60° | Vap

p.B233

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Vap	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	TB274182	11	56	18	3.5	2.7	6	3	2.4
#5	44UNF	TB274222	11	56	18	3.5	2.7	6	3	2.7
#6	40UNF	TB274262	12	56	20	4	3	6	3	3
#8	36UNF	TB274302	13	63	21	4.5	3.4	6	3	3.5
#10	32UNF	TB274342	15	70	25	6	4.9	8	3	4.1
#12	28UNF	TB274382	16	80	30	6	4.9	8	3	4.7
1/4	28UNF	TB274422	17	80	30	7	5.5	8	3	5.5
5/16	24UNF	TB274462	17	90	35	8	6.2	9	3	6.9
3/8	24UNF	TB274502	18	100	39	9	7	10	3	8.5
7/16	20UNF	TB274542	22	100	40	8	6.2	9	3	9.9
1/2	20UNF	TB274582	22	100	40	9	7	10	3	11.5
9/16	18UNF	TB274622	22	100	40	11	9	12	3	12.9
5/8	18UNF	TB274662	22	100	40	12	9	12	3	14.5
3/4	16UNF	TB274722	25	110	44	14	11	14	4	17.5
7/8	14UNF	TB274762	26	125	50	18	14.5	17	4	20.5
1	12UNF	TB274802	28	140	54	18	14.5	17	4	23.25
1-1/8	12UNF	TB274842	30	150	60	22	18	21	4	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○		○						◎	◎	◎						

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

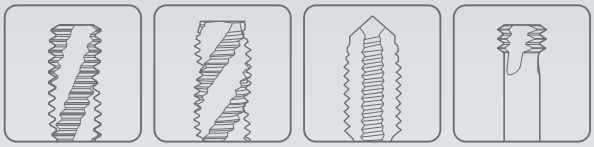
G TA INO

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TB711	TQ813	TR813	TB914 TB183 TB904 TB924	TI914	TBE15	TBE16	TBE17	TBE18	TCH14	TQ853	TR853	TB623 TB123 TB264 TB274	TCH23
					Vc (m/min)													
P	1	Non-alloy steel	125		15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	20-25
	2		190	13	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	20-25
	3		250	25		12-18	12-18	12-18	18-24	12-18	12-18	12-18	12-18	18-24	12-18	12-18	12-18	18-24
	4		270	28		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20
	6	Low alloy steel	180	10		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20
M	12	Stainless steel	200	15	7-10	7-10	7-10	7-10	10-13	7-10	7-10	7-10	7-10	10-13	7-10	7-10	7-10	10-13
	13		240	23	5-8	5-8	5-8	5-8	8-11	5-8	5-8	5-8	5-8	8-11	5-8	5-8	5-8	8-11
	14		180	10	4-6	4-6	4-6	4-6	6-8	4-6	4-6	4-6	4-6	6-8	4-6	4-6	4-6	6-8
N	21	Aluminum-wrought alloy	60		10-15													
	28	Copper and Copper Alloys (Bronze / Brass)	100		15-20													
S	31	Heat Resistant Super Alloys	200	15		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20
	36	Titanium Alloys	400 Rm			10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

YG TAP AST IRON

HSS YG G G

- **For Cast Iron or Similar Work Materials**
- **Für Gusseisen oder ähnliche Werkstoffe**

SELE TION G IDE

THREADING TOOLS

SOLID CARBIDE & HSS-E
YG TAP
AST IRON

For Cast Iron or Similar Work Materials

HOLE TYPE			Max. 2.0xD Blind / Through Hole				
TOOL MATERIAL			CARBIDE	HSS-E			
CHAMFER LEAD ACC. TO DIN2197			C	C	C	C	C
FLUTE TYPE			Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute
SPIRAL FLUTE ANGLE			-	-	-	-	-
SERIES	M	DIN371/376	T0993 (p.B237)	TE821 (p.B238)	TD821 (p.B239)	TI821 (p.B240)	TY821 (p.B241)
		DIN352					
		DIN357/LONG					
	MF	DIN374		TE403 (p.B242)			
		DIN2181					
	UNC	DIN371/376		TE434 (p.B243)			
		DIN351					
	UNF	DIN371/374		TE454 (p.B244)			
		DIN2181					
	BSW	DIN2182/2183					
		DIN351					
	G(BSP)	DIN5156/5157					
	EG-M	DIN371/376					
	EG-UNC	DIN371/376					
	EG-UNF	DIN371/374					
SURFACE TREATMENT			Bright	Nitride	TiN	TiCN	TiAlN
MODEL							

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B245

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc					
P	1	Non-alloy steel	About 0.15% C	Annealed	125						
	2		About 0.45% C	Annealed	190	13					
	3		About 0.45% C	Quenched & Tempered	250	25					
	4		About 0.75% C	Annealed	270	28					
	5		About 0.75% C	Quenched & Tempered	300	32					
	6	Low alloy steel		Annealed	180	10					
	7			Quenched & Tempered	275	29					
	8			Quenched & Tempered	300	32					
	9			Quenched & Tempered	350	38					
	10	High alloyed steel, and tool steel		Annealed	200	15					
	11			Quenched & Tempered	325	35					
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15					
	13		Martensitic	Quenched & Tempered	240	23					
	14		Austenitic		180	10					
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎	◎	◎
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎	◎	◎
	19	Malleable cast iron	Ferritic		130		○	○	○	○	○
	20		Pearlitic		230	21	○	○	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60						
	22		Curable	Hardened	100						
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎				
	24		≤ 12% Si, Curable	Hardened	90						
	25		> 12% Si, Not Curable		130		◎				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110						
	27		CuZn, CuSnZn (Brass)		90			○	◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper		100						
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					
	32			Cured	280	30					
	33		Ni or Co Based	Annealed	250	25					
	34			Cured	350	38					
	35			Cast	320	34					
	36	Titanium Alloys	Pure Titanium		400 Rm						
	37		Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55					
	39			Hardened	630	60					
	40	Chilled Cast Iron		Cast	400	42	◎				
	41	Hardened Cast Iron		Hardened	550	55					

G TA
CAST I ON

T0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

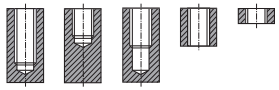
▶ Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for cast iron and high silicon aluminiums.

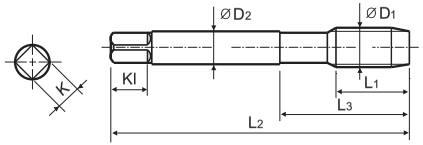
▶ Der VHM-Gewindebohrer kann die Lebensdauer gegenuber HSS-Gewindebohrern erhöhen dank der größeren Härte. Geeignet für Guss und Aluminium mit hohem Siliziumanteil

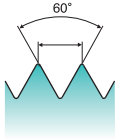
DIN 371

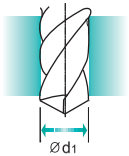
DIN 376

Hole type
2.0×D









Material groups GG | CARBIDE | DIN 371/376 | 6H | 60° | C | Bright | p.B245

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3 × 0.5		T0993206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		T0993226	12	56	20	4	3	6	3	2.9
M4 × 0.7		T0993246	13	63	21	4.5	3.4	6	3	3.3
M5 × 0.8		T0993286	15	70	25	6	4.9	8	4	4.2
M6 × 1		T0993316	17	80	30	6	4.9	8	4	5
M8 × 1.25		T0993366	20	90	35	8	6.2	9	4	6.8
M10 × 1.5		T0993426	22	100	39	10	8	11	4	8.5
M12 × 1.75		T0993506	24	110	44	9	7	10	4	10.2
M14 × 2		T0993546	26	110	44	11	9	12	4	12
M16 × 2		T0993606	27	110	44	12	9	12	4	14
M18 × 2.5		T0993656	30	125	50	14	11	14	4	15.5
M20 × 2.5		T0993706	32	140	54	16	12	15	4	17.5

▶DIN 371(M2~M10) and DIN 376(M11~M20)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended			◎		◎															◎	

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA CAST I ON

TE SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

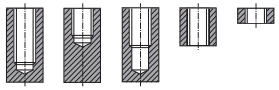
▶ Suitable for tapping cast iron or similar work materials.

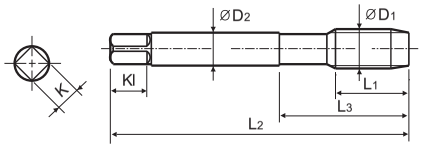
▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen

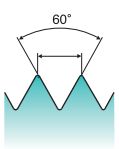
DIN 371

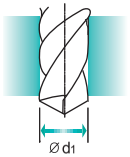
DIN 376

Hole type
2.0×D









Material groups **GG** | HSS | DIN 371/376 | 6H | 60° | C | Nitride | p.B245

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	**TE821136**	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	**TE821156**	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	**TE821196**	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	**TE821176**	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	**TE821496**	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	**TE821206**	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	**TE821226**	12	56	20	4	3	6	3	2.9
M4	× 0.7	**TE821246**	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	**TE821266**	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	**TE821286**	15	70	25	6	4.9	8	4	4.2
M6	× 1	**TE821316**	17	80	30	6	4.9	8	4	5
M7	× 1	**TE821346**	17	80	30	7	5.5	8	4	6
M8	× 1.25	**TE821366**	20	90	35	8	6.2	9	4	6.8
M9	× 1.25	**TE821396**	20	90	35	9	7	10	4	7.8
M10	× 1.5	**TE821426**	22	100	39	10	8	11	4	8.5
M11	× 1.5	**TE821466**	22	100	40	8	6.2	9	4	9.5
M12	× 1.75	**TE821506**	24	110	44	9	7	10	4	10.2
M14	× 2	**TE821546**	26	110	44	11	9	12	4	12
M16	× 2	**TE821606**	27	110	44	12	9	12	4	14
M18	× 2.5	**TE821656**	30	125	50	14	11	14	4	15.5
M20	× 2.5	**TE821706**	32	140	54	16	12	15	4	17.5
M22	× 2.5	**TE821746**	32	140	54	18	14.5	17	4	19.5
M24	× 3	**TE821786**	34	160	60	18	14.5	17	4	21
M27	× 3	**TE821866**	36	160	60	20	16	19	4	24
M30	× 3.5	**TE821946**	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended							○														

G TA CAST I ON

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

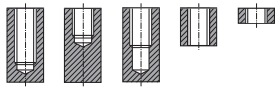
▶ Suitable for tapping cast iron or similar work materials.

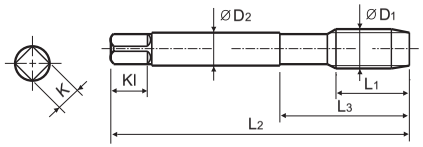
▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen

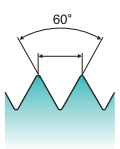
DIN 371

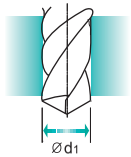
DIN 376

Hole type
2.0×D









Material groups **GG** | HSS | DIN 371/376 | 6H | 60° | C | TiN | p.B245

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	**TD821136**	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	**TD821156**	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	**TD821196**	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	**TD821176**	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	**TD821496**	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	**TD821206**	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	**TD821226**	12	56	20	4	3	6	3	2.9
M4	× 0.7	**TD821246**	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	**TD821266**	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	**TD821286**	15	70	25	6	4.9	8	4	4.2
M6	× 1	**TD821316**	17	80	30	6	4.9	8	4	5
M7	× 1	**TD821346**	17	80	30	7	5.5	8	4	6
M8	× 1.25	**TD821366**	20	90	35	8	6.2	9	4	6.8
M9	× 1.25	**TD821396**	20	90	35	9	7	10	4	7.8
M10	× 1.5	**TD821426**	22	100	39	10	8	11	4	8.5
M11	× 1.5	**TD821466**	22	100	40	8	6.2	9	4	9.5
M12	× 1.75	**TD821506**	24	110	44	9	7	10	4	10.2
M14	× 2	**TD821546**	26	110	44	11	9	12	4	12
M16	× 2	**TD821606**	27	110	44	12	9	12	4	14
M18	× 2.5	**TD821656**	30	125	50	14	11	14	4	15.5
M20	× 2.5	**TD821706**	32	140	54	16	12	15	4	17.5
M22	× 2.5	**TD821746**	32	140	54	18	14.5	17	4	19.5
M24	× 3	**TD821786**	34	160	60	18	14.5	17	4	21
M27	× 3	**TD821866**	36	160	60	20	16	19	4	24
M30	× 3.5	**TD821946**	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended							◎														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA CAST I ON

TI SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

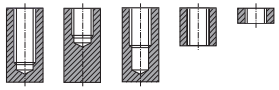
▶ Suitable for tapping cast iron or similar work materials.

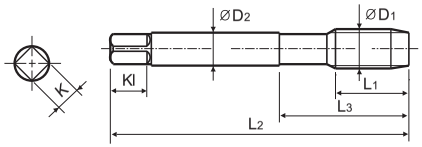
▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen

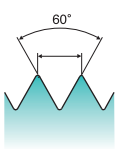
DIN 371

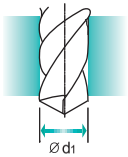
DIN 376

Hole type
2.0×D









Material groups **GG** | HSS | DIN 371/376 | 6H | 60° | C | TiCN | p.B245

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. TiCN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TI821136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TI821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TI821196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TI821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TI821496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TI821206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TI821226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TI821246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TI821266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TI821286	15	70	25	6	4.9	8	4	4.2
M6	× 1	TI821316	17	80	30	6	4.9	8	4	5
M7	× 1	TI821346	17	80	30	7	5.5	8	4	6
M8	× 1.25	TI821366	20	90	35	8	6.2	9	4	6.8
M9	× 1.25	TI821396	20	90	35	9	7	10	4	7.8
M10	× 1.5	TI821426	22	100	39	10	8	11	4	8.5
M11	× 1.5	TI821466	22	100	40	8	6.2	9	4	9.5
M12	× 1.75	TI821506	24	110	44	9	7	10	4	10.2
M14	× 2	TI821546	26	110	44	11	9	12	4	12
M16	× 2	TI821606	27	110	44	12	9	12	4	14
M18	× 2.5	TI821656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TI821706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TI821746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TI821786	34	160	60	18	14.5	17	4	21
M27	× 3	TI821866	36	160	60	20	16	19	4	24
M30	× 3.5	TI821946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended							◎														

G TA CAST I ON

TY SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

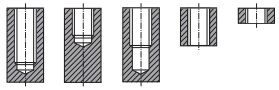
▶ Suitable for tapping cast iron or similar work materials.

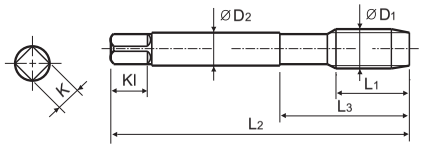
▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen

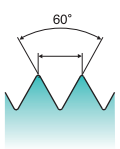
DIN 371

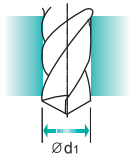
DIN 376

Hole type
2.0×D









Material groups **GG** | HSS | DIN 371/376 | 6H | 60° | C | TiAlN | p.B245

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. TiAlN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TY821136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY821196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY821496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY821206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY821226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TY821246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY821266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY821286	15	70	25	6	4.9	8	4	4.2
M6	× 1	TY821316	17	80	30	6	4.9	8	4	5
M7	× 1	TY821346	17	80	30	7	5.5	8	4	6
M8	× 1.25	TY821366	20	90	35	8	6.2	9	4	6.8
M9	× 1.25	TY821396	20	90	35	9	7	10	4	7.8
M10	× 1.5	TY821426	22	100	39	10	8	11	4	8.5
M11	× 1.5	TY821466	22	100	40	8	6.2	9	4	9.5
M12	× 1.75	TY821506	24	110	44	9	7	10	4	10.2
M14	× 2	TY821546	26	110	44	11	9	12	4	12
M16	× 2	TY821606	27	110	44	12	9	12	4	14
M18	× 2.5	TY821656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TY821706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TY821746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TY821786	34	160	60	18	14.5	17	4	21
M27	× 3	TY821866	36	160	60	20	16	19	4	24
M30	× 3.5	TY821946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended							◎														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA CAST I ON

TE 0 SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

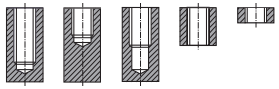
Machine taps
Maschinengewindebohrer

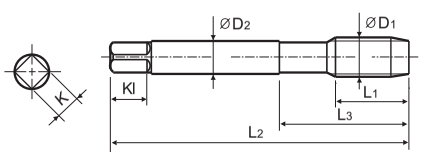
▶ Suitable for tapping cast iron or similar work materials due to nitriding.

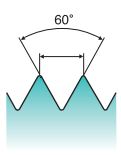
▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung

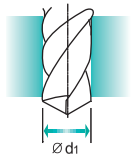
DIN 374

Hole type
2.0×D









Material groups **GG** | HSS | DIN 37 | 6H | 60° | C | Nitride | p.B245

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Ni	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M4	× 0.5	TE403256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TE403296	11	70	25	3.5	2.7	6	4	4.5
M6	× 0.75	TE403326	13	80	30	4.5	3.4	6	4	5.2
M6	× 0.5	TE403336	13	80	30	4.5	3.4	6	4	5.5
M7	× 0.75	TE403356	14	80	30	5.5	4.3	7	4	6.2
M8	× 1	TE403376	17	90	36	6	4.9	8	4	7
M8	× 0.75	TE403386	14	80	30	6	4.9	8	4	7.2
M10	× 1.25	TE403436	22	100	40	7	5.5	8	4	8.8
M10	× 1	TE403446	18	90	36	7	5.5	8	4	9
M10	× 0.75	TE403456	18	90	36	7	5.5	8	4	9.2
M12	× 1.5	TE403516	22	100	40	9	7	10	4	10.5
M12	× 1.25	TE403526	22	100	40	9	7	10	4	10.8
M12	× 1	TE403536	18	100	40	9	7	10	4	11
M14	× 1.5	TE403556	22	100	40	11	9	12	4	12.5
M14	× 1.25	TE403566	22	100	40	11	9	12	4	12.8
M16	× 1.5	TE403616	22	100	40	12	9	12	4	14.5
M18	× 1.5	TE403676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TE403726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TE403766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TE403806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended							○														

G TA CAST I ON

TE SERIES

N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo grosso

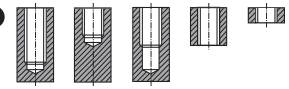
Machine taps
Maschinengewindebohrer

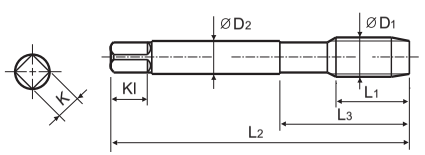
▶ Suitable for tapping cast iron or similar work materials due to nitriding.

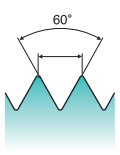
▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung

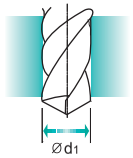
DIN 371
DIN 376

Hole type
2.0×D









Material groups **GG** | HSS | DIN 371/376 | 2 | 60° | C | Nitride | p.B245

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Ni	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 40UNC	TE434162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TE434202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TE434242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TE434282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TE434322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TE434362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TE434402	17	80	30	7	5.5	8	4	5.2
5/16	- 18UNC	TE434442	20	90	35	8	6.2	9	4	6.6
3/8	- 16UNC	TE434482	22	100	39	9	7	10	4	8
7/16	- 14UNC	TE434522	22	100	40	8	6.2	9	4	9.4
1/2	- 13UNC	TE434562	25	110	44	9	7	10	4	10.75
9/16	- 12UNC	TE434602	26	110	44	11	9	12	4	12.25
5/8	- 11UNC	TE434642	27	110	44	12	9	12	4	13.5
3/4	- 10UNC	TE434702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TE434742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TE434782	36	160	60	20	16	17	4	22.25
1-1/8	- 7UNC	TE434822	40	180	70	22	18	21	4	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended							○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA CAST I ON

TE SERIES

N Unified fine threads

- Unified Feingewinde
- UNF
- Unificato passo fine

Machine taps
Maschinengewindebohrer

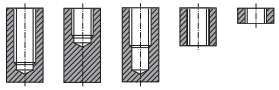
▶ Suitable for tapping cast iron or similar work materials due to nitriding.

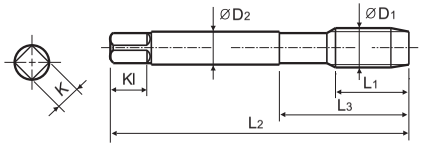
▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung

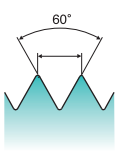
DIN 371

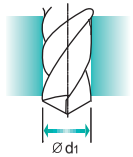
DIN 374

Hole type
2.0×D









Material groups **GG** | HSS | DIN 371/37 | 2 | 60° | C | Nitride

p.B245

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Ni	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	**TE454182**	11	56	18	3.5	2.7	6	3	2.4
#5	44UNF	**TE454222**	11	56	18	3.5	2.7	6	3	2.7
#6	40UNF	**TE454262**	12	56	20	4	3	6	3	3
#8	36UNF	**TE454302**	13	63	21	4.5	3.4	6	3	3.5
#10	32UNF	**TE454342**	15	70	25	6	4.9	8	3	4.1
#12	28UNF	**TE454382**	16	80	30	6	4.9	8	4	4.7
1/4	28UNF	**TE454422**	17	80	30	7	5.5	8	4	5.5
5/16	24UNF	**TE454462**	17	90	35	8	6.2	9	4	6.9
3/8	24UNF	**TE454502**	18	100	39	9	7	10	4	8.5
7/16	20UNF	**TE454542**	22	100	40	8	6.2	9	4	9.9
1/2	20UNF	**TE454582**	22	100	40	9	7	10	4	11.5
9/16	18UNF	**TE454622**	22	100	40	11	9	12	4	12.9
5/8	18UNF	**TE454662**	22	100	40	12	9	12	4	14.5
3/4	16UNF	**TE454722**	25	110	44	14	11	14	4	17.5
7/8	14UNF	**TE454762**	26	125	50	18	14.5	17	4	20.5
1	12UNF	**TE454802**	28	140	54	18	14.5	17	4	23.25
1-1/8	12UNF	**TE454842**	30	150	60	22	18	21	4	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended							○														

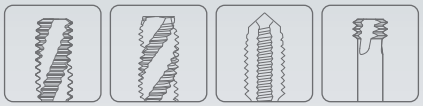
G TA CAST I ON

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	T0993	TE821 TE403 TE434 TE454	TD821	TI821	TY821
					Vc (m/min)				
K	15	Grey cast iron	180	10	10-15	10-15	15-20	15-20	15-20
	16		260	26	5-8	5-8	8-11	8-11	8-11
	17	Nodular cast iron	160	3	10-15	10-15	15-20	15-20	15-20
	18		250	25	5-8	5-8	8-11	8-11	8-11
	19	Malleable cast iron	130		10-15	10-15	15-20	15-20	15-20
	20		230	21	5-8	5-8	8-11	8-11	8-11
N	23	Aluminum-cast, alloyed	75		15-20				
	25		130		10-15				
	27	Copper and Copper Alloys (Bronze / Brass)	90			8-12	12-16	12-16	12-16
H	40	Chilled Cast Iron	400	42	3-5				

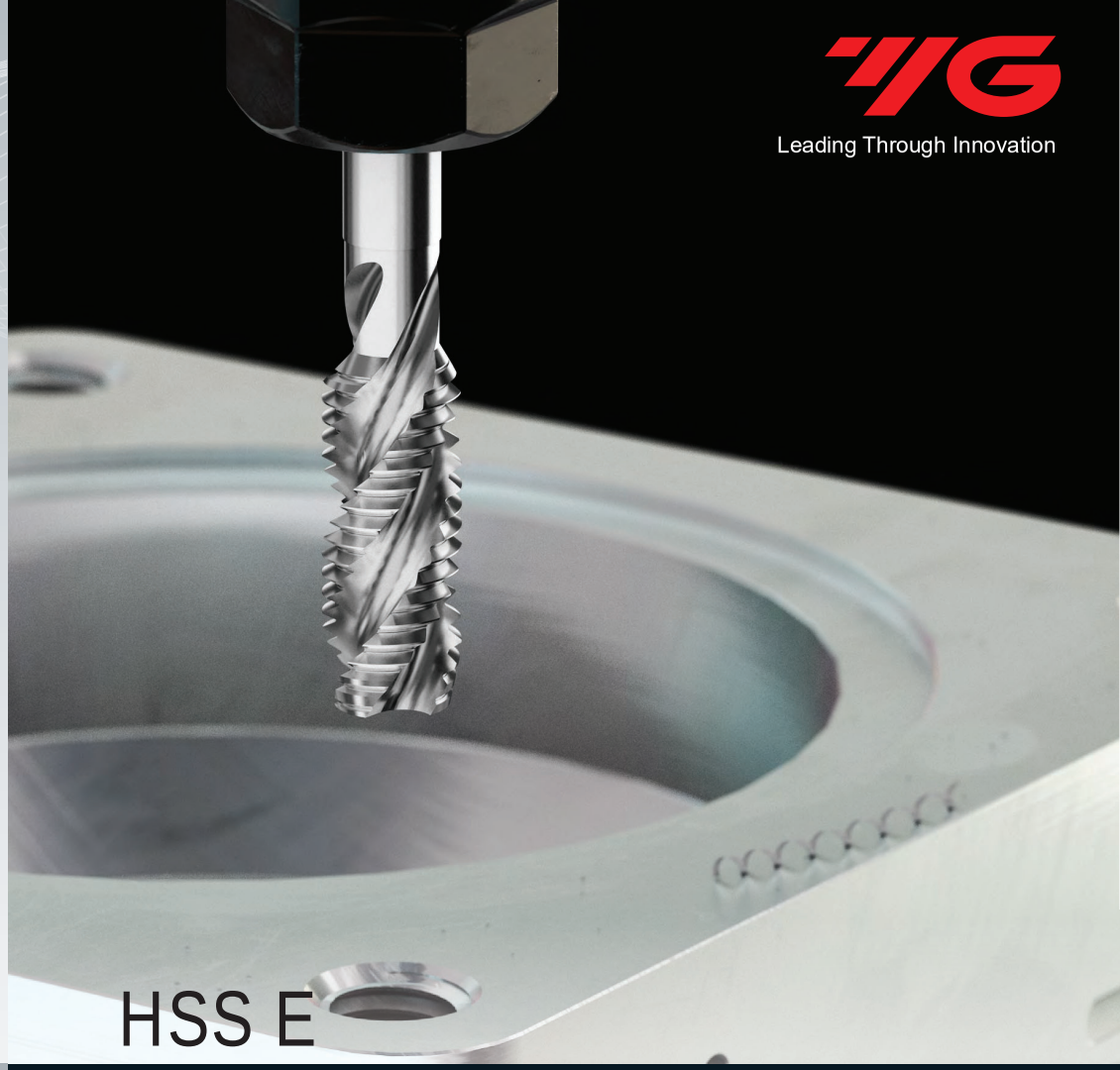
CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

Leading Through Innovation



HSS E

YG TAP AL

YG TAP A

- **For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations**
- **Für langspanende Aluminium-Knetlegierungen mit großen Spanabständen zur Vermeidung von Verstopfungen beim Gewindeschneiden.**

SELE TION G IDE

YG THREADING TOOLS

HSS-E YG TAP AL

For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B260

HOLE TYPE			Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole		Max. 2.0xD Blind/Through Hole		
TOOL MATERIAL			HSS-E		HSS-E				
CHAMFER LEAD ACC. TO DIN2197			C	C	B	B	C	C	C
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Straight Flute	Straight Flute	Straight Flute
SPIRAL FLUTE ANGLE			R45	R40	-	-	-	-	-
SERIES	M	DIN371/376	TC163 (p.B250)	TE953 (p.B251)	TC622 (p.B255)	TE943 (p.B256)	TC433 (p.B257)	TE443 (p.B258)	TY433 (p.B259)
		DIN352							
		DIN357/LONG							
	MF	DIN374	TC963 (p.B252)						
		DIN2181							
	UNC	DIN371/376	TC169 (p.B253)						
		DIN351							
	UNF	DIN371/374	TC170 (p.B254)						
		DIN2181							
	BSW	DIN2182/2183							
		DIN351							
	G(BSP)	DIN5156/5157							
	EG-M	DIN371/376							
	EG-UNC	DIN371/376							
	EG-UNF	DIN371/374							
SURFACE TREATMENT			Bright	Nitride	Bright	Nitride	Bright	Nitride	TiAlN
MODEL									

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc										
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○									1
	2		About 0.45% C	Annealed	190	13	○		○							2
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○	○						3
	4		About 0.75% C	Annealed	270	28										4
	5		About 0.75% C	Quenched & Tempered	300	32										5
	6	Low alloy steel		Annealed	180	10										6
	7			Quenched & Tempered	275	29										7
	8			Quenched & Tempered	300	32										8
	9			Quenched & Tempered	350	38										9
	10	High alloyed steel, and tool steel		Annealed	200	15										10
	11			Quenched & Tempered	325	35										11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15										12
	13		Martensitic	Quenched & Tempered	240	23										13
	14		Austenitic		180	10										14
K	15	Grey cast iron	Pearlitic / ferritic		180	10										15
	16		Pearlitic (Martensitic)		260	26										16
	17	Nodular cast iron	Ferritic		160	3										17
	18		Pearlitic		250	25										18
	19	Malleable cast iron	Ferritic		130											19
	20		Pearlitic		230	21										20
N	21	Aluminum-wrought alloy	Not Curable		60		◎	○	◎	○						21
	22		Curable	Hardened	100		◎	○	◎	○						22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	○	◎	○						23
	24		≤ 12% Si, Curable	Hardened	90		◎	○	◎	○						24
	25		> 12% Si, Not Curable		130			◎		◎						25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110						◎	◎	◎			26
	27		CuZn, CuSnZn (Brass)		90		○		○		○	○	○			27
	28		CuSn, lead-free copper and electrolytic copper		100						○		○			28
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic													29
	30		Rubber, Wood, etc.													30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15										31
	32			Cured	280	30										32
	33		Ni or Co Based	Annealed	250	25										33
	34			Cured	350	38										34
	35			Cast	320	34										35
	36	Titanium Alloys	Pure Titanium		400 Rm											36
	37		Alpha + Beta Alloys	Hardened	1050 Rm											37
H	38	Hardened steel		Hardened	550	55										38
	39			Hardened	630	60										39
	40	Chilled Cast Iron		Cast	400	42										40
	41	Hardened Cast Iron		Hardened	550	55										41

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA ALU

T 6 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

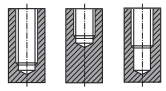
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

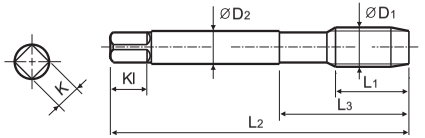
▶ Geeignet zum Gewinden von Sacklöchem dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

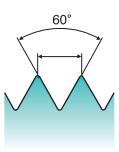
DIN 371

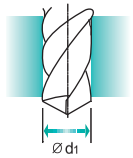
DIN 376

Hole type
2.5×D









Material groups **Al** | HSS-E | DIN 371/376 | 6H | 60° | C | R | Bright | p.B260

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TC163136	8	45	13	2.8	2.1	5	2	1.6
M2.2	× 0.45	TC163156	8	45	13	2.8	2.1	5	2	1.75
*M2.3	× 0.4	TC163196	8	45	13	2.8	2.1	5	2	1.9
M2.5	× 0.45	TC163176	9	50	15	2.8	2.1	5	2	2.05
*M2.6	× 0.45	TC163496	9	50	15	2.8	2.1	5	2	2.1
M3	× 0.5	TC163206	6	56	18	3.5	2.7	6	2	2.5
M3.5	× 0.6	TC163226	7	56	20	4	3	6	2	2.9
M4	× 0.7	TC163246	7	63	21	4.5	3.4	6	2	3.3
M4.5	× 0.75	TC163266	8	70	25	6	4.9	8	2	3.7
M5	× 0.8	TC163286	8	70	25	6	4.9	8	2	4.2
M6	× 1	TC163316	10	80	30	6	4.9	8	2	5
M7	× 1	TC163346	10	80	30	7	5.5	8	2	6
M8	× 1.25	TC163366	13	90	35	8	6.2	9	2	6.8
M9	× 1.25	TC163396	13	90	35	9	7	10	2	7.8
M10	× 1.5	TC163426	15	100	39	10	8	11	2	8.5
M11	× 1.5	TC163466	17	100	40	8	6.2	9	2	9.5
M12	× 1.75	TC163506	18	110	44	9	7	10	2	10.2
M14	× 2	TC163546	20	110	44	11	9	12	3	12
M16	× 2	TC163606	20	110	44	12	9	12	3	14
M18	× 2.5	TC163656	25	125	50	14	11	14	3	15.5
M20	× 2.5	TC163706	25	140	54	16	12	15	3	17.5
M22	× 2.5	TC163746	25	140	54	18	14.5	17	3	19.5
M24	× 3	TC163786	30	160	60	18	14.5	17	3	21
M27	× 3	TC163866	30	160	60	20	16	19	3	24
M30	× 3.5	TC163946	35	180	70	22	18	21	3	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			○														

G TA ALU

TE SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

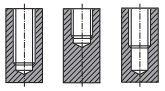
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

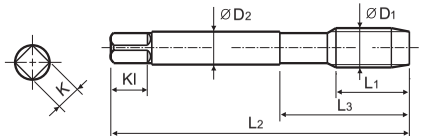
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

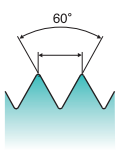
DIN 371

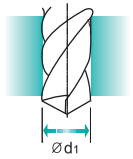
DIN 376

Hole type
2.5×D









Material groups **Al** | HSS-E | DIN 371/376 | 6H | 60° | C | R | Nitride | p.B260

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Ni	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TE953136	8	45	13	2.8	2.1	5	2	1.6
M2.2	× 0.45	TE953156	8	45	13	2.8	2.1	5	2	1.75
*M2.3	× 0.4	TE953196	8	45	13	2.8	2.1	5	2	1.9
M2.5	× 0.45	TE953176	9	50	15	2.8	2.1	5	2	2.05
*M2.6	× 0.45	TE953496	9	50	15	2.8	2.1	5	2	2.1
M3	× 0.5	TE953206	6	56	18	3.5	2.7	6	2	2.5
M3.5	× 0.6	TE953226	7	56	20	4	3	6	2	2.9
M4	× 0.7	TE953246	7	63	21	4.5	3.4	6	2	3.3
M4.5	× 0.75	TE953266	8	70	25	6	4.9	8	2	3.7
M5	× 0.8	TE953286	8	70	25	6	4.9	8	2	4.2
M6	× 1	TE953316	10	80	30	6	4.9	8	2	5
M7	× 1	TE953346	10	80	30	7	5.5	8	2	6
M8	× 1.25	TE953366	13	90	35	8	6.2	9	2	6.8
M9	× 1.25	TE953396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TE953426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TE953466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE953506	18	110	44	9	7	10	3	10.2
M14	× 2	TE953546	20	110	44	11	9	12	3	12
M16	× 2	TE953606	20	110	44	12	9	12	3	14
M18	× 2.5	TE953656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TE953706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TE953746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TE953786	30	160	60	18	14.5	17	4	21
M27	× 3	TE953866	30	160	60	20	16	19	4	24
M30	× 3.5	TE953946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended			○																	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	◎																

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA ALU

T 6 SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo grosso DIN 13

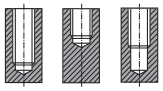
Machine taps
Maschinengewindebohrer

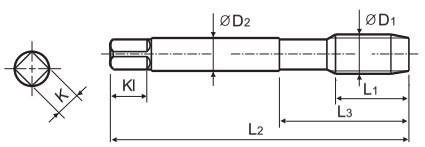
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

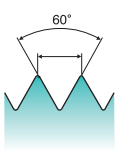
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

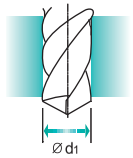
DIN 374

Hole type
2.5×D









Material groups **Al** | HSS-E | DIN 37 | 6H | 60° | C | R | Bright | p.B260

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TC963256	5	63	21	2.8	2.1	5	2	3.5
M5	× 0.5	TC963296	5	70	25	3.5	2.7	6	2	4.5
M6	× 0.75	TC963326	8	80	30	4.5	3.4	6	2	5.2
M6	× 0.5	TC963336	5	80	30	4.5	3.4	6	2	5.5
M7	× 0.75	TC963356	10	80	30	5.5	4.3	7	2	6.2
M8	× 1	TC963376	10	90	36	6	4.9	8	2	7
M8	× 0.75	TC963386	8	80	30	6	4.9	8	2	7.2
M10	× 1.25	TC963436	16	100	40	7	5.5	8	2	8.8
M10	× 1	TC963446	10	90	36	7	5.5	8	2	9
M10	× 0.75	TC963456	10	90	36	7	5.5	8	2	9.2
M12	× 1.5	TC963516	15	100	40	9	7	10	2	10.5
M12	× 1.25	TC963526	15	100	40	9	7	10	2	10.8
M12	× 1	TC963536	11	100	40	9	7	10	2	11
M14	× 1.5	TC963556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC963566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TC963616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TC963676	17	110	44	14	11	14	3	16.5
M20	× 1.5	TC963726	17	125	50	16	12	15	3	18.5
M22	× 1.5	TC963766	17	125	50	18	14.5	17	3	20.5
M24	× 1.5	TC963806	20	140	54	18	14.5	17	3	22.5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			○														

G TA ALU

T 6 SERIES

N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo grosso

Machine taps
Maschinengewindebohrer

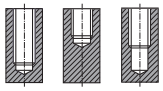
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

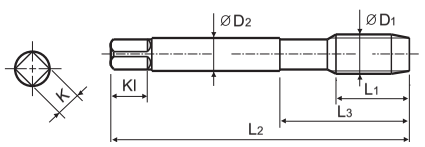
Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

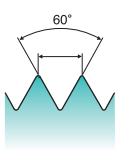
DIN 371

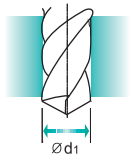
DIN 376

Hole type
2.5×D









Material groups **Al** | HSS-E | DIN 371/376 | 2 | 60° | C | R | Bright | p.B260

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	- 40UNC	TC169162	6	56	18	3.5	2.7	6	2	2.3
#5	- 40UNC	TC169202	7	56	18	3.5	2.7	6	2	2.6
#6	- 32UNC	TC169242	7	56	20	4	3	6	2	2.85
#8	- 32UNC	TC169282	8	63	21	4.5	3.4	6	2	3.5
#10	- 24UNC	TC169322	10	70	25	6	4.9	8	2	3.9
#12	- 24UNC	TC169362	10	80	30	6	4.9	8	2	4.5
1/4	- 20UNC	TC169402	13	80	30	7	5.5	8	2	5.2
5/16	- 18UNC	TC169442	14	90	35	8	6.2	9	2	6.6
3/8	- 16UNC	TC169482	16	100	39	9	7	10	2	8
7/16	- 14UNC	TC169522	17	100	40	8	6.2	9	2	9.4
1/2	- 13UNC	TC169562	20	110	44	9	7	10	2	10.75
9/16	- 12UNC	TC169602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC169642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC169702	25	125	50	14	11	14	3	16.5
7/8	- 9UNC	TC169742	27	140	54	18	14.5	17	3	19.5
1	- 8UNC	TC169782	30	160	60	20	16	19	3	22.25
1-1/8	- 7UNC	TC169822	35	180	65	22	18	21	3	25

▶DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA ALU

T 0 SERIES

N Unified fine threads

- Unified Feingewinde
- UNF
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

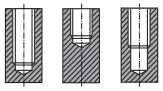
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

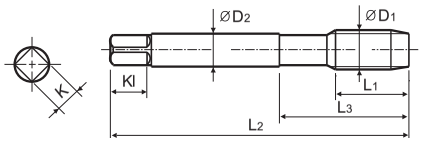
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

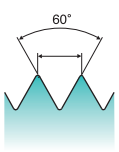
DIN 371

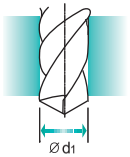
DIN 374

Hole type
2.5×D









Material groups: **Al** | HSS-E | DIN 371/37 | 2 | 60° | C | R | Bright | p.B260

Recommended ToolHolder

Plain Shank	Page
TAPPING ER CHUCK	D215-220
TAPPING CHUCK	D221-228
ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48UNF	TC170182	6	56	18	3.5	2.7	6	2	2.4
#5	44UNF	TC170222	7	56	18	3.5	2.7	6	2	2.7
#6	40UNF	TC170262	7	56	20	4	3	6	2	3
#8	36UNF	TC170302	8	63	21	4.5	3.4	6	2	3.5
#10	32UNF	TC170342	10	70	25	6	4.9	8	2	4.1
#12	28UNF	TC170382	10	80	30	6	4.9	8	2	4.7
1/4	28UNF	TC170422	10	80	30	7	5.5	8	2	5.5
5/16	24UNF	TC170462	10	90	35	8	6.2	9	2	6.9
3/8	24UNF	TC170502	10	100	39	9	7	10	2	8.5
7/16	20UNF	TC170542	13	100	40	8	6.2	9	2	9.9
1/2	20UNF	TC170582	13	100	40	9	7	10	2	11.5
9/16	18UNF	TC170622	15	100	40	11	9	12	3	12.9
5/8	18UNF	TC170662	15	100	40	12	9	12	3	14.5
3/4	16UNF	TC170722	17	110	44	14	11	14	3	17.5
7/8	14UNF	TC170762	17	125	50	18	14.5	17	3	20.5
1	12UNF	TC170802	20	140	54	18	14.5	17	3	23.25
1-1/8	12UNF	TC170842	22	150	60	22	18	21	3	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			○														

G TA ALU

T 6 SERIES

M A ISO metric coarse threads DIN 13

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

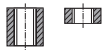
▶ Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

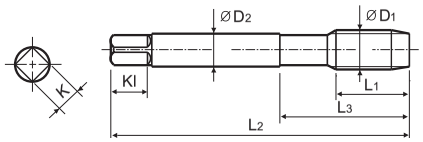
▶ Gewindebohrer mit ausgesetzten Zahnen um die Kontaktzone mit dem Werkstuck und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.

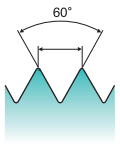
DIN 371

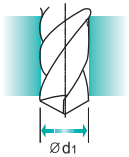
DIN 376

Hole type
3.0×D









Material groups: **Al** | HSS-E | DIN 371/376 | 6H | 60° | Bright | p.B260

Recommended ToolHolder

Plain Shank	Page
TAPPING ER CHUCK	D215-220
TAPPING CHUCK	D221-228
ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TC622136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC622156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC622196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC622176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC622496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC622206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC622226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC622246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC622266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC622286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC622316	17	80	30	6	4.9	8	3	5
M7	× 1	TC622346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC622366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC622396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC622426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC622466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC622506	24	110	44	9	7	10	3	10.2
M14	× 2	TC622546	26	110	44	11	9	12	3	12
M16	× 2	TC622606	27	110	44	12	9	12	3	14
M18	× 2.5	TC622656	30	125	50	14	11	14	3	15.5
M20	× 2.5	TC622706	32	140	54	16	12	15	3	17.5
M22	× 2.5	TC622746	32	140	54	18	14.5	17	3	19.5
M24	× 3	TC622786	34	160	60	18	14.5	17	3	21
M27	× 3	TC622866	36	160	60	20	16	19	3	24
M30	× 3.5	TC622946	40	180	70	22	18	21	3	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)

▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA ALU

TE SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

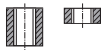
▶ Suitable for through hole in more cutting speed than other taps due to thick web.

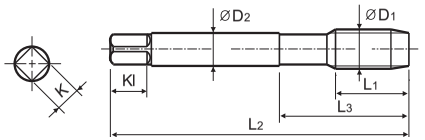
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

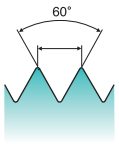
DIN 371

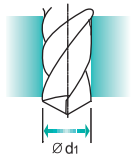
DIN 376

Hole type
3.0×D









Material groups **Al** | HSS-E | DIN 371/376 | 6H | 60° | Nitride | p.B260

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Ni	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TE943136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TE943156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TE943196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TE943176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TE943496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TE943206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TE943226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TE943246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TE943266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TE943286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TE943316	17	80	30	6	4.9	8	3	5
M7	× 1	TE943346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TE943366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TE943396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TE943426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TE943466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE943506	24	110	44	9	7	10	3	10.2
M14	× 2	TE943546	26	110	44	11	9	12	3	12
M16	× 2	TE943606	27	110	44	12	9	12	3	14
M18	× 2.5	TE943656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TE943706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TE943746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TE943786	34	160	60	18	14.5	17	4	21
M27	× 3	TE943866	36	160	60	20	16	19	4	24
M30	× 3.5	TE943946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended			○																	

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	◎																

G TA ALU

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

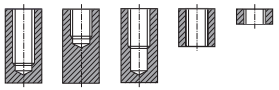
▶ Suitable for brass and short chip work materials.

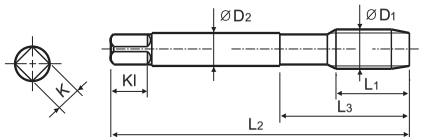
▶ Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen

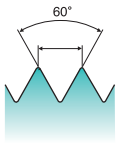
DIN 371

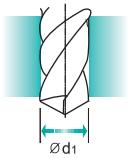
DIN 376

Hole type
2.0×D









Material groups **Ms** | HSS-E | DIN 371/376 | 6H | 60° | C | Bright | p.B260

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TC433136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC433156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC433196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC433176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC433496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC433206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC433226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC433246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC433266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC433286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC433316	17	80	30	6	4.9	8	3	5
M7	× 1	TC433346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC433366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC433396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC433426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC433466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC433506	24	110	44	9	7	10	3	10.2
M14	× 2	TC433546	26	110	44	11	9	12	3	12
M16	× 2	TC433606	27	110	44	12	9	12	3	14
M18	× 2.5	TC433656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC433706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC433746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC433786	34	160	60	18	14.5	17	4	21
M27	× 3	TC433866	36	160	60	20	16	19	4	24
M30	× 3.5	TC433946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						◎	○	○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA ALU

TE SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

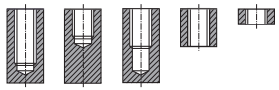
▶ Suitable for brass and short chip work materials.

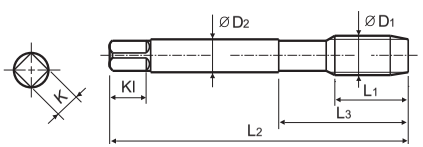
▶ Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen

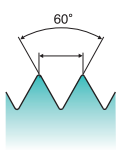
DIN 371

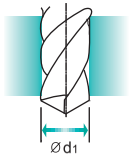
DIN 376

Hole type
2.0×D









Material groups **Ms** | HSS-E | DIN 371/376 | 6H | 60° | C | Nitride | p.B260

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TE443136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TE443156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TE443196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TE443176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TE443496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TE443206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TE443226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TE443246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TE443266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TE443286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TE443316	17	80	30	6	4.9	8	3	5
M7	× 1	TE443346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TE443366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TE443396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TE443426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TE443466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE443506	24	110	44	9	7	10	3	10.2
M14	× 2	TE443546	26	110	44	11	9	12	3	12
M16	× 2	TE443606	27	110	44	12	9	12	3	14
M18	× 2.5	TE443656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TE443706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TE443746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TE443786	34	160	60	18	14.5	17	4	21
M27	× 3	TE443866	36	160	60	20	16	19	4	24
M30	× 3.5	TE443946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						◎	○														

G TA ALU

TY SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

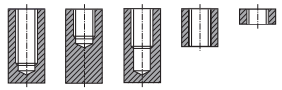
▶ Suitable for brass and short chip work materials.

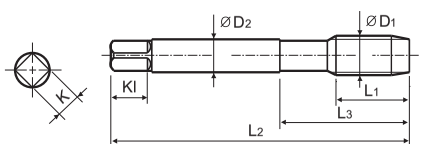
▶ Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen

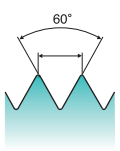
DIN 371

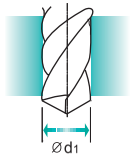
DIN 376

Hole type
2.0×D









Material groups **Ms** | HSS-E | DIN 371/376 | 6H | 60° | C | TiAlN | p.B260

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TY433136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY433156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY433196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY433176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY433496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY433206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY433226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TY433246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY433266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY433286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TY433316	17	80	30	6	4.9	8	3	5
M7	× 1	TY433346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TY433366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY433396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TY433426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TY433466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY433506	24	110	44	9	7	10	3	10.2
M14	× 2	TY433546	26	110	44	11	9	12	3	12
M16	× 2	TY433606	27	110	44	12	9	12	3	14
M18	× 2.5	TY433656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TY433706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TY433746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TY433786	34	160	60	18	14.5	17	4	21
M27	× 3	TY433866	36	160	60	20	16	19	4	24
M30	× 3.5	TY433946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶ * DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						◎	○	○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

YG TAP AL

RE OMMENDED TTING ONDITIONS
EMP OHLENE S HNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TC163 TC963 TC169 TC170	TE953	TC622	TE943	TC433	TE443	TY433
					Vc (m/min)						
P	1	Non-alloy steel	125		15-20		15-20				
	2		190	13	15-20		15-20				
	3		250	25	12-18	12-18	12-18	12-18			
N	21	Aluminum-wrought alloy	60		10-15	10-15	10-15	10-15			
	22		100		10-15	10-15	10-15	10-15			
	23	Aluminum-cast, alloyed	75		15-20	15-20	15-20	15-20			
	24		90		15-20	15-20	15-20	15-20			
	25		130			10-15		10-15			
	26	Copper and Copper Alloys (Bronze / Brass)	110						25-35	25-35	35-40
	27		90		8-12		8-12		8-12	8-12	12-16
	28		100						15-20		20-25

Leading Through Innovation

HSS PM

YG TAP T N

YG G T

S

- **For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief**
- **Für hitzebeständige Superlegierungen und Titanlegierungen, mit Schneidkanten-Spanwinkeln und Gewindehinterschliff**

SELE TION G IDE

YG THREADING TOOLS

HSS-PM
YG TAP
T N

For Heat Resistent Super Alloys and Titanium Alloys
Applied with Cutting Edge Rake Angles and Thread Relief

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B276

HOLE TYPE			Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole	
TOOL MATERIAL			HSS-PM			
CHAMFER LEAD ACC. TO DIN2197			C	C	B	B
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Point	Spiral Point
SPIRAL FLUTE ANGLE			R25	R25	-	-
SERIES	M	DIN371/376	TM903 (p.B264)	TZ903 (p.B265)	TM293 (p.B266)	TZ293 (p.B267)
		DIN352				
		DIN357/LONG				
	MF	DIN374				
		DIN2181				
	UNC	DIN371/376				
		DIN351				
	UNF	DIN371/374				
		DIN2181				
	BSW	DIN2182/2183				
		DIN351				
	G(BSP)	DIN5156/5157				
	EG-M	DIN371/376				
	EG-UNC	DIN371/376				
	EG-UNF	DIN371/374				
SURFACE TREATMENT			Bright	TiAlN	Bright	TiAlN
MODEL						

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc				
P	1	Non-alloy steel	About 0.15% C	Annealed	125					
	2		About 0.45% C	Annealed	190	13				
	3		About 0.45% C	Quenched & Tempered	250	25				
	4		About 0.75% C	Annealed	270	28				
	5		About 0.75% C	Quenched & Tempered	300	32				
	6	Low alloy steel		Annealed	180	10				
	7			Quenched & Tempered	275	29	○	○	○	○
	8			Quenched & Tempered	300	32	○	○	○	○
	9			Quenched & Tempered	350	38	○	○	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15				
	11			Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10				
	16		Pearlitic (Martensitic)		260	26				
	17	Nodular cast iron	Ferritic		160	3				
	18		Pearlitic		250	25				
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○
	32			Cured	280	30			○	○
	33		Ni or Co Based	Annealed	250	25			○	○
	34			Cured	350	38			○	○
	35			Cast	320	34			○	○
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm		◎	◎	◎	◎
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42			○	○
	41	Hardened Cast Iron		Hardened	550	55				

	Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole		Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole		
	HSS-PM								
	C	C	B	B	C	C	B	B	
	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	
	R40	R40	-	-	R40	R40	-	-	
	TM933 (p.B268)	TZ933 (p.B269)	TM923 (p.B270)	TZ923 (p.B271)	TQ833 (p.B272)	TR833 (p.B273)	TQ873 (p.B274)	TR873 (p.B275)	M
									MF
									UNC
									UNF
									BSW
									G(BSP)
									EG-M
									EG-UNC
									EG-UNF
	Bright	TiAlN	Bright	TiAlN	VAP	Bright	VAP	Bright	
									1
									2
									3
									4
									5
	◎	◎	◎	◎	◎	◎	◎	◎	6 P
	◎	◎	◎	◎	◎	◎	◎	◎	7
	◎	◎	◎	◎	◎	◎	◎	◎	8
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	◎	◎	◎	◎	◎	◎	◎	◎	35
					○	○	○	○	36
	○	○	○	○	◎	◎	◎	◎	37
				○					38
									39 H
			○	○			○	○	40
									41

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

GTA TN

TM 0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

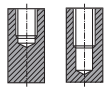
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

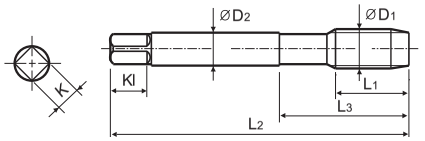
▶ Geeignet zum Gewinden von Sacklöchem dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

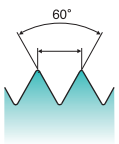
DIN 371

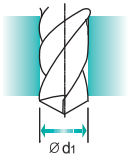
DIN 376

Hole type
2.5×D









Material groups: Ti | HSS PM | DIN 371/376 | 6H | 60° | C | R2 | Bright | p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TM903136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TM903156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TM903196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TM903176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TM903496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TM903206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TM903226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TM903246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TM903266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TM903286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TM903316	10	80	30	6	4.9	8	3	5
M7	× 1	TM903346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TM903366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TM903396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TM903426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TM903466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TM903506	18	110	44	9	7	10	3	10.2
M14	× 2	TM903546	20	110	44	11	9	12	3	12
M16	× 2	TM903606	20	110	44	12	9	12	3	14
M18	× 2.5	TM903656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TM903706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TM903746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TM903786	30	160	60	18	14.5	17	4	21
M27	× 3	TM903866	30	160	60	20	16	19	4	24
M30	× 3.5	TM903946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	○							○	○	○		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○	◎				

GTA TN

T 0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

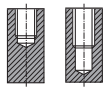
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

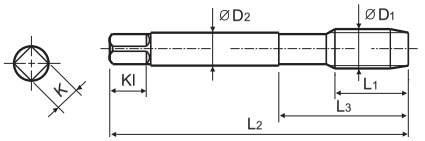
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

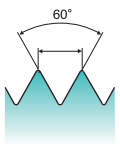
DIN 371

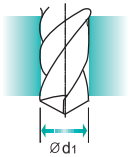
DIN 376

Hole type
2.5×D









Material groups: Ti | HSS PM | DIN 371/376 | 6H | 60° | C | R2 | TiAlN | p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. TiAlN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TZ903136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TZ903156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TZ903196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TZ903176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TZ903496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TZ903206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TZ903226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TZ903246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TZ903266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TZ903286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TZ903316	10	80	30	6	4.9	8	3	5
M7	× 1	TZ903346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TZ903366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TZ903396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TZ903426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TZ903466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TZ903506	18	110	44	9	7	10	3	10.2
M14	× 2	TZ903546	20	110	44	11	9	12	3	12
M16	× 2	TZ903606	20	110	44	12	9	12	3	14
M18	× 2.5	TZ903656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TZ903706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TZ903746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TZ903786	30	160	60	18	14.5	17	4	21
M27	× 3	TZ903866	30	160	60	20	16	19	4	24
M30	× 3.5	TZ903946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended								○	○	○										

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○	◎				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

GTA TN

TM SERIES

M A ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

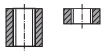
▶ Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

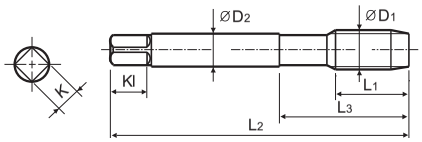
▶ Gewindebohrer mit ausgesetzten Zahnen um die Kontaktzone mit dem Werkstuck und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.

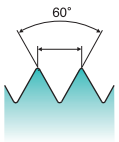
DIN 371

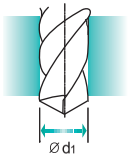
DIN 376

Hole type
3.0×D









Material groups: Ti | HSS PM | DIN 371/376 | 6H | 60° | Bright

p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TM293136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TM293156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TM293196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TM293176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TM293496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TM293206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TM293226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TM293246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TM293266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TM293286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TM293316	17	80	30	6	4.9	8	3	5
M7	× 1	TM293346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TM293366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TM293396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TM293426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TM293466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TM293506	24	110	44	9	7	10	3	10.2
M14	× 2	TM293546	26	110	44	11	9	12	3	12
M16	× 2	TM293606	27	110	44	12	9	12	3	14
M18	× 2.5	TM293656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TM293706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TM293746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TM293786	34	160	60	18	14.5	17	4	21
M27	× 3	TM293866	36	160	60	20	16	19	4	24
M30	× 3.5	TM293946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	○											

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○	○	○	○	○	○	◎			○	

GTA TN

T SERIES

M A ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

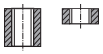
▶ Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

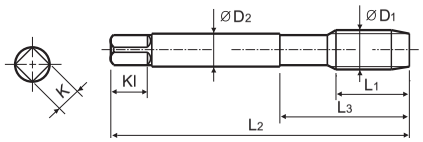
▶ Gewindebohrer mit ausgesetzten Zahnen um die Kontaktzone mit dem Werkstuck und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.

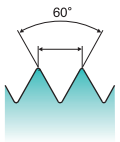
DIN 371

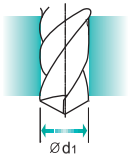
DIN 376

Hole type
3.0×D









Material groups: Ti | HSS PM | DIN 371/376 | 6H | 60° | TiAlN

p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TZ293136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TZ293156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TZ293196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TZ293176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TZ293496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TZ293206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TZ293226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TZ293246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TZ293266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TZ293286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TZ293316	17	80	30	6	4.9	8	3	5
M7	× 1	TZ293346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TZ293366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TZ293396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TZ293426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TZ293466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TZ293506	24	110	44	9	7	10	3	10.2
M14	× 2	TZ293546	26	110	44	11	9	12	3	12
M16	× 2	TZ293606	27	110	44	12	9	12	3	14
M18	× 2.5	TZ293656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TZ293706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TZ293746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TZ293786	34	160	60	18	14.5	17	4	21
M27	× 3	TZ293866	36	160	60	20	16	19	4	24
M30	× 3.5	TZ293946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	○											

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○	○	○	○	○	○	◎			○	

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

GTA T N

TM SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

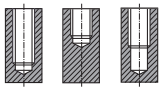
▶ For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and checmical industries.

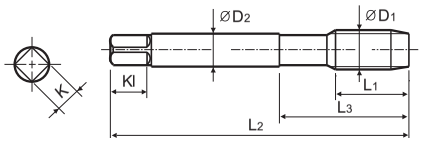
▶ Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

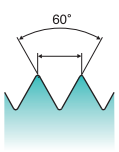
DIN 371

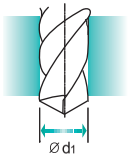
DIN 376

Hole type
2.5×D









Material groups: Ni | HSS PM | DIN 371/376 | 6H | 60° | C | R | Bright | p.B276

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.268

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TM933136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TM933156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TM933196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TM933176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TM933496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TM933206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TM933226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TM933246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TM933266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TM933286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TM933316	10	80	30	6	4.9	8	3	5
M7	× 1	TM933346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TM933366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TM933396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TM933426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TM933466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TM933506	18	110	44	9	7	10	3	10.2
M14	× 2	TM933546	20	110	44	11	9	12	3	12
M16	× 2	TM933606	20	110	44	12	9	12	3	14
M18	× 2.5	TM933656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TM933706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TM933746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TM933786	30	160	60	18	14.5	17	4	21
M27	× 3	TM933866	30	160	60	20	16	19	4	24
M30	× 3.5	TM933946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎						◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎		○				

GTA T N

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

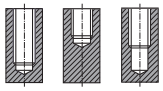
▶ For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and checmical industries.

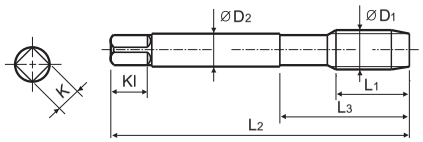
▶ Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

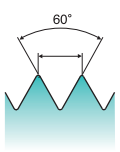
DIN 371

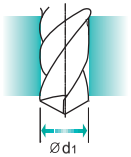
DIN 376

Hole type
2.5×D









Material groups: Ni | HSS PM | DIN 371/376 | 6H | 60° | C | R | TiAlN | p.B276

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.268

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TZ933136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TZ933156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TZ933196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TZ933176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TZ933496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TZ933206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TZ933226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TZ933246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TZ933266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TZ933286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TZ933316	10	80	30	6	4.9	8	3	5
M7	× 1	TZ933346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TZ933366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TZ933396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TZ933426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TZ933466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TZ933506	18	110	44	9	7	10	3	10.2
M14	× 2	TZ933546	20	110	44	11	9	12	3	12
M16	× 2	TZ933606	20	110	44	12	9	12	3	14
M18	× 2.5	TZ933656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TZ933706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TZ933746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TZ933786	30	160	60	18	14.5	17	4	21
M27	× 3	TZ933866	30	160	60	20	16	19	4	24
M30	× 3.5	TZ933946	35	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎		○				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

GTA TN

TM SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

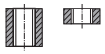
▶ For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and checmical industries.

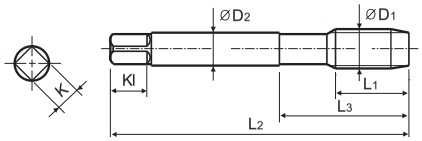
▶ Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

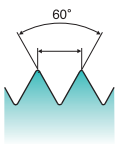
DIN 371

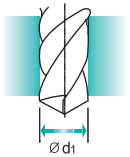
DIN 376

Hole type
3.0×D









Material groups: Ni | HSS PM | DIN 371/376 | 6H | 60° | Bright

p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TM923136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TM923156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TM923196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TM923176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TM923496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TM923206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TM923226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TM923246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TM923266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TM923286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TM923316	17	80	30	6	4.9	8	3	5
M7	× 1	TM923346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TM923366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TM923396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TM923426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TM923466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TM923506	24	110	44	9	7	10	3	10.2
M14	× 2	TM923546	26	110	44	11	9	12	3	12
M16	× 2	TM923606	27	110	44	12	9	12	3	14
M18	× 2.5	TM923656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TM923706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TM923746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TM923786	34	160	60	18	14.5	17	4	21
M27	× 3	TM923866	36	160	60	20	16	19	4	24
M30	× 3.5	TM923946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎						◎	◎	◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎		○			○	

GTA TN

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

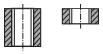
▶ For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and checmical industries.

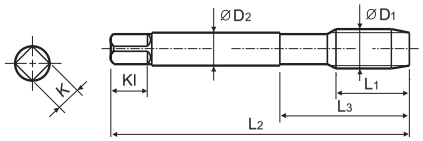
▶ Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

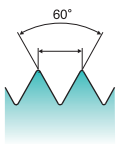
DIN 371

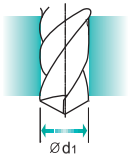
DIN 376

Hole type
3.0×D









Material groups: Ni | HSS PM | DIN 371/376 | 6H | 60° | TiAlN

p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	Pitch P	EDP No. TiAlN	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2	× 0.4	TZ923136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TZ923156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TZ923196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TZ923176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TZ923496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TZ923206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TZ923226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TZ923246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TZ923266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TZ923286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TZ923316	17	80	30	6	4.9	8	3	5
M7	× 1	TZ923346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TZ923366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TZ923396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TZ923426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TZ923466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TZ923506	24	110	44	9	7	10	3	10.2
M14	× 2	TZ923546	26	110	44	11	9	12	3	12
M16	× 2	TZ923606	27	110	44	12	9	12	3	14
M18	× 2.5	TZ923656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TZ923706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TZ923746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TZ923786	34	160	60	18	14.5	17	4	21
M27	× 3	TZ923866	36	160	60	20	16	19	4	24
M30	× 3.5	TZ923946	40	180	70	22	18	21	4	26.5

▶DIN 371(M2~M10) and DIN 376(M11~M30)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							◎	◎	◎											

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎		○	○		○	

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

GTA T N

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

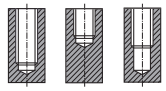
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

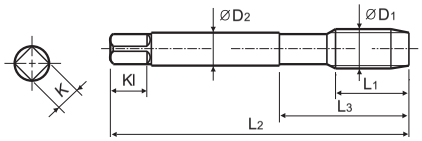
▶ Geeignet zum Gewinden von Sacklöchem dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

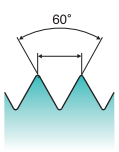
DIN 371

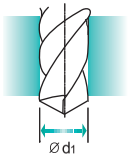
DIN 376

Hole type
2.5×D









Material groups: Ti Ni | HSS PM | DIN 371/376 | 6H | 60° | C | R | Vap | p.B276

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TQ833136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ833156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ833176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ833206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ833226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ833246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ833266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ833286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ833316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ833346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ833426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ833506	18	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	○	◎				

GTA T N

TR SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

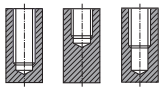
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

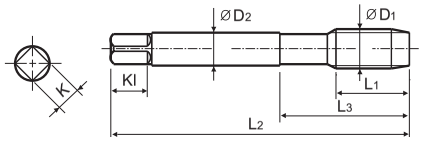
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

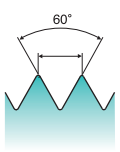
DIN 371

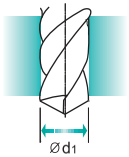
DIN 376

Hole type
2.5×D









Material groups: Ti Ni | HSS PM | DIN 371/376 | 6H | 60° | C | R | Bright | p.B276

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TR833136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR833156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR833176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR833206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR833226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TR833246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR833266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR833286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TR833316	10	80	30	6	4.9	8	3	5
M7	× 1	TR833346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TR833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR833426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TR833506	18	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	○	◎				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

GTA T N

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

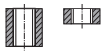
▶ Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

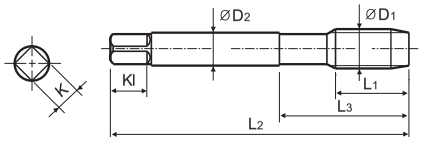
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

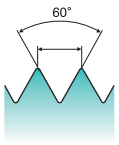
DIN 371

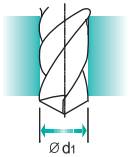
DIN 376

Hole type
3.0×D









Material groups: Ti Ni | HSS PM | DIN 371/376 | 6H | 60° | Vap

p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TQ873136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ873156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ873176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ873206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ873226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ873246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ873266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ873286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ873316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ873346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ873366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ873426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ873506	24	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

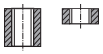
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	○	◎			○	

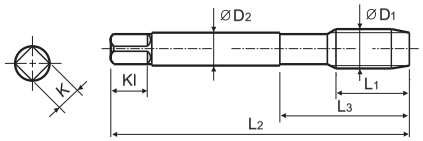
GTA T N

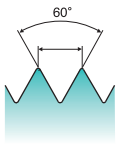
TR SERIES

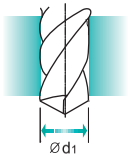
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13
Machine taps
Maschinengewindebohrer
▶ Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.
▶ Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.
DIN 371
DIN 376

Hole type
3.0×D









Material groups: Ti Ni | HSS PM | DIN 371/376 | 6H | 60° | Bright

p.B276

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2	× 0.4	TR873136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR873156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR873176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR873206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR873226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR873246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR873266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR873286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR873316	17	80	30	6	4.9	8	3	5
M7	× 1	TR873346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR873366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR873426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR873506	24	110	44	9	7	10	3	10.2

▶DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											◎	◎	◎	◎	◎	○	◎			○	

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

YG TAP T N

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

					TM903	TZ903	TM293	TZ293	TM933	TZ933	TM923	TZ923	TQ833	TR833	TQ873	TR873
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)											
P	6	Low alloy steel	180	10					10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	7		275	29	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	8		300	32	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10
	9		350	38	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5
S	31	Heat Resistant Super Alloys	200	15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	32		280	30			10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	33		250	25			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	34		350	38			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	35		320	34			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	36	Titanium Alloys	400 Rm		10-15	10-15	10-15	10-15					10-15	10-15	10-15	10-15
	37		1050 Rm		4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6
H	38	Hardened steel	550	55								3-5				
	40	Chilled Cast Iron	400	42			3-5	3-5			3-5	3-5			3-5	3-5

Leading Through Innovation

HSS E HSS PM

YG TAP ORMING

YG INNENGE INDE ORMER

- **Tapping by Forming Soft Materials**
- **Gewindeherstellung duch Formen von weichen Materialien**

SELE TION G IDE

THREADING TOOLS

HSS-E & HSS-PM

YG TAP ORMING

Tapping by Forming Soft Materials

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B293

HOLE TYPE			Max. 3.0xD Blind / Through Hole	
TOOL MATERIAL			HSS-E	
CHAMFER LEAD ACC. TO DIN2197			C	C
FLUTE TYPE			-	-
SPIRAL FLUTE ANGLE			-	-
SERIES	M	DIN371/376	TD703 (p.B280)	TE703 (p.B281)
		DIN352		
		DIN357/LONG		
	MF	DIN374	TD733 (p.B289)	TE733 (p.B290)
		DIN2181		
	UNC	DIN371/376	TD704 (p.B291)	TE704 (p.B292)
		DIN351		
	UNF	DIN371/374		
		DIN2181		
	BSW	DIN2182/2183		
		DIN351		
	G(BSP)	DIN5156/5157		
	EG-M	DIN371/376		
	EG-UNC	DIN371/376		
	EG-UNF	DIN371/374		
SURFACE TREATMENT /COATING			TiN	Ni
MODEL				

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc		
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C	Annealed	270	28		
	5		About 0.75% C	Quenched & Tempered	300	32		
	6	Low alloy steel		Annealed	180	10	◎	◎
	7			Quenched & Tempered	275	29		
	8			Quenched & Tempered	300	32		
	9			Quenched & Tempered	350	38		
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○
	14		Austenitic		180	10	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10		
	16		Pearlitic (Martensitic)		260	26		
	17	Nodular cast iron	Ferritic		160	3		
	18		Pearlitic		250	25		
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎
	22		Curable	Hardened	100		◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100		○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

Max. 3.0xD Blind / Through Hole							
HSS-E	HSS-PM	HSS-E		HSS-PM	HSS-E		
C	C	C	C	C	C	C	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
TY703 (p.B282)	TQ703 (p.B283)	TD713 (p.B284)	TE713 (p.B285)	TQ723 (p.B286)	TE723 (p.B287)	TD723 (p.B288)	M
							MF
							UNC
							UNF
							BSW
							G(BSP)
							EG-M
							EG-UNC
							EG-UNF
TiAlN	VAP	TiN	Ni	VAP	Ni	TiN	
◎	◎	◎	◎	◎	◎	◎	1
◎	◎	◎	◎	◎	◎	◎	2
◎	◎	◎	◎	◎	◎	◎	3
							4
							5
◎	◎	◎	◎	◎	◎	◎	6 P
							7
							8
							9
							10
							11
○	○	○	○	○	○	○	12
○	○	○	○	○	○	○	13 M
○	○	○	○	○	○	○	14
							15
							16
							17 K
							18
							19
							20
◎	◎	◎	◎	◎	◎	◎	21
◎	◎	◎	◎	◎	◎	◎	22
○	○	○	○	○	○	○	23
○	○	○	○	○	○	○	24
							25
○	○	○	○	○	○	○	26 N
							27
◎	○	◎	○	○	○	◎	28
							29
							30
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							39 H
							40
							41

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA O MING

TD 0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

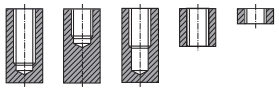
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

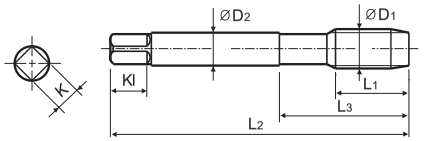
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

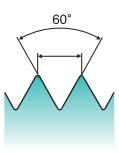
DIN 371

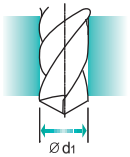
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 6H | 6 | C | TiN

p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	TD703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD703226	12	56	20	4	3	6	3.25
M4	× 0.7	TD703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD703286	15	70	25	6	4.9	8	4.65
M6	× 1	TD703316	17	80	30	6	4.9	8	5.55
M7	× 1	TD703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD703396	20	90	35	9	7	10	8.4
M10	× 1.5	TD703426	22	100	39	10	8	11	9.3
M11	× 1.5	TD703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD703506	24	110	44	9	7	10	11.2
M14	× 2	TD703546	26	110	44	11	9	12	13
M16	× 2	TD703606	27	110	44	12	9	12	15
M18	× 2.5	TD703656	30	125	50	14	11	14	16.8
M20	× 2.5	TD703706	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

G TA O MING

TE 0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

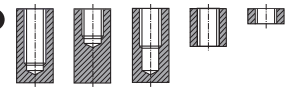
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

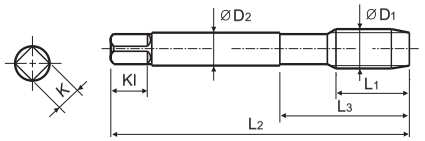
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶Die Kernlochbohrungen sind größer als normale Kernlöcher.

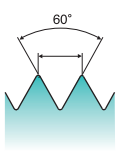
DIN 371

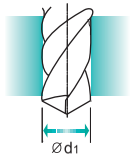
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 6H | 6 | C | Nitride

p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	TE703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE703226	12	56	20	4	3	6	3.25
M4	× 0.7	TE703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE703286	15	70	25	6	4.9	8	4.65
M6	× 1	TE703316	17	80	30	6	4.9	8	5.55
M7	× 1	TE703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE703396	20	90	35	9	7	10	8.4
M10	× 1.5	TE703426	22	100	39	10	8	11	9.3
M11	× 1.5	TE703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE703506	24	110	44	9	7	10	11.2
M14	× 2	TE703546	26	110	44	11	9	12	13
M16	× 2	TE703606	27	110	44	12	9	12	15
M18	× 2.5	TE703656	30	125	50	14	11	14	16.8
M20	× 2.5	TE703706	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA O MING

TY 0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

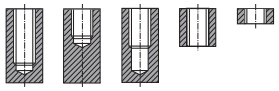
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

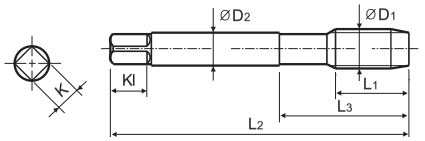
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

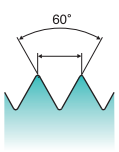
DIN 371

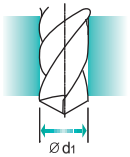
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 6H | 6 | C | TiAlN | p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	**TY703136**	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	**TY703156**	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	**TY703196**	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	**TY703176**	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	**TY703496**	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	**TY703206**	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	**TY703226**	12	56	20	4	3	6	3.25
M4	× 0.7	**TY703246**	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	**TY703266**	14	70	25	6	4.9	8	4.15
M5	× 0.8	**TY703286**	15	70	25	6	4.9	8	4.65
M6	× 1	**TY703316**	17	80	30	6	4.9	8	5.55
M7	× 1	**TY703346**	17	80	30	7	5.5	8	6.55
M8	× 1.25	**TY703366**	20	90	35	8	6.2	9	7.4
M9	× 1.25	**TY703396**	20	90	35	9	7	10	8.4
M10	× 1.5	**TY703426**	22	100	39	10	8	11	9.3
M11	× 1.5	**TY703466**	22	100	40	8	6.2	9	10.3
M12	× 1.75	**TY703506**	24	110	44	9	7	10	11.2
M14	× 2	**TY703546**	26	110	44	11	9	12	13
M16	× 2	**TY703606**	27	110	44	12	9	12	15
M18	× 2.5	**TY703656**	30	125	50	14	11	14	16.8
M20	× 2.5	**TY703706**	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		◎													

G TA O MING

T 0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

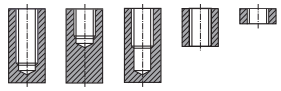
- ▶ Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
- ▶ The pre-drilling holes are bigger than normal sized holes.

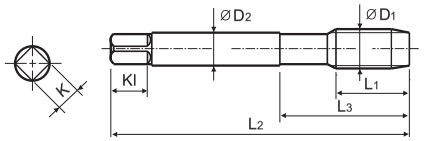
- ▶ Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

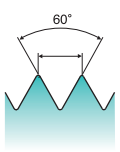
DIN 371

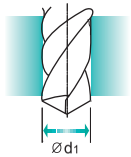
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS PM | DIN 371/376 | 6H | 6 | C | Vap | p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	**TQ703136**	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	**TQ703156**	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	**TQ703196**	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	**TQ703176**	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	**TQ703496**	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	**TQ703206**	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	**TQ703226**	12	56	20	4	3	6	3.25
M4	× 0.7	**TQ703246**	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	**TQ703266**	14	70	25	6	4.9	8	4.15
M5	× 0.8	**TQ703286**	15	70	25	6	4.9	8	4.65
M6	× 1	**TQ703316**	17	80	30	6	4.9	8	5.55
M7	× 1	**TQ703346**	17	80	30	7	5.5	8	6.55
M8	× 1.25	**TQ703366**	20	90	35	8	6.2	9	7.4
M9	× 1.25	**TQ703396**	20	90	35	9	7	10	8.4
M10	× 1.5	**TQ703426**	22	100	39	10	8	11	9.3
M11	× 1.5	**TQ703466**	22	100	40	8	6.2	9	10.3
M12	× 1.75	**TQ703506**	24	110	44	9	7	10	11.2
M14	× 2	**TQ703546**	26	110	44	11	9	12	13
M16	× 2	**TQ703606**	27	110	44	12	9	12	15
M18	× 2.5	**TQ703656**	30	125	50	14	11	14	16.8
M20	× 2.5	**TQ703706**	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA O MING

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

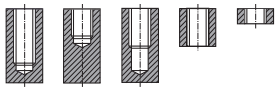
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

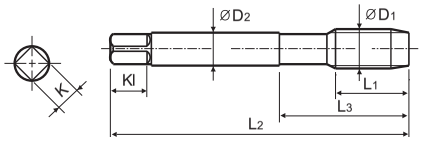
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

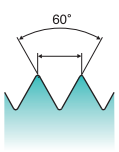
DIN 371

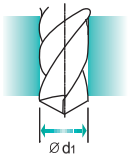
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 6 | 6 | C | TiN

p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	TD713136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD713156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD713196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD713176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD713496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD713206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD713226	12	56	20	4	3	6	3.25
M4	× 0.7	TD713246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD713266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD713286	15	70	25	6	4.9	8	4.65
M6	× 1	TD713316	17	80	30	6	4.9	8	5.55
M7	× 1	TD713346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD713366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD713396	20	90	35	9	7	10	8.4
M10	× 1.5	TD713426	22	100	39	10	8	11	9.3
M11	× 1.5	TD713466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD713506	24	110	44	9	7	10	11.2
M14	× 2	TD713546	26	110	44	11	9	12	13
M16	× 2	TD713606	27	110	44	12	9	12	15
M18	× 2.5	TD713656	30	125	50	14	11	14	16.8
M20	× 2.5	TD713706	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		◎													

G TA O MING

TE SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

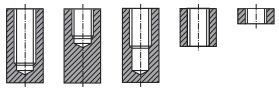
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

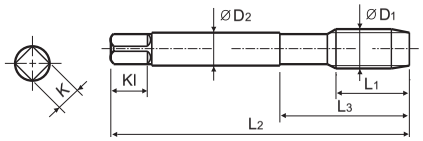
- ▶ Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

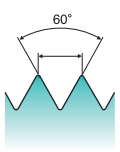
DIN 371

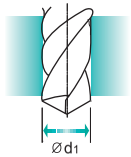
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 6 | 6 | C | Nitride

p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	TE713136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE713156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE713196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE713176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE713496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE713206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE713226	12	56	20	4	3	6	3.25
M4	× 0.7	TE713246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE713266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE713286	15	70	25	6	4.9	8	4.65
M6	× 1	TE713316	17	80	30	6	4.9	8	5.55
M7	× 1	TE713346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE713366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE713396	20	90	35	9	7	10	8.4
M10	× 1.5	TE713426	22	100	39	10	8	11	9.3
M11	× 1.5	TE713466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE713506	24	110	44	9	7	10	11.2
M14	× 2	TE713546	26	110	44	11	9	12	13
M16	× 2	TE713606	27	110	44	12	9	12	15
M18	× 2.5	TE713656	30	125	50	14	11	14	16.8
M20	× 2.5	TE713706	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA O MING

T SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps
Gewindeformer

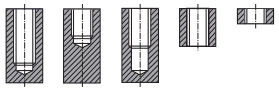
▶ Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
▶ The pre-drilling holes are bigger than normal sized holes.

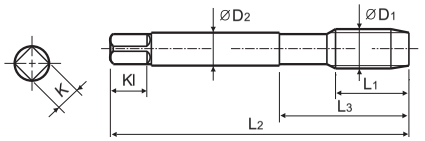
▶ Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

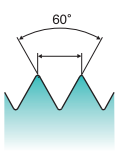
DIN 371

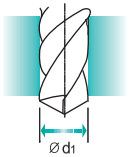
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS PM | DIN 371/376 | 6H | 6 | C | Vap | p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	TQ723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TQ723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TQ723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TQ723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TQ723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TQ723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TQ723226	12	56	20	4	3	6	3.25
M4	× 0.7	TQ723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TQ723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TQ723286	15	70	25	6	4.9	8	4.65
M6	× 1	TQ723316	17	80	30	6	4.9	8	5.55
M7	× 1	TQ723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TQ723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TQ723396	20	90	35	9	7	10	8.4
M10	× 1.5	TQ723426	22	100	39	10	8	11	9.3
M11	× 1.5	TQ723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TQ723506	24	110	44	9	7	10	11.2
M14	× 2	TQ723546	26	110	44	11	9	12	13
M16	× 2	TQ723606	27	110	44	12	9	12	15
M18	× 2.5	TQ723656	30	125	50	14	11	14	16.8
M20	× 2.5	TQ723706	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

G TA O MING

TE SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps
Gewindeformer

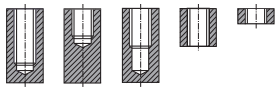
▶ Suitable for threading soft materials with at least 8-10% elongation.
▶ The pre-drilling holes are bigger than normal sized holes.

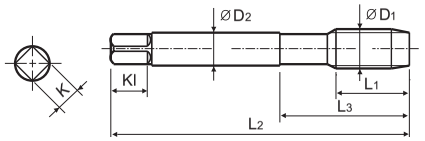
▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

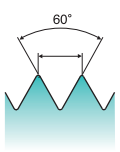
DIN 371

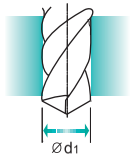
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 6H | 6 | C | Nitride | p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
◎	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	TE723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE723226	12	56	20	4	3	6	3.25
M4	× 0.7	TE723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE723286	15	70	25	6	4.9	8	4.65
M6	× 1	TE723316	17	80	30	6	4.9	8	5.55
M7	× 1	TE723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE723396	20	90	35	9	7	10	8.4
M10	× 1.5	TE723426	22	100	39	10	8	11	9.3
M11	× 1.5	TE723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE723506	24	110	44	9	7	10	11.2
M14	× 2	TE723546	26	110	44	11	9	12	13
M16	× 2	TE723606	27	110	44	12	9	12	15
M18	× 2.5	TE723656	30	125	50	14	11	14	16.8
M20	× 2.5	TE723706	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA O MING

TD SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Cold forming taps
Gewindeformer

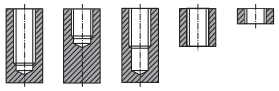
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

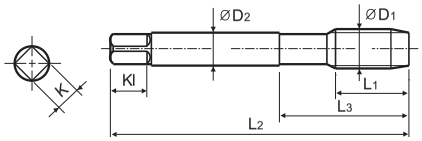
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

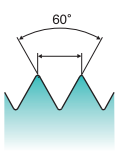
DIN 371

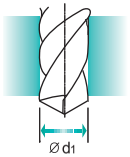
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 6H | 6 | C | TiN

p.B293

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.285

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Ød1
M2	× 0.4	TD723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD723226	12	56	20	4	3	6	3.25
M4	× 0.7	TD723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD723286	15	70	25	6	4.9	8	4.65
M6	× 1	TD723316	17	80	30	6	4.9	8	5.55
M7	× 1	TD723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD723396	20	90	35	9	7	10	8.4
M10	× 1.5	TD723426	22	100	39	10	8	11	9.3
M11	× 1.5	TD723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD723506	24	110	44	9	7	10	11.2
M14	× 2	TD723546	26	110	44	11	9	12	13
M16	× 2	TD723606	27	110	44	12	9	12	15
M18	× 2.5	TD723656	30	125	50	14	11	14	16.8
M20	× 2.5	TD723706	32	140	54	16	12	15	18.8

▶DIN 371(M2~M10) and DIN 376(M11~M20)
▶* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		◎													

G TA O MING

TD SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

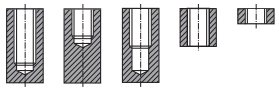
Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

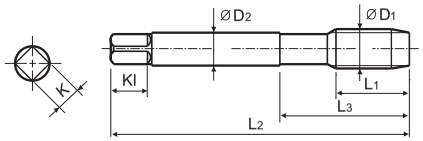
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

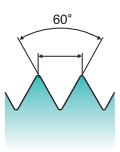
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

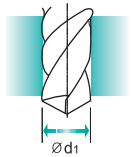
DIN 374

Hole type
3.0×D









Material groups **GV** | HSS | DIN 37 | 6H | 6 | C | TiN

p.B293

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.285

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Ød1
M4	× 0.5	TD733256	10	63	21	2.8	2.1	5	3.75
M5	× 0.5	TD733296	11	70	25	3.5	2.7	6	4.75
M6	× 0.75	TD733326	13	80	30	4.5	3.4	6	5.65
M6	× 0.5	TD733336	13	80	30	4.5	3.4	6	5.75
M7	× 0.75	TD733356	14	80	30	5.5	4.3	7	6.65
M8	× 1	TD733376	17	90	36	6	4.9	8	7.5
M8	× 0.75	TD733386	14	80	30	6	4.9	8	7.65
M10	× 1.25	TD733436	22	100	40	7	5.5	8	9.4
M10	× 1	TD733446	18	90	36	7	5.5	8	9.5
M10	× 0.75	TD733456	18	90	36	7	5.5	8	9.65
M12	× 1.5	TD733516	22	100	40	9	7	10	11.25
M12	× 1.25	TD733526	22	100	40	9	7	10	11.4
M12	× 1	TD733536	18	100	40	9	7	10	11.5
M14	× 1.5	TD733556	22	100	40	11	9	12	13.25
M14	× 1.25	TD733566	22	100	40	11	9	12	13.4
M16	× 1.5	TD733616	22	100	40	12	9	12	15.25
M18	× 1.5	TD733676	25	110	44	14	11	14	17.25
M20	× 1.5	TD733726	25	125	50	16	12	15	19.25

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA O MING

TE SERIES

M ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13
ISO MÉTRIQUE PAS FINS DIN13
ISO Metrico passo fine DIN 13

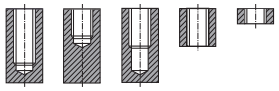
Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

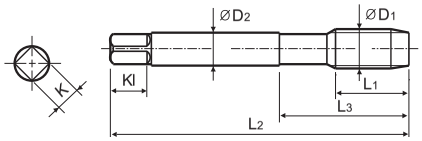
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

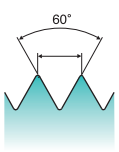
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

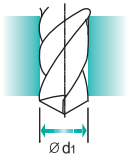
DIN 374

Hole type 3.0×D









Material groups **GV** | HSS | DIN 37 | 6H | 6 | C | Nitride p.B293

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.285

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Ød1
M4	× 0.5	TE733256	10	63	21	2.8	2.1	5	3.75
M5	× 0.5	TE733296	11	70	25	3.5	2.7	6	4.75
M6	× 0.75	TE733326	13	80	30	4.5	3.4	6	5.65
M6	× 0.5	TE733336	13	80	30	4.5	3.4	6	5.75
M7	× 0.75	TE733356	14	80	30	5.5	4.3	7	6.65
M8	× 1	TE733376	17	90	36	6	4.9	8	7.5
M8	× 0.75	TE733386	14	80	30	6	4.9	8	7.65
M10	× 1.25	TE733436	22	100	40	7	5.5	8	9.4
M10	× 1	TE733446	18	90	36	7	5.5	8	9.5
M10	× 0.75	TE733456	18	90	36	7	5.5	8	9.65
M12	× 1.5	TE733516	22	100	40	9	7	10	11.25
M12	× 1.25	TE733526	22	100	40	9	7	10	11.4
M12	× 1	TE733536	18	100	40	9	7	10	11.5
M14	× 1.5	TE733556	22	100	40	11	9	12	13.25
M14	× 1.25	TE733566	22	100	40	11	9	12	13.4
M16	× 1.5	TE733616	22	100	40	12	9	12	15.25
M18	× 1.5	TE733676	25	110	44	14	11	14	17.25
M20	× 1.5	TE733726	25	125	50	16	12	15	19.25

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

G TA O MING

TD 0 SERIES

N Unified coarse threads

Unified Grobgewinde
UNC
Unificato passo grosso

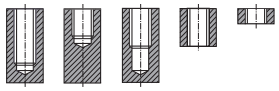
Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

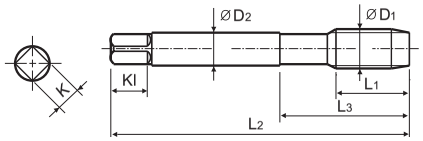
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

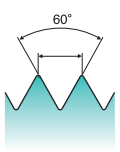
- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

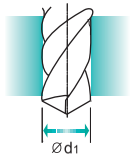
DIN 371
DIN 376

Hole type 3.0×D









Material groups **GV** | HSS | DIN 371/376 | 2 | 6 | C | TiN p.B293

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.285

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1		TiN	L1	L2	L3	ØD2	K	Kl	Ød1
#5	- 40 UNC	TD704202	11	56	18	3.5	2.7	6	2.87
#6	- 32 UNC	TD704242	12	56	20	4	3	6	3.1
#8	- 32 UNC	TD704282	13	63	21	4.5	3.4	6	3.8
#10	- 24 UNC	TD704322	15	70	25	6	4.9	8	4.3
#12	- 24 UNC	TD704362	16	80	30	6	4.9	8	4.95
1/4	- 20 UNC	TD704402	17	80	30	7	5.5	8	5.75
5/16	- 18 UNC	TD704442	20	90	35	8	6.2	9	7.25
3/8	- 16 UNC	TD704482	22	100	39	9	7	10	8.75
7/16	- 14 UNC	TD704522	22	100	40	8	6.2	9	10.2
1/2	- 13 UNC	TD704562	25	110	44	9	7	10	11.7
9/16	- 12 UNC	TD704602	26	110	40	11	9	12	13.2
5/8	- 11 UNC	TD704642	27	110	44	12	9	12	14.7
3/4	- 10 UNC	TD704702	30	125	50	14	11	14	17.8

▶DIN 371(#4~3/8) and DIN 376(7/16~3/4)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

G TA O MING

TE 0 SERIES

N Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten

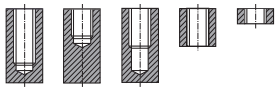
▶ Suitable for threading soft materials with at least 8-10% elongation.
▶ The pre-drilling holes are bigger than normal sized holes.

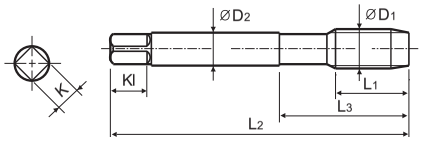
▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

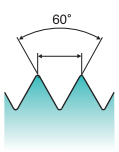
DIN 371

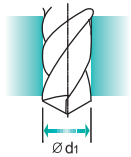
DIN 376

Hole type
3.0×D









Material groups **GV** | HSS | DIN 371/376 | 2 | 6 | C | Nitride

p.B293

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Unit : mm

SIZE ØD1	TPI	EDP No. Ni	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	Tapping Drill Diameter Ød1
#5 -	40 UNC	**TE704202**	11	56	18	3.5	2.7	6	2.87
#6 -	32 UNC	**TE704242**	12	56	20	4	3	6	3.1
#8 -	32 UNC	**TE704282**	13	63	21	4.5	3.4	6	3.8
#10 -	24 UNC	**TE704322**	15	70	25	6	4.9	8	4.3
#12 -	24 UNC	**TE704362**	16	80	30	6	4.9	8	4.95
1/4 -	20 UNC	**TE704402**	17	80	30	7	5.5	8	5.75
5/16 -	18 UNC	**TE704442**	20	90	35	8	6.2	9	7.25
3/8 -	16 UNC	**TE704482**	22	100	39	9	7	10	8.75
7/16 -	14 UNC	**TE704522**	22	100	40	8	6.2	9	10.2
1/2 -	13 UNC	**TE704562**	25	110	44	9	7	10	11.7
9/16 -	12 UNC	**TE704602**	26	110	40	11	9	12	13.2
5/8 -	11 UNC	**TE704642**	27	110	44	12	9	12	14.7
3/4 -	10 UNC	**TE704702**	30	125	50	14	11	14	17.8

▶DIN 371(#4~3/8) and DIN 376(7/16~3/4)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎			◎						○	○	○						

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	○	○		○		○													

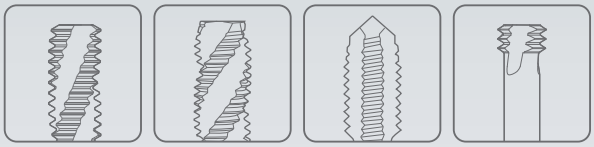
G TA O MING

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TD703 TD733 TD704	TE703 TE733 TE704	TY703	TQ703	TD713	TE713	TQ723	TE723	TD723
					Vc (m/min)								
P	1	Non-alloy steel	125		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	2		190	13	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	3		250	25	12-18	12-18	12-18	12-18	12-18	12-18	12-18	12-18	12-18
	6	Low alloy steel	180	10	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
M	12	Stainless steel	200	15	10-13	7-10	10-13	7-10	10-13	7-10	7-10	7-10	10-13
	13		240	23	8-11	5-8	8-11	5-8	8-11	5-8	5-8	5-8	8-11
	14		180	10	6-8	4-6	6-8	4-6	6-8	4-6	4-6	4-6	6-8
N	21	Aluminum-wrought alloy	60		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	22		100		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	23	Aluminum-cast, alloyed	75		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	24		90		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	25-35	25-35	25-35	25-35	25-35	25-35	25-35	25-35
	28		100		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

Leading Through Innovation

HSS E

N T TAPS

M TTERGE INDE OHRER

- **Nut Tapping Machines**
- **Zum Gewindeschneiden von Muttern**

SELE TION G IDE

YG THREADING TOOLS

HSS-E N T TAPS

Nut Tapping Machines

HOLE TYPE	Max. 2.0xD Through Hole
TOOL MATERIAL	HSS-E
CHAMFER LEAD ACC. TO DIN2197	Long
FLUTE TYPE	Straight Flute
SPIRAL FLUTE ANGLE	-
SERIES M DIN371/376	
SERIES M DIN352	
SERIES M DIN357/LONG	TC803 (p.B297)
SERIES MF DIN374	
SERIES MF DIN2181	
SERIES UNC DIN371/376	
SERIES UNC DIN351	
SERIES UNF DIN371/374	
SERIES UNF DIN2181	
SERIES BSW DIN2182/2183	
SERIES BSW DIN351	
SERIES G(BSP) DIN5156/5157	
SERIES EG-M DIN371/376	
SERIES EG-UNC DIN371/376	
SERIES EG-UNF DIN371/374	
SURFACE TREATMENT	Bright
MODEL	

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B296

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc		Vc (m/min)
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	15-20
	2		About 0.45% C	Annealed	190	13	○	15-20
	3		About 0.45% C	Quenched & Tempered	250	25	○	12-18
	4		About 0.75% C	Annealed	270	28	○	10-15
	5		About 0.75% C	Quenched & Tempered	300	32		
	6	Low alloy steel		Annealed	180	10	○	10-15
	7			Quenched & Tempered	275	29	○	10-15
	8			Quenched & Tempered	300	32		
	9			Quenched & Tempered	350	38		
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10		
	16		Pearlitic (Martensitic)		260	26		
	17	Nodular cast iron	Ferritic		160	3	○	10-15
	18		Pearlitic		250	25	○	5-8
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60			
	22		Curable	Hardened	100			
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			
	24		≤ 12% Si, Curable	Hardened	90			
	25		> 12% Si, Not Curable		130		○	10-15
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	25-35
	27		CuZn, CuSnZn (Brass)		90		○	8-12
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55		
	39			Hardened	630	60		
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

YG NUT TA S

T 0 SERIES

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

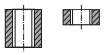
Nut taps
Muttergewindebohrer

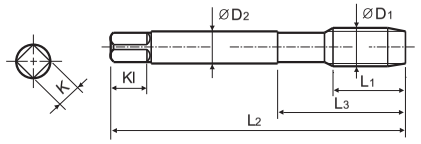
▶ For making nuts on machines.
▶ The work pieces can be taken out from shank side only.

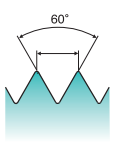
▶ Zur Herstellung von Muttern auf Sondermaschinen.
▶ Die fertigen Muttern können nur über das Schaftende entnommen werden.

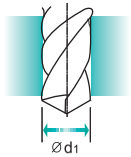
DIN 357

Hole type 2.0×D









Material groups GS | HSS | DIN 3 7 | 6H | 6 | LON | Bright | p.B296

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.7	TC803246	25	90	45	2.8	2.1	5	3	3.3
M5	× 0.8	TC803286	28	100	50	3.5	2.7	6	3	4.2
M6	× 1	TC803316	32	110	55	4.5	3.4	6	3	5
M7	× 1	TC803346	36	110	55	5.5	4.3	7	3	6
M8	× 1.25	TC803366	40	125	62	6	4.9	8	3	6.8
M10	× 1.5	TC803426	45	140	70	7	5.5	8	3	8.5
M12	× 1.75	TC803506	50	180	90	9	7	10	3	10.2
M14	× 2	TC803546	56	200	100	11	9	12	4	12
M16	× 2	TC803606	63	200	100	12	9	12	4	14
M18	× 2.5	TC803656	63	220	110	14	11	14	4	15.5
M20	× 2.5	TC803706	70	250	125	16	12	15	4	17.5

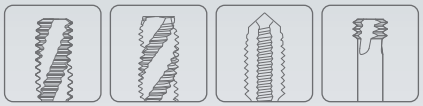
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○										○	○		

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended					○	○	○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

Global Cutting Tool Leader YG



THREADING

Leading Through Innovation

HSS E S RE THREAD INSERT TAPS

S HRA ENGE INDE INSERT TAPS

- Tapping STI Threads of Soft Materials
- Gewindeschneiden von STI-Gewinden in weichen Materialien

SELE TION G IDE

YG THREADING TOOLS

HSS-E

S RE THREAD INSERT TAPS

Tapping STI Threads of Soft Materials

HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
TOOL MATERIAL		HSS-E	
CHAMFER LEAD ACC. TO DIN2197		C	B
FLUTE TYPE		Spiral Flute	Spiral Point
SPIRAL FLUTE ANGLE		R40	-
SERIES	M DIN371/376		
	M DIN352		
	M DIN857/LONG		
	MF DIN374		
	MF DIN2181		
	UNC DIN371/376		
	UNC DIN351		
	UNF DIN371/374		
	UNF DIN2181		
	BSW DIN2182/2183		
	BSW DIN351		
	G(BSP) DIN5156/5157		
	EG-M DIN371/376	TC909 (p.B301)	TC973 (p.B302)
	EG-UNC DIN371/376	TC944 (p.B303)	TC934 (p.B304)
	EG-UNF DIN371/374		TC954 (p.B305)
SURFACE TREATMENT		Bright	Bright
MODEL			

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B306

	ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc		
P		1	Non-alloy steel	About 0.15% C	Annealed	125		○	○
		2		About 0.45% C	Annealed	190	13	○	○
		3		About 0.45% C	Quenched & Tempered	250	25	○	○
		4		About 0.75% C	Annealed	270	28		
		5		About 0.75% C	Quenched & Tempered	300	32		
		6	Low alloy steel		Annealed	180	10		
		7			Quenched & Tempered	275	29		
		8			Quenched & Tempered	300	32		
		9			Quenched & Tempered	350	38		
		10	High alloyed steel, and tool steel		Annealed	200	15		
		11			Quenched & Tempered	325	35		
M		12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		
		13		Martensitic	Quenched & Tempered	240	23		
		14		Austenitic		180	10		
K		15	Grey cast iron	Pearlitic / ferritic		180	10		
		16		Pearlitic (Martensitic)		260	26		
		17	Nodular cast iron	Ferritic		160	3		
		18		Pearlitic		250	25		
		19	Malleable cast iron	Ferritic		130			
		20		Pearlitic		230	21		
N		21	Aluminum-wrought alloy	Not Curable		60		◎	◎
		22		Curable	Hardened	100		◎	◎
		23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎
		24		≤ 12% Si, Curable	Hardened	90		◎	◎
		25		> 12% Si, Not Curable		130			
		26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
		27		CuZn, CuSnZn (Brass)		90		◎	◎
		28		CuSn, lead-free copper and electrolytic copper		100			
		29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
		30		Rubber, Wood, etc.					
S		31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
		32			Cured	280	30		
		33		Ni or Co Based	Annealed	250	25		
		34			Cured	350	38		
		35			Cast	320	34		
		36	Titanium Alloys	Pure Titanium		400 Rm			
		37		Alpha + Beta Alloys	Hardened	1050 Rm			
H		38	Hardened steel		Hardened	550	55		
		39			Hardened	630	60		
		40	Chilled Cast Iron		Cast	400	42		
		41	Hardened Cast Iron		Hardened	550	55		

YG SC E TH EAD INSE T TA S

T 0 SERIES

EG M

ISO metric coarse threads for Screw Thread insert

Metrisches ISO Regelgew.f.Gew. Drahteins
ISO MÉTRIQUE DIN13 POUR FILETS RAPPORTÉS
ISO Metrico passo grosso per Helicoil

Machine taps
Maschinengewindebohrer

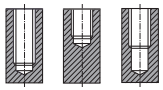
▶ Wire insert threads are used for increasing fastening strength in soft materials.

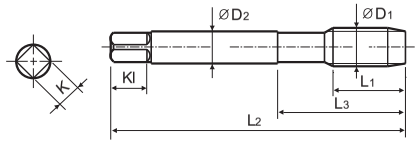
▶ Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.

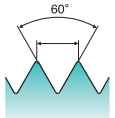
DIN 371

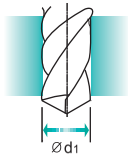
DIN 376

Hole type
2.5×D









Material groups: Al | HSS | DIN 371/376 | 6H Mod. | 6 | C | R | Bright | p.B306

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Recommended Cutting Page : P.298

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2.5	× 0.45	TC909176	6	56	18	3.5	2.7	6	3	2.65
M3	× 0.5	TC909206	5	63	21	4.5	3.4	6	3	3.15
M3.5	× 0.6	TC909226	8	70	25	6	4.9	8	3	3.7
M4	× 0.7	TC909246	8	70	25	6	4.9	8	3	4.2
M5	× 0.8	TC909286	8	80	30	6	4.9	8	3	5.25
M6	× 1	TC909316	10	90	35	8	6.2	9	3	6.3
M8	× 1.25	TC909366	16	100	39	10	8	11	3	8.4
M10	× 1.5	TC909426	15	110	44	9	7	10	3	10.4
M12	× 1.75	TC909506	20	110	44	11	9	12	3	12.5
M14	× 2	TC909546	22	110	44	12	9	12	3	14.5
M16	× 2	TC909606	25	125	50	14	11	14	4	16.5
M18	× 2.5	TC909656	27	140	54	18	14.5	17	4	18.75
M20	× 2.5	TC909706	30	160	60	18	14.5	17	4	20.75

▶DIN 371(M2.5~M8) and DIN 376(M10~M20)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎			◎														

SCREW THREAD INSERTS

T SERIES

EG M — ISO metric coarse threads for Screw Thread insert

Metrisches ISO Regelgew.f.Gew. Drahteins
ISO MÉTRIQUE DIN13 POUR FILETS RAPPORTÉS
ISO Metrico passo grosso per Helicoil

Machine taps
Maschinengewindebohrer

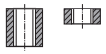
▶ Wire insert threads are used for increasing fastening strength in soft materials.

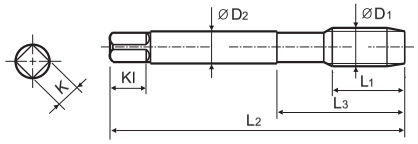
▶ Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.

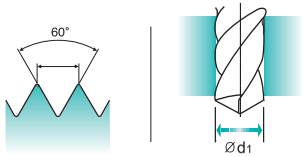
DIN 371

DIN 376

Hole type
3.0×D







Material groups: **Al** | HSS | DIN 371/376 | 6H Mod. | 6 | Bright

p.B306

Recommended ToolHolder

	Page
Plain Shank	
TAPPING ER CHUCK	D215-220
TAPPING CHUCK	D221-228
ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.298

Unit : mm

SIZE ØD1	Pitch P	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
M2.5	× 0.45	TC973176	11	56	18	3.5	2.7	6	3	2.65
M3	× 0.5	TC973206	10	63	21	4.5	3.4	6	3	3.15
M3.5	× 0.6	TC973226	14	70	25	6	4.9	8	3	3.7
M4	× 0.7	TC973246	13	70	25	6	4.9	8	3	4.2
M5	× 0.8	TC973286	13	80	30	6	4.9	8	3	5.25
M6	× 1	TC973316	17	90	35	8	6.2	9	3	6.3
M8	× 1.25	TC973366	18	100	39	10	8	11	3	8.4
M10	× 1.5	TC973426	22	110	44	9	7	10	3	10.4
M12	× 1.75	TC973506	26	110	44	11	9	12	3	12.5
M14	× 2	TC973546	27	110	44	12	9	12	3	14.5
M16	× 2	TC973606	30	125	50	14	11	14	4	16.5
M18	× 2.5	TC973656	32	140	54	18	14.5	17	4	18.75
M20	× 2.5	TC973706	34	160	60	18	14.5	17	4	20.75

▶DIN 371(M2.5~M8) and DIN 376(M10~M20)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			◎														

SCREW THREAD INSERTS

T SERIES

EG N — Unified coarse threads for Screw Thread insert

Unified Regelgew.f.Gew.Drahteins
UNC POUR FILETS RAPPORTÉS
ISO Metrico passo grosso per Helicoil

Machine taps
Maschinengewindebohrer

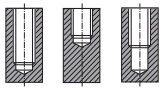
▶ Wire insert threads are used for increasing fastening strength in soft materials.

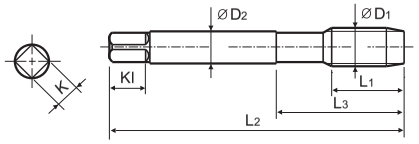
▶ Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.

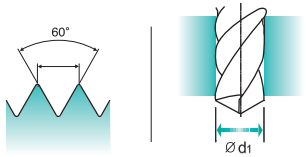
DIN 371

DIN 376

Hole type
2.5×D







Material groups: **Al** | HSS | DIN 371/376 | 2 | 6 | C | R | Bright

p.B306

Recommended ToolHolder

	Page
Plain Shank	
TAPPING ER CHUCK	D215-220
TAPPING CHUCK	D221-228
ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.298

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	- 40 UNC	TC944162	7	63	21	4.5	3.4	6	3	3.1
#5	- 40 UNC	TC944202	7	63	21	4.5	3.4	6	3	3.4
#6	- 32 UNC	TC944242	8	70	25	6	4.9	8	3	3.8
#8	- 32 UNC	TC944282	8	80	25	6	4.9	8	3	4.4
#10	- 24 UNC	TC944322	10	80	30	7	5.5	8	3	5.2
#12	- 24 UNC	TC944362	10	80	30	7	5.5	8	3	5.8
1/4	- 20 UNC	TC944402	14	90	35	8	6.2	9	3	6.7
5/16	- 18 UNC	TC944442	16	100	39	10	8	11	3	8.4
3/8	- 16 UNC	TC944482	16	110	39	12	9	12	3	10
7/16	- 14 UNC	TC944522	20	110	44	11	9	12	3	11.6
1/2	- 13 UNC	TC944562	22	110	44	12	9	12	3	13.3
9/16	- 12 UNC	TC944602	22	125	50	14	11	14	3	15
5/8	- 11 UNC	TC944642	25	125	50	14	11	14	4	16.5
3/4	- 10 UNC	TC944702	27	140	56	18	14.5	17	4	19.75

▶DIN 371(#4~3/8) and DIN 376(7/16~3/4)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			◎														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

SCREW THREAD INSERTS

T SERIES

EG N

Unified coarse threads for Screw Thread insert

Unified Regelgew.f.Gew.Drahteins
UNC POUR FILETS RAPPORTÉS
ISO Metrico passo grosso per Helicoil

Machine taps
Maschinengewindebohrer

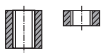
▶ Wire insert threads are used for increasing fastening strength in soft materials.

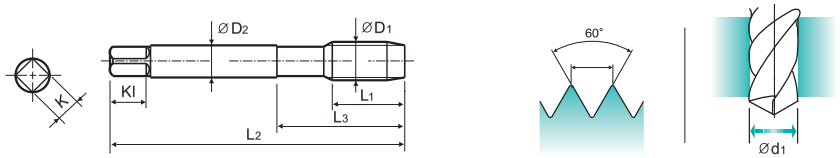
▶ Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.

DIN 371

DIN 376

Hole type
3.0×D





Material groups: Al | HSS | DIN 371/376 | 2 | 6 | Bright

p.B306

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.298

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	40 UNC	TC934162	13	63	21	4.5	3.4	6	3	3.1
#5	40 UNC	TC934202	13	63	21	4.5	3.4	6	3	3.4
#6	32 UNC	TC934242	14	70	25	6	4.9	8	3	3.8
#8	32 UNC	TC934282	13	80	25	6	4.9	8	3	4.4
#10	24 UNC	TC934322	17	80	30	7	5.5	8	3	5.2
#12	24 UNC	TC934362	17	80	30	7	5.5	8	3	5.8
1/4	20 UNC	TC934402	20	90	35	8	6.2	9	3	6.7
5/16	18 UNC	TC934442	22	100	39	10	8	11	3	8.4
3/8	16 UNC	TC934482	21	110	39	12	9	12	3	10
7/16	14 UNC	TC934522	26	110	44	11	9	12	3	11.6
1/2	13 UNC	TC934562	27	110	44	12	9	12	3	13.3
9/16	12 UNC	TC934602	30	125	50	14	11	14	3	15
5/8	11 UNC	TC934642	30	125	50	14	11	14	4	16.5
3/4	10 UNC	TC934702	32	140	54	18	14.5	17	4	19.75

▶DIN 371(#4~3/8) and DIN 376(7/16~3/4)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			◎														

SCREW THREAD INSERTS

T SERIES

EG N

Unified fine threads for Screw Thread insert

Unified Feingew.f.Gew.Drahteins
UNC POUR FILETS RAPPORTÉS
ISO Metrico passo grosso per Helicoil

Machine taps
Maschinengewindebohrer

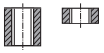
▶ Wire insert threads are used for increasing fastening strength in soft materials.

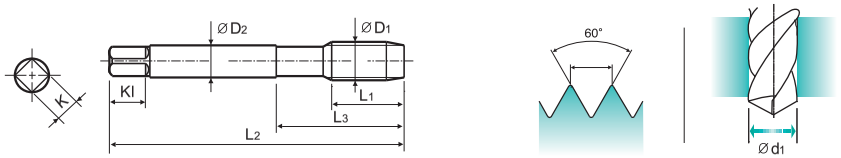
▶ Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.

DIN 371

DIN 374

Hole type
3.0×D





Material groups: Al | HSS | DIN 371/376 | 2 | 6 | Bright

p.B306

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.298

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
#4	48 UNF	TC954182	12	56	20	4	3	6	3	3.1
#6	40 UNF	TC954262	14	70	25	6	4.9	8	3	3.7
#8	36 UNF	TC954302	13	70	25	6	4.9	8	3	4.4
#10	32 UNF	TC954342	13	80	25	6	4.9	8	3	5.1
1/4	28 UNF	TC954422	17	90	35	8	6.2	9	3	6.6
5/16	24 UNF	TC954462	18	100	39	10	8	11	3	8.25
3/8	24 UNF	TC954502	18	110	39	12	9	12	3	9.8
7/16	20 UNF	TC954542	22	100	40	9	7	10	3	11.5
1/2	20 UNF	TC954582	22	100	40	11	9	12	3	13.1
9/16	18 UNF	TC954622	22	100	40	12	9	12	3	14.75
5/8	18 UNF	TC954662	25	110	44	14	11	14	4	16.25
3/4	16 UNF	TC954722	25	125	50	16	12	15	4	19.5

▶DIN 371(#4~3/8) and DIN 374(7/16~3/4)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎			◎														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

SC E TH EAD INSE T TA S

ECOMMENDED CUTTING CONDITIONS
EM OHLENE SCHNEIDKONDITIONEN

					TC909 TC944	TC973 TC934 TC954
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)	
P	1	Non-alloy steel	125		15-20	15-20
	2		190	13	15-20	15-20
	3		250	25	12-18	12-18
N	21	Aluminum-wrought alloy	60		10-15	10-15
	22		100		10-15	10-15
	23	Aluminum-cast, alloyed	75		15-20	15-20
	24		90		15-20	15-20
	27	Copper and Copper Alloys (Bronze / Brass)	90		8-12	8-12

Leading Through Innovation

HSS HSS E

PIPE TAPS
GASGE INDE OHRER

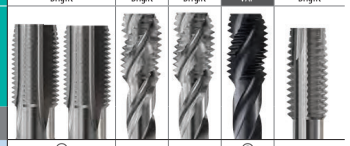
- Tapping Whitworth Pipe threads
- Zum Gewindeschneiden von Whitworth-Rohrgewinden

SELE TION G IDE

THREADING TOOLS

HSS & HSS-E PIPE TAPS

Tapping Whitworth Pipe threads

HOLE TYPE			Max. 2.0xD Blind/Through Hole	Max. 2.5xD Blind Hole			Max. 3.0xD Through Hole
TOOL MATERIAL			HSS	HSS-E			
CHAMFER LEAD ACC. TO DIN2197			I/III	C			B
FLUTE TYPE			Straight Flute	Spiral Flute			Spiral Point
SPIRAL FLUTE ANGLE			-	R40	R40	R40	-
SERIES	M	DIN371/376					
		DIN352					
		DIN357/LONG					
	MF	DIN374					
		DIN2181					
	UNC	DIN371/376					
		DIN351					
	UNF	DIN371/374					
		DIN2181					
	BSW	DIN2182/2183					
		DIN351					
	G(BSP)	DIN5156/5157	T7709 (p.B309)	TC728 (p.B310)	TC729 (p.B311)	TB514 (p.B312)	TC727 (p.B313)
	EG-M	DIN371/376					
	EG-UNC	DIN371/376					
	EG-UNF	DIN371/374					
SURFACE TREATMENT			Bright	Bright	Bright	VAP	Bright
MODEL							

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B314

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc					
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○			◎	
	2		About 0.45% C	Annealed	190	13	○	◎		◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	◎			◎
	4		About 0.75% C	Annealed	270	28		◎			◎
	5		About 0.75% C	Quenched & Tempered	300	32					
	6	Low alloy steel		Annealed	180	10	○	◎	○		◎
	7			Quenched & Tempered	275	29		◎	○		◎
	8			Quenched & Tempered	300	32			◎		
	9			Quenched & Tempered	350	38			◎		
	10	High alloyed steel, and tool steel		Annealed	200	15					
	11			Quenched & Tempered	325	35					
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				◎	
	13		Martensitic	Quenched & Tempered	240	23				◎	
	14		Austenitic		180	10			○	◎	
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○				
	16		Pearlitic (Martensitic)		260	26	○				
	17	Nodular cast iron	Ferritic		160	3		◎			◎
	18		Pearlitic		250	25		◎			◎
	19	Malleable cast iron	Ferritic		130						
	20		Pearlitic		230	21					
N	21	Aluminum-wrought alloy	Not Curable		60		○	○			○
	22		Curable	Hardened	100		○	○			○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○			○
	24		≤ 12% Si, Curable	Hardened	90			○			○
	25		> 12% Si, Not Curable		130			◎			◎
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			◎			◎
	27		CuZn, CuSnZn (Brass)		90			○			○
	28		CuSn, lead-free copper and electrolytic copper		100						
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					
	32			Cured	280	30					
	33		Ni or Co Based	Annealed	250	25					
	34			Cured	350	38					
	35			Cast	320	34					
	36	Titanium Alloys	Pure Titanium		400 Rm						
	37		Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55					
	39			Hardened	630	60					
	40	Chilled Cast Iron		Cast	400	42					
	41	Hardened Cast Iron		Hardened	550	55					

I E TA S

T 0 SERIES

G SP Whitworth Pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1
G(BSP) PROFIL 55° DIN ISO 228/1
Filettatura Whitworth per tubi DIN ISO 228/1

Sets of taps
Gewindebohrer-Satz

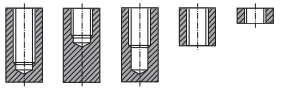
▶ Serial hand tap set in First and Bottoming.
▶ Bottoming tap of set has final internal thread dimensions only.

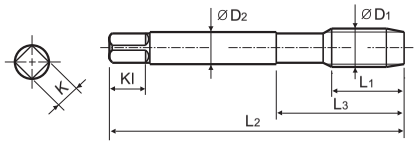
▶ Handgewindebohrersatz mit Vor- und Fertigschneider.
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

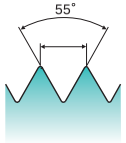
First

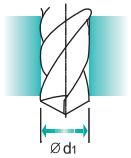
Bottoming

Hole type
2.0×D









Material groups GS | HSS | DIN 17 | I/III | Bright | p.B314

Recommended ToolHolder

	Plain Shank	Page
	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE ØD1	TPI	EDP No. Bright	Thread Length L1	Overall Length L2	Neck Length L3	Shank Diameter ØD2	Square Size K	Square Length Kl	No. of Flute Z	Tapping Drill Diameter Ød1
G1/16 -	28	T7709029	22	56	26	6	4.9	8	3	6.8
G1/8 -	28	T7709209	20	63	27	7	5.5	8	4	8.8
G1/4 -	19	T7709409	22	70	32	11	9	12	4	11.8
G3/8 -	19	T7709489	22	70	32	12	9	12	4	15.25
G1/2 -	14	T7709569	22	80	35	16	12	15	4	19
G3/4 -	14	T7709709	22	90	40	20	16	19	4	24.5
G1 -	11	T7709789	25	100	45	25	20	23	6	30.75
G1-1/4 -	11	T7709869	40	125	77	32	24	27	6	39.5
G1-1/2 -	11	T7709949	40	140	85	36	29	32	6	45.2

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○			○									○	○				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○																		

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

I ETA S

T SERIES

G SP

Whitworth pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1
G(BSP) PROFIL 55° DIN ISO 228/1
Filettatura Whitworth per tubi DIN ISO 228/1

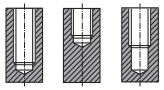
Machine taps
Maschinengewindebohrer

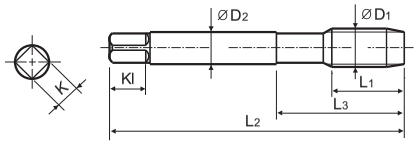
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

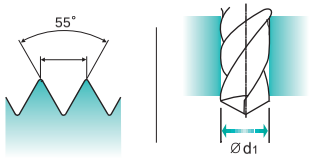
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 5156

Hole type
2.5×D







Material groups **GS** | HSS | DIN 1 6 | C | R | Bright | p.B314

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.306

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8 -	28	**TC728200**	20	90	36	7	5.5	8	3	8.8
G1/4 -	19	**TC728400**	22	100	40	11	9	12	3	11.8
G3/8 -	19	**TC728480**	22	100	40	12	9	12	3	15.25
G1/2 -	14	**TC728560**	25	125	50	16	12	15	4	19
G3/4 -	14	**TC728700**	28	140	54	20	16	19	4	24.5
G1 -	11	**TC728780**	30	160	60	25	20	23	4	30.75

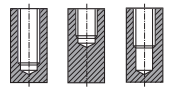
◎ : Excellent ○ : Good

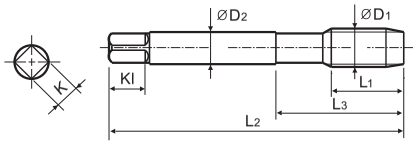
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎		◎	◎										◎	◎		

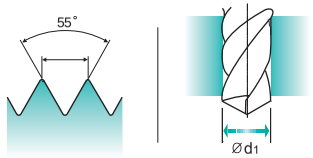
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	◎	◎	○														

I ETA S
T SERIES
G SP
Whitworth pipe threads DIN ISO 228/1
Whitworth Rohrgewinde DIN ISO 228/1
G(BSP) PROFIL 55° DIN ISO 228/1
Filettatura Whitworth per tubi DIN ISO 228/1
Machine taps
Maschinengewindebohrer
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.
DIN 5156

Hole type
2.5×D







Material groups **VG** | HSS | DIN 1 6 | C | R | Bright | p.B314

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.306

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8 -	28	**TC729200**	20	90	36	7	5.5	8	3	8.8
G1/4 -	19	**TC729400**	22	100	40	11	9	12	3	11.8
G3/8 -	19	**TC729480**	22	100	40	12	9	12	3	15.25
G1/2 -	14	**TC729560**	25	125	50	16	12	15	4	19
G3/4 -	14	**TC729700**	28	140	54	20	16	19	4	24.5
G1 -	11	**TC729780**	30	160	60	25	20	23	4	30.75

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎	◎				○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

I ETA S

T SERIES

G SP

Whitworth pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1
G(BSP) PROFIL 55° DIN ISO 228/1
Filettatura Whitworth per tubi DIN ISO 228/1

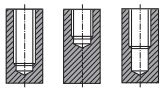
Machine taps
Maschinengewindebohrer

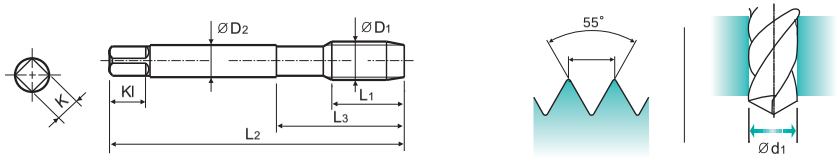
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 5156

Hole type
2.5×D





Material groups VA NW | HSS | DIN 1 6 | C | R | Vap | p.B314

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.306

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8 -	28	**TB514200**	20	90	36	7	5.5	8	3	8.8
G1/4 -	19	**TB514400**	22	100	40	11	9	12	3	11.8
G3/8 -	19	**TB514480**	22	100	40	12	9	12	3	15.25
G1/2 -	14	**TB514560**	25	125	50	16	12	15	4	19
G3/4 -	14	**TB514700**	28	140	54	20	16	19	4	24.5
G1 -	11	**TB514780**	30	160	60	25	20	23	4	30.75

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎									◎	◎	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																					

I ETA S

T SERIES

G SP

Whitworth Pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1
G(BSP) PROFIL 55° DIN ISO 228/1
Filettatura Whitworth per tubi DIN ISO 228/1

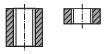
Machine taps
Maschinengewindebohrer

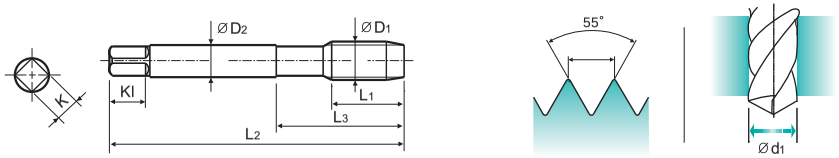
▶ Suitable for through hole in more cutting speed than other taps due to strong geometry.

▶ Geeignet für Sacklöcher in höherer Schnittgeschwindigkeit als andere Gewindebohrer dank einer stabilen Bohrergeometrie.

DIN 5156

Hole type
3.0×D





Material groups GS | HSS | DIN 1 6 | Bright | p.B314

Recommended ToolHolder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215-220
	TAPPING CHUCK	D221-228
	ONE STEP TAPPING CHUCK	D211-213

Recommended Cutting Page : P.306

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8 -	28	**TC727200**	20	90	36	7	5.5	8	3	8.8
G1/4 -	19	**TC727400**	22	100	40	11	9	12	3	11.8
G3/8 -	19	**TC727480**	22	100	40	12	9	12	3	15.25
G1/2 -	14	**TC727560**	25	125	50	16	12	15	4	19
G3/4 -	14	**TC727700**	28	140	54	20	16	19	4	24.5
G1 -	11	**TC727780**	30	160	60	25	20	23	4	30.75

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended		◎	◎	◎		◎	◎										◎	◎		

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	◎	◎	○														

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

PIPE TAPS

RE OMMENDED TTING ONDITIONS
EMP OHLENE S HNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TC728	TC729	TB514	TC727
					Vc (m/min)			
P	1	Non-alloy steel	125				15-20	
	2		190	13	15-20		15-20	15-20
	3		250	25	12-18			12-18
	4		270	28	10-15			10-15
	5		300	32				
	6	Low alloy steel	180	10	10-15	10-15		10-15
	7		275	29	10-15	10-15		10-15
	8		300	32		6-10		
	9		350	38		3-5		
M	12	Stainless steel	200	15			7-10	
	13		240	23			5-8	
	14		180	10		4-6	4-6	
K	17	Nodular cast iron	160	3	10-15			10-15
	18		250	25	5-8			5-8
N	21	Aluminum-wrought alloy	60		10-15			10-15
	22		100		10-15			10-15
	23	Aluminum-cast, alloyed	75		15-20			15-20
	24		90		15-20			15-20
	25		130		10-15			10-15
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35			25-35
	27		90		8-12			8-12

Leading Through Innovation

TAPS

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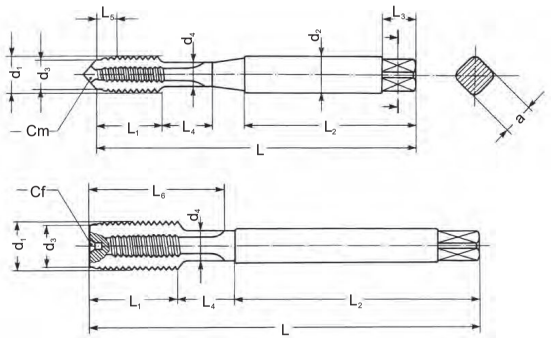
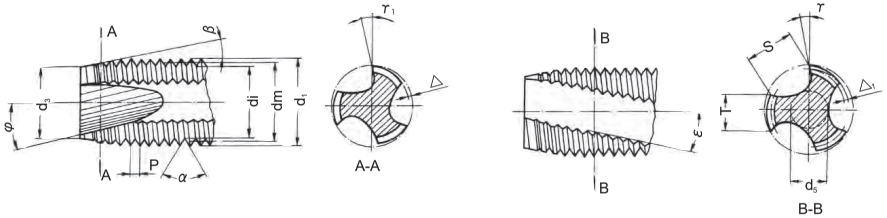
TAPS TERMINOLOGY
FACHAUSDRÜCKE BEI GEWINDEBOHRERN (Terminologie)



d_1	Major diameter	d_1	Nenn Aussendurchmesser	d_1	Diamètre externe nominal
d_2	Shank diameter	d_2	Schaftdurchmesser	d_2	Diamètre de la queue
d_3	Chamfer diameter	d_3	Anschnittdurchmesser	d_3	Diamètre de l'entrée
d_4	Neck diameter	d_4	Bunddurchmesser	d_4	Diamètre de la collerette de dégagement
L	Total length	L	Gesamtlänge	L	Longueur totale
L_1	Thread length	L_1	Gewindelänge	L_1	Longueur de la patie filetée
L_2	Shank length	L_2	Schaftlänge	L_2	Longueur de la queue
L_3	Square length	L_3	Vierkantlänge	L_3	Longueur du carré
L_4	Neck length	L_4	Bundlänge	L_4	Longueur de la collerette de dégagement
L_5	Chamfer length	L_5	Anschnittlänge	L_5	Longueur de l'entrée
L_6	Flutes length	L_6	Nutenlänge	L_6	Longueur des goujures
a	Square	a	Vierkantma ß	a	Carré
Cm	Center male	Cm	Mittelpunkt des Aussengewindes	Cm	Centre mâle
Cf	Center female	Cf	Mittelpunkt des Innengewindes	Cf	Centre femelle



d_1	Major diameter	d_1	Nenn Aussendurchmesser	d_1	Diamètre externe nominal
dm	Flank diameter	dm	Flankendurchmesser	dm	Diamètre moyen
di	Minor diameter	di	Kerndurchmesser	di	Diamètre interne
d_3	Chamfer diameter	d_3	Anschnittdurchmesser	d_3	Diamètre de l'entrée
P	Pitch	P	Steigung	P	Pas
a	Flank angle	a	Flankenwinkel	α	Angle du filet
β	Chamfer angle	β	Anschnittwinkel	β	Demi-angle du cône d'entrée
φ	Gun nose angle	φ	Schälschnittwinkel	φ	Angle de l'entrée GUN
γ	Gun nose rake angle in front	γ_1	Schälschnitt-Spanwinkel	γ_1	Angle de coupe sur l'entrée GUN
△	Chamfer relief	△	Hinterschliff am Anschnitt	△	Détalonnage sur l'entrée
$△_1$	Pitch diameter relief on the land	$△_1$	Flankenhinterschliff auf Zahnbreite	$△_1$	Détalonnage sur le filet
γ	Rake angle	γ	Spanwinkel	γ	Angle de coupe frontale
T	Width of land	T	Zahnstollenbreite	T	Largeur des dents
S	Flute width	S	Nutenbreite	S	Largeur des goujoures
d_5	Web tickness	d_5	Seelendicke	d_5	Diamètre de l'âme
ε	Angle of spiral flute	ε	Spiralwinkel	ε	Angle d'hélice des goujures

TECHNICAL DATA
SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

RECOMMENDED TAP DRILL SIZE
EMPFOHLENE KERNLOCHMASSE

Unit : mm

Metric-ISO threads coarse pitch				Metric-ISO threads fine pitch				Metric-ISO threads fine pitch			
M	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size
1	0.25	0.785	0.75	2.5	0.35	2.221	2.15	25	2.00	23.210	23.00
1.1	0.25	0.885	0.85	3	0.35	2.271	2.65	26	1.50	24.676	24.50
1.2	0.25	0.985	0.95	3.5	0.35	3.221	3.15	27	1.00	26.153	26.00
1.4	0.30	1.160	1.10	4	0.50	3.599	3.50	27	1.50	25.676	25.50
1.6	0.35	1.321	1.25	4.5	0.50	4.099	4.00	27	2.00	25.210	25.00
1.7	0.35	1.346	1.30	5	0.50	4.599	4.50	28	1.00	27.153	27.00
1.8	0.35	1.521	1.45	5.5	0.50	5.099	5.00	28	1.50	26.676	26.50
2	0.40	1.679	1.60	6	0.75	5.378	5.20	28	2.00	26.210	26.00
2.2	0.45	1.838	1.75	7	0.75	6.378	6.20	30	1.00	29.153	29.00
2.3	0.40	1.920	1.90	8	0.75	7.378	7.20	30	1.50	28.676	28.50
2.5	0.45	2.138	2.05	8	1.00	7.153	7.00	30	2.00	28.210	28.00
2.6	0.45	2.176	2.10	9	0.75	8.378	8.20	30	3.00	27.252	27.00
3	0.50	2.599	2.50	9	1.00	8.153	8.00	32	1.50	30.675	30.50
3.5	0.60	3.010	2.90	10	0.75	9.378	9.20	32	2.00	30.210	30.00
4	0.70	3.422	3.30	10	1.00	9.153	9.00	33	1.50	31.676	31.50
4.5	0.75	3.878	3.70	10	1.25	8.912	8.80	33	2.00	31.210	31.00
5	0.80	4.334	4.20	11	0.75	10.378	10.20	33	3.00	30.252	30.00
6	1.00	5.153	5.00	11	1.00	10.153	10.00	35	1.50	33.676	33.50
7	1.00	6.153	6.00	12	1.00	11.153	11.00	36	1.50	34.676	34.50
8	1.25	6.912	6.80	12	1.25	10.912	10.80	36	2.00	34.210	34.00
9	1.25	7.912	7.80	12	1.50	10.676	10.50	36	3.00	33.252	33.00
10	1.50	8.676	8.50	14	1.00	13.153	13.00	38	1.50	36.676	36.50
11	1.50	9.676	9.50	14	1.25	12.912	12.80	39	1.50	37.676	37.50
12	1.75	10.441	10.20	14	1.50	12.676	12.50	39	2.00	37.210	37.00
14	2.00	12.210	12.00	15	1.00	14.153	14.00	39	3.00	36.252	36.00
16	2.00	14.210	14.00	15	1.50	13.676	13.50	40	1.50	38.676	38.50
18	2.50	15.744	15.50	16	1.00	15.153	15.00	40	2.00	38.210	38.00
20	2.50	17.744	17.50	16	1.50	14.676	14.50	40	3.00	37.252	37.00
22	2.50	19.744	19.50	17	1.00	16.153	16.00	42	1.50	40.676	40.50
24	3.00	21.252	21.00	17	1.50	15.676	15.50	42	2.00	40.210	40.00
27	3.00	24.252	24.00	18	1.00	17.153	17.00	42	3.00	39.252	39.00
30	3.50	26.771	26.50	18	1.50	16.676	16.50	45	1.50	43.676	43.50
33	3.50	29.771	29.50	18	2.00	16.210	16.00	45	2.00	43.210	43.00
36	4.00	32.270	32.00	20	1.00	19.153	19.00	45	3.00	42.252	42.00
39	4.00	35.270	35.00	20	1.50	18.676	18.50	48	1.50	46.676	46.50
42	4.50	37.799	37.50	20	2.00	18.210	18.00	48	2.00	46.210	46.00
45	4.50	40.799	40.50	22	1.00	21.153	21.00	48	3.00	45.252	45.00
48	5.00	43.297	43.00	22	1.50	20.676	20.50	50	1.50	48.676	48.50
52	5.00	47.297	47.00	22	2.00	20.210	20.00	50	2.00	48.210	48.00
56	5.50	50.796	50.50	24	1.00	23.153	23.00	50	3.00	47.252	47.00
60	5.50	54.796	54.50	24	1.50	22.676	22.50	52	1.50	50.676	50.50
64	6.00	58.305	58.00	24	2.00	22.210	22.00	52	2.00	50.210	50.00
68	6.00	62.305	62.00	25	1.00	24.153	24.00	52	3.00	49.252	49.00
				25	1.50	23.676	23.50				

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TECHNICAL DATA

SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

Unit : mm

American Unified coarse threads

UNC	T.P.I	Maximum core dia.	Drill size
#1	64	1.585	1.50
#2	56	1.872	1.80
#3	48	2.146	2.10
#4	40	2.385	2.30
#5	40	2.697	2.60
#6	32	2.896	2.85
#8	32	3.528	3.50
#10	24	3.950	3.90
#12	24	4.590	4.50
1/4"	20	5.250	5.20
5/16"	18	6.680	6.60
3/8"	16	8.082	8.00
7/16"	14	9.441	9.40
1/2"	13	10.881	10.75
9/16"	12	12.301	12.25
5/8"	11	13.693	13.50
3/4"	10	16.624	16.50
7/8"	9	19.520	19.50
1"	8	22.344	22.25
1*1/8"	7	25.082	25.00
1*1/4"	7	28.258	28.25
1*3/8"	6	30.851	30.75
1*1/2"	6	34.026	34.00
1*3/4"	5	39.560	39.50
2"	4.5	45.367	45.25

American Unified fine threads

UNF	T.P.I	Maximum core dia.	Drill size
#0	80	1.306	1.30
#1	72	1.613	1.60
#2	64	1.913	1.90
#3	56	2.197	2.10
#4	48	2.459	2.40
#5	44	2.741	2.70
#6	40	3.012	3.00
#8	36	3.597	3.50
#10	32	4.168	4.10
#12	28	4.717	4.70
1/4"	28	5.563	5.50
5/16"	24	6.995	6.90
3/8"	24	8.565	8.50
7/16"	20	9.947	9.90
1/2"	20	11.524	11.50
9/16"	18	12.969	12.90
5/8"	18	14.554	14.50
3/4"	16	17.546	17.50
7/8"	14	20.493	20.50
1"	12	23.363	23.25
1*1/8"	12	26.538	26.50
1*1/4"	12	29.713	29.50
1*3/8"	12	32.888	32.70
1*1/2"	12	36.063	36.00

Whitworth threads B.S.W.

BSW	T.P.I	Maximum core dia.	Drill size
3/32"	48	1.910	1.80
1/8"	40	2.590	2.50
5/32"	32	3.211	3.10
3/16"	24	3.743	3.60
7/32"	24	4.538	4.40
1/4"	20	5.224	5.10
5/16"	18	6.661	6.50
3/8"	16	8.052	7.90
7/16"	14	9.379	9.30
1/2"	12	10.610	10.50
9/16"	12	12.176	12.00
5/8"	11	13.598	13.50
3/4"	10	16.538	16.50
7/8"	9	19.411	19.25
1"	8	22.185	22.00
1*1/8"	7	24.879	24.75
1*1/4"	7	28.054	27.75
1*3/8"	6	30.555	30.50
1*1/2"	6	33.730	33.50
1*5/8"	5	35.921	35.50
1*3/4"	5	39.096	39.00
1*7/8"	4.5	41.648	41.50
2"	4.5	44.823	44.50
2*1/4"	4	50.420	50.00
2*1/2"	4	56.770	56.50
2*3/4"	3.5	62.108	62.00
3"	3.5	68.459	68.50

Whitworth pipe thread BSP.PI

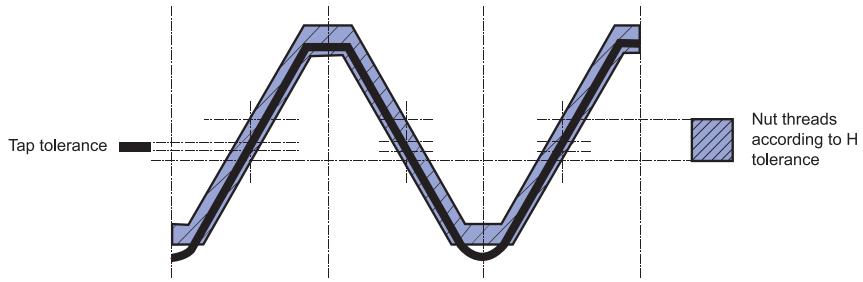
G(BSP)	T.P.I	Maximum core dia.	Drill size
1/8"	28	8.848	8.80
1/4"	19	11.890	11.80
3/8"	19	15.395	15.25
1/2"	14	19.172	19.00
5/8"	14	21.128	21.00
3/4"	14	24.658	24.50
7/8"	14	28.418	28.25
1"	11	30.931	30.75
1*1/8"	11	35.579	35.50
1*1/4"	11	39.592	39.50
1*3/8"	11	42.005	42.00
1*1/2"	11	45.485	45.20
1*5/8"	11	49.670	49.60
1*3/4"	11	51.428	51.40
2"	11	57.296	57.20
2*1/4"	11	63.392	63.30
2*3/8"	11	67.080	67.00
2*1/2"	11	72.866	72.80
2*3/4"	11	79.216	79.10
3"	11	85.566	85.50
3*1/4"	11	91.662	91.50
3*1/2"	11	98.012	98.00
3*3/4"	11	104.362	104.00
4"	11	110.712	110.50

TECHNICAL DATA
SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

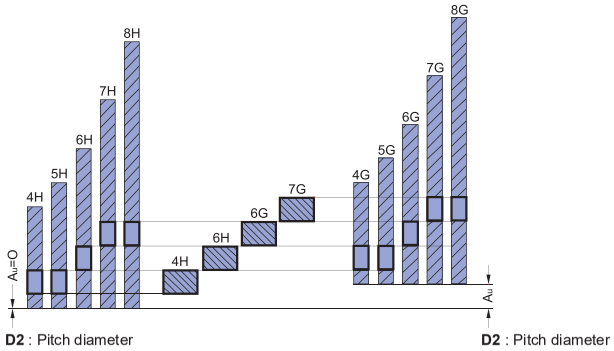
TAP TOLERANCES
GEWINDEBOHRER TOLERANZEN

Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO Standard.

Toleranzklassen und Toleranzfelder für Schraubengewinde entsprechen dem metrischen ISO-Standard



Nut thread Positioning of H tolerance	Tolerance Classes for Taps	Nut thread Positioning of G tolerance



Taps tolerances and recomanded classes

Tap tolerance ISO	Tap tolerance DIN	Correct class to obtain Nut thread with tolerance				
ISO 1	4H	4H	5H			
ISO 2	6H	4G	5G	6H		
ISO 3	6G			6G	7H	8H
	7G				7G	8G

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

METRIC ISO COARSE THREADS
METRISCHES ISO-GEWINDE

Nominal dimensions UNI 4535-64
Production tolerances on tap pitch diameter for ISO 6H Nut threads
Limit dimensions-Nut threads ISO 6H

Dimensions in mm

$H = 0.86603P$

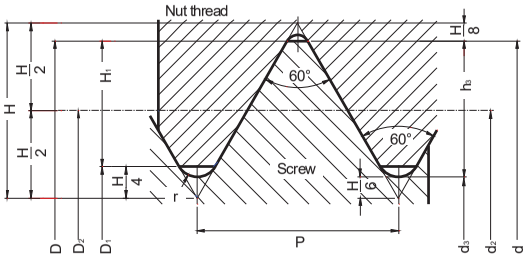
$H_1 = \frac{5}{8} H = 0.54127P$

$h_3 = \frac{17}{24} H = 0.61343P$

$d_2 = D_2 = d - \quad H = \frac{3}{4} d - 0.64952P$

$d_3 = d - 2h_3 = d - 1.22687P$

$r = \frac{H}{6} = 0.14434P$



Nominal diameter	Pitch	Pitch diameter	Minor diameter		Thread depth		Radius	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw	Nut	Screw	Nut		min.	max.	min.	max.
d = D	P	d2 = D2	d3	D1	h3	H1	r	d2			
M 1.6	0.35	1.373	1.171	1.221	0.215	0.189	0.051	1.393	1.407	1.373	1.458
M 1.8	0.35	1.573	1.371	1.421	0.215	0.189	0.051	1.593	1.607	1.573	1.658
M 2	0.4	1.740	1.509	1.567	0.245	0.217	0.058	1.761	1.776	1.740	1.830
M 2.2	0.45	1.908	1.648	1.713	0.276	0.244	0.065	1.931	1.946	1.908	2.003
M 2.5	0.45	2.208	1.948	2.013	0.276	0.244	0.065	2.231	2.246	2.208	2.303
M 3	0.5	2.675	2.387	2.459	0.307	0.271	0.072	2.699	2.715	2.675	2.775
M 3.5	0.6	3.110	2.764	2.850	0.368	0.325	0.087	3.137	3.155	3.110	3.222
M 4	0.7	3.545	3.141	3.242	0.429	0.379	0.101	3.574	3.593	3.545	3.663
M 4.5	0.75	4.013	3.580	3.688	0.460	0.406	0.108	4.042	4.061	4.013	4.131
M 5	0.8	4.480	4.019	4.134	0.491	0.433	0.115	4.510	4.530	4.480	4.605
M 6	1	5.350	4.773	4.917	0.613	0.541	0.144	5.385	5.409	5.350	5.500
M 7	1	6.350	5.773	5.917	0.613	0.541	0.144	6.385	6.409	6.350	6.500
M 8	1.25	7.188	6.466	6.647	0.767	0.677	0.180	7.226	7.251	7.188	7.348
M 9	1.25	8.188	7.466	7.647	0.767	0.677	0.180	8.226	8.251	8.188	8.348
M 10	1.5	9.026	8.160	8.376	0.920	0.812	0.217	9.068	9.096	9.026	9.206
M 11	1.5	10.026	9.160	9.376	0.920	0.812	0.217	10.068	10.096	10.026	10.206
M 12	1.75	10.863	9.853	10.106	1.074	0.947	0.253	10.911	10.943	10.863	11.063
M 14	2	12.701	11.546	11.835	1.227	1.083	0.289	12.752	12.786	12.701	12.913
M 16	2	14.701	13.546	13.835	1.227	1.083	0.289	14.752	14.786	14.701	14.913
M 18	2.5	16.376	14.933	15.294	1.534	1.353	0.361	16.430	16.466	16.376	16.600
M 20	2.5	18.376	16.933	17.294	1.534	1.353	0.361	18.430	18.466	18.376	18.600
M 22	2.5	20.376	18.933	19.294	1.534	1.353	0.361	20.430	20.466	20.376	20.600
M 24	3	22.051	20.319	20.752	1.840	1.624	0.433	22.115	22.157	22.051	22.316
M 27	3	25.051	23.319	23.752	1.840	1.624	0.433	25.115	25.157	25.051	25.316
M 30	3.5	27.727	25.706	26.211	2.147	1.894	0.505	27.794	27.839	27.727	28.007
M 33	3.5	30.727	28.706	29.211	2.147	1.894	0.505	30.794	30.839	30.727	31.007
M 36	4	33.402	31.093	31.670	2.454	2.165	0.577	33.473	33.520	33.402	33.702
M 39	4	36.402	34.093	34.670	2.454	2.165	0.577	36.473	36.520	36.402	36.702
M 42	4.5	39.077	36.479	37.129	2.760	2.436	0.650	39.152	39.202	39.077	39.392
M 45	4.5	42.077	39.479	40.129	2.760	2.436	0.650	42.152	42.202	42.077	42.392
M 48	5	44.752	41.866	42.587	3.067	2.706	0.722	44.832	44.885	44.752	45.087
M 52	5	48.752	45.866	46.587	3.067	2.706	0.722	48.832	48.885	48.752	49.087
M 56	5.5	52.428	49.252	50.046	3.374	2.977	0.794	52.512	52.568	52.428	52.783
M 60	5.5	56.428	53.252	54.046	3.374	2.977	0.794	56.512	56.568	56.428	56.783
M 64	6	60.103	56.639	57.505	3.681	3.248	0.866	60.193	60.253	60.103	60.478
M 68	6	64.103	60.639	61.505	3.681	3.248	0.866	64.193	64.253	64.103	64.478
Metric thread MA(old UNI 159 Profile)										**Nut tolerance SH8**	
M 1.7	0.35	1.473	1.246	1.246	0.227	0.227	0.040	1.493	1.507	1.473	1.529
M 2.3	0.4	2.040	1.780	1.780	0.260	0.260	0.040	2.061	2.076	2.040	2.120
M 2.6	0.45	2.308	2.016	2.016	0.292	0.292	0.050	2.331	2.346	2.308	2.388

TECHNICAL DATA
SU E CUTTING TA S
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METRIC ISO FINE THREADS
METRISCHES ISO-FEINGEWINDE

Nominal dimensions UNI 4535-64
Production tolerances on tap flank diameter for ISO 6H Nut threads
Limit dimensions-Nut threads ISO 6H

Dimensions in mm

$H = 0.86603P$

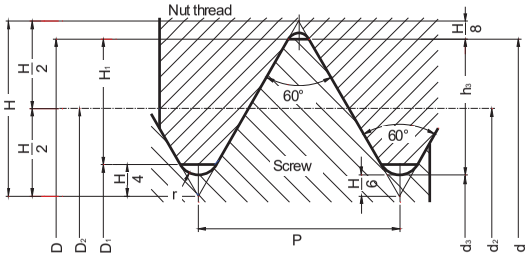
$H_1 = \frac{5}{8} H = 0.54127P$

$h_3 = \frac{17}{24} H = 0.61343P$

$d_2 = D_2 = d - \frac{3}{4} H = d - 0.64952P$

$d_3 = d - 2h_3 = d - 1.22687P$

$r = \frac{H}{6} = 0.14434P$



Nominal diameter	Pitch	Pitch diameter	Minor diameter		Thread depth		Radius	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw	Nut	Screw	Nut		min.	max.	min.	max.
d = D	P	d2 = D2	d3	D1	h3	H1	r	d2			
M 2	0.25	1.838	1.693	1.729	0.153	0.135	0.036	1.844	1.856	1.838	1.886
M 2.5	0.35	2.273	2.701	2.121	0.215	0.189	0.051	2.293	2.307	2.273	2.358
M 3	0.35	2.773	2.571	2.621	0.215	0.189	0.051	2.794	2.809	2.773	2.863
M 3.5	0.35	3.273	3.071	3.121	0.215	0.189	0.051	3.294	3.309	3.273	3.363
M 4	0.5	3.675	3.387	3.459	0.307	0.271	0.072	3.699	3.715	3.675	3.775
M 4.5	0.5	4.175	3.887	3.959	0.307	0.271	0.072	4.199	4.215	4.175	4.275
M 5	0.5	4.675	4.387	4.459	0.307	0.271	0.072	4.699	4.715	4.675	4.775
M 5.5	0.5	5.175	4.887	4.959	0.307	0.271	0.072	5.199	5.215	5.175	5.275
M 6	0.5	5.675	5.387	5.459	0.307	0.271	0.072	5.702	5.720	5.675	5.787
M 6	0.75	5.513	5.080	5.188	0.460	0.406	0.108	5.545	5.566	5.513	5.645
M 7	0.75	6.513	6.080	6.188	0.460	0.406	0.108	6.545	6.566	6.513	6.645
M 8	0.5	7.675	7.387	7.459	0.307	0.271	0.072	7.702	7.720	7.675	7.787
M 8	0.75	7.513	7.080	7.188	0.460	0.406	0.108	7.545	7.566	7.513	7.645
M 8	1	7.350	6.773	6.917	0.613	0.541	0.144	7.835	7.409	7.350	7.500
M 9	0.75	8.513	8.080	8.188	0.460	0.406	0.108	8.545	8.566	8.513	8.645
M 9	1	8.350	7.773	7.917	0.613	0.541	0.144	8.385	8.409	8.350	8.500
M 10	0.5	9.675	9.387	9.459	0.307	0.271	0.072	9.702	9.720	9.675	9.787
M 10	0.75	9.513	9.080	9.188	0.460	0.406	0.108	9.545	9.566	9.513	9.645
M 10	1	9.350	8.773	8.917	0.613	0.541	0.144	9.385	9.409	9.350	9.500
M 10	1.25	9.188	8.466	8.647	0.767	0.677	0.180	9.226	9.251	9.188	9.348
M 11	0.75	10.513	10.080	10.188	0.460	0.406	0.108	10.545	10.566	10.513	10.645
M 11	1	10.350	9.773	9.917	0.613	0.541	0.144	10.385	10.409	10.350	10.500
M 12	0.75	11.513	11.080	11.188	0.460	0.406	0.108	11.547	11.569	11.513	11.653
M 12	1	11.350	10.773	10.917	0.613	0.541	0.144	11.388	11.413	11.350	11.510
M 12	1.25	11.188	10.466	10.647	0.767	0.677	0.180	11.230	11.258	11.188	11.368
M 12	1.5	11.026	10.160	10.376	0.920	0.812	0.217	11.071	11.101	11.026	11.216
M 13	1	12.350	11.773	11.917	0.613	0.541	0.144	12.388	12.413	12.350	12.510
M 14	1	13.350	12.773	12.917	0.613	0.541	0.144	13.388	13.413	13.350	13.510
M 14	1.25	13.188	12.466	12.647	0.767	0.677	0.180	13.230	13.258	13.188	13.368
M 14	1.5	13.026	12.160	12.376	0.920	0.812	0.217	13.071	13.101	13.026	13.216
M 15	1	14.350	13.773	13.917	0.613	0.541	0.144	14.388	14.413	14.350	14.510
M 15	1.5	14.026	13.160	13.376	0.920	0.812	0.217	14.071	14.101	14.026	14.216
M 16	1	15.350	14.773	14.917	0.613	0.541	0.144	15.388	15.413	15.350	15.510
M 16	1.25	15.188	14.466	14.647	0.767	0.677	0.180	15.230	15.258	15.188	15.368
M 16	1.5	15.026	14.160	14.376	0.920	0.812	0.217	15.071	15.101	15.026	15.216
M 17	1	16.350	15.773	15.917	0.613	0.541	0.144	16.388	16.413	16.350	16.510
M 17	1.5	16.026	15.160	15.376	0.920	0.812	0.217	16.071	16.101	16.026	16.216
M 18	1	17.350	16.773	16.917	0.613	0.541	0.144	17.388	17.413	17.350	17.510
M 18	1.5	17.026	16.160	16.376	0.920	0.812	0.217	17.071	17.101	17.026	17.216
M 18	2	16.701	15.546	15.835	1.227	1.083	0.289	16.752	16.786	16.701	16.913
M 20	1	19.350	18.773	18.917	0.613	0.541	0.144	19.388	19.413	19.350	19.510
M 20	1.5	19.026	18.160	18.376	0.920	0.812	0.217	19.071	19.101	19.026	19.216
M 20	2	18.701	17.546	17.835	1.227	1.083	0.289	18.752	18.786	18.701	18.913
M 22	1	21.350	20.773	20.917	0.613	0.541	0.144	21.388	21.413	21.350	21.510
M 22	1.5	21.026	20.160	20.376	0.920	0.812	0.217	21.071	21.101	21.026	21.216

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TECHNICAL DATA

SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

Nominal diameter	Pitch	Pitch diameter	Minor diameter		Thread depth		Radius	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw	Nut	Screw	Nut		min.	max.	min.	max.
d = D	P	$d_2 = D_2$	d_3	D_1	h_3	H_1	r	d_2			
M 22	2	20.701	19.546	19.835	1.227	1.083	0.289	20.752	20.786	20.701	20.913
M 24	1	23.350	22.773	22.917	0.613	0.541	0.144	23.390	23.416	23.350	23.520
M 24	1.5	23.026	22.160	22.376	0.920	0.812	0.217	23.074	23.106	23.026	23.226
M 24	2	22.701	21.546	21.835	1.227	1.083	0.289	22.754	22.791	22.701	22.925
M 25	1	24.350	23.773	23.917	0.613	0.541	0.144	24.390	24.416	24.350	24.520
M 25	1.5	24.026	23.160	23.376	0.920	0.812	0.217	24.074	24.106	24.026	24.226
M 25	2	23.701	22.546	22.835	1.227	1.083	0.289	23.754	23.791	23.701	23.925
M 26	1	25.350	24.773	24.917	0.613	0.541	0.144	25.390	25.416	25.350	25.520
M 26	1.5	25.026	24.160	24.376	0.920	0.812	0.217	25.074	25.106	25.026	25.226
M 26	2	24.701	23.546	23.835	1.227	1.083	0.289	24.754	24.791	24.701	24.925
M 27	1	26.350	25.773	25.917	0.613	0.541	0.144	26.390	26.416	26.350	26.520
M 27	1.5	26.026	25.160	25.376	0.920	0.812	0.217	26.074	26.106	26.026	26.226
M 27	2	25.701	24.546	24.835	1.227	1.083	0.289	25.754	25.791	25.701	25.925
M 28	1	27.350	26.773	26.917	0.613	0.541	0.144	27.390	27.416	27.350	27.520
M 28	1.5	27.026	26.160	26.376	0.920	0.812	0.217	27.074	27.106	27.026	27.226
M 28	2	26.701	25.546	25.835	1.227	1.083	0.289	26.754	26.791	26.701	26.925
M 30	1	29.350	28.773	28.917	0.613	0.541	0.144	29.390	29.416	29.350	29.520
M 30	1.5	29.026	28.160	28.376	0.920	0.812	0.217	29.074	29.106	29.026	29.226
M 30	2	28.701	27.546	27.835	1.227	1.083	0.289	28.754	28.791	28.701	28.925
M 30	3	28.051	26.319	26.752	1.840	1.624	0.433	28.115	28.157	28.051	28.316
M 32	1.5	31.026	30.160	30.376	0.920	0.812	0.217	31.074	31.106	31.026	31.226
M 32	2	30.701	29.546	29.835	1.227	1.083	0.289	30.754	30.791	30.701	30.925
M 33	1.5	32.026	31.160	31.376	0.920	0.812	0.217	32.074	32.106	32.026	32.226
M 33	2	31.701	30.546	30.835	1.227	1.083	0.289	31.754	31.791	31.701	31.925
M 33	3	31.051	29.319	29.752	1.840	1.624	0.433	31.115	31.157	31.051	31.316
M 35	1.5	34.026	33.160	33.376	0.920	0.812	0.217	34.074	34.106	34.026	34.226
M 35	2	33.701	32.546	32.835	1.227	1.083	0.289	33.754	33.791	33.701	33.925
M 36	1.5	35.026	34.160	34.376	0.920	0.812	0.217	35.074	35.106	35.026	35.226
M 36	2	34.701	33.546	33.835	1.227	1.083	0.289	34.754	34.791	34.701	34.925
M 36	3	34.051	32.319	32.752	1.840	1.624	0.433	34.115	34.157	34.051	34.316
M 38	1.5	37.026	36.160	36.376	0.920	0.812	0.217	37.074	37.106	37.026	37.226
M 39	1.5	38.026	37.160	37.376	0.920	0.812	0.217	38.074	38.106	38.026	38.226
M 39	2	37.701	36.546	36.835	1.227	1.083	0.289	37.754	37.791	37.701	37.925
M 39	3	37.051	35.319	35.752	1.840	1.624	0.433	37.115	37.157	37.051	37.316
M 40	1.5	39.026	38.160	38.376	0.920	0.812	0.217	39.074	39.106	39.026	39.226
M 40	2	38.701	37.546	37.835	1.227	1.083	0.289	38.754	38.791	38.701	38.925
M 40	3	38.051	36.319	36.752	1.840	1.624	0.433	38.115	38.157	38.051	38.316
M 42	1.5	41.026	40.160	40.376	0.920	0.812	0.217	41.074	41.106	41.026	41.226
M 42	2	40.701	39.546	39.835	1.227	1.083	0.289	40.754	40.791	40.701	40.925
M 42	3	40.051	38.319	38.752	1.840	1.624	0.433	40.115	40.157	40.051	40.316
M 45	1.5	44.026	43.160	43.376	0.920	0.812	0.217	44.074	44.106	44.026	44.226
M 45	2	43.701	42.546	42.835	1.227	1.083	0.289	43.754	43.791	43.701	43.925
M 45	3	43.051	41.319	41.752	1.840	1.624	0.433	43.115	43.157	43.051	43.316
M 48	1.5	47.026	46.160	46.376	0.920	0.812	0.217	47.077	47.111	47.026	47.238
M 48	2	46.701	45.546	45.835	1.227	1.083	0.289	46.758	46.796	46.701	46.937
M 48	3	46.051	44.319	44.752	1.840	1.624	0.433	46.118	46.163	46.051	46.331
M 50	1.5	49.026	48.160	48.376	0.920	0.812	0.217	49.077	49.111	49.026	49.238
M 50	2	48.701	47.546	47.835	1.227	1.083	0.289	48.758	48.796	48.701	48.937
M 50	3	48.051	46.319	46.752	1.840	1.624	0.433	48.118	48.163	48.051	48.331
M 52	1.5	51.026	50.160	50.376	0.920	0.812	0.217	51.077	51.111	51.026	51.238
M 52	2	50.701	49.546	49.835	1.227	1.083	0.289	50.758	50.796	50.701	50.937
M 52	3	50.051	48.319	48.752	1.840	1.624	0.433	50.118	50.163	50.051	50.331
M 55	1.5	54.026	53.160	53.376	0.920	0.812	0.217	54.077	54.111	54.026	54.238
M 55	2	53.701	52.546	52.835	1.227	1.083	0.289	53.758	53.796	53.701	53.937
M 55	3	53.051	51.319	51.752	1.840	1.624	0.433	53.118	53.163	53.051	53.331
M 56	1.5	55.026	54.160	54.376	0.920	0.812	0.217	55.077	55.111	55.026	55.238
M 56	2	54.701	53.546	53.835	1.227	1.083	0.289	54.758	54.796	54.701	54.937
M 56	3	54.051	52.319	52.752	1.840	1.624	0.433	54.118	54.163	54.051	54.331
M 58	1.5	57.026	56.160	56.376	0.920	0.812	0.217	57.077	57.111	57.026	57.238
M 58	2	56.701	55.546	55.835	1.227	1.083	0.289	56.758	56.796	56.701	56.937
M 58	3	56.051	54.319	54.752	1.840	1.624	0.433	56.118	56.163	56.051	56.331
M 60	1.5	59.026	58.160	58.376	0.920	0.812	0.217	59.077	59.111	59.026	59.238
M 60	2	58.701	57.546	57.835	1.227	1.083	0.289	58.758	58.796	58.701	58.937
M 60	3	58.051	56.319	56.752	1.840	1.624	0.433	58.118	58.163	58.051	58.331
Metric thread MB(old UNI 160 Profile)										**Nut tolerance SH8**	
M 2,3	0.25	2.138	1.976	1.976	0.162	0.162	0.030	2.144	2.156	2.138	2.194
M 2,6	0.35	2.373	2.146	2.146	0.227	0.227	0.040	2.393	2.407	2.373	2.429

TECHNICAL DATA
SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

UNIFIED COARSE THREADS
UNIFIED GROBGEWINDE

Nominal dimensions as per ANSI B1.1
Production tolerances on tap flank diameter for 2B class nut threads
Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$H = 0.86603P$

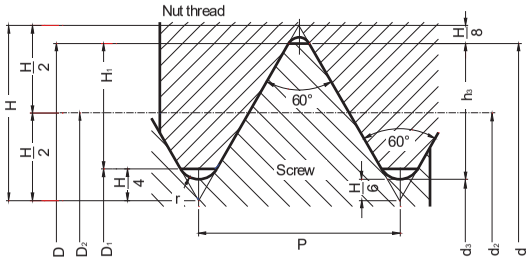
$H_1 = \frac{5}{8}H = 0.54127P$

$h_3 = \frac{17}{24}H = 0.61343P$

$d_2 = D_2 = d - \frac{3}{4}H = d - 0.64952P$

$d_3 = d - 2h_3 = d - 1.22687P$

$r = \frac{H}{6} = 0.14434P$



Nominal diameter	T.P.I	Pitch	External diameter	Flank diameter	Thread depth		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut	Screw	min.	max.	min. 2B/3B	max. 2B	max. 3B
		P	d = D	$d_2 = D_2$	D_1	d_3					
#1	- 64 UNC	0.397	1.854	1.598	1.425	1.367	1.610	1.623	1.598	1.664	1.646
#2	- 64 UNC	0.454	2.184	1.890	1.694	1.628	1.902	1.915	1.890	1.961	1.943
#3	- 48 UNC	0.529	2.515	2.172	1.941	1.864	2.184	2.197	2.172	2.248	2.228
#4	- 40 UNC	0.635	2.845	2.433	2.156	2.065	2.446	2.459	2.433	2.517	2.494
#5	- 40 UNC	0.635	3.175	2.764	2.487	2.395	2.776	2.789	2.764	2.847	2.827
#6	- 32 UNC	0.794	3.505	2.990	2.647	2.532	3.105	3.028	2.990	3.084	3.058
#8	- 32 UNC	0.794	4.166	3.650	3.307	3.193	3.675	3.688	3.650	3.746	3.721
#10	- 24 UNC	1.058	4.826	4.138	3.680	3.528	4.163	4.176	4.138	4.247	4.219
#12	- 24 UNC	1.058	5.486	4.798	4.341	4.188	4.823	4.836	4.798	4.910	4.882
1/4"	- 20 UNC	1.270	6.350	5.524	4.976	4.793	5.575	5.588	5.524	5.646	5.616
5/16"	- 18 UNC	1.411	7.938	7.021	6.411	6.205	7.071	7.084	7.021	7.155	7.120
3/8"	- 16 UNC	1.588	9.525	8.494	7.805	7.577	8.545	8.557	8.494	8.639	8.603
7/16"	- 14 UNC	1.814	11.112	9.934	9.149	8.887	9.985	9.997	9.934	10.089	10.051
1/2"	- 13 UNC	1.954	12.700	11.430	10.584	10.302	11.481	11.494	11.430	11.595	11.552
9/16"	- 12 UNC	2.117	14.288	12.913	11.996	11.692	12.964	12.977	12.913	13.086	13.043
5/8"	- 11 UNC	2.309	15.875	14.376	13.376	13.043	14.427	14.440	14.376	14.559	14.514
3/4"	- 10 UNC	2.540	19.050	17.399	16.229	15.933	17.450	17.463	17.399	17.595	17.544
7/8"	- 9 UNC	2.822	22.225	20.391	19.169	18.763	20.455	20.467	20.391	20.599	20.546
1"	- 8 UNC	3.175	25.400	23.338	21.963	21.504	23.401	23.414	23.338	23.561	23.505
1*1/8"	- 7 UNC	3.629	28.575	26.218	24.648	24.122	26.294	26.319	26.218	26.457	26.398
1*1/4"	- 7 UNC	3.629	31.750	29.393	27.823	27.297	29.469	29.494	29.393	29.637	29.576
1*3/8"	- 6 UNC	4.233	34.925	32.174	30.343	29.731	32.250	32.276	32.174	32.438	32.372
1*1/2"	- 6 UNC	4.233	38.100	35.349	33.518	32.906	35.425	35.451	35.349	35.616	35.550
1*3/4"	- 5 UNC	5.080	44.450	41.151	38.951	38.217	41.241	41.266	41.151	41.445	41.372
2"	- 4 1/2 UNC	5.644	50.800	47.135	44.689	43.876	47.235	47.260	47.135	47.450	47.371
2*1/4"	- 4 1/2 UNC	5.644	57.150	53.485	51.039	50.226			53.485	53.805	53.726
2*1/2"	- 4 UNC	6.350	63.500	59.375	56.627	55.710			59.375	59.718	59.632
2*3/4"	- 4 UNC	6.350	69.850	65.725	62.977	62.060			65.725	66.073	65.987
3"	- 4 UNC	6.350	76.200	72.075	69.327	68.410			72.075	72.428	72.339
3*1/4"	- 4 UNC	6.350	82.550	78.425	75.677	74.760			78.425	78.783	78.694
3*1/2"	- 4 UNC	6.350	88.900	84.775	82.027	81.110			84.775	85.183	85.049
3*3/4"	- 4 UNC	6.350	95.250	91.125	88.377	87.460			91.125	91.493	91.402
4"	- 4 UNC	6.350	101.600	97.475	94.727	93.810			97.475	97.848	97.757

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

UNIFIED FINE THREADS
UNIFIED FEINGEWINDE

Nominal dimensions as per ANSI B1.1
Production tolerances on tap flank diameter for 2B class nut threads
Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$H = 0.86603P$

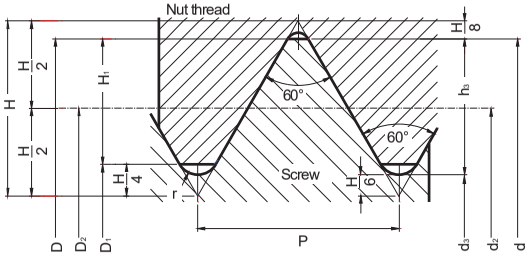
$H_1 = \frac{5}{8}H = 0.54127P$

$h_3 = \frac{17}{24}H = 0.61343P$

$d_2 = D_2 = d - \frac{3}{4}H = d - 0.64952P$

$d_3 = d - 2h_3 = d - 1.22687P$

$r = \frac{H}{6} = 0.14434P$



Nominal diameter	T.P.I	Pitch	External diameter	Flank diameter	Thread depth		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut	Screw	min.	max.	min. 2B/3B	max. 2B	max. 3B
		P	d = D	$d_2 = D_2$	D_1	d_3					
#0	- 80 UNF	0.318	1.524	1.318	1.181	1.135	1.331	1.344	1.318	1.377	1.361
#1	- 72 UNF	0.353	1.854	1.626	1.473	1.422	1.638	1.651	1.626	1.689	1.674
#2	- 64 UNF	0.397	2.184	1.928	1.755	1.697	1.941	1.953	1.928	1.996	1.979
#3	- 56 UNF	0.454	2.515	2.220	2.024	1.958	2.233	2.245	2.220	2.291	2.273
#4	- 48 UNF	0.529	2.845	2.502	2.271	2.195	2.515	2.527	2.502	2.581	2.560
#5	- 44 UNF	0.577	3.175	2.799	2.550	2.466	2.812	2.824	2.799	2.880	2.860
#6	- 40 UNF	0.635	3.505	3.094	2.817	2.725	3.108	3.119	3.094	3.180	3.157
#8	- 36 UNF	0.706	4.166	3.708	3.401	3.299	3.721	3.734	3.708	3.800	3.777
#10	- 32 UNF	0.794	4.826	4.310	3.967	3.853	4.336	4.348	4.310	4.409	4.384
#12	- 28 UNF	0.907	5.486	4.897	4.503	4.374	4.923	4.935	4.897	5.004	4.976
1/4"	- 28 UNF	0.907	6.350	5.761	5.367	5.237	5.799	5.812	5.761	5.870	5.842
5/16"	- 24 UNF	1.058	7.938	7.249	6.792	6.640	7.287	7.300	7.249	7.371	7.341
3/8"	- 24 UNF	1.058	9.525	8.837	8.379	8.227	8.875	8.887	8.837	8.961	8.931
7/16"	- 20 UNF	1.270	11.112	10.287	9.738	9.555	10.338	10.351	10.287	10.424	10.391
1/2"	- 20 UNF	1.270	12.700	11.874	11.326	11.143	11.925	11.938	11.874	12.017	11.981
9/16"	- 18 UNF	1.411	14.288	13.371	12.761	12.555	13.421	13.434	13.371	13.520	13.482
5/8"	- 18 UNF	1.411	15.875	14.958	14.348	14.143	15.009	15.022	14.958	15.110	15.072
3/4"	- 16 UNF	1.588	19.050	18.019	17.330	17.102	18.070	18.082	18.019	18.184	18.143
7/8"	- 14 UNF	1.814	22.225	21.046	20.262	20.000	21.110	21.123	21.046	21.224	21.181
1"	- 12 UNF	2.117	25.400	24.026	23.109	22.804	24.089	24.102	24.026	24.219	24.171
1*1/8"	- 12 UNF	2.117	28.575	27.201	26.284	25.979	27.252	27.277	27.201	27.339	27.351
1*1/4"	- 12 UNF	2.117	31.750	30.376	29.459	29.154	30.427	30.452	30.376	30.579	30.528
1*3/8"	- 12 UNF	2.117	34.925	33.551	32.634	32.329	33.602	33.627	33.551	33.759	33.706
1*1/2"	- 12 UNF	2.117	38.100	36.726	35.809	35.504	36.777	36.802	36.726	36.937	36.886

TECHNICAL DATA
SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

WHITWORTH PIPE THREADS
WHITWORTH ROHRGEWINDE

Nominal dimensions ISO 228/1-UNI 338-66
Production tolerances on tap flank diameter
Limit dimensions for internal threads

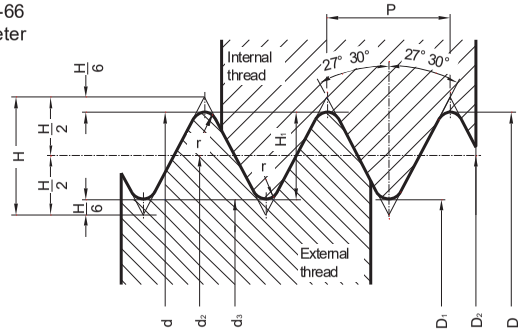
Dimensions in mm

$P = \frac{25.4}{z}$

$H = 0.960491\ P$

$H_1 = 0.640327\ P$

$r = 0.137329\ P$



Type	Thread diameter	Pitch	T.P.I	Flank diameter	Minor diameter	H_1	r	Tap Flank diameter		Internal Thread Flank diameter	
								min.	max.	min.	max.
(1)	d = D	P	z	$d_2 = D_2$	$d_3 = d_1$			d_2			
G 1/8"	9.728	0.907	28	9.147	8.566	0.581	0.125	9.177	9.194	9.147	9.254
G 1/4"	13.157	1.157	19	12.301	11.445	0.856	0.184	12.336	12.356	12.301	12.426
G 3/8"	16.662	1.337	19	15.806	14.950	0.856	0.184	15.841	15.861	15.806	15.933
G 1/2"	20.955	1.814	14	19.793	18.631	1.162	0.249	19.828	19.848	19.793	19.935
G 5/8"	22.911	1.814	14	21.749	20.587	1.162	0.249	21.784	21.804	21.749	21.891
G 3/4"	26.441	1.814	14	25.279	24.117	1.162	0.249	25.314	25.334	25.279	25.421
G 7/8"	32.201	1.814	14	29.039	27.877	1.162	0.249	29.074	29.094	29.039	29.181
G 1"	33.249	2.309	11	31.770	30.291	1.479	0.317	31.815	31.839	31.770	31.950
G 1*1/8"	37.897	2.309	11	36.418	34.939	1.479	0.317	36.463	36.487	36.418	36.598
G 1*1/4"	41.910	2.309	11	40.431	38.952	1.479	0.317	40.476	40.500	40.431	40.611
G 1*3/8"	44.323	2.309	11	42.844	41.365	1.479	0.317	42.889	42.913	42.844	43.024
G 1*1/2"	47.803	2.309	11	46.324	44.845	1.479	0.317	46.374	46.398	46.324	46.504
G 1*3/4"	53.746	2.309	11	52.267	50.788	1.479	0.317	52.327	52.354	52.267	52.447
G 2"	59.614	2.309	11	58.135	56.656	1.479	0.317	58.195	58.222	58.135	58.315
G 2*1/4"	65.710	2.309	11	64.231	62.752	1.479	0.317	64.291	64.318	64.231	64.448
G 2*3/8"	69.398	2.309	11	67.919	66.440	1.479	0.317	67.979	68.006	67.919	68.136
G 2*1/2"	75.184	2.309	11	73.705	72.226	1.479	0.317	73.765	73.792	73.705	73.922
G 2*3/4"	81.534	2.309	11	80.055	78.576	1.479	0.317	80.127	80.157	80.055	80.272
G 3"	87.884	2.309	11	86.405	84.926	1.479	0.317	86.477	86.507	86.405	86.622
G 3*1/4"	93.980	2.309	11	92.501	91.022	1.479	0.317	92.573	92.603	92.501	92.718
G 3*1/2"	100.330	2.309	11	98.851	97.372	1.479	0.317	98.923	98.953	98.851	99.068
G 3*3/4"	106.680	2.309	11	105.201	103.722	1.479	0.317	105.273	105.303	105.201	105.418
G 4"	113.030	2.309	11	111.551	110.072	1.479	0.317	111.623	111.653	111.551	111.768
G 4*1/2"	125.730	2.309	11	124.251	122.772	1.479	0.317				
G 5"	138.430	2.309	11	136.951	135.472	1.479	0.317				
G 5*1/2"	151.130	2.309	11	149.651	148.172	1.479	0.317				
G 6"	163.830	2.309	11	162.351	160.872	1.479	0.317				

(1) - This type is conventional:originally the value in inches was the internal pipe diameter.

CARBIDE
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YG TAP GENERAL
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YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

INTERESTING HINTS FOR TAPPING
HINWEISE ZUM GEWINDESCHNEIDEN

Selection of the most suitable tap
Auswahl des geeigneten Gewindebohrers

Which types of tap or whether or not a thread former can be used, depends on the type of material to be machined.
As a general guide, materials with an extension of at least 10% can be cold-formed.
To determine the most suitable tap, refer to the tap recommendation table on pages 356 to 363.
Welcher Typ Gewindebohrer oder ob ein Gewindeformer eingesetzt werden kann, hängt von dem zu bearbeitenden Werkstoff ab.
Als allgemeiner Leitwert gilt, daß Werkstoffe mit mindestens 10% Dehnung kaltgeformt werden können.
Zur Bestimmung des optimalen Gewindebohrers nutzen Sie die Empfehlungstabelle auf den Seiten 356 bis 363.

Core holes
Kernlöcher

- Core holes should be clean and swarf-free.
- Core holes should be of the prescribed size, see chart extract on page 583-584 of this catalogue, and dependent on the actual application, selected towards the upper diameter limit.
- Kernlöcher sollten sauber und spanfrei sein.
- Kernlöcher sollten die angegebenen Durchmesser haben, siehe Seiten 583 und 584, und abhängig vom aktuellen Einsatzfall, zur größtmöglichen Durchmesserangabe tendieren.

Lubricant in relation to machining centers
Schmiermitteleinsatz auf Bearbeitungszentren

Frequently the coolants used on machining centers are unsatisfactory for tapping because their percentage lubricant content is too low. If it is not possible to increase the percentage of lubricant in the emulsion, the lubrification problem can be solved in other ways, i.e.:
Meistens sind die gebräuchlichen Kühlmittel in Bearbeitungszentren zum Gewindeschneiden nicht geeignet, weil ihr Anteil an Schmierstoffen zu gering ist. Wenn es nicht möglich ist, den Anteil an Schmierstoffen in der Emulsion zu erhöhen, kann das Schmierproblem in anderer Weise gelöst werden, z. B.:

Lubricating with concentrated emulsion **Schmierung mit konzentrierter Emulsion**
A. A lubricating unit, connected to the machine control, delivers at the required instant a specific quantity of concentrated emulsion into the core hole or onto the tap.
B. A pump in a separate tank, controlled by the machine, delivers a specific amount of concentrate into the core hole.
A. Eine Schmiervorrichtung, die mit der Maschinensteuerung verbunden ist, gibt zum gewünschten Zeitpunkt eine bestimmte Menge konzentrierter Emulsion in das Kernloch oder auf den Gewindebohrer ab.
B. Eine Pumpe mit separatem Tank, mit der Maschinensteuerung verbunden, gibt eine bestimmte Menge des Konzentrats in das Kernloch

Tapping in separate operations **Gewindeschneiden als separater Bearbeitungsgang**
This procedure allows the use of the ideal tapping lubricant.
Dies erlaubt den Einsatz des idealen Gewindeschneid Schmiermittels.

Cutting speeds for taps
Schnittgeschwindigkeiten für Gewindebohrer

The cutting speed has a great influence on chip flow and the life of the tap.
It is worthwhile to establish the ideal cutting speed by tapping trials.
Guide values see on the recommendation table page 364. The cutting speed should be in relation to the characteristics of the material, the machine and its equipment.
Die Schnittgeschwindigkeit hat großen Einfluss auf den Spanabgang und die Lebensdauer des Gewindebohrers.
Bei Großserien ist es lohnend, die ideale Schnittgeschwindigkeit durch Versuche zu ermitteln.
Leitwerte finden Sie in der Empfehlungstabelle Seite 364. Die Schnittgeschwindigkeit sollte auf den Werkstoff, die Maschine und das Umfeld abgestimmt sein.

Effects of unsuitable cutting speed **Die Folgen falscher Schnittgeschwindigkeiten**
- forced tapping Zu hoher Kraftaufwand
- tap lead chipping caused by overloaded cutting tooth Beschädigte Steigung durch überlastete Schneide
- torn threads Verschnittenes Gewinde
- unsatisfactory tap-life Ungenügende Standzeit
- rejected threads Ausschuss

Cold welding
Kaltaufschweißung

What are the causes of cold welding? Was sind die Gründe für eine Kaltaufschweißung?
- unsuitable tap selection Ungeeignete Gewindebohrer Auswahl
- tap with incorrect cutting geometry Gewindebohrer mit falscher Schneidengeometrie
- coolant unsuitable for material Kühlmittel ungeeignet für den Werkstoff
- insufficient coolant Unzureichende Kühlung
- axial pressure (pull or push) on the tap Axialer Druck (Zug oder Druck) auf den Gewindebohrer
- core hole too small Kernloch zu klein
- breaks in walls of core hole Risse in der Wand des Kernlochs
- speed too high or too low Schnittgeschwindigkeit zu hoch oder zu klein
- swarf trapped in the hole Verklemmter Span im Kernloch
- incorrect alignment of tap and core hole Achsversatz zwischen Gewindebohrer und Kernloch
- tap eccentricity Gewindebohrer läuft unrun

Effects of cold welding: Die Folgen von Kaltaufschweißungen
- torn threads verschnittene Gewinde
- short tap life kurze Standzeit
- rejected threads Ausschuss
- tap breakage Werkzeugbruch
- scrap workpieces schrottreife Werkstücke

Tap mounting
Gewindebohrer einspannen

- The tap must be mounted on the axis of the core hole.
- On non-synchronized machines (feed / speed) we recommend the use of a tapping spindle.
- Die Achsen von Gewindebohrer und Kernloch müssen genau fluchten.
- Auf nicht synchronisierten Maschinen (Vorschub / Schnittgeschwindigkeit) empfehlen wir den Einsatz einer Gewindeschneidspindel.

Tapping heads
Gewindeschneidköpfe

With non-synchronized machine spindles (feed / speed) the feed rate should as a rule be programmed approx. 5-10% lower than the thread pitch. In these cases a tapping chuck must be used which will compensate the difference between the feed rate and the thread pitch.
It is important that the tension spring in the axial compensation is set to a light rate to avoid axially loading the tap.
The compression spring should be tensioned so that the tap starts to cut by compressing the spring at the most up to one half pitch.
Bei nicht synchronisierten Maschinenspindeln (Vorschub / Schnittgeschwindigkeit) sollte der Vorschub in der Regel 5 – 10% kleiner sein als die Gewindesteigung. In diesen Fällen muss ein Gewindeschneidfutter verwendet werden, das die Differenz zwischen dem Vorschub und der Gewindesteigung ausgleicht.
Es ist wichtig, daß die Spannfeder im axialen Ausgleich locker eingestellt wird, um eine zu große axiale Belastung des Gewindebohrers zu vermeiden.
Die Druckfeder sollte so gespannt sein, daß der Gewindebohrer zu schneiden beginnt, wenn die Feder bei höchstens einer halben Steigung gespannt ist.

Important hints: **Wichtige Hinweise :**
Ensure that the correct speed is selected.
Ensure that ample lubricating coolant is used when tapping.
Good machine and equipment stability is essential for optimum quality and performance.
Sorgen Sie für die richtige Schnittgeschwindigkeit.
Sorgen Sie dafür, daß reichlich Kühlschmiermittel beim Gewindeschneiden verwendet wird.
Gute Stabilität von Maschine und Vorrichtungen ist die Grundlage für optimale Qualität und Leistung.

APPLICATION AND USE OF THREADING TAPS
FEHLER UND ABHILFEN BEIM GEWINDESCHNEIDEN

Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
Tapped hole oversize **Gewinde zu groß**	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap selected from the relevant material group Einen fur den Werkstoff geeigneten Gewindebohrer auswahlen
	Faulty alignment Fehlerhafte Fluchtung	Ensure that the tap is correctly aligned with the core hole axis Dafur sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Cold welding Kaltaufschweißung	Improve lubrication and direction of coolant Adjust cutting speed Schmierung und Ausrichtung des Kuhlstrahls verbessern Schnittgeschwindigkeit korrigieren
	Re-ground tap (lead-in is not concentric) Nachgescharfter Gewindebohrer (Anschnitt nicht konzentrisch)	Regrind tap lead correctly on a suitable tap grinding machine Anschnitt fehlerfrei auf geeigneter Schleifmaschine nachschleifen
Stripped threads **Gewinde verschnitten**	Incorrect tap in use (cutting geometry incorrect for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use a tap from the relevant material group. Einen fur den Werkstoff geeigneten Gewindebohrer auswahlen
	Spindle speed and feed rate not synchronized Spindelgeschwindigkeit und Vorschub sind nicht aufeinander abgestimmt	Check feed rate programming and / or pitch of leading spindle Use a tapping spindle with axial float Vorschub und / oder Steigung der Spindel uberprufen Gewindeschneidspindel mit axialem Ausgleich verwenden
	Insufficient start pressure exerted on tap with peel-cut Unzureichender Startdruck auf einen Gewindebohrer mit Schalanschnitt	Increase start pressure Startdruck erhohen
Bell mouthed tapped hole **Gewinde trichterformig**	Incorrect start pressure applied to tap Falscher Gewindebohrer im Einsatz	Use a tapping spindle with axial float Gewindeschneidspindel mit axialem Ausgleich verwenden
Unsatisfactory thread surface finish **Gewinde zu rau**	Incorrect tap in use (Cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Select tap from the relevant material group Einen fur den Werkstoff geeigneten Gewindebohrer auswahlen
	The tap is blunt Die Schneiden sind stumpf	Replace or re-grind tap Neuen oder nachgescharften Gewindebohrer einsetzen
	Tap badly re-ground Der Gewindebohrer ist schlecht nachgescharft	Re-grind tap again. Check that cutting geometry is suitable for material Gewindebohrer korrekt nachschleifen Prufen, ob die Schneidengeometrie fur den Werkstoff geeignet ist
	Coolant lacking in lubricating qualities and / or quantity Kuhlmittel mit unzureichendem Schmiermittelanteil	Ensure the use of a suitable coolant and an ample supply Fur qualitativ und quantitativ gute Kuhlung und Schmierung sorgen

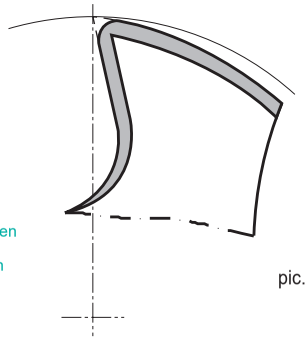
TECHNICAL DATA
SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
Partial chipping of tap **Gewinde ist unfertig**	Swarf jamming Spanestau	Check cutting speed Use alternative tap type Schnittgeschwindigkeit prufen Andere Gewindebohrertype wahlen
	Tap has jammed against bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Check hole and thread depths Drill core hole deeper Kernlochtiefe und Gewindelange prufen Kernloch tiefer bohren
	Tap incorrectly re-ground (lead-in diameter too small therefore too few cutting teeth) Gewindebohrer ist schlecht nachgescharft (Anschnittdurchmesser zu klein, deshalb zu wenige schneidende Zahne)	Ensure that original values ore maintained when regrinding Beim Nachscharfen auf originale Geometrie achten
	Irregular workpiece material structure Materialfehler im Werkstuck	Adjust cutting speed Improve lubricating quality of coolant Schnittgeschwindigkeit anpassen Die Schmierfahigkeit des Kuhlmittels verbessern
Excessive tap wear **Ubermaßiger Verschleiß des Gewindebohrers**	Incorrect cutting speed Falsche Schnittgeschwindigkeit	Adjust cutting speed to suit workpiece material Schnittgeschwindigkeit dem Werkstoff anpassen
	Coolant lacking in lubricating qualities and / or quantity Kuhlmittel mit unzureichender Schmierqualitat oder ?menge	Ensure the use of a suitable coolant and an ample supply Fur qualitative und quantitative gute Kuhlung und Schmierung sorgen Check that coolant is reaching the cutting zone Prufen, ob das Kuhlmittel den Schnittbereich erreicht
	Surface of the core hole is compacted Verfestigte Bohrungswand des Kernlochs	Check core hole drilling conditions (drill carefully to reduce risk of surface compacting) Einsatzwerte beim Kernlochbohren prufen (vorsichtig bohren um eine Aufhartung der Bohrungswand zu vermeiden) Check drill cutting edges Bohrerschneiden uberprufen
Tap breakage **Bruch des Gewindebohrers**	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap from the relevant material group Einen fur den Werkstoff geeigneten Gewindebohrer auswahlen
	Centering error Fehlerhafte Fluchtung	Ensure that axes of tap and core hole are aligned Dafur sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Blunt tap Schneiden sind stumpf	Re-grind tap Neuen oder nachgescharften Gewindebohrer einsetzen Ensure that taps are stored carefully Auf sorgfaltige Lagerung der Gewindebohrer achten
	Tap has reached bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Use tapping spindle with axial float and slipping clutch Gewindeschneidspindel mit axialem Ausgleich und Rutschkupplung verwenden
	Core hole too small Kernloch ist zu klein	Select core hole as per chart, pages 583~584 of this catalogue Kernloch Durchmesser auf der Tabelle Seite 583 u. 584 auswahlen

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

RESHARPENING
NACHSCHARFEN

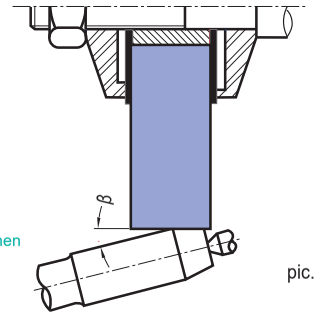
The resharpening on taps is done for regenerating the active hedges weared by the destructive action of cutting and of friction, it has high importance for an economical exploitation of the tool and so far has to be made rationally, keeping away from wrong operations which can heavily compromise the accuracy and the life.
In order to execute the tap resharpening quickly and accurately we recommend the use of proper resharpening machines having all necessary equipments for this operation.
The tap resharpening take place in two steps:
a) resharpening of (relieved) chamfer;
b) resharpening of flutes. (See picture 1)
Das Nachscharfen der Gewindebohrer dient der Erneuerung der verschlissenen Schneidkanten.
Es ist wichtig, um das Leistungsvermogen des Werkzeugs voll auszuschopfen und muss daher prazise durchgefuhrt werden, um Fehler zu vermeiden, die die Prazision des Gewindes und die Standzeit beeintrachtigen.
Um das Nachscharfen schnell und prazise durchzufuhren, empfehlen wir den Einsatz von geeigneten Schleifmaschinen mit dem notwendigen Zubehor.
Das Nachscharfen der Gewindebohrer erfolgt in zwei Stufen :
a) scharfen der Freiflachen im Anschnitt;
b) scharfen der Nuten (Spanflache) (siehe Abb. 1)



pic. 1

RESHARPENING OF (RELIEVED) CHAMFER
RESHARPENING OF (RELIEVED) CHAMFER

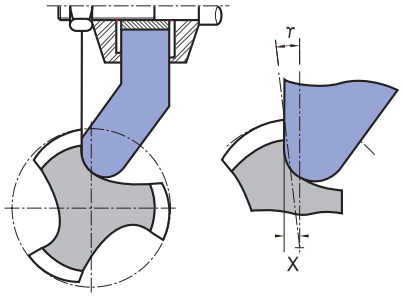
The chamfer resharpening must be executed both on specific for taps machines or on conventional resharpening machines equipped with an auxiliary system proper to generate the circular relief on back.
The picture 2 shows the resharpening made with the cylindrical surface of a grinding wheel.
Before resharpening, verify that the tap, fixed between points or on pincer, runs concentrical; verify also the angle β which has to be correct in order to keep the same number of threads on chamfer.
Das Scharfen des Anschnitts muss entweder auf besonderen Gewindeschleifmaschinen erfolgen, oder auf konventionellen Schleifmaschinen mit entsprechenden Vorrichtungen fur einen genauen Hinterschliff.
Abb. 2 zeigt das Nachscharfen mit einer zylindrischen Schleifscheibe.
Vor dem Schleifen uberprufen, ob der Gewindebohrer, zwischen Spitzen oder in einer Spannzange gehalten, rund lauft; prufen Sie auch den Winkel b, der korrekt sein muss, um die gleiche Anzahl Gange im Anschnitt zu haben



pic. 2

RESHARPENING OF FLUTES
NACHSCHARFEN DER NUTEN

This operation must be done on a specific resharpening machine for taps, equipped with: deviding head, lead screw of "barrasinus" for executing the helix and cooling equipment.
The rake angle γ is obtained moving the tap axis, in relation to the resharpening surface, of an amount X to be calculated with the formula: $X = \frac{1}{2} d_1 \sin \gamma$ (see picture 3).
(d_1=tap major diameter)
Dieser Arbeitsgang muss auf einer speziellen Gewindebohrer ? Schleifmaschine erfolgen, die ausgerustet ist mit :
Teilkopf, Leitspindel zum Schleifen entlang gedrallter Nuten und Kuhlmittelversorgung. Den Spanwinkel g bei Gewindebohrern mit geraden Nuten erhalt man durch Verstellen der Bohrerachse im Verhaltnis zu der zu schleifenden Oberflache um den Einstellwert X, der nach folgender Formel errechnet wird :
X = ? d1 sin g (siehe Abb. 3).
(d1 = Gewindebohrerdurchmesser)

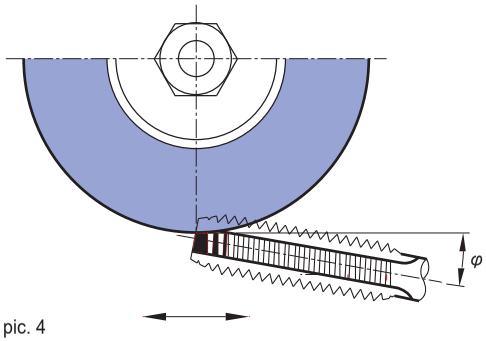


pic. 3

Example:
Tap 10 × 1,5 to cut on steel strength = 600 N/mm^2
d_1 = 10mm ; γ = 15$_\circ$; sin γ = 0,25882;

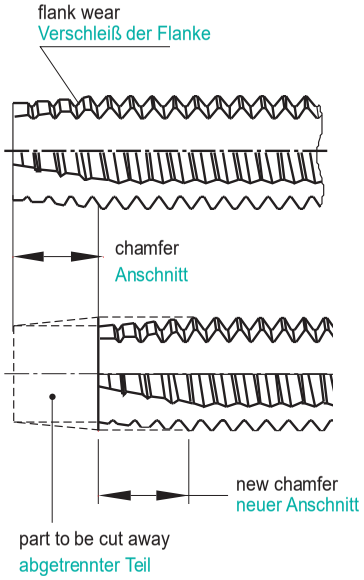
$$X = \frac{0{,}25882 \times 10}{2} \; ; X = 1{,}29\text{mm}$$

On all taps having spiral-flutes, in addition to the trade mark and identification of the dimension and type, it is possible to find also the pitch of the spiral refered to the lead screw necessary for the resharpening.
In case of employment of taps equipped with deburring tool **Burr-Bit** it is necessary to extend the flutes following what suggested by the supplier.
Because the wear on a tap is mainly on the chamfer area, on taps having "gun nose" the resharpening of the flutes can be made on the front area only (see picture 4).
Bei allen Gewindebohrern mit gedrallten Nuten werden allgemein spezielle Schleifmaschinen eingesetzt, die die Drallsteigung messen und selbstandig einstellen konnen.
Beim Einsatz von Gewindebohrern mit dem Entgratwerkzeug Burr-Bit ist es notwenig, die Nuten entsprechend den Vorgaben des Herstellers zu verlangern.
Da der Verschleiß eines Gewindebohrers hauptsachlich im Anschnitt und dem erstenvollen Gewindezahn liegt, konnen Gewindebohrer mit Schalanschnitt und gerader Nute auch nur im vorderen Gewindeteil nachgeschliffen werden (siehe Abb. 4).



pic. 4

It is very important to pay attention that, when also the thread flanks are worn(in addition to the active heges) the resharpening as above described is practically useless.
In this case the "regeneration" is made, by means of cutting completely the chamfer away(this means a shorter tap) and reproducing then the chamfer with same angle and relief. (see picture 5)
The regeneration is also advisable on taps with spiral flutes, because that way the flutes grinding is not necessary, in absence of special resharpening machines with lead screw with proper angle.
Es ist wichtig zu wissen, daß beim Verschleiß der Gewindezahnflanken (zusatzlich zur Hauptschneidenkante) das oben beschriebene Nachschleifen praktisch nutzlos ist !
In diesem Fall wird die ?Erneuerung" dadurch erreicht, daß der Anschnitt komplett abgetrennt wird (das bedeutet eine Kurzung des Gewindebohrers und Verlust der entrierung) und neu angeschliffen wird, mit gleichen Winkeln und Hinterschliff (siehe Abb. 5).
Diese ?Erneuerung" ist auch fur drallgenutete Gewindebohrer zu empfehlen, weil dann das Nutenschleifen entfallt, wenn keine geeignete Schleifmaschine mit Leitspindel vorhanden ist



pic. 5

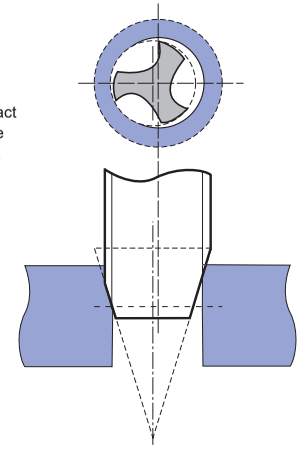
IMPORTANT RECOMMENDATIONS
WICHTIGE EMPFEHLUNGEN

RESHARPEN TIMELY
RECHTZEITIGES NACHSCHARFEN

It is important to resharpen timely the weared tap. In these conditions in fact defective threads can be produced, risking to brake the tool;in addition the wear is increasing quickly, damaging a wide area of the cutter and rapidly.
Es ist wichtig, den Gewindebohrer rechtzeitig nachzuscharfen. Stumpfe Gewindebohrer konnen defekte Gewinde schneiden, die Bruchgefahr ist erhoht; zudem nimmt der Verschleiß schnell zu und zerstort weite Bereiche der Schneiden

PROPER GRINDING WHEELS
RICHTIGE SCHLEIFSCHEIBEN

The structure and grain of grinding wheels must be the right one for the tap to be resharpened. Our technicians are at complete disposal to give the proper recommendations.
Bindung und Korn der Schleifscheiben mussen auf die Gewindebohrer abgestimmt sein.
Unsere Techniker sind bereit, Ihnen die geeignete Empfehlung zu geben



pic. 6

chamfer out of center
unrund geschliffener Anschnitt

TAPS FOR CAST IRONS
GEWINDEBOHRER FUR GUSS

On these taps the resharpening is rarely possible because, due to cast iron is abrasive, the tap is wearing on flank of the thread and so far out of tolerance.
Bei diesen Gewindebohrern ist Nachscharfen kaum moglich. Der verschleißfordernde Guss greift die Schneidenflanken an, wodurch die Toleranz verloren geht.

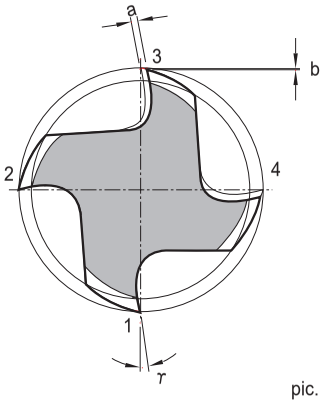
TAPS FOR ALUMINIUM
GEWINDEBOHRER FUR ALUMINIUM

It is advisable, after resharpening as above described, to remove steel burrs from the grinding wheel action.
This operation, easy with iron brushes, avoid the danger of boring or over tolerance tapping instead of accurate tapping.
Es ist empfehlenswert nach dem oben beschriebenen Nachscharfen Schleifgrate vom Gewindebohrer mit Stahlbursten zu entfernen.
Dadurch wird die Gefahr vermieden, Gewinde zu groß zu schneiden.

CONTROLS (TESTS)
KONTROLLEN (TESTS)

Once resharpened the tap, it is always better to make some tests to obtain correct threads same as when the tap was new.
- The chamfer must be perfectly on axis to avoid the effects of picture 6.
- The cutters must have correct divisions. The results of a resharpening with a wrong division is shown on picture 7.
- The length and number of threads on chamfer must be rigorously identical to those of the new tap.

Nach dem Nachscharfen sollte der Gewindebohrer genau kontrolliert werden um sicher zu stellen, daß er genauso gut schneidet, wie ein neuer Bohrer.
- Der Anschnitt muss genau axial sein, um den Effekt wie in Abb. 7 zu vermeiden.
- Die Schneiden mussen eine genaue Teilung haben. Das Ergebnis des Nachschleifens mit falscher Teilung ist in Abb. 7 zu sehen.
- Die Lange und Anzahl der Gewindegange im Anschnitt muss absolut genau so sein, wie bei einem neuen Gewindebohrer.



pic. 7

incorrect division
Teilungsfehler
cutters not concentric
Schneiden nicht konzentrisch

TECHNICAL DATA
SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

ORDERS / INQUIRIES SPECIAL TAPS
Bestellungen / Anfragen ; SONDERGEWINDEBOHRER

For photocopying

Orders / Inquiries

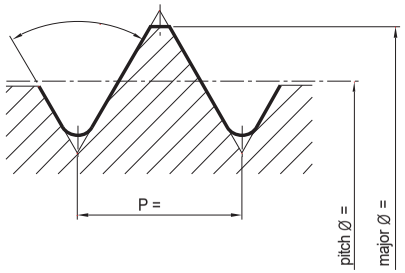
This form may be returned to your local YG-1 distributor or to YG-1.

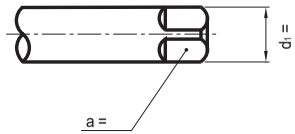
Company _____
Address _____
_____
Department _____
Phone _____

Tool

Thread Ø and pitch _____

_____ Degrees R.H. L.H.

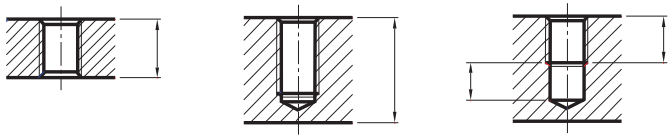




Tolerance class

Overall length _____ mm

Hole



Unusual characteristics of the threaded product or of the tapping method, e.g. counterbore, tapping on an angle, etc. _____

Material to be tapped

Material No. or designation _____
Tensile strength _____ N/mm² _____ HB _____ HRc
Chip form short long
Annealed steel Hardened steel Heat treated steel

Special requirements : _____

Person to be contacted within the company _____
Date _____ Signature _____

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

SEND US YOUR TAPPING PROBLEMS
SENDEN SIE UNS IHR GEWINDESCHNEIDPROBLEM

For photocopying

This form may be returned to your local YG-1 distributor or to YG-1.

Company _____
Address _____
_____
Department _____
Phone _____

Tool

Description of the tap being used at present Make Type _____ _____
Thread Ø and pitch _____ Class of tolerance _____
○ right-hand cutting ○ left-hand cutting
○ fluteless ○ right hand spiral flutes _____ degrees
○ straight flutes ○ left hand spiral flutes _____ degrees
○ spiral point ○ length of chamfer _____ thread chamfer
Additional information for special pitches or thread forms
pitch Ø _____ major Ø _____
minor Ø _____ flank angle _____ degrees

Hole

Tap drill Ø _____ length of hole _____
depth of full thread _____
○ through hole ○ bottoming hole
Special requirements or unusual characteristics of the threaded product _____
_____

Tapping speed

_____ meters per minute
_____ revolutions per minute

Lubricant

○ without ○ emulsion _____% ○ cutting oil ○ other _____
Application ○ under pressure ○ vaporization ○ other _____

Machine

Type _____ ○ horizontal tapping ○ vertical tapping

Driving

○ tap revolves
○ work revolves
Number of spindles _____

Feed

○ without ○ power ○ CNC _____%

Tool holder

○ rigid ○ floating ○ with safety clutch
Make _____ Type _____

Material to be tapped

Material No. or designation _____
Composition, if possible _____
Tensile strength or hardness _____ N/mm² _____ HB _____ HRc
Chip form ○ short ○ long

Short description of problem : _____
_____
_____
_____
_____

Person to be contacted within the company _____
Date _____ Signature _____

TECHNICAL DATA
SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

MAIN THREAD SYMBOLS
HAUFIGE GEWINDEARTE

AMERI AN STANDARD

Cylindrical threads

UNC	Unified Coarse-Thread Series
UNF	Unified Fine-Thread Series
UNEF	Unified Extra-Fine-Thread Series
UN	Constant Pitch Series-Threads with constant pitch of T.P.I. 4,6,8,12,16, 20,28,32
UNS	Selected combinations-Threads with special dia-pitch combinations
UNJ	Unified threads with constant pitch with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJC	Unified coarse thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJEF	Unified extra fine thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJF	Unified fine threads with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch

Pipe cylindrical threads

NPS	Cylindrical threads for pipe
NPSC	American Standard for pipe coupling
NPSF	American Standard for internal thread on pipe, dryseal
NPSH	American Standard for cylindrical threads for pipe, joints and nipples
NPSI	American Standard for internal cylindrical threads on pipe(dryseal)
NPSL	American Standard for cylindrical threads on pipe for nuts
NPSM	American Standard for cylindrical threads on pipe for mechanical joints
NGO	American National pipe threads for gas exhaust
NGS	American National pipe threads for gas

Taper pipe threads

ANPT	Taper pipe threads for Army, Navy and Airforce
F-PTE	Taper pipe fine threads(dryseal)
NPT	Taper pipe thread
NPTF	Taper pipe thread (dryseal)
NPTR	Taper pipe thread for railways equipments
PTF-SAE SHORT	Taper pipe short thread(dryseal)-SAE
PTF-SPL SHORT	Taper pipe special thread(dryseal)-SAE
PTF-SPL EXTRA SHORT	Extra short special thread(dryseal)-SAE
SPL-PTF	Special taper pipe dryseal thread
NGT	National American taper pipe thread
SGT	Special taper pipe thread
API	American petroleum Institute taper pipe thread

Trapezoidal and saw tooth threads

ACME-C	ACME selfcentering thread
ACME-G	ACME generical application
STUB-ACME	ACME flat thread with reduced thread depth
60。 STUB-ACME	ACME flat thread with 60。 flank angle
N BUTT	American National Saw tooth thread

BRITISH STANDARD

BSW	Whitworth British Standard coarse pitch
BSF	Whitworth British Standard fine pitch
WHIT	Whitworth Standard special pitch
R	British Standard external threading for taper pipe(dryseal)(already BSP-Tr)
Rc	British Standard internal threading taper thread for pipe(BSP-Tr)
Rp	British Standard cylindrical thread for pipe(already BSP.PI)
BA	British Standard Association thread
BSC	British Standard thread for bicycle
CEI	British Standard for bicycle

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

TECHNICAL DATA

SU E CUTTING TA S
HOCHLEISTUNGS GE INDE OH E

COMPARISON CHART SCALE FOR HARDNESS
VERGLEICHSTABELLE FÜR HÄRTESKALEN

Rockwell Hardness C Scale 150kg Brale (HRc)	Diamond Pyramid Hardness Number. Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm²
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520

EDP No. INDE

EDP No.	Page	EDP No.	Page	EDP No.	Page
L1211	B34	TBE16	B219	TC909	B301
L1212	B35	TBE17	B220	TC934	B304
L1213	B36	TBE18	B221	TC944	B303
L1214	B37	TBJ05	B105	TC954	B305
L12D1	B46	TBJ06	B106	TC963	B252
L12D3	B47	TBJ07	B107	TC973	B302
L19E1	B48	TBJ08	B108	TCE01	B100
L19E3	B49	TC122	B145	TCE02	B102
L41A1 / L42A1	B50	TC124	B139	TCE05	B84
L4211	B38	TC127	B143	TCE06	B85
L4212	B39	TC134	B140	TCE07	B86
L4271	B41	TC144	B138	TCE08	B87
L4272	B42	TC163	B250	TCE09	B91
L4273	B43	TC169	B253	TCH14	B222
L4274	B44	TC170	B254	TCH23	B226
L4276	B45	TC174	B182	TCJ01	B120
L6215	B40	TC184	B184	TCJ02	B122
T0993	B237	TC211	B155	TCJ05	B105
T0997-TIC	B202	TC214	B150	TCJ06	B106
T0999-TIC	B203	TC222	B146	TCJ07	B107
T7109	B159	TC224	B152	TCJ08	B108
T7309	B161	TC227	B153	TCJ09	B112
T7343	B166	TC234	B151	TD127	B144
T7363	B163	TC244	B194	TD174	B183
T7509	B164	TC254	B196	TD222	B148
T7609	B165	TC263	B192	TD227	B154
T7709	B309	TC283	B207	TD244	B195
TB123	B230	TC312	B176	TD263	B193
TB183	B227	TC313	B204	TD312	B177
TB264	B231	TC353	B168	TD411	B136
TB274	B232	TC411	B134	TD413	B181
TB312	B178	TC413	B180	TD422	B189
TB313	B205	TC422	B188	TD703	B280
TB373	B167	TC424	B158	TD704	B291
TB428	B116	TC433	B257	TD711	B133
TB438	B118	TC445	B115	TD713	B284
TB514	B312	TC463	B156	TD723	B288
TB623	B225	TC473	B157	TD733	B289
TB711	B214	TC517	B141	TD804	B82
TB744	B96	TC612	B142	TD814	B104
TB754	B98	TC622	B255	TD821	B239
TB804	B82	TC633	B95	TD824	B99
TB814	B104	TC711	B132	TD834	B119
TB824	B99	TC727	B313	TD844	B89
TB834	B119	TC728	B310	TD854	B109
TB844	B89	TC729	B311	TD864	B101
TB854	B109	TC803	B297	TD874	B121
TB864	B101	TC804	B82	TDE01	B100
TB874	B121	TC804-IC	B93	TDE02	B102
TB904	B228	TC807	B94	TDE05	B84
TB913	B185	TC814	B104	TDE06	B85
TB914	B217	TC814-IC	B114	TDE07	B86
TB924	B229	TC824	B99	TDE08	B87
TBE05	B84	TC834	B119	TDE09	B91
TBE06	B85	TC844	B89	TDJ01	B120
TBE07	B86	TC854	B109	TDJ02	B122
TBE08	B87	TC864	B101	TDJ05	B105
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MILLING TOOLS

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i-Xmill END MILLS
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X5070 NANO SOLID CARBIDE END MILLS
4G Mill SOLID CARBIDE END MILLS
X-POWER PRO SOLID CARBIDE END MILLS
TitaNox-POWER SOLID CARBIDE END MILLS
JET-POWER SOLID CARBIDE & HSS-PM END MILLS
V7 PLUS SOLID CARBIDE END MILLS
ALU-POWER HPC SOLID CARBIDE END MILLS
ALU-POWER SOLID CARBIDE & HSS-PM END MILLS
D-POWER GRAPHITE SOLID CARBIDE END MILLS (DIAMOND COATED)
CRX S SOLID CARBIDE END MILLS
K-2 SOLID CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER HSS-PM END MILLS
GENERAL HSS (8% Cobalt) END MILLS
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TECHNICAL DATA

YG-1 CO., LTD.

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CBN END MILLS

CBN END MILLS
CBN(Cubic Boron Nitride) Machining High Hardened Steels up to HRc70 / Mirror Finish

CARBIDE EXCHANGEABLE END MILLS

i-Xmills, CARBIDE INSERT END MILLS
Various Applications Type of Inserts Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steels and Graphite

i-Smart MODULAR TYPE END MILLS
For General Steels, Hardened Steels and Cast Iron

SOLID CARBIDE END MILLS

X5070 NANO SOLID CARBIDE END MILLS
For High Hardened Steels (HRc45 to HRc70) / High Speed Machining and Dry Cutting

4G Mill SOLID CARBIDE END MILLS
High Speed Cutting for Pre-Hardened Steels up to HRc55

X-POWER PRO SOLID CARBIDE END MILLS
For Pre-Hardened Steels up to HRc55

TitaNox-POWER SOLID CARBIDE END MILLS
High Speed Machining for Exotic Materials: Titaniuml and Stainless Steels

JET-POWER SOLID CARBIDE & HSS-PM END MILLS
For Exotic materials like Stainless Steels, Nickel Alloys and Titanium

V7 PLUS SOLID CARBIDE END MILLS
High Performance Carbide End Mills for Steels, Cast Iron and Stainless Steels

ALU-POWER HPC SOLID CARBIDE END MILLS
For Aluminium, Aluminum Die Cast, Non-ferrous Alloys and Plastics

ALU-POWER SOLID CARBIDE END MILLS
For Aluminium Alloys and Silent Cutting

D-POWER GRAPHITE SOLID CARBIDE END MILLS (DIAMOND COATED)
For Graphites

CRX S SOLID CARBIDE END MILLS
DLC Coated End Mills for Copper

K-2 SOLID CARBIDE END MILLS
General Purpose / Conventional or High Speed Milling / Wet & Dry Cutting

HSS END MILLS

ONLY ONE COATED PM60 END MILLS
Perfect Solution of Carbide Chipping under Vibrations

TANK-POWER HSS-PM END MILLS
High Toughness for Stainless Steels, Carbon steels and Alloy Steels / for General Application, Roughing & Finishing

GENERAL HSS END MILLS
General Purpose / Coating Available

HSS **MILLING CUTTERS**
General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% Cobalt) Corner Rounding, Shell End Mills

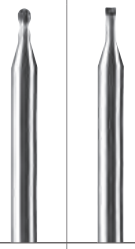
TECHNICAL DATA

TECHNICAL DATA

SELECTION GUIDE

YG MILLING TOOLS

	CBN		i-Xmill Insert			
SERIES	ESB94	ESD02	XMB110A	XMB120C	XMB260T	XMB130A
FLUTE	2	2	2	2	2	2
HELIX ANGLE	30°	0°	-	-	-	-
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R0.2	D0.5	R4.0	R4.0	R4.0	R4.0
SIZE MAX	R1.5	D2.0	R16.5	R16.5	R16.5	R16.5
PAGE	C35	C36	C42	C42	C42	C43
LENGTH	-	-	-	-	-	-
SURFACE TREATMENT	Uncoated	Uncoated	AlTiN	X-Coating	Z-Coating	AlTiN
			GENERAL PURPOSE	PRE-HARDENED STEELS	HIGH HARDENED STEELS	STAINLESS STEELS



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ISO	VDI 3323	Material Description	HB	HRc	ESB94	ESD02	XMB110A	XMB120C	XMB260T	XMB130A
P	1	Non-alloy steel	125				◎			
	2		190	13			◎			
	3		250	25			◎			
	4		270	28			◎			
	5		300	32			◎			
	6	Low alloy steel	180	10			◎			
	7		275	29			◎			
	8		300	32			◎			
	9		350	38				◎		
	10	High alloyed steel, and tool steel	200	15				○		
	11		325	35				◎		
M	12	Stainless steel	200	15						◎
	13		240	23						◎
	14		180	10						◎
K	15	Grey cast iron	180	10				◎		
	16		260	26				◎		
	17	Nodular cast iron	160	3				◎		
	18		250	25				◎		
	19	Malleable cast iron	130					◎		
	20		230	21				◎		
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25	Copper and Copper Alloys (Bronze / Brass)	130							
	26		110							
	27		90							
	28		100							
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55	◎	◎		○	◎	
	39		630	60	◎	◎			◎	
	40	Chilled Cast Iron	400	42					○	
	41	Hardened Cast Iron	550	55	◎	◎			◎	

	i-Xmill Insert							i-Xmill Holder					
	XMM110V	XMB110D	XMR110A	XMR120C	XMR260T	XMF110V	XMR110D	ZBC	ZBS	ZBT	ZRC	ZRS	ZRT
FLUTE	2	2	2	2	2	2	2	-	-	-	-	-	-
HELIX ANGLE	-	-	-	-	-	-	-	-	-	-	-	-	-
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
SIZE MIN	R4.0	R4.0	D8.0	D8.0	D8.0	D8.0	D8.0	-	-	-	-	-	-
SIZE MAX	R16.5	R16.5	D33.0	D33.0	D33.0	D33.0	D33.0	-	-	-	-	-	-
PAGE	C43	C43	C44	C44	C44	C49	C49	C54	C55	C56	C57	C58	C58
LENGTH	FULL RADIUS	-	-	-	-	HIGH FEED	-	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK
SURFACE TREATMENT	Y-Coating	Diamond	AlTiN	X-Coating	Z-Coating	Y-Coating	Diamond	Carbide	Steel	Steel	Carbide	Steel	Steel
	GENERAL PURPOSE	GRAPHITE	GENERAL PURPOSE STAINLESS STEELS	PRE-HARDENED STEELS	HIGH HARDENED STEELS	GENERAL PURPOSE	GRAPHITE						

ISO	VDI 3323	XMM110V	XMB110D	XMR110A	XMR120C	XMR260T	XMF110V	XMR110D	ZBC	ZBS	ZBT	ZRC	ZRS	ZRT
P	1	◎		◎			◎							
	2	◎		◎			◎							
	3	◎		◎			◎							
	4	◎		◎			◎							
	5			◎			◎							
	6	◎		◎			◎							
	7	◎		◎			◎							
	8			◎										
	9				◎									
	10	◎			○		◎							
	11				◎									
M	12			◎										
	13			◎										
	14			◎										
K	15				◎									
	16				◎									
	17				◎									
	18				◎									
	19				◎									
	20				◎									
N	21		○					○						
	22		○					○						
	23		○					○						
	24		○					○						
	25													
	26													
	27													
	28													
	29		◎					◎						
	30													
S	31													
	32													
	33													
	34													
	35													
	36													
	37													
H	38				○	◎								
	39					◎								
	40					○								
	41					◎								

SELECTION GUIDE

YG MILLING TOOLS

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				i-Smart Modular Head					
			SERIES	XSEMD98	XSEME59	XSEME60	XSEME01	XSEME68	XSEME36
			FLUTE	2	3	4	4	6	4
			HELIX ANGLE	30°	30°	30°	27°/30° (MULTIPLE HELIX)	45°	27°/30° (MULTIPLE HELIX)
			CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	SQUARE
			SIZE MIN	R5.0	R5.0	R5.0	D10.0	D10.0	D10.0
			SIZE MAX	R16.0	R16.0	R16.0	D32.0	D32.0	D32.0
			PAGE	C68	C69	C70	C71	C72	C74
			LENGTH	CENTER MATCH	CENTER MATCH	CENTER MATCH	-	-	-
			SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating
ISO	VDI 3323	Material Description	HB	HRc					
P	1	Non-alloy steel	125		○	○	○	○	○	○
	2		190	13	○	○	○	○	○	○
	3		250	25	○	○	○	◎	○	◎
	4		270	28	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	○	○	○	○	○	○
	7		275	29	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○
	11		325	35	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15						
	13		240	23						
	14		180	10						○
K	15	Grey cast iron	180	10	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○
	20		230	21	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25	Copper and Copper Alloys (Bronze / Brass)	130							
	26		110							
	27		90							
	28		100							
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55	○	○	○	○	○	○
	39		630	60	○	○	○	○	○	○
	40	Chilled Cast Iron	400	42	◎	◎	◎	◎	◎	◎
	41	Hardened Cast Iron	550	55	○	○	○	○	○	○

	i-Smart Modular Holder			X5070								
XSEME75	ZMC	ZMS	ZMT	G8B59	G8B54	G8A46	G8A54	G8A28	G8A38	G8A53	G8A59	G8D62
6	-	-	-	4	4	2	2	2	2	2	3	4
45°	-	-	-	0°	0°	30°	30°	30°	30°	30°	30°	30°
SQUARE	-	-	-	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
D10.0	-	-	-	D2.0	D2.0	R0.05	R0.25	R0.05	R0.5	R0.2	R1.5	R1.5
D32.0	-	-	-	D12.0	D16.0	R2.0	R1.0	R6.0	R12.5	R1.0	R10.0	R10.0
C75	C76	C77	C78	C89	C90	C91	C95	C96	C98	C99	C100	C101
-	STRAIGHT NECK TYPE	STRAIGHT NECK TYPE	TAPER NECK TYPE	HIGH FEED	HIGH FEED LONG SHANK	RIB PROCESSING	RIB PROCESSING	-	EXTENDED NECK	MINIATURE	Center Match	Center Match
Y-Coating	Carbide	Steel	Steel	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating
○													1 P
○													2
◎													3
◎													4
◎				○	○	○	○	○	○	○	○	○	5
○													6
◎													7
◎				○	○	○	○	○	○	○	○	○	8
◎				○	○	○	○	○	○	○	○	○	9
○													10
◎				○	○	○	○	○	○	○	○	○	11
													12 M
													13
													14
○													15 K
○													16
○													17
○													18
○													19
○													20
													21 N
													22
													23
													24
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													28
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													30
													31 S
													32
													33
													34
													35
													36
													37
○				◎	◎	◎	◎	◎	◎	◎	◎	◎	38 H
○				◎	◎	◎	◎	◎	◎	◎	◎	◎	39
◎				○	○	○	○	○	○	○	○	○	40
○				◎	◎	◎	◎	◎	◎	◎	◎	◎	41

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
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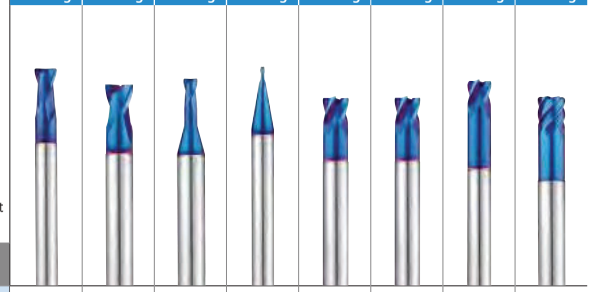
YG MILLING TOOLS

	X5070							
SERIES	G8A60	G8A36	G8A52	G8A50	G8A47	G8A37	G8B08	G8A39
FLUTE	2	2	2	2	4	4	4	6
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°	45°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
SIZE MIN	D0.5	D0.3	D0.5	D0.3	D3.0	D1.0	D6.0	D6.0
SIZE MAX	D12.0	D20.0	D2.0	D2.0	D12.0	D20.0	D12.0	D20.0
PAGE	C102	C107	C109	C110	C111	C112	C113	C114
LENGTH	RIB PROCESSING	EXTENDED NECK	RIB PROCESSING	MINIATURE	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK
SURFACE TREATMENT	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating



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ISO	VDI 3323	Material Description	HB	HRc	G8A60	G8A36	G8A52	G8A50	G8A47	G8A37	G8B08	G8A39
P	1	Non-alloy steel	125									
	2		190	13								
	3		250	25								
	4		270	28								
	5		300	32	○	○	○	○	○	○	○	○
	6	Low alloy steel	180	10								
	7		275	29								
	8		300	32	○	○	○	○	○	○	○	○
	9		350	38	○	○	○	○	○	○	○	○
	10	High alloyed steel, and tool steel	200	15								
	11		325	35	○	○	○	○	○	○	○	○
M	12	Stainless steel	200	15								
	13		240	23								
	14		180	10								
K	15	Grey cast iron	180	10								
	16		260	26								
	17	Nodular cast iron	160	3								
	18		250	25								
	19	Malleable cast iron	130									
	20		230	21								
N	21	Aluminum-wrought alloy	60									
	22		100									
	23	Aluminum-cast, alloyed	75									
	24		90									
	25	Copper and Copper Alloys (Bronze / Brass)	130									
	26		110									
	27		90									
	28		100									
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.										
	30											
S	31	Heat Resistant Super Alloys	200	15								
	32		280	30								
	33		250	25								
	34		350	38								
	35		320	34								
	36	Titanium Alloys	400 Rm									
	37		1050 Rm									
H	38	Hardened steel	550	55	◎	◎	◎	◎	◎	◎	◎	◎
	39		630	60	◎	◎	◎	◎	◎	◎	◎	◎
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	○	○
	41	Hardened Cast Iron	550	55	◎	◎	◎	◎	◎	◎	◎	◎

	X5070					4G Mills						
SERIES	G8A45	G8A01	G8A02	G8D63	G8D64	SEMD98	SEM846	SEM846	SEMD99	SEME61	SEME01	SEME64
FLUTE	2	2	4	6&8	6&8	2	2	2	2	2	4	4
HELIX ANGLE	30°	30°	30°	45°	45°	30°	30°	30°	30°	30°	27°/30° (MULTIPLE HELIX)	27°/30° (MULTIPLE HELIX)
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
SIZE MIN	D0.1	D0.1	D1.0	D6.0	D6.0	R0.05	R0.05	R0.25	D0.2	D0.2	D1.0	D1.0
SIZE MAX	D4.0	D20.0	D20.0	D25.0	D25.0	R12.5	R6.0	R1.0	D20.0	D20.0	D20.0	D20.0
PAGE	C115	C119	C120	C121	C122	C150	C156	C166	C169	C177	C196	C203
LENGTH	RIB PROCESSING	EXTENDED NECK	EXTENDED NECK	LONG LENGTH	EXTRA LONG LENGTH	-	EXTENDED NECK	EXTENDED NECK (6mm Shank)	-	EXTENDED NECK	-	EXTENDED NECK
SURFACE TREATMENT	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating

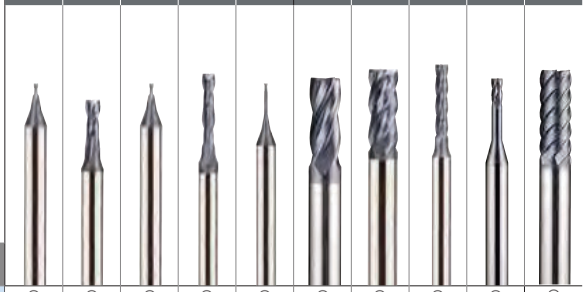
ISO	VDI 3323	Material Description	HB	HRc	G8A45	G8A01	G8A02	G8D63	G8D64	SEMD98	SEM846	SEM846	SEMD99	SEME61	SEME01	SEME64
P	1	Non-alloy steel	125							○	○	○	○	○	○	○
	2		190	13						○	○	○	○	○	○	◎
	3		250	25						○	○	○	◎	◎	◎	◎
	4		270	28						◎	◎	◎	◎	◎	◎	◎
	5		300	32	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10						○	○	○	○	○	○	○
	7		275	29						◎	◎	◎	◎	◎	◎	◎
	8		300	32	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎
	9		350	38	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15						○	○	○	○	○	○	○
	11		325	35	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15												
	13		240	23												
	14		180	10												
K	15	Grey cast iron	180	10						○	○	○	○	○	○	○
	16		260	26						○	○	○	○	○	○	○
	17	Nodular cast iron	160	3						○	○	○	○	○	○	○
	18		250	25						○	○	○	○	○	○	○
	19	Malleable cast iron	130							○	○	○	○	○	○	○
	20		230	21						○	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60													
	22		100													
	23	Aluminum-cast, alloyed	75													
	24		90													
	25	Copper and Copper Alloys (Bronze / Brass)	130													
	26		110													
	27		90													
	28		100													
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.														
	30															
S	31	Heat Resistant Super Alloys	200	15												
	32		280	30												
	33		250	25												
	34		350	38												
	35		320	34												
	36	Titanium Alloys	400 Rm													
	37		1050 Rm													
H	38	Hardened steel	550	55	◎	◎	◎	◎	◎	○	○	○	○	○	○	○
	39		630	60	◎	◎	◎	◎	◎							
	40	Chilled Cast Iron	400	42	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎
	41	Hardened Cast Iron	550	55	◎	◎	◎	◎	◎	○	○	○	○	○	○	○

SELECTION GUIDE

YG-1 MILLING TOOLS

4G Mills

SERIES	SEME35	SEME35	SEME35	SEME70	SEM845	SEME36	SEME71	SEME72	SEME73	SEME75
FLUTE	2	2	2	2	2	4	4	4	4	6
HELIX ANGLE	30°	30°	30°	30°	30°	27°/30° (MULTIPLE HELIX)	35°/38° (MULTIPLE HELIX)	30°	30°	45°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D0.1	D0.1	D0.1	D1.0	D0.1	D0.8	D1.0	D1.0	D1.0	D6.0
SIZE MAX	D25.0	D4.0	D3.0	D25.0	D12.0	D25.0	D20.0	D25.0	D12.0	D20.0
PAGE	C218	C221	C222	C223	C229	C238	C240	C244	C250	C255
LENGTH	-	4mm Shank	3mm Shank	LONG LENGTH	EXTENDED NECK	-	Sharp Corner Removal	LONG LENGTH	EXTENDED NECK	-
SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating



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ISO	VDI 3323	Material Description	HB	HRc	SEME35	SEME35	SEME35	SEME70	SEM845	SEME36	SEME71	SEME72	SEME73	SEME75
P	1	Non-alloy steel	125		○	○	○	○	○	○	○	○	○	○
	2		190	13	○	○	○	○	○	○	○	○	○	○
	3		250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	○	○	○	○	○	○	○	○	○	○
	7		275	29	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○	○	○	○	○
	11		325	35	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15					○				○	
	13		240	23					○				○	
	14		180	10	○	○	○		○	○	○		○	
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○	○	○	○	○
	20		230	21	○	○	○	○	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60											
	22		100											
	23	Aluminum-cast, alloyed	75											
	24		90											
	25		130											
	26	Copper and Copper Alloys (Bronze / Brass)	110											
	27		90											
	28		100											
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.												
	30													
S	31	Heat Resistant Super Alloys	200	15										
	32		280	30										
	33		250	25										
	34		350	38										
	35		320	34										
	36	Titanium Alloys	400 Rm											
	37		1050 Rm											
H	38	Hardened steel	550	55	○	○	○	○	○	○	○	○	○	○
	39		630	60										
	40	Chilled Cast Iron	400	42	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	41	Hardened Cast Iron	550	55	○	○	○	○	○	○	○	○	○	○

4G Mills X-Speed Rougher / X-Power Pro

SERIES	G9D75 G9D67	G9D76 G9D68	G9D77 G9D69	GM876	GM813	GM886	GM902	GM815	GM818	GM8A1	GM839
FLUTE	4&5	4&5	4&5	2	2	2	2	4	2	2	4
HELIX ANGLE	44°~45° (MULTIPLE HELIX)	44°~45° (MULTIPLE HELIX)	44°~45° (MULTIPLE HELIX)	30°	30°	30°	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS ROUGHING	CORNER RADIUS ROUGHING	CORNER RADIUS ROUGHING	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
SIZE MIN	D6.0	D6.0	D6.0	R0.5	R0.5	R0.25	R0.5	R1.0	D4.0	D1.0	D2.0
SIZE MAX	D20.0	D20.0	D20.0	R8.0	R10.0	R3.0	R4.0	R8.0	D12.0	D6.0	D12.0
PAGE	C257	C258	C259	C332	C333	C334	C336	C337	C338	C339	C341
LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	RIB PROCESSING	TAPER NECK	LONG LENGTH	LONG LENGTH	RIB PROCESSING	STUB LENGTH
SURFACE TREATMENT	X-Coating	X-Coating	X-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating

ISO	VDI 3323	G9D75 G9D67	G9D76 G9D68	G9D77 G9D69	GM876	GM813	GM886	GM902	GM815	GM818	GM8A1	GM839
P	1	○	○	○	○	○	○	○	○	○	○	○
	2	○	○	○	○	○	○	○	○	○	○	○
	3	◎	◎	◎	○	○	○	○	○	○	○	○
	4	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎
	5	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎
	6	○	○	○	○	○	○	○	○	○	○	○
	7	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎
	8	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	9	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	10	○	○	○	○	○	○	○	○	○	○	○
	11	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	12	○	○	○								
	13	○	○	○								
	14	○	○	○								
K	15	◎	◎	◎	○	○	○		○	○	○	○
	16	◎	◎	◎	○	○	○		○	○	○	○
	17	◎	◎	◎	○	○	○		○	○	○	○
	18	◎	◎	◎	○	○	○		○	○	○	○
	19	◎	◎	◎	○	○	○		○	○	○	○
	20	◎	◎	◎	○	○	○		○	○	○	○
N	21											
	22											
	23											
	24											
	25											
	26	○	○	○								
	27	○	○	○								
	28	○	○	○								
	29											
	30											
S	31											
	32											
	33											
	34											
	35											
	36											
	37											
H	38				○	○	○	○	○	○	○	○
	39				○				○			
	40				◎	◎	◎	◎	◎	◎	◎	◎
	41				○	○	○	○	○	○	○	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

SELECTION GUIDE

YG MILLING TOOLS

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		X-Power Pro					
	SERIES	GM819	GM810	GM883	GM895	GM811	GM817
	FLUTE	4	2	2	3	4	4
	HELIX ANGLE	30°	30°	30°	38°	30°	30°
	CUTTING EDGE SHAPE	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
	SIZE MIN	D3.0	D0.4	D0.4	D1.0	D2.0	D2.0
	SIZE MAX	D20.0	D20.0	D6.0	D16.0	D25.0	D20.0
	PAGE	C342	C343	C345	C348	C349	C350
	LENGTH	LONG LENGTH	SHORT LENGTH	RIB PROCESSING	SHORT LENGTH	SHORT LENGTH	LONG LENGTH
	SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating

ISO	VDI 3323	Material Description	HB	HRc	GM819	GM810	GM883	GM895	GM811	GM817
P	1	Non-alloy steel	125		○	○	○	○	○	○
	2		190	13	○	○	○	○	○	○
	3		250	25	○	○	○	○	○	○
	4		270	28	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	○	○	○	○	○	○
	7		275	29	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○
	11		325	35	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○		○	○	
	13		240	23	○	○		○	○	
	14		180	10	○	○		○	○	
K	15	Grey cast iron	180	10	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○
	20		230	21	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60							
	22		100							
	23	Aluminum-cast, alloyed	75							
	24		90							
	25		130							
	26	Copper and Copper Alloys (Bronze / Brass)	110							
	27		90							
	28		100							
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55	○	○	○	○	○	○
	39		630	60						
	40	Chilled Cast Iron	400	42	◎	◎	◎	◎	◎	◎
	41	Hardened Cast Iron	550	55	○	○	○	○	○	○

	X-Power Pro			TitaNox-Power					
SERIES	GM812	GM834	GM814	GMG40 GMG41	GMG28 GMG29	GMG30 GMG31	GMG24 GMG25	GMG26 GMG27	EHE54 EHE55
FLUTE	6&8	6	3&4	4	5	5	5	5	5
HELIX ANGLE	45°	45°	20°	43°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	43°/44°/45° (MULTIPLE HELIX)	40°
CUTTING EDGE SHAPE	SQUARE	SQUARE	ROUGHING	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	ROUGHING CORNERRADIUS
SIZE MIN	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	D20.0	D25.0	D20.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
PAGE	C351	C352	C353	C380	C382	C383	C385	C386	C387
LENGTH	LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	LONG LENGTH DOUBLE CORE	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	-
SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	TiAlN

	GM812	GM834	GM814	GMG40 GMG41	GMG28 GMG29	GMG30 GMG31	GMG24 GMG25	GMG26 GMG27	EHE54 EHE55	
1	○	○	○	○	○	○	○	○		P
2	○	○	○	○	○	○	○	○		
3	○	○	○	○	○	○	○	○		
4	◎	◎	◎	○	○	○	○	○		
5	◎	◎	◎	○	○	○	○	○		
6	○	○	○	○	○	○	○	○		
7	◎	◎	◎	○	○	○	○	○		
8	◎	◎	◎	○	○	○	○	○		
9	◎	◎	◎	○	○	○	○	○		
10	○	○	○	○	○	○	○	○		
11	◎	◎	◎	○	○	○	○			
12			○	◎	◎	◎	◎	◎	○	M
13			○	◎	◎	◎	◎	◎	○	
14			○	◎	◎	◎	◎	◎	○	
15	○	○	○	○	○	○	○	○		K
16	○	○	○	○	○	○	○	○		
17	○	○	○	○	○	○	○	○		
18	○	○	○	○	○	○	○	○		
19	○	○	○	○	○	○	○	○		
20	○	○	○	○	○	○	○	○		
21										N
22										
23										
24										
25										
26										
27										
28										
29										
30										
31				○	○	○	○	○	○	S
32				○	○	○	○	○	○	
33				○	○	○	○	○	○	
34				○	○	○	○	○	○	
35				○	○	○	○	○	○	
36				◎	◎	◎	◎	◎	◎	
37				◎	◎	◎	◎	◎	◎	
38	○	○	○							H
39										
40	◎	◎	◎							
41	○	○	○							

SELECTION GUIDE

YG MILLING TOOLS

Jet-Power

SERIES	EH911 EH912	EH913 EH914	EH915 EH916	EH831 EH841	EH917 EH918	EH919 EH920	EH921 EH942
FLUTE	2	4	6&8	Multi Flute	Multi Flute	Multi Flute	Multi Flute
HELIX ANGLE	35°	35°	45°	30°	45°	45°	45°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING	ROUGHING	ROUGHING
SIZE MIN	D1.0	D2.0	D6.0	D6.0	D6.0	D4.0	D6.0
SIZE MAX	D25.0	D25.0	D25.0	D25.0	D20.0	D25.0	D20.0
PAGE	C396	C398	C400	C401	C402	C403	C404
LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN

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○ : Good

ISO	VDI 3323	Material Description	HB	HRc	EH911 EH912	EH913 EH914	EH915 EH916	EH831 EH841	EH917 EH918	EH919 EH920	EH921 EH942
P	1	Non-alloy steel	125		○	○	○	○	○	○	○
	2		190	13	○	○	○	○	○	○	○
	3		250	25	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	○	○	○	○	○	○	○
	7		275	29	◎	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	○	○	○	○	○	○	○
	11		325	35	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○
	14		180	10	◎	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	180	10							
	16		260	26							
	17	Nodular cast iron	160	3							
	18		250	25							
	19	Malleable cast iron	130								
	20		230	21							
N	21	Aluminum-wrought alloy	60								
	22		100								
	23	Aluminum-cast, alloyed	75								
	24		90								
	25	Copper and Copper Alloys (Bronze / Brass)	130								
	26		110								
	27		90								
	28		100								
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.									
	30										
S	31	Heat Resistant Super Alloys	200	15			○	○	○	○	○
	32		280	30			○	○	○	○	○
	33		250	25			○	○	○	○	○
	34		350	38			○	○	○	○	○
	35		320	34			○	○	○	○	○
	36	Titanium Alloys	400 Rm		◎	◎	◎	◎	◎	◎	◎
	37		1050 Rm		◎	◎	◎	◎	◎	◎	◎
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	○
	41	Hardened Cast Iron	550	55							

V7 Plus

SERIES	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59	GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMH58 GMH59	GMG12 GMG13
FLUTE	4	4	4	4	4	4	4	6	6	6	6
HELIX ANGLE	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	45°	45°	45°	45°
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE
SIZE MIN	R1.5	D3.0	D3.0	D3.0	D3.0	D3.0	D3.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	R12.5	D20.0	D25.0	D20.0	D20.0	D25.0	D20.0	D25.0	D25.0	D25.0	D25.0
PAGE	C418	C419	C420	C421	C424	C425	C426	C428	C429	C431	C432
LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	LONG LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH
SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating

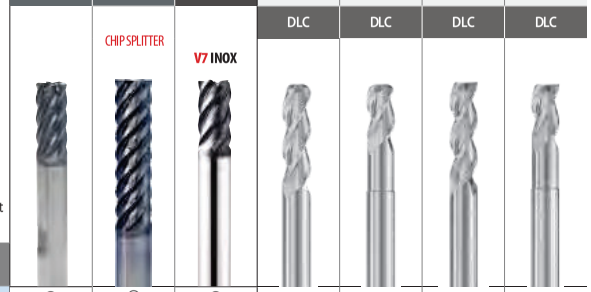
ISO	VDI 3323	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59	GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMH58 GMH59	GMG12 GMG13
P	1	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	5	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	6	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	7	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	8	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	9	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	11	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	16	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	18	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	19	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	20	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
N	21											
	22											
	23											
	24											
	25											
	26											
	27											
	28											
	29											
	30											
S	31	○	○	○	○	○	○	○	○	○	○	○
	32	○	○	○	○	○	○	○	○	○	○	○
	33	○	○	○	○	○	○	○	○	○	○	○
	34	○	○	○	○	○	○	○	○	○	○	○
	35	○	○	○	○	○	○	○	○	○	○	○
	36	○	○	○	○	○	○	○	○	○	○	○
	37	○	○	○	○	○	○	○	○	○	○	○
H	38											
	39											
	40											
	41											

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

SELECTION GUIDE

YG MILLING TOOLS

	V7 Plus			Alu-Power HPC			
SERIES	GMG14 GMG15	GMH56 GMH57	EMB72 EMB73	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
FLUTE	6	6	5	3	3	3	3
HELIX ANGLE	45°	45°	41°~ 45°	37°	37°	37°	37°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	D6.0	D6.0	D6.0	D6.0	D6.0	D3.0	D6.0
SIZE MAX	D25.0	D25.0	D25.0	D20.0	D20.0	D25.0	D20.0
PAGE	C433	C434	C435	C444	C447	C450	C451
LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	-	EXTENDED NECK	-	EXTENDED NECK
SURFACE TREATMENT	Y-Coating	Y-Coating	AlTiN	Uncoated	Uncoated	Uncoated	Uncoated
				DLC	DLC	DLC	DLC



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◎ : Excellent
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	GMG14 GMG15	GMH56 GMH57	EMB72 EMB73	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
P	1	Non-alloy steel	125		◎	◎	◎				
	2		190	13	◎	◎	◎				
	3		250	25	◎	◎	○				
	4		270	28	◎	◎	○				
	5		300	32	◎	◎	○				
	6	Low alloy steel	180	10	◎	◎	◎				
	7		275	29	◎	◎	○				
	8		300	32	◎	◎	○				
	9		350	38	◎	◎	○				
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎				
	11		325	35	◎	◎	○				
M	12	Stainless steel	200	15	◎	◎	◎				
	13		240	23	◎	◎	◎				
	14		180	10	◎	◎	◎				
K	15	Grey cast iron	180	10	◎	◎	○				
	16		260	26	◎	◎	○				
	17	Nodular cast iron	160	3	◎	◎	○				
	18		250	25	◎	◎	○				
	19	Malleable cast iron	130		◎	◎	○				
	20		230	21	◎	◎	○				
N	21	Aluminum-wrought alloy	60					◎	◎	◎	◎
	22		100					◎	◎	◎	◎
	23	Aluminum-cast, alloyed	75					◎	◎	◎	◎
	24		90					◎	◎	◎	◎
	25	Copper and Copper Alloys (Bronze / Brass)	130					○	○	○	○
	26		110					○	○	○	○
	27		90					○	○	○	○
	28		100					○	○	○	○
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.						○	○	○	○
	30										
S	31	Heat Resistant Super Alloys	200	15	○	○	○				
	32		280	30	○	○	○				
	33		250	25	○	○	○				
	34		350	38	○	○	○				
	35		320	34	○	○	○				
	36	Titanium Alloys	400 Rm		○	○	◎				
	37		1050 Rm		○	○	◎				
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42							
	41	Hardened Cast Iron	550	55							

	Alu-Power											
SERIES	E5910	E5908	E5909	E5930	E5E51	E5E47	E5E48	E5522 E5521	E5E49	E5E50	E5742 E5711	E5E39 E5E40
FLUTE	2	3	2	2	3	1	2	2	3	3	3	3
HELIX ANGLE	50°	40°	30°	25°	45°	30°	45°	45°	45°	45°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING
SIZE MIN	R3.0	R1.0	D4.0	D2.0	D3.0	D2.0	D3.0	D3.0	D3.0	D3.0	D6.0	D6.0
SIZE MAX	R10.0	R8.0	D20.0	D20.0	D20.0	D12.0	D20.0	D20.0	D20.0	D20.0	D25.0	D20.0
PAGE	C458	C459	C460	C461	C462	C463	C464	C465	C466	C467	C468	C469
LENGTH	NECK	NECK	NECK	NECK	LONG LENGTH	-	SHORT LENGTH	LONG LENGTH	LONG LENGTH	NECK	LONG LENGTH	NECK
SURFACE TREATMENT	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated

ISO	VDI 3323	Material Description	HB	HRc	E5910	E5908	E5909	E5930	E5E51	E5E47	E5E48	E5522 E5521	E5E49	E5E50	E5742 E5711	E5E39 E5E40
P	1	Non-alloy steel	125												○	○
	2		190	13											○	○
	3		250	25											○	○
	4		270	28											○	○
	5		300	32												
	6	Low alloy steel	180	10											○	○
	7		275	29											○	○
	8		300	32												
	9		350	38												
	10	High alloyed steel, and tool steel	200	15											○	○
	11		325	35												
M	12	Stainless steel	200	15												
	13		240	23												
	14		180	10												
K	15	Grey cast iron	180	10											○	○
	16		260	26											○	○
	17	Nodular cast iron	160	3											○	○
	18		250	25											○	○
	19	Malleable cast iron	130												○	○
	20		230	21											○	○
N	21	Aluminum-wrought alloy	60		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	22		100		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	23	Aluminum-cast, alloyed	75		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	24		90		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	25	Copper and Copper Alloys (Bronze / Brass)	130		○	○	○	○	○	○	○	○	○	○	○	○
	26		110		○	○	○									
	27		90		○	○	○									
	28		100		○	○	○									
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								◎						
	30															
S	31	Heat Resistant Super Alloys	200	15												
	32		280	30												
	33		250	25												
	34		350	38												
	35		320	34												
	36	Titanium Alloys	400 Rm													
	37		1050 Rm													
H	38	Hardened steel	550	55												
	39		630	60												
	40	Chilled Cast Iron	400	42												
	41	Hardened Cast Iron	550	55												

SELECTION GUIDE

YG MILLING TOOLS

	D-Power Graphite						
SERIES	EI997	EIB93	EI880	EI451	EI450	EIB87	EI881
FLUTE	2	2	2	2	2	2	3
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R0.1	R0.2	R1.0	R1.0	R1.0	R0.5	R1.0
SIZE MAX	R3.0	R2.0	R6.0	R6.0	R6.0	R1.0	R6.0
PAGE	C478	C480	C481	C482	C483	C484	C485
LENGTH	MINIATURE NECK	MINIATURE NECK	SHORT LENGTH NECK	LONG LENGTH NECK	LONG REACH NECK	TAPER NECK	SHORT LENGTH NECK
SURFACE TREATMENT	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond

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○ : Good

ISO	VDI 3323	Material Description	HB	HRc	EI997	EIB93	EI880	EI451	EI450	EIB87	EI881
P	1	Non-alloy steel	125								
	2		190	13							
	3		250	25							
	4		270	28							
	5		300	32							
	6	Low alloy steel	180	10							
	7		275	29							
	8		300	32							
	9		350	38							
	10	High alloyed steel, and tool steel	200	15							
	11		325	35							
M	12	Stainless steel	200	15							
	13		240	23							
	14		180	10							
K	15	Grey cast iron	180	10							
	16		260	26							
	17	Nodular cast iron	160	3							
	18		250	25							
	19	Malleable cast iron	130								
	20		230	21							
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○
	24		90		○	○	○	○	○	○	○
	25		130		○	○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110								
	27		90								
	28		100								
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.			◎	◎	◎	◎	◎	◎	◎
	30										
S	31	Heat Resistant Super Alloys	200	15							
	32		280	30							
	33		250	25							
	34		350	38							
	35		320	34							
	36	Titanium Alloys	400 Rm								
	37		1050 Rm								
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42							
	41	Hardened Cast Iron	550	55							

	D-Power Graphite						CRX S				
SERIES	EI996	EIB86	EIA13	EIA14	EIB88	EIB04	SGED28	SGED27	SGED29	SGED31	SGED30
FLUTE	2	2	3	3	4	2	2	2	2	2	2
HELIX ANGLE	30°	30°	40°	40°	30°	30°	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	-	BALL NOSE	BALL NOSE	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	D0.2	D1.0	D2.0	D2.0	D6.0	D0.5	R0.5	R0.25	D1.0	D1.0	D0.5
SIZE MAX	D6.0	D2.0	D12.0	D12.0	D12.0	D12.0	R6.0	R6.0	D12.0	D12.0	D12.0
PAGE	C486	C488	C489	C490	C491	C492	C497	C498	C500	C502	C503
LENGTH	MINIATURE NECK	TAPER NECK	SHORT LENGTH	LONG LENGTH	NECK	LONG LENGTH NECK	-	EXTENDED NECK	EXTENDED NECK	-	EXTENDED NECK
SURFACE TREATMENT	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	DLC	DLC	DLC	DLC	DLC

ISO	VDI 3323	Material Description	HB	HRc	EI996	EIB86	EIA13	EIA14	EIB88	EIB04	SGED28	SGED27	SGED29	SGED31	SGED30
P	1	Non-alloy steel	125												
	2		190	13											
	3		250	25											
	4		270	28											
	5		300	32											
	6	Low alloy steel	180	10											
	7		275	29											
	8		300	32											
	9		350	38											
	10	High alloyed steel, and tool steel	200	15											
	11		325	35											
M	12	Stainless steel	200	15											
	13		240	23											
	14		180	10											
K	15	Grey cast iron	180	10											
	16		260	26											
	17	Nodular cast iron	160	3											
	18		250	25											
	19	Malleable cast iron	130												
	20		230	21											
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○					
	24		90		○	○	○	○	○	○					
	25		130		○	○	○	○	○	○					
	26	Copper and Copper Alloys (Bronze / Brass)	110								◎	◎	◎	◎	◎
	27		90								◎	◎	◎	◎	◎
	28		100								◎	◎	◎	◎	◎
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.			◎	◎	◎	◎	◎	◎	○	○	○	○	○
	30														
S	31	Heat Resistant Super Alloys	200	15											
	32		280	30											
	33		250	25											
	34		350	38											
	35		320	34											
	36	Titanium Alloys	400 Rm												
	37		1050 Rm												
H	38	Hardened steel	550	55											
	39		630	60											
	40	Chilled Cast Iron	400	42											
	41	Hardened Cast Iron	550	55											

SELECTION GUIDE

YG MILLING TOOLS

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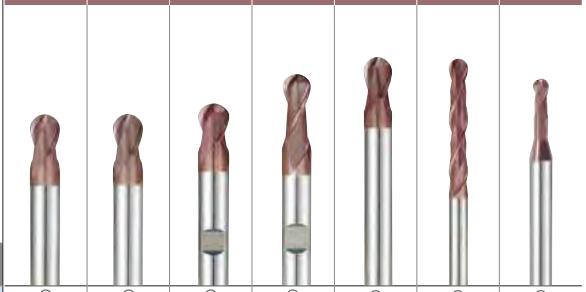
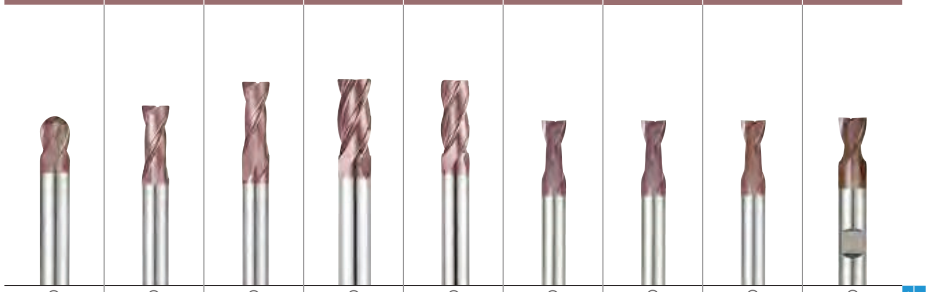
					K-2							
				SERIES	G9624	G9A70	G9437	G9438	G9454	G9455	G9B81
				FLUTE	2	2	2	2	2	2	2
				HELIX ANGLE	30°	30°	≈ 30°	≈ 30°	30°	30°	30°
				CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
				SIZE MIN	R1.0	R0.5	R1.0	R1.0	R1.5	R1.5	R0.2
				SIZE MAX	R10.0	R10.0	R10.0	R10.0	R10.0	R10.0	R2.0
				PAGE	C514	C515	C516	C517	C518	C519	C520
				LENGTH	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG REACH	EXTRA LONG LENGTH	RIB PROCESSING
				SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN
ISO	VDI 3323	Material Description	HB	HRc							
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎	◎
	11		325	35	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○	○
	20		230	21	○	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○
	24		90		○	○	○	○	○	○	○
	25		130		○	○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110		○	○	○	○	○	○	○
	27		90		○	○	○	○	○	○	○
	28		100		○	○	○	○	○	○	○
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.									
	30										
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○	
	32		280	30	○	○	○	○	○	○	
	33		250	25	○	○	○	○	○	○	
	34		350	38	○	○	○	○	○	○	
	35		320	34	○	○	○	○	○	○	
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○	
	37		1050 Rm		○	○	○	○	○	○	
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○	
	41	Hardened Cast Iron	550	55							



	K-2									
SERIES	G9634	G9B82	G9B83	G9B84	G9B85	G9424	G9G44	G9A68	G9444	
FLUTE	4	2	2	4	4	2	2	2	2	
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°	30°	≈ 30°	
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	
SIZE MIN	R1.0	D2.0	D3.0	D2.0	D3.0	D1.0	D3.0	D1.0	D2.0	
SIZE MAX	R10.0	D12.0	D12.0	D12.0	D12.0	D20.0	D20.0	D20.0	D20.0	
PAGE	C522	C523	C525	C526	C528	C529	C530	C531	C532	
LENGTH	SHORT LENGTH	SHORT LENGTH	LONG REACH	SHORT LENGTH	LONG REACH	SHORT LENGTH	SHORT LENGTH	SHORTLENGTH	SHORTLENGTH	
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	
1	◎	◎	◎	◎	◎	◎	◎	◎	◎	P
2	◎	◎	◎	◎	◎	◎	◎	◎	◎	
3	◎	◎	◎	◎	◎	◎	◎	◎	◎	
4	◎	◎	◎	◎	◎	◎	◎	◎	◎	
5	◎	◎	◎	◎	◎	◎	◎	◎	◎	
6	◎	◎	◎	◎	◎	◎	◎	◎	◎	
7	◎	◎	◎	◎	◎	◎	◎	◎	◎	
8	◎	◎	◎	◎	◎	◎	◎	◎	◎	
9	◎	◎	◎	◎	◎	◎	◎	◎	◎	
10	◎	◎	◎	◎	◎	◎	◎	◎	◎	
11	◎	◎	◎	◎	◎	◎	◎	◎	◎	
12	○	○	○	○	○	○	○	○	○	M
13	○	○	○	○	○	○	○	○	○	
14	○	○	○	○	○	○	○	○	○	
15	○	○	○	○	○	○	○	○	○	K
16	○	○	○	○	○	○	○	○	○	
17	○	○	○	○	○	○	○	○	○	
18	○	○	○	○	○	○	○	○	○	
19	○	○	○	○	○	○	○	○	○	
20	○	○	○	○	○	○	○	○	○	
21	○	○	○	○	○	○	○	○	○	N
22	○	○	○	○	○	○	○	○	○	
23	○	○	○	○	○	○	○	○	○	
24	○	○	○	○	○	○	○	○	○	
25	○	○	○	○	○	○	○	○	○	
26	○	○	○	○	○	○	○	○	○	
27	○	○	○	○	○	○	○	○	○	
28	○	○	○	○	○	○	○	○	○	
29		○	○	○	○	○	○	○	○	
30										
31	○					○	○	○	○	S
32	○					○	○	○	○	
33	○					○	○	○	○	
34	○					○	○	○	○	
35	○					○	○	○	○	
36	○					○	○	○	○	
37	○					○	○	○	○	
38										H
39										
40	○	○	○	○	○	○	○	○	○	
41										



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

SELECTION GUIDE

YG MILLING TOOLS

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◎ : Excellent
○ : Good

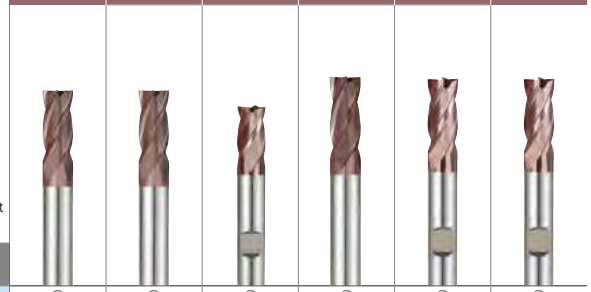
					K-2						
				SERIES	G9527	G9445	G9G45	G9452	G9B80	G9410 G9553	G9G46
				FLUTE	2	2	2	2	2	3	3
				HELIX ANGLE	≈30°	≈30°	≈30°	30°	30°	30°	30°
				CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
				SIZE MIN	D3.5	D2.0	D3.0	D3.0	D0.4	D0.5	D3.0
				SIZE MAX	D20.0	D20.0	D20.0	D20.0	D4.0	D20.0	D20.0
				PAGE	C533	C534	C535	C537	C538	C541	C543
				LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	EXTRA LONG LENGTH	RIB PROCESSING	THROW AWAY	THROW AWAY
				SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN
ISO	VDI 3323	Material Description	HB	HRc							
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎	◎
	11		325	35	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○	○
	20		230	21	○	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○
	22		100		○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○
	24		90		○	○	○	○	○	○	○
	25	Copper and Copper Alloys (Bronze / Brass)	130		○	○	○	○	○	○	○
	26		110		○	○	○	○	○	○	○
	27		90		○	○	○	○	○	○	○
	28		100		○	○	○	○	○	○	○
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.			○	○	○	○		○	○
	30										
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○		○	○
	32		280	30	○	○	○	○		○	○
	33		250	25	○	○	○	○		○	○
	34		350	38	○	○	○	○		○	○
	35		320	34	○	○	○	○		○	○
	36	Titanium Alloys	400 Rm		○	○	○	○		○	○
	37		1050 Rm		○	○	○	○		○	○
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42	○	○	○	○		○	○
	41	Hardened Cast Iron	550	55							

	K-2									
SERIES	G9425	G9G47	G9439	G9528	G9433	G9G48	G9447	G9G49	G9432	
FLUTE	3	3	3	3	3	3	3	3	4	
HELIX ANGLE	30°	30°	≈30°	≈30°	≈30°	≈30°	45°	45°	30°	
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	
SIZE MIN	D1.0	D3.0	D2.0	D3.5	D3.0	D3.0	D3.0	D3.0	D1.0	
SIZE MAX	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	
PAGE	C544	C545	C546	C547	C548	C549	C550	C551	C552	
LENGTH	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	
1	◎	◎	◎	◎	◎	◎	◎	◎	◎	P
2	◎	◎	◎	◎	◎	◎	◎	◎	◎	
3	◎	◎	◎	◎	◎	◎	◎	◎	◎	
4	◎	◎	◎	◎	◎	◎	◎	◎	◎	
5	◎	◎	◎	◎	◎	◎	◎	◎	◎	
6	◎	◎	◎	◎	○	○	○	◎	◎	
7	◎	◎	◎	◎	○	○	○	◎	◎	
8	◎	◎	◎	◎	○	○	○	◎	◎	
9	◎	◎	◎	◎	○	○	○	◎	◎	
10	◎	◎	◎	◎	○	○	○	◎	◎	
11	◎	◎	◎	◎	○	○	○	◎	◎	
12	○	○	○	○	○	○	○	○	○	M
13	○	○	○	○	○	○	○	○	○	
14	○	○	○	○	○	○	○	○	○	
15	○	○	○	○	○	○	○	○	○	K
16	○	○	○	○	○	○	○	○	○	
17	○	○	○	○	○	○	○	○	○	
18	○	○	○	○	○	○	○	○	○	
19	○	○	○	○	○	○	○	○	○	
20	○	○	○	○	○	○	○	○	○	
21	○	○	○	○	○	○	○	○	○	N
22	○	○	○	○	○	○	○	○	○	
23	○	○	○	○	○	○	○	○	○	
24	○	○	○	○				○	○	
25	○	○	○	○	○	○	○	○	○	
26	○	○	○	○	○	○	○	○	○	
27	○	○	○	○	○	○	○	○	○	
28	○	○	○	○	○	○	○	○	○	
29	○	○	○	○	○	○	○	○	○	
30					○	○	○			
31	○	○	○	○	○	○	○	○	○	S
32	○	○	○	○				○	○	
33	○	○	○	○				○	○	
34	○	○	○	○	○	○	○	○	○	
35	○	○	○	○				○	○	
36	○	○	○	○				○	○	
37	○	○	○	○				○	○	
38										H
39										
40	○	○	○	○				○	○	
41										

SELECTION GUIDE

YG MILLING TOOLS

	K-2					
SERIES	G9G50	G9A69	G9448	G9540	G9449	G9G51
FLUTE	4	4	4	4	4	4
HELIX ANGLE	30°	30°	≒ 30°	≒ 30°	≒ 30°	≒ 30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D3.0	D1.0	D2.0	D3.5	D2.0	D3.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0
PAGE	C553	C554	C555	C556	C557	C558
LENGTH	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH
SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN



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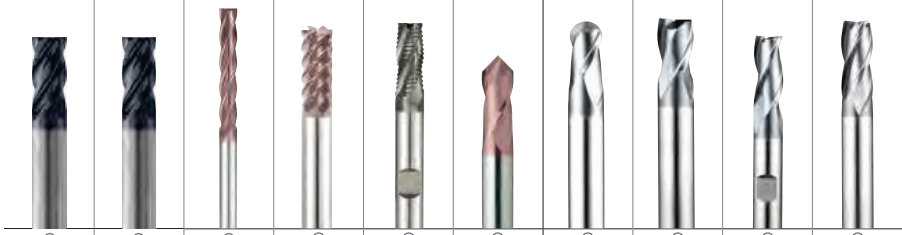
◎ : Excellent
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	G9G50	G9A69	G9448	G9540	G9449	G9G51
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎
	11		325	35	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	200	15	○	○	○	○	○	○
	13		240	23	○	○	○	○	○	○
	14		180	10	○	○	○	○	○	○
K	15	Grey cast iron	180	10	○	○	○	○	○	○
	16		260	26	○	○	○	○	○	○
	17	Nodular cast iron	160	3	○	○	○	○	○	○
	18		250	25	○	○	○	○	○	○
	19	Malleable cast iron	130		○	○	○	○	○	○
	20		230	21	○	○	○	○	○	○
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○
	22		100		○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○
	24		90		○	○	○	○	○	○
	25		130		○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110		○	○	○	○	○	○
	27		90		○	○	○	○	○	○
	28		100		○	○	○	○	○	○
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.			○	○	○	○	○	○
	30									
S	31	Heat Resistant Super Alloys	200	15	○	○	○	○	○	○
	32		280	30	○	○	○	○	○	○
	33		250	25	○	○	○	○	○	○
	34		350	38	○	○	○	○	○	○
	35		320	34	○	○	○	○	○	○
	36	Titanium Alloys	400 Rm		○	○	○	○	○	○
	37		1050 Rm		○	○	○	○	○	○
H	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42	○	○	○	○	○	○
	41	Hardened Cast Iron	550	55						

	K-2						Only One			
SERIES	G9H73 G9H74	G9H75 G9H76	G9453	G9F45 G9F46	G9A42	G9400	GYG77 GYF97	GYG72 GYF99	GYG01	GYG74 GYF96
FLUTE	4	4	4	4&6	Multi Flute	2	2	2	3	4
HELIX ANGLE	Multiple Helix	Multiple Helix	30°	30°	45°	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	DRILL MILL	BALL NOSE	SQUARE	SQUARE	SQUARE
SIZE MIN	D3.0	D3.0	D3.0	D3.0	D6.0	D3.0	R0.5	D1.0	D1.0	D1.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0	D25.0	D20.0	R12.5	D25.0	D25.0	D25.0
PAGE	C559	C560	C561	C562	C563	C564	C586	C587	C588	C589
LENGTH	SHORT LENGTH	LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH LONG LENGTH	LONG LENGTH	-	SHORTLENGTH	SHORTLENGTH	SHORT LENGTH (Center Cut)	SHORT LENGTH (Center Cut)
SURFACE TREATMENT	X-Coating	X-Coating	TiAlN	TiAlN	X-Coating	TiAlN	Y-Coating	Y-Coating	Y-Coating	Y-Coating
							PM60	PM60	PM60	PM60



ISO	VDI 3323	Material Description	HB	HRc	G9H73 G9H74	G9H75 G9H76	G9453	G9F45 G9F46	G9A42	G9400	GYG77 GYF97	GYG72 GYF99	GYG01	GYG74 GYF96
P	1	Non-alloy steel	125		◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	9		350	38	◎	◎	◎	◎	◎	◎	○	○	○	○
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	○	◎	◎	◎	◎	◎	◎
	11		325	35	◎	◎	◎	◎	◎	◎	○	○	○	○
M	12	Stainless steel	200	15	○	○	○		○	○	◎	◎	◎	◎
	13		240	23	○	○	○		○	○	◎	◎	◎	◎
	14		180	10	○	○	○		○	○	◎	◎	◎	◎
K	15	Grey cast iron	180	10	○	○	○	○	○	○	◎	◎	◎	◎
	16		260	26	○	○	○	○	○	○	◎	◎	◎	◎
	17	Nodular cast iron	160	3	○	○	○	○	○	○	◎	◎	◎	◎
	18		250	25	○	○	○	○	○	○	◎	◎	◎	◎
	19	Malleable cast iron	130		○	○	○	○	○	○	◎	◎	◎	◎
	20		230	21	○	○	○	○	○	○	◎	◎	◎	◎
N	21	Aluminum-wrought alloy	60				○		○	○				
	22		100				○		○	○				
	23	Aluminum-cast, alloyed	75				○		○	○				
	24		90				○		○	○				
	25		130				○		○	○				
	26	Copper and Copper Alloys (Bronze / Brass)	110				○		○		○	○	○	○
	27		90				○		○		○	○	○	○
	28		100				○		○		○	○	○	○
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.					○							
	30													
S	31	Heat Resistant Super Alloys	200	15	○	○	○		○					
	32		280	30	○	○	○		○					
	33		250	25	○	○	○		○					
	34		350	38	○	○	○		○					
	35		320	34	○	○	○		○					
	36	Titanium Alloys	400 Rm		○	○	○		○					
	37		1050 Rm		○	○	○		○					
H	38	Hardened steel	550	55				○						
	39		630	60				○						
	40	Chilled Cast Iron	400	42			○	○	○		○	○	○	○
	41	Hardened Cast Iron	550	55				○						

SELECTION GUIDE

YG MILLING TOOLS

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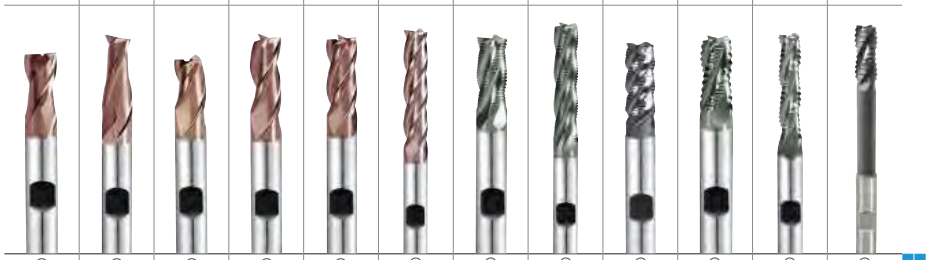
◎ : Excellent
○ : Good

		Only One						Tank-Power	
	SERIES	GYG52	GYG76 GYG02	GYF95	GYF94	GYF98	GYG03	E9940 GA940	E9A32 GAA32
	FLUTE	4	4	Multi Flute	Multi Flute	Multi Flute	Multi Flute	2	2
	HELIX ANGLE	35°/37°	30°	4F : 44°/45° 5F : 44°/44.5°/45°	30°	30°	30°	30°	30°
	CUTTING EDGE SHAPE	SQUARE	SQUARE	CORNER RADIUS ROUGHING	ROUGHING	ROUGHING	ROUGHING	BALL NOSE	BALL NOSE
	SIZE MIN	D3.0	D2.0	D6.0	D6.0	D6.0	D6.0	R0.5	R1.0
	SIZE MAX	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	R12.5	R12.5
	PAGE	C590	C591	C592	C593	C594	C595	C608	C609
	LENGTH	SHORT LENGTH (Center Cut)	LONG LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	LONG LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	SHORT LENGTH	LONG LENGTH
	SURFACE TREATMENT	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	TiAlN	TiAlN
		PM60	PM60	PM60	PM60	PM60	PM60	HSS-PM	HSS-PM
ISO	VDI 3323 / Material Description / HB / HRc								
P	1 Non-alloy steel 125	◎	◎	◎	◎	◎	◎	◎	◎
P	2 Non-alloy steel 190 13	◎	◎	◎	◎	◎	◎	◎	◎
P	3 Non-alloy steel 250 25	◎	◎	◎	◎	◎	◎	◎	◎
P	4 Non-alloy steel 270 28	◎	◎	◎	◎	◎	◎	◎	◎
P	5 Non-alloy steel 300 32	◎	◎	◎	◎	◎	◎	◎	◎
P	6 Low alloy steel 180 10	◎	◎	◎	◎	◎	◎	◎	◎
P	7 Low alloy steel 275 29	◎	◎	◎	◎	◎	◎	◎	◎
P	8 Low alloy steel 300 32	◎	◎	◎	◎	◎	◎	◎	◎
P	9 Low alloy steel 350 38	○	○	○	○	○	○	○	○
P	10 High alloyed steel, and tool steel 200 15	◎	◎	◎	◎	◎	◎	◎	◎
P	11 High alloyed steel, and tool steel 325 35	○	○	○	○	○	○	○	○
M	12 Stainless steel 200 15	◎	◎	◎	◎	◎	◎	◎	◎
M	13 Stainless steel 240 23	◎	◎	◎	◎	◎	◎	◎	◎
M	14 Stainless steel 180 10	◎	◎	◎	◎	◎	◎	◎	◎
K	15 Grey cast iron 180 10	◎	◎	◎	◎	◎	◎	◎	◎
K	16 Grey cast iron 260 26	◎	◎	◎	◎	◎	◎	◎	◎
K	17 Nodular cast iron 160 3	◎	◎	◎	◎	◎	◎	◎	◎
K	18 Nodular cast iron 250 25	◎	◎	◎	◎	◎	◎	◎	◎
K	19 Malleable cast iron 130	◎	◎	◎	◎	◎	◎	◎	◎
K	20 Malleable cast iron 230 21	◎	◎	◎	◎	◎	◎	◎	◎
N	21 Aluminum-wrought alloy 60								
N	22 Aluminum-wrought alloy 100								
N	23 Aluminum-cast, alloyed 75								
N	24 Aluminum-cast, alloyed 90								
N	25 Aluminum-cast, alloyed 130								
N	26 Copper and Copper Alloys (Bronze / Brass) 110	○	○	○	○	○	○	○	○
N	27 Copper and Copper Alloys (Bronze / Brass) 90	○	○	○	○	○	○	○	○
N	28 Copper and Copper Alloys (Bronze / Brass) 100	○	○	○	○	○	○	○	○
N	29 Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
N	30 Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
S	31 Heat Resistant Super Alloys 200 15								
S	32 Heat Resistant Super Alloys 280 30								
S	33 Heat Resistant Super Alloys 250 25								
S	34 Heat Resistant Super Alloys 350 38								
S	35 Heat Resistant Super Alloys 320 34								
S	36 Titanium Alloys 400 Rm								
S	37 Titanium Alloys 1050 Rm								
H	38 Hardened steel 550 55								
H	39 Hardened steel 630 60								
H	40 Chilled Cast Iron 400 42	○	○	○	○	○	○		
H	41 Hardened Cast Iron 550 55								

		Tank-Power											
	SERIES	E9936 GA936	E9A29 GAA29	E9942 GA942	E9A30 GAA30	E9938 GA938	E9A31 GAA31	E9941 GA941	E9A35 GAA35	E9A26 GAA26	E9A33 GAA33	E9A34 GAA34	E9E43 GAE43
	FLUTE	2	2	3	3	4	4	Multi Flute	Multi Flute	Multi Flute	Multi Flute	Multi Flute	Multi Flute
	HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°	30°	45°	30°	30°	30°
	CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING	ROUGHING	ROUGHING	ROUGHING	ROUGHING
	SIZE MIN	D1.0	D1.0	D1.0	D1.0	D1.0	D2.0	D6.0	D6.0	D4.0	D6.0	D6.0	D10.0
	SIZE MAX	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
	PAGE	C610	C611	C612	C613	C614	C615	C616	C617	C618	C619	C620	C621
	LENGTH	SHORT LENGTH	LONG LENGTH	STUB LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	WITH NECK
	SURFACE TREATMENT	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating
		HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM	HSS-PM
ISO	VDI 3323												
P	1	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	5	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	6	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	7	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	8	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	9	○	○	○	○	○	○	○	○	○	○	○	○
P	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
P	11	○	○	○	○	○	○	○	○	○	○	○	○
M	12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
M	14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	16	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	18	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	19	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
K	20	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
N	21												
N	22												
N	23												
N	24												
N	25												
N	26	○	○	○	○	○	○	○	○	○	○	○	○
N	27	○	○	○	○	○	○	○	○	○	○	○	○
N	28	○	○	○	○	○	○	○	○	○	○	○	○
N	29												
N	30												
S	31												
S	32												
S	33												
S	34												
S	35												
S	36												
S	37												
H	38												
H	39												
H	40												
H	41												

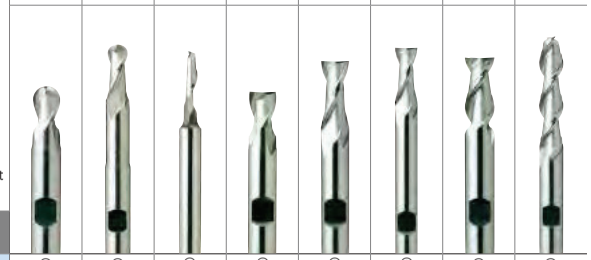


SELECTION GUIDE

YG MILLING TOOLS

HSS End mills

SERIES	E2535	E2492	EL612	E2570	E2571	E2510	E2464	E2509
FLUTE	2	2	1	2	2	2	2	2
HELIX ANGLE	≈ 30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	30°	42°	42°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	R1.0	R1.0	D3.0	D1.0	D1.5	D2.5	D1.0	D2.0
SIZE MAX	R16.0	R15.0	D10.0	D40.0	D40.0	D40.0	D32.0	D20.0
PAGE	C643	C644	C645	C646	C649	C651	C653	C654
LENGTH	SHORT LENGTH	LONG LENGTH		SHORT LENGTH	LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH	LONG LENGTH
SURFACE TREATMENT	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated
Tool Marterial	HSS Co8	HSS Co8	HSS-E	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8



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◎ : Excellent
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	E2535	E2492	EL612	E2570	E2571	E2510	E2464	E2509
P	1	Non-alloy steel	125		◎	◎	○	◎	◎	◎	○	○
	2		190	13	◎	◎	○	◎	◎	◎	○	○
	3		250	25	◎	◎		◎	◎	◎		
	4		270	28	◎	◎		◎	◎	◎		
	5		300	32	○	○		○	○	○		
	6	Low alloy steel	180	10	◎	◎	○	◎	◎	◎	○	○
	7		275	29	◎	◎		◎	◎	◎		
	8		300	32	○	○		○	○	○		
	9		350	38	○	○		○	○	○		
	10	High alloyed steel, and tool steel	200	15	◎	◎	○	◎	◎	◎	○	○
	11		325	35	○	○		○	○	○		
M	12	Stainless steel	200	15								
	13		240	23								
	14		180	10								
K	15	Grey cast iron	180	10								
	16		260	26								
	17	Nodular cast iron	160	3								
	18		250	25								
	19	Malleable cast iron	130									
	20		230	21								
N	21	Aluminum-wrought alloy	60		○	○	◎	○	○	○	◎	◎
	22		100		○	○	◎	○	○	○	◎	◎
	23	Aluminum-cast, alloyed	75		○	○	◎	○	○	○	◎	◎
	24		90		○	○	◎	○	○	○	◎	◎
	25		130		○	○	○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110									
	27		90									
	28		100									
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.										
	30											
S	31	Heat Resistant Super Alloys	200	15								
	32		280	30								
	33		250	25								
	34		350	38								
	35		320	34								
	36	Titanium Alloys	400 Rm									
	37		1050 Rm									
H	38	Hardened steel	550	55								
	39		630	60								
	40	Chilled Cast Iron	400	42								
	41	Hardened Cast Iron	550	55								

HSS End mills

SERIES	E2572	E2573	E2516	E2553	E2SET553	E2554	E2574	E2595	E2597	E2753	E2762	E2755	E2751	E2752
FLUTE	3	3	3	3	3	3	4	4	4&6	Multi Flute	Multi Flute	3	Multi Flute	Multi Flute
HELIX ANGLE	≈ 30°	≈ 30°	30°	30°	30°	30°	≈ 30°	≈ 30°	45°	30°	30°	37°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING
SIZE MIN	D1.5	D1.0	D2.0	D1.0	D2.0	D1.5	D2.0	D2.0	D2.0	D6.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	D32.0	D40.0	D40.0	D20.0	D10.0	D10.0	D20.0	D25.0	D20.0	D40.0	D40.0	D30.0	D50.0	D40.0
PAGE	C655	C656	C658	C660	C661	C662	C663	C664	C665	C666	C667	C668	C669	C671
LENGTH	STUB LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH THROW AWAY	THROW AWAY SET	LONG LENGTH THROW AWAY	SHORT LENGTH	SHORT LENGTH CENTER CUTTING	LONG LENGTH CENTER CUTTING	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH
SURFACE TREATMENT	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN
Tool Marterial	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8

ISO	VDI 3323	Material Description	HB	HRc	E2572	E2573	E2516	E2553	E2SET553	E2554	E2574	E2595	E2597	E2753	E2762	E2755	E2751	E2752
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎
	9		350	38	○	○	○	○	○	○	○	○	○	○	○		○	○
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	11		325	35	○	○	○	○	○	○	○	○	○	○	○		○	○
M	12	Stainless steel	200	15														
	13		240	23														
	14		180	10														
K	15	Grey cast iron	180	10														
	16		260	26														
	17	Nodular cast iron	160	3														
	18		250	25														
	19	Malleable cast iron	130															
	20		230	21														
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○	○	○	○	○	○	◎	○	○
	22		100		○	○	○	○	○	○	○	○	○	○	○	◎	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○	○	○	○	○	○	◎	○	○
	24		90		○	○	○	○	○	○	○	○	○	○	○	◎	○	○
	25		130		○	○	○	○	○	○	○	○	○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110															
	27		90															
	28		100															
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.																
	30																	
S	31	Heat Resistant Super Alloys	200	15														
	32		280	30														
	33		250	25														
	34		350	38														
	35		320	34														
	36	Titanium Alloys	400 Rm															
	37		1050 Rm															
H	38	Hardened steel	550	55														
	39		630	60														
	40	Chilled Cast Iron	400	42														
	41	Hardened Cast Iron	550	55														

SELECTION GUIDE

YG

MILLING TOOLS

Milling Cutting

SERIES	ML012, ML022 ML112, ML122	ML032, ML042 ML132, ML142	ML062, ML162	ML072, ML172	ML092	ML102
FLUTE	-	-	-	-	-	-
HELIX ANGLE	0°	0°	10°-20°	10°-20°	10°	-
CUTTING EDGE SHAPE	DOVETAIL CUTTERS	DOVETAIL CUTTERS	WOODRUFF KEYSEAT CUTTERS	T-SLOT CUTTERS	SIDE AND FACE MILLING CUTTERS	SIDE AND FACE MILLING CUTTERS
SIZE MIN	D16.0	D16.0	D10.5	D12.5	D50.0	D50.0
SIZE MAX	D50.0	D38.0	D45.5	D40.0	D125.0	D200.0
PAGE	C706	C707	C708	C709	C711	C713
LENGTH	Type A, C, E	Type B, D, F	Type B, D, F	Type AA, AB, AD	with STRAIGHT TEETH	with STAGGERED TEETH
SURFACE TREATMENT	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E

Please visit globalyg1.com/mat for material search

◎ : Excellent
○ : Good

ISO	VDI 3323	Material Description	HB	HRc	ML012, ML022 ML112, ML122	ML032, ML042 ML132, ML142	ML062, ML162	ML072, ML172	ML092	ML102
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	◎	◎	◎
	4		270	28	◎	◎	◎	◎	◎	◎
	5		300	32	◎	◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	◎	◎	◎
	8		300	32	◎	◎	◎	◎	◎	◎
	9		350	38	○	○	○		○	○
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎
	11		325	35	○	○	○		○	○
M	12	Stainless steel	200	15						
	13		240	23						
	14		180	10						
K	15	Grey cast iron	180	10						
	16		260	26						
	17	Nodular cast iron	160	3						
	18		250	25						
	19	Malleable cast iron	130							
	20		230	21						
N	21	Aluminum-wrought alloy	60		○	○	○	○	○	○
	22		100		○	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	○	○	○
	24		90		○	○	○	○	○	○
	25		130		○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110							
	27		90							
	28		100							
	29	Non Metallic Materials Duroplastic, Fiber Reinforced Plastic, Graphite, CFRP, GFRP, etc.								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42						
	41	Hardened Cast Iron	550	55						

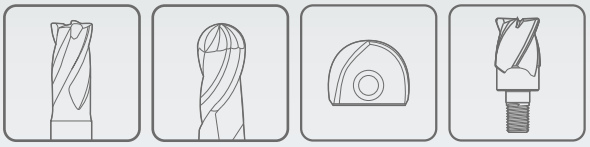
Milling Cutting

E2675	E2676	E2677	E2678	E2679	E2498
Multi Flute	Multi Flute	Multi Flute	Multi Flute	Multi Flute	4
30°	42°	30°	30°	30°	0°
SHELL END MILL	SHELL END MILL	ROUGHING SHELL END MILL	ROUGHING SHELL END MILL	ROUGHING & FINISHING SHELL END MILL	CORNER ROUNDING CUTTERS
D30.0	D30.0	D40.0	D40.0	D40.0	D8.0
D160.0	D100.0	D160.0	D160.0	D160.0	D56.0
C719	C720	C721	C722	C723	C724
-	for ALUMINUM	-	-	-	-
Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated
HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8

E2675	E2676	E2677	E2678	E2679	E2498	ISO	VDI 3323
◎	○	◎	◎	◎	◎	P	1
◎	○	◎	◎	◎	◎		2
◎	○	◎	◎	◎	◎		3
◎	○	◎	◎	◎	◎		4
◎		○	○	○	○		5
◎	○	◎	◎	◎	◎		6
◎	○	◎	◎	◎	◎		7
◎		○	○	○	○		8
○		○	○	○	○		9
◎	○	◎	◎	◎	◎		10
○		○	○	○	○		11
						M	12
							13
							14
						K	15
							16
							17
							18
							19
							20
	◎	○	○	○	○	N	21
	◎	○	○	○	○		22
	◎	○	○	○	○		23
	◎	○	○	○	○		24
	◎	○	○	○	○		25
							26
							27
							28
							29
							30
						S	31
							32
							33
							34
							35
							36
							37
						H	38
							39
							40
							41

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

CBN (Cubic Boron Nitride)

CBN FRÄSER

- CBN(Cubic Boron Nitride) Machining High Hardened Steels up to HRc70 Mirror Finish
- CBN (Kubisches Bornitrid) zur Bearbeitung von hochgehärteten Stählen bis HRc70 Hochglanzoberfläche

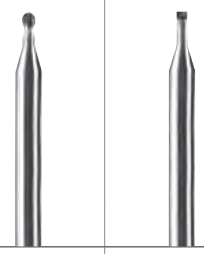
SELECTION GUIDE

MILLING TOOLS

SERIES	ESB94	ESD02
FLUTE	2	2
HELIX ANGLE	30°	0°
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS
SIZE MIN	R0.2	D0.5
SIZE MAX	R1.5	D2.0
PAGE	C35	C36
	-	-
	UNCOATED	UNCOATED

CBN END MILLS

Cubic Boron Nitride,
Machining High Hardened Steels
up to HRc70, Mirror Finish



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◎ : Excellent ○ : Good

Recommended cutting conditions : p. C37

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc		
P	1	Non-alloy steel	About 0.15% C	Annealed	125			
	2		About 0.45% C	Annealed	190	13		
	3		About 0.45% C	Quenched & Tempered	250	25		
	4		About 0.75% C	Annealed	270	28		
	5		About 0.75% C	Quenched & Tempered	300	32		
	6	Low alloy steel		Annealed	180	10		
	7			Quenched & Tempered	275	29		
	8			Quenched & Tempered	300	32		
	9			Quenched & Tempered	350	38		
	10	High alloyed steel, and tool steel		Annealed	200	15		
	11			Quenched & Tempered	325	35		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15		
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / ferritic		180	10		
	16		Pearlitic (Martensitic)		260	26		
	17	Nodular cast iron	Ferritic		160	3		
	18		Pearlitic		250	25		
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60			
	22		Curable	Hardened	100			
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75			
	24		≤ 12% Si, Curable	Hardened	90			
	25		> 12% Si, Not Curable		130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110			
	27		CuZn, CuSnZn (Brass)		90			
	28		CuSn, lead-free copper and electrolytic copper		100			
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
	37		Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55	◎	◎
	39			Hardened	630	60	◎	◎
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55	◎	◎

CBN END MILLS

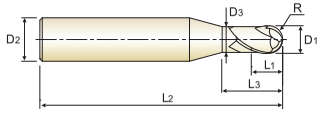
PLAIN SHANK **ESB94** SERIES

CBN, 2 FLUTE BALL NOSE

CBN, 2 SCHNEIDEN STIRNRADIUS
CBN, fraise 2 dents, hémisphérique
CBN, 2 TAGLIENTI, SEMISFERICA

- ▶Achieves stable machining and higher accuracy for duration.
- ▶Saves setting time and cost from the reduction of frequent tool change.
- ▶Improves repeatability in performance.
- ▶Special designed geometry improving tool rigidity at High Speed Cutting.
- ▶Tighter Radius Tolerance of ±0.005mm and higher accuracy with longer tool life.

- ▶ Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.
- ▶ Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.
- ▶ Verbessert die Wiederholgenauigkeit.
- ▶ Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.
- ▶ Engere Radiustoleranz ±0.005, höhere Genauigkeit und längere Werkzeuglebenszeit.



CBN | 2 | 30° | R ±0.005 | PLAIN | UNCOATED

p. C37

Recommended ToolHolder

Plain Shank	Page
HYDRAULIC CHUCK / SHRINK FIT HOLDER	D15-46 / D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK / SK SLIM CHUCK	D73-116 / D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D_1	D_2	L_1	L_3	L_2	D_3
ESB94004012	R0.2	0.4	4	0.3	1.2	50	0.37
ESB94005015	R0.25	0.5	4	0.4	1.5	50	0.46
ESB94006015	R0.3	0.6	4	0.5	1.5	50	0.56
ESB94008020	R0.4	0.8	4	0.6	2	50	0.76
ESB94010025	R0.5	1.0	4	0.6	2.5	50	0.95
ESB94010040	R0.5	1.0	4	0.6	4	50	0.95
ESB94010060	R0.5	1.0	4	0.6	6	50	0.95
ESB94012030	R0.6	1.2	4	0.8	3	50	1.15
ESB94015030	R0.75	1.5	4	0.95	3	50	1.45
ESB94015040	R0.75	1.5	4	0.95	4	50	1.45
ESB94015060	R0.75	1.5	4	0.95	6	50	1.45
ESB94020050	R1.0	2.0	4	1.2	5	50	1.95
ESB94020060	R1.0	2.0	4	1.2	6	50	1.95
ESB94030060	R1.5	3.0	4	1.8	6	50	2.85

Radius Tolerance(Mm)	Shank Dia. Tolerance
± 0.005	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎		◎

CBN END MILLS

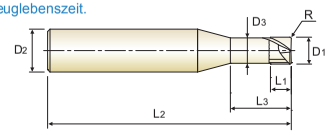
PLAIN SHANK **ESD02** SERIES

CBN, 2 FLUTE CORNER RADIUS

CBN, 2 SCHNEIDEN ECKENRADIUS
CBN, fraise 2 dents, torique
CBN, 2 TAGLIENTI, TORICA

- ▶Achieves stable machining and higher accuracy for duration.
- ▶Saves setting time and cost from the reduction of frequent tool change.
- ▶Improves repeatability in performance.
- ▶Special designed geometry improving tool rigidity at High Speed Cutting.
- ▶Tighter Radius Tolerance of ±0.005mm and higher accuracy with longer tool life.

- ▶ Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.
- ▶ Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.
- ▶ Verbessert die Wiederholgenauigkeit.
- ▶ Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.
- ▶ Engere Radiustoleranz ±0.005, höhere Genauigkeit und längere Werkzeuglebenszeit.



CBN | 2 | 0° | R ±0.005 | PLAIN | UNCOATED

p. C37

Recommended ToolHolder

Plain Shank	Page
HYDRAULIC CHUCK	D15 - 46
SHRINK FIT HOLDER	D47 - 72
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116
SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D_1	D_2	L_1	L_3	L_2	D_3
ESD02005052	R0.05	0.5	4	0.3	2	50	0.46
ESD02005053	R0.05	0.5	4	0.3	3	50	0.46
ESD02010053	R0.05	1.0	4	0.7	3	50	0.95
ESD02010055	R0.05	1.0	4	0.7	5	50	0.95
ESD02010103	R0.1	1.0	4	0.7	3	50	0.95
ESD02010105	R0.1	1.0	4	0.7	5	50	0.95
ESD02015105	R0.1	1.5	4	1.0	5	50	1.45
ESD02015108	R0.1	1.5	4	1.0	8	50	1.45
ESD02015205	R0.2	1.5	4	1.0	5	50	1.45
ESD02015208	R0.2	1.5	4	1.0	8	50	1.45
ESD02020106	R0.1	2.0	4	1.2	6	50	1.95
ESD02020100	R0.1	2.0	4	1.2	10	50	1.95
ESD02020206	R0.2	2.0	4	1.2	6	50	1.95
ESD02020200	R0.2	2.0	4	1.2	10	50	1.95

Corner Radius(mm)	Shank Dia. Tolerance
± 0.005	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎		◎

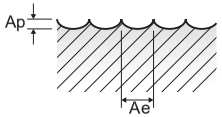
CBN END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

ESB94 SERIES — 2 FLUTE BALL NOSE

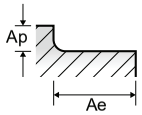
Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.4	0.5	0.6	0.8	1.0	1.2	1.5	2.0	3.0
H	38	Hardened steel	0.5D	0.2R	Vc	65	80	95	125	155	190	235	250	250
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04
					RPM	51725	50930	50399	49736	49338	50399	49869	39789	26526
					FEED	1241	1528	2016	1989	2960	3024	2992	3183	2122
	39.1		0.5D	0.1R	Vc	65	80	95	125	155	190	235	250	250
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04
					RPM	51725	50930	50399	49736	49338	50399	49869	39789	26526
					FEED	1241	1528	2016	1989	2960	3024	2992	3183	2122
	39.2		0.5D	0.1R	Vc	65	80	95	125	155	190	235	200	205
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.039	0.04
					RPM	51725	50930	50399	49736	49338	50399	49869	31831	21751
					FEED	1241	1528	2016	1989	2960	3024	2992	2483	1740
	39.3		R0.2~R0.4= 0.005mm R0.5~R1.5= 0.01mm	R0.2~R0.4= 0.005mm R0.5~R1.5= 0.01mm	Vc	65	80	95	125	155	190	235	200	205
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.039	0.04
					RPM	51725	50930	50399	49736	49338	50399	49869	31831	21751
					FEED	1241	1528	2016	1989	2960	3024	2992	2483	1740
	41	Hardened Cast Iron	0.5D	0.2R	Vc	65	80	95	125	155	190	235	250	250
					fz	0.012	0.015	0.02	0.02	0.03	0.03	0.03	0.04	0.04
					RPM	51725	50930	50399	49736	49338	50399	49869	39789	26526
					FEED	1241	1528	2016	1989	2960	3024	2992	3183	2122



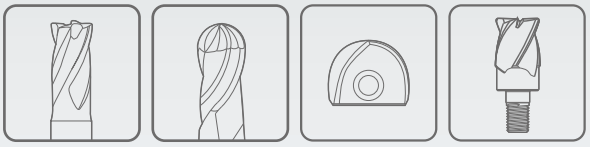
ESD02 SERIES — 2 FLUTE CORNER RADIUS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 0.5	1.0	1.5	2.0
H	38 - 39.1	Hardened steel	Vc	80	135	140	140
			fz	0.007	0.012	0.017	0.02
			RPM	50930	42972	29709	22282
			FEED	713	1031	1010	891
			Ae	0.1	0.2	0.4	0.6
			Ap	0.01	0.01	0.02	0.03
	39.2 - 39.3		Vc	80	95	90	90
			fz	0.006	0.012	0.018	0.029
			RPM	50930	30239	19099	14324
			FEED	611	726	688	831
			Ae	0.06	0.1	0.2	0.3
			Ap	0.005	0.01	0.02	0.03
	41	Hardened Cast Iron	Vc	80	135	140	140
			fz	0.007	0.012	0.017	0.02
			RPM	50930	42972	29709	22282
			FEED	713	1031	1010	891
			Ae	0.1	0.2	0.4	0.6
			Ap	0.01	0.01	0.02	0.03



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

CARBIDE INSERT & HOLDER

i-Xmill END MILLS

i-Xmills, HM-Wendeplatten Fräser

- **Various Applications Type of Inserts Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steels and Graphite**
- **Für die verschiedensten Anwendungen sind Wendeplatten verfügbar, für allgemeine Stähle, vorgehärtete Stähle, hochgehärtete Stähle, rostfreie Stähle und Graphit**

SELECTION GUIDE

YG MILLING TOOLS

CARBIDE INSERT & HOLDER i-Xmill END MILLS

Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steel and Graphite

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C60

SERIES	XMB110A	XMB120C	XMB260T	XMB130A
FLUTE	2	2	2	2
HELIX ANGLE	-	-	-	-
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R4.0	R4.0	R4.0	R4.0
SIZE MAX	R16.5	R16.5	R16.5	R16.5
PAGE	C42	C42	C42	C43
	-	-	-	-
	AlTiN	X-Coating	Z-Coating	AlTiN
	GENERAL PURPOSE	PRE-HARDENED STEELS	HIGH HARDENED STEELS	STAINLESS STEELS

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	XMB110A	XMB120C	XMB260T	XMB130A
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎			
	2		About 0.45% C	Annealed	190	13	◎			
	3		About 0.45% C	Quenched & Tempered	250	25	◎			
	4		About 0.75% C	Annealed	270	28	◎			
	5		About 0.75% C	Quenched & Tempered	300	32	◎			
	6	Low alloy steel		Annealed	180	10	◎			
	7			Quenched & Tempered	275	29	◎			
	8			Quenched & Tempered	300	32	◎			
	9			Quenched & Tempered	350	38		◎		
	10	High alloyed steel, and tool steel		Annealed	200	15		○		
	11			Quenched & Tempered	325	35		◎		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				◎
	13		Martensitic	Quenched & Tempered	240	23				◎
	14		Austenitic		180	10				◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10		◎		
	16		Pearlitic (Martensitic)		260	26		◎		
	17	Nodular cast iron	Ferritic		160	3		◎		
	18		Pearlitic		250	25		◎		
	19	Malleable cast iron	Ferritic		130			◎		
	20		Pearlitic		230	21		◎		
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55		○	◎	
	39			Hardened	630	60			◎	
	40	Chilled Cast Iron		Cast	400	42			○	
	41	Hardened Cast Iron		Hardened	550	55			◎	

XMM110V	XMB110D	XMR110A	XMR120C	XMR260T	XMF110V	XMR110D	ZBC	ZBS	ZBT	ZRC	ZRS	ZRT
2	2	2	2	2	2	2	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
R4.0	R4.0	D8.0	D8.0	D8.0	D8.0	D8.0	-	-	-	-	-	-
R16.5	R16.5	D33.0	D33.0	D33.0	D33.0	D33.0	-	-	-	-	-	-
C43	C43	C44	C44	C44	C49	C49	C54	C55	C56	C57	C58	C58
FULL RADIUS	-	-	-	-	HIGH FEED	-	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK	STRAIGHT NECK	STRAIGHT NECK	TAPER NECK
Y-Coating	Diamond	AlTiN	X-Coating	Z-Coating	Y-Coating	Diamond	Carbide	Steel	Steel	Carbide	Steel	Steel
GENERAL PURPOSE	GRAPHITE	GENERAL PURPOSE STAINLESS STEELS	PRE-HARDENED STEELS	HIGH HARDENED STEELS	GENERAL PURPOSE	GRAPHITE						

ISO	VDI 3323	XMM110V	XMB110D	XMR110A	XMR120C	XMR260T	XMF110V	XMR110D	ZBC	ZBS	ZBT	ZRC	ZRS	ZRT
P	1	◎		◎			◎							
	2	◎		◎			◎							
	3	◎		◎			◎							
	4	◎		◎			◎							
	5			◎			◎							
	6	◎		◎			◎							
	7	◎		◎			◎							
	8			◎										
	9				◎									
	10	◎			○		◎							
	11				◎									
M	12			◎										
	13			◎										
	14			◎										
K	15				◎									
	16				◎									
	17				◎									
	18				◎									
	19				◎									
	20				◎									
N	21		○					○						
	22		○					○						
	23		○					○						
	24		○					○						
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	29		◎					◎						
	30													
S	31													
	32													
	33													
	34													
	35													
	36													
	37													
H	38				○	◎								
	39					◎								
	40					○								
	41					◎								

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
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CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Xmill END MILLS

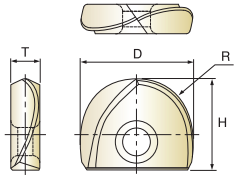
XMB110A SERIES
XMB120C SERIES
XMB260T SERIES

i-Xmill BALL INSERTS

i-Xmill WECHSELPLATTE mit RUNDER STIRN
i-Xmill - Plaquette hémisphérique
i-Xmill Placca emisferica

- ▶Indexable Ball End Mill for economic use
- ▶Three Types of Inserts are available
  - For General Purpose (~HRc50)
  - For Hardened Material (HRc40~HRc65)
  - For Graphite
- ▶Special Geometry and Coating for Excellent Performance

- ▶ Kopierfräser mit Wechselplatte für wirtschaftlichen Einsatz.
- ▶ Drei Typen von Schneideinsätzen lieferbar
  - Für allgemeinen Einsatz (HRc50)
  - Für gehärtete Materialien (HRc40~HRc65)
  - Für graphit
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu



cutting conditions : p.C60

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.			Radius of Ball Nose	Mill Diameter	Height	Thickness
AlTiN	X-Coating	Z-Coating				
For General Purpose	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMB110A080	XMB120C080	XMB260T080	R4.0	8.0	8.0	2.4
XMB110A100	XMB120C100	XMB260T100	R5.0	10.0	9.5	2.7
XMB110A110	XMB120C110	XMB260T110	R5.5	11.0	10.0	2.7
XMB110A120	XMB120C120	XMB260T120	R6.0	12.0	11.0	3.2
XMB110A130	XMB120C130	XMB260T130	R6.5	13.0	11.5	3.2
XMB110A160	XMB120C160	XMB260T160	R8.0	16.0	13.0	4.2
XMB110A170	XMB120C170	XMB260T170	R8.5	17.0	13.5	4.2
XMB110A200	XMB120C200	XMB260T200	R10.0	20.0	16.0	5.2
XMB110A210	XMB120C210	XMB260T210	R10.5	21.0	16.5	5.2
XMB110A250	XMB120C250	XMB260T250	R12.5	25.0	19.5	6.2
XMB110A260	XMB120C260	XMB260T260	R13.0	26.0	20.0	6.2
XMB110A300	XMB120C300	XMB260T300	R15.0	30.0	23.5	7.2
XMB110A320	XMB120C320	XMB260T320	R16.0	32.0	24.5	7.2
XMB110A330	XMB120C330	XMB260T330	R16.5	33.0	25.0	7.2

▶ The ball radius tolerance is ±0.01mm and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMB110A	◎	◎	◎	◎	◎	◎	◎	◎												
XMB120C									◎	○	◎				◎	◎	◎	◎	◎	◎
XMB260T																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMB110A																					
XMB120C																		○			
XMB260T																		◎	◎	○	◎

i-Xmill END MILLS

XMB130A SERIES
XMM110V SERIES
XMB110D SERIES

i-Xmill BALL INSERTS

i-Xmill WECHSELPLATTE mit RUNDER STIRN
i-Xmill - Plaquette hémisphérique
i-Xmill Placca emisferica

- ▶Indexable Ball End Mill for economic use
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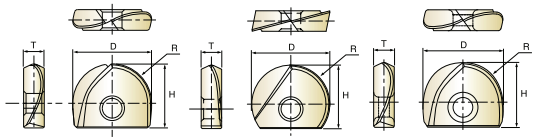
  - Für allgemeinen Einsatz (HRc50)
  - Für gehärtete Materialien (HRc40~HRc65)
  - Für graphit
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu



for Stainless Steels **Full Radius Type** (Cutting Angle : 220˚) **for graphite**

cutting conditions : p.C60

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.			Radius of Ball Nose	Mill Diameter	Height	Thickness
AlTiN	Y-Coating	Diamond				
For Stainless Steels	For General Purpose Full Radius Type	For Graphite	R	D	H	T
XMB130A080	XMM110V080	XMB110D080	R4.0	8.0	8.0	2.4
XMB130A100	XMM110V100	XMB110D100	R5.0	10.0	9.5	2.7
XMB130A110	XMM110V110	XMB110D110	R5.5	11.0	10.0	2.7
XMB130A120	XMM110V120	XMB110D120	R6.0	12.0	11.0	3.2
XMB130A130	XMM110V130	XMB110D130	R6.5	13.0	11.5	3.2
XMB130A160	XMM110V160	XMB110D160	R8.0	16.0	13.0	4.2
XMB130A170	XMM110V170	XMB110D170	R8.5	17.0	13.5	4.2
XMB130A200	XMM110V200	XMB110D200	R10.0	20.0	16.0	5.2
XMB130A210	XMM110V210	XMB110D210	R10.5	21.0	16.5	5.2
XMB130A250	XMM110V250	XMB110D250	R12.5	25.0	19.5	6.2
XMB130A260	XMM110V260	XMB110D260	R13.0	26.0	20.0	6.2
XMB130A300	XMM110V300	XMB110D300	R15.0	30.0	23.5	7.2
XMB130A320	XMM110V320	XMB110D320	R16.0	32.0	24.5	7.2
XMB130A330	XMM110V330	XMB110D330	R16.5	33.0	25.0	7.2

▶ The ball radius tolerance is ±0.01mm and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMB130A												◎	◎	◎						
XMM110V	◎	◎	◎	◎		◎	◎			◎										
XMB110D																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMB130A																					
XMM110V																					
XMB110D	○	○	○	○					◎												

i-Xmill END MILLS

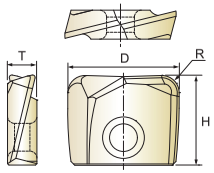
XMR110A SERIES
XMR120C SERIES
XMR260T SERIES

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
INSERTI IN MD, TORICI

- The optimized geometry of the tool achieves better reliability and less vibration and cutting load.
- Interchangeable with i-Xmill ball holder, but precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- The varied and wide cutting range makes it possible to machine from roughing through to finishing.
- Special coating makes high hardness with high thermal stability against oxidation.

- Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

cutting conditions : p.C62

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AlTiN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A080 03	XMR120C080 03	XMR260T080 03	R0.3	8.0	8.0	2.4
XMR110A080 05	XMR120C080 05	XMR260T080 05	R0.5	8.0	8.0	2.4
XMR110A080 10	XMR120C080 10	XMR260T080 10	R1.0	8.0	8.0	2.4
XMR110A080 20	XMR120C080 20	XMR260T080 20	R2.0	8.0	8.0	2.4
XMR110A100 03	XMR120C100 03	XMR260T100 03	R0.3	10.0	9.5	2.7
XMR110A100 05	XMR120C100 05	XMR260T100 05	R0.5	10.0	9.5	2.7
XMR110A100 10	XMR120C100 10	XMR260T100 10	R1.0	10.0	9.5	2.7
XMR110A100 15	XMR120C100 15	XMR260T100 15	R1.5	10.0	9.5	2.7
XMR110A100 20	XMR120C100 20	XMR260T100 20	R2.0	10.0	9.5	2.7
XMR110A100 30	XMR120C100 30	XMR260T100 30	R3.0	10.0	9.5	2.7
XMR110A110 03	XMR120C110 03	XMR260T110 03	R0.3	11.0	9.5	2.7
XMR110A110 05	XMR120C110 05	XMR260T110 05	R0.5	11.0	9.5	2.7
XMR110A110 10	XMR120C110 10	XMR260T110 10	R1.0	11.0	9.5	2.7
XMR110A110 15	XMR120C110 15	XMR260T110 15	R1.5	11.0	9.5	2.7
XMR110A110 20	XMR120C110 20	XMR260T110 20	R2.0	11.0	9.5	2.7
XMR110A110 30	XMR120C110 30	XMR260T110 30	R3.0	11.0	9.5	2.7

- The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

◎ : Excellent ○ : Good

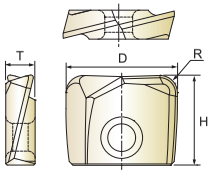
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎						
XMR120C									◎	○	◎				◎	◎	◎	◎	◎	◎
XMR260T																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMR110A																					
XMR120C																		○			
XMR260T																		◎	◎	○	◎

YG i-Xmill END MILLS
XMR110A SERIES
XMR120C SERIES
XMR260T SERIES
i-Xmill CORNER RADIUS INSERT
i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
INSERTI IN MD, TORICI

- The optimum geometry of the tool to achieve better reliability and less vibration and cutting load.
- Interchangeable with i-Xmill ball holder, but precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- The varied and wide cutting range makes it possible to machine from roughing through to finishing.
- Special coating makes high hardness with high thermal stability against oxidation.

- Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

cutting conditions : p.C62

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AlTiN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A120 03	XMR120C120 03	XMR260T120 03	R0.3	12.0	11.0	3.2
XMR110A120 05	XMR120C120 05	XMR260T120 05	R0.5	12.0	11.0	3.2
XMR110A120 10	XMR120C120 10	XMR260T120 10	R1.0	12.0	11.0	3.2
XMR110A120 15	XMR120C120 15	XMR260T120 15	R1.5	12.0	11.0	3.2
XMR110A120 20	XMR120C120 20	XMR260T120 20	R2.0	12.0	11.0	3.2
XMR110A120 30	XMR120C120 30	XMR260T120 30	R3.0	12.0	11.0	3.2
XMR110A130 03	XMR120C130 03	XMR260T130 03	R0.3	13.0	11.2	3.2
XMR110A130 05	XMR120C130 05	XMR260T130 05	R0.5	13.0	11.2	3.2
XMR110A130 10	XMR120C130 10	XMR260T130 10	R1.0	13.0	11.2	3.2
XMR110A130 15	XMR120C130 15	XMR260T130 15	R1.5	13.0	11.2	3.2
XMR110A130 20	XMR120C130 20	XMR260T130 20	R2.0	13.0	11.2	3.2
XMR110A130 30	XMR120C130 30	XMR260T130 30	R3.0	13.0	11.2	3.2
XMR110A160 03	XMR120C160 03	XMR260T160 03	R0.3	16.0	13.0	4.2
XMR110A160 05	XMR120C160 05	XMR260T160 05	R0.5	16.0	13.0	4.2
XMR110A160 10	XMR120C160 10	XMR260T160 10	R1.0	16.0	13.0	4.2
XMR110A160 15	XMR120C160 15	XMR260T160 15	R1.5	16.0	13.0	4.2
XMR110A160 20	XMR120C160 20	XMR260T160 20	R2.0	16.0	13.0	4.2
XMR110A160 30	XMR120C160 30	XMR260T160 30	R3.0	16.0	13.0	4.2

- The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎						
XMR120C									◎	◎	◎				◎	◎	◎	◎	◎	◎
XMR260T																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMR110A																					
XMR120C																		○			
XMR260T																		◎	◎	○	◎

i-Xmill END MILLS

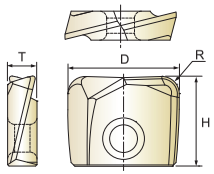
XMR110A SERIES
XMR120C SERIES
XMR260T SERIES

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
INSERTI IN MD, TORICI

- ▶ The optimized geometry of the tool achieves better reliability and less vibration and cutting load.
- ▶ Interchangeable with i-Xmill ball holder, but precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The varied and wide cutting range makes it possible to machine from roughing through to finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



cutting conditions : p.C62

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AlTiN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A170 03	XMR120C170 03	XMR260T170 03	R0.3	17.0	13.0	4.2
XMR110A170 05	XMR120C170 05	XMR260T170 05	R0.5	17.0	13.0	4.2
XMR110A170 10	XMR120C170 10	XMR260T170 10	R1.0	17.0	13.0	4.2
XMR110A170 15	XMR120C170 15	XMR260T170 15	R1.5	17.0	13.0	4.2
XMR110A170 20	XMR120C170 20	XMR260T170 20	R2.0	17.0	13.0	4.2
XMR110A170 30	XMR120C170 30	XMR260T170 30	R3.0	17.0	13.0	4.2
XMR110A200 03	XMR120C200 03	XMR260T200 03	R0.3	20.0	16.0	5.2
XMR110A200 05	XMR120C200 05	XMR260T200 05	R0.5	20.0	16.0	5.2
XMR110A200 10	XMR120C200 10	XMR260T200 10	R1.0	20.0	16.0	5.2
XMR110A200 15	XMR120C200 15	XMR260T200 15	R1.5	20.0	16.0	5.2
XMR110A200 20	XMR120C200 20	XMR260T200 20	R2.0	20.0	16.0	5.2
XMR110A200 30	XMR120C200 30	XMR260T200 30	R3.0	20.0	16.0	5.2
XMR110A210 03	XMR120C210 03	XMR260T210 03	R0.3	21.0	16.0	5.2
XMR110A210 05	XMR120C210 05	XMR260T210 05	R0.5	21.0	16.0	5.2
XMR110A210 10	XMR120C210 10	XMR260T210 10	R1.0	21.0	16.0	5.2
XMR110A210 15	XMR120C210 15	XMR260T210 15	R1.5	21.0	16.0	5.2
XMR110A210 20	XMR120C210 20	XMR260T210 20	R2.0	21.0	16.0	5.2
XMR110A210 30	XMR120C210 30	XMR260T210 30	R3.0	21.0	16.0	5.2

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎						
XMR120C									◎	○	◎				◎	◎	◎	◎	◎	◎
XMR260T																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMR110A																					
XMR120C																		○			
XMR260T																		◎	◎	○	◎

i-Xmill END MILLS
XMR110A SERIES
XMR120C SERIES
XMR260T SERIES
i-Xmill CORNER RADIUS INSERT
i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
INSERTI IN MD, TORICI
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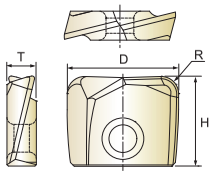

cutting conditions : p.C62

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AlTiN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T

XMR110A250 03	XMR120C250 03	XMR260T250 03	R0.3	25.0	19.5	6.2
XMR110A250 05	XMR120C250 05	XMR260T250 05	R0.5	25.0	19.5	6.2
XMR110A250 10	XMR120C250 10	XMR260T250 10	R1.0	25.0	19.5	6.2
XMR110A250 15	XMR120C250 15	XMR260T250 15	R1.5	25.0	19.5	6.2
XMR110A250 20	XMR120C250 20	XMR260T250 20	R2.0	25.0	19.5	6.2
XMR110A250 30	XMR120C250 30	XMR260T250 30	R3.0	25.0	19.5	6.2
XMR110A260 03	XMR120C260 03	XMR260T260 03	R0.3	26.0	19.5	6.2
XMR110A260 05	XMR120C260 05	XMR260T260 05	R0.5	26.0	19.5	6.2
XMR110A260 10	XMR120C260 10	XMR260T260 10	R1.0	26.0	19.5	6.2
XMR110A260 15	XMR120C260 15	XMR260T260 15	R1.5	26.0	19.5	6.2
XMR110A260 20	XMR120C260 20	XMR260T260 20	R2.0	26.0	19.5	6.2
XMR110A260 30	XMR120C260 30	XMR260T260 30	R3.0	26.0	19.5	6.2
XMR110A300 03	XMR120C300 03	XMR260T300 03	R0.3	30.0	23.5	7.2
XMR110A300 05	XMR120C300 05	XMR260T300 05	R0.5	30.0	23.5	7.2
XMR110A300 10	XMR120C300 10	XMR260T300 10	R1.0	30.0	23.5	7.2
XMR110A300 15	XMR120C300 15	XMR260T300 15	R1.5	30.0	23.5	7.2
XMR110A300 20	XMR120C300 20	XMR260T300 20	R2.0	30.0	23.5	7.2
XMR110A300 30	XMR120C300 30	XMR260T300 30	R3.0	30.0	23.5	7.2

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎		○		◎	◎	◎						
XMR120C									◎	◎	◎				◎	◎	◎	◎	◎	◎
XMR260T																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMR110A																					
XMR120C																		○			
XMR260T																		◎	◎	○	◎

i-Xmill END MILLS

XMR110A SERIES
XMR120C SERIES
XMR260T SERIES

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
INSERTI IN MD, TORICI

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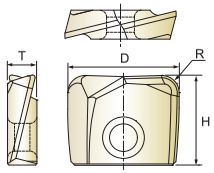

cutting conditions : p.C62

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
AlTiN	X-Coating	Z-Coating				
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A320 03	XMR120C320 03	XMR260T320 03	R0.3	32.0	23.5	7.2
XMR110A320 05	XMR120C320 05	XMR260T320 05	R0.5	32.0	23.5	7.2
XMR110A320 10	XMR120C320 10	XMR260T320 10	R1.0	32.0	23.5	7.2
XMR110A320 15	XMR120C320 15	XMR260T320 15	R1.5	32.0	23.5	7.2
XMR110A320 20	XMR120C320 20	XMR260T320 20	R2.0	32.0	23.5	7.2
XMR110A320 30	XMR120C320 30	XMR260T320 30	R3.0	32.0	23.5	7.2
XMR110A330 03	XMR120C330 03	XMR260T330 03	R0.3	33.0	23.5	7.2
XMR110A330 05	XMR120C330 05	XMR260T330 05	R0.5	33.0	23.5	7.2
XMR110A330 10	XMR120C330 10	XMR260T330 10	R1.0	33.0	23.5	7.2
XMR110A330 15	XMR120C330 15	XMR260T330 15	R1.5	33.0	23.5	7.2
XMR110A330 20	XMR120C330 20	XMR260T330 20	R2.0	33.0	23.5	7.2
XMR110A330 30	XMR120C330 30	XMR260T330 30	R3.0	33.0	23.5	7.2

▶ The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMR110A	◎	◎	◎	◎	◎	◎	◎	◎				◎	◎	◎						
XMR120C									◎	○	◎				◎	◎	◎	◎	◎	◎
XMR260T																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMR110A																					
XMR120C																		○			
XMR260T																		◎	◎	○	◎

i-Xmill END MILLS

XMF110V SERIES
XMR110D SERIES

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill Plaquette Torique AVEC RAYON de coupe frontale
INSERTI IN MD, TORICI & TORICI HIGH FEED

- ▶ The optimized geometry of the tool achieves better reliability and less vibration and cutting load.
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- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
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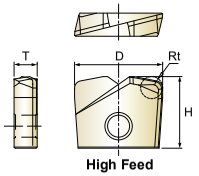

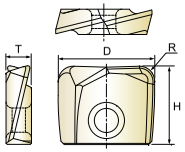

cutting conditions : p.C63

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D080 03	R0.3	8.0	8.0	2.4	0.4
-	XMR110D080 05	R0.5	8.0	8.0	2.4	0.4
XMF110V080 08	-	R0.8	8.0	8.0	2.4	0.4
-	XMR110D080 10	R1.0	8.0	8.0	2.4	0.4
-	XMR110D080 20	R2.0	8.0	8.0	2.4	0.4
-	XMR110D100 03	R0.3	10.0	9.5	2.7	0.5
-	XMR110D100 05	R0.5	10.0	9.5	2.7	0.5
XMF110V100 10	XMR110D100 10	R1.0	10.0	9.5	2.7	0.5
-	XMR110D100 15	R1.5	10.0	9.5	2.7	0.5
-	XMR110D100 20	R2.0	10.0	9.5	2.7	0.5
-	XMR110D100 30	R3.0	10.0	9.5	2.7	0.5
-	XMR110D110 03	R0.3	11.0	9.5	2.7	0.5
-	XMR110D110 05	R0.5	11.0	9.5	2.7	0.5
XMF110V110 10	XMR110D110 10	R1.0	11.0	9.5	2.7	0.5
-	XMR110D110 15	R1.5	11.0	9.5	2.7	0.5
-	XMR110D110 20	R2.0	11.0	9.5	2.7	0.5
-	XMR110D110 30	R3.0	11.0	9.5	2.7	0.5

▶ The corner radius tolerance is ±0.015mm(Rt tolerance is ±0.05mm) and the set-up accuracy is ±0.02mm.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎			◎										
XMR110D																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V																					
XMR110D	○	○	○	○					◎												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

YG i-Xmill END MILLS

XMF110V SERIES
XMR110D SERIES

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill Plaquette Torique AVEC RAYON de coupe frontale
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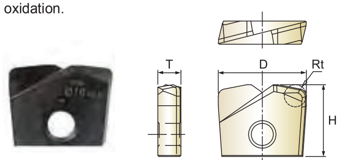
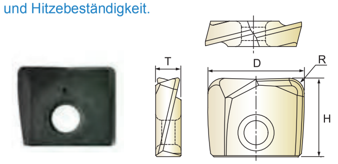


High Feed



cutting conditions : p.C63

Recommended ToolHolder	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D120 03	R0.3	12.0	11.0	2.7	0.6
-	XMR110D120 05	R0.5	12.0	11.0	2.7	0.6
XMF110V120 10	XMR110D120 10	R1.0	12.0	11.0	2.7	0.6
-	XMR110D120 15	R1.5	12.0	11.0	2.7	0.6
-	XMR110D120 20	R2.0	12.0	11.0	2.7	0.6
-	XMR110D120 30	R3.0	12.0	11.0	2.7	0.6
-	XMR110D130 03	R0.3	13.0	11.2	2.7	0.6
-	XMR110D130 05	R0.5	13.0	11.2	2.7	0.6
XMF110V130 10	XMR110D130 10	R1.0	13.0	11.2	2.7	0.6
-	XMR110D130 15	R1.5	13.0	11.2	2.7	0.6
-	XMR110D130 20	R2.0	13.0	11.2	2.7	0.6
-	XMR110D130 30	R3.0	13.0	11.2	2.7	0.6
-	XMR110D160 03	R0.3	16.0	13.0	4.2	0.8
-	XMR110D160 05	R0.5	16.0	13.0	4.2	0.8
-	XMR110D160 10	R1.0	16.0	13.0	4.2	0.8
XMF110V160 15	XMR110D160 15	R1.5	16.0	13.0	4.2	0.8
-	XMR110D160 20	R2.0	16.0	13.0	4.2	0.8
-	XMR110D160 30	R3.0	16.0	13.0	4.2	0.8

▶ The corner radius tolerance is ±0.015mm(Rt tolerance is ±0.05mm) and the set-up accuracy is ±0.02mm.

▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎			◎										
XMR110D																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V																					
XMR110D	○	○	○	○					◎												

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YG i-Xmill END MILLS

XMF110V SERIES
XMR110D SERIES

i-Xmill CORNER RADIUS INSERT

i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill Plaquette Torique AVEC RAYON de coupe frontale
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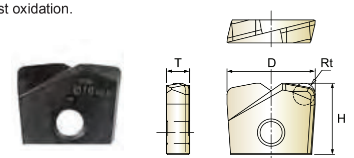
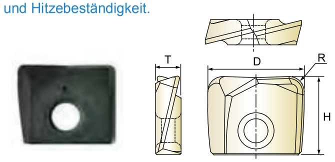


High Feed



cutting conditions : p.C63

Recommended ToolHolder	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D170 03	R0.3	17.0	13.0	4.2	0.8
-	XMR110D170 05	R0.5	17.0	13.0	4.2	0.8
-	XMR110D170 10	R1.0	17.0	13.0	4.2	0.8
XMF110V170 15	XMR110D170 15	R1.5	17.0	13.0	4.2	0.8
-	XMR110D170 20	R2.0	17.0	13.0	4.2	0.8
-	XMR110D170 30	R3.0	17.0	13.0	4.2	0.8
-	XMR110D200 03	R0.3	20.0	16.0	5.2	1.0
-	XMR110D200 05	R0.5	20.0	16.0	5.2	1.0
-	XMR110D200 10	R1.0	20.0	16.0	5.2	1.0
-	XMR110D200 15	R1.5	20.0	16.0	5.2	1.0
XMF110V200 20	XMR110D200 20	R2.0	20.0	16.0	5.2	1.0
-	XMR110D200 30	R3.0	20.0	16.0	5.2	1.0
-	XMR110D210 03	R0.3	21.0	16.0	5.2	1.0
-	XMR110D210 05	R0.5	21.0	16.0	5.2	1.0
-	XMR110D210 10	R1.0	21.0	16.0	5.2	1.0
-	XMR110D210 15	R1.5	21.0	16.0	5.2	1.0
XMF110V210 20	XMR110D210 20	R2.0	21.0	16.0	5.2	1.0
-	XMR110D210 30	R3.0	21.0	16.0	5.2	1.0

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▶NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎			◎										
XMR110D																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V																					
XMR110D	○	○	○	○					◎												

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YG i-Xmill END MILLS

XMF110V SERIES
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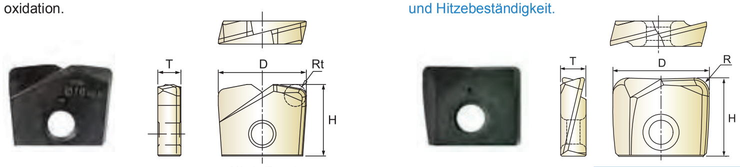

cutting conditions : p.C63

Recommended ToolHolder	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D250 03	R0.3	25.0	19.5	6.2	1.25
-	XMR110D250 05	R0.5	25.0	19.5	6.2	1.25
-	XMR110D250 10	R1.0	25.0	19.5	6.2	1.25
-	XMR110D250 15	R1.5	25.0	19.5	6.2	1.25
-	XMR110D250 20	R2.0	25.0	19.5	6.2	1.25
XMF110V250 25	-	R2.5	25.0	19.5	6.2	1.25
-	XMR110D250 30	R3.0	25.0	19.5	6.2	1.25
-	XMR110D260 03	R0.3	26.0	19.5	6.2	1.25
-	XMR110D260 05	R0.5	26.0	19.5	6.2	1.25
-	XMR110D260 10	R1.0	26.0	19.5	6.2	1.25
-	XMR110D260 15	R1.5	26.0	19.5	6.2	1.25
-	XMR110D260 20	R2.0	26.0	19.5	6.2	1.25
XMF110V260 25	-	R2.5	26.0	19.5	6.2	1.25
-	XMR110D260 30	R3.0	26.0	19.5	6.2	1.25
-	XMR110D300 03	R0.3	30.0	23.5	7.2	1.6
-	XMR110D300 05	R0.5	30.0	23.5	7.2	1.6
-	XMR110D300 10	R1.0	30.0	23.5	7.2	1.6
-	XMR110D300 15	R1.5	30.0	23.5	7.2	1.6
-	XMR110D300 20	R2.0	30.0	23.5	7.2	1.6
XMF110V300 30	XMR110D300 30	R3.0	30.0	23.5	7.2	1.6

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▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎			◎										
XMR110D																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V																					
XMR110D	○	○	○	○					◎												

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YG YG-1 CO., LTD.

CARBIDE
HSS

YG i-Xmill END MILLS

XMF110V SERIES
XMR110D SERIES

i-Xmill CORNER RADIUS INSERT

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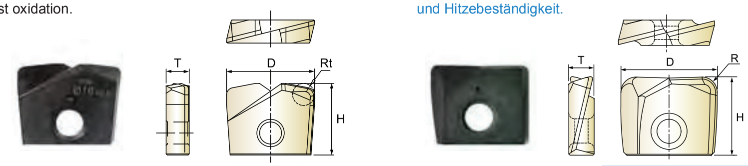
INSERTI IN MD, TORICI & TORICI HIGH FEED

- The optimized geometry of the tool achieves better reliability and less vibration and cutting load.
- Interchangeable with i-Xmill ball holder, but precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- The varied and wide cutting range makes it possible to machine from roughing through to finishing.
- Special coating makes high hardness with high thermal stability against oxidation.

- Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



cutting conditions : p.C63

Recommended ToolHolder	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
Y-Coating	Diamond					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D320 03	R0.3	32.0	23.5	7.2	1.6
-	XMR110D320 05	R0.5	32.0	23.5	7.2	1.6
-	XMR110D320 10	R1.0	32.0	23.5	7.2	1.6
-	XMR110D320 15	R1.5	32.0	23.5	7.2	1.6
-	XMR110D320 20	R2.0	32.0	23.5	7.2	1.6
-	XMR110D320 30	R3.0	32.0	23.5	7.2	1.6
XMF110V320 32	XMR110D320 32	R3.2	32.0	23.5	7.2	1.6
-	XMR110D330 03	R0.3	33.0	23.5	7.2	1.6
-	XMR110D330 05	R0.5	33.0	23.5	7.2	1.6
-	XMR110D330 10	R1.0	33.0	23.5	7.2	1.6
-	XMR110D330 15	R1.5	33.0	23.5	7.2	1.6
-	XMR110D330 20	R2.0	33.0	23.5	7.2	1.6
-	XMR110D330 30	R3.0	33.0	23.5	7.2	1.6
XMF110V330 32	XMR110D330 32	R3.2	33.0	23.5	7.2	1.6

▶ The corner radius tolerance is ±0.015mm(Rt tolerance is ±0.05mm) and the set-up accuracy is ±0.02mm.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
XMF110V	◎	◎	◎	◎	◎	◎	◎			◎										
XMR110D																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
XMF110V																					
XMR110D	○	○	○	○					◎												

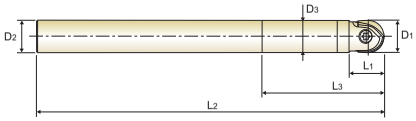
YG YG-1 CO., LTD.
phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

i-Xmill END MILLS

ZBC SERIES

i-Xmill CARBIDE BALL HOLDER - STRAIGHT NECK

i-Xmill HARTMETAL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT
Porte-plaquette i-Xmill en Carbure, entrée droite, pour plaquette à bout hémisphérique
CORPO FRESA IN MD PER INSERTI SEMISFERICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Neck Diameter D_3	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Length Type	Wrench No.	Screw No.
★ ZBC0801080	8	8	7.6	12	25	130	Regular	TWFT07	TX2508T07
★ ZBC0802080	8	8	7.6	12	40	130	Regular		
★ ZBC0803080	8	8	7.6	12	65	130	Regular		
ZBC0804080	8	8	7.6	12	60	150	Regular		
ZBC0805080	8	8	7.6	12	60	200	Long		
ZBC0806080	8	8	7.6	12	25	80	Short		
★ ZBC1001100	10, 11	10	9.5	15	30	140	Regular	TWFT08	TX3010T08
★ ZBC1002100	10, 11	10	9.5	15	50	140	Regular		
★ ZBC1003100	10, 11	10	9.5	15	75	140	Regular		
ZBC1004100	10, 11	10	9.5	15	60	180	Regular		
ZBC1005100	10, 11	10	9.5	15	60	200	Long		
ZBC1006100	10, 11	10	9.5	15	30	80	Short		
ZBC120001P	12, 13	12	11.4	17	40	200	Long	TWFT10	TX3512T10
★ ZBC1201120	12, 13	12	11.4	17	35	150	Regular		
★ ZBC1202120	12, 13	12	11.4	17	60	150	Regular		
★ ZBC1203120	12, 13	12	11.4	17	85	150	Regular		
ZBC1204120	12, 13	12	11.4	17	60	250	Long		
ZBC1205120	12, 13	12	11.4	17	35	100	Short		
ZBC160001P	16, 17	16	15.0	20	50	150	Regular	TWFT15	TX4016T15
★ ZBC1601160	16, 17	16	15.0	20	50	200	Long		
★ ZBC1602160	16, 17	16	15.0	20	80	200	Long		
★ ZBC1603160	16, 17	16	15.0	20	120	200	Long		
★ ZBC1604160	16, 17	16	15.0	20	80	250	Long		
ZBC1605160	16, 17	16	15.0	20	50	120	Short		
ZBC200002P	20, 21	20	19.0	25	60	150	Regular	● TWBT20	TX5020T20
★ ZBC2001200	20, 21	20	19.0	25	60	200	Regular		
★ ZBC2002200	20, 21	20	19.0	25	80	200	Regular		
★ ZBC2003200	20, 21	20	19.0	25	100	250	Long		
★ ZBC2004200	20, 21	20	19.0	25	150	250	Long		
ZBC2005200	20, 21	20	19.0	25	100	300	Long		
ZBC250001P	25, 26	25	24.0	30	75	150	Regular	● TWBT25	TX6025T25
★ ZBC2501250	25, 26	25	24.0	30	75	200	Regular		
★ ZBC2502250	25, 26	25	24.0	30	120	250	Regular		
★ ZBC2503250	25, 26	25	24.0	30	190	300	Long		
ZBC2504250	25, 26	25	24.0	30	120	350	Long		
ZBC2505250	25, 26	25	24.0	30	60	300	Long		
★ ZBC3001320	30, 32, 33	32	29.0	40	90	250	Regular	● TWBT30	TX8030T30
★ ZBC3002320	30, 32, 33	32	29.0	40	150	300	Long		
★ ZBC3003320	30, 32, 33	32	29.0	40	190	300	Long		
ZBC3004320	30, 32, 33	32	29.0	40	120	350	Long		
ZBC3005320	30, 32, 33	32	29.0	40	150	400	Long		

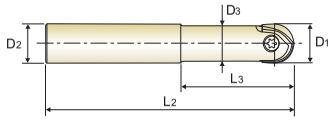
* Upon request, the broken holder is able to be regenerated
* Your carbide holder can be regenerated as YG-1 type upon request
* ● Required to use T-HANDLE (TWH600)
* ★Stock Item

i-Xmill END MILLS

ZBS SERIES

i-Xmill STEEL BALL HOLDER - STRAIGHT NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT
Porte-plaquette i-Xmill en acier, entrée droite, pour plaquette à bout hémisphérique
CORPO FRESA IN ACCIAIO PER INSERTI SEMISFERICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Neck Diameter D_3	Length Below Shank L_3	Overall Length L_2	Length Type	Wrench No.	Screw No.
★ ZBS1201120	12, 13	12	10.5	35	90	Short	TWFT10	TX3512T10
★ ZBS1202120	12, 13	12	10.5	55	110	Regular		
ZBS120001P	12, 13	12	10.5	40	150	Long		
★ ZBS1601160	16, 17	16	14.5	35	95	Short	TWFT15	TX4016T15
★ ZBS1602160	16, 17	16	14.5	65	125	Regular		
ZBS160001P	16, 17	16	14.5	60	200	Long		
★ ZBS2001200	20, 21	20	18.0	40	110	Short	● TWBT20	TX5020T20
★ ZBS2002200	20, 21	20	18.0	75	145	Regular		
ZBS200001P	20, 21	20	18.0	80	200	Long		
ZBS200002P	20, 21	20	18.0	60	200	Long		
★ ZBS2501250	25, 26	25	22.5	45	125	Short	● TWBT25	TX6025T25
★ ZBS2502250	25, 26	25	22.5	90	170	Regular		
ZBS2503250	25, 26	25	22.5	100	250	Long		
ZBS250001P	25, 26	25	22.5	90	200	Long		
ZBS250002P	25, 26	25	22.5	60	200	Long		
★ ZBS3001320	30, 32, 33	32	27.0	55	140	Short	● TWBT30	TX8030T30
★ ZBS3002320	30, 32, 33	32	27.0	110	195	Regular		
ZBS3004320	30, 32, 33	32	27.0	150	350	Long		
ZBS300001P	30, 32, 33	32	27.0	100	250	Long		

* ● Required to use T-HANDLE (TWH600)
* ★ Stock Item

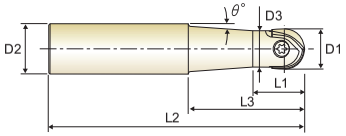
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Xmill END MILLS

ZBT SERIES

i-Xmill STEEL BALL HOLDER - TAPER NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit KONISCH ABGESETZTEM SCHAFTTEIL
Porte-plaquette i-Xmill en acier, entrée conique, pour plaquette à bout hémisphérique
CORPO FRESA IN ACCIAIO PER INSERTI SEMISFERICI i-Xmill - CONICO



Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Neck Diameter D_3	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Interference Angle θ°	Length Type	Wrench No.	Screw No.
★ ZBT0801120	8	12	7.2	12	35	90	4° 43′	Short	TWFT07	TX2508T07
★ ZBT0802120	8	12	7.2	25	55	110	3° 37′	Regular		
★ ZBT1001120	10, 11	12	9.0	15	35	90	2° 51′	Short	TWFT08	TX3010T08
★ ZBT1002120	10, 11	12	9.0	30	55	110	2° 17′	Regular		
★ ZBT1201160	12, 13	16	10.5	17	55	110	3° 23′	Short	TWFT10	TX3512T10
★ ZBT1601200	16, 17	20	14.5	20	65	125	2° 51′	Short	TWFT15	TX4016T15
ZBT1604200	16, 17	20	14.5	20	115	200	1° 22′	Regular		
★ ZBT2001250	20, 21	25	18.0	25	75	145	3° 26′	Short	●TWBT20	TX5020T20
ZBT2004250	20, 21	25	18.0	25	115	200	1° 55′	Regular		
ZBT2005250	20, 21	25	18.0	25	160	250	1° 17′	Long		
★ ZBT2501320	25, 26	32	22.5	30	90	170	4° 03′	Short	●TWBT25	TX6025T25
ZBT2504320	25, 26	32	22.5	30	160	250	1° 53′	Regular		
ZBT2505320	25, 26	32	22.5	30	190	300	1° 32′	Long		
★ ZBT3001320	30,32,33	32	27.0	40	110	195	1° 38′	Short	●TWBT30	TX8030T30
ZBT3004320	30,32,33	32	27.0	40	160	250	0° 58′	Regular		
ZBT3005320	30,32,33	32	27.0	40	190	300	0° 46′	Long		

* ● Required to use T-HANDLE (TWH600)
* ★ Stock Item

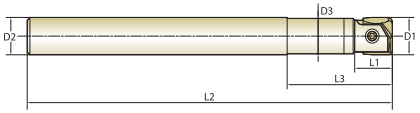
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Xmill END MILLS

ZRC SERIES

i-Xmill CARBIDE CORNER RADIUS HOLDER - STRAIGHT NECK

i-Xmill HARTMETAL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit GERADER SCHAFT
Porte-plaquette i-Xmill en Carbure, entrée droite, pour plaquette à bout torique
CORPO FRESA IN MD PER INSERTI TORICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Neck Diameter D_3	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Length Type	Wrench No.	Screw No.
★ ZRC0801080	8	8	7.6	12	25	130	Regular	TWFT07	TX2508T07
★ ZRC0802080	8	8	7.6	12	40	130	Regular		
★ ZRC0803080	8	8	7.6	12	65	130	Regular		
★ ZRC1001100	10	10	9.5	15	30	140	Regular	TWFT08	TX3010T08
★ ZRC1002100	10	10	9.5	15	50	140	Regular		
★ ZRC1003100	10	10	9.5	15	75	140	Regular		
★ ZRC1201120	12, 13	12	11.4	17	35	150	Regular	TWFT10	TX3512T10
★ ZRC1202120	12, 13	12	11.4	17	60	150	Regular		
★ ZRC1203120	12, 13	12	11.4	17	85	150	Regular		
★ ZRC1601160	16, 17	16	15.0	20	50	200	Long	TWFT15	TX4016T15
★ ZRC1602160	16, 17	16	15.0	20	80	200	Long		
★ ZRC1603160	16, 17	16	15.0	20	120	200	Long		
★ ZRC1604160	16, 17	16	15.0	20	80	250	Long		
★ ZRC2001200	20, 21	20	19.0	25	60	200	Regular	●TWBT20	TX5020T20
★ ZRC2002200	20, 21	20	19.0	25	80	250	Regular		
★ ZRC2003200	20, 21	20	19.0	25	100	250	Long		
★ ZRC2004200	20, 21	20	19.0	25	150	250	Long		
★ ZRC2501250	25, 26	25	24.0	30	75	200	Regular	●TWBT25	TX6025T25
★ ZRC2502250	25, 26	25	24.0	30	120	250	Regular		
★ ZRC2503250	25, 26	25	24.0	30	190	300	Long		
★ ZRC3001320	30,32,33	32	29.0	40	90	250	Regular	●TWBT30	TX8030T30
★ ZRC3002320	30,32,33	32	29.0	40	150	300	Long		
★ ZRC3003320	30,32,33	32	29.0	40	190	300	Long		

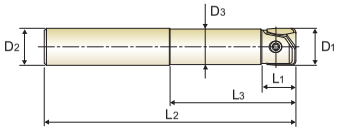
* ● Required to use T-HANDLE (TWH600)
* ★ Stock Item

i-Xmill END MILLS

ZRS SERIES

i-Xmill STEEL CORNER RADIUS HOLDER - STRAIGHT NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit GERADER SCHAFT
Porte-plaquette i-Xmill en acier, entrée droite, pour plaquette torique
CORPO FRESA IN ACCIAIO PER INSERTI TORICI i-Xmill - CILINDRICO



Unit : mm

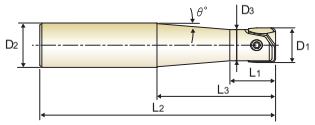
EDP No.	Mill Diameter D_1	Shank Diameter D_2	Neck Diameter D_3	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Length Type	Wrench No.	Screw No.
★ ZRS1201120	12, 13	12	11.0	13	30	110	Regular	TWFT10	TX3512T10
★ ZRS1601160	16, 17	16	15.0	15	50	130	Regular	TWFT15	TX4016T15
★ ZRS1602160	16, 17	16	15.0	15	65	165	Intermediate		
ZRS1603160	16, 17	16	15.0	15	65	200	Long		
★ ZRS2001200	20, 21	20	19.0	18	60	140	Regular	●TWBT20	TX5020T20
★ ZRS2002200	20, 21	20	19.0	18	80	180	Intermediate		
ZRS2003200	20, 21	20	19.0	18	80	250	Long		
★ ZRS2501250	25, 26	25	24.0	23	70	150	Regular	●TWBT25	TX6025T25
★ ZRS2502250	25, 26	25	24.0	23	90	200	Intermediate		
ZRS2503250	25, 26	25	24.0	23	90	300	Long		
★ ZRS3001320	30, 32, 33	32	29.0	27	80	160	Regular	●TWBT30	TX8030T30
★ ZRS3002320	30, 32, 33	32	29.0	27	100	220	Intermediate		
ZRS3003320	30, 32, 33	32	29.0	27	100	350	Long		

* ● Required to use T-HANDLE (TWH600)
* ★ Stock Item

ZRT SERIES

i-Xmill STEEL CORNER RADIUS HOLDER - TAPER NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit KONISCH ABGESETZTEM SCHAFTTEIL
Porte-plaquette i-Xmill en acier, entrée conique, pour plaquette torique
CORPO FRESA IN ACCIAIO PER INSERTI TORICI i-Xmill - CONICO

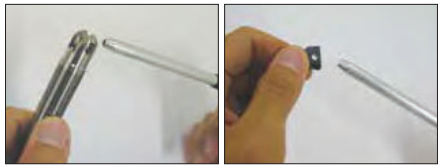


Unit : mm

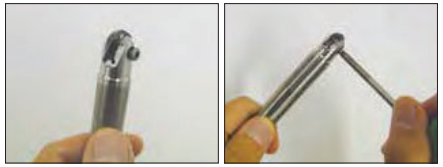
EDP No.	Mill Diameter D_1	Shank Diameter D_2	Neck Diameter D_3	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Interference Angle θ°	Length Type	Wrench No.	Screw No.
★ ZRT0801120	8	12	6.7	10	22	100	9°	Regular	TWFT07	TX2508T07
★ ZRT0802120	8	12	6.7	10	50	130	2° 43′	Long		
★ ZRT1001120	10, 11	12	8.6	13	25	100	4° 45′	Regular	TWFT08	TX3010T08
★ ZRT1002120	10, 11	12	8.6	13	50	150	1° 32′	Long		
★ ZRT1202160	12, 13	16	10.2	15	60	160	2° 32′	Long	TWFT10	TX3512T10

* ★ Stock Item

ASSEMBLY of i-Xmill
MONTAGE DES i-Xmill



▲ Make sure to clean the insert and insert seat.
Wechselplatte und Plattensitz sorgfältig reinigen.



▲ Slide the insert into the slot of the holder.
Tighten the screw using anti-seize compound.
Wechselplatte in den Sitz des Halters einf,hren.
Die Schraube fest anziehen und dabei Spezialfett verwenden

SIZE (ØD)	CLAMPING TORQUE [N·m]
Ø8.0	1.0
Ø10.0	1.5
Ø12.0, Ø13.0	2.5
Ø16.0, Ø17.0	3.5
Ø20.0, Ø21.0	5.0
Ø25.0, Ø26.0	6.0
Ø30.0, Ø32.0	6.5

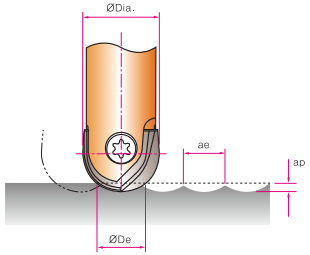
* When the screw is wom out, please change the a new screw.
* Wenn das Schraubengewinde verschlissen ist, bitte neue Schraube verwenden.
* Please tighten up the screw with recommended torque. (Please refer to the table)
* Die Feststellschraube mit dem empfohlenen Anzugsmoment anziehen (siehe Tabelle).
* Don't press down the insert, when the screw is tightened.
* Die Wechselplatte nicht nach unten dr,cken, wenn die Schraube angezogen ist.

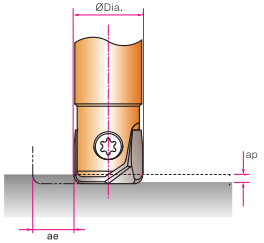
Wrench No.

WRENCH TYPE		PRODUCT NO.	T-HANDLE No.
WING TYPE		TWFT10	–
		TWFT15	–
TORX BIT TYPE		● TWBT20	TWH600
		● TWBT25	
		● TWBT30	

* ● Required to use T-HANDLE (TWH600)

CUTTING CONDITION
SCHNEIDKONDITIONEN





RPM = revolution per minute (rev/min)
Vc = surface meter per minute (M/min)
Dia. = diameter of insert (mm)
Vf = feed speed (mm/min)
f = feed per revolution (mm/rev)
De = effective tool diameter (mm)
ap = axial depth of cut (mm)
ae = radial depth of cut (mm)

$$Vc\ [M/min] = \frac{(RPM) \cdot (\pi) \cdot (Dia.)}{1000}$$

$$RPM\ [rev/min] = \frac{(Vc) \cdot (1000)}{(\pi) \cdot (Dia.)}$$

$$Vf\ [mm/min] = (RPM) \cdot (f)$$

$$De\ [mm] = 2\sqrt{(ap) \cdot (Dia. - ap)}$$

i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

XMB110A SERIES BALL INSERTS for GENERAL PURPOSE

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
P	1-4	Non-alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910
	5		Vc	120~280	120~300	120~350	120~380	120~420	120~480	120~550
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60
			RPM	4770~11140	3820~9550	3180~9280	2390~7560	1910~6680	1530~6110	1270~5840
			FEED	1910~4460	1530~3820	1270~3710	1190~4540	950~5350	760~6110	640~7000
	6-7	Low alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910
	8		Vc	120~280	120~300	120~350	120~380	120~420	120~480	120~550
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60
			RPM	4770~11140	3820~9550	3180~9280	2390~7560	1910~6680	1530~6110	1270~5840
			FEED	1910~4460	1530~3820	1270~3710	1190~4540	950~5350	760~6110	640~7000

XMB120C SERIES BALL INSERTS for PRE-HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
P	9-11	Low alloy steel High alloyed steel, and tool steel	Vc	100~220	100~260	100~280	100~350	100~400	100~450	100~500
			fz	0.15~0.20	0.15~0.20	0.15~0.20	0.20~0.30	0.20~0.40	0.20~0.50	0.20~0.60
			RPM	3980~8750	3180~8280	2650~7430	1990~6960	1590~6370	1270~5730	1060~5310
			FEED	1190~3500	950~3310	800~2970	800~4180	640~5090	510~5730	420~6370
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	160~320	160~360	160~400	160~500	160~550	160~620	160~720
			fz	0.30~0.30	0.30~0.30	0.30~0.30	0.35~0.40	0.35~0.40	0.35~0.50	0.35~0.60
			RPM	6370~12730	5090~11460	4240~10610	3180~9950	2550~8750	2040~7890	1700~7640
			FEED	3820~7640	3060~6880	2550~6370	2230~7960	1780~7000	1430~7890	1190~9170
H	38	Hardened steel	Vc	80~180	80~200	80~220	80~260	80~320	80~360	80~400
			fz	0.10~0.20	0.10~0.20	0.10~0.20	0.15~0.30	0.15~0.40	0.15~0.50	0.15~0.60
			RPM	3180~7160	2550~6370	2120~5840	1590~5170	1270~5090	1020~4580	850~4240
			FEED	640~2860	510~2550	420~2330	480~3100	380~4070	310~4580	250~5090

XMB260T SERIES BALL INSERTS for HIGH HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
H	38-41	Hardened steel	Vc	80~180	80~200	80~220	80~260	80~320	80~360	80~400
			fz	0.10~0.15	0.10~0.15	0.10~0.15	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.30
			RPM	3180~7160	2550~6370	2120~5840	1590~5170	1270~5090	1020~4580	850~4240
			FEED	640~2150	510~1910	420~1750	480~2590	380~2550	310~2290	250~2550

XMB130A SERIES BALL INSERTS for STAINLESS STEELS

ISO	VDI 3323	Material Description	Parameter	8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
M	12-14	Stainless steel	Vc	90~130	90~130	90~130	90~130	90~130	90~130	90~130
			fz	0.10~0.12	0.13~0.15	0.15~0.20	0.15~0.20	0.15~0.20	0.20~0.25	0.20~0.25
			RPM	3580~5170	2860~4140	2390~3450	1790~2590	1430~2070	1150~1660	950~1380
			FEED	720~1290	720~1240	720~1380	540~1030	430~830	460~830	380~690

i-Xmill END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

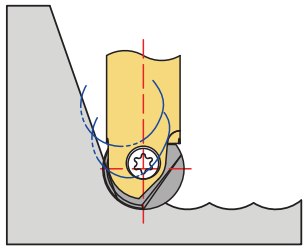
XMM110V SERIES BALL INSERTS for GENERAL PURPOSE - FULL RADIUS

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

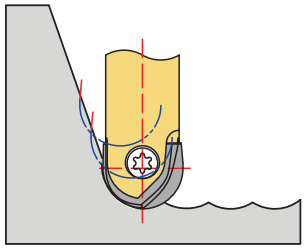
ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
P	1-4	Non-alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910
	6-7	Low alloy steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910
	10	High alloyed steel, and tool steel	Vc	160~320	160~360	160~380	160~480	160~580	160~600	160~700
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.25~0.40	0.25~0.50	0.25~0.60
			RPM	6370~12730	5090~11460	4240~10080	3180~9550	2550~9230	2040~7640	1700~7430
			FEED	2550~5090	2040~4580	1700~4030	1590~5730	1270~7380	1020~7640	850~8910

XMB110D SERIES BALL INSERTS for GRAPHITE

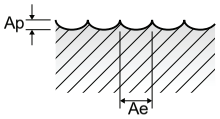
ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
N	21~22	Aluminum-wrought alloy	Vc	300~400	300~400	300~400	300~400	300~480	300~560	300~650
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.30~0.35	0.35~0.40	0.40~0.50
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~7640	3820~7130	3180~6900
			FEED	4770~6370	3820~5090	3180~4240	2980~4770	2860~5350	2670~5700	2550~6900
	23~24	Aluminum-cast, alloyed	Vc	300~400	300~400	300~400	300~400	300~480	300~560	300~650
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.30~0.35	0.35~0.40	0.40~0.50
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~7640	3820~7130	3180~6900
			FEED	4770~6370	3820~5090	3180~4240	2980~4770	2860~5350	2670~5700	2550~6900
	29.2	Graphite	Vc	300~400	300~400	300~400	300~400	300~480	300~560	300~650
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.30	0.30~0.35	0.35~0.40	0.40~0.50
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~7640	3820~7130	3180~6900
			FEED	4770~6370	3820~5090	3180~4240	2980~4770	2860~5350	2670~5700	2550~6900



Full Radius Type



Ball Radius Type



ae : Roughing - 0.1 x D
Finishing - Under Ø12 : 0.25mm
Under Ø20 : 0.30mm
From Ø20 : 0.40mm

ap : Roughing - Under Ø16 : 0.025 x D
From Ø16 : 0.05 x D
Finishing - Under Ø16 : 0.1mm

▶ When the length of overhang exceeds 4xD, we recommend using the carbide shank holder with 20% lower feed
▶ When using long (long & intermediate type holder) tools, we recommend reducing the feed rate to 70 ~ 85%.

i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

XMR110A SERIES — CORNER RADIUS INSERTS for GENERAL PURPOSE & STAINLESS STEELS

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
P	1-4	Non-alloy steel	Vc	160~300	160~300	160~300	160~300	160~300	160~300	160~300
			fz	0.20~0.15	0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20
			RPM	6370~11940	5090~9550	4240~7960	3180~5970	2550~4770	2040~3820	1700~3180
			FEED	2550~3580	2040~2860	1700~2390	1590~2390	1270~1910	1020~1530	850~1270
	5		Vc	120~280	120~280	120~280	120~280	120~280	120~280	120~280
			fz	0.20~0.15	0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20
			RPM	4770~11140	3820~8910	3180~7430	2390~5570	1910~4460	1530~3570	1270~2970
			FEED	1910~3340	1530~2670	1270~2230	1190~2230	950~1780	760~1430	640~1190
	6-7	Low alloy steel	Vc	160~300	160~300	160~300	160~300	160~300	160~300	160~300
			fz	0.20~0.15	0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20
			RPM	6370~11940	5090~9550	4240~7960	3180~5970	2550~4770	2040~3820	1700~3180
			FEED	2550~3580	2040~2860	1700~2390	1590~2390	1270~1910	1020~1530	850~1270
	8		Vc	120~280	120~280	120~280	120~280	120~280	120~280	120~280
			fz	0.20~0.15	0.20~0.15	0.20~0.15	0.25~0.20	0.25~0.20	0.25~0.20	0.25~0.20
			RPM	4770~11140	3820~8910	3180~7430	2390~5570	1910~4460	1530~3570	1270~2970
			FEED	1910~3340	1530~2670	1270~2230	1190~2230	950~1780	760~1430	640~1190
M	12-14	Stainless steel	Vc	90~130	90~130	90~130	90~130	90~130	90~130	90~130
			fz	0.10~0.10	0.11~0.11	0.12~0.11	0.13~0.13	0.13~0.13	0.13~0.12	0.13~0.12
			RPM	3580~5170	2860~4140	2390~3450	1790~2590	1430~2070	1150~1660	950~1380
			FEED	720~1030	630~910	550~790	450~650	360~520	290~410	240~340

XMR120C SERIES — CORNER RADIUS INSERTS for PRE-HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
P	9-11	Low alloy steel High alloyed steel, and tool steel	Vc	100~280	100~280	100~280	100~280	100~280	100~280	100~280
			fz	0.12~0.06	0.13~0.06	0.13~0.06	0.15~0.08	0.15~0.08	0.15~0.08	0.15~0.08
			RPM	3980~11140	3180~8910	2650~7430	1990~5570	1590~4460	1270~3570	1060~2970
			FEED	990~1340	800~1070	690~890	600~840	480~670	380~570	320~450
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	160~380	160~380	160~380	160~380	160~380	160~380	160~380
			fz	0.30~0.20	0.30~0.20	0.30~0.20	0.35~0.30	0.35~0.30	0.35~0.30	0.35~0.30
			RPM	6370~15120	5090~12100	4240~10080	3180~7560	2550~6050	2040~4840	1700~4030
			FEED	3820~6050	3060~4840	2550~4030	2230~4540	1780~3630	1430~2900	1190~2420
H	38	Hardened steel	Vc	80~220	80~220	80~220	80~220	80~220	80~220	80~220
			fz	0.10~0.05	0.10~0.05	0.10~0.05	0.15~0.06	0.15~0.06	0.15~0.06	0.15~0.06
			RPM	3180~8750	2550~7000	2120~5840	1590~4380	1270~3500	1020~2800	850~2330
			FEED	640~880	510~700	420~580	420~530	380~420	310~340	250~280

XMR260T SERIES — CORNER RADIUS INSERTS for HIGH HARDENED STEELS

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
H	38-41	Hardened steel	Vc	80~220	80~220	80~220	80~220	80~220	80~220	80~220
			fz	0.10~0.05	0.10~0.05	0.10~0.05	0.15~0.06	0.15~0.06	0.15~0.06	0.15~0.06
			RPM	3180~8750	2550~7000	2120~5840	1590~4380	1270~3500	1020~2800	850~2330
			FEED	640~880	510~700	420~580	420~530	380~420	310~340	250~280

i-Xmill END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

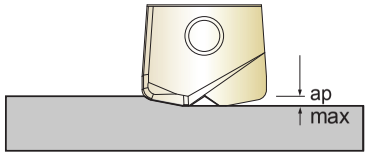
XMF110V SERIES — CORNER RADIUS INSERTS for GENERAL PURPOSE - HIGH FEED

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

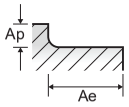
ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
P	1-7	Non-alloy steel Low alloy steel	Vc	150~200	150~200	150~200	150~200	150~200	150~200	150~200
			fz	0.60~0.40	0.75~0.50	0.90~0.60	1.20~0.80	1.50~1.00	1.80~1.40	2.30~1.80
			RPM	5970~7960	4770~6370	3980~5310	2980~3980	2390~3180	1910~2550	1590~2120
			FEED	7160~6370	7160~6370	7160~6370	7160~6370	7160~6370	6880~7140	7320~7640
			Ap(Max)	0.4	0.5	0.6	0.8	1.0	1.3	1.6
	10	High alloyed steel, and tool steel	Vc	150~200	150~200	150~200	150~200	150~200	150~200	150~200
			fz	0.60~0.40	0.75~0.50	0.90~0.60	1.20~0.80	1.50~1.00	1.80~1.40	2.30~1.80
			RPM	5970~7960	4770~6370	3980~5310	2980~3980	2390~3180	1910~2550	1590~2120
			FEED	7160~6370	7160~6370	7160~6370	7160~6370	7160~6370	6880~7140	7320~7640
			Ap(Max)	0.4	0.5	0.6	0.8	1.0	1.3	1.6

XMR110D SERIES — CORNER RADIUS INSERTS for GRAPHITE

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8	10, 11	12, 13	16, 17	20, 21	25, 26	30, 32, 33
N	21~22	Aluminum-wrought alloy	Vc	300~400	300~400	300~400	300~400	300~400	300~400	300~400
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.25	0.25~0.25	0.25~0.25
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~6370	3820~5090	3180~4240
			FEED	4770~6370	3820~5090	3180~4240	2390~3180	2390~3180	1910~2550	1590~2120
	23~24	Aluminum-cast, alloyed	Vc	300~400	300~400	300~400	300~400	300~400	300~400	300~400
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.25	0.25~0.25	0.25~0.25
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~6370	3820~5090	3180~4240
			FEED	4770~6370	3820~5090	3180~4240	2390~3180	2390~3180	1910~2550	1590~2120
	29.2	Graphite	Vc	300~400	300~400	300~400	300~400	300~400	300~400	300~400
			fz	0.20~0.20	0.20~0.20	0.20~0.20	0.20~0.20	0.25~0.25	0.25~0.25	0.25~0.25
			RPM	11940~15920	9550~12730	7960~10610	5970~7960	4770~6370	3820~5090	3180~4240
			FEED	4770~6370	3820~5090	3180~4240	2390~3180	2390~3180	1910~2550	1590~2120



High Feed

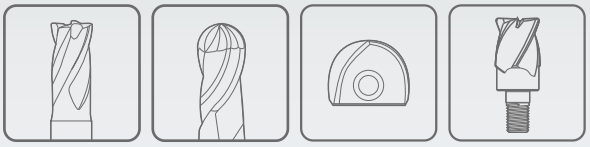


ae : Roughing - 0.1 x D
Finishing - 0.2mm

ap : Roughing - Under Ø16 : 0.025 x D
From Ø16 : 0.05 x D
Finishing - Under Ø16 : 0.1mm
From Ø16 : 0.2mm

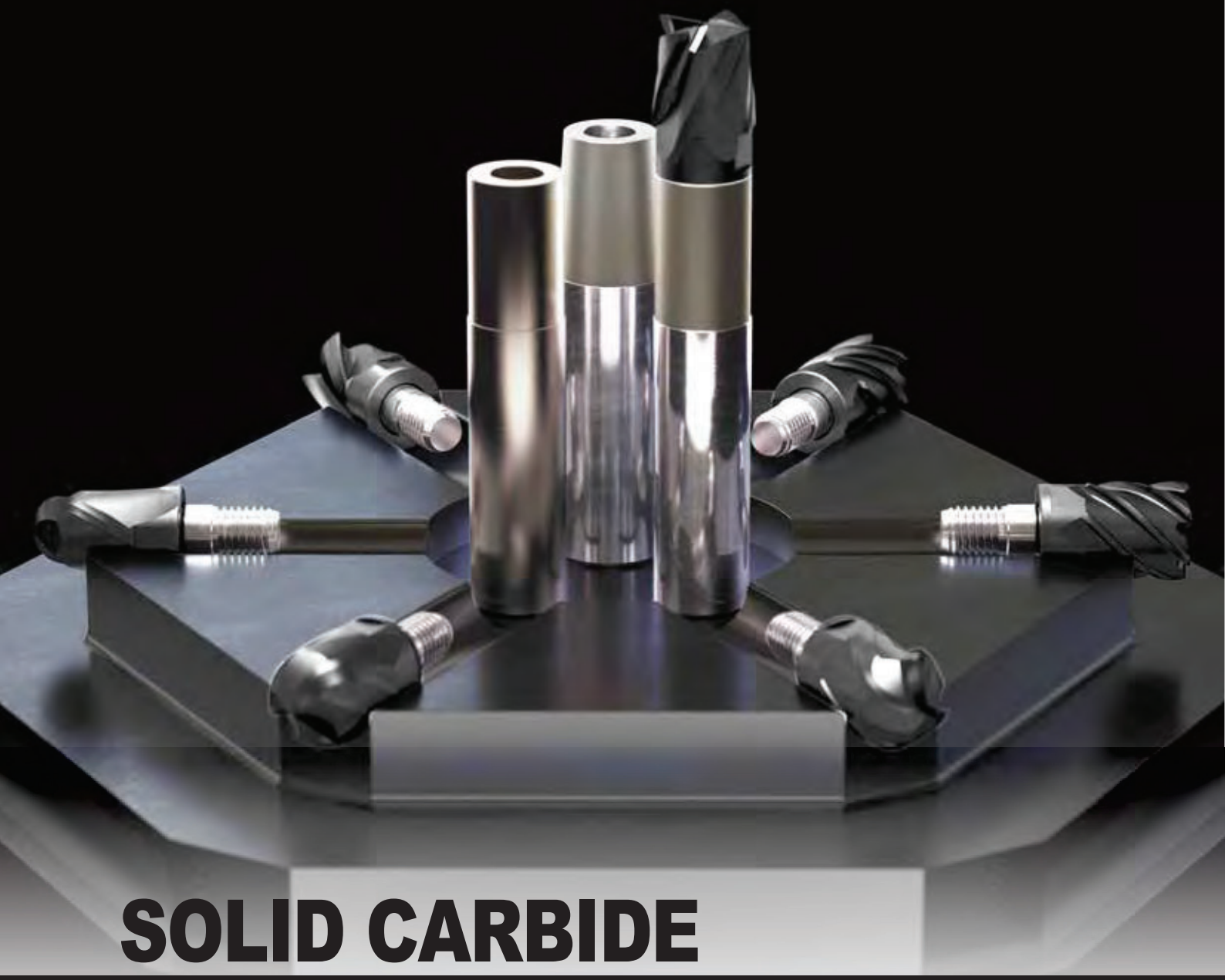
▶ When the length of overhang exceeds 4xD, we recommend using the carbide shank holder with 20% lower feed
▶ When using long (long & intermediate type holder) tools, we recommend reducing the feed rate to 70 ~ 85%.

Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation



SOLID CARBIDE

i-SMART MODULAR TYPE END MILL

i-Smart, Schaftfräser mit auswechselbaren VHM Schneidköpfen

- For General Steels, Hardened Steels and Cast Iron
- Für allgemeine Stähle, gehärtete Stähle und Gusseisen

SELECTION GUIDE

YG MILLING TOOLS

CARBIDE MODULAR HEAD & HOLDER i-SMART END MILLS

Ultra-micro Grain Carbide Heads with Carbide & Steel Holders

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.C79

SERIES	XSEMD98	XSEME59	XSEME60
FLUTE	2	3	4
HELIX ANGLE	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R5.0	R5.0	R5.0
SIZE MAX	R16.0	R16.0	R16.0
PAGE	C68	C69	C70
	CENTER MATCH	CENTER MATCH	CENTER MATCH
	Y-Coating	Y-Coating	Y-Coating

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	XSEMD98	XSEME59	XSEME60
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○
	2		About 0.45% C	Annealed	190	13	○	○	○
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○
	4		About 0.75% C	Annealed	270	28	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	○	○	○
	7			Quenched & Tempered	275	29	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○
	11			Quenched & Tempered	325	35	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○
	16		Pearlitic (Martensitic)		260	26	○	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○	○
	18		Pearlitic		250	25	○	○	○
	19	Malleable cast iron	Ferritic		130		○	○	○
	20		Pearlitic		230	21	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60				
	22		Curable	Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55	○	○	○
	39			Hardened	630	60	○	○	○
	40	Chilled Cast Iron		Cast	400	42	◎	◎	◎
	41	Hardened Cast Iron		Hardened	550	55	○	○	○

SERIES	XSEME01	XSEME68	XSEME36	XSEME75	ZMC	ZMS	ZMT
FLUTE	4	6	4	6	-	-	-
HELIX ANGLE	27°/30° (MULTIPLE HELIX)	45°	27°/30° (MULTIPLE HELIX)	45°	-	-	-
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	-	-	-
SIZE MIN	D10.0	D10.0	D10.0	D10.0	-	-	-
SIZE MAX	D32.0	D32.0	D32.0	D32.0	-	-	-
PAGE	C71	C72	C74	C75	C76	C77	C78
	-	-	-	-	STRAIGHT NECK TYPE	STRAIGHT NECK TYPE	TAPER NECK TYPE
	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Carbide	Steel	Steel

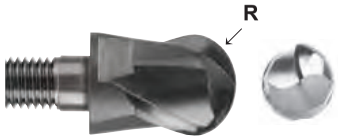
ISO	VDI 3323	XSEME01	XSEME68	XSEME36	XSEME75	ZMC	ZMS	ZMT
P	1	○	○	○	○			
	2	○	○	○	○			
	3	◎	○	◎	◎			
	4	◎	◎	◎	◎			
	5	◎	◎	◎	◎			
	6	○	○	○	○			
	7	◎	◎	◎	◎			
	8	◎	◎	◎	◎			
	9	◎	◎	◎	◎			
	10	○	○	○	○			
	11	◎	◎	◎	◎			
M	12							
	13							
	14			○				
K	15	○	○	○	○			
	16	○	○	○	○			
	17	○	○	○	○			
	18	○	○	○	○			
	19	○	○	○	○			
	20	○	○	○	○			
N	21							
	22							
	23							
	24							
	25							
	26							
	27							
	28							
	29							
	30							
S	31							
	32							
	33							
	34							
	35							
	36							
	37							
H	38	○	○	○	○			
	39	○	○	○	○			
	40	◎	◎	◎	◎			
	41	○	○	○	○			

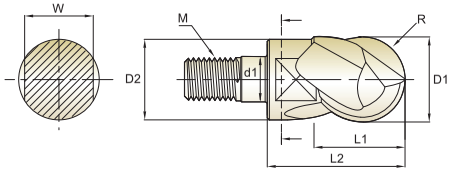
i-Smart END MILLS

XSEMD98 SERIES

CARBIDE MODULAR HEAD, 2 FLUTE BALL NOSE (Center Match)

Vollhartmetall, 2 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
CARBURE TÊTE MODULAIRE, 2 DENTS À BOUT HÉMISPHÉRIQUE (Coupe au Centre)
TESTINA MODULARE IN MD, 2 TAGLIENTI, SEMISFERICA





CARBIDE 2 30° Y Coating p.C80

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEMD98100	R5.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEMD98120	R6.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEMD98160	R8.0	**16.0**	15.0	16	25.5	13	8.5	M8
XSEMD98200	R10.0	**20.0**	19.0	20	30.0	17	10.5	M10
XSEMD98250	R12.5	**25.0**	24.0	25	37.0	22	12.5	M12
XSEMD98300	R15.0	**30.0**	29.0	30	43.0	27	17.0	M16
XSEMD98320	R16.0	**32.0**	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.010	0 ~ - 0.02

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

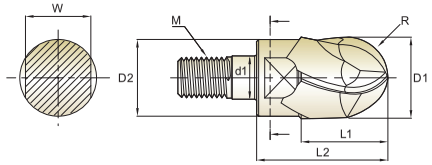
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

i-Smart END MILLS

XSEME59 SERIES

CARBIDE MODULAR HEAD, 3 FLUTE BALL NOSE (Center Match)

Vollhartmetall, 3 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
CARBURE TÊTE MODULAIRE, 3 DENTS À BOUT HÉMISPHÉRIQUE (Coupe au Centre)
TESTINA MODULARE IN MD, 3 TAGLIENTI, SEMISFERICA



CARBIDE 3 30° Y Coating p.C80

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME59100	R5.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME59120	R6.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME59160	R8.0	**16.0**	15.0	16	25.5	13	8.5	M8
XSEME59200	R10.0	**20.0**	19.0	20	30.0	17	10.5	M10
XSEME59250	R12.5	**25.0**	24.0	25	37.0	22	12.5	M12
XSEME59300	R15.0	**30.0**	29.0	30	43.0	27	17.0	M16
XSEME59320	R16.0	**32.0**	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.010	0 ~ - 0.02

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

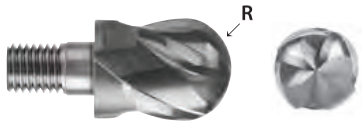
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

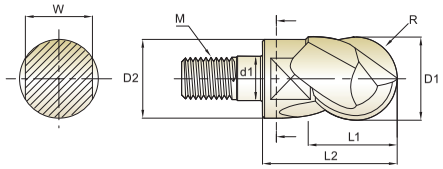
YG i-Smart END MILLS

XSEME60 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE BALL NOSE (Center Match)

Vollhartmetall, 4 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
CARBURE TÊTE MODULAIRE, 4 DENTS À BOUT HÉMISPHÉRIQUE (Coupe au Centre)
TESTINA MODULARE IN MD, 4 TAGLIENTI, SEMISFERICA





CARBIDE | 4 | 30° | Y Coating | p.C81

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME60100	R5.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME60120	R6.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME60160	R8.0	**16.0**	15.0	16	25.5	13	8.5	M8
XSEME60200	R10.0	**20.0**	19.0	20	30.0	17	10.5	M10
XSEME60250	R12.5	**25.0**	24.0	25	37.0	22	12.5	M12
XSEME60300	R15.0	**30.0**	29.0	30	43.0	27	17.0	M16
XSEME60320	R16.0	**32.0**	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.010	0 ~ - 0.02

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

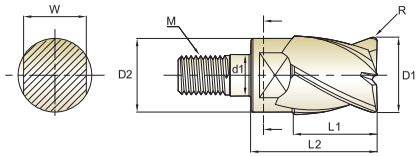
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

YG i-Smart END MILLS

XSEME01 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS

Vollhartmetall, 4 Schneiden mit M-Helix und Eckradius
CARBURE TÊTE MODULAIRE, 4 DENTS TORIQUE, HÉLICE MULTIPLE
TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE, TORICA



CARBIDE | 4 | 27°/30° | Y Coating | p.C81

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME01100 010	R0.1	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 020	R0.2	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 030	R0.3	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 050	R0.5	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 100	R1.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 150	R1.5	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 200	R2.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 250	R2.5	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 300	R3.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 400	R4.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01120 010	R0.1	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 020	R0.2	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 030	R0.3	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 050	R0.5	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 100	R1.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 150	R1.5	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 200	R2.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 250	R2.5	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 300	R3.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 400	R4.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 500	R5.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01160 050	R0.5	**16.0**	15.0	16	25.5	13	8.5	M8
XSEME01160 100	R1.0	**16.0**	15.0	16	25.5	13	8.5	M8
XSEME01160 150	R1.5	**16.0**	15.0	16	25.5	13	8.5	M8

▶ NEXT PAGE

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.02	0 ~ - 0.03

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

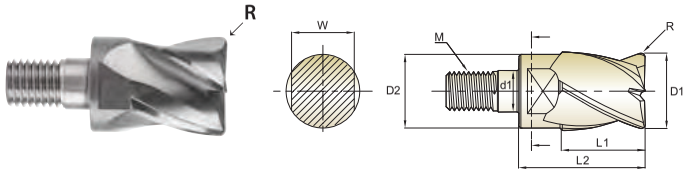
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Smart END MILLS

XSEME01 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS

Vollhartmetall, 4 Schneiden mit M-Helix und Eckradius
CARBURE TÊTE MODULAIRE, 4 DENTS TORIQUE, HÉLICE MULTIPLE
TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE, TORICA



CARBIDE | 4 | 27°/30° | Y Coating | p.C81

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME01160 200	R2.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME01200 050	R0.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME01200 100	R1.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME01200 150	R1.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME01200 200	R2.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME01250 050	R0.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME01250 100	R1.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME01250 150	R1.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME01250 200	R2.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME01300 050	R0.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME01300 100	R1.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME01300 150	R1.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME01300 200	R2.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME01320 050	R0.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME01320 100	R1.0	32.0	31.0	32	45.0	27	17.0	M16
XSEME01320 150	R1.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME01320 200	R2.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.02	0 ~ - 0.03

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

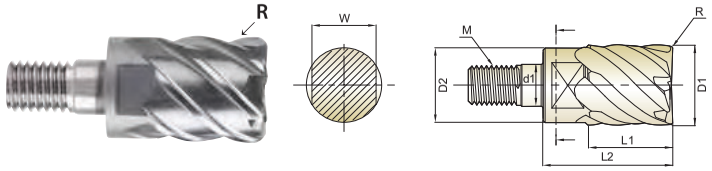
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

i-Smart END MILLS

XSEME68 SERIES

CARBIDE MODULAR HEAD, 6 FLUTE 45° HELIX CORNER RADIUS

Vollhartmetall, 6 Schneiden mit 45° und Eckradius
CARBURE TÊTE MODULAIRE, 6 DENTS TORIQUE, HÉLICE À 45°
TESTINA MODULARE IN MD, 6 TAGLIENTI, ELICA 45°, TORICA



CARBIDE | 6 | 45° | Y Coating | p.C82

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME68100 030	R0.3	10.0	9.2	10	17.5	8	6.5	M6
XSEME68100 050	R0.5	10.0	9.2	10	17.5	8	6.5	M6
XSEME68100 100	R1.0	10.0	9.2	10	17.5	8	6.5	M6
XSEME68120 030	R0.3	12.0	11.2	12	20.5	10	6.5	M6
XSEME68120 050	R0.5	12.0	11.2	12	20.5	10	6.5	M6
XSEME68120 100	R1.0	12.0	11.2	12	20.5	10	6.5	M6
XSEME68160 050	R0.5	16.0	15.0	16	25.5	13	8.5	M8
XSEME68160 100	R1.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME68160 150	R1.5	16.0	15.0	16	25.5	13	8.5	M8
XSEME68160 200	R2.0	16.0	15.0	16	25.5	13	8.5	M8
XSEME68200 050	R0.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME68200 100	R1.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME68200 150	R1.5	20.0	19.0	20	30.0	17	10.5	M10
XSEME68200 200	R2.0	20.0	19.0	20	30.0	17	10.5	M10
XSEME68250 050	R0.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME68250 100	R1.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME68250 150	R1.5	25.0	24.0	25	37.0	22	12.5	M12
XSEME68250 200	R2.0	25.0	24.0	25	37.0	22	12.5	M12
XSEME68300 050	R0.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME68300 100	R1.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME68300 150	R1.5	30.0	29.0	30	43.0	27	17.0	M16
XSEME68300 200	R2.0	30.0	29.0	30	43.0	27	17.0	M16
XSEME68320 050	R0.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME68320 100	R1.0	32.0	31.0	32	45.0	27	17.0	M16
XSEME68320 150	R1.5	32.0	31.0	32	45.0	27	17.0	M16
XSEME68320 200	R2.0	32.0	31.0	32	45.0	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
± 0.015	0 ~ - 0.03

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

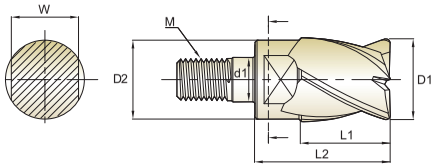
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Smart END MILLS

XSEME36 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX

Vollhartmetall, 4 Schneiden mit M-Helix
CARBURE TÊTE MODULAIRE, 4 DENTS HÉLICE MULTIPLE
TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE



CARBIDE | 4 | 27°/30° | Y Coating | p.C82

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D_1	D_2	L_1	L_2	W	d_1	M
XSEME36100	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME36120	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME36160	**16.0**	15.0	16	25.5	13	8.5	M8
XSEME36200	**20.0**	19.0	20	30.0	17	10.5	M10
XSEME36250	**25.0**	24.0	25	37.0	22	12.5	M12
XSEME36300	**30.0**	29.0	30	43.0	27	17.0	M16
XSEME36320	**32.0**	31.0	32	45.0	27	17.0	M16

Mill Dia. Tolerance(mm)
0 ~ - 0.03

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

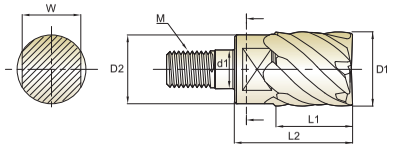
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

i-Smart END MILLS

XSEME75 SERIES

CARBIDE MODULAR HEAD, 6 FLUTE 45° HELIX

Vollhartmetall, 6 Schneiden mit 45°
CARBURE TÊTE MODULAIRE, 6 DENTS HÉLICE À 45°
TESTINA MODULARE IN MD, 6 TAGLIENTI, ELICA 45°



CARBIDE | 6 | 45° | Y Coating | p.C83

Recommended ToolHolder

	Plain Shank	Page
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D_1	D_2	L_1	L_2	W	d_1	M
XSEME75100	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME75120	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME75160	**16.0**	15.0	16	25.5	13	8.5	M8
XSEME75200	**20.0**	19.0	20	30.0	17	10.5	M10
XSEME75250	**25.0**	24.0	25	37.0	22	12.5	M12
XSEME75300	**30.0**	29.0	30	43.0	27	17.0	M16
XSEME75320	**32.0**	31.0	32	45.0	27	17.0	M16

Mill Dia. Tolerance(mm)
0 ~ - 0.03

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

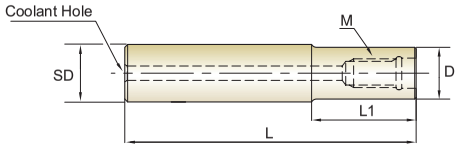
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Smart END MILLS

ZMC SERIES

CARBIDE HOLDER - STRAIGHT NECK TYPE

Vollhartmetallschaft - zylindrisch
PORTE-OUTIL CARBURE - Entrée Droite
STELO IN MD, SCARICO CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter SD	Overall Length L	Neck Length L1	Neck Diameter D	Thread Size M	Wrench No.	Coolant Hole
ZMC1001100	10.0	10	70	20	9.5	M6	SPIS0810	2
ZMC1002100	10.0	10	100	40	9.5	M6	SPIS0810	2
ZMC1003100	10.0	10	130	70	9.5	M6	SPIS0810	2
ZMC1201120	12.0	12	80	20	11.5	M6	SPIS0810	2
ZMC1202120	12.0	12	100	40	11.5	M6	SPIS0810	2
ZMC1203120	12.0	12	130	70	11.5	M6	SPIS0810	2
ZMC1601160	16.0	16	100	40	15.5	M8	SPIS1300	3
ZMC1602160	16.0	16	150	80	15.5	M8	SPIS1300	3
ZMC1603160	16.0	16	200	120	15.5	M8	SPIS1300	3
ZMC2001200	20.0	20	100	40	19.5	M10	SPIS1700	4
ZMC2002200	20.0	20	150	80	19.5	M10	SPIS1700	4
ZMC2003200	20.0	20	200	120	19.5	M10	SPIS1700	4
ZMC2004200	20.0	20	250	160	19.5	M10	SPIS1700	4
ZMC2501250	25.0	25	150	70	24.3	M12	SPIS2200	5
ZMC2502250	25.0	25	200	100	24.3	M12	SPIS2200	5
ZMC2503250	25.0	25	250	150	24.3	M12	SPIS2200	5
ZMC2504250	25.0	25	300	200	24.3	M12	SPIS2200	5
ZMC3001320	30.0 / 32.0	32	150	70	29.0	M16	SPIS2700	6
ZMC3002320	30.0 / 32.0	32	200	120	29.0	M16	SPIS2700	6
ZMC3003320	30.0 / 32.0	32	250	150	29.0	M16	SPIS2700	6
ZMC3004320	30.0 / 32.0	32	300	200	29.0	M16	SPIS2700	6
ZMC3005320	30.0 / 32.0	32	350	250	29.0	M16	SPIS2700	6

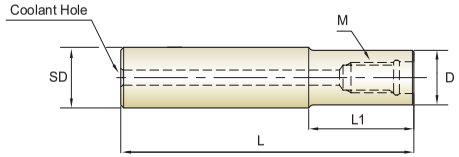
▸The wrench (1pc) for the relevant item is included.
If more is needed, available for sale.
▸Please refer to the wrench table on the next page.

i-Smart END MILLS

ZMS SERIES

STEEL HOLDER - STRAIGHT NECK TYPE

Stahlschaft - zylindrisch
PORTE-OUTIL ACIER - Entrée Droite
STELO IN ACCIAIO, SCARICO CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter SD	Overall Length L	Neck Length L1	Neck Diameter D	Thread Size M	Wrench No.	Coolant Hole
ZMS1001100	10.0	10	70	20	9	M6	SPIS0810	3
ZMS1201120	12.0	12	90	30	11	M6	SPIS0810	3
ZMS1601160	16.0	16	100	30	15	M8	SPIS1300	4
ZMS2001200	20.0	20	100	30	19	M10	SPIS1700	5
ZMS2501250	25.0	25	115	40	24	M12	SPIS2200	5
ZMS3001320	30.0 / 32.0	32	125	40	29	M16	SPIS2700	6

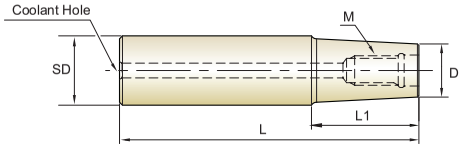
▸The wrench (1pc) for the relevant item is included.
If more is needed, available for sale.

Wrench

Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
	SPIS1700	17	20.0	12
	SPIS2200	22	25.0	15
	SPIS2700	27	30.0 32.0	20

STEEL HOLDER - TAPER NECK TYPE

Stahlschaft - konisch
PORTE-OUTIL ACIER - Entrée Coniquee
STELO IN ACCIAIO, SCARICO CONICO



Unit : mm

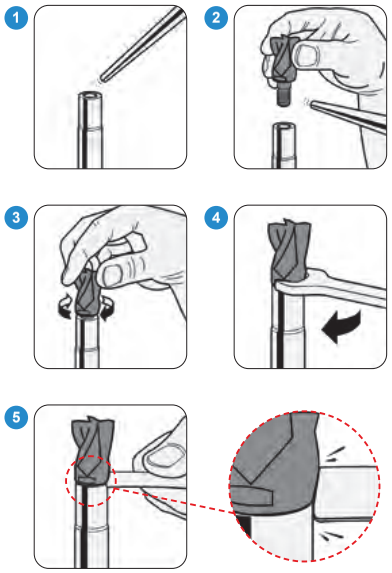
EDP No.	Mill Diameter	Shank Diameter SD	Overall Length L	Neck Length L1	Neck Diameter D	Thread Size M	Wrench No.	Coolant Hole
ZMT1001120	10.0	12	100	50	9	M6	SPIS0810	3
ZMT1201160	12.0	16	130	70	11	M6	SPIS0810	3
ZMT1601200	16.0	20	150	90	15	M8	SPIS1300	4
ZMT2001250	20.0	25	170	100	19	M10	SPIS1700	5
ZMT2501320	25.0	32	200	110	24	M12	SPIS2200	5
ZMT3001320	30.0 / 32.0	32	200	110	29	M16	SPIS2700	6

▸The wrench(1pc) for the relevant item is included.
If more is needed, available for sale.

Wrench

Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
	SPIS1700	17	20.0	12
	SPIS2200	22	25.0	15
	SPIS2700	27	30.0 32.0	20

Instruction Manual
BEDIENUNGSAMLEITUNG



Step 1, 2 : Clean
Please be sure to remove dirt and debris on all adjoining surfaces before assembling. (air preferred)

Schritt 1, 2: Reinigen
Achten Sie darauf, Schmutz und Verunreinigungen an allen angrenzenden Flächen vor dem Zusammenbau zu entfernen. (bevorzugt durch Luft)

Step 3, 4 : Assembly
Mount the modular head onto the shank by hand until it fits then use the supplied wrench to tighten.

Schritt 3, 4: Zusammenbau
Montieren Sie den modularen Kopf von Hand auf den Schaft, bis er passt. Benutzen Sie dann den mitgelieferten Schraubenschlüssel.

Step 5 : Final Check
Re-check that there is no gap.

Schritt 5, 6: Endkontrolle
Überprüfen Sie, dass es kein mehr Spalt sichtbar ist.

Notice
Please tighten the screw with designated torque, too much torque will damage the screw.

Achtung
Ziehen Sie die Schraube mit dem vorgesehenen Drehmoment an, zu viel Drehmoment wird die Schraube beschädigen.

Mill Diameter (D)	Clamping Torque [N·m]
10.0	6.5
12.0	6.5
16.0	10.0
20.0	12.0
25.0	15.0
30.0	20.0
32.0	20.0

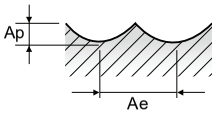
i-Smart END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

XSEMD98 SERIES 2 FLUTE BALL NOSE

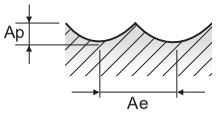
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
					RPM	5580	4510	3340	2670	2130	1770	1660
					FEED	2220	1910	1590	1410	1150	1060	995
	9		0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
					RPM	5340	4380	3220	2580	2060	1720	1610
					FEED	1860	1645	1320	1170	950	860	805
	10-11.1	High alloyed steel, and tool steel	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
					RPM	5580	4510	3340	2670	2130	1770	1660
					FEED	2220	1910	1590	1410	1150	1060	995
	11.2		0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
					RPM	5340	4380	3220	2580	2060	1720	1610
					FEED	1860	1645	1320	1170	950	860	805
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
					RPM	5580	4510	3340	2670	2130	1770	1660
					FEED	2220	1910	1590	1410	1150	1060	995
H	38.1 - 38.2	Hardened steel	0.08D	0.03D	Vc	141	138	136	136	136	136	136
					fz	0.160	0.170	0.189	0.208	0.211	0.229	0.230
					RPM	4500	3660	2700	2160	1730	1440	1350
					FEED	1440	1245	1020	900	730	660	620
	40	Chilled Cast Iron	0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
					RPM	5340	4380	3220	2580	2060	1720	1610
					FEED	1860	1645	1320	1170	950	860	805
	41	Hardened Cast Iron	0.08D	0.03D	Vc	141	138	136	136	136	136	136
					fz	0.160	0.170	0.189	0.208	0.211	0.229	0.230
					RPM	4500	3660	2700	2160	1730	1440	1350
					FEED	1440	1245	1020	900	730	660	620



XSEME59 SERIES 3 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
					RPM	9770	8150	6100	4880	3910	3260	3050
					FEED	5890	5490	4280	3490	2910	2530	2450
	9		0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
					RPM	8190	6830	5110	4090	3270	2730	2560
					FEED	4130	3830	3050	2560	2150	1880	1800
	10-11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
					RPM	9770	8150	6100	4880	3910	3260	3050
					FEED	5890	5490	4280	3490	2910	2530	2450
	11.2		0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
					RPM	8190	6830	5110	4090	3270	2730	2560
					FEED	4130	3830	3050	2560	2150	1880	1800
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
					RPM	9770	8150	6100	4880	3910	3260	3050
					FEED	5890	5490	4280	3490	2910	2530	2450
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	208	208	208	208	208	208	208
					fz	0.156	0.173	0.180	0.190	0.200	0.210	0.221
					RPM	6620	5520	4140	3310	2650	2210	2070
					FEED	3100	2870	2240	1890	1590	1390	1370
	40	Chilled Cast Iron	0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
					RPM	8190	6830	5110	4090	3270	2730	2560
					FEED	4130	3830	3050	2560	2150	1880	1800
	41	Hardened Cast Iron	0.05D	0.02D	Vc	208	208	208	208	208	208	208
					fz	0.156	0.173	0.180	0.190	0.200	0.210	0.221
					RPM	6620	5520	4140	3310	2650	2210	2070
					FEED	3100	2870	2240	1890	1590	1390	1370

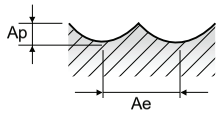


i-Smart END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

XSEME60 SERIES 4 FLUTE BALL NOSE

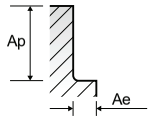
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
					RPM	10850	9050	6780	5430	4340	3620	3390
					FEED	6430	5960	4750	3880	3230	2810	2720
	9		0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
					RPM	9100	7500	5680	4550	3640	3030	2840
					FEED	4590	4260	3390	2840	2390	2090	2000
	10-11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
					RPM	10850	9050	6780	5430	4340	3620	3390
					FEED	6430	5960	4750	3880	3230	2810	2720
	11.2		0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
					RPM	9100	7500	5680	4550	3640	3030	2840
					FEED	4590	4260	3390	2840	2390	2090	2000
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
					RPM	10850	9050	6780	5430	4340	3620	3390
					FEED	6430	5960	4750	3880	3230	2810	2720
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	231	231	231	231	231	231	231
					fz	0.117	0.130	0.135	0.143	0.150	0.157	0.165
					RPM	7350	6130	4600	3680	2940	2450	2300
					FEED	3450	3190	2490	2100	1760	1540	1520
	40	Chilled Cast Iron	0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
					RPM	9100	7500	5680	4550	3640	3030	2840
					FEED	4590	4260	3390	2840	2390	2090	2000
	41	Hardened Cast Iron	0.05D	0.02D	Vc	231	231	231	231	231	231	231
					fz	0.117	0.130	0.135	0.143	0.150	0.157	0.165
					RPM	7350	6130	4600	3680	2940	2450	2300
					FEED	3450	3190	2490	2100	1760	1540	1520



XSEME01 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
					RPM	4970	4140	3100	2480	1990	1650	1550
					FEED	455	380	280	230	180	150	140
	9		0.05D	0.8D	Vc	105	105	105	105	105	105	105
					fz	0.027	0.027	0.027	0.027	0.027	0.027	0.026
					RPM	3340	2780	2090	1670	1340	1110	1040
					FEED	360	300	225	180	145	120	110
	10-11.1	High alloyed steel, and tool steel	0.05D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
					RPM	4970	4140	3100	2480	1990	1650	1550
					FEED	455	380	280	230	180	150	140
	11.2		0.05D	0.8D	Vc	105	105	105	105	105	105	105
					fz	0.027	0.027	0.027	0.027	0.027	0.027	0.026
					RPM	3340	2780	2090	1670	1340	1110	1040
					FEED	360	300	225	180	145	120	110
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.02D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
					RPM	4960	4140	3100	2480	1990	1650	1550
					FEED	460	380	280	230	180	150	140
H	38.1 - 38.2	Hardened steel	0.02D	0.8D	Vc	63	63	63	63	63	63	63
					fz	0.021	0.021	0.022	0.023	0.023	0.024	0.024
					RPM	2020	1680	1250	1000	800	670	630
					FEED	170	140	110	90	75	65	60
	40	Chilled Cast Iron	0.05D	0.8D	Vc	105	105	105	105	105	105	105
					fz	0.027	0.027	0.027	0.027	0.027	0.027	0.026
					RPM	3340	2780	2090	1670	1340	1110	1040
					FEED	360	300	225	180	145	120	110
	41	Hardened Cast Iron	0.02D	0.8D	Vc	63	63	63	63	63	63	63
					fz	0.021	0.021	0.022	0.023	0.023	0.024	0.024
					RPM	2020	1680	1250	1000	800	670	630
					FEED	170	140	110	90	75	65	60



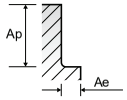
i-Smart END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

XSEME68 SERIES 6 FLUTE CORNER RADIUS - SIDE CUTTING

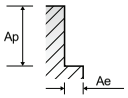
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
					RPM	9600	8010	6000	4800	3850	3200	3000
					FEED	2940	2790	2400	2010	1615	1440	1350
	9		0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
					RPM	9360	7800	5850	4680	3740	3120	2920
					FEED	1400	1170	880	690	600	540	525
	10-11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
					RPM	9600	8010	6000	4800	3850	3200	3000
					FEED	2940	2700	2400	2010	1615	1440	1350
	11.2		0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
					RPM	9360	7800	5850	4680	3740	3120	2920
					FEED	1400	1170	880	690	600	540	525
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
					RPM	9600	8010	6000	4800	3850	3200	3000
					FEED	2940	2790	2400	2010	1615	1440	1350
H	38.1 - 38.2	Hardened steel	0.02D	1.0D	Vc	181	181	181	181	181	181	181
					fz	0.006	0.006	0.006	0.006	0.007	0.007	0.007
					RPM	5760	4800	3600	2880	2305	1920	1800
					FEED	210	180	130	110	90	85	80
	40	Chilled Cast Iron	0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
					RPM	9360	7800	5850	4680	3740	3120	2920
					FEED	1400	1170	880	690	600	540	525
	41	Hardened Cast Iron	0.02D	1.0D	Vc	181	181	181	181	181	181	181
					fz	0.006	0.006	0.006	0.006	0.007	0.007	0.007
					RPM	5760	4800	3600	2880	2305	1920	1800
					FEED	210	180	130	110	90	85	80



XSEME36 SERIES 4 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.040	0.040	0.040	0.040	0.040	0.040	0.040
					RPM	4080	3430	2590	2100	1700	1420	1330
					FEED	650	545	415	335	270	230	215
	9		0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
					RPM	2500	2100	1590	1300	1050	870	820
					FEED	300	250	190	155	130	110	105
	10-11.1	High alloyed steel, and tool steel	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.040	0.040	0.040	0.040	0.040	0.040	0.040
					RPM	4080	3430	2590	2100	1700	1420	1330
					FEED	650	545	415	335	270	230	215
	11.2		0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
					RPM	2500	2100	1590	1300	1050	870	820
					FEED	300	250	190	155	130	110	105
M	12-14	Stainless steel	0.05D	0.6D	Vc	66	66	66	66	67	67	67
					fz	0.035	0.035	0.035	0.035	0.035	0.035	0.035
					RPM	2100	1750	1310	1050	850	710	670
					FEED	300	245	180	150	120	100	95
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.039	0.040	0.040	0.040	0.040	0.040	0.040
					RPM	4080	3430	2590	2100	1700	1420	1330
					FEED	640	545	415	335	270	230	215
H	38.1 - 38.2	Hardened steel	0.05D	0.6D	Vc	53	53	53	53	53	53	53
					fz	0.013	0.013	0.013	0.012	0.011	0.011	0.011
					RPM	1700	1400	1050	850	680	560	530
					FEED	90	70	55	40	30	25	25
	40	Chilled Cast Iron	0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
					RPM	2500	2100	1590	1300	1050	870	820
					FEED	300	250	190	155	130	110	105
	41	Hardened Cast Iron	0.05D	0.6D	Vc	53	53	53	53	53	53	53
					fz	0.013	0.013	0.013	0.012	0.011	0.011	0.011
					RPM	1700	1400	1050	850	680	560	530
					FEED	90	70	55	40	30	25	25



i-Smart END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

XSEME75 SERIES 6 FLUTE - SIDE CUTTING

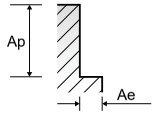
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

NORMAL SPEED

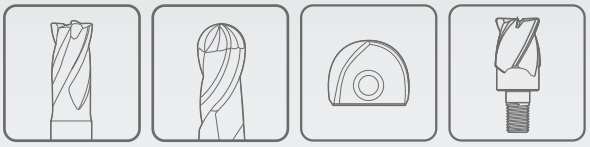
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
					RPM	3530	2945	2205	1765	1410	1180	1100
					FEED	2100	1750	1325	1060	845	710	660
	9		0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
					RPM	2450	2040	1530	1220	980	815	765
					FEED	1380	1150	860	690	555	460	430
	10-11.1	High alloyed steel, and tool steel	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
					RPM	3530	2945	2205	1765	1410	1180	1100
					FEED	2100	1750	1325	1060	845	710	660
	11.2		0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
					RPM	2450	2040	1530	1220	980	815	765
					FEED	1380	1150	860	690	555	460	430
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
					RPM	3530	2940	2205	1765	1410	1180	1100
					FEED	2100	1765	1325	1060	845	710	660
H	38.1 - 38.2	Hardened steel	0.05D	0.6D	Vc	33	33	33	33	33	33	33
					fz	0.033	0.034	0.034	0.035	0.035	0.036	0.036
					RPM	1050	880	655	525	420	350	330
					FEED	210	180	130	110	85	75	70
	40	Chilled Cast Iron	0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
					RPM	2450	2040	1530	1220	980	815	765
					FEED	1380	1150	860	690	555	460	430
	41	Hardened Cast Iron	0.05D	0.6D	Vc	33	33	33	33	33	33	33
					fz	0.033	0.034	0.034	0.035	0.035	0.036	0.036
					RPM	1050	880	655	525	420	350	330
					FEED	210	180	130	110	85	75	70

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	11.2	High alloyed steel, and tool steel	0.05D	0.6D	Vc	332	332	332	332	332	332	332
					fz	0.095	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	10570	8810	6600	5290	4230	3520	3300
					FEED	6020	5020	3765	3050	2400	2000	1890
H	38.1 - 38.2	Hardened steel	0.05D	0.4D	Vc	166	166	166	166	166	166	166
					fz	0.096	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	5290	4410	3300	2645	2114	1761	1651
					FEED	3050	2520	1880	1470	1200	1000	940
	40	Chilled Cast Iron	0.05D	0.6D	Vc	332	332	332	332	332	332	332
					fz	0.095	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	10570	8810	6600	5290	4230	3520	3300
					FEED	6020	5020	3765	3050	2400	2000	1890
	41	Hardened Cast Iron	0.05D	0.4D	Vc	166	166	166	166	166	166	166
					fz	0.096	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	5290	4410	3300	2645	2114	1761	1651
					FEED	3050	2520	1880	1470	1200	1000	940



Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

SOLID CARBIDE

X5070 END MILLS

X5070 NANO-VHM - FRÄSER

- For High Hardened Steels (HRc45 to HRc70)
  High Speed Machining and Dry Cutting
- Für hochgehärtete Stähle (HRc45 bis HRc70)
  Hochgeschwindigkeitsbearbeitung und Trockenbearbeitung

SELECTION GUIDE

MILLING TOOLS

SOLID CARBIDE X5070 END MILLS

High Hardened Steels HRc45 to HRc70, High Speed Machining, Dry Cutting

Please visit globalyg1.com/mat for material search

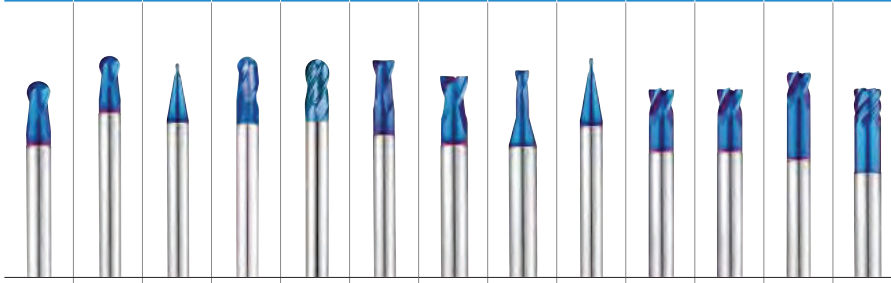
◎ : Excellent ○ : Good

Recommended cutting conditions : p. C123

SERIES	G8B59	G8B54	G8A46	G8A54
FLUTE	4	4	2	2
HELIX ANGLE	0°	0°	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE
SIZE MIN	D2.0	D2.0	R0.05	R0.25
SIZE MAX	D12.0	D16.0	R2.0	R1.0
PAGE	C89	C90	C91	C95
	HIGH FEED	HIGH FEED LONG SHANK	RIB PROCESSING	RIB PROCESSING
	Blue Coating	Blue Coating	Blue Coating	Blue Coating

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	G8B59	G8B54	G8A46	G8A54
P	1	Non-alloy steel	About 0.15% C	Annealed	125					
	2		About 0.45% C	Annealed	190	13				
	3		About 0.45% C	Quenched & Tempered	250	25				
	4		About 0.75% C	Annealed	270	28				
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○
	6	Low alloy steel		Annealed	180	10				
	7			Quenched & Tempered	275	29				
	8			Quenched & Tempered	300	32	○	○	○	○
	9			Quenched & Tempered	350	38	○	○	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15				
	11			Quenched & Tempered	325	35	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10				
	16		Pearlitic (Martensitic)		260	26				
	17	Nodular cast iron	Ferritic		160	3				
	18		Pearlitic		250	25				
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55	◎	◎	◎	◎
	39			Hardened	630	60	◎	◎	◎	◎
	40	Chilled Cast Iron		Cast	400	42	○	○	○	○
	41	Hardened Cast Iron		Hardened	550	55	◎	◎	◎	◎

SERIES	G8A28	G8A38	G8A53	G8A59	G8D62	G8A60	G8A36	G8A52	G8A50	G8A47	G8A37	G8B08	G8A39
FLUTE	2	2	2	3	4	2	2	2	2	4	4	4	6
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	45°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS
SIZE MIN	R0.05	R0.5	R0.2	R1.5	R1.5	D0.5	D0.3	D0.5	D0.3	D3.0	D1.0	D6.0	D6.0
SIZE MAX	R6.0	R12.5	115	R10.0	R10.0	D12.0	D20.0	D2.0	D2.0	D12.0	D20.0	D12.0	D20.0
PAGE	C96	C98	C99	C100	C101	C102	C107	C109	C110	C111	C112	C113	C114
	-	EXTENDED NECK	MINIATURE	Center Match	Center Match	RIB PROCESSING	EXTENDED NECK	RIB PROCESSING	MINIATURE	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK	EXTENDED NECK
	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating



ISO	VDI 3323	G8A28	G8A38	G8A53	G8A59	G8D62	G8A60	G8A36	G8A52	G8A50	G8A47	G8A37	G8B08	G8A39
P	1													
	2													
	3													
	4													
	5	○	○	○	○	○	○	○	○	○	○	○	○	○
	6													
	7													
	8	○	○	○	○	○	○	○	○	○	○	○	○	○
	9	○	○	○	○	○	○	○	○	○	○	○	○	○
	10													
	11	○	○	○	○	○	○	○	○	○	○	○	○	○
M	12													
	13													
	14													
K	15													
	16													
	17													
	18													
	19													
	20													
N	21													
	22													
	23													
	24													
	25													
	26													
	27													
	28													
	29													
	30													
S	31													
	32													
	33													
	34													
	35													
	36													
	37													
H	38	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	39	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	40	○	○	○	○	○	○	○	○	○	○	○	○	○
	41	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

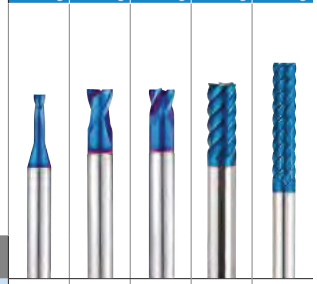
SELECTION GUIDE

MILLING TOOLS

SERIES	G8A45	G8A01	G8A02	G8D63	G8D64
FLUTE	2	2	4	6&8	6&8
HELIX ANGLE	30°	30°	30°	45°	45°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D0.1	D0.1	D1.0	D6.0	D6.0
SIZE MAX	D4.0	D20.0	D20.0	D25.0	D25.0
PAGE	C115	C119	C120	C121	C122
	RIB PROCESSING	EXTENDED NECK	EXTENDED NECK	LONG LENGTH	EXTRA LONG LENGTH
	Blue Coating	Blue Coating	Blue Coating	Blue Coating	Blue Coating

SOLID CARBIDE X5070 END MILLS

High Hardened Steels HRc45 to HRc70,
High Speed Machining, Dry Cutting



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C123

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	G8A45	G8A01	G8A02	G8D63	G8D64
P	1	Non-alloy steel	About 0.15% C	Annealed	125						
	2		About 0.45% C	Annealed	190	13					
	3		About 0.45% C	Quenched & Tempered	250	25					
	4		About 0.75% C	Annealed	270	28					
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	○
	6	Low alloy steel		Annealed	180	10					
	7			Quenched & Tempered	275	29					
	8			Quenched & Tempered	300	32	○	○	○	○	○
	9			Quenched & Tempered	350	38	○	○	○	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15					
	11			Quenched & Tempered	325	35	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15					
	13		Martensitic	Quenched & Tempered	240	23					
	14		Austenitic		180	10					
K	15	Grey cast iron	Pearlitic / ferritic		180	10					
	16		Pearlitic (Martensitic)		260	26					
	17	Nodular cast iron	Ferritic		160	3					
	18		Pearlitic		250	25					
	19	Malleable cast iron	Ferritic		130						
	20		Pearlitic		230	21					
N	21	Aluminum-wrought alloy	Not Curable		60						
	22		Curable	Hardened	100						
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75						
	24		≤ 12% Si, Curable	Hardened	90						
	25		> 12% Si, Not Curable		130						
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110						
	27		CuZn, CuSnZn (Brass)		90						
	28		CuSn, lead-free copper and electrolytic copper		100						
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					
	32			Cured	280	30					
	33		Ni or Co Based	Annealed	250	25					
	34			Cured	350	38					
	35			Cast	320	34					
	36	Titanium Alloys	Pure Titanium		400 Rm						
	37		Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55	◎	◎	◎	◎	◎
	39			Hardened	630	60	◎	◎	◎	◎	◎
	40	Chilled Cast Iron		Cast	400	42	○	○	○	○	○
	41	Hardened Cast Iron		Hardened	550	55	◎	◎	◎	◎	◎

X5070 END MILLS

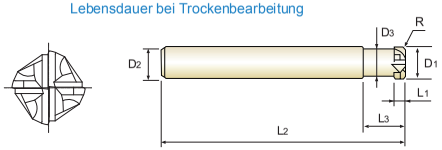
PLAIN SHANK G8B59 SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED

VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB
Fraise carbure, 4 dents, torique, grande avance, extra-courte
4 TAGLIENTI, TORICA

- ▶ Excellent wear resistance at heavy feed rates on high hardened material.
- ▶ Designed with reduced clearance angles and short flutes for strength.
- ▶ High hardness & heat resistance coating for long life in dry applications.

- ▶ Hervorragende Verschleißeigenschaften bei hohen Schnittwerten in gehärteten Materialien
- ▶ Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- ▶ Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung



CARBIDE | 4 | 0° | R ±0.005 | PLAIN | BLUE | p.C123

Recommended ToolHolder

Plain Shank	Page
HYDRAULIC CHUCK	D15-46
SHRINK FIT HOLDER	D47-72
POWER MILLING CHUCK	D161-176
ER COLLET CHUCK	D73-116
SK SLIM CHUCK	D183-201

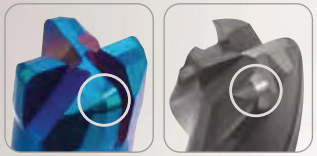
Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D_1	D_2	L_1	L_3	L_2	D_3
G8B5902005	R0.5	2.0	6	1	6	50	1.8
G8B5903005	R0.5	3.0	6	1.2	8	50	2.8
G8B5904005	R0.5	4.0	6	1.5	10	50	3.8
G8B5906005	R0.5	6.0	6	2.5	12	60	5.4
G8B5906010	R1.0	6.0	6	2.5	12	60	5.4
G8B5908010	R1.0	8.0	8	3.5	16	60	7.2
G8B5908020	R2.0	8.0	8	3.5	16	60	7.2
G8B5910010	R1.0	10.0	10	4	20	70	9
G8B5910020	R2.0	10.0	10	4	20	70	9
G8B5912020	R2.0	12.0	12	5	25	80	11
G8B5912030	R3.0	12.0	12	5	25	80	11

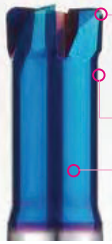
Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.02	± 0.005	h5

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Comparison of the endteeth shape



High Feed End Mill — Normal End Mill



- Reduced clearance angles and short flutes strengthens corner radius and reduces chattering
- Extra-short flute length for high rigidity
- Heavy core with reduced diameter allows greater depths and maximum rigidity

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

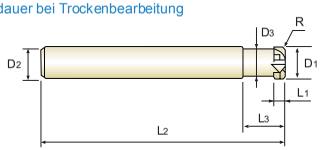
PLAIN SHANK **G8B54** SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED (long shank)

VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB
Fraise carbure, 4 dents, torique, grande avance, extra-courte
4 TAGLIENTI, TORICA EXTRA LUNGA

- Excellent wear resistance at heavy feed rates on high hardened material.
- Designed with reduced clearance angles and short flutes for strength.
- High hardness & heat resistance coating for long life in dry applications.

- Hervorragende Verschleißeigenschaften bei hohen Schnittwerten in gehärteten Materialien
- Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung



CARBIDE | 4 | 0° | R ±0.005 | PLAIN | BLUE

p.C123

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

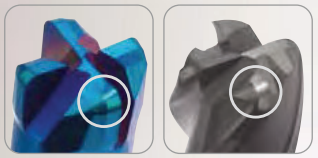
Unit : mm

EDP No.	Corner Radius R (±0.005)	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
G8B5402005	R0.5	2.0	6	1	6	70	1.8
G8B5403005	R0.5	3.0	6	1.2	8	70	2.8
G8B5404005	R0.5	4.0	6	1.5	10	70	3.8
G8B5405005	R0.5	5.0	6	2	10	70	4.6
G8B5406005	R0.5	6.0	6	2.5	12	90	5.4
G8B5406010	R1.0	6.0	6	2.5	12	90	5.4
G8B5408010	R1.0	8.0	8	3.5	16	100	7.2
G8B5408020	R2.0	8.0	8	3.5	16	100	7.2
G8B5410010	R1.0	10.0	10	4	20	100	9
G8B5410020	R2.0	10.0	10	4	20	100	9
G8B5412020	R2.0	12.0	12	5	25	110	11
G8B5412030	R3.0	12.0	12	5	25	110	11
G8B5416030	R3.0	16.0	16	6.5	30	130	15

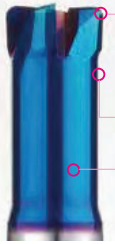
Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.02	± 0.005	h5

Comparison of the endteeth shape



Hign Feed End Mill — Normal End Mill



- Reduced clearance angles and short flutes strengthens corner radius and reduces chattering
- Extra-short flute length for high rigidity
- Heavy core with reduced diameter allows greater depths and maximum rigidity

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

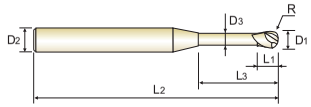
PLAIN SHANK **G8A46** SERIES

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.005 | PLAIN | BLUE

p.C124-125

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.005)	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
G8A46805	R0.05	0.1	4	0.1	0.3	45	0.085
G8A46806	R0.05	0.1	4	0.1	0.5	45	0.085
G8A46002	R0.1	0.2	4	0.2	0.5	45	0.17
G8A46977	R0.1	0.2	4	0.2	1	45	0.17
G8A46958	R0.1	0.2	4	0.2	1.5	45	0.17
G8A46003	R0.15	0.3	4	0.3	1	45	0.27
G8A46959	R0.15	0.3	4	0.3	2	45	0.27
G8A46986	R0.15	0.3	4	0.3	3	45	0.27
G8A46004	R0.2	0.4	4	0.4	1	45	0.37
G8A46960	R0.2	0.4	4	0.4	2	45	0.37
G8A46961	R0.2	0.4	4	0.4	3	45	0.37
G8A46981	R0.2	0.4	4	0.4	4	45	0.37
G8A46987	R0.2	0.4	4	0.4	5	45	0.37
G8A46005	R0.25	0.5	4	0.4	2	45	0.45
G8A46804	R0.25	0.5	4	0.4	2.5	45	0.45
G8A46962	R0.25	0.5	4	0.4	4	45	0.45
G8A46963	R0.25	0.5	4	0.4	6	45	0.45
G8A46964	R0.25	0.5	4	0.4	8	45	0.45
G8A46957	R0.3	0.6	4	0.5	2	45	0.55
G8A46988	R0.3	0.6	4	0.5	3	45	0.55
G8A46915	R0.3	0.6	4	0.5	4	45	0.55
G8A46989	R0.3	0.6	4	0.5	5	45	0.55

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A46** SERIES

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finishes.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
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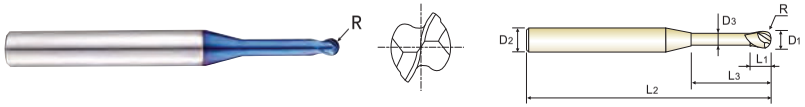
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.005 | PLAIN | BLUE

p.C124-125

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A46916	R0.3	0.6	4	0.5	6	45	0.55
G8A46917	R0.3	0.6	4	0.5	8	45	0.55
G8A46990	R0.3	0.6	4	0.5	10	45	0.55
G8A46918	R0.4	0.8	4	0.6	2	45	0.75
G8A46919	R0.4	0.8	4	0.6	4	45	0.75
G8A46008	R0.4	0.8	4	0.6	6	45	0.75
G8A46901	R0.4	0.8	4	0.6	8	45	0.75
G8A46965	R0.4	0.8	4	0.6	10	45	0.75
G8A46920	R0.5	1.0	4	0.8	3	45	0.95
G8A46921	R0.5	1.0	4	0.8	4	45	0.95
G8A46923	R0.5	1.0	4	0.8	5	45	0.95
G8A46010	R0.5	1.0	4	0.8	6	45	0.95
G8A46924	R0.5	1.0	4	0.8	7	45	0.95
G8A46902	R0.5	1.0	4	0.8	8	45	0.95
G8A46925	R0.5	1.0	4	0.8	9	45	0.95
G8A46903	R0.5	1.0	4	0.8	10	45	0.95
G8A46904	R0.5	1.0	4	0.8	12	45	0.95
G8A46926	R0.5	1.0	4	0.8	14	50	0.95
G8A46927	R0.5	1.0	4	0.8	16	50	0.95
G8A46966	R0.5	1.0	4	0.8	20	55	0.95
G8A46982	R0.6	1.2	4	1.0	6	45	1.15
G8A46012	R0.6	1.2	4	1.0	8	45	1.15

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▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr
YG-1 CO., LTD.

X5070 END MILLS
PLAIN SHANK G8A46 SERIES
CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
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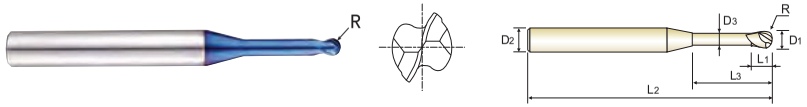

CARBIDE | 2 | 30° | R ±0.005 | PLAIN | BLUE

p.C124-125

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A46983	R0.6	1.2	4	1.0	10	45	1.15
G8A46905	R0.6	1.2	4	1.0	12	45	1.15
G8A46930	R0.75	1.5	4	1.2	6	45	1.45
G8A46015	R0.75	1.5	4	1.2	8	45	1.45
G8A46931	R0.75	1.5	4	1.2	10	45	1.45
G8A46906	R0.75	1.5	4	1.2	12	45	1.45
G8A46992	R0.75	1.5	4	1.2	14	50	1.45
G8A46907	R0.75	1.5	4	1.2	16	50	1.45
G8A46932	R0.75	1.5	4	1.2	20	55	1.45
G8A46939	R1.0	2.0	4	1.6	4	45	1.95
G8A46940	R1.0	2.0	4	1.6	6	45	1.95
G8A46020	R1.0	2.0	4	1.6	8	45	1.95
G8A46941	R1.0	2.0	4	1.6	10	45	1.95
G8A46942	R1.0	2.0	4	1.6	12	50	1.95
G8A46943	R1.0	2.0	4	1.6	14	50	1.95
G8A46909	R1.0	2.0	4	1.6	16	50	1.95
G8A46993	R1.0	2.0	4	1.6	18	55	1.95
G8A46910	R1.0	2.0	4	1.6	20	55	1.95
G8A46944	R1.0	2.0	4	1.6	22	60	1.95
G8A46945	R1.0	2.0	4	1.6	25	60	1.95
G8A46967	R1.0	2.0	4	1.6	30	70	1.95
G8A46948	R1.5	3.0	6	2.4	12	50	2.85

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▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
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HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

YG-1 CO., LTD.
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X5070 END MILLS

PLAIN SHANK **G8A46** SERIES

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

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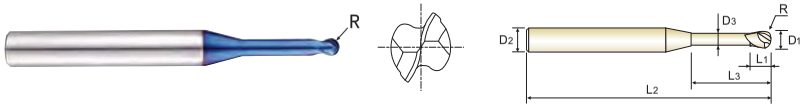
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.005 | PLAIN | BLUE

p.C124-125

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46984	R1.5	3.0	6	2.4	14	55	2.85
G8A46030	R1.5	3.0	6	2.4	16	55	2.85
G8A46985	R1.5	3.0	6	2.4	18	60	2.85
G8A46911	R1.5	3.0	6	2.4	20	60	2.85
G8A46968	R1.5	3.0	6	2.4	25	65	2.85
G8A46969	R1.5	3.0	6	2.4	30	70	2.85
G8A46970	R1.5	3.0	6	2.4	35	80	2.85
G8A46950	R2.0	4.0	6	3.2	12	60	3.85
G8A46040	R2.0	4.0	6	3.2	16	60	3.85
G8A46912	R2.0	4.0	6	3.2	20	65	3.85
G8A46913	R2.0	4.0	6	3.2	25	70	3.85
G8A46971	R2.0	4.0	6	3.2	30	70	3.85
G8A46972	R2.0	4.0	6	3.2	35	80	3.85
G8A46973	R2.0	4.0	6	3.2	40	90	3.85
G8A46974	R2.0	4.0	6	3.2	45	90	3.85
G8A46975	R2.0	4.0	6	3.2	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

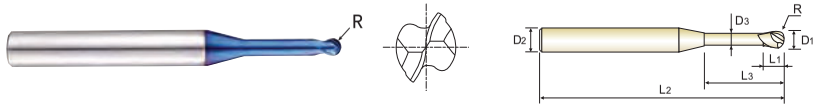
PLAIN SHANK **G8A54** SERIES

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.005 | PLAIN | BLUE

p.C124-125

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A54005	R0.25	0.5	6	0.5	1.5	50	0.45
G8A54901	R0.25	0.5	6	0.5	3.3	50	0.45
G8A54006	R0.3	0.6	6	0.6	2	50	0.55
G8A54902	R0.3	0.6	6	0.6	4	50	0.55
G8A54008	R0.4	0.8	6	0.8	2.5	50	0.75
G8A54903	R0.4	0.8	6	0.8	5.5	50	0.75
G8A54010	R0.5	1.0	6	1	3.3	50	0.95
G8A54904	R0.5	1.0	6	1	6.7	50	0.95
G8A54905	R0.5	1.0	6	1	12	50	0.95
G8A54012	R0.6	1.2	6	1.2	4.4	50	1.15
G8A54906	R0.6	1.2	6	1.2	8	50	1.15
G8A54015	R0.75	1.5	6	1.5	5	50	1.45
G8A54907	R0.75	1.5	6	1.5	9.7	50	1.45
G8A54908	R0.75	1.5	6	1.5	15	50	1.45
G8A54020	R1.0	2.0	6	2	6	50	1.95
G8A54909	R1.0	2.0	6	2	13	50	1.95
G8A54910	R1.0	2.0	6	2	20	60	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A28** SERIES

CARBIDE, 2 FLUTE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
2 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.

CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | BLUE

R0.05~R3 R4~R6

p.C126-127

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
G8A28001	R0.05	0.1	4	0.2	-	40	-
G8A28002	R0.1	0.2	4	0.3	-	40	-
G8A28003	R0.15	0.3	4	0.5	-	40	-
G8A28004	R0.2	0.4	4	0.6	-	40	-
G8A28005	R0.25	0.5	4	0.7	-	40	-
G8A28006	R0.3	0.6	4	0.9	-	40	-
G8A28007	R0.35	0.7	4	1.1	-	40	-
G8A28008	R0.4	0.8	4	1.2	-	40	-
G8A28009	R0.45	0.9	4	1.4	-	40	-
G8A280104S	R0.5	1.0	4	1.5	3	50	0.95
G8A28010	R0.5	1.0	6	1.5	3	50	0.95
G8A280154S	R0.75	1.5	4	2	4	50	1.45
G8A28015	R0.75	1.5	6	2	4	50	1.45
G8A280204S	R1.0	2.0	4	2.5	5	50	1.95
G8A28020	R1.0	2.0	6	2.5	5	50	1.95
G8A280254S	R1.25	2.5	4	3	7	50	2.4
G8A28025	R1.25	2.5	6	3	7	50	2.4
G8A28030	R1.5	3.0	6	4	10	60	2.85
G8A28035	R1.75	3.5	6	4.5	10	60	3.35
G8A28040	R2.0	4.0	6	5	10	60	3.85
G8A28045	R2.25	4.5	6	5.5	10	60	4.35
G8A28050	R2.5	5.0	6	6	12	60	4.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

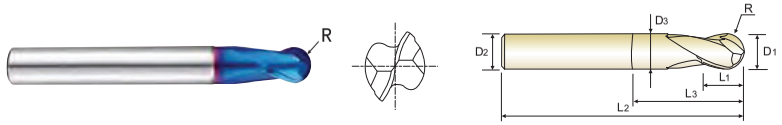
Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS
PLAIN SHANK G8A28 SERIES
CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
2 TAGLIENTI, SEMISFERICA
▶ Designed to machine high hardened materials.
▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
▶ Excellent workpiece finish.
▶ Designed for high precision milling operation.
▶ Higher wear-resistance.
▶ Geeignet zum Fräsen hochgehärteter Stähle.
▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
▶ Excellente Werkstückoberflächen.
▶ Geeignet für hochpräzises Fräsen.
▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | BLUE
R0.05~R3 R4~R6
p.C126-127
Recommended ToolHolder
Plain Shank Page
HYDRAULIC CHUCK SHRINK FIT HOLDER D15 - 46 D47 - 72
POWER MILLING CHUCK D161 - 176
ER COLLET CHUCK SK SLIM CHUCK D73 - 116 D183 - 201
Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (± 0.005)	D_1	D_2	L_1	L_3	L_2	D_3
G8A28055	R2.75	5.5	6	6.5	12	60	5.35
G8A28060	R3.0	6.0	6	7	15	60	5.85
G8A28903	R3.0	6.0	6	9	30	90	5.85
G8A28901	R4.0	8.0	8	9	15	60	7.7
G8A28080	R4.0	8.0	8	9	15	80	7.7
G8A28904	R4.0	8.0	8	12	30	100	7.7
G8A28902	R5.0	10.0	10	11	25	60	9.7
G8A28100	R5.0	10.0	10	11	25	80	9.7
G8A28905	R5.0	10.0	10	15	30	100	9.7
G8A28120	R6.0	12.0	12	14	25	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend								○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

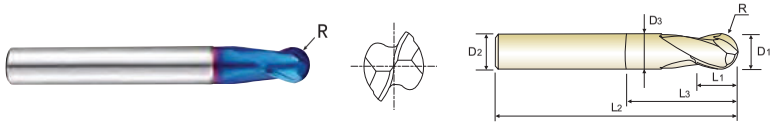
PLAIN SHANK **G8A38** SERIES

CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ STIRNRADIUS mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, hémisphérique, détalonnée, extra-courte
2 TAGLIENTI, SEMISFERICA TAGLIENTE CORTO CON SCARICO ESTESO

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | BLUE

R0.5~R3 R3.5~R12.5

p.C126-127

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A38010	R0.5	1.0	4	1	2.2	50	0.95
G8A38012	R0.6	1.2	4	1.2	2.6	50	1.15
G8A38015	R0.75	1.5	4	1.5	3	50	1.45
G8A380204S	R1.0	2.0	4	2	4	50	1.95
G8A38020	R1.0	2.0	6	2	4	50	1.95
G8A38030	R1.5	3.0	6	3	6	60	2.85
G8A38040	R2.0	4.0	6	4	8	70	3.85
G8A38050	R2.5	5.0	6	5	10	80	4.85
G8A38060	R3.0	6.0	6	6	12	90	5.85
G8A38070	R3.5	7.0	8	7	14	90	6.7
G8A38080	R4.0	8.0	8	8	16	100	7.7
G8A38090	R4.5	9.0	10	9	18	100	8.7
G8A38100	R5.0	10.0	10	10	20	100	9.7
G8A38120	R6.0	12.0	12	12	24	110	11.7
G8A38140	R7.0	14.0	14	14	28	110	13.7
G8A38160	R8.0	16.0	16	16	32	140	15.7
G8A38180	R9.0	18.0	18	18	36	140	17.7
G8A38200	R10.0	20.0	20	20	40	160	19.7
G8A38250	R12.5	25.0	25	25	50	180	24.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

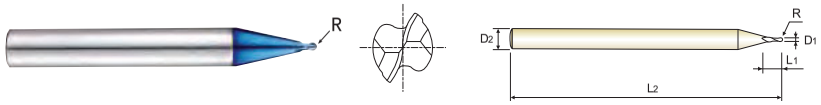
PLAIN SHANK **G8A53** SERIES

CARBIDE, 2 FLUTE MINIATURE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, micro-fraise
2 TAGLIENTI, SEMISFERICA MINI

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.005 | PLAIN | BLUE

p.C126-127

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.005)	D1	D2	L1	L2
G8A53004	R0.2	0.4	6	0.4	50
G8A53005	R0.25	0.5	6	0.5	50
G8A53006	R0.3	0.6	6	0.6	50
G8A53008	R0.4	0.8	6	0.8	50
G8A53010	R0.5	1.0	6	1.0	50
G8A53012	R0.6	1.2	6	1.2	50
G8A53015	R0.75	1.5	6	1.5	50
G8A53020	R1.0	2.0	6	2.0	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

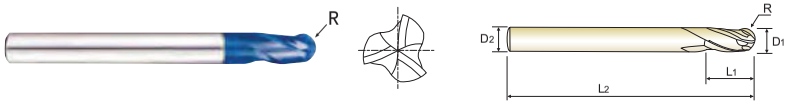
PLAIN SHANK **G8A59** SERIES

CARBIDE, 3 FLUTE BALL NOSE - Center Match

VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt
Fraise carbure, 3 dents, hémisphérique, coupe au centre
3 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 3 | 30° | R ±0.005 (R1.5~R3) | R ±0.010 (R4~R10) | PLAIN | BLUE | p.C128

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
G8A59030	R1.5	3.0	6	8	60
G8A59040	R2.0	4.0	6	8	70
G8A59050	R2.5	5.0	6	10	80
G8A59060	R3.0	6.0	6	12	90
G8A59080	R4.0	8.0	8	14	100
G8A59100	R5.0	10.0	10	18	100
G8A59120	R6.0	12.0	12	22	110
G8A59160	R8.0	16.0	16	30	140
G8A59200	R10.0	20	38	160	

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

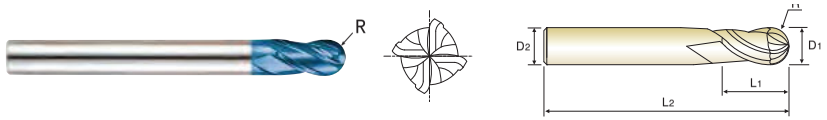
PLAIN SHANK **G8D62** SERIES

CARBIDE, 4 FLUTE BALL NOSE - Center Match

VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt
Fraise carbure, 4 dents, hémisphérique - coupe au centre
4 TAGLIENTI, SEMISFERICA - 4 TAGLIENTI A CENTRO FRESA

- ▶ Applied center match type & special new design on ball center shape.
- ▶ Excellent high wear resistance and high performance.
- ▶ Applied for high speed and feed.
- ▶ Increased the surface roughness.

- ▶ Neues Design der Kugelschneidengeometrie
- ▶ Hohe Verschleißfestigkeit, hohe Leistung.
- ▶ Geeignet für hohe Schnittgeschwindigkeiten und hohe Vorschübe
- ▶ verbessert deutlich die Oberflächenrauhigkeit



CARBIDE | 4 | 30° | R ±0.005 (R1.5~R3) | R ±0.010 (R4~R10) | PLAIN | BLUE | p.C129

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	POWER MILLING CHUCK	D161 - 176
	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
G8D62030	R1.5	3.0	6	8	60
G8D62040	R2.0	4.0	6	8	70
G8D62050	R2.5	5.0	6	10	80
G8D62060	R3.0	6.0	6	12	90
G8D62080	R4.0	8.0	8	14	100
G8D62100	R5.0	10.0	10	18	100
G8D62120	R6.0	12.0	12	22	110
G8D62160	R8.0	16.0	16	30	140
G8D62200	R10.0	20.0	38	160	

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

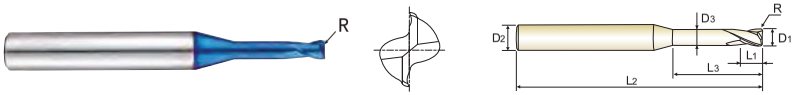
PLAIN SHANK **G8A60** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE

Ø0.5~Ø6 Ø8~Ø12

p.C130-131

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
◎	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60936	R0.05	0.5	4	0.7	1.5	45	0.45
G8A60932	R0.05	0.5	4	0.7	2.5	45	0.45
G8A60935	R0.05	0.5	4	0.7	4	45	0.45
G8A60931	R0.05	0.6	4	0.9	2	45	0.55
G8A60933	R0.05	0.6	4	0.9	3	45	0.55
G8A60934	R0.05	0.6	4	0.9	4	45	0.55
G8A600060102	R0.1	0.6	4	0.9	2	45	0.55
G8A600070104	R0.1	0.7	4	1	4	45	0.65
G8A600080102	R0.1	0.8	4	1.2	2	45	0.75
G8A60008	R0.1	0.8	4	1.2	4	45	0.75
G8A60924	R0.1	0.8	4	1.2	6	45	0.75
G8A609254S	R0.1	1.0	4	1.5	4	50	0.95
G8A609264S	R0.1	1.0	4	1.5	6	50	0.95
G8A600100204	R0.2	1.0	4	1.5	4	50	0.95
G8A600100206	R0.2	1.0	4	1.5	6	50	0.95
G8A609114S	R0.2	1.0	4	1.5	8	50	0.95
G8A600100304	R0.3	1.0	4	1.5	4	50	0.95
G8A600100306	R0.3	1.0	4	1.5	6	50	0.95
G8A60980	R0.3	1.0	4	1.5	8	50	0.95
G8A60925	R0.1	1.0	6	1.5	4	50	0.95
G8A60926	R0.1	1.0	6	1.5	6	50	0.95
G8A60010	R0.2	1.0	6	1.5	4	50	0.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

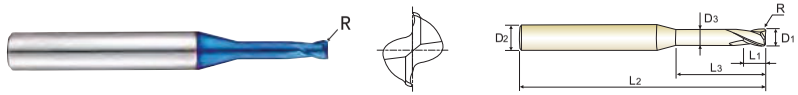
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS
PLAIN SHANK G8A60 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE
▶ Designed to machine high hardened materials.
▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
▶ Excellent workpiece finish.
▶ Deep slotting is possible by reduced neck.
▶ Corner radius for preventing the chipping in high speed machining.
▶ Higher wear-resistance.
▶ Geeignet zum Fräsen hochgehärteter Stähle.
▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
▶ Excellente Werkstückoberflächen.
▶ Abgesetzter Schaft für größere Reichweite.
▶ Schneidkantenschutz durch definierten Radius.
▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE
Ø0.5~Ø6 Ø8~Ø12
p.C130-131
Recommended ToolHolder
	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
◎	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201
Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60910	R0.2	1.0	6	1.5	6	50	0.95
G8A60911	R0.2	1.0	6	1.5	8	50	0.95
G8A60912	R0.3	1.0	6	1.5	4	50	0.95
G8A60930	R0.3	1.0	6	1.5	6	50	0.95
G8A600100308	R0.3	1.0	6	1.5	8	50	0.95
G8A600154S	R0.2	1.5	4	2.5	4	50	1.45
G8A6001502064S	R0.2	1.5	4	2.5	6	50	1.45
G8A6001502084S	R0.2	1.5	4	2.5	8	50	1.45
G8A609134S	R0.2	1.5	4	2.5	10	50	1.45
G8A609144S	R0.2	1.5	4	2.5	12	50	1.45
G8A609154S	R0.3	1.5	4	2.5	4	50	1.45
G8A6001503064S	R0.3	1.5	4	2.5	6	50	1.45
G8A6001503084S	R0.3	1.5	4	2.5	8	50	1.45
G8A60015	R0.2	1.5	6	2.5	4	50	1.45
G8A600150206	R0.2	1.5	6	2.5	6	50	1.45
G8A600150208	R0.2	1.5	6	2.5	8	50	1.45
G8A60913	R0.2	1.5	6	2.5	10	50	1.45
G8A60914	R0.2	1.5	6	2.5	12	50	1.45
G8A60915	R0.3	1.5	6	2.5	4	50	1.45
G8A600150306	R0.3	1.5	6	2.5	6	50	1.45
G8A600150308	R0.3	1.5	6	2.5	8	50	1.45
G8A609274S	R0.2	2.0	4	3	6	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.
▶ NEXT PAGE
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

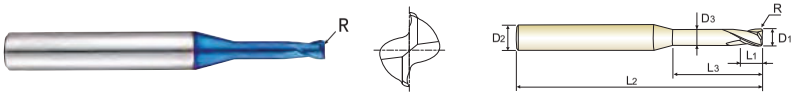
PLAIN SHANK **G8A60** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE

Ø0.5~Ø6 Ø8~Ø12

p.C130-131

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
◎	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK SK SLIM CHUCK	D73-116 D183-201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
G8A6002002084S	R0.2	2.0	4	3	8	50	1.95
G8A6002002104S	R0.2	2.0	4	3	10	55	1.95
G8A6002002124S	R0.2	2.0	4	3	12	55	1.95
G8A609164S	R0.3	2.0	4	3	6	50	1.95
G8A6002003084S	R0.3	2.0	4	3	8	50	1.95
G8A6002003104S	R0.3	2.0	4	3	10	55	1.95
G8A6002003124S	R0.3	2.0	4	3	12	55	1.95
G8A6002003164S	R0.3	2.0	4	3	16	55	1.95
G8A609174S	R0.5	2.0	4	3	6	50	1.95
G8A600204S	R0.5	2.0	4	3	10	55	1.95
G8A609184S	R0.5	2.0	4	3	12	55	1.95
G8A60927	R0.2	2.0	6	3	6	50	1.95
G8A600200208	R0.2	2.0	6	3	8	50	1.95
G8A600200210	R0.2	2.0	6	3	10	55	1.95
G8A600200212	R0.2	2.0	6	3	12	55	1.95
G8A60916	R0.3	2.0	6	3	6	50	1.95
G8A600200308	R0.3	2.0	6	3	8	50	1.95
G8A600200310	R0.3	2.0	6	3	10	55	1.95
G8A600200312	R0.3	2.0	6	3	12	55	1.95
G8A600200316	R0.3	2.0	6	3	16	55	1.95
G8A60917	R0.5	2.0	6	3	6	50	1.95
G8A60020	R0.5	2.0	6	3	10	55	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS
PLAIN SHANK G8A60 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
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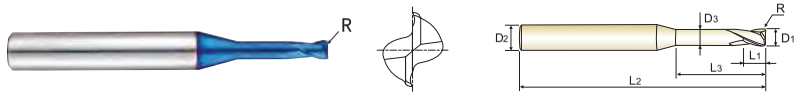

CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE
Ø0.5~Ø6 Ø8~Ø12
p.C130-131
Recommended ToolHolder
Plain Shank Page
HYDRAULIC CHUCK SHRINK FIT HOLDER D15-46 D47-72
POWER MILLING CHUCK D161-176
ER COLLET CHUCK SK SLIM CHUCK D73-116 D183-201
Unit : mm

EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
G8A60918	R0.5	2.0	6	3	12	55	1.95
G8A600300208	R0.2	3.0	6	4	8	55	2.85
G8A600300210	R0.2	3.0	6	4	10	55	2.85
G8A600300212	R0.2	3.0	6	4	12	55	2.85
G8A600300216	R0.2	3.0	6	4	16	55	2.85
G8A600300308	R0.3	3.0	6	4	8	55	2.85
G8A60919	R0.3	3.0	6	4	10	55	2.85
G8A600300312	R0.3	3.0	6	4	12	55	2.85
G8A600300316	R0.3	3.0	6	4	16	55	2.85
G8A60030	R0.5	3.0	6	4	10	55	2.85
G8A600300512	R0.5	3.0	6	4	12	55	2.85
G8A60901	R0.5	3.0	6	4	16	55	2.85
G8A60902	R0.5	3.0	6	4	20	55	2.85
G8A600400212	R0.2	4.0	6	5	12	55	3.85
G8A600400216	R0.2	4.0	6	5	16	55	3.85
G8A600400220	R0.2	4.0	6	5	20	55	3.85
G8A600400310	R0.3	4.0	6	5	10	55	3.85
G8A60920	R0.3	4.0	6	5	12	55	3.85
G8A600400316	R0.3	4.0	6	5	16	55	3.85
G8A600400320	R0.3	4.0	6	5	20	55	3.85
G8A60040	R0.5	4.0	6	5	12	55	3.85
G8A60903	R0.5	4.0	6	5	16	55	3.85

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▶ NEXT PAGE
Size | Corner Radius Tolerance (mm) | Mill Dia. Tolerance (mm) | Shank Dia. Tolerance
up to Ø6 | ± 0.010 | 0 ~ - 0.012 | h5
over Ø6 | ± 0.015 | 0 ~ - 0.015 |
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A60** SERIES

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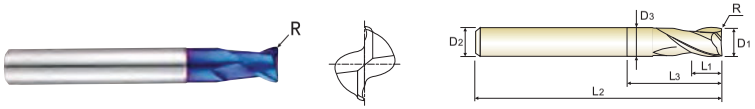

CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE

Ø0.5~Ø6 Ø8~Ø12

p.C130-131

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A60904	R0.5	4.0	6	5	20	55	3.85
G8A600401012	R1.0	4.0	6	5	12	55	3.85
G8A600401016	R1.0	4.0	6	5	16	55	3.85
G8A60921	R0.3	6.0	6	7	20	60	5.85
G8A60060	R0.5	6.0	6	7	20	60	5.85
G8A60905	R1.0	6.0	6	7	20	60	5.85
G8A60906	R1.5	6.0	6	7	20	60	5.85
G8A600602020	R2.0	6.0	6	7	20	60	5.85
G8A60922	R0.3	8.0	8	9	25	60	7.7
G8A60929	R0.5	8.0	8	9	25	60	7.7
G8A60080	R1.0	8.0	8	9	25	60	7.7
G8A60907	R1.5	8.0	8	9	25	60	7.7
G8A600802025	R2.0	8.0	8	9	25	60	7.7
G8A60923	R0.3	10.0	10	11	32	70	9.7
G8A601000532	R0.5	10.0	10	11	32	70	9.7
G8A60100	R1.0	10.0	10	11	32	70	9.7
G8A60908	R1.5	10.0	10	11	32	70	9.7
G8A601002032	R2.0	10.0	10	11	32	70	9.7
G8A601200538	R0.5	12.0	12	12	38	80	11.7
G8A60120	R1.0	12.0	12	12	38	80	11.7
G8A60909	R1.5	12.0	12	12	38	80	11.7
G8A601202038	R2.0	12.0	12	12	38	80	11.7

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Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A36** SERIES

CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, torique, détalonnée, extra-courte
2 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
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- ▶ Höhere Verschleißfestigkeit.

CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE

Ø0.3~Ø6 Ø8~Ø20

p.C137-139

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A36003	-	0.3	3	0.45	-	40	-
G8A36004	-	0.4	3	0.6	-	40	-
G8A36005	R0.05	0.5	3	0.7	-	40	-
G8A36907	R0.05	0.5	4	1	-	40	-
G8A36006	R0.05	0.6	3	0.9	-	40	-
G8A36908	R0.05	0.6	4	1.2	-	40	-
G8A36909	R0.05	0.7	4	1.4	-	40	-
G8A36008	R0.05	0.8	3	1.2	-	40	-
G8A36910	R0.05	0.8	4	1.6	-	40	-
G8A36911	R0.05	0.9	4	2	-	40	-
G8A36010	R0.1	1.0	3	1.5	-	40	-
G8A36901	R0.1	1.0	4	1.5	-	40	-
G8A36903	R0.1	1.0	6	1.5	-	40	-
G8A36015	R0.1	1.5	3	2.2	-	40	-
G8A36904	R0.1	1.5	6	2.2	-	40	-
G8A36020	R0.1	2.0	3	3	6	40	1.95
G8A36902	R0.1	2.0	4	3	6	40	1.95
G8A36905	R0.1	2.0	6	3	6	40	1.95
G8A36025	R0.1	2.5	3	4	6	40	2.4
G8A36906	R0.1	2.5	6	4	6	40	2.4
G8A36030	R0.1	3.0	6	4	7	45	2.85
G8A36035	R0.1	3.5	6	5	9	45	3.35

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▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
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◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A36** SERIES

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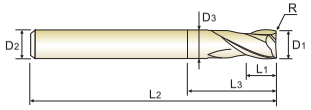


CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE

Ø0.3~Ø6 Ø8~Ø20

p.C137-139

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
G8A36040	R0.1	**4.0**	6	5	9	45	3.85
G8A36045	R0.1	**4.5**	6	6	10	45	4.35
G8A36050	R0.2	**5.0**	6	6	11	50	4.85
G8A36060	R0.2	**6.0**	6	7	14	50	5.85
G8A36080	R0.2	**8.0**	8	9	18	60	7.7
G8A36100	R0.2	**10.0**	10	12	25	75	9.7
G8A36120	R0.3	**12.0**	12	15	30	75	11.7
G8A36160	R0.3	**16.0**	16	18	38	90	15.7
G8A36200	R0.3	**20.0**	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

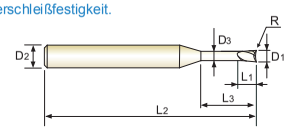
PLAIN SHANK **G8A52** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA, SCARIATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | R ±0.010 | PLAIN | BLUE

p.C132

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D_1	D_2	L_1	L_3	L_2	D_3
G8A52005	R0.05	**0.5**	6	0.7	1.5	50	0.45
G8A52901	R0.05	**0.5**	6	0.7	3.3	50	0.45
G8A52006	R0.05	**0.6**	6	0.9	2	50	0.55
G8A52902	R0.05	**0.6**	6	0.9	4	50	0.55
G8A52008	R0.05	**0.8**	6	1.2	2.5	50	0.75
G8A52903	R0.05	**0.8**	6	1.2	5.5	50	0.75
G8A52010	R0.10	**1.0**	6	1.5	3.3	50	0.95
G8A52904	R0.10	**1.0**	6	1.5	6.7	50	0.95
G8A52012	R0.10	**1.2**	6	1.8	4.4	50	1.15
G8A52905	R0.10	**1.2**	6	1.8	8	50	1.15
G8A52015	R0.15	**1.5**	6	2.2	5	50	1.45
G8A52906	R0.15	**1.5**	6	2.2	9.7	50	1.45
G8A52020	R0.15	**2.0**	6	2.2	6	50	1.95
G8A52907	R0.15	**2.0**	6	2.2	13	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A50** SERIES

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS
Fraise carbure, 2 dents, torique, micro-fraise
2 TAGLIENTI, TORICA MINI

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.

CARBIDE | 2 | 30° | R ±0.010 | PLAIN | BLUE p.C133

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
G8A50003	-	0.3	6	0.45	50
G8A50004	-	0.4	6	0.6	50
G8A50005	R0.05	0.5	6	0.7	50
G8A50006	R0.05	0.6	6	0.9	50
G8A50008	R0.05	0.8	6	1.2	50
G8A50010	R0.10	1.0	6	1.5	50
G8A50012	R0.10	1.2	6	1.8	50
G8A50015	R0.15	1.5	6	2.2	50
G8A50020	R0.15	2.0	6	2.2	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A47** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, torique, micro-fraise
4 TAGLIENTI, TORICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.

CARBIDE | 4 | 30° | R ±0.010 (Ø3~Ø6) | R ±0.015 (Ø8~Ø12) | PLAIN | BLUE p.C134

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R (±0.010)	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
G8A47916	R0.3	3.0	6	4	12	55	2.85
G8A47917	R0.3	3.0	6	4	16	55	2.85
G8A47918	R0.3	3.0	6	4	20	55	2.85
G8A47030	R0.5	3.0	6	4	10	55	2.85
G8A47901	R0.5	3.0	6	4	16	55	2.85
G8A47902	R0.5	3.0	6	4	20	55	2.85
G8A47919	R0.3	4.0	6	5	12	55	3.85
G8A47920	R0.3	4.0	6	5	16	55	3.85
G8A47921	R0.3	4.0	6	5	20	55	3.85
G8A47040	R0.5	4.0	6	5	12	55	3.85
G8A47903	R0.5	4.0	6	5	16	55	3.85
G8A47904	R0.5	4.0	6	5	20	55	3.85
G8A47922	R1.0	4.0	6	5	12	55	3.85
G8A47060	R0.5	6.0	6	7	20	60	5.85
G8A47905	R1.0	6.0	6	7	20	60	5.85
G8A47906	R1.5	6.0	6	7	20	60	5.85
G8A47910	R0.5	8.0	8	9	25	60	7.7
G8A47080	R1.0	8.0	8	9	25	60	7.7
G8A47907	R1.5	8.0	8	9	25	60	7.7
G8A47913	R2.0	8.0	8	9	25	60	7.7
G8A47911	R0.5	10.0	10	11	32	70	9.7
G8A47100	R1.0	10.0	10	11	32	70	9.7
G8A47908	R1.5	10.0	10	11	32	70	9.7
G8A47914	R2.0	10.0	10	11	32	70	9.7
G8A47912	R0.5	12.0	12	12	38	80	11.7
G8A47120	R1.0	12.0	12	12	38	80	11.7
G8A47909	R1.5	12.0	12	12	38	80	11.7
G8A47915	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

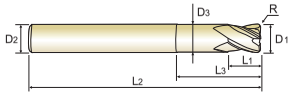
PLAIN SHANK **G8A37** SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 4 dents, torique, détalonnée, extra-courte
4 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 4 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE

Ø1~Ø6 Ø8~Ø20

p.C140

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A37010	R0.1	1.0	3	1.5	-	40	-
G8A37901	R0.1	1.0	6	1.5	-	40	-
G8A37015	R0.1	1.5	3	2.2	-	40	-
G8A37902	R0.1	1.5	6	2.2	-	40	-
G8A37020	R0.1	2.0	3	3	6	40	1.95
G8A37903	R0.1	2.0	6	3	6	40	1.95
G8A37025	R0.1	2.5	3	4	6	40	2.4
G8A37904	R0.1	2.5	6	4	6	40	2.4
G8A37030	R0.1	3.0	6	4	7	45	2.85
G8A37035	R0.1	3.5	6	5	9	45	3.35
G8A37040	R0.1	4.0	6	5	9	45	3.85
G8A37045	R0.1	4.5	6	6	10	45	4.35
G8A37050	R0.2	5.0	6	6	11	50	4.85
G8A37060	R0.2	6.0	6	7	14	50	5.85
G8A37080	R0.2	8.0	8	9	18	60	7.7
G8A37100	R0.2	10.0	10	12	25	75	9.7
G8A37120	R0.3	12.0	12	15	30	75	11.7
G8A37160	R0.3	16.0	16	18	38	90	15.7
G8A37200	R0.3	20.0	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

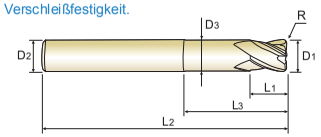
PLAIN SHANK **G8B08** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, détalonnée
4 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 4 | 30° | R ±0.010 | R ±0.015 | PLAIN | BLUE

Ø6 Ø8~Ø12

p.C134

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8B0806005090	R0.5	6.0	6	9	20	90	5.85
G8B0806010090	R1.0	6.0	6	9	20	90	5.85
G8B0808005100	R0.5	8.0	8	12	25	100	7.7
G8B0808010100	R1.0	8.0	8	12	25	100	7.7
G8B0810005100	R0.5	10.0	10	15	32	100	9.7
G8B0810010100	R1.0	10.0	10	15	32	100	9.7
G8B0810020100	R2.0	10.0	10	15	32	100	9.7
G8B0812005110	R0.5	12.0	12	18	38	110	11.7
G8B0812010110	R1.0	12.0	12	18	38	110	11.7
G8B0812020110	R2.0	12.0	12	18	38	110	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend								○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

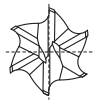
PLAIN SHANK **G8A39** SERIES

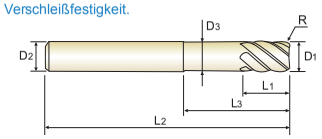
CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 6 dents, torique, hélice 45°, détalonnée
6 TAGLIENTI, TORICA, ELICA 45°, SCARICATA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.





CARBIDE | 6 | 45° | R ±0.010 (Ø6) | R ±0.015 (Ø8~Ø20) | PLAIN | BLUE

p.C141

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK / SHRINK FIT HOLDER	D15 - 46 / D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK / SK SLIM CHUCK	D73 - 116 / D183 - 201

Unit : mm

EDP No.	Corner Radius R (±0.010)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A39916	R0.25	6.0	6	6	14	50	5.85
G8A39060	R0.5	6.0	6	6	14	50	5.85
G8A39901	R0.5	6.0	6	13	-	70	-
* G8A39910	R0.5	6.0	6	26	-	70	-
G8A39080	R0.5	8.0	8	8	24	60	7.7
G8A39902	R0.5	8.0	8	19	-	90	-
* G8A39911	R0.5	8.0	8	36	-	90	-
G8A39903	R0.5	10.0	10	22	-	100	-
G8A39100	R1.0	10.0	10	10	30	70	9.7
G8A39904	R1.0	10.0	10	22	-	100	-
* G8A39912	R1.0	10.0	10	46	-	100	-
G8A39905	R0.5	12.0	12	26	-	110	-
G8A39120	R1.0	12.0	12	12	30	75	11.7
G8A39906	R1.0	12.0	12	26	-	110	-
* G8A39913	R1.0	12.0	12	56	-	110	-
G8A39160	R1.0	16.0	16	32	-	130	-
G8A39907	R1.5	16.0	16	32	-	130	-
* G8A39914	R1.5	16.0	16	66	-	130	-
G8A39200	R1.0	20.0	20	38	-	140	-
G8A39908	R1.5	20.0	20	38	-	140	-
G8A39909	R2.0	20.0	20	38	-	140	-
* G8A39915	R2.0	20.0	20	76	-	140	-

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

* Mill Dia. Tolerance(mm) for Extra Long Type : 0~-0.03

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

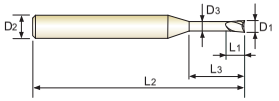
PLAIN SHANK **G8A45** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | PLAIN | BLUE

p.C135-136

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK / SHRINK FIT HOLDER	D15 - 46 / D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK / SK SLIM CHUCK	D73 - 116 / D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45863	0.1	4	0.15	0.3	45	0.085
G8A45864	0.1	4	0.15	0.5	45	0.085
G8A45002	0.2	4	0.3	0.5	45	0.17
G8A45815	0.2	4	0.3	1	45	0.17
G8A45816	0.2	4	0.3	1.5	45	0.17
G8A45003	0.3	4	0.45	1	45	0.27
G8A45844	0.3	4	0.45	1.5	45	0.27
G8A45817	0.3	4	0.45	2	45	0.27
G8A45818	0.3	4	0.45	3	45	0.27
G8A45842	0.3	4	0.45	4	45	0.27
G8A45843	0.4	4	0.6	1	45	0.37
G8A45004	0.4	4	0.6	2	45	0.37
G8A45984	0.4	4	0.6	3	45	0.37
G8A45985	0.4	4	0.6	4	45	0.37
G8A45986	0.4	4	0.6	5	45	0.37
G8A45005	0.5	4	0.7	2	45	0.45
G8A45861	0.5	4	0.7	2.5	45	0.45
G8A45988	0.5	4	0.7	4	45	0.45
G8A45989	0.5	4	0.7	6	45	0.45
G8A45990	0.5	4	0.7	8	45	0.45
G8A45006	0.6	4	0.9	2	45	0.55
G8A45860	0.6	4	0.9	3	45	0.55

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A45** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
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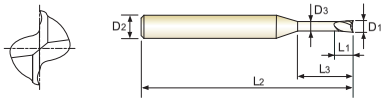
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 2 | 30° | PLAIN | BLUE

p.C135-136

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK / SHRINK FIT HOLDER	D15 - 46 / D47 - 72
○	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK / SK SLIM CHUCK	D73 - 116 / D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45991	0.6	4	0.9	4	45	0.55
G8A45992	0.6	4	0.9	6	45	0.55
G8A45993	0.6	4	0.9	8	45	0.55
G8A45819	0.6	4	0.9	10	45	0.55
G8A45862	0.8	4	1.2	2	45	0.75
G8A45008	0.8	4	1.2	4	45	0.75
G8A45908	0.8	4	1.2	6	45	0.75
G8A45909	0.8	4	1.2	8	45	0.75
G8A45994	0.8	4	1.2	10	45	0.75
G8A45995	0.8	4	1.2	12	45	0.75
G8A45996	1.0	4	1.5	4	45	0.95
G8A45010	1.0	4	1.5	6	45	0.95
G8A45912	1.0	4	1.5	8	45	0.95
G8A45913	1.0	4	1.5	10	45	0.95
G8A45914	1.0	4	1.5	12	45	0.95
G8A45997	1.0	4	1.5	16	50	0.95
G8A45998	1.0	4	1.5	20	55	0.95
G8A45012	1.2	4	1.8	6	45	1.15
G8A45915	1.2	4	1.8	8	45	1.15
G8A45916	1.2	4	1.8	10	45	1.15
G8A45917	1.2	4	1.8	12	45	1.15
G8A45999	1.2	4	1.8	16	50	1.15

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS
PLAIN SHANK G8A45 SERIES
CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
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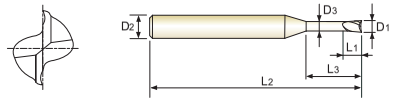

CARBIDE | 2 | 30° | PLAIN | BLUE
p.C135-136
Recommended ToolHolder
	Plain Shank	Page
◎	HYDRAULIC CHUCK / SHRINK FIT HOLDER	D15 - 46 / D47 - 72
○	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK / SK SLIM CHUCK	D73 - 116 / D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45015	1.5	4	2.3	6	45	1.45
G8A45923	1.5	4	2.3	8	45	1.45
G8A45924	1.5	4	2.3	10	45	1.45
G8A45925	1.5	4	2.3	12	45	1.45
G8A45926	1.5	4	2.3	14	50	1.45
G8A45927	1.5	4	2.3	16	50	1.45
G8A45928	1.5	4	2.3	18	55	1.45
G8A45810	1.5	4	2.3	20	55	1.45
G8A45958	2.0	4	3.0	6	45	1.95
G8A45020	2.0	4	3.0	8	45	1.95
G8A45959	2.0	4	3.0	10	45	1.95
G8A45960	2.0	4	3.0	12	45	1.95
G8A45961	2.0	4	3.0	14	50	1.95
G8A45962	2.0	4	3.0	16	50	1.95
G8A45963	2.0	4	3.0	18	55	1.95
G8A45964	2.0	4	3.0	20	55	1.95
G8A45966	2.0	4	3.0	25	60	1.95
G8A45814	2.0	4	3.0	30	70	1.95
G8A45975	3.0	6	4.5	10	45	2.85
G8A45976	3.0	6	4.5	12	45	2.85
G8A45977	3.0	6	4.5	14	50	2.85
G8A45978	3.0	6	4.5	16	55	2.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.
▶ NEXT PAGE
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

PLAIN SHANK **G8A45** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI PER NERVATURE

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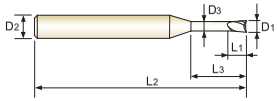


CARBIDE | 2 | 30° | PLAIN | BLUE

p.C135-136

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45979	3.0	6	4.5	18	55	2.85
G8A45980	3.0	6	4.5	20	60	2.85
G8A45981	3.0	6	4.5	25	65	2.85
G8A45832	3.0	6	4.5	30	70	2.85
G8A45833	3.0	6	4.5	35	80	2.85
G8A45983	3.0	6	4.5	40	90	2.85
G8A45040	4.0	6	6	12	50	3.85
G8A45801	4.0	6	6	16	60	3.85
G8A45802	4.0	6	6	20	60	3.85
G8A45803	4.0	6	6	25	70	3.85
G8A45834	4.0	6	6	30	70	3.85
G8A45835	4.0	6	6	35	80	3.85
G8A45836	4.0	6	6	40	90	3.85
G8A45837	4.0	6	6	45	90	3.85
G8A45838	4.0	6	6	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

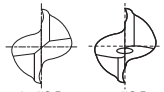
PLAIN SHANK **G8A01** SERIES

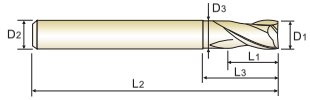
CARBIDE, 2 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, détalonnée
2 TAGLIENTI CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.





CARBIDE | 2 | 30° | PLAIN | BLUE

p.C137-139

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A01001	0.1	4	0.2	-	40	-
G8A01002	0.2	4	0.4	-	40	-
G8A01003	0.3	4	0.6	-	40	-
G8A01004	0.4	4	0.8	-	40	-
G8A01005	0.5	4	1	-	40	-
G8A01006	0.6	4	1.2	-	40	-
G8A01007	0.7	4	1.4	-	40	-
G8A01008	0.8	4	1.6	-	40	-
G8A01009	0.9	4	2	-	40	-
G8A010104S	1.0	4	1.5	3	50	0.95
G8A01010	1.0	6	1.5	3	50	0.95
G8A010154S	1.5	4	1.7	4	50	1.45
G8A01015	1.5	6	1.7	4	50	1.45
G8A010204S	2.0	4	2	5	50	1.95
G8A01020	2.0	6	2	5	50	1.95
G8A010254S	2.5	4	2.5	6	55	2.4
G8A01025	2.5	6	2.5	6	55	2.4
G8A01030	3.0	6	3	8	55	2.85
G8A01035	3.5	6	3.5	9	55	3.35
G8A01040	4.0	6	4	10	55	3.85
G8A01050	5.0	6	5	13	55	4.85
G8A01060	6.0	6	6	15	55	5.85
G8A01080	8.0	8	8	20	65	7.7
G8A01100	10.0	10	10	25	75	9.7
G8A01120	12.0	12	12	28	85	11.7
G8A01160	16.0	16	16	32	90	15.7
G8A01200	20.0	20	20	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

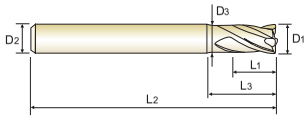
PLAIN SHANK **G8A02** SERIES

CARBIDE, 4 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 4 dents, détalonnée
4 TAGLIENTI CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



CARBIDE | 4 | 30° | PLAIN | BLUE p.C140

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D_1	D_2	L_1	L_3	L_2	D_3
G8A02010	**1.0**	6	1.5	3	50	0.95
G8A02020	**2.0**	6	2	5	50	1.95
G8A02030	**3.0**	6	3	8	55	2.85
G8A02040	**4.0**	6	4	10	55	3.85
G8A02050	**5.0**	6	5	13	55	4.85
G8A02060	**6.0**	6	6	15	55	5.85
G8A02080	**8.0**	8	8	20	65	7.7
G8A02100	**10.0**	10	10	25	75	9.7
G8A02120	**12.0**	12	12	28	85	11.7
G8A02160	**16.0**	16	16	32	90	15.7
G8A02200	**20.0**	20	20	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

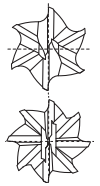
PLAIN SHANK **G8D63** SERIES

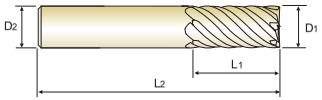
CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 6&8 dents, hélice 45°, longue
6&8 TAGLIENTI, ELICA 45°, TAGLIENTE LUNGO

- ▶ Designed to machine high hardened materials.
- ▶ Designed for high abrasion resistance thanks to negative rake angle.
- ▶ Excellent side-cutting of press mold field.

- ▶ Speziell ausgelegt für die Hartbearbeitung
- ▶ Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- ▶ hervorragend geeignet für die Seitenbearbeitung im Formenbau





CARBIDE | 6&8 | 45° | PLAIN | BLUE p.C142

Recommended ToolHolder

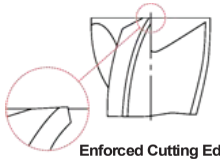
	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D_1	D_2	L_1	L_2	
G8D63060	**6.0**	6	13	57	6
G8D63080	**8.0**	8	19	63	6
G8D63100	**10.0**	10	22	72	6
G8D63120	**12.0**	12	26	83	6
G8D63140	**14.0**	14	26	83	6
G8D63160	**16.0**	16	32	92	6
G8D63180	**18.0**	18	32	92	8
G8D63200	**20.0**	20	38	104	8
G8D63250	**25.0**	25	44	104	8

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

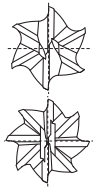
PLAIN SHANK **G8D64** SERIES

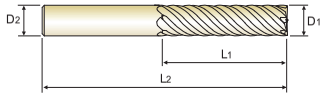
CARBIDE, 6&8 FLUTE 45° HELIX EXTRA LONG LENGTH

VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG
Fraise carbure, 6&8 dents, hélice 45°, extra-longue
6&8 TAGLIENTI, ELICA 45°, TAGLIENTE EXTRA LUNGO

- ▶ Designed to machine high hardened materials.
- ▶ Designed for high abrasion resistance thanks to negative rake angle.
- ▶ Excellent side-cutting of press mold field.

- ▶ Speziell ausgelegt für die Hartbearbeitung
- ▶ Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- ▶ Hervorragend geeignet für die Seitenbearbeitung im Formenbau





CARBIDE | 6&8 | 45° | PLAIN | BLUE

p.C143

Recommended ToolHolder

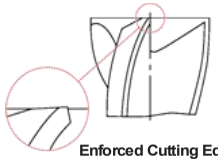
Plain Shank	Page
HYDRAULIC CHUCK	D15 - 46
SHRINK FIT HOLDER	D47 - 72
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116
SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	No. of Flute
G8D64060	6.0	6	26	70	6
G8D64080	8.0	8	36	90	6
G8D64100	10.0	10	46	100	6
G8D64120	12.0	12	56	110	6
G8D64160	16.0	16	66	130	6
G8D64200	20.0	20	76	140	8
G8D64250	25.0	25	92	180	8

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

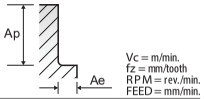
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend					○			○	○		○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		◎	◎	○	◎

X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8B59, G8B54 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING



HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	5	Non-alloy steel	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974
					FEED	14782	15835	17588	17953	18561	18422	18398	18595	18402
	8-9	Low alloy steel	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974
					FEED	14782	15835	17588	17953	18561	18422	18398	18595	18402
	11.1	High alloyed steel, and tool steel	0.3D	0.1R	Vc	180	205	215	235	255	250	250	250	250
					fz	0.129	0.182	0.257	0.3	0.343	0.463	0.578	0.701	0.925
					RPM	28648	21751	17109	14961	13528	9947	7958	6631	4974
					FEED	14782	15835	17588	17953	18561	18422	18398	18595	18402
	11.2		0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897
					RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879
					FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919
H	38.1	Hardened steel	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897
					RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879
					FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919
	38.2		0.3D	0.1R	Vc	95	200	140	155	170	170	170	170	165
					fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833
					RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283
					FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938
	39.1		0.3D	0.05R	Vc	70	90	100	110	120	120	120	120	120
					fz	0.101	0.121	0.172	0.214	0.25	0.349	0.447	0.547	0.729
					RPM	11141	9549	7958	7003	6366	4775	3820	3183	2387
					FEED	4501	4622	5475	5994	6366	6665	6830	6965	6961
	39.2		0.3D	0.05R	Vc	55	65	70	75	85	85	85	85	85
					fz	0.07	0.091	0.129	0.158	0.2	0.301	0.352	0.4	0.5
					RPM	8754	6897	5570	4775	4509	3382	2706	2255	1691
					FEED	2451	2510	2874	3018	3608	4072	3810	3608	3382
	40	Chilled Cast Iron	0.3D	0.1R	Vc	140	160	165	175	200	200	200	200	195
					fz	0.111	0.147	0.231	0.284	0.329	0.438	0.547	0.66	0.897
					RPM	22282	16977	13130	11141	10610	7958	6366	5305	3879
					FEED	9893	9982	12132	12656	13963	13942	13929	14006	13919
	41	Hardened Cast Iron	0.3D	0.1R	Vc	95	200	140	155	170	170	170	170	165
					fz	0.131	0.16	0.209	0.25	0.306	0.404	0.509	0.611	0.833
					RPM	15120	21221	11141	9868	9019	6764	5411	4509	3283
					FEED	7923	13581	9314	9868	11039	10931	11017	11021	10938

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	5	Non-alloy steel	0.5D	0.2R	Vc	85	90	100	100	110	110	110	110	110
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188
					FEED	6494	6494	7003	7156	7703	7703	7647	7691	7607
	8-9	Low alloy steel	0.5D	0.2R	Vc	85	90	100	100	110	110	110	110	110
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188
					FEED	6494	6494	7003	7156	7703	7703	7647	7691	7607
	11.1	High alloyed steel, and tool steel	0.5D	0.2R	Vc	85	90	100	100	110	110	110	110	110
					fz	0.12	0.17	0.22	0.281	0.33	0.44	0.546	0.659	0.869
					RPM	13528	9549	7958	6366	5836	4377	3501	2918	2188
					FEED	6494	6494	7003	7156	7703	7703	7647	7691	7607
	11.2		0.5D	0.2R	Vc	60	65	70	75	75	75	75	75	80
					fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79
					RPM	9549	6897	5570	4775	3979	2984	2387	1989	1592
					FEED	3782	4138	4456	4775	4759	4799	4775	4759	5029
H	38.1	Hardened steel	0.5D	0.2R	Vc	60	65	70	75	75	75	75	75	80
					fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79
					RPM	9549	6897	5570	4775	3979	2984	2387	1989	1592
					FEED	3782	4138	4456	4775	4759	4799	4775	4759	5029
	38.2		0.5D	0.2R	Vc	35	45	50	55	55	55	55	55	55
					fz	0.1	0.151	0.2	0.235	0.302	0.398	0.5	0.603	0.795
					RPM	5570	4775	3979	3501	2918	2188	1751	1459	1094
					FEED	2228	2884	3183	3291	3525	3484	3501	3519	3480
	39.1		0.5D	0.1R	Vc	20	25	30	35	35	35	35	35	35
					fz	0.078	0.101	0.132	0.182	0.25	0.33	0.42	0.5	0.661
					RPM	3183	2653	2387	2228	1857	1393	1114	928	696
					FEED	993	1072	1261	1622	1857	1838	1872	1857	1841
	39.2		0.5D	0.1R	Vc	15	20	20	25	25	25	25	25	25
					fz	0.063	0.08	0.1	0.117	0.147	0.2	0.25	0.299	0.398
					RPM	2387	2122	1592	1592	1326	995	796	663	497
					FEED	602	679	637	745	780	796	796	793	792
	40	Chilled Cast Iron	0.5D	0.2R	Vc	60	65	70	75	75	75	75	75	80
					fz	0.099	0.15	0.2	0.25	0.299	0.402	0.5	0.598	0.79
					RPM	9549	6897	5570	4775	3979	2984	2387	1989	1592
					FEED	3782	4138	4456	4775	4759	4799	4775	4759	5029
	41	Hardened Cast Iron	0.5D	0.2R	Vc	35	45	50	55	55	55	55	55	55
					fz	0.1	0.151	0.2	0.235	0.302	0.398	0.5	0.603	0.795
					RPM	5570	4775	3979	3501	2918	2188	1751	1459	1094
					FEED	2228	2884	3183	3291	3525	3484	3501	3519	3480

X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A46, G8A54 SERIES — 2 FLUTE BALL NOSE FOR RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 0.2	0.3	0.4	0.5	0.6
P	5	Non-alloy steel	Vc	31	45~47	60~63	50~55	50~56
			fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015
			RPM	50000	48000~50000	48000~50000	31900~35200	26400~29700
			FEED	265~310	440~460	450~550	450~540	440~540
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
	8-9	Low alloy steel	Vc	31	45~47	60~63	54~78	54~77
			fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015
			RPM	50000	48000~50000	48000~50000	34100~49500	28600~40700
			FEED	300~350	480~520	720~790	600~870	590~850
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
	11.1 - 11.2	High alloyed steel, and tool steel	Vc	31	45~47	60~63	54~78	54~77
			fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015
			RPM	50000	48000~50000	48000~50000	34100~49500	28600~40700
			FEED	300~350	480~520	720~790	600~870	590~850
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
H	38.1 - 38.2	Hardened steel	Vc	31	45~47	60~63	50~55	50~56
			fz	0.003~0.003	0.004~0.005	0.005~0.006	0.006~0.008	0.007~0.010
			RPM	50000	48000~50000	48000~50000	31900~35200	26400~29700
			FEED	265~310	440~460	450~550	450~540	440~540
			Ap	0.005~0.013	0.008~0.014	0.011~0.026	0.005~0.023	0.006~0.028
	39.1		Vc	31	43~47	58~63	50~55	50~56
			fz	0.009~0.011	0.017~0.017	0.017~0.018	0.028~0.027	0.030~0.032
			RPM	50000	46000~50000	46000~50000	31900~35200	26400~29700
			FEED	225~265	390~420	400~460	440~480	400~480
			Ap	0.005~0.012	0.007~0.013	0.010~0.024	0.005~0.021	0.006~0.025
	39.2		Vc	31	43~47	58~63	50~55	50~56
			fz	0.009~0.011	0.017~0.017	0.017~0.018	0.028~0.027	0.030~0.032
			RPM	50000	46000~50000	46000~50000	31900~35200	26400~29700
			FEED	225~265	390~420	400~460	440~480	400~480
			Ap	0.005~0.012	0.007~0.013	0.010~0.024	0.005~0.021	0.006~0.025
	40	Chilled Cast Iron	Vc	31	45~47	60~63	54~78	54~77
			fz	0.003~0.004	0.005~0.005	0.007~0.008	0.006~0.013	0.007~0.015
			RPM	50000	48000~50000	48000~50000	34100~49500	28600~40700
			FEED	300~350	480~520	720~790	600~870	590~850
			Ap	0.006~0.016	0.010~0.017	0.013~0.032	0.007~0.028	0.007~0.034
	41	Hardened Cast Iron	Vc	31	45~47	60~63	50~55	50~56
			fz	0.003~0.003	0.004~0.005	0.005~0.006	0.006~0.008	0.007~0.010
			RPM	50000	48000~50000	48000~50000	31900~35200	26400~29700
			FEED	265~310	440~460	450~550	450~540	440~540
			Ap	0.005~0.013	0.008~0.014	0.011~0.026	0.005~0.023	0.006~0.028

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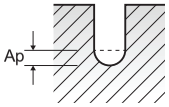
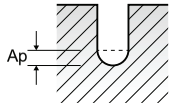


X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A46, G8A54 SERIES — 2 FLUTE BALL NOSE FOR RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

VDI 3323	Parameter	Diameter (Ø) 0.8	1.0	1.2	1.5	2.0	3.0	4.0
5	Vc	50~55	48~55	45~53	47~54	50~55	50~55	50~55
	fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3950~4400
	FEED	460~550	470~540	460~540	440~540	470~530	590~650	550~620
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320
8-9	Vc	55~77	55~76	54~70	52~67	53~69	54~77	54~78
	fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115
	RPM	22000~30800	17600~24200	14300~18700	11000~14300	8500~11000	5700~8200	4300~6200
	FEED	640~890	600~850	590~780	580~760	590~800	730~1000	680~990
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320
11.1 - 11.2	Vc	55~77	55~76	54~70	52~67	53~69	54~77	54~78
	fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115
	RPM	22000~30800	17600~24200	14300~18700	11000~14300	8500~11000	5700~8200	4300~6200
	FEED	640~890	600~850	590~780	580~760	590~800	730~1000	680~990
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320
38.1 - 38.2	Vc	50~55	48~55	45~53	47~54	50~55	50~55	50~55
	fz	0.010~0.014	0.013~0.018	0.016~0.023	0.019~0.027	0.027~0.034	0.051~0.061	0.063~0.078
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3950~4400
	FEED	460~550	470~540	460~540	440~540	470~530	590~650	550~620
	Ap	0.013~0.052	0.007~0.065	0.020~0.026	0.025~0.039	0.020~0.130	0.052~0.195	0.065~0.260
39.1	Vc	50~55	48~55	45~53	47~54	50~55	50~55	48~55
	fz	0.044~0.045	0.057~0.057	0.070~0.069	0.084~0.083	0.111~0.109	0.208~0.214	0.275~0.259
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3850~4400
	FEED	440~500	440~500	420~480	420~480	440~480	550~620	530~570
	Ap	0.012~0.048	0.006~0.060	0.018~0.024	0.023~0.036	0.018~0.120	0.048~0.120	0.060~0.240
39.2	Vc	50~55	48~55	45~53	47~54	50~55	50~55	48~55
	fz	0.044~0.045	0.057~0.057	0.070~0.069	0.084~0.083	0.111~0.109	0.208~0.214	0.275~0.259
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3850~4400
	FEED	440~500	440~500	420~480	420~480	440~480	550~620	530~570
	Ap	0.012~0.048	0.006~0.060	0.018~0.024	0.023~0.036	0.018~0.120	0.048~0.120	0.060~0.240
40	Vc	55~77	55~76	54~70	52~67	53~69	54~77	54~78
	fz	0.010~0.020	0.012~0.024	0.016~0.027	0.020~0.035	0.027~0.047	0.045~0.088	0.055~0.115
	RPM	22000~30800	17600~24200	14300~18700	11000~14300	8500~11000	5700~8200	4300~6200
	FEED	640~890	600~850	590~780	580~760	590~800	730~1000	680~990
	Ap	0.016~0.064	0.008~0.080	0.024~0.032	0.031~0.048	0.024~0.160	0.064~0.240	0.080~0.320
41	Vc	50~55	48~55	45~53	47~54	50~55	50~55	50~55
	fz	0.010~0.014	0.013~0.018	0.016~0.023	0.019~0.027	0.027~0.034	0.051~0.061	0.063~0.078
	RPM	19800~22000	15400~17600	12000~14000	10000~11500	7900~8800	5300~5800	3950~4400
	FEED	460~550	470~540	460~540	440~540	470~530	590~650	550~620
	Ap	0.013~0.052	0.007~0.065	0.020~0.026	0.025~0.039	0.020~0.130	0.052~0.195	0.065~0.260



X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A28, G8A38, G8A53 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.2	0.3	0.4	0.5	0.6	0.8	1.0
P	5	Non-alloy steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1146	1432	1966	2445	2923	3879	4736
	8-9	Low alloy steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1146	1432	1966	2445	2923	3879	4736
	11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.012	0.015	0.019	0.024	0.029	0.039	0.048
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1146	1432	1966	2445	2923	3879	4736
	11.2		0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1050	1337	1759	2139	2520	3283	4144
H	38.1	Hardened steel	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1050	1337	1759	2139	2520	3283	4144
	38.2		0.05D	0.02D	Vc	30	40	55	70	85	115	140
					fz	0.011	0.013	0.017	0.021	0.024	0.033	0.042
					RPM	47746	42441	43768	44563	45094	45757	44563
					FEED	1050	1103	1488	1872	2165	3020	3743
	39.1		0.05D	0.02D	Vc	25	40	50	65	75	100	125
					fz	0.01	0.012	0.015	0.019	0.023	0.03	0.038
					RPM	39789	42441	39789	41380	39789	39789	39789
					FEED	796	1019	1194	1572	1830	2387	3024
	39.2		0.05D	0.02D	Vc	20	35	45	55	65	90	110
					fz	0.01	0.012	0.015	0.019	0.023	0.03	0.037
					RPM	31831	37136	35810	35014	34484	35810	35014
					FEED	637	891	1074	1331	1586	2149	2591
	39.3		0.05D	0.02D	Vc	20	30	40	50	60	80	110
					fz	0.009	0.011	0.014	0.017	0.022	0.029	0.033
					RPM	31831	31831	31831	31831	31831	31831	35014
					FEED	573	700	891	1082	1401	1846	2311
	40	Chilled Cast Iron	0.05D	0.02D	Vc	30	45	65	80	95	125	155
					fz	0.011	0.014	0.017	0.021	0.025	0.033	0.042
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1050	1337	1759	2139	2520	3283	4144
	41	Hardened Cast Iron	0.05D	0.02D	Vc	30	40	55	70	85	115	140
					fz	0.011	0.013	0.017	0.021	0.024	0.033	0.042
					RPM	47746	47746	51725	50930	50399	49736	49338
					FEED	1050	1337	1759	2139	2520	3283	4144

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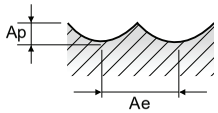
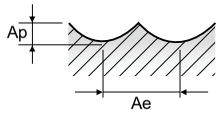


X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
G8A28, G8A38, G8A53 SERIES — 2 FLUTE BALL NOSE
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 1.2	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
5	Vc	190	235	310	310	315	290	260	280	290	260	280	280
	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264
	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456
	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
8-9	Vc	190	235	310	310	315	290	260	280	290	260	280	280
	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264
	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456
	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
T11	Vc	190	235	310	310	315	290	260	280	290	260	280	280
	fz	0.051	0.054	0.057	0.091	0.12	0.156	0.174	0.189	0.199	0.212	0.238	0.264
	RPM	50399	49869	49338	32892	25067	18462	13793	11141	9231	6897	5570	4456
	FEED	5141	5386	5625	5986	6016	5760	4800	4211	3674	2924	2652	2353
T12	Vc	180	225	300	300	300	280	255	270	280	250	270	270
	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
38.1	Vc	180	225	300	300	300	280	255	270	280	250	270	270
	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
38.2	Vc	160	205	250	250	250	235	205	225	235	210	225	225
	fz	0.045	0.047	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17	0.189	0.208
	RPM	42441	43502	39789	26526	19894	14961	10876	8952	7480	5570	4476	3581
	FEED	3820	4089	3979	3979	3979	3740	3067	2686	2394	1894	1692	1490
39.1	Vc	145	175	220	220	220	210	190	200	205	190	200	200
	fz	0.039	0.042	0.045	0.067	0.09	0.113	0.125	0.134	0.144	0.155	0.169	0.188
	RPM	38462	37136	35014	23343	17507	13369	10080	7958	6525	5040	3979	3183
	FEED	3000	3119	3151	3128	3151	3021	2520	2133	1879	1562	1345	1197
39.2	Vc	130	155	200	200	200	180	165	175	180	165	175	175
	fz	0.04	0.041	0.044	0.067	0.088	0.111	0.122	0.132	0.142	0.142	0.143	0.143
	RPM	34484	32892	31831	21221	15915	11459	8754	6963	5730	4377	3482	2785
	FEED	2759	2697	2801	2844	2801	2544	2136	1838	1627	1243	996	797
39.3	Vc	115	140	180	180	180	165	150	165	165	150	160	160
	fz	0.038	0.039	0.04	0.061	0.079	0.1	0.109	0.119	0.13	0.131	0.133	0.129
	RPM	30505	29709	28648	19099	14324	10504	7958	6565	5252	3979	3183	2546
	FEED	2318	2317	2292	2330	2263	2101	1735	1562	1366	1042	847	657
40	Vc	180	225	300	300	300	280	255	270	280	250	270	270
	fz	0.045	0.047	0.05	0.083	0.111	0.138	0.153	0.164	0.174	0.187	0.206	0.227
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951
41	Vc	160	205	250	250	250	235	205	225	235	210	225	225
	fz	0.045	0.047	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17	0.189	0.208
	RPM	47746	47746	47746	31831	23873	17825	13528	10743	8913	6631	5371	4297
	FEED	4297	4488	4775	5284	5300	4920	4140	3524	3102	2480	2213	1951



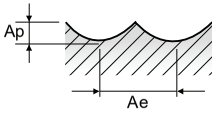
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A59 SERIES — 3 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
					RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411
					FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
	8-9	Low alloy steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
					RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411
					FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
	11.1 - 11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
					RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411
					FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	255	255	265	285	285	285	285	285	285
					fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192
					RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536
					FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613
	39.1		0.05D	0.02D	Vc	185	185	195	230	230	230	230	230	230
					fz	0.072	0.087	0.099	0.123	0.144	0.156	0.173	0.18	0.18
					RPM	19629	14722	12414	12202	9151	7321	6101	4576	3661
					FEED	4240	3842	3687	4502	3953	3426	3166	2471	1977
	39.2		0.05D	0.02D	Vc	175	180	185	210	210	210	210	210	205
					fz	0.072	0.086	0.099	0.115	0.134	0.144	0.145	0.144	0.145
					RPM	18568	14324	11777	11141	8356	6685	5570	4178	3263
					FEED	4011	3696	3498	3844	3359	2888	2423	1805	1419
	39.3		0.05D	0.02D	Vc	120	120	125	145	145	145	145	145	145
					fz	0.072	0.087	0.099	0.108	0.125	0.144	0.144	0.144	0.143
					RPM	12732	9549	7958	7692	5769	4615	3846	2885	2308
					FEED	2750	2492	2363	2492	2164	1994	1662	1246	990
	40	Chilled Cast Iron	0.05D	0.02D	Vc	300	305	315	340	340	340	340	335	340
					fz	0.09	0.107	0.121	0.159	0.181	0.202	0.225	0.229	0.222
					RPM	31831	24271	20054	18038	13528	10823	9019	6665	5411
					FEED	8594	7791	7279	8604	7346	6558	6088	4579	3604
	41	Hardened Cast Iron	0.05D	0.02D	Vc	255	255	265	285	285	285	285	285	285
					fz	0.072	0.09	0.108	0.136	0.155	0.168	0.187	0.19	0.192
					RPM	27056	20292	16870	15120	11340	9072	7560	5670	4536
					FEED	5844	5479	5466	6169	5273	4572	4241	3232	2613



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

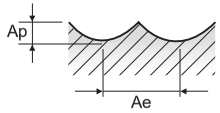
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8D62 SERIES — 4 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
					RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411
					FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117
	8-9	Low alloy steel	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
					RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411
					FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117
	11.1 - 11.2	High alloyed steel, and tool steel	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
					RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411
					FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	285	285	280	285	285	285	285	285	285
					fz	0.06	0.07	0.081	0.092	0.103	0.111	0.125	0.129	0.126
					RPM	30239	22680	17825	15120	11340	9072	7560	5670	4536
					FEED	7257	6350	5775	5564	4672	4028	3780	2926	2286
	39.1		0.05D	0.02D	Vc	230	230	230	230	230	230	230	230	230
					fz	0.05	0.06	0.071	0.082	0.096	0.104	0.115	0.119	0.119
					RPM	24404	18303	14642	12202	9151	7321	6101	4576	3661
					FEED	4881	4393	4158	4002	3514	3046	2806	2178	1743
	39.2		0.05D	0.02D	Vc	210	210	210	210	210	210	210	210	205
					fz	0.045	0.055	0.067	0.077	0.089	0.095	0.097	0.096	0.096
					RPM	22282	16711	13369	11141	8356	6685	5570	4178	3263
					FEED	4011	3676	3583	3431	2975	2540	2161	1604	1253
	39.3		0.05D	0.02D	Vc	145	145	145	145	145	145	145	145	140
					fz	0.04	0.05	0.062	0.072	0.082	0.096	0.094	0.096	0.097
					RPM	15385	11539	9231	7692	5769	4615	3846	2885	2228
					FEED	2462	2308	2289	2215	1892	1772	1446	1108	864
	40	Chilled Cast Iron	0.05D	0.02D	Vc	340	340	340	340	340	340	340	340	340
					fz	0.071	0.08	0.09	0.101	0.116	0.128	0.145	0.144	0.144
					RPM	36075	27056	21645	18038	13528	10823	9019	6764	5411
					FEED	10245	8658	7792	7287	6277	5541	5231	3896	3117
	41	Hardened Cast Iron	0.05D	0.02D	Vc	285	285	280	285	285	285	285	285	285
					fz	0.06	0.07	0.081	0.092	0.103	0.111	0.125	0.129	0.126
					RPM	30239	22680	17825	15120	11340	9072	7560	5670	4536
					FEED	7257	6350	5775	5564	4672	4028	3780	2926	2286



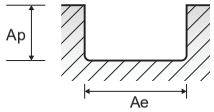
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A60 SERIES — 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	5	Non-alloy steel	1.0D	0.05D	Vc	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	102	202	199	573	668	653	702	811	754	736	671	676
	8-9	Low alloy steel	1.0D	0.05D	Vc	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	102	202	199	573	668	653	702	811	754	736	671	676
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.001	0.002	0.002	0.006	0.01	0.015	0.021	0.026	0.029	0.037	0.043	0.051
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	102	202	199	573	668	653	702	811	754	736	671	676
	11.2		1.0D	0.05D	Vc	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	89	180	159	458	525	560	551	646	621	574	546	541
H	38.1	Hardened steel	1.0D	0.05D	Vc	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	89	180	159	458	525	560	551	646	621	574	546	541
	38.2		1.0D	0.05D	Vc	65	75	75	80	110	110	110	130	130	130	130	130
					fz	0.001	0.001	0.002	0.006	0.01	0.015	0.02	0.024	0.028	0.034	0.04	0.047
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448
					FEED	83	80	119	306	350	350	350	397	386	352	331	324
	39.1		1.0D	0.05D	Vc	50	55	65	65	90	90	90	100	100	100	100	100
					fz	0.001	0.001	0.001	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036
					RPM	31831	29178	25863	20690	14324	9549	7162	6366	5305	3979	3183	2653
					FEED	64	58	52	166	201	210	215	229	223	207	191	191
	39.2		1.0D	0.05D	Vc	40	45	50	50	70	70	70	80	80	80	80	80
					fz	0.001	0.001	0.001	0.003	0.006	0.009	0.012	0.014	0.017	0.02	0.024	0.029
					RPM	25465	23873	19894	15915	11141	7427	5570	5093	4244	3183	2546	2122
					FEED	51	48	40	95	134	134	134	143	144	127	122	123
	39.3		1.0D	0.02D	Vc	30	40	40	40	60	60	60	70	70	70	70	70
					fz	0.001	0.001	0.001	0.003	0.005	0.007	0.01	0.012	0.014	0.017	0.021	0.024
					RPM	19099	21221	15915	12732	9549	6366	4775	4456	3714	2785	2228	1857
					FEED	19	25	29	71	90	89	96	105	100	95	91	90
	40	Chilled Cast Iron	1.0D	0.05D	Vc	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.044	0.051
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	89	180	159	458	525	560	551	646	621	574	546	541
	41	Hardened Cast Iron	1.0D	0.05D	Vc	65	75	75	80	110	110	110	130	130	130	130	130
					fz	0.001	0.001	0.002	0.006	0.01	0.015	0.02	0.024	0.028	0.034	0.04	0.047
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448
					FEED	83	80	119	306	350	350	350	397	386	352	331	324

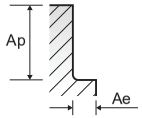


X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A60 SERIES — 2 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	5	Non-alloy steel	0.03D	1.0D	Vc	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955
	8-9	Low alloy steel	0.03D	1.0D	Vc	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	80	95	125	150	210	205	210	245	245	250	245	250
					fz	0.002	0.003	0.003	0.009	0.014	0.022	0.03	0.037	0.041	0.053	0.062	0.072
					RPM	50930	50399	49736	47746	33423	21751	16711	15597	12998	9947	7799	6631
					FEED	204	302	298	859	936	957	1003	1154	1066	1054	967	955
	11.2		0.03D	1.0D	Vc	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	178	180	239	688	788	770	788	919	890	822	782	785
H	38.1	Hardened steel	0.03D	1.0D	Vc	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	178	180	239	688	788	770	788	919	890	822	782	785
	38.2		0.03D	1.0D	Vc	65	75	75	80	110	110	110	130	130	130	130	130
					fz	0.002	0.002	0.003	0.008	0.014	0.021	0.028	0.034	0.04	0.049	0.058	0.067
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448
					FEED	166	159	179	407	490	490	490	563	552	507	480	462
	39.1		0.03D	1.0D	Vc	50	55	65	65	90	90	90	100	100	100	100	100
					fz	0.001	0.002	0.002	0.006	0.01	0.016	0.021	0.026	0.03	0.037	0.043	0.051
					RPM	31831	29178	25863	20690	14324	9549	7162	6366	5305	3979	3183	2653
					FEED	64	117	103	248	286	306	301	331	318	294	274	271
	39.2		0.03D	1.0D	Vc	40	45	50	50	70	70	70	80	80	80	80	80
					fz	0.001	0.001	0.002	0.005	0.008	0.012	0.017	0.02	0.024	0.029	0.035	0.042
					RPM	25465	23873	19894	15915	11141	7427	5570	5093	4244	3183	2546	2122
					FEED	51	48	80	159	178	178	189	204	204	185	178	178
	39.3		0.03D	1.0D	Vc	30	40	40	40	60	60	60	70	70	70	70	70
					fz	0.001	0.001	0.001	0.004	0.007	0.01	0.014	0.017	0.02	0.024	0.029	0.034
					RPM	19099	21221	15915	12732	9549	6366	4775	4456	3714	2785	2228	1857
					FEED	38	42	32	102	134	127	134	152	149	134	129	126
	40	Chilled Cast Iron	0.03D	1.0D	Vc	70	85	100	120	165	165	165	195	195	195	195	200
					fz	0.002	0.002	0.003	0.009	0.015	0.022	0.03	0.037	0.043	0.053	0.063	0.074
					RPM	44563	45094	39789	38197	26261	17507	13130	12414	10345	7759	6207	5305
					FEED	178	180	239	688	788	770	788	919	890	822	782	785
	41	Hardened Cast Iron	0.03D	1.0D	Vc	65	75	75	80	110	110	110	130	130	130	130	130
					fz	0.002	0.002	0.003	0.008	0.014	0.021	0.028	0.034	0.04	0.049	0.058	0.067
					RPM	41380	39789	29842	25465	17507	11671	8754	8276	6897	5173	4138	3448
					FEED	166	159	179	407	490	490	490	563	552	507	480	462



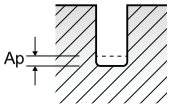
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A52 SERIES — 2 FLUTE CORNER RADIUS FOR RIB PROCESSING - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 0.5	0.6	0.8	1.0	1.2	1.5	2.0
P	5	Non-alloy steel	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66
			fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045
			RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550
			FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
	8-9	Low alloy steel	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66
			fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045
			RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550
			FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
	11.1 - 11.2	High alloyed steel, and tool steel	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66
			fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045
			RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550
			FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
H	38.1 - 38.2	Hardened steel	Vc	37~41	38~41	38~42	33~36	34~38	33~38	38~42
			fz	0.005~0.007	0.004~0.007	0.006~0.010	0.008~0.013	0.009~0.015	0.011~0.020	0.015~0.025
			RPM	23750~26000	19900~22000	15200~16700	10500~11500	9100~10000	7000~8000	6100~6700
			FEED	285~315	190~290	210~310	190~280	180~280	180~280	200~300
			Ap	0.0040~0.0250	0.0450~0.0210	0.0060~0.0280	0.0075~0.0200	0.0150~0.0420	0.0115~0.0550	0.0150~0.1000
	39.1 - 39.3		Vc	22~28	22~29	23~29	20~25	20~26	20~26	23~30
			fz	0.016~0.014	0.017~0.015	0.024~0.021	0.032~0.029	0.037~0.033	0.047~0.042	0.056~0.051
			RPM	14200~18000	11900~15500	9000~11700	6300~8050	5400~7000	4300~5500	3600~4700
			FEED	115~130	100~120	110~125	100~115	100~115	100~115	100~120
			Ap	0.016~0.014	0.017~0.015	0.024~0.021	0.032~0.029	0.037~0.033	0.047~0.042	0.056~0.051
	40	Chilled Cast Iron	Vc	40~52	39~66	41~66	39~59	39~66	43~83	40~66
			fz	0.006~0.009	0.005~0.013	0.007~0.018	0.009~0.022	0.010~0.028	0.012~0.046	0.016~0.045
			RPM	25650~33000	20900~35200	16150~26400	12300~18700	10450~17600	9100~17600	6350~10550
			FEED	370~470	330~560	360~590	350~540	350~590	430~830	340~570
			Ap	0.0056~0.0350	0.0063~0.0294	0.0084~0.0392	0.0105~0.0280	0.0245~0.0700	0.0161~0.0770	0.0210~0.1400
	41	Hardened Cast Iron	Vc	37~41	38~41	38~42	33~36	34~38	33~38	38~42
			fz	0.005~0.007	0.004~0.007	0.006~0.010	0.008~0.013	0.009~0.015	0.011~0.020	0.015~0.025
			RPM	23750~26000	19900~22000	15200~16700	10500~11500	9100~10000	7000~8000	6100~6700
			FEED	285~315	190~290	210~310	190~280	180~280	180~280	200~300
			Ap	0.0040~0.0250	0.0450~0.0210	0.0060~0.0280	0.0075~0.0200	0.0150~0.0420	0.0115~0.0550	0.0150~0.1000

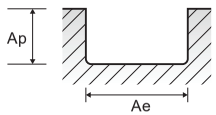


X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A50 SERIES — 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.5	2.0
P	5	Non-alloy steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013
					RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423
					FEED	191	207	407	504	597	764	764	817	869
	8-9	Low alloy steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013
					RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423
					FEED	191	207	407	504	597	764	764	817	869
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	45	65	80	95	125	150	160	175	210
					fz	0.002	0.002	0.004	0.005	0.006	0.008	0.009	0.011	0.013
					RPM	47746	51725	50930	50399	49736	47746	42441	37136	33423
					FEED	191	207	407	504	597	764	764	817	869
	11.2		1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165
					fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013
					RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261
					FEED	170	175	267	361	477	611	621	677	683
H	38.1	Hardened steel	1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165
					fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013
					RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261
					FEED	170	175	267	361	477	611	621	677	683
	38.2		1.0D	0.05D	Vc	40	50	65	75	75	80	85	100	110
					fz	0.001	0.002	0.003	0.004	0.005	0.007	0.008	0.01	0.012
					RPM	42441	39789	41380	39789	29842	25465	22547	21221	17507
					FEED	85	159	248	318	298	357	361	424	420
	39.1		1.0D	0.02D	Vc	30	40	50	55	65	65	75	80	90
					fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.009
					RPM	31831	31831	31831	29178	25863	20690	19894	16977	14324
					FEED	64	64	127	175	207	207	239	238	258
	39.2		1.0D	0.02D	Vc	25	30	40	45	50	50	55	60	70
					fz	0.001	0.001	0.002	0.002	0.003	0.004	0.005	0.006	0.007
					RPM	26526	23873	25465	23873	19894	15915	14589	12732	11141
					FEED	53	48	102	95	119	127	146	153	156
	40	Chilled Cast Iron	1.0D	0.05D	Vc	40	55	70	85	100	120	130	145	165
					fz	0.002	0.002	0.003	0.004	0.006	0.008	0.009	0.011	0.013
					RPM	42441	43768	44563	45094	39789	38197	34484	30770	26261
					FEED	170	175	267	361	477	611	621	677	683
	41	Hardened Cast Iron	1.0D	0.05D	Vc	40	50	65	75	75	80	85	100	110
					fz	0.001	0.002	0.003	0.004	0.005	0.007	0.008	0.01	0.012
					RPM	42441	39789	41380	39789	29842	25465	22547	21221	17507
					FEED	85	159	248	318	298	357	361	424	420



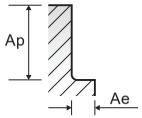
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A47, G8B08 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045
	8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.006	0.011	0.016	0.022	0.025	0.03	0.038	0.045	0.053	0.061	0.067
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1146	1471	1392	1471	1560	1560	1512	1404	1406	1189	1045
	11.2		0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	917	1050	980	1050	1192	1117	1086	1018	1019	869	782
H	38.1	Hardened steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	917	1050	980	1050	1192	1117	1086	1018	1019	869	782
	38.2		0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130
					fz	0.006	0.01	0.015	0.02	0.024	0.028	0.035	0.041	0.048	0.056	0.063
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	611	700	700	700	794	772	724	679	662	579	521
	39.1		0.03D	1.0D	Vc	65	90	90	90	100	100	100	100	100	100	100
					fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048
					RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592
					FEED	331	401	420	430	458	446	414	382	382	334	306
	39.2		0.03D	1.0D	Vc	50	70	70	70	80	80	80	80	80	80	80
					fz	0.003	0.006	0.009	0.012	0.015	0.017	0.021	0.024	0.029	0.034	0.038
					RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273
					FEED	191	267	267	267	306	289	267	244	246	217	193
	39.3		0.03D	1.0D	Vc	40	60	60	60	70	70	70	70	70	70	70
					fz	0.003	0.005	0.007	0.01	0.012	0.014	0.017	0.02	0.024	0.029	0.033
					RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114
					FEED	153	191	178	191	214	208	189	178	178	162	147
	40	Chilled Cast Iron	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.006	0.01	0.014	0.02	0.024	0.027	0.035	0.041	0.048	0.056	0.063
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	917	1050	980	1050	1192	1117	1086	1018	1019	869	782
	41	Hardened Cast Iron	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130
					fz	0.006	0.01	0.015	0.02	0.024	0.028	0.035	0.041	0.048	0.056	0.063
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	611	700	700	700	794	772	724	679	662	579	521



X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A45 SERIES — 2 FLUTE for RIB PROCESSING - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 0.2	0.3	0.4	0.5	0.6	0.8
P	5	Non-alloy steel	Vc	31	41~47	39~63	40~52	39~66	41~66
			fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011
			RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400
			FEED	300~350	330~420	350~590	370~470	330~560	360~590
			Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035	0.007~0.030	0.009~0.040
	8-9	Low alloy steel	Vc	31	41~47	39~63	40~52	39~66	41~66
			fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011
			RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400
			FEED	300~350	330~420	350~590	370~470	330~560	360~590
			Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035	0.007~0.030	0.009~0.040
	11.1 - 11.2	High alloyed steel, and tool steel	Vc	31	41~47	39~63	40~52	39~66	41~66
			fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011
			RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400
			FEED	300~350	330~420	350~590	370~470	330~560	360~590
			Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035	0.007~0.030	0.009~0.040
H	38.1 - 38.2	Hardened steel	Vc	31	38~44	38~44	37~41	38~41	38~42
			fz	0.003~0.003	0.003~0.003	0.005~0.005	0.006~0.006	0.007~0.007	0.009~0.009
			RPM	50000	39900~46200	30500~35200	23750~26000	19900~22000	15200~16700
			FEED	265~310	265~310	295~340	285~315	260~290	280~310
			Ap	0.005~0.013	0.004~0.011	0.003~0.020	0.004~0.025	0.005~0.021	0.006~0.028
	39.1 - 39.2		Vc	31	23~30	23~31	22~28	22~29	23~29
			fz	0.002~0.003	0.002~0.003	0.003~0.004	0.004~0.004	0.004~0.004	0.006~0.005
			RPM	50000	23900~32300	18300~24600	14200~18000	11900~15500	9000~11700
			FEED	225~265	105~185	120~200	115~130	100~120	110~125
			Ap	0.005~0.012	0.003~0.007	0.002~0.012	0.003~0.015	0.003~0.013	0.004~0.017
	40	Chilled Cast Iron	Vc	31	41~47	39~63	40~52	39~66	41~66
			fz	0.003~0.004	0.004~0.004	0.006~0.006	0.007~0.007	0.008~0.008	0.011~0.011
			RPM	50000	43000~50000	31400~50000	25650~33000	20900~35200	16150~26400
			FEED	300~350	330~420	350~590	370~470	330~560	360~590
			Ap	0.006~0.016	0.006~0.015	0.005~0.028	0.006~0.035	0.007~0.030	0.009~0.040
	41	Hardened Cast Iron	Vc	31	38~44	38~44	37~41	38~41	38~42
			fz	0.003~0.003	0.003~0.003	0.005~0.005	0.006~0.006	0.007~0.007	0.009~0.009
			RPM	50000	39900~46200	30500~35200	23750~26000	19900~22000	15200~16700
			FEED	265~310	265~310	295~340	285~315	260~290	280~310
			Ap	0.005~0.013	0.004~0.011	0.003~0.020	0.004~0.025	0.005~0.021	0.006~0.028

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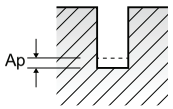


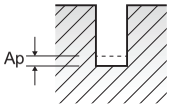
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A45 SERIES — 2 FLUTE for RIB PROCESSING - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 1.0	1.2	1.5	2.0	3.0	4.0
P	5	Non-alloy steel	Vc	39~59	39~66	43~83	40~66	41~66	40~67
			fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064
			RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300
			FEED	350~540	350~590	430~830	340~570	550~900	400~675
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
	8-9	Low alloy steel	Vc	39~59	39~66	43~83	40~66	41~66	40~67
			fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064
			RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300
			FEED	350~540	350~590	430~830	340~570	550~900	400~675
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
	11.1 - 11.2	High alloyed steel, and tool steel	Vc	39~59	39~66	43~83	40~66	41~66	40~67
			fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064
			RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300
			FEED	350~540	350~590	430~830	340~570	550~900	400~675
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
H	38.1 - 38.2	Hardened steel	Vc	33~36	34~38	33~38	38~42	38~43	38~43
			fz	0.012~0.012	0.014~0.014	0.018~0.018	0.022~0.022	0.056~0.056	0.056~0.056
			RPM	10500~11500	9100~10000	7000~8000	6100~6700	3990~4600	3000~3400
			FEED	250~280	250~280	250~280	270~300	445~515	335~380
			Ap	0.008~0.020	0.015~0.042	0.012~0.055	0.015~0100	0.040~0.150	0.053~0.200
	39.1 - 39.2		Vc	20~25	20~26	20~26	23~30	23~30	23~30
			fz	0.008~0.007	0.009~0.008	0.012~0.01	0.014~0.013	0.022~0.048	0.021~0.048
			RPM	6300~8050	5400~7000	4300~5500	3600~4700	2400~3200	1800~2400
			FEED	100~115	100~115	100~115	100~120	105~310	75~230
			Ap	0.005~0.012	0.009~0.026	0.007~0.033	0.009~0.060	0.024~0.090	0.032~0.120
	40	Chilled Cast Iron	Vc	39~59	39~66	43~83	40~66	41~66	40~67
			fz	0.014~0.014	0.017~0.017	0.024~0.024	0.027~0.027	0.064~0.064	0.063~0.064
			RPM	12300~18700	10450~17600	9100~17600	6350~10550	4300~7050	3200~5300
			FEED	350~540	350~590	430~830	340~570	550~900	400~675
			Ap	0.011~0.028	0.025~0.070	0.017~0.077	0.021~0.140	0.056~0.210	0.074~0.280
	41	Hardened Cast Iron	Vc	33~36	34~38	33~38	38~42	38~43	38~43
			fz	0.012~0.012	0.014~0.014	0.018~0.018	0.022~0.022	0.056~0.056	0.056~0.056
			RPM	10500~11500	9100~10000	7000~8000	6100~6700	3990~4600	3000~3400
			FEED	250~280	250~280	250~280	270~300	445~515	335~380
			Ap	0.008~0.020	0.015~0.042	0.012~0.055	0.015~0100	0.040~0.150	0.053~0.200



X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A01, G8A36 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.0	2.0
P	5	Non-alloy steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013
					RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423
					FEED	95	191	207	407	504	597	693	955	869
	8-9	Low alloy steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013
					RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423
					FEED	95	191	207	407	504	597	693	955	869
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	30	45	65	80	95	125	140	150	210
					fz	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.01	0.013
					RPM	47746	47746	51725	50930	50399	49736	49515	47746	33423
					FEED	95	191	207	407	504	597	693	955	869
	11.2		1.0D	0.05D	Vc	30	40	55	70	85	100	110	120	165
					fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013
					RPM	47746	42441	43768	44563	45094	39789	38905	38197	26261
					FEED	95	170	175	267	361	477	545	611	683
H	38.1	Hardened steel	1.0D	0.05D	Vc	30	40	55	70	85	100	110	120	165
					fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013
					RPM	47746	42441	43768	44563	45094	39789	38905	38197	26261
					FEED	95	170	175	267	361	477	545	611	683
	38.2		1.0D	0.05D	Vc	25	40	50	65	75	75	80	80	110
					fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.012
					RPM	39789	42441	39789	41380	39789	29842	28294	25465	17507
					FEED	80	85	159	248	318	298	340	357	420
	39.1		1.0D	0.05D	Vc	20	30	40	50	55	65	65	65	90
					fz	0.001	0.001	0.001	0.002	0.003	0.004	0.005	0.005	0.009
					RPM	31831	31831	31831	31831	29178	25863	22989	20690	14324
					FEED	64	64	64	127	175	207	230	207	258
	39.2		1.0D	0.05D	Vc	20	25	30	40	45	50	50	50	70
					fz	0.001	0.001	0.001	0.002	0.002	0.003	0.004	0.004	0.007
					RPM	31831	26526	23873	25465	23873	19894	17684	15915	11141
					FEED	64	53	48	102	95	119	141	127	156
	39.3		1.0D	0.02D	Vc	15	20	25	30	40	40	40	40	60
					fz	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003	0.006
					RPM	23873	21221	19894	19099	21221	15915	14147	12732	9549
					FEED	29	38	40	57	81	83	91	87	116
	40	Chilled Cast Iron	1.0D	0.05D	Vc	30	40	55	70	85	100	110	120	165
					fz	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.013
					RPM	47746	42441	43768	44563	45094	39789	38905	38197	26261
					FEED	95	170	175	267	361	477	545	611	683
	41	Hardened Cast Iron	1.0D	0.05D	Vc	25	40	50	65	75	75	80	80	110
					fz	0.001	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.012
					RPM	39789	42441	39789	41380	39789	29842	28294	25465	17507
					FEED	80	85	159	248	318	298	340	357	420

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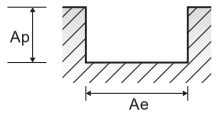

X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A01, G8A36 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245
					fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085
					RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	827	869	998	936	935	842	849	721	663
	8-9	Low alloy steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245
					fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085
					RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	827	869	998	936	935	842	849	721	663
	11.1	High alloyed steel, and tool steel	1.0D	0.05D	Vc	205	210	245	245	250	245	250	245	245
					fz	0.019	0.026	0.032	0.036	0.047	0.054	0.064	0.074	0.085
					RPM	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	827	869	998	936	935	842	849	721	663
	11.2		1.0D	0.05D	Vc	165	165	195	195	195	195	200	195	195
					fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085
					RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	700	709	794	766	714	683	690	574	528
H	38.1	Hardened steel	1.0D	0.05D	Vc	165	165	195	195	195	195	200	195	195
					fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085
					RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	700	709	794	766	714	683	690	574	528
	38.2		1.0D	0.05D	Vc	110	110	130	130	130	130	130	130	130
					fz	0.018	0.025	0.03	0.035	0.043	0.051	0.059	0.07	0.082
					RPM	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	420	438	497	483	445	422	407	362	339
	39.1		1.0D	0.05D	Vc	90	90	100	100	100	100	100	100	100
					fz	0.014	0.019	0.022	0.026	0.032	0.038	0.045	0.053	0.061
					RPM	9549	7162	6366	5305	3979	3183	2653	1989	1592
					FEED	267	272	280	276	255	242	239	211	194
	39.2		1.0D	0.05D	Vc	70	70	80	80	80	80	80	80	80
					fz	0.011	0.015	0.018	0.021	0.026	0.03	0.037	0.042	0.048
					RPM	7427	5570	5093	4244	3183	2546	2122	1592	1273
					FEED	163	167	183	178	166	153	157	134	122
	39.3		1.0D	0.02D	Vc	60	60	70	70	70	70	70	70	70
					fz	0.009	0.012	0.015	0.018	0.021	0.026	0.03	0.034	0.039
					RPM	6366	4775	4456	3714	2785	2228	1857	1393	1114
					FEED	115	118	132	131	119	114	112	94	86
	40	Chilled Cast Iron	1.0D	0.05D	Vc	165	165	195	195	195	195	200	195	195
					fz	0.02	0.027	0.032	0.037	0.046	0.055	0.065	0.074	0.085
					RPM	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	700	709	794	766	714	683	690	574	528
	41	Hardened Cast Iron	1.0D	0.05D	Vc	110	110	130	130	130	130	130	130	130
					fz	0.018	0.025	0.03	0.035	0.043	0.051	0.059	0.07	0.082
					RPM	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	420	438	497	483	445	422	407	362	339

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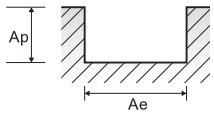
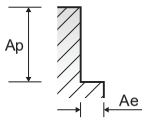


X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A01, G8A36 SERIES — 2 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.011	0.018	0.028	0.037	0.046	0.052	0.067	0.077	0.09	0.107	0.122
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1050	1203	1218	1237	1435	1352	1333	1201	1194	1043	951
	8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.011	0.018	0.028	0.037	0.046	0.052	0.067	0.077	0.09	0.107	0.122
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1050	1203	1218	1237	1435	1352	1333	1201	1194	1043	951
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.011	0.018	0.028	0.037	0.046	0.052	0.067	0.08	0.09	0.107	0.122
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1050	1203	1218	1237	1435	1352	1333	1248	1194	1043	951
	11.2		0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.011	0.019	0.028	0.038	0.046	0.053	0.066	0.079	0.092	0.108	0.121
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	840	998	980	998	1142	1097	1024	981	976	838	751
H	38.1	Hardened steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.011	0.019	0.028	0.038	0.046	0.053	0.066	0.079	0.092	0.108	0.121
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	840	998	980	998	1142	1097	1024	981	976	838	751
	38.2		0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130
					fz	0.01	0.017	0.026	0.036	0.043	0.05	0.061	0.072	0.084	0.1	0.116
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	509	595	607	630	712	690	631	596	579	517	480
	39.1		0.03D	1.0D	Vc	65	90	90	90	100	100	100	100	100	100	100
					fz	0.008	0.013	0.019	0.027	0.032	0.038	0.046	0.053	0.064	0.075	0.086
					RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592
					FEED	331	372	363	387	407	403	366	337	340	298	274
	39.2		0.03D	1.0D	Vc	50	70	70	70	80	80	80	80	80	80	80
					fz	0.006	0.01	0.015	0.021	0.025	0.03	0.037	0.043	0.052	0.059	0.067
					RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273
					FEED	191	223	223	234	255	255	236	219	221	188	171
	39.3		0.03D	1.0D	Vc	40	60	60	60	70	70	70	70	70	70	70
					fz	0.005	0.009	0.013	0.018	0.021	0.025	0.03	0.036	0.043	0.05	0.057
					RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114
					FEED	127	172	166	172	187	186	167	160	160	139	127
	40	Chilled Cast Iron	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.011	0.019	0.028	0.038	0.046	0.053	0.066	0.079	0.092	0.108	0.121
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	840	998	980	998	1142	1097	1024	981	976	838	751
	41	Hardened Cast Iron	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130
					fz	0.01	0.017	0.026	0.036	0.043	0.05	0.061	0.072	0.084	0.1	0.116
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	509	595	607	630	712	690	631	596	579	517	480



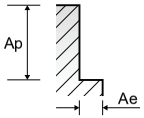
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A02, G8A37 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
	8-9	Low alloy steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
	11.1	High alloyed steel, and tool steel	0.03D	1.0D	Vc	150	210	205	210	245	245	250	245	250	245	245
					fz	0.008	0.013	0.02	0.027	0.032	0.037	0.048	0.056	0.066	0.077	0.083
					RPM	47746	33423	21751	16711	15597	12998	9947	7799	6631	4874	3899
					FEED	1528	1738	1740	1805	1996	1924	1910	1747	1751	1501	1294
	11.2		0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
H	38.1	Hardened steel	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
	38.2		0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.07	0.079
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	713	840	840	875	993	938	890	844	828	724	654
	39.1		0.03D	1.0D	Vc	65	90	90	90	100	100	100	100	100	100	100
					fz	0.005	0.009	0.014	0.019	0.023	0.026	0.033	0.038	0.045	0.053	0.059
					RPM	20690	14324	9549	7162	6366	5305	3979	3183	2653	1989	1592
					FEED	414	516	535	544	586	552	525	484	478	422	376
	39.2		0.03D	1.0D	Vc	50	70	70	70	80	80	80	80	80	80	80
					fz	0.004	0.007	0.011	0.015	0.018	0.021	0.026	0.03	0.036	0.042	0.048
					RPM	15915	11141	7427	5570	5093	4244	3183	2546	2122	1592	1273
					FEED	255	312	327	334	367	356	331	306	306	267	244
	39.3		0.03D	1.0D	Vc	40	60	60	60	70	70	70	70	70	70	70
					fz	0.004	0.007	0.009	0.013	0.016	0.018	0.022	0.025	0.03	0.036	0.041
					RPM	12732	9549	6366	4775	4456	3714	2785	2228	1857	1393	1114
					FEED	204	267	229	248	285	267	245	223	223	201	183
	40	Chilled Cast Iron	0.03D	1.0D	Vc	120	165	165	165	195	195	195	195	200	195	195
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.071	0.078
					RPM	38197	26261	17507	13130	12414	10345	7759	6207	5305	3879	3104
					FEED	1070	1261	1261	1313	1490	1407	1335	1266	1273	1102	968
	41	Hardened Cast Iron	0.03D	1.0D	Vc	80	110	110	110	130	130	130	130	130	130	130
					fz	0.007	0.012	0.018	0.025	0.03	0.034	0.043	0.051	0.06	0.07	0.079
					RPM	25465	17507	11671	8754	8276	6897	5173	4138	3448	2586	2069
					FEED	713	840	840	875	993	938	890	844	828	724	654

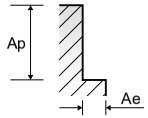


X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8A39 SERIES — 6 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	5	Non-alloy steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
					FEED	1490	1502	1456	1359	1300	913
	8-9	Low alloy steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
					FEED	1490	1502	1456	1359	1300	913
	11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	120	121	121	122	121	121
					fz	0.039	0.052	0.063	0.07	0.09	0.079
					RPM	6366	4814	3852	3236	2407	1926
					FEED	1490	1502	1456	1359	1300	913
	11.2		0.05D	1.0D	Vc	106	108	106	106	108	110
					fz	0.036	0.049	0.058	0.065	0.083	0.095
					RPM	5623	4297	3374	2812	2149	1751
					FEED	1215	1263	1174	1097	1070	998
H	38.1	Hardened steel	0.05D	1.0D	Vc	106	108	106	106	108	110
					fz	0.036	0.049	0.058	0.065	0.083	0.095
					RPM	5623	4297	3374	2812	2149	1751
					FEED	1215	1263	1174	1097	1070	998
	38.2		0.05D	1.0D	Vc	95	97	94	95	97	98
					fz	0.035	0.046	0.055	0.062	0.079	0.091
					RPM	5040	3860	2992	2520	1930	1560
					FEED	1058	1065	987	937	915	852
	39.1		0.03D	1.0D	Vc	83	83	82	83	83	87
					fz	0.033	0.044	0.053	0.059	0.076	0.072
					RPM	4403	3302	2610	2202	1651	1385
					FEED	872	872	830	780	753	598
	39.2		0.03D	1.0D	Vc	72	72	72	72	72	75
					fz	0.031	0.042	0.05	0.056	0.072	0.069
					RPM	3820	2865	2292	1910	1432	1194
					FEED	711	722	688	642	619	494
	39.3		0.03D	1.0D	Vc	48	48	49	50	48	45
					fz	0.028	0.037	0.045	0.05	0.064	0.071
					RPM	2546	1910	1560	1326	955	716
					FEED	428	424	421	398	367	305
	40	Chilled Cast Iron	0.05D	1.0D	Vc	106	108	106	106	108	110
					fz	0.036	0.049	0.058	0.065	0.083	0.095
					RPM	5623	4297	3374	2812	2149	1751
					FEED	1215	1263	1174	1097	1070	998
	41	Hardened Cast Iron	0.05D	1.0D	Vc	95	97	94	95	97	98
					fz	0.035	0.046	0.055	0.062	0.079	0.091
					RPM	5040	3860	2992	2520	1930	1560
					FEED	1058	1065	987	937	915	852



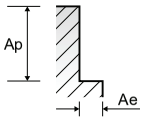
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G8D63 SERIES 6&8 FLUTE LONG LENGTH - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	5	Non-alloy steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401
	8-9	Low alloy steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401
	11.1	High alloyed steel, and tool steel	0.04D	1.5D	Vc	120	120	120	120	120	120	120	120	125
					fz	0.039	0.052	0.063	0.07	0.081	0.09	0.095	0.08	0.11
					RPM	6366	4775	3820	3183	2728	2387	2122	1910	1592
					FEED	1490	1490	1444	1337	1326	1289	1613	1222	1401
	11.2		0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95
					fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096
					RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210
					FEED	1058	1043	998	937	907	896	1075	1159	929
H	38.1 - 38.2	Hardened steel	0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95
					fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096
					RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210
					FEED	1058	1043	998	937	907	896	1075	1159	929
	39.1 - 39.2		0.04D	1.5D	Vc	70	70	70	70	70	70	70	75	75
					fz	0.031	0.042	0.05	0.056	0.066	0.072	0.073	0.069	0.087
					RPM	3714	2785	2228	1857	1592	1393	1238	1194	955
					FEED	691	702	668	624	630	602	723	659	665
	39.3		0.04D	1.5D	Vc	50	50	50	50	45	50	50	45	50
					fz	0.028	0.037	0.045	0.05	0.051	0.064	0.066	0.071	0.079
					RPM	2653	1989	1592	1326	1023	995	884	716	637
					FEED	446	442	430	398	313	382	467	407	403
	40	Chilled Cast Iron	0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95
					fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096
					RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210
					FEED	1058	1043	998	937	907	896	1075	1159	929
	41	Hardened Cast Iron	0.04D	1.5D	Vc	95	95	95	95	95	95	95	100	95
					fz	0.035	0.046	0.055	0.062	0.07	0.079	0.08	0.091	0.096
					RPM	5040	3780	3024	2520	2160	1890	1680	1592	1210
					FEED	1058	1043	998	937	907	896	1075	1159	929

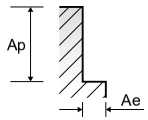


X5070 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

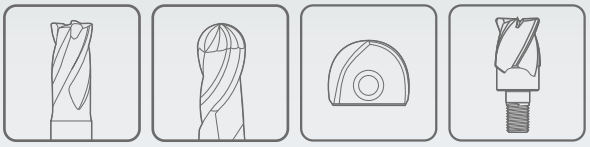
G8D64 SERIES 6&8 FLUTE EXTRA LONG LENGTH- SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	5	Non-alloy steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	764	716	688	669	614	580	721	657	544
	8-9	Low alloy steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	764	716	688	669	614	580	721	657	544
	11.1	High alloyed steel, and tool steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.04	0.05	0.06	0.07	0.075	0.081	0.085	0.086	0.089
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	764	716	688	669	614	580	721	657	544
	11.2		0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	573	573	573	583	540	509	679	688	489
H	38.1 - 38.2	Hardened steel	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	573	573	573	583	540	509	679	688	489
	39.1 - 39.2		0.01D	3.0D	Vc	50	50	50	50	50	50	50	50	50
					fz	0.03	0.04	0.05	0.06	0.066	0.071	0.081	0.091	0.081
					RPM	2653	1989	1592	1326	1137	995	884	796	637
					FEED	478	477	478	477	450	424	573	579	413
	40	Chilled Cast Iron	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	573	573	573	583	540	509	679	688	489
	41	Hardened Cast Iron	0.01D	3.0D	Vc	60	60	60	60	60	60	60	60	60
					fz	0.03	0.04	0.05	0.061	0.066	0.071	0.08	0.09	0.08
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	573	573	573	583	540	509	679	688	489



Global Cutting Tool Leader **YG-1**



MILLING

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SOLID CARBIDE

4G Mill END MILLS

4G Mill VHM - FRÄSER

- High Speed Cutting for Pre-Hardened Steels up to HRc55
- Hochgeschwindigkeitsbearbeitung für vorvergehärtete Stähle bis HRc55

SELECTION GUIDE

MILLING TOOLS

SOLID CARBIDE 4G Mill END MILLS

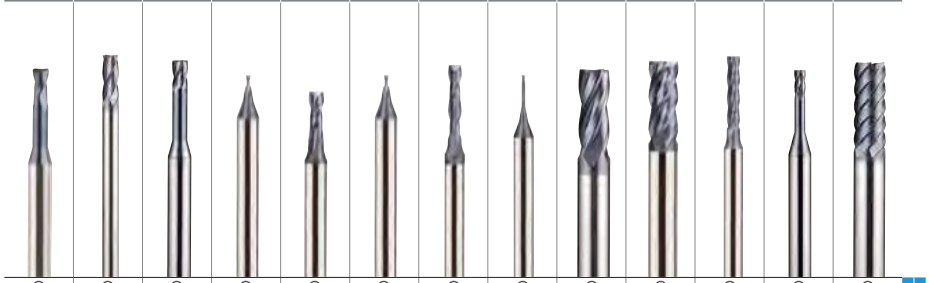
High Speed Cutting
for Pre-Hardened Steels up to HRc55

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C260

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	SEMD98	SEM846	SEM846	SEMD99
			SERIES				SEMD98	SEM846	SEM846	SEMD99
			FLUTE				2	2	2	2
			HELIX ANGLE				30°	30°	30°	30°
			CUTTING EDGE SHAPE				BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS
			SIZE MIN				R0.05	R0.05	R0.25	D0.2
			SIZE MAX				R12.5	R6.0	R1.0	D20.0
			PAGE				C150	C156	C166	C169
							-	EXTENDED NECK	EXTENDED NECK (6mm Shank)	-
							Y-Coating	Y-Coating	Y-Coating	Y-Coating
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○	○
P	2	Non-alloy steel	About 0.45% C	Annealed	190	13	○	○	○	○
P	3	Non-alloy steel	About 0.45% C	Quenched & Tempered	250	25	○	○	○	◎
P	4	Non-alloy steel	About 0.75% C	Annealed	270	28	◎	◎	◎	◎
P	5	Non-alloy steel	About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎
P	6	Low alloy steel		Annealed	180	10	○	○	○	○
P	7	Low alloy steel		Quenched & Tempered	275	29	◎	◎	◎	◎
P	8	Low alloy steel		Quenched & Tempered	300	32	◎	◎	◎	◎
P	9	Low alloy steel		Quenched & Tempered	350	38	◎	◎	◎	◎
P	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○
P	11	High alloyed steel, and tool steel		Quenched & Tempered	325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
M	13	Stainless steel	Martensitic	Quenched & Tempered	240	23				
M	14	Stainless steel	Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	○
K	16	Grey cast iron	Pearlitic (Martensitic)		260	26	○	○	○	○
K	17	Nodular cast iron	Ferritic		160	3	○	○	○	○
K	18	Nodular cast iron	Pearlitic		250	25	○	○	○	○
K	19	Malleable cast iron	Ferritic		130		○	○	○	○
K	20	Malleable cast iron	Pearlitic		230	21	○	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60					
N	22	Aluminum-wrought alloy	Curable	Hardened	100					
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	Hardened	90					
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable		130					
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90					
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper		100					
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
N	30	Non Metallic Materials	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
S	32	Heat Resistant Super Alloys	Fe Based	Cured	280	30				
S	33	Heat Resistant Super Alloys	Ni or Co Based	Annealed	250	25				
S	34	Heat Resistant Super Alloys	Ni or Co Based	Cured	350	38				
S	35	Heat Resistant Super Alloys	Ni or Co Based	Cast	320	34				
S	36	Titanium Alloys	Pure Titanium		400 Rm					
S	37	Titanium Alloys	Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55	○	○	○	○
H	39	Hardened steel		Hardened	630	60				
H	40	Chilled Cast Iron		Cast	400	42	◎	◎	◎	◎
H	41	Hardened Cast Iron		Hardened	550	55	○	○	○	○



SEME61	SEME01	SEME64	SEME35	SEME35	SEME35	SEME70	SEM845	SEME36	SEME71	SEME72	SEME73	SEME75	
2	4	4	2	2	2	2	2	4	4	4	4	6	
30°	27°/30° (MULTIPLE HELIX)	27°/30° (MULTIPLE HELIX)	30°	30°	30°	30°	30°	27°/30° (MULTIPLE HELIX)	35°/38° (MULTIPLE HELIX)	30°	30°	45°	
CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	
D0.2	D1.0	D1.0	D0.1	D0.1	D0.1	D1.0	D0.1	D0.8	D1.0	D1.0	D1.0	D6.0	
D20.0	D20.0	D20.0	D25.0	D4.0	D3.0	D25.0	D12.0	D25.0	D20.0	D25.0	D12.0	D20.0	
C177	C196	C203	C218	C221	C222	C223	C229	C238	C240	C244	C250	C255	
EXTENDED NECK	-	EXTENDED NECK	-	4mm Shank	3mm Shank	LONG LENGTH	EXTENDED NECK	-	Sharp Corner Removal	LONG LENGTH	EXTENDED NECK	-	
Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	
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													39
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CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

SELECTION GUIDE

YG MILLING TOOLS

SOLID CARBIDE 4G Mill END MILLS

X-SPEED ROUGHER

High Speed Cutting
for Pre-Hardened Steels up to HRc55

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C260

SERIES	G9D75 G9D67	G9D76 G9D68	G9D77 G9D69
FLUTE	4&5	4&5	4&5
HELIX ANGLE	44°~45° (MULTIPLE HELIX)	44°~45° (MULTIPLE HELIX)	44°~45° (MULTIPLE HELIX)
CUTTING EDGE SHAPE	CORNER RADIUS ROUGHING	CORNER RADIUS ROUGHING	CORNER RADIUS ROUGHING
SIZE MIN	D6.0	D6.0	D6.0
SIZE MAX	D20.0	D20.0	D20.0
PAGE	C257	C258	C259
	SHORT LENGTH	LONG LENGTH	LONG LENGTH
	X-Coating	X-Coating	X-Coating

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	G9D75 G9D67	G9D76 G9D68	G9D77 G9D69
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○
	2		About 0.45% C	Annealed	190	13	○	○	○
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	○	○	○
	7			Quenched & Tempered	275	29	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○
	11			Quenched & Tempered	325	35	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○	○
	14		Austenitic		180	10	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎
	19	Malleable cast iron	Ferritic		130		◎	◎	◎
	20		Pearlitic		230	21	◎	◎	◎
N	21	Aluminum-wrought alloy	Not Curable		60				
	22		Curable	Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○
	27		CuZn, CuSnZn (Brass)		90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

X-SPEED ROUGHER

CHARACTERISTICS

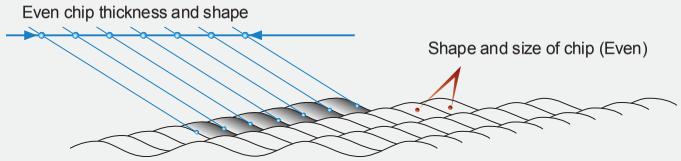
Unique flute design for excellent chip evacuation and vibration reduction.
Optimal roughing tooth profile to reduce cutting forces.
Special tool geometry for high feed rate and heavy cutting.
Strong end tooth design for plunge and pocket milling.
Custom engineered coating to allow long tool life and excellent chip evacuation.

▶ 4 FLUTE

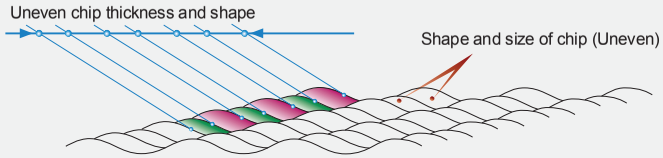
▶ 5 FLUTE

CHIP THICKNESS AND SHAPE

▶ **Conventional Roughing End Mills**



▶ **X-SPEED Rougher**



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
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X5070 END MILLS
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ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

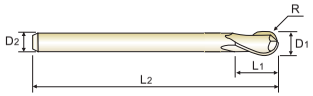
PLAIN SHANK **SEMD98** SERIES

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating

p.C260-261

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD98001SE	R0.05	**0.1**	4	0.1	40	Short
★ SEMD98001E	R0.05	**0.1**	4	0.2	40	Regular
SEMD980013SE	R0.05	**0.1**	3	0.2	40	3mm Shank
SEMD980015SE	R0.075	**0.15**	4	0.15	40	Short
SEMD980015E	R0.075	**0.15**	4	0.3	40	Regular
SEMD9800153SE	R0.075	**0.15**	3	0.3	40	3mm Shank
★ SEMD98002SE	R0.1	**0.2**	4	0.2	40	Short
★ SEMD98002E	R0.1	**0.2**	4	0.4	40	Regular
SEMD980023SE	R0.1	**0.2**	3	0.4	40	3mm Shank
★ SEMD98003SE	R0.15	**0.3**	4	0.3	40	Short
★ SEMD98003E	R0.15	**0.3**	4	0.6	40	Regular
SEMD980033SE	R0.15	**0.3**	3	0.6	40	3mm Shank
SEMD98004SE	R0.2	**0.4**	4	0.4	40	Short
★ SEMD98004E	R0.2	**0.4**	4	0.8	40	Regular
SEMD980043SE	R0.2	**0.4**	3	0.8	40	3mm Shank
★ SEMD98005SE	R0.25	**0.5**	4	0.5	40	Short
SEMD98005S6SE	R0.25	**0.5**	6	0.8	40	-
★ SEMD98005E	R0.25	**0.5**	4	1.0	40	Regular
SEMD980053SE	R0.25	**0.5**	3	1.0	40	3mm Shank
SEMD98006SE	R0.3	**0.6**	4	0.6	40	Short
★ SEMD98006E	R0.3	**0.6**	4	1.2	40	Regular
SEMD980063SE	R0.3	**0.6**	3	1.2	40	3mm Shank
SEMD98007SE	R0.35	**0.7**	4	0.7	40	Short
★ SEMD98007E	R0.35	**0.7**	4	1.4	40	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEMD98** SERIES

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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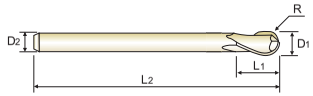
- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating

p.C260-261

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD980073SE	R0.35	**0.7**	3	1.4	40	3mm Shank
SEMD98008SE	R0.4	**0.8**	4	0.8	40	Short
★ SEMD98008E	R0.4	**0.8**	4	1.6	40	Regular
SEMD980083SE	R0.4	**0.8**	3	1.6	40	3mm Shank
SEMD98009SE	R0.45	**0.9**	4	0.9	40	Short
★ SEMD98009E	R0.45	**0.9**	4	1.8	40	Regular
SEMD980093SE	R0.45	**0.9**	3	1.8	40	3mm Shank
SEMD98010040E	R0.5	**1.0**	6	1.5	40	Short
SEMD980103SE	R0.5	**1.0**	3	2.5	50	3mm Shank
SEMD98010S4SE	R0.5	**1.0**	4	1.5	40	-
★ SEMD980104SE	R0.5	**1.0**	4	2.5	50	Regular
★ SEMD98010E	R0.5	**1.0**	6	2.5	50	Regular
★ SEMD98010070E	R0.5	**1.0**	6	2.5	70	Long Shank
SEMD98010100E	R0.5	**1.0**	6	2.5	100	Long Shank
SEMD98012040E	R0.6	**1.2**	6	2	40	Short
SEMD980123SE	R0.6	**1.2**	3	3	50	3mm Shank
SEMD980124SE	R0.6	**1.2**	4	3	50	Regular
★ SEMD98012E	R0.6	**1.2**	6	3	50	Regular
SEMD98012070E	R0.6	**1.2**	6	3	70	Long Shank
SEMD98012100E	R0.6	**1.2**	6	3	100	Long Shank
SEMD98015040E	R0.75	**1.5**	6	2.5	40	Short
SEMD980153SE	R0.75	**1.5**	3	4	50	3mm Shank
★ SEMD980154SE	R0.75	**1.5**	4	4	50	Regular
★ SEMD98015E	R0.75	**1.5**	6	4	50	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

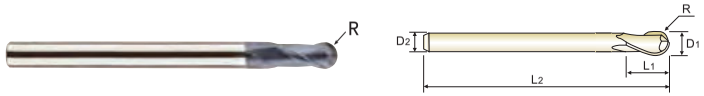
PLAIN SHANK **SEMD98** SERIES

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C260-261

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD98015070E	R0.75	1.5	6	4	70	Long Shank
SEMD98015100E	R0.75	1.5	6	4	100	Long Shank
★ SEMD98020040E	R1.0	2.0	6	3	40	Short
SEMD980203SE	R1.0	2.0	3	5	50	3mm Shank
★ SEMD980204SE	R1.0	2.0	4	5	50	Regular
★ SEMD98020E	R1.0	2.0	6	5	50	Regular
★ SEMD98020080E	R1.0	2.0	6	5	80	Long Shank
SEMD98020100E	R1.0	2.0	6	5	100	Long Shank
SEMD98025040E	R1.25	2.5	6	4	40	Short
SEMD980253SE	R1.25	2.5	3	6	60	3mm Shank
★ SEMD980254SE	R1.25	2.5	4	6	60	Regular
★ SEMD98025E	R1.25	2.5	6	6	60	Regular
★ SEMD98025080E	R1.25	2.5	6	6	80	Long Shank
SEMD98025100E	R1.25	2.5	6	6	100	Long Shank
★ SEMD98030040E	R1.5	3.0	6	4.5	40	Short
SEMD980303SE	R1.5	3.0	3	6	60	3mm Shank
★ SEMD980304SE	R1.5	3.0	4	6	60	Regular
★ SEMD98030E	R1.5	3.0	6	6	60	Regular
★ SEMD98030080E	R1.5	3.0	6	6	80	Long Shank
★ SEMD98030100E	R1.5	3.0	6	6	100	Long Shank
★ SEMD98035E	R1.75	3.5	6	8	70	-
★ SEMD98040050E	R2.0	4.0	6	6	50	Short
★ SEMD980404SE	R2.0	4.0	4	8	70	Regular
★ SEMD98040E	R2.0	4.0	6	8	70	Regular

★ : Stock Item

▶ NEXT PAGE

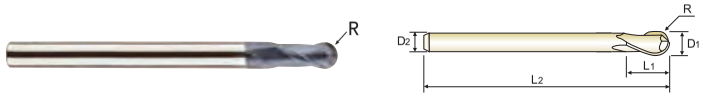
Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

YG 4G MILL END MILLS
PLAIN SHANK SEMD98 SERIES
CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C260-261
Recommended Tool Holder
END MILL HOLDER D118 - 137 | HYDRAULIC CHUCK D15 - 46 | SHRINK FIT HOLDER D47 - 72
POWER MILLING CHUCK D161 - 176
ER COLLET CHUCK D73 - 116 | SK SLIM CHUCK D183 - 201
Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD980401004SE	R2.0	4.0	4	8	100	Long Shank
SEMD980401204SE	R2.0	4.0	4	8	120	Long Shank
★ SEMD98040100E	R2.0	4.0	6	8	100	Long Shank
★ SEMD98040120E	R2.0	4.0	6	8	120	Long Shank
★ SEMD98045E	R2.25	4.5	6	9	80	-
★ SEMD98050060E	R2.5	5.0	6	7.5	60	Short
★ SEMD98050E	R2.5	5.0	6	10	80	Regular
SEMD980505SE	R2.5	5.0	5	10	80	5mmShank
★ SEMD98055E	R2.75	5.5	6	11	90	-
★ SEMD98060050E	R3.0	6.0	6	9	50	Short
★ SEMD98060060E	R3.0	6.0	6	9	60	Short
★ SEMD98060080E	R3.0	6.0	6	9	80	Short
★ SEMD98060E	R3.0	6.0	6	12	90	Regular
★ SEMD98060110E	R3.0	6.0	6	12	110	Long Shank
★ SEMD98060130E	R3.0	6.0	6	12	130	Long Shank
★ SEMD98060150E	R3.0	6.0	6	12	150	Long Shank
★ SEMD98065E	R3.25	6.5	8	13	90	-
★ SEMD98070E	R3.5	7.0	8	14	90	-
★ SEMD98080050E	R4.0	8.0	8	12	50	Short
★ SEMD98080060E	R4.0	8.0	8	12	60	Short
★ SEMD98080080E	R4.0	8.0	8	12	80	Short
★ SEMD98080090E	R4.0	8.0	8	12	90	Short
★ SEMD98080E	R4.0	8.0	8	14	100	Regular
★ SEMD98080130E	R4.0	8.0	8	14	130	Long Shank

★ : Stock Item
▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

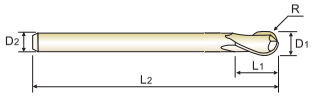
PLAIN SHANK **SEMD98** SERIES

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating

p.C260-261

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD98080150E	R4.0	**8.0**	8	14	150	Long Shank
★ SEMD98085E	R4.25	**8.5**	10	16	100	-
★ SEMD98090E	R4.5	**9.0**	10	18	100	-
SEMD98100050E	R5.0	**10.0**	10	15	50	Short
★ SEMD98100060E	R5.0	**10.0**	10	15	60	Short
★ SEMD98100080E	R5.0	**10.0**	10	15	80	Short
★ SEMD98100090E	R5.0	**10.0**	10	15	90	Short
★ SEMD98100E	R5.0	**10.0**	10	18	100	Regular
★ SEMD98100130E	R5.0	**10.0**	10	18	130	Long Shank
★ SEMD98100150E	R5.0	**10.0**	10	18	150	Long Shank
★ SEMD98100180E	R5.0	**10.0**	10	18	180	Long Shank
SEMD98100200E	R5.0	**10.0**	10	18	200	Long Shank
★ SEMD98110E	R5.5	**11.0**	12	20	100	-
SEMD98120060E	R6.0	**12.0**	12	18	60	Short
★ SEMD98120080E	R6.0	**12.0**	12	18	80	Short
SEMD98120090E	R6.0	**12.0**	12	18	90	Short
★ SEMD98120100E	R6.0	**12.0**	12	18	100	Short
★ SEMD98120E	R6.0	**12.0**	12	22	110	Regular
★ SEMD98120130E	R6.0	**12.0**	12	22	130	Long Shank
★ SEMD98120150E	R6.0	**12.0**	12	22	150	Long Shank
★ SEMD98120180E	R6.0	**12.0**	12	22	180	Long Shank
★ SEMD98120200E	R6.0	**12.0**	12	22	200	Long Shank
★ SEMD98130E	R6.5	**13.0**	12	24	100	-
★ SEMD98140E	R7.0	**14.0**	12	26	100	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEMD98 SERIES
CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
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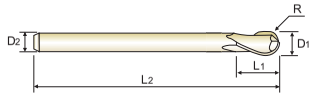
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating
p.C260-261
Recommended Tool Holder
END MILL HOLDER D118 - 137 | HYDRAULIC CHUCK D15 - 46 | SHRINK FIT HOLDER D47 - 72
POWER MILLING CHUCK D161 - 176
ER COLLET CHUCK D73 - 116 | SK SLIM CHUCK D183 - 201
Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD9814014SE	R7.0	**14.0**	14	26	100	-
SEMD9814016SE	R7.0	**14.0**	16	26	100	-
SEMD98150E	R7.5	**15.0**	16	28	140	-
★ SEMD98160100E	R8.0	**16.0**	16	24	100	Short
SEMD98160130E	R8.0	**16.0**	16	24	130	Short
★ SEMD98160E	R8.0	**16.0**	16	30	150	Regular
SEMD98160180E	R8.0	**16.0**	16	30	180	Long Shank
★ SEMD98160200E	R8.0	**16.0**	16	30	200	Long Shank
★ SEMD98180E	R9.0	**18.0**	16	34	150	Regular
SEMD9818018SE	R9.0	**18.0**	18	34	150	-
★ SEMD98200100E	R10.0	**20.0**	20	30	100	Short
SEMD98200130E	R10.0	**20.0**	20	30	130	Short
★ SEMD98200E	R10.0	**20.0**	20	38	150	Regular
SEMD98200200E	R10.0	**20.0**	20	38	200	Long Shank
SEMD98250120E	R12.5	**25.0**	25	50	120	Short
SEMD98250E	R12.5	**25.0**	25	50	180	Regular

★ : Stock Item

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

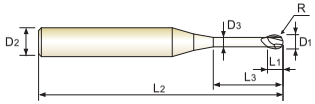
PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
	SEM846001002E	R0.05	0.1	4	0.1	0.2	40	0.085
	SEM846001003E	R0.05	0.1	4	0.1	0.3	40	0.085
	SEM846001005E	R0.05	0.1	4	0.1	0.5	40	0.085
	SEM84600101E	R0.05	0.1	4	0.1	1	40	0.085
★	SEM846002005E	R0.1	0.2	4	0.2	0.5	40	0.17
★	SEM84600201E	R0.1	0.2	4	0.2	1	40	0.17
	SEM846002015E	R0.1	0.2	4	0.2	1.5	40	0.17
★	SEM84600202E	R0.1	0.2	4	0.2	2	40	0.17
	SEM84600203E	R0.1	0.2	4	0.2	3	40	0.17
★	SEM84600301E	R0.15	0.3	4	0.3	1	40	0.27
★	SEM846003015E	R0.15	0.3	4	0.3	1.5	40	0.27
★	SEM84600302E	R0.15	0.3	4	0.3	2	40	0.27
	SEM846003025E	R0.15	0.3	4	0.3	2.5	40	0.27
★	SEM84600303E	R0.15	0.3	4	0.3	3	40	0.27
★	SEM84600304E	R0.15	0.3	4	0.3	4	40	0.27
	SEM84600305E	R0.15	0.3	4	0.3	5	40	0.27
★	SEM84600401E	R0.2	0.4	4	0.4	1	40	0.37
★	SEM846004015E	R0.2	0.4	4	0.4	1.5	40	0.37
★	SEM84600402E	R0.2	0.4	4	0.4	2	40	0.37
★	SEM846004025E	R0.2	0.4	4	0.4	2.5	40	0.37
★	SEM84600403E	R0.2	0.4	4	0.4	3	40	0.37
★	SEM84600404E	R0.2	0.4	4	0.4	4	40	0.37
★	SEM84600405E	R0.2	0.4	4	0.4	5	40	0.37
★	SEM84600406E	R0.2	0.4	4	0.4	6	40	0.37

★ : Stock Item

▶ NEXT PAGE

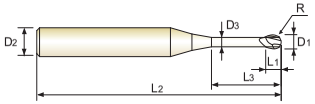
Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM846 SERIES
CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
	SEM84600408E	R0.2	0.4	4	0.4	8	40	0.37
	SEM84600410E	R0.2	0.4	4	0.4	10	40	0.37
★	SEM84600501E	R0.25	0.5	4	0.5	1	45	0.45
	SEM846005015E	R0.25	0.5	4	0.5	1.5	45	0.45
★	SEM84600502E	R0.25	0.5	4	0.5	2	45	0.45
	SEM846005025E	R0.25	0.5	4	0.5	2.5	45	0.45
★	SEM84600503E	R0.25	0.5	4	0.5	3	45	0.45
★	SEM84600504E	R0.25	0.5	4	0.5	4	45	0.45
★	SEM84600505E	R0.25	0.5	4	0.5	5	45	0.45
★	SEM84600506E	R0.25	0.5	4	0.5	6	45	0.45
★	SEM84600508E	R0.25	0.5	4	0.5	8	45	0.45
★	SEM84600510E	R0.25	0.5	4	0.5	10	45	0.45
	SEM84600512E	R0.25	0.5	4	0.5	12	45	0.45
	SEM84600514E	R0.25	0.5	4	0.5	14	45	0.45
	SEM84600516E	R0.25	0.5	4	0.5	16	45	0.45
★	SEM84600601E	R0.3	0.6	4	0.6	1	45	0.55
★	SEM84600602E	R0.3	0.6	4	0.6	2	45	0.55
★	SEM84600603E	R0.3	0.6	4	0.6	3	45	0.55
★	SEM84600604E	R0.3	0.6	4	0.6	4	45	0.55
★	SEM84600605E	R0.3	0.6	4	0.6	5	45	0.55
★	SEM84600606E	R0.3	0.6	4	0.6	6	45	0.55
★	SEM84600608E	R0.3	0.6	4	0.6	8	45	0.55
★	SEM84600610E	R0.3	0.6	4	0.6	10	45	0.55
★	SEM84600612E	R0.3	0.6	4	0.6	12	45	0.55

★ : Stock Item
▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
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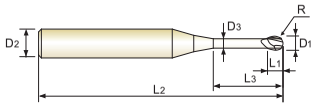

CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEM84600614E	R0.3	**0.6**	4	0.6	14	45	0.55
SEM84600616E	R0.3	**0.6**	4	0.6	16	45	0.55
★ SEM84600702E	R0.35	**0.7**	4	0.7	2	45	0.65
★ SEM84600704E	R0.35	**0.7**	4	0.7	4	45	0.65
★ SEM84600706E	R0.35	**0.7**	4	0.7	6	45	0.65
SEM84600708E	R0.35	**0.7**	4	0.7	8	45	0.65
SEM84600710E	R0.35	**0.7**	4	0.7	10	45	0.65
SEM84600712E	R0.35	**0.7**	4	0.7	12	45	0.65
SEM84600801E	R0.4	**0.8**	4	0.8	1	45	0.75
★ SEM84600802E	R0.4	**0.8**	4	0.8	2	45	0.75
★ SEM84600803E	R0.4	**0.8**	4	0.8	3	45	0.75
★ SEM84600804E	R0.4	**0.8**	4	0.8	4	45	0.75
★ SEM84600805E	R0.4	**0.8**	4	0.8	5	45	0.75
★ SEM84600806E	R0.4	**0.8**	4	0.8	6	45	0.75
★ SEM84600808E	R0.4	**0.8**	4	0.8	8	45	0.75
★ SEM84600810E	R0.4	**0.8**	4	0.8	10	45	0.75
★ SEM84600812E	R0.4	**0.8**	4	0.8	12	45	0.75
SEM84600814E	R0.4	**0.8**	4	0.8	14	45	0.75
SEM84600816E	R0.4	**0.8**	4	0.8	16	45	0.75
SEM84600820E	R0.4	**0.8**	4	0.8	20	45	0.75
★ SEM84600904E	R0.45	**0.9**	4	0.9	4	45	0.85
SEM84600906E	R0.45	**0.9**	4	0.9	6	45	0.85
★ SEM84600908E	R0.45	**0.9**	4	0.9	8	45	0.85
SEM84600910E	R0.45	**0.9**	4	0.9	10	45	0.85

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

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- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
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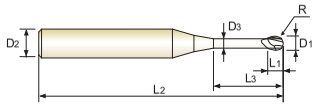


CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★ SEM84601002E	R0.5	**1.0**	4	1	2	50	0.95
★ SEM84601003E	R0.5	**1.0**	4	1	3	50	0.95
★ SEM84601004E	R0.5	**1.0**	4	1	4	50	0.95
★ SEM84601005E	R0.5	**1.0**	4	1	5	50	0.95
★ SEM84601006E	R0.5	**1.0**	4	1	6	50	0.95
★ SEM84601007E	R0.5	**1.0**	4	1	7	50	0.95
★ SEM84601008E	R0.5	**1.0**	4	1	8	50	0.95
SEM84601009E	R0.5	**1.0**	4	1	9	50	0.95
★ SEM84601010E	R0.5	**1.0**	4	1	10	50	0.95
★ SEM84601012E	R0.5	**1.0**	4	1	12	50	0.95
★ SEM84601014E	R0.5	**1.0**	4	1	14	50	0.95
★ SEM84601016E	R0.5	**1.0**	4	1	16	50	0.95
★ SEM84601018E	R0.5	**1.0**	4	1	18	50	0.95
★ SEM84601020E	R0.5	**1.0**	4	1	20	50	0.95
SEM84601022E	R0.5	**1.0**	4	1	22	60	0.95
★ SEM84601026E	R0.5	**1.0**	4	1	26	60	0.95
★ SEM84601030E	R0.5	**1.0**	4	1	30	70	0.95
SEM84601040E	R0.5	**1.0**	4	1	40	80	0.95
SEM84601050E	R0.5	**1.0**	4	1	50	100	0.95
★ SEM84601204E	R0.6	**1.2**	4	1.2	4	50	1.15
★ SEM84601206E	R0.6	**1.2**	4	1.2	6	50	1.15
★ SEM84601208E	R0.6	**1.2**	4	1.2	8	50	1.15
★ SEM84601210E	R0.6	**1.2**	4	1.2	10	50	1.15
★ SEM84601212E	R0.6	**1.2**	4	1.2	12	50	1.15

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

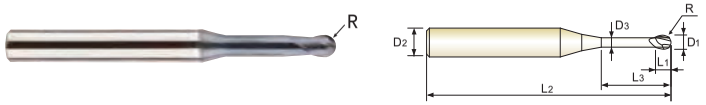
PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Due to unique ball nose geometry and cutting edges, cutting force decreased, and so wear resistance increased.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★ SEM84601216E	R0.6	1.2	4	1.2	16	50	1.15
SEM84601220E	R0.6	1.2	4	1.2	20	50	1.15
SEM84601226E	R0.6	1.2	4	1.2	26	60	1.15
SEM84601406E	R0.7	1.4	4	1.4	6	50	1.35
SEM84601408E	R0.7	1.4	4	1.4	8	50	1.35
SEM84601410E	R0.7	1.4	4	1.4	10	50	1.35
SEM84601412E	R0.7	1.4	4	1.4	12	50	1.35
SEM84601416E	R0.7	1.4	4	1.4	16	50	1.35
★ SEM84601503E	R0.75	1.5	4	1.5	3	50	1.45
★ SEM84601504E	R0.75	1.5	4	1.5	4	50	1.45
★ SEM84601505E	R0.75	1.5	4	1.5	5	50	1.45
★ SEM84601506E	R0.75	1.5	4	1.5	6	50	1.45
SEM84601507E	R0.75	1.5	4	1.5	7	50	1.45
★ SEM84601508E	R0.75	1.5	4	1.5	8	50	1.45
★ SEM84601510E	R0.75	1.5	4	1.5	10	50	1.45
★ SEM84601512E	R0.75	1.5	4	1.5	12	50	1.45
★ SEM84601514E	R0.75	1.5	4	1.5	14	50	1.45
★ SEM84601516E	R0.75	1.5	4	1.5	16	50	1.45
★ SEM84601518E	R0.75	1.5	4	1.5	18	50	1.45
★ SEM84601520E	R0.75	1.5	4	1.5	20	50	1.45
SEM84601522E	R0.75	1.5	4	1.5	22	60	1.45
SEM84601526E	R0.75	1.5	4	1.5	26	60	1.45
SEM84601530E	R0.75	1.5	4	1.5	30	70	1.45
SEM84601535E	R0.75	1.5	4	1.5	35	70	1.45

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

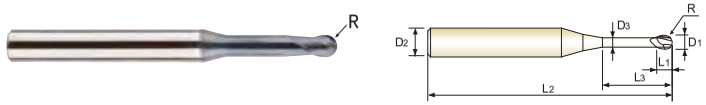
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM846 SERIES
CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEM84601540E	R0.75	1.5	4	1.5	40	80	1.45
SEM84601604E	R0.8	1.6	4	1.6	4	50	1.55
SEM84601606E	R0.8	1.6	4	1.6	6	50	1.55
★ SEM84601608E	R0.8	1.6	4	1.6	8	50	1.55
SEM84601610E	R0.8	1.6	4	1.6	10	50	1.55
★ SEM84601612E	R0.8	1.6	4	1.6	12	50	1.55
★ SEM84601616E	R0.8	1.6	4	1.6	16	50	1.55
SEM84601620E	R0.8	1.6	4	1.6	20	50	1.55
★ SEM84601804E	R0.9	1.8	4	1.8	4	50	1.75
SEM84601806E	R0.9	1.8	4	1.8	6	50	1.75
★ SEM84601808E	R0.9	1.8	4	1.8	8	50	1.75
SEM84601810E	R0.9	1.8	4	1.8	10	50	1.75
★ SEM84601812E	R0.9	1.8	4	1.8	12	50	1.75
★ SEM84601816E	R0.9	1.8	4	1.8	16	50	1.75
SEM84601820E	R0.9	1.8	4	1.8	20	50	1.75
★ SEM84602004E	R1.0	2.0	4	2	4	50	1.95
★ SEM84602006E	R1.0	2.0	4	2	6	50	1.95
★ SEM84602008E	R1.0	2.0	4	2	8	50	1.95
★ SEM84602010E	R1.0	2.0	4	2	10	50	1.95
★ SEM84602012E	R1.0	2.0	4	2	12	50	1.95
★ SEM84602014E	R1.0	2.0	4	2	14	50	1.95
★ SEM84602016E	R1.0	2.0	4	2	16	50	1.95
★ SEM84602018E	R1.0	2.0	4	2	18	50	1.95
★ SEM84602020E	R1.0	2.0	4	2	20	50	1.95

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

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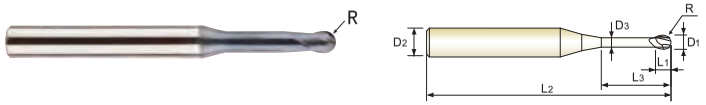
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
	SEM84602022E	R1.0	2.0	4	2	22	60	1.95
★	SEM84602026E	R1.0	2.0	4	2	26	60	1.95
★	SEM84602030E	R1.0	2.0	4	2	30	70	1.95
★	SEM84602035E	R1.0	2.0	4	2	35	70	1.95
	SEM84602040E	R1.0	2.0	4	2	40	80	1.95
	SEM84602045E	R1.0	2.0	4	2	45	90	1.95
	SEM84602050E	R1.0	2.0	4	2	50	100	1.95
	SEM84602060E	R1.0	2.0	4	2	60	110	1.95
★	SEM84602508E	R1.25	2.5	4	2.5	8	50	2.40
★	SEM84602510E	R1.25	2.5	4	2.5	10	50	2.40
★	SEM84602512E	R1.25	2.5	4	2.5	12	50	2.40
★	SEM84602516E	R1.25	2.5	4	2.5	16	50	2.40
★	SEM84602520E	R1.25	2.5	4	2.5	20	50	2.40
	SEM84602522E	R1.25	2.5	4	2.5	22	60	2.40
	SEM84602526E	R1.25	2.5	4	2.5	26	60	2.40
	SEM84602530E	R1.25	2.5	4	2.5	30	70	2.40
	SEM84602535E	R1.25	2.5	4	2.5	35	70	2.40
	SEM84602540E	R1.25	2.5	4	2.5	40	80	2.40
	SEM84602545E	R1.25	2.5	4	2.5	45	90	2.40
	SEM84602550E	R1.25	2.5	4	2.5	50	100	2.40
★	SEM84603006E	R1.5	3.0	6	3	6	50	2.85
★	SEM84603008E	R1.5	3.0	6	3	8	50	2.85
★	SEM84603010E	R1.5	3.0	6	3	10	50	2.85
★	SEM84603012E	R1.5	3.0	6	3	12	50	2.85

★ : Stock Item

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM846 SERIES
CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
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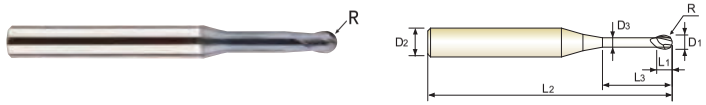

CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273
Recommended Tool Holder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

	EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★	SEM84603014E	R1.5	3.0	6	3	14	60	2.85
	SEM84603015E	R1.5	3.0	6	3	15	60	2.85
★	SEM84603016E	R1.5	3.0	6	3	16	60	2.85
★	SEM84603018E	R1.5	3.0	6	3	18	60	2.85
★	SEM84603020E	R1.5	3.0	6	3	20	60	2.85
★	SEM84603022E	R1.5	3.0	6	3	22	65	2.85
★	SEM84603026E	R1.5	3.0	6	3	26	65	2.85
★	SEM84603030E	R1.5	3.0	6	3	30	70	2.85
★	SEM84603035E	R1.5	3.0	6	3	35	70	2.85
★	SEM84603040E	R1.5	3.0	6	3	40	80	2.85
★	SEM84603045E	R1.5	3.0	6	3	45	90	2.85
★	SEM84603050E	R1.5	3.0	6	3	50	100	2.85
	SEM84603060E	R1.5	3.0	6	3	60	100	2.85
★	SEM84604008E	R2.0	4.0	6	4	8	50	3.85
★	SEM84604010E	R2.0	4.0	6	4	10	50	3.85
★	SEM84604012E	R2.0	4.0	6	4	12	50	3.85
★	SEM84604014E	R2.0	4.0	6	4	14	60	3.85
★	SEM84604016E	R2.0	4.0	6	4	16	60	3.85
★	SEM84604018E	R2.0	4.0	6	4	18	60	3.85
★	SEM84604020E	R2.0	4.0	6	4	20	60	3.85
★	SEM84604022E	R2.0	4.0	6	4	22	65	3.85
★	SEM84604026E	R2.0	4.0	6	4	26	65	3.85
★	SEM84604030E	R2.0	4.0	6	4	30	70	3.85
★	SEM84604035E	R2.0	4.0	6	4	35	70	3.85

★ : Stock Item
▶ NEXT PAGE
Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	
◎ : Excellent ○ : Good
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

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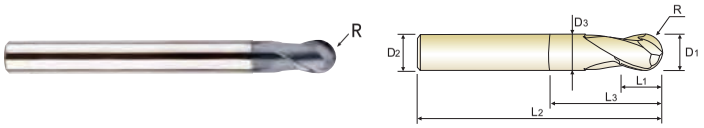
- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273

R0.05~R3

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
-	-	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
★ SEM84604040E	R2.0	**4.0**	6	4	40	80	3.85
SEM84604045E	R2.0	**4.0**	6	4	45	90	3.85
★ SEM84604050E	R2.0	**4.0**	6	4	50	100	3.85
SEM84604055E	R2.0	**4.0**	6	4	55	100	3.85
SEM84604060E	R2.0	**4.0**	6	4	60	100	3.85
SEM84605015E	R2.5	**5.0**	6	6	15	60	4.85
★ SEM84605020E	R2.5	**5.0**	6	6	20	60	4.85
★ SEM84605026E	R2.5	**5.0**	6	6	26	65	4.85
★ SEM84605030E	R2.5	**5.0**	6	6	30	70	4.85
★ SEM84605035E	R2.5	**5.0**	6	6	35	70	4.85
★ SEM84605040E	R2.5	**5.0**	6	6	40	80	4.85
SEM84605045E	R2.5	**5.0**	6	6	45	90	4.85
★ SEM84605050E	R2.5	**5.0**	6	6	50	100	4.85
SEM84605055E	R2.5	**5.0**	6	6	55	100	4.85
SEM84605060E	R2.5	**5.0**	6	6	60	100	4.85
★ SEM84606020E	R3.0	**6.0**	6	8	20	60	5.85
★ SEM84606030E	R3.0	**6.0**	6	8	30	60	5.85
★ SEM84606020090E	R3.0	**6.0**	6	12	20	90	5.85
★ SEM84606030090E	R3.0	**6.0**	6	12	30	90	5.85
★ SEM84608025E	R4.0	**8.0**	8	10	25	70	7.70
★ SEM84608035E	R4.0	**8.0**	8	10	35	70	7.70
SEM84608025100E	R4.0	**8.0**	8	14	25	100	7.70
★ SEM84608035100E	R4.0	**8.0**	8	14	35	100	7.70
★ SEM84610030E	R5.0	**10.0**	10	12	30	75	9.70

★ : Stock Item

▶ NEXT PAGE

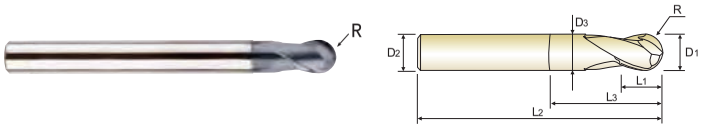
Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM846 SERIES
CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | Y Coating | p.C262-273
R0.05~R3
Recommended Tool Holder
Flat Shank | Page | Plain Shank | Page
END MILL HOLDER | D118 - 137 | HYDRAULIC CHUCK / SHRINK FIT HOLDER | D15 - 46 / D47 - 72
- | - | POWER MILLING CHUCK | D161 - 176
- | - | ER COLLET CHUCK / SK SLIM CHUCK | D73 - 116 / D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
★ SEM84610040E	R5.0	**10.0**	10	12	40	75	9.70
★ SEM84610030100E	R5.0	**10.0**	10	18	30	100	9.70
★ SEM84610040100E	R5.0	**10.0**	10	18	40	100	9.70
★ SEM84612032E	R6.0	**12.0**	12	14	32	80	11.70
SEM84612045E	R6.0	**12.0**	12	14	45	80	11.70
★ SEM84612032110E	R6.0	**12.0**	12	22	32	110	11.70
★ SEM84612045110E	R6.0	**12.0**	12	22	45	110	11.70

★ : Stock Item

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

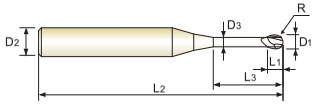
PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)
Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEM846005016SE	R0.25	**0.5**	6	0.5	1	45	0.45
SEM846005026SE	R0.25	**0.5**	6	0.5	2	45	0.45
SEM846005046SE	R0.25	**0.5**	6	0.5	4	45	0.45
SEM846006016SE	R0.3	**0.6**	6	0.6	1	45	0.55
SEM846006026SE	R0.3	**0.6**	6	0.6	2	45	0.55
SEM846006036SE	R0.3	**0.6**	6	0.6	3	45	0.55
SEM846006046SE	R0.3	**0.6**	6	0.6	4	45	0.55
SEM846006056SE	R0.3	**0.6**	6	0.6	5	45	0.55
★ SEM846006066SE	R0.3	**0.6**	6	0.6	6	45	0.55
SEM846006086SE	R0.3	**0.6**	6	0.6	8	45	0.55
SEM846006106SE	R0.3	**0.6**	6	0.6	10	45	0.55
SEM846006126SE	R0.3	**0.6**	6	0.6	12	45	0.55
SEM846006146SE	R0.3	**0.6**	6	0.6	14	45	0.55
SEM846006166SE	R0.3	**0.6**	6	0.6	16	45	0.55
SEM846008016SE	R0.4	**0.8**	6	0.8	1	45	0.75
SEM846008026SE	R0.4	**0.8**	6	0.8	2	45	0.75
SEM846008036SE	R0.4	**0.8**	6	0.8	3	45	0.75
SEM846008046SE	R0.4	**0.8**	6	0.8	4	45	0.75
SEM846008056SE	R0.4	**0.8**	6	0.8	5	45	0.75
SEM846008066SE	R0.4	**0.8**	6	0.8	6	45	0.75
SEM846008086SE	R0.4	**0.8**	6	0.8	8	45	0.75
SEM846008106SE	R0.4	**0.8**	6	0.8	10	45	0.75
SEM846008126SE	R0.4	**0.8**	6	0.8	12	45	0.75
SEM846008146SE	R0.4	**0.8**	6	0.8	14	45	0.75

★ : Stock Item

▶ NEXT PAGE

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.005	0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

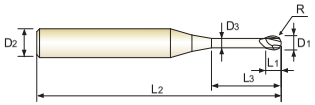
PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)
Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schnittkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



CARBIDE | 2 | 30° | R ±0.005 | PLAIN | Y Coating | p.C262-273

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEM846008166SE	R0.4	**0.8**	6	0.8	16	45	0.75
SEM846008206SE	R0.4	**0.8**	6	0.8	20	45	0.75
SEM846010026SE	R0.5	**1.0**	6	1	2	50	0.95
SEM846010036SE	R0.5	**1.0**	6	1	3	50	0.95
★ SEM846010046SE	R0.5	**1.0**	6	1	4	50	0.95
SEM846010056SE	R0.5	**1.0**	6	1	5	50	0.95
★ SEM846010066SE	R0.5	**1.0**	6	1	6	50	0.95
SEM846010076SE	R0.5	**1.0**	6	1	7	50	0.95
SEM846010086SE	R0.5	**1.0**	6	1	8	50	0.95
SEM846010096SE	R0.5	**1.0**	6	1	9	50	0.95
★ SEM846010106SE	R0.5	**1.0**	6	1	10	50	0.95
SEM846010126SE	R0.5	**1.0**	6	1	12	50	0.95
SEM846010146SE	R0.5	**1.0**	6	1	14	50	0.95
SEM846010166SE	R0.5	**1.0**	6	1	16	50	0.95
SEM846010186SE	R0.5	**1.0**	6	1	18	50	0.95
SEM846010206SE	R0.5	**1.0**	6	1	20	50	0.95
SEM846010226SE	R0.5	**1.0**	6	1	22	60	0.95
SEM846010266SE	R0.5	**1.0**	6	1	26	60	0.95
SEM846010306SE	R0.5	**1.0**	6	1	30	70	0.95
SEM846015036SE	R0.75	**1.5**	6	1.5	3	50	1.45
SEM846015046SE	R0.75	**1.5**	6	1.5	4	50	1.45
★ SEM846015066SE	R0.75	**1.5**	6	1.5	6	50	1.45
★ SEM846015086SE	R0.75	**1.5**	6	1.5	8	50	1.45
★ SEM846015106SE	R0.75	**1.5**	6	1.5	10	50	1.45

★ : Stock Item

▶ NEXT PAGE

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.005	0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEM846** SERIES

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)
Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)
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- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
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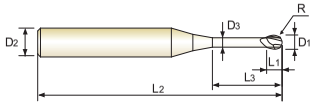


CARBIDE | 2 | 30° | R ±0.005 | PLAIN | Y Coating | p.C262-273

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★ SEM846015126SE	R0.75	**1.5**	6	1.5	12	50	1.45
SEM846015146SE	R0.75	**1.5**	6	1.5	14	50	1.45
SEM846015166SE	R0.75	**1.5**	6	1.5	16	50	1.45
SEM846015186SE	R0.75	**1.5**	6	1.5	18	50	1.45
SEM846015206SE	R0.75	**1.5**	6	1.5	20	50	1.45
SEM846015226SE	R0.75	**1.5**	6	1.5	22	60	1.45
SEM846015266SE	R0.75	**1.5**	6	1.5	26	60	1.45
SEM846015306SE	R0.75	**1.5**	6	1.5	30	70	1.45
SEM846015356SE	R0.75	**1.5**	6	1.5	35	70	1.45
SEM846015406SE	R0.75	**1.5**	6	1.5	40	80	1.45
SEM846020046SE	R1.0	**2.0**	6	2	4	50	1.95
★ SEM846020066SE	R1.0	**2.0**	6	2	6	50	1.95
★ SEM846020086SE	R1.0	**2.0**	6	2	8	50	1.95
★ SEM846020106SE	R1.0	**2.0**	6	2	10	50	1.95
★ SEM846020126SE	R1.0	**2.0**	6	2	12	50	1.95
SEM846020146SE	R1.0	**2.0**	6	2	14	50	1.95
★ SEM846020166SE	R1.0	**2.0**	6	2	16	50	1.95
SEM846020186SE	R1.0	**2.0**	6	2	18	50	1.95
★ SEM846020206SE	R1.0	**2.0**	6	2	20	50	1.95
SEM846020226SE	R1.0	**2.0**	6	2	22	60	1.95
SEM846020266SE	R1.0	**2.0**	6	2	26	60	1.95
SEM846020306SE	R1.0	**2.0**	6	2	30	70	1.95
SEM846020356SE	R1.0	**2.0**	6	2	35	70	1.95
SEM846020406SE	R1.0	**2.0**	6	2	40	80	1.95
SEM846020456SE	R1.0	**2.0**	6	2	45	90	1.95
SEM846020506SE	R1.0	**2.0**	6	2	50	100	1.95

★ : Stock Item

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.005	0 ~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

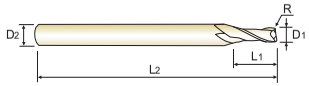
PLAIN SHANK **SEMD99** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C274-275

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD99002002E	R0.02	**0.2**	4	0.4	40	-
SEMD99002005E	R0.05	**0.2**	4	0.4	40	-
SEMD99003002E	R0.02	**0.3**	4	0.6	40	-
SEMD99003005E	R0.05	**0.3**	4	0.6	40	-
SEMD99004005E	R0.05	**0.4**	4	0.8	40	-
SEMD9900401E	R0.1	**0.4**	4	0.8	40	-
SEMD99005005E	R0.05	**0.5**	4	1	40	-
SEMD9900501E	R0.1	**0.5**	4	1	40	-
SEMD99006005E	R0.05	**0.6**	4	1.2	40	-
SEMD9900601E	R0.1	**0.6**	4	1.2	40	-
SEMD9900602E	R0.2	**0.6**	4	1.2	40	-
SEMD99007005E	R0.05	**0.7**	4	1.4	40	-
SEMD9900701E	R0.1	**0.7**	4	1.4	40	-
SEMD9900702E	R0.2	**0.7**	4	1.4	40	-
SEMD99008005E	R0.05	**0.8**	4	1.6	40	-
SEMD9900801E	R0.1	**0.8**	4	1.6	40	-
SEMD9900802E	R0.2	**0.8**	4	1.6	40	-
SEMD99009005E	R0.05	**0.9**	4	1.8	40	-
SEMD9900901E	R0.1	**0.9**	4	1.8	40	-
SEMD990100054SE	R0.05	**1.0**	4	2.5	50	4mm Shank
SEMD99010014SE	R0.1	**1.0**	4	2.5	50	4mm Shank
SEMD99010024SE	R0.2	**1.0**	4	2.5	50	4mm Shank
SEMD99010034SE	R0.3	**1.0**	4	2.5	50	4mm Shank
SEMD99010005E	R0.05	**1.0**	6	2.5	50	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

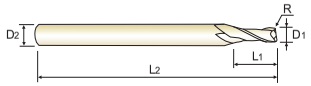
PLAIN SHANK **SEMD99** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm comer radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C274-275

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD9901001E	R0.1	1.0	6	2.5	50	-
★ SEMD9901002E	R0.2	1.0	6	2.5	50	-
★ SEMD9901003E	R0.3	1.0	6	2.5	50	-
SEMD99012054SE	R0.05	1.2	4	3	50	4mm Shank
SEMD99012014SE	R0.1	1.2	4	3	50	4mm Shank
SEMD99012024SE	R0.2	1.2	4	3	50	4mm Shank
SEMD99012034SE	R0.3	1.2	4	3	50	4mm Shank
SEMD99012005E	R0.05	1.2	6	3	50	-
SEMD9901201E	R0.1	1.2	6	3	50	-
SEMD9901202E	R0.2	1.2	6	3	50	-
SEMD9901203E	R0.3	1.2	6	3	50	-
SEMD99015054SE	R0.05	1.5	4	4	50	-
SEMD99015014SE	R0.1	1.5	4	4	50	4mm Shank
SEMD99015024SE	R0.2	1.5	4	4	50	4mm Shank
SEMD99015034SE	R0.3	1.5	4	4	50	4mm Shank
SEMD99015054SE	R0.5	1.5	4	4	50	4mm Shank
SEMD99015005E	R0.05	1.5	6	4	50	-
SEMD9901501E	R0.1	1.5	6	4	50	-
★ SEMD9901502E	R0.2	1.5	6	4	50	-
★ SEMD9901503E	R0.3	1.5	6	4	50	-
★ SEMD9901505E	R0.5	1.5	6	4	50	-
SEMD99020014SE	R0.1	2.0	4	6	50	4mm Shank
SEMD99020024SE	R0.2	2.0	4	6	50	4mm Shank
SEMD99020034SE	R0.3	2.0	4	6	50	4mm Shank

★ : Stock Item

▶ NEXT PAGE

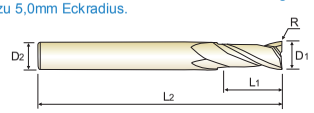
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEMD99 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available in short, regular and long shank end mills.
▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating
p.C274-275

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD99020054SE	R0.5	2.0	4	6	50	4mm Shank
SEMD9902001E	R0.1	2.0	6	6	50	-
★ SEMD9902002E	R0.2	2.0	6	6	50	-
★ SEMD9902003E	R0.3	2.0	6	6	50	-
★ SEMD9902005E	R0.5	2.0	6	6	50	-
SEMD99025014SE	R0.1	2.5	4	7	60	4mm Shank
SEMD99025024SE	R0.2	2.5	4	7	60	4mm Shank
SEMD99025034SE	R0.3	2.5	4	7	60	4mm Shank
SEMD99025054SE	R0.5	2.5	4	7	60	4mm Shank
SEMD9902501E	R0.1	2.5	6	7	60	-
SEMD9902502E	R0.2	2.5	6	7	60	-
SEMD9902503E	R0.3	2.5	6	7	60	-
SEMD9902505E	R0.5	2.5	6	7	60	-
SEMD9903001E	R0.1	3.0	6	8	60	-
★ SEMD9903002E	R0.2	3.0	6	8	60	-
★ SEMD9903003E	R0.3	3.0	6	8	60	-
★ SEMD9903005E	R0.5	3.0	6	8	60	-
SEMD9903010E	R1.0	3.0	6	8	60	-
SEMD9903501E	R0.1	3.5	6	10	70	-
SEMD9903502E	R0.2	3.5	6	10	70	-
SEMD9903503E	R0.3	3.5	6	10	70	-
SEMD9903505E	R0.5	3.5	6	10	70	-
SEMD99040014SE	R0.1	4.0	4	10	70	4mm Shank
SEMD99040024SE	R0.2	4.0	4	10	70	4mm Shank

★ : Stock Item
▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

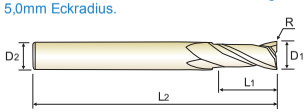
PLAIN SHANK **SEMD99** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm comer radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C274-275

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD99040034SE	R0.3	4.0	4	10	70	4mm Shank
SEMD99040054SE	R0.5	4.0	4	10	70	4mm Shank
SEMD99040104SE	R1.0	4.0	4	10	70	4mm Shank
SEMD99040011004SE	R0.1	4.0	4	10	100	4mm Shank
SEMD99040021004SE	R0.2	4.0	4	10	100	4mm Shank
SEMD99040031004SE	R0.3	4.0	4	10	100	4mm Shank
SEMD99040051004SE	R0.5	4.0	4	10	100	4mm Shank
SEMD99040101004SE	R1.0	4.0	4	10	100	4mm Shank
SEMD9904001E	R0.1	4.0	6	10	70	Regular
★ SEMD9904002E	R0.2	4.0	6	10	70	Regular
★ SEMD9904003E	R0.3	4.0	6	10	70	Regular
★ SEMD9904005E	R0.5	4.0	6	10	70	Regular
★ SEMD9904010E	R1.0	4.0	6	10	70	Regular
SEMD9904501E	R0.1	4.5	6	11	80	-
SEMD9904502E	R0.2	4.5	6	11	80	-
SEMD9904503E	R0.3	4.5	6	11	80	-
SEMD9904505E	R0.5	4.5	6	11	80	-
SEMD9905001E	R0.1	5.0	6	13	90	-
★ SEMD9905002E	R0.2	5.0	6	13	90	-
★ SEMD9905003E	R0.3	5.0	6	13	90	-
★ SEMD9905005E	R0.5	5.0	6	13	90	-
★ SEMD9905010E	R1.0	5.0	6	13	90	-
SEMD9905501E	R0.1	5.5	6	13	90	-
SEMD9905502E	R0.2	5.5	6	13	90	-

★ : Stock Item

▶ NEXT PAGE

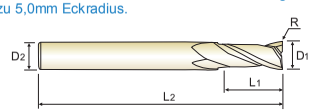
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEMD99 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available in short, regular and long shank end mills.
▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C274-275

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD9905503E	R0.3	5.5	6	13	90	-
SEMD9905505E	R0.5	5.5	6	13	90	-
SEMD9905510E	R1.0	5.5	6	13	90	-
★ SEMD9906002060E	R0.2	6.0	6	15	60	Short
★ SEMD9906003060E	R0.3	6.0	6	15	60	Short
★ SEMD9906005060E	R0.5	6.0	6	15	60	Short
★ SEMD9906010060E	R1.0	6.0	6	15	60	Short
SEMD9906001E	R0.1	6.0	6	15	90	Regular
★ SEMD9906002E	R0.2	6.0	6	15	90	Regular
★ SEMD9906003E	R0.3	6.0	6	15	90	Regular
★ SEMD9906005E	R0.5	6.0	6	15	90	Regular
★ SEMD9906010E	R1.0	6.0	6	15	90	Regular
SEMD9906015E	R1.5	6.0	6	15	90	Regular
SEMD9906020E	R2.0	6.0	6	15	90	Regular
SEMD9906005110E	R0.5	6.0	6	15	110	Long Shank
SEMD9906010110E	R1.0	6.0	6	15	110	Long Shank
SEMD9906005130E	R0.5	6.0	6	15	130	Long Shank
SEMD9906010130E	R1.0	6.0	6	15	130	Long Shank
SEMD9907001E	R0.1	7.0	8	16	90	-
SEMD9907002E	R0.2	7.0	8	16	90	-
SEMD9907003E	R0.3	7.0	8	16	90	-
SEMD9907005E	R0.5	7.0	8	16	90	-
SEMD9907010E	R1.0	7.0	8	16	90	-
SEMD9907020E	R2.0	7.0	8	16	90	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

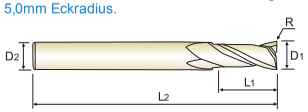
PLAIN SHANK **SEMD99** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm comer radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C274-275

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD9908003070E	R0.3	8.0	8	20	70	Short
★ SEMD9908005070E	R0.5	8.0	8	20	70	Short
★ SEMD9908010070E	R1.0	8.0	8	20	70	Short
SEMD9908001E	R0.1	8.0	8	20	100	Regular
SEMD9908002E	R0.2	8.0	8	20	100	Regular
SEMD9908003E	R0.3	8.0	8	20	100	Regular
★ SEMD9908005E	R0.5	8.0	8	20	100	Regular
★ SEMD9908010E	R1.0	8.0	8	20	100	Regular
★ SEMD9908015E	R1.5	8.0	8	20	100	Regular
★ SEMD9908020E	R2.0	8.0	8	20	100	Regular
SEMD9908025E	R2.5	8.0	8	20	100	Regular
SEMD9908030E	R3.0	8.0	8	20	100	Regular
SEMD9908005120E	R0.5	8.0	8	20	120	Long Shank
SEMD9908010120E	R1.0	8.0	8	20	120	Long Shank
SEMD9908015150E	R0.5	8.0	8	20	150	Long Shank
SEMD9908010150E	R1.0	8.0	8	20	150	Long Shank
SEMD9910003075E	R0.3	10.0	10	25	75	Short
★ SEMD9910005075E	R0.5	10.0	10	25	75	Short
★ SEMD9910010075E	R1.0	10.0	10	25	75	Short
SEMD9910001E	R0.1	10.0	10	25	100	Regular
SEMD9910002E	R0.2	10.0	10	25	100	Regular
SEMD9910003E	R0.3	10.0	10	25	100	Regular
★ SEMD9910005E	R0.5	10.0	10	25	100	Regular
★ SEMD9910010E	R1.0	10.0	10	25	100	Regular

★ : Stock Item

▶ NEXT PAGE

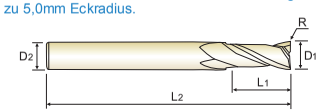
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEMD99 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available in short, regular and long shank end mills.
▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C274-275

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD9910015E	R1.5	10.0	10	25	100	Regular
★ SEMD9910020E	R2.0	10.0	10	25	100	Regular
SEMD9910025E	R2.5	10.0	10	25	100	Regular
SEMD9910030E	R3.0	10.0	10	25	100	Regular
SEMD9910040E	R4.0	10.0	10	25	100	Regular
SEMD9910005130E	R0.5	10.0	10	25	130	Long Shank
SEMD9910010130E	R1.0	10.0	10	25	130	Long Shank
SEMD9910005150E	R0.5	10.0	10	25	150	Long Shank
SEMD9910010150E	R1.0	10.0	10	25	150	Long Shank
SEMD9911002E	R0.2	11.0	12	25	110	-
SEMD9911003E	R0.3	11.0	12	25	110	-
SEMD9911005E	R0.5	11.0	12	25	110	-
SEMD9911010E	R1.0	11.0	12	25	110	-
SEMD9911020E	R2.0	11.0	12	25	110	-
SEMD9912003080E	R0.3	12.0	12	30	80	Short
★ SEMD9912005080E	R0.5	12.0	12	30	80	Short
★ SEMD9912010080E	R1.0	12.0	12	30	80	Short
SEMD9912001E	R0.1	12.0	12	30	110	Regular
SEMD9912002E	R0.2	12.0	12	30	110	Regular
SEMD9912003E	R0.3	12.0	12	30	110	Regular
★ SEMD9912005E	R0.5	12.0	12	30	110	Regular
★ SEMD9912010E	R1.0	12.0	12	30	110	Regular
★ SEMD9912015E	R1.5	12.0	12	30	110	Regular
★ SEMD9912020E	R2.0	12.0	12	30	110	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

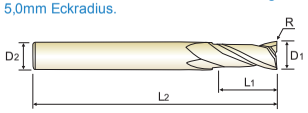
PLAIN SHANK **SEMD99** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C274-275

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD9912025E	R2.5	12.0	12	30	110	Regular
★ SEMD9912030E	R3.0	12.0	12	30	110	Regular
SEMD9912040E	R4.0	12.0	12	30	110	Regular
SEMD9912050E	R5.0	12.0	12	30	110	Regular
SEMD9912005130E	R0.5	12.0	12	30	130	Long Shank
SEMD9912010130E	R1.0	12.0	12	30	130	Long Shank
SEMD9912005150E	R0.5	12.0	12	30	150	Long Shank
SEMD9912010150E	R1.0	12.0	12	30	150	Long Shank
SEMD9914005E	R0.5	14.0	16	35	150	-
★ SEMD9914010E	R1.0	14.0	16	35	150	-
SEMD9914020E	R2.0	14.0	16	35	150	-
SEMD9916005E	R0.5	16.0	16	32	150	-
★ SEMD9916010E	R1.0	16.0	16	32	150	-
SEMD9916015E	R1.5	16.0	16	32	150	-
★ SEMD9916020E	R2.0	16.0	16	32	150	-
SEMD9920005E	R0.5	20.0	20	38	150	-
★ SEMD9920010E	R1.0	20.0	20	38	150	-
SEMD9920015E	R1.5	20.0	20	38	150	-
★ SEMD9920020E	R2.0	20.0	20	38	150	-

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

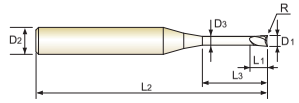
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME61002002005E	R0.02	0.2	4	0.3	0.5	40	0.17	-
★ SEME6100200201E	R0.02	0.2	4	0.3	1	40	0.17	-
SEME61002002015E	R0.02	0.2	4	0.3	1.5	40	0.17	-
SEME6100200202E	R0.02	0.2	4	0.3	2	40	0.17	-
SEME61002005005E	R0.05	0.2	4	0.3	0.5	40	0.17	-
★ SEME6100200501E	R0.05	0.2	4	0.3	1	40	0.17	-
SEME61002005015E	R0.05	0.2	4	0.3	1.5	40	0.17	-
SEME6100200502E	R0.05	0.2	4	0.3	2	40	0.17	-
SEME61003005015SE	R0.05	0.3	4	0.25	1.5	40	0.27	-
★ SEME6100300201E	R0.02	0.3	4	0.5	1	40	0.27	-
★ SEME6100300202E	R0.02	0.3	4	0.5	2	40	0.27	-
SEME6100300203E	R0.02	0.3	4	0.5	3	40	0.27	-
★ SEME6100300501E	R0.05	0.3	4	0.5	1	40	0.27	-
★ SEME6100300502E	R0.05	0.3	4	0.5	2	40	0.27	-
SEME6100300503E	R0.05	0.3	4	0.5	3	40	0.27	-
SEME6100300502S6SE	R0.05	0.3	6	0.25	2	40	0.27	
★ SEME6100400501E	R0.05	0.4	4	0.6	1	40	0.37	-
★ SEME61004005015E	R0.05	0.4	4	0.6	1.5	40	0.37	-
★ SEME6100400502E	R0.05	0.4	4	0.6	2	40	0.37	-
★ SEME61004005025E	R0.05	0.4	4	0.6	2.5	40	0.37	-
SEME6100400503E	R0.05	0.4	4	0.6	3	40	0.37	-
SEME6100400504E	R0.05	0.4	4	0.6	4	40	0.37	-
★ SEME610040101E	R0.1	0.4	4	0.6	1	40	0.37	-
SEME6100401015E	R0.1	0.4	4	0.6	1.5	40	0.37	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

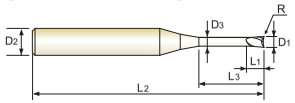
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available various products like regular length and long shank end mills etc.
- Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- Available more various effective length and overall length end mills than previous standard products.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★ SEME610040102E	R0.1	0.4	4	0.6	2	40	0.37	-
SEME6100401025E	R0.1	0.4	4	0.6	2.5	40	0.37	-
SEME610040103E	R0.1	0.4	4	0.6	3	40	0.37	-
SEME610040104E	R0.1	0.4	4	0.6	4	40	0.37	-
★ SEME6100500501E	R0.05	0.5	4	0.7	1	45	0.45	-
★ SEME61005005015E	R0.05	0.5	4	0.7	1.5	45	0.45	-
★ SEME6100500502E	R0.05	0.5	4	0.7	2	45	0.45	-
SEME61005005025E	R0.05	0.5	4	0.7	2.5	45	0.45	-
SEME6100500503E	R0.05	0.5	4	0.7	3	45	0.45	-
★ SEME6100500504E	R0.05	0.5	4	0.7	4	45	0.45	-
SEME6100500505E	R0.05	0.5	4	0.7	5	45	0.45	-
SEME6100500506E	R0.05	0.5	4	0.7	6	45	0.45	-
SEME6100500504S6SE	R0.05	0.5	6	0.4	4	45	0.45	-
SEME610050101E	R0.1	0.5	4	0.7	1	45	0.45	-
SEME6100501015E	R0.1	0.5	4	0.7	1.5	45	0.45	-
★ SEME610050102E	R0.1	0.5	4	0.7	2	45	0.45	-
SEME6100501025E	R0.1	0.5	4	0.7	2.5	45	0.45	-
★ SEME610050103E	R0.1	0.5	4	0.7	3	45	0.45	-
SEME610050104E	R0.1	0.5	4	0.7	4	45	0.45	-
★ SEME610050105E	R0.1	0.5	4	0.7	5	45	0.45	-
SEME610050106E	R0.1	0.5	4	0.7	6	45	0.45	-
SEME610050102S6SE	R0.1	0.5	6	0.4	2	45	0.45	-
SEME610050104S6SE	R0.1	0.5	6	0.4	4	45	0.45	-
SEME6100600502E	R0.05	0.6	4	0.9	2	45	0.55	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME61 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA
Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
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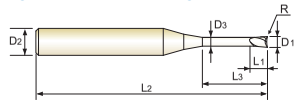
Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
Erhältlich in den Schaft-Ausführungen: standard und lang.
Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★ SEME6100600503E	R0.05	0.6	4	0.9	3	45	0.55	-
SEME6100600504E	R0.05	0.6	4	0.9	4	45	0.55	-
★ SEME6100600506E	R0.05	0.6	4	0.9	6	45	0.55	-
SEME6100600508E	R0.05	0.6	4	0.9	8	45	0.55	-
SEME6100600510E	R0.05	0.6	4	0.9	10	45	0.55	-
★ SEME610060102E	R0.1	0.6	4	0.9	2	45	0.55	-
★ SEME610060103E	R0.1	0.6	4	0.9	3	45	0.55	-
★ SEME610060104E	R0.1	0.6	4	0.9	4	45	0.55	-
★ SEME610060106E	R0.1	0.6	4	0.9	6	45	0.55	-
SEME610060108E	R0.1	0.6	4	0.9	8	45	0.55	-
SEME610060110E	R0.1	0.6	4	0.9	10	45	0.55	-
★ SEME610060202E	R0.2	0.6	4	0.9	2	45	0.55	-
★ SEME610060203E	R0.2	0.6	4	0.9	3	45	0.55	-
★ SEME610060204E	R0.2	0.6	4	0.9	4	45	0.55	-
★ SEME610060206E	R0.2	0.6	4	0.9	6	45	0.55	-
SEME610060208E	R0.2	0.6	4	0.9	8	45	0.55	-
SEME610060210E	R0.2	0.6	4	0.9	10	45	0.55	-
SEME6100700502E	R0.05	0.7	4	1.2	2	45	0.65	-
SEME6100700504E	R0.05	0.7	4	1.2	4	45	0.65	-
SEME6100700506E	R0.05	0.7	4	1.2	6	45	0.65	-
SEME6100700508E	R0.05	0.7	4	1.2	8	45	0.65	-
SEME6100700510E	R0.05	0.7	4	1.2	10	45	0.65	-
SEME610070102E	R0.1	0.7	4	1.2	2	45	0.65	-
SEME610070104E	R0.1	0.7	4	1.2	4	45	0.65	-

★ : Stock Item
▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
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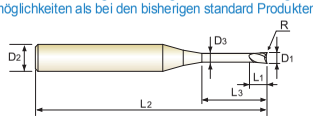
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME610070106E	R0.1	0.7	4	1.2	6	45	0.65	-
SEME610070108E	R0.1	0.7	4	1.2	8	45	0.65	-
SEME610070110E	R0.1	0.7	4	1.2	10	45	0.65	-
SEME610070202E	R0.2	0.7	4	1.2	2	45	0.65	-
SEME610070204E	R0.2	0.7	4	1.2	4	45	0.65	-
SEME610070206E	R0.2	0.7	4	1.2	6	45	0.65	-
SEME610070208E	R0.2	0.7	4	1.2	8	45	0.65	-
SEME610070210E	R0.2	0.7	4	1.2	10	45	0.65	-
★ SEME6100800502E	R0.05	0.8	4	1.2	2	45	0.75	-
SEME6100800503E	R0.05	0.8	4	1.2	3	45	0.75	-
★ SEME6100800504E	R0.05	0.8	4	1.2	4	45	0.75	-
★ SEME6100800506E	R0.05	0.8	4	1.2	6	45	0.75	-
SEME6100800508E	R0.05	0.8	4	1.2	8	45	0.75	-
SEME6100800510E	R0.05	0.8	4	1.2	10	45	0.75	-
★ SEME610080102E	R0.1	0.8	4	1.2	2	45	0.75	-
★ SEME610080103E	R0.1	0.8	4	1.2	3	45	0.75	-
★ SEME610080104E	R0.1	0.8	4	1.2	4	45	0.75	-
★ SEME610080106E	R0.1	0.8	4	1.2	6	45	0.75	-
★ SEME610080108E	R0.1	0.8	4	1.2	8	45	0.75	-
SEME610080110E	R0.1	0.8	4	1.2	10	45	0.75	-
★ SEME610080202E	R0.2	0.8	4	1.2	2	45	0.75	-
★ SEME610080203E	R0.2	0.8	4	1.2	3	45	0.75	-
★ SEME610080204E	R0.2	0.8	4	1.2	4	45	0.75	-
★ SEME610080206E	R0.2	0.8	4	1.2	6	45	0.75	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

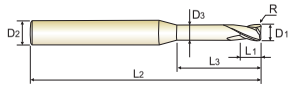
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★ SEME610080208E	R0.2	0.8	4	1.2	8	45	0.75	-
★ SEME610080210E	R0.2	0.8	4	1.2	10	45	0.75	-
★ SEME6101000503E	R0.05	1.0	4	1.5	3	50	0.95	-
★ SEME6101000504E	R0.05	1.0	4	1.5	4	50	0.95	-
SEME6101000505E	R0.05	1.0	4	1.5	5	50	0.95	
★ SEME6101000506E	R0.05	1.0	4	1.5	6	50	0.95	-
SEME6101000508E	R0.05	1.0	4	1.5	8	50	0.95	-
SEME6101000510E	R0.05	1.0	4	1.5	10	50	0.95	-
SEME6101000512E	R0.05	1.0	4	1.5	12	50	0.95	-
SEME6101000514E	R0.05	1.0	4	1.5	14	50	0.95	-
SEME6101000516E	R0.05	1.0	4	1.5	16	50	0.95	-
SEME6101000520E	R0.05	1.0	4	1.5	20	50	0.95	-
★ SEME610100103E	R0.1	1.0	4	1.5	3	50	0.95	-
★ SEME610100104E	R0.1	1.0	4	1.5	4	50	0.95	-
SEME610100105E	R0.1	1.0	4	1.5	5	50	0.95	-
★ SEME610100106E	R0.1	1.0	4	1.5	6	50	0.95	-
★ SEME610100108E	R0.1	1.0	4	1.5	8	50	0.95	-
★ SEME610100110E	R0.1	1.0	4	1.5	10	50	0.95	-
SEME610100112E	R0.1	1.0	4	1.5	12	50	0.95	-
SEME610100114E	R0.1	1.0	4	1.5	14	50	0.95	-
SEME610100116E	R0.1	1.0	4	1.5	16	50	0.95	-
SEME610100120E	R0.1	1.0	4	1.5	20	50	0.95	-
★ SEME610100203E	R0.2	1.0	4	1.5	3	50	0.95	-
★ SEME610100204E	R0.2	1.0	4	1.5	4	50	0.95	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

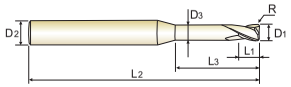
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Remark
	SEME610100205E	R0.2	1.0	4	1.5	5	50	0.95	
★	SEME610100206E	R0.2	1.0	4	1.5	6	50	0.95	-
★	SEME610100208E	R0.2	1.0	4	1.5	8	50	0.95	-
★	SEME610100210E	R0.2	1.0	4	1.5	10	50	0.95	-
★	SEME610100212E	R0.2	1.0	4	1.5	12	50	0.95	-
	SEME610100214E	R0.2	1.0	4	1.5	14	50	0.95	-
	SEME610100216E	R0.2	1.0	4	1.5	16	50	0.95	-
	SEME610100220E	R0.2	1.0	4	1.5	20	50	0.95	-
	SEME610100303E	R0.3	1.0	4	1.5	3	50	0.95	-
★	SEME610100304E	R0.3	1.0	4	1.5	4	50	0.95	-
★	SEME610100306E	R0.3	1.0	4	1.5	6	50	0.95	-
★	SEME610100308E	R0.3	1.0	4	1.5	8	50	0.95	-
★	SEME610100310E	R0.3	1.0	4	1.5	10	50	0.95	-
★	SEME610100312E	R0.3	1.0	4	1.5	12	50	0.95	-
	SEME610100314E	R0.3	1.0	4	1.5	14	50	0.95	-
	SEME610100316E	R0.3	1.0	4	1.5	16	50	0.95	-
	SEME610100320E	R0.3	1.0	4	1.5	20	50	0.95	-
	SEME6101200503E	R0.05	1.2	4	1.8	3	50	1.15	-
	SEME6101200504E	R0.05	1.2	4	1.8	4	50	1.15	-
★	SEME6101200506E	R0.05	1.2	4	1.8	6	50	1.15	-
★	SEME6101200508E	R0.05	1.2	4	1.8	8	50	1.15	-
★	SEME6101200510E	R0.05	1.2	4	1.8	10	50	1.15	-
	SEME6101200512E	R0.05	1.2	4	1.8	12	50	1.15	-
	SEME6101200516E	R0.05	1.2	4	1.8	16	50	1.15	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME61 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA
▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
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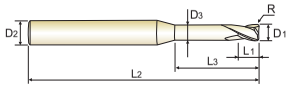
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Remark
	SEME6101200520E	R0.05	1.2	4	1.8	20	50	1.15	-
	SEME610120103E	R0.1	1.2	4	1.8	3	50	1.15	-
★	SEME610120104E	R0.1	1.2	4	1.8	4	50	1.15	-
★	SEME610120106E	R0.1	1.2	4	1.8	6	50	1.15	-
★	SEME610120108E	R0.1	1.2	4	1.8	8	50	1.15	-
	SEME610120110E	R0.1	1.2	4	1.8	10	50	1.15	-
	SEME610120112E	R0.1	1.2	4	1.8	12	50	1.15	-
	SEME610120116E	R0.1	1.2	4	1.8	16	50	1.15	-
	SEME610120120E	R0.1	1.2	4	1.8	20	50	1.15	-
	SEME610120203E	R0.2	1.2	4	1.8	3	50	1.15	-
★	SEME610120204E	R0.2	1.2	4	1.8	4	50	1.15	-
★	SEME610120206E	R0.2	1.2	4	1.8	6	50	1.15	-
★	SEME610120208E	R0.2	1.2	4	1.8	8	50	1.15	-
★	SEME610120210E	R0.2	1.2	4	1.8	10	50	1.15	-
★	SEME610120212E	R0.2	1.2	4	1.8	12	50	1.15	-
	SEME610120216E	R0.2	1.2	4	1.8	16	50	1.15	-
	SEME610120220E	R0.2	1.2	4	1.8	20	50	1.15	-
	SEME610120303E	R0.3	1.2	4	1.8	3	50	1.15	-
★	SEME610120304E	R0.3	1.2	4	1.8	4	50	1.15	-
★	SEME610120306E	R0.3	1.2	4	1.8	6	50	1.15	-
★	SEME610120308E	R0.3	1.2	4	1.8	8	50	1.15	-
★	SEME610120310E	R0.3	1.2	4	1.8	10	50	1.15	-
	SEME610120312E	R0.3	1.2	4	1.8	12	50	1.15	-
	SEME610120316E	R0.3	1.2	4	1.8	16	50	1.15	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available various products like regular length and long shank end mills etc.
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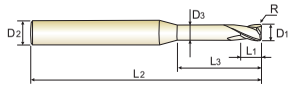
- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
	SEME610120320E	R0.3	1.2	4	1.8	20	50	1.15	-
★	SEME6101500504E	R0.05	1.5	4	2.3	4	50	1.45	-
★	SEME6101500506E	R0.05	1.5	4	2.3	6	50	1.45	-
★	SEME6101500508E	R0.05	1.5	4	2.3	8	50	1.45	-
	SEME6101500510E	R0.05	1.5	4	2.3	10	50	1.45	-
	SEME6101500512E	R0.05	1.5	4	2.3	12	50	1.45	-
	SEME6101500514E	R0.05	1.5	4	2.3	14	50	1.45	-
	SEME6101500516E	R0.05	1.5	4	2.3	16	50	1.45	-
	SEME6101500520E	R0.05	1.5	4	2.3	20	50	1.45	-
	SEME6101500522E	R0.05	1.5	4	2.3	22	60	1.45	-
	SEME6101500526E	R0.05	1.5	4	2.3	26	60	1.45	-
★	SEME610150104E	R0.1	1.5	4	2.3	4	50	1.45	-
★	SEME610150106E	R0.1	1.5	4	2.3	6	50	1.45	-
★	SEME610150108E	R0.1	1.5	4	2.3	8	50	1.45	-
★	SEME610150110E	R0.1	1.5	4	2.3	10	50	1.45	-
★	SEME610150112E	R0.1	1.5	4	2.3	12	50	1.45	-
	SEME610150114E	R0.1	1.5	4	2.3	14	50	1.45	-
	SEME610150116E	R0.1	1.5	4	2.3	16	50	1.45	-
	SEME610150120E	R0.1	1.5	4	2.3	20	50	1.45	-
	SEME610150122E	R0.1	1.5	4	2.3	22	60	1.45	-
	SEME610150126E	R0.1	1.5	4	2.3	26	60	1.45	-
★	SEME610150204E	R0.2	1.5	4	2.3	4	50	1.45	-
★	SEME610150206E	R0.2	1.5	4	2.3	6	50	1.45	-
★	SEME610150208E	R0.2	1.5	4	2.3	8	50	1.45	-

★ : Stock Item

▶ NEXT PAGE

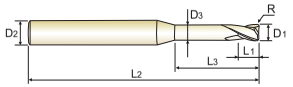
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME61 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA
- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available various products like regular length and long shank end mills etc.
- Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- Available more various effective length and overall length end mills than previous standard products.
- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★	SEME610150210E	R0.2	1.5	4	2.3	10	50	1.45	-
★	SEME610150212E	R0.2	1.5	4	2.3	12	50	1.45	-
★	SEME610150214E	R0.2	1.5	4	2.3	14	50	1.45	-
★	SEME610150216E	R0.2	1.5	4	2.3	16	50	1.45	-
★	SEME610150220E	R0.2	1.5	4	2.3	20	50	1.45	-
	SEME610150222E	R0.2	1.5	4	2.3	22	60	1.45	-
	SEME610150226E	R0.2	1.5	4	2.3	26	60	1.45	-
★	SEME610150304E	R0.3	1.5	4	2.3	4	50	1.45	-
★	SEME610150306E	R0.3	1.5	4	2.3	6	50	1.45	-
★	SEME610150308E	R0.3	1.5	4	2.3	8	50	1.45	-
★	SEME610150310E	R0.3	1.5	4	2.3	10	50	1.45	-
★	SEME610150312E	R0.3	1.5	4	2.3	12	50	1.45	-
★	SEME610150314E	R0.3	1.5	4	2.3	14	50	1.45	-
★	SEME610150316E	R0.3	1.5	4	2.3	16	50	1.45	-
	SEME610150320E	R0.3	1.5	4	2.3	20	50	1.45	-
	SEME610150322E	R0.3	1.5	4	2.3	22	60	1.45	-
	SEME610150326E	R0.3	1.5	4	2.3	26	60	1.45	-
★	SEME610150504E	R0.5	1.5	4	2.3	4	50	1.45	-
★	SEME610150506E	R0.5	1.5	4	2.3	6	50	1.45	-
★	SEME610150508E	R0.5	1.5	4	2.3	8	50	1.45	-
★	SEME610150510E	R0.5	1.5	4	2.3	10	50	1.45	-
★	SEME610150512E	R0.5	1.5	4	2.3	12	50	1.45	-
	SEME610150514E	R0.5	1.5	4	2.3	14	50	1.45	-
★	SEME610150516E	R0.5	1.5	4	2.3	16	50	1.45	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

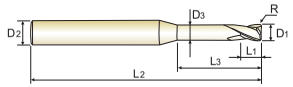
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available various products like regular length and long shank end mills etc.
- Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- Available more various effective length and overall length end mills than previous standard products.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
	SEME610150520E	R0.5	1.5	4	2.3	20	50	1.45	-
	SEME610150522E	R0.5	1.5	4	2.3	22	60	1.45	-
	SEME610150526E	R0.5	1.5	4	2.3	26	60	1.45	-
★	SEME610200106E	R0.1	2.0	4	3	6	50	1.95	-
★	SEME610200108E	R0.1	2.0	4	3	8	50	1.95	-
★	SEME610200110E	R0.1	2.0	4	3	10	50	1.95	-
★	SEME610200112E	R0.1	2.0	4	3	12	50	1.95	-
	SEME610200114E	R0.1	2.0	4	3	14	50	1.95	-
	SEME610200116E	R0.1	2.0	4	3	16	50	1.95	-
	SEME610200120E	R0.1	2.0	4	3	20	50	1.95	-
	SEME610200122E	R0.1	2.0	4	3	22	60	1.95	-
	SEME610200126E	R0.1	2.0	4	3	26	60	1.95	-
	SEME610200130E	R0.1	2.0	4	3	30	70	1.95	-
★	SEME610200206E	R0.2	2.0	4	3	6	50	1.95	-
★	SEME610200208E	R0.2	2.0	4	3	8	50	1.95	-
★	SEME610200210E	R0.2	2.0	4	3	10	50	1.95	-
★	SEME610200212E	R0.2	2.0	4	3	12	50	1.95	-
★	SEME610200214E	R0.2	2.0	4	3	14	50	1.95	-
★	SEME610200216E	R0.2	2.0	4	3	16	50	1.95	-
★	SEME610200220E	R0.2	2.0	4	3	20	50	1.95	-
	SEME610200222E	R0.2	2.0	4	3	22	60	1.95	-
	SEME610200226E	R0.2	2.0	4	3	26	60	1.95	-
	SEME610200230E	R0.2	2.0	4	3	30	70	1.95	-
★	SEME610200306E	R0.3	2.0	4	3	6	50	1.95	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME61 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA
- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
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- Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
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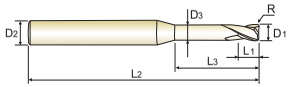
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★	SEME610200308E	R0.3	2.0	4	3	8	50	1.95	-
★	SEME610200310E	R0.3	2.0	4	3	10	50	1.95	-
★	SEME610200312E	R0.3	2.0	4	3	12	50	1.95	-
	SEME610200314E	R0.3	2.0	4	3	14	50	1.95	-
★	SEME610200316E	R0.3	2.0	4	3	16	50	1.95	-
★	SEME610200320E	R0.3	2.0	4	3	20	50	1.95	-
	SEME610200322E	R0.3	2.0	4	3	22	60	1.95	-
	SEME610200326E	R0.3	2.0	4	3	26	60	1.95	-
	SEME610200330E	R0.3	2.0	4	3	30	70	1.95	-
★	SEME610200506E	R0.5	2.0	4	3	6	50	1.95	-
★	SEME610200508E	R0.5	2.0	4	3	8	50	1.95	-
★	SEME610200510E	R0.5	2.0	4	3	10	50	1.95	-
★	SEME610200512E	R0.5	2.0	4	3	12	50	1.95	-
★	SEME610200514E	R0.5	2.0	4	3	14	50	1.95	-
★	SEME610200516E	R0.5	2.0	4	3	16	50	1.95	-
★	SEME610200520E	R0.5	2.0	4	3	20	50	1.95	-
	SEME610200522E	R0.5	2.0	4	3	22	60	1.95	-
★	SEME610200526E	R0.5	2.0	4	3	26	60	1.95	-
★	SEME610200530E	R0.5	2.0	4	3	30	70	1.95	-
	SE5E6102005086SE	R0.5	2.0	6	3	8	50	1.95	
	SEME610250108E	R0.1	2.5	4	4	8	50	2.40	-
	SEME610250110E	R0.1	2.5	4	4	10	50	2.40	-
	SEME610250112E	R0.1	2.5	4	4	12	50	2.40	-
	SEME610250114E	R0.1	2.5	4	4	14	50	2.40	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

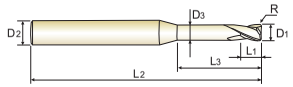
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available various products like regular length and long shank end mills etc.
- Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- Available more various effective length and overall length end mills than previous standard products.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME610250116E	R0.1	2.5	4	4	16	50	2.40	-
SEME610250120E	R0.1	2.5	4	4	20	50	2.40	-
SEME610250126E	R0.1	2.5	4	4	26	60	2.40	-
SEME610250130E	R0.1	2.5	4	4	30	70	2.40	-
SEME610250208E	R0.2	2.5	4	4	8	50	2.40	-
SEME610250210E	R0.2	2.5	4	4	10	50	2.40	-
SEME610250212E	R0.2	2.5	4	4	12	50	2.40	-
SEME610250214E	R0.2	2.5	4	4	14	50	2.40	-
SEME610250216E	R0.2	2.5	4	4	16	50	2.40	-
SEME610250220E	R0.2	2.5	4	4	20	50	2.40	-
SEME610250226E	R0.2	2.5	4	4	26	60	2.40	-
SEME610250230E	R0.2	2.5	4	4	30	70	2.40	-
SEME610250308E	R0.3	2.5	4	4	8	50	2.40	-
SEME610250310E	R0.3	2.5	4	4	10	50	2.40	-
SEME610250312E	R0.3	2.5	4	4	12	50	2.40	-
SEME610250314E	R0.3	2.5	4	4	14	50	2.40	-
SEME610250316E	R0.3	2.5	4	4	16	50	2.40	-
SEME610250320E	R0.3	2.5	4	4	20	50	2.40	-
SEME610250326E	R0.3	2.5	4	4	26	60	2.40	-
SEME610250330E	R0.3	2.5	4	4	30	70	2.40	-
★ SEME610250508E	R0.5	2.5	4	4	8	50	2.40	-
SEME610250510E	R0.5	2.5	4	4	10	50	2.40	-
SEME610250512E	R0.5	2.5	4	4	12	50	2.40	-
SEME610250514E	R0.5	2.5	4	4	14	50	2.40	-

★ : Stock Item

▶ NEXT PAGE

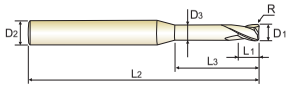
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME61 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA
Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
Available various products like regular length and long shank end mills etc.
Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
Available more various effective length and overall length end mills than previous standard products.
Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
Erhältlich in den Schaft-Ausführungen: standard und lang.
Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME610250516E	R0.5	2.5	4	4	16	50	2.40	-
SEME610250520E	R0.5	2.5	4	4	20	50	2.40	-
SEME610250526E	R0.5	2.5	4	4	26	60	2.40	-
SEME610250530E	R0.5	2.5	4	4	30	70	2.40	-
SEME610300108E	R0.1	3.0	6	4.5	8	50	2.85	-
★ SEME610300110E	R0.1	3.0	6	4.5	10	50	2.85	-
★ SEME610300112E	R0.1	3.0	6	4.5	12	50	2.85	-
SEME610300114E	R0.1	3.0	6	4.5	14	60	2.85	-
★ SEME610300116E	R0.1	3.0	6	4.5	16	60	2.85	-
★ SEME610300120E	R0.1	3.0	6	4.5	20	60	2.85	-
SEME610300126E	R0.1	3.0	6	4.5	26	65	2.85	-
SEME610300130E	R0.1	3.0	6	4.5	30	70	2.85	-
SEME610300135E	R0.1	3.0	6	4.5	35	70	2.85	-
SEME610300140E	R0.1	3.0	6	4.5	40	80	2.85	-
★ SEME610300208E	R0.2	3.0	6	4.5	8	50	2.85	-
★ SEME610300210E	R0.2	3.0	6	4.5	10	50	2.85	-
★ SEME610300212E	R0.2	3.0	6	4.5	12	50	2.85	-
SEME610300214E	R0.2	3.0	6	4.5	14	60	2.85	-
★ SEME610300216E	R0.2	3.0	6	4.5	16	60	2.85	-
★ SEME610300220E	R0.2	3.0	6	4.5	20	60	2.85	-
★ SEME610300226E	R0.2	3.0	6	4.5	26	65	2.85	-
SEME610300230E	R0.2	3.0	6	4.5	30	70	2.85	-
SEME610300235E	R0.2	3.0	6	4.5	35	70	2.85	-
SEME610300240E	R0.2	3.0	6	4.5	40	80	2.85	-

★ : Stock Item
▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

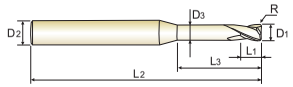
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available various products like regular length and long shank end mills etc.
- Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- Available more various effective length and overall length end mills than previous standard products.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★	SEME610300308E	R0.3	3.0	6	4.5	8	50	2.85	-
★	SEME610300310E	R0.3	3.0	6	4.5	10	50	2.85	-
★	SEME610300312E	R0.3	3.0	6	4.5	12	50	2.85	-
★	SEME610300314E	R0.3	3.0	6	4.5	14	60	2.85	-
★	SEME610300316E	R0.3	3.0	6	4.5	16	60	2.85	-
★	SEME610300320E	R0.3	3.0	6	4.5	20	60	2.85	-
★	SEME610300326E	R0.3	3.0	6	4.5	26	65	2.85	-
	SEME610300330E	R0.3	3.0	6	4.5	30	70	2.85	-
	SEME610300335E	R0.3	3.0	6	4.5	35	70	2.85	-
	SEME610300340E	R0.3	3.0	6	4.5	40	80	2.85	-
★	SEME610300508E	R0.5	3.0	6	4.5	8	50	2.85	-
★	SEME610300510E	R0.5	3.0	6	4.5	10	50	2.85	-
★	SEME610300512E	R0.5	3.0	6	4.5	12	50	2.85	-
★	SEME610300514E	R0.5	3.0	6	4.5	14	60	2.85	-
★	SEME610300516E	R0.5	3.0	6	4.5	16	60	2.85	-
★	SEME610300520E	R0.5	3.0	6	4.5	20	60	2.85	-
★	SEME610300526E	R0.5	3.0	6	4.5	26	65	2.85	-
★	SEME610300530E	R0.5	3.0	6	4.5	30	70	2.85	-
★	SEME610300535E	R0.5	3.0	6	4.5	35	70	2.85	-
	SEME610300540E	R0.5	3.0	6	4.5	40	80	2.85	-
★	SEME610301008E	R1.0	3.0	6	4.5	8	50	2.85	-
★	SEME610301010E	R1.0	3.0	6	4.5	10	50	2.85	-
★	SEME610301012E	R1.0	3.0	6	4.5	12	50	2.85	-
	SEME610301014E	R1.0	3.0	6	4.5	14	60	2.85	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

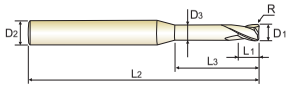
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available various products like regular length and long shank end mills etc.
- Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- Available more various effective length and overall length end mills than previous standard products.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: standard und lang.
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating | p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★	SEME610301016E	R1.0	3.0	6	4.5	16	60	2.85	-
★	SEME610301020E	R1.0	3.0	6	4.5	20	60	2.85	-
★	SEME610301026E	R1.0	3.0	6	4.5	26	65	2.85	-
	SEME610301030E	R1.0	3.0	6	4.5	30	70	2.85	-
	SEME610301035E	R1.0	3.0	6	4.5	35	70	2.85	-
	SEME610301040E	R1.0	3.0	6	4.5	40	80	2.85	-
★	SEME610400110E	R0.1	4.0	6	6	10	50	3.85	-
★	SEME610400112E	R0.1	4.0	6	6	12	50	3.85	-
	SEME610400114E	R0.1	4.0	6	6	14	60	3.85	-
★	SEME610400116E	R0.1	4.0	6	6	16	60	3.85	-
★	SEME610400120E	R0.1	4.0	6	6	20	60	3.85	-
	SEME610400126E	R0.1	4.0	6	6	26	65	3.85	-
	SEME610400130E	R0.1	4.0	6	6	30	70	3.85	-
	SEME610400135E	R0.1	4.0	6	6	35	70	3.85	-
	SEME610400140E	R0.1	4.0	6	6	40	80	3.85	-
	SEME610400145E	R0.1	4.0	6	6	45	90	3.85	-
	SEME610400150E	R0.1	4.0	6	6	50	100	3.85	-
★	SEME610400210E	R0.2	4.0	6	6	10	50	3.85	-
★	SEME610400212E	R0.2	4.0	6	6	12	50	3.85	-
	SEME610400214E	R0.2	4.0	6	6	14	60	3.85	-
★	SEME610400216E	R0.2	4.0	6	6	16	60	3.85	-
★	SEME610400220E	R0.2	4.0	6	6	20	60	3.85	-
★	SEME610400226E	R0.2	4.0	6	6	26	65	3.85	-
	SEME610400230E	R0.2	4.0	6	6	30	70	3.85	-

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

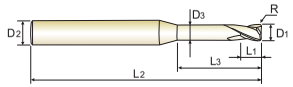
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
	SEME610400235E	R0.2	4.0	6	6	35	70	3.85	-
	SEME610400240E	R0.2	4.0	6	6	40	80	3.85	-
	SEME610400245E	R0.2	4.0	6	6	45	90	3.85	-
	SEME610400250E	R0.2	4.0	6	6	50	100	3.85	-
	SEME610400310E	R0.3	4.0	6	6	10	50	3.85	-
★	SEME610400312E	R0.3	4.0	6	6	12	50	3.85	-
	SEME610400314E	R0.3	4.0	6	6	14	50	3.85	-
★	SEME610400316E	R0.3	4.0	6	6	16	50	3.85	-
★	SEME610400320E	R0.3	4.0	6	6	20	50	3.85	-
★	SEME610400326E	R0.3	4.0	6	6	26	65	3.85	-
	SEME610400330E	R0.3	4.0	6	6	30	70	3.85	-
	SEME610400335E	R0.3	4.0	6	6	35	70	3.85	-
	SEME610400340E	R0.3	4.0	6	6	40	80	3.85	-
	SEME610400345E	R0.3	4.0	6	6	45	90	3.85	-
	SEME610400350E	R0.3	4.0	6	6	50	100	3.85	-
★	SEME610400510E	R0.5	4.0	6	6	10	50	3.85	-
★	SEME610400512E	R0.5	4.0	6	6	12	50	3.85	-
★	SEME610400514E	R0.5	4.0	6	6	14	60	3.85	-
★	SEME610400516E	R0.5	4.0	6	6	16	60	3.85	-
★	SEME610400520E	R0.5	4.0	6	6	20	60	3.85	-
★	SEME610400526E	R0.5	4.0	6	6	26	65	3.85	-
★	SEME610400530E	R0.5	4.0	6	6	30	70	3.85	-
★	SEME610400535E	R0.5	4.0	6	6	35	70	3.85	-
	SEME610400540E	R0.5	4.0	6	6	40	80	3.85	-

★ : Stock Item

▶ NEXT PAGE

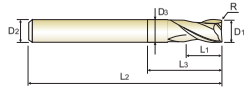
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME61 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA
▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available various products like regular length and long shank end mills etc.
▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
▶ Available more various effective length and overall length end mills than previous standard products.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder | Flat Shank | Page | Plain Shank | Page
END MILL HOLDER | D118 - 137 | HYDRAULIC CHUCK / SHRINK FIT HOLDER | D15 - 46 / D47 - 72
- | - | POWER MILLING CHUCK | D161 - 176
- | - | ER COLLET CHUCK / SK SLIM CHUCK | D73 - 116 / D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
	SEME610400545E	R0.5	4.0	6	6	45	90	3.85	-
	SEME610400550E	R0.5	4.0	6	6	50	100	3.85	-
★	SEME610401010E	R1.0	4.0	6	6	10	50	3.85	-
★	SEME610401012E	R1.0	4.0	6	6	12	50	3.85	-
	SEME610401014E	R1.0	4.0	6	6	14	60	3.85	-
★	SEME610401016E	R1.0	4.0	6	6	16	60	3.85	-
★	SEME610401020E	R1.0	4.0	6	6	20	60	3.85	-
★	SEME610401026E	R1.0	4.0	6	6	26	65	3.85	-
★	SEME610401030E	R1.0	4.0	6	6	30	70	3.85	-
	SEME610401035E	R1.0	4.0	6	6	35	70	3.85	-
★	SEME610401040E	R1.0	4.0	6	6	40	80	3.85	-
	SEME610401045E	R1.0	4.0	6	6	45	90	3.85	-
	SEME610401050E	R1.0	4.0	6	6	50	100	3.85	-
	SEME6105001E	R0.1	5.0	6	8	15	60	4.85	-
	SEME6105002E	R0.2	5.0	6	8	15	60	4.85	-
	SEME6105003E	R0.3	5.0	6	8	15	60	4.85	-
	SEME6105005E	R0.5	5.0	6	8	15	60	4.85	-
	SEME6105010E	R1.0	5.0	6	8	15	60	4.85	-
	SEME6105015E	R1.5	5.0	6	8	15	60	4.85	-
	SEME6105020E	R2.0	5.0	6	8	15	60	4.85	-
	SEME6106001E	R0.1	6.0	6	9	20	60	5.85	Regular
★	SEME6106002E	R0.2	6.0	6	9	20	60	5.85	Regular
★	SEME6106003E	R0.3	6.0	6	9	20	60	5.85	Regular
★	SEME6106005E	R0.5	6.0	6	9	20	60	5.85	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

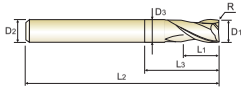
PLAIN SHANK **SEME61** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★ SEME6106010E	R1.0	6.0	6	9	20	60	5.85	Regular
SEME6106015E	R1.5	6.0	6	9	20	60	5.85	Regular
SEME6106020E	R2.0	6.0	6	9	20	60	5.85	Regular
SEME6106003090E	R0.3	6.0	6	15	30	90	5.85	Long Shank
SEME610600524E	R0.5	6.0	6	9	24	90	5.85	-
★ SEME6106005090E	R0.5	6.0	6	15	30	90	5.85	Long Shank
★ SEME6106010090E	R1.0	6.0	6	15	30	90	5.85	Long Shank
SEME6108001E	R0.1	8.0	8	12	25	70	7.70	Regular
★ SEME6108002E	R0.2	8.0	8	12	25	70	7.70	Regular
★ SEME6108003E	R0.3	8.0	8	12	25	70	7.70	Regular
★ SEME6108005E	R0.5	8.0	8	12	25	70	7.70	Regular
★ SEME6108010E	R1.0	8.0	8	12	25	70	7.70	Regular
SEME6108015E	R1.5	8.0	8	12	25	70	7.70	Regular
SEME6108020E	R2.0	8.0	8	12	25	70	7.70	Regular
SEME6108003100E	R0.3	8.0	8	20	35	100	7.70	Long Shank
★ SEME6108005100E	R0.5	8.0	8	20	35	100	7.70	Long Shank
★ SEME6108010100E	R1.0	8.0	8	20	35	100	7.70	Long Shank
SEME6110001E	R0.1	10.0	10	15	30	75	9.70	Regular
SEME6110002E	R0.2	10.0	10	15	30	75	9.70	Regular
★ SEME6110003E	R0.3	10.0	10	15	30	75	9.70	Regular
★ SEME6110005E	R0.5	10.0	10	15	30	75	9.70	Regular
★ SEME6110010E	R1.0	10.0	10	15	30	75	9.70	Regular
SEME6110015E	R1.5	10.0	10	15	30	75	9.70	Regular
SEME6110020E	R2.0	10.0	10	15	30	75	9.70	Regular

★ : Stock Item

▶ NEXT PAGE

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME61 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
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▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
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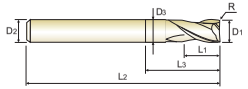


CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | Y Coating

p.C276-283

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME6110003100E	R0.3	10.0	10	25	40	100	9.70	Long Shank
★ SEME6110005100E	R0.5	10.0	10	25	40	100	9.70	Long Shank
★ SEME6110010100E	R1.0	10.0	10	25	40	100	9.70	Long Shank
SEME6112002E	R0.2	12.0	12	18	32	80	11.70	Regular
SEME6112003E	R0.3	12.0	12	18	32	80	11.70	Regular
★ SEME6112005E	R0.5	12.0	12	18	32	80	11.70	Regular
★ SEME6112010E	R1.0	12.0	12	18	32	80	11.70	Regular
★ SEME6112015E	R1.5	12.0	12	18	32	80	11.70	Regular
SEME6112020E	R2.0	12.0	12	18	32	80	11.70	Regular
SEME6112003110E	R0.3	12.0	12	30	50	110	11.70	Long Shank
SEME6112005110E	R0.5	12.0	12	30	50	110	11.70	Long Shank
★ SEME6112010110E	R1.0	12.0	12	30	50	110	11.70	Long Shank
★ SEME6116005E	R0.5	16.0	16	20	35	100	15.70	Regular
★ SEME6116010E	R1.0	16.0	16	20	35	100	15.70	Regular
SEME6116005150E	R0.5	16.0	16	35	50	150	15.70	Long Shank
SEME6116010150E	R1.0	16.0	16	35	50	150	15.70	Long Shank
★ SEME6120005E	R0.5	20.0	20	25	40	100	19.70	Regular
★ SEME6120010E	R1.0	20.0	20	25	40	100	19.70	Regular
SEME6120005150E	R0.5	20.0	20	40	55	150	19.70	Long Shank
SEME6120010150E	R1.0	20.0	20	40	55	150	19.70	Long Shank

★ : Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

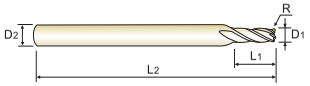
PLAIN SHANK **SEME01** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
Fraise carbure, 4 dents, torique, hélice multiple
MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C284-285

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME010100054SE	R0.05	1.0	4	2.5	50	4mm Shank
SEME01010014SE	R0.1	1.0	4	2.5	50	4mm Shank
SEME01010024SE	R0.2	1.0	4	2.5	50	4mm Shank
SEME01010034SE	R0.3	1.0	4	2.5	50	4mm Shank
SEME01010005E	R0.05	1.0	6	2.5	50	-
★ SEME0101001E	R0.1	1.0	6	2.5	50	-
SEME0101002E	R0.2	1.0	6	2.5	50	-
SEME0101003E	R0.3	1.0	6	2.5	50	-
SEME010120054SE	R0.05	1.2	4	3	50	4mm Shank
SEME01012014SE	R0.1	1.2	4	3	50	4mm Shank
SEME01012024SE	R0.2	1.2	4	3	50	4mm Shank
SEME01012034SE	R0.3	1.2	4	3	50	4mm Shank
SEME01012005E	R0.05	1.2	6	3	50	-
SEME0101201E	R0.1	1.2	6	3	50	-
SEME0101202E	R0.2	1.2	6	3	50	-
SEME0101203E	R0.3	1.2	6	3	50	-
SEME010150054SE	R0.05	1.5	4	4	50	4mm Shank
SEME01015014SE	R0.1	1.5	4	4	50	4mm Shank
SEME01015024SE	R0.2	1.5	4	4	50	4mm Shank
SEME01015034SE	R0.3	1.5	4	4	50	4mm Shank
SEME01015054SE	R0.5	1.5	4	4	50	4mm Shank
SEME01015005E	R0.05	1.5	6	4	50	-
SEME0101501E	R0.1	1.5	6	4	50	-
SEME0101502E	R0.2	1.5	6	4	50	-

★ : Stock Item

▶ NEXT PAGE

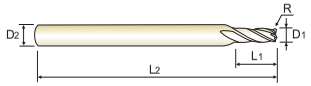
Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME01 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
Fraise carbure, 4 dents, torique, hélice multiple
MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
▶ Available in short, regular and long shank end mills.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C284-285

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME0101503E	R0.3	1.5	6	4	50	-
SEME0101505E	R0.5	1.5	6	4	50	-
SEME01020014SE	R0.1	2.0	4	6	50	4mm Shank
SEME01020024SE	R0.2	2.0	4	6	50	4mm Shank
SEME01020034SE	R0.3	2.0	4	6	50	4mm Shank
SEME01020054SE	R0.5	2.0	4	6	50	4mm Shank
★ SEME0102001E	R0.1	2.0	6	6	50	-
★ SEME0102002E	R0.2	2.0	6	6	50	-
SEME0102003E	R0.3	2.0	6	6	50	-
SEME0102005E	R0.5	2.0	6	6	50	-
SEME01025014SE	R0.1	2.5	4	7	60	4mm Shank
SEME01025024SE	R0.2	2.5	4	7	60	4mm Shank
SEME01025034SE	R0.3	2.5	4	7	60	4mm Shank
SEME01025054SE	R0.5	2.5	4	7	60	4mm Shank
SEME0102501E	R0.1	2.5	6	7	60	-
SEME0102502E	R0.2	2.5	6	7	60	-
SEME0102503E	R0.3	2.5	6	7	60	-
SEME0102505E	R0.5	2.5	6	7	60	-
SEME0103001E	R0.1	3.0	6	8	60	-
★ SEME0103002E	R0.2	3.0	6	8	60	-
★ SEME0103003E	R0.3	3.0	6	8	60	-
★ SEME0103005E	R0.5	3.0	6	8	60	-
SEME0103010E	R1.0	3.0	6	8	60	-
SEME0103501E	R0.1	3.5	6	10	70	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

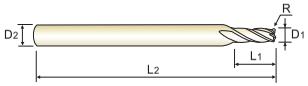
PLAIN SHANK **SEME01** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
Fraise carbure, 4 dents, torique, hélice multiple
MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C284-285

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME0103502E	R0.2	3.5	6	10	70	-
SEME0103503E	R0.3	3.5	6	10	70	-
SEME0103505E	R0.5	3.5	6	10	70	-
SEME01040014SE	R0.1	4.0	4	10	70	4mm Shank
SEME01040024SE	R0.2	4.0	4	10	70	4mm Shank
SEME01040034SE	R0.3	4.0	4	10	70	4mm Shank
SEME01040054SE	R0.5	4.0	4	10	70	4mm Shank
SEME01040104SE	R1.0	4.0	4	10	70	4mm Shank
SEME01040011004SE	R0.1	4.0	4	10	100	4mm Shank
SEME01040021004SE	R0.2	4.0	4	10	100	4mm Shank
SEME01040031004SE	R0.3	4.0	4	10	100	4mm Shank
SEME01040051004SE	R0.5	4.0	4	10	100	4mm Shank
SEME01040101004SE	R1.0	4.0	4	10	100	4mm Shank
SEME0104001E	R0.1	4.0	6	10	70	Regular
★ SEME0104002E	R0.2	4.0	6	10	70	Regular
★ SEME0104003E	R0.3	4.0	6	10	70	Regular
★ SEME0104005E	R0.5	4.0	6	10	70	Regular
★ SEME0104010E	R1.0	4.0	6	10	70	Regular
SEME0104501E	R0.1	4.5	6	11	80	-
SEME0104502E	R0.2	4.5	6	11	80	-
SEME0104503E	R0.3	4.5	6	11	80	-
SEME0104505E	R0.5	4.5	6	11	80	-
SEME0105001E	R0.1	5.0	6	13	90	-
SEME0105002E	R0.2	5.0	6	13	90	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME01 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
Fraise carbure, 4 dents, torique, hélice multiple
MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)
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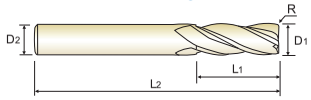
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C284-285

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEME0105003E	R0.3	5.0	6	13	90	-
★ SEME0105005E	R0.5	5.0	6	13	90	-
SEME0105010E	R1.0	5.0	6	13	90	-
SEME0105501E	R0.1	5.5	6	13	90	-
SEME0105502E	R0.2	5.5	6	13	90	-
SEME0105503E	R0.3	5.5	6	13	90	-
SEME0105505E	R0.5	5.5	6	13	90	-
SEME0105510E	R1.0	5.5	6	13	90	-
SEME0106001060E	R0.1	6.0	6	15	60	Short
SEME0106002060E	R0.2	6.0	6	15	60	Short
SEME0106001E	R0.1	6.0	6	15	90	Regular
★ SEME0106002E	R0.2	6.0	6	15	90	Regular
★ SEME0106003E	R0.3	6.0	6	15	90	Regular
★ SEME0106005E	R0.5	6.0	6	15	90	Regular
★ SEME0106010E	R1.0	6.0	6	15	90	Regular
SEME0106015E	R1.5	6.0	6	15	90	Regular
SEME0106020E	R2.0	6.0	6	15	90	Regular
SEME0106005110E	R0.5	6.0	6	15	110	Long Shank
SEME0106010110E	R1.0	6.0	6	15	110	Long Shank
SEME0106005130E	R0.5	6.0	6	15	130	Long Shank
SEME0106010130E	R1.0	6.0	6	15	130	Long Shank
SEME0107001E	R0.1	7.0	8	16	90	-
SEME0107002E	R0.2	7.0	8	16	90	-
SEME0107003E	R0.3	7.0	8	16	90	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

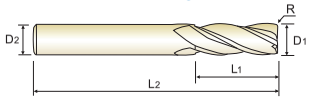
PLAIN SHANK **SEME01** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
Fraise carbure, 4 dents, torique, hélice multiple
VMD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C284-285

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, 30˚ HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME0107005E	R0.5	7.0	8	16	90	-
SEME0107010E	R1.0	7.0	8	16	90	-
SEME0107020E	R2.0	7.0	8	16	90	-
★ SEME0108003070E	R0.3	8.0	8	20	70	Short
★ SEME0108005070E	R0.5	8.0	8	20	70	Short
★ SEME0108010070E	R1.0	8.0	8	20	70	Short
SEME0108001E	R0.1	8.0	8	20	100	Regular
★ SEME0108002E	R0.2	8.0	8	20	100	Regular
★ SEME0108003E	R0.3	8.0	8	20	100	Regular
★ SEME0108005E	R0.5	8.0	8	20	100	Regular
★ SEME0108010E	R1.0	8.0	8	20	100	Regular
★ SEME0108015E	R1.5	8.0	8	20	100	Regular
★ SEME0108020E	R2.0	8.0	8	20	100	Regular
SEME0108025E	R2.5	8.0	8	20	100	Regular
SEME0108030E	R3.0	8.0	8	20	100	Regular
SEME0108005120E	R0.5	8.0	8	20	120	Long Shank
SEME0108010120E	R1.0	8.0	8	20	120	Long Shank
SEME0108005150E	R0.5	8.0	8	20	150	Long Shank
SEME0108010150E	R1.0	8.0	8	20	150	Long Shank
SEME0110003075E	R0.3	10.0	10	25	75	Short
SEME0110005075E	R0.5	10.0	10	25	75	Short
SEME0110010075E	R1.0	10.0	10	25	75	Short
SEME0110001E	R0.1	10.0	10	25	100	Regular
SEME0110002E	R0.2	10.0	10	25	100	Regular

★ : Stock Item

▶ NEXT PAGE

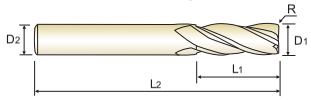
Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME01 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
Fraise carbure, 4 dents, torique, hélice multiple
VMD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
▶ Available in short, regular and long shank end mills.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C284-285

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, 30˚ HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME0110003E	R0.3	10.0	10	25	100	Regular
SEME0110005E	R0.5	10.0	10	25	100	Regular
★ SEME0110010E	R1.0	10.0	10	25	100	Regular
★ SEME0110015E	R1.5	10.0	10	25	100	Regular
★ SEME0110020E	R2.0	10.0	10	25	100	Regular
★ SEME0110025E	R2.5	10.0	10	25	100	Regular
SEME0110030E	R3.0	10.0	10	25	100	Regular
SEME0110040E	R4.0	10.0	10	25	100	Regular
SEME0110005130E	R0.5	10.0	10	22	130	Long Shank
SEME0110010130E	R1.0	10.0	10	22	130	Long Shank
SEME0110005150E	R0.5	10.0	10	22	150	Long Shank
SEME0110010150E	R1.0	10.0	10	22	150	Long Shank
★ SEME0111002E	R0.2	11.0	12	25	110	-
★ SEME0111003E	R0.3	11.0	12	25	110	-
SEME0111005E	R0.5	11.0	12	25	110	-
SEME0111010E	R1.0	11.0	12	25	110	-
SEME0111020E	R2.0	11.0	12	25	110	-
SEME0112003080E	R0.3	12.0	12	30	80	Short
SEME0112005080E	R0.5	12.0	12	30	80	Short
SEME0112010080E	R1.0	12.0	12	30	80	Short
SEME0112001E	R0.1	12.0	12	30	110	Regular
SEME0112002E	R0.2	12.0	12	30	110	Regular
SEME0112003E	R0.3	12.0	12	30	110	Regular
★ SEME0112005E	R0.5	12.0	12	30	110	Regular

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

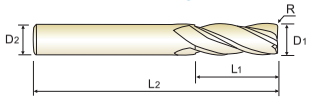
PLAIN SHANK **SEME01** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
Fraise carbure, 4 dents, torique, hélice multiple
VMD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C284-285

D<Ø3, 30˚ HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEME0112010E	R1.0	12.0	12	30	110	Regular
★ SEME0112015E	R1.5	12.0	12	30	110	Regular
★ SEME0112020E	R2.0	12.0	12	30	110	Regular
SEME0112025E	R2.5	12.0	12	30	110	Regular
SEME0112030E	R3.0	12.0	12	30	110	Regular
SEME0112040E	R4.0	12.0	12	30	110	Regular
SEME0112050E	R5.0	12.0	12	30	110	Regular
SEME0112005130E	R0.5	12.0	12	30	130	Long Shank
SEME0112010130E	R1.0	12.0	12	30	130	Long Shank
SEME0112005150E	R0.5	12.0	12	30	130	Long Shank
SEME0112010150E	R1.0	12.0	12	30	130	Long Shank
SEME0114005E	R0.5	14.0	16	35	150	-
SEME0114010E	R1.0	14.0	16	35	150	-
SEME0114020E	R2.0	14.0	16	35	150	-
★ SEME0116005E	R0.5	16.0	16	32	150	-
★ SEME0116010E	R1.0	16.0	16	32	150	-
★ SEME0116015E	R1.5	16.0	16	32	150	-
★ SEME0116020E	R2.0	16.0	16	32	150	-
SEME0120005E	R0.5	20.0	20	38	150	-
★ SEME0120010E	R1.0	20.0	20	38	150	-
SEME0120015E	R1.5	20.0	20	38	150	-
★ SEME0120020E	R2.0	20.0	20	38	150	-

★ : Stock Item

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

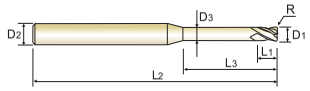
PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30˚ HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME6401000503E	R0.05	1.0	4	1.5	3	50	0.95	-
SEME6401000504E	R0.05	1.0	4	1.5	4	50	0.95	-
SEME6401000506E	R0.05	1.0	4	1.5	6	50	0.95	-
SEME6401000508E	R0.05	1.0	4	1.5	8	50	0.95	-
SEME6401000510E	R0.05	1.0	4	1.5	10	50	0.95	-
SEME6401000512E	R0.05	1.0	4	1.5	12	50	0.95	-
SEME6401000514E	R0.05	1.0	4	1.5	14	50	0.95	-
SEME6401000516E	R0.05	1.0	4	1.5	16	50	0.95	-
SEME6401000520E	R0.05	1.0	4	1.5	20	50	0.95	-
SEME640100103E	R0.1	1.0	4	1.5	3	50	0.95	-
★ SEME640100104E	R0.1	1.0	4	1.5	4	50	0.95	-
★ SEME640100106E	R0.1	1.0	4	1.5	6	50	0.95	-
★ SEME640100108E	R0.1	1.0	4	1.5	8	50	0.95	-
SEME640100110E	R0.1	1.0	4	1.5	10	50	0.95	-
SEME640100112E	R0.1	1.0	4	1.5	12	50	0.95	-
SEME640100114E	R0.1	1.0	4	1.5	14	50	0.95	-
SEME640100116E	R0.1	1.0	4	1.5	16	50	0.95	-
SEME640100120E	R0.1	1.0	4	1.5	20	50	0.95	-
SEME640100203E	R0.2	1.0	4	1.5	3	50	0.95	-
★ SEME640100204E	R0.2	1.0	4	1.5	4	50	0.95	-
★ SEME640100206E	R0.2	1.0	4	1.5	6	50	0.95	-
★ SEME640100208E	R0.2	1.0	4	1.5	8	50	0.95	-
★ SEME640100210E	R0.2	1.0	4	1.5	10	50	0.95	-
SEME640100212E	R0.2	1.0	4	1.5	12	50	0.95	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

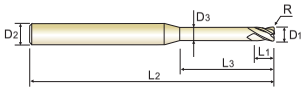
PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating

p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Remark
SEME640100214E	R0.2	1.0	4	1.5	14	50	0.95	-
SEME640100216E	R0.2	1.0	4	1.5	16	50	0.95	-
SEME640100220E	R0.2	1.0	4	1.5	20	50	0.95	-
SEME640100303E	R0.3	1.0	4	1.5	3	50	0.95	-
★ SEME640100304E	R0.3	1.0	4	1.5	4	50	0.95	-
★ SEME640100306E	R0.3	1.0	4	1.5	6	50	0.95	-
★ SEME640100308E	R0.3	1.0	4	1.5	8	50	0.95	-
SEME640100310E	R0.3	1.0	4	1.5	10	50	0.95	-
SEME640100312E	R0.3	1.0	4	1.5	12	50	0.95	-
SEME640100314E	R0.3	1.0	4	1.5	14	50	0.95	-
SEME640100316E	R0.3	1.0	4	1.5	16	50	0.95	-
SEME640100320E	R0.3	1.0	4	1.5	20	50	0.95	-
SEME640120503E	R0.05	1.2	4	1.8	3	50	1.15	-
SEME6401200504E	R0.05	1.2	4	1.8	4	50	1.15	-
SEME6401200506E	R0.05	1.2	4	1.8	6	50	1.15	-
SEME6401200508E	R0.05	1.2	4	1.8	8	50	1.15	-
SEME6401200510E	R0.05	1.2	4	1.8	10	50	1.15	-
SEME6401200512E	R0.05	1.2	4	1.8	12	50	1.15	-
SEME6401200516E	R0.05	1.2	4	1.8	16	50	1.15	-
SEME6401200520E	R0.05	1.2	4	1.8	20	50	1.15	-
SEME640120103E	R0.1	1.2	4	1.8	3	50	1.15	-
★ SEME640120104E	R0.1	1.2	4	1.8	4	50	1.15	-
★ SEME640120106E	R0.1	1.2	4	1.8	6	50	1.15	-
★ SEME640120108E	R0.1	1.2	4	1.8	8	50	1.15	-

★ : Stock Item

▶ NEXT PAGE

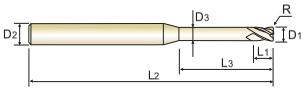
Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME64 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating
p.C286-289
D<Ø3, 30° HELIX
Recommended Tool Holder | Flat Shank | Page | Plain Shank | Page
END MILL HOLDER | D118 - 137 | HYDRAULIC CHUCK / SHRINK FIT HOLDER | D15 - 46 / D47 - 72
- | - | POWER MILLING CHUCK | D161 - 176
- | - | ER COLLET CHUCK / SK SLIM CHUCK | D73 - 116 / D183 - 201
Unit : mm

EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Remark
SEME640120110E	R0.1	1.2	4	1.8	10	50	1.15	-
SEME640120112E	R0.1	1.2	4	1.8	12	50	1.15	-
SEME640120116E	R0.1	1.2	4	1.8	16	50	1.15	-
SEME640120120E	R0.1	1.2	4	1.8	20	50	1.15	-
SEME640120203E	R0.2	1.2	4	1.8	3	50	1.15	-
★ SEME640120204E	R0.2	1.2	4	1.8	4	50	1.15	-
★ SEME640120206E	R0.2	1.2	4	1.8	6	50	1.15	-
★ SEME640120208E	R0.2	1.2	4	1.8	8	50	1.15	-
SEME640120210E	R0.2	1.2	4	1.8	10	50	1.15	-
SEME640120212E	R0.2	1.2	4	1.8	12	50	1.15	-
SEME640120216E	R0.2	1.2	4	1.8	16	50	1.15	-
SEME640120220E	R0.2	1.2	4	1.8	20	50	1.15	-
SEME640120303E	R0.3	1.2	4	1.8	3	50	1.15	-
★ SEME640120304E	R0.3	1.2	4	1.8	4	50	1.15	-
★ SEME640120306E	R0.3	1.2	4	1.8	6	50	1.15	-
★ SEME640120308E	R0.3	1.2	4	1.8	8	50	1.15	-
SEME640120310E	R0.3	1.2	4	1.8	10	50	1.15	-
SEME640120312E	R0.3	1.2	4	1.8	12	50	1.15	-
SEME640120316E	R0.3	1.2	4	1.8	16	50	1.15	-
SEME640120320E	R0.3	1.2	4	1.8	20	50	1.15	-
SEME6401500504E	R0.05	1.5	4	2.3	4	50	1.45	-
SEME6401500506E	R0.05	1.5	4	2.3	6	50	1.45	-
SEME6401500508E	R0.05	1.5	4	2.3	8	50	1.45	-
SEME6401500510E	R0.05	1.5	4	2.3	10	50	1.45	-

★ : Stock Item
▶ NEXT PAGE
Corner Radius Tolerance (mm) | Mill Dia. Tolerance (mm) | Shank Dia. Tolerance
± 0.02 | 0 ~ - 0.03 | h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

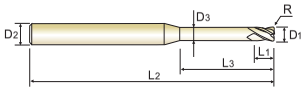
PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME6401500512E	R0.05	1.5	4	2.3	12	50	1.45	-
SEME6401500514E	R0.05	1.5	4	2.3	14	50	1.45	-
SEME6401500516E	R0.05	1.5	4	2.3	16	50	1.45	-
SEME6401500520E	R0.05	1.5	4	2.3	20	50	1.45	-
SEME6401500522E	R0.05	1.5	4	2.3	22	60	1.45	-
SEME6401500526E	R0.05	1.5	4	2.3	26	60	1.45	-
SEME640150104E	R0.1	1.5	4	2.3	4	50	1.45	-
★ SEME640150106E	R0.1	1.5	4	2.3	6	50	1.45	-
★ SEME640150108E	R0.1	1.5	4	2.3	8	50	1.45	-
★ SEME640150110E	R0.1	1.5	4	2.3	10	50	1.45	-
★ SEME640150112E	R0.1	1.5	4	2.3	12	50	1.45	-
SEME640150114E	R0.1	1.5	4	2.3	14	50	1.45	-
SEME640150116E	R0.1	1.5	4	2.3	16	50	1.45	-
SEME640150118E	R0.1	1.5	4	2.3	18	50	1.45	
SEME640150120E	R0.1	1.5	4	2.3	20	50	1.45	-
SEME640150122E	R0.1	1.5	4	2.3	22	60	1.45	-
SEME640150126E	R0.1	1.5	4	2.3	26	60	1.45	-
SEME640150204E	R0.2	1.5	4	2.3	4	50	1.45	-
★ SEME640150206E	R0.2	1.5	4	2.3	6	50	1.45	-
★ SEME640150208E	R0.2	1.5	4	2.3	8	50	1.45	-
★ SEME640150210E	R0.2	1.5	4	2.3	10	50	1.45	-
★ SEME640150212E	R0.2	1.5	4	2.3	12	50	1.45	-
SEME640150214E	R0.2	1.5	4	2.3	14	50	1.45	-
SEME640150216E	R0.2	1.5	4	2.3	16	50	1.45	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME64 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA
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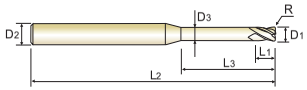
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME640150220E	R0.2	1.5	4	2.3	20	50	1.45	-
SEME640150222E	R0.2	1.5	4	2.3	22	60	1.45	-
SEME640150226E	R0.2	1.5	4	2.3	26	60	1.45	-
SEME640150304E	R0.3	1.5	4	2.3	4	50	1.45	-
★ SEME640150306E	R0.3	1.5	4	2.3	6	50	1.45	-
★ SEME640150308E	R0.3	1.5	4	2.3	8	50	1.45	-
★ SEME640150310E	R0.3	1.5	4	2.3	10	50	1.45	-
★ SEME640150312E	R0.3	1.5	4	2.3	12	50	1.45	-
SEME640150314E	R0.3	1.5	4	2.3	14	50	1.45	-
SEME640150316E	R0.3	1.5	4	2.3	16	50	1.45	-
SEME640150320E	R0.3	1.5	4	2.3	20	50	1.45	-
SEME640150322E	R0.3	1.5	4	2.3	22	60	1.45	-
SEME640150326E	R0.3	1.5	4	2.3	26	60	1.45	-
SEME640150504E	R0.5	1.5	4	2.3	4	50	1.45	-
★ SEME640150506E	R0.5	1.5	4	2.3	6	50	1.45	-
★ SEME640150508E	R0.5	1.5	4	2.3	8	50	1.45	-
★ SEME640150510E	R0.5	1.5	4	2.3	10	50	1.45	-
★ SEME640150512E	R0.5	1.5	4	2.3	12	50	1.45	-
SEME640150514E	R0.5	1.5	4	2.3	14	50	1.45	-
SEME640150516E	R0.5	1.5	4	2.3	16	50	1.45	-
SEME640150520E	R0.5	1.5	4	2.3	20	50	1.45	-
SEME640150522E	R0.5	1.5	4	2.3	22	60	1.45	-
SEME640150526E	R0.5	1.5	4	2.3	26	60	1.45	-
★ SEME640200106E	R0.1	2.0	4	3	6	50	1.95	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

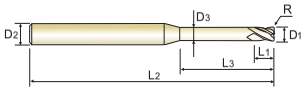
PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Remark
★	SEME640200108E	R0.1	2.0	4	3	8	50	1.95	-
★	SEME640200110E	R0.1	2.0	4	3	10	50	1.95	-
★	SEME640200112E	R0.1	2.0	4	3	12	50	1.95	-
	SEME640200114E	R0.1	2.0	4	3	14	50	1.95	-
	SEME640200116E	R0.1	2.0	4	3	16	50	1.95	-
	SEME640200120E	R0.1	2.0	4	3	20	50	1.95	-
	SEME640200122E	R0.1	2.0	4	3	22	60	1.95	-
	SEME640200126E	R0.1	2.0	4	3	26	60	1.95	-
	SEME640200130E	R0.1	2.0	4	3	30	70	1.95	-
★	SEME640200206E	R0.2	2.0	4	3	6	50	1.95	-
★	SEME640200208E	R0.2	2.0	4	3	8	50	1.95	-
★	SEME640200210E	R0.2	2.0	4	3	10	50	1.95	-
★	SEME640200212E	R0.2	2.0	4	3	12	50	1.95	-
	SEME640200214E	R0.2	2.0	4	3	14	50	1.95	-
	SEME640200216E	R0.2	2.0	4	3	16	50	1.95	-
	SEME640200220E	R0.2	2.0	4	3	20	50	1.95	-
	SEME640200222E	R0.2	2.0	4	3	22	60	1.95	-
	SEME640200226E	R0.2	2.0	4	3	26	60	1.95	-
	SEME640200230E	R0.2	2.0	4	3	30	70	1.95	-
★	SEME640200306E	R0.3	2.0	4	3	6	50	1.95	-
★	SEME640200308E	R0.3	2.0	4	3	8	50	1.95	-
★	SEME640200310E	R0.3	2.0	4	3	10	50	1.95	-
★	SEME640200312E	R0.3	2.0	4	3	12	50	1.95	-
	SEME640200314E	R0.3	2.0	4	3	14	50	1.95	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME64 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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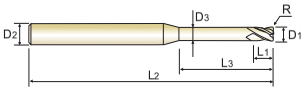
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Remark
SEME640200316E	R0.3	2.0	4	3	16	50	1.95	-
SEME640200320E	R0.3	2.0	4	3	20	50	1.95	-
SEME640200322E	R0.3	2.0	4	3	22	60	1.95	-
SEME640200326E	R0.3	2.0	4	3	26	60	1.95	-
SEME640200330E	R0.3	2.0	4	3	30	70	1.95	-
★ SEME640200506E	R0.5	2.0	4	3	6	50	1.95	-
★ SEME640200508E	R0.5	2.0	4	3	8	50	1.95	-
★ SEME640200510E	R0.5	2.0	4	3	10	50	1.95	-
★ SEME640200512E	R0.5	2.0	4	3	12	50	1.95	-
★ SEME640200514E	R0.5	2.0	4	3	14	50	1.95	-
★ SEME640200516E	R0.5	2.0	4	3	16	50	1.95	-
★ SEME640200520E	R0.5	2.0	4	3	20	50	1.95	-
SEME640200522E	R0.5	2.0	4	3	22	60	1.95	-
SEME640200526E	R0.5	2.0	4	3	26	60	1.95	-
SEME640200530E	R0.5	2.0	4	3	30	70	1.95	-
SEME640250108E	R0.1	2.5	4	4	8	50	2.40	-
SEME640250110E	R0.1	2.5	4	4	10	50	2.40	-
SEME640250112E	R0.1	2.5	4	4	12	50	2.40	-
SEME640250114E	R0.1	2.5	4	4	14	50	2.40	-
SEME640250116E	R0.1	2.5	4	4	16	50	2.40	-
SEME640250120E	R0.1	2.5	4	4	20	50	2.40	-
SEME640250126E	R0.1	2.5	4	4	26	60	2.40	-
SEME640250130E	R0.1	2.5	4	4	30	70	2.40	-
SEME640250208E	R0.2	2.5	4	4	8	50	2.40	-

★ : Stock Item
▶ NEXT PAGE
Corner Radius Tolerance (mm): ± 0.02
Mill Dia. Tolerance (mm): 0 ~ - 0.03
Shank Dia. Tolerance: h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

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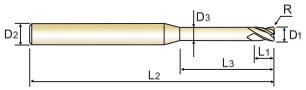
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME640250210E	R0.2	2.5	4	4	10	50	2.40	-
SEME640250212E	R0.2	2.5	4	4	12	50	2.40	-
SEME640250214E	R0.2	2.5	4	4	14	50	2.40	-
SEME640250216E	R0.2	2.5	4	4	16	50	2.40	-
SEME640250220E	R0.2	2.5	4	4	20	50	2.40	-
SEME640250226E	R0.2	2.5	4	4	26	60	2.40	-
SEME640250230E	R0.2	2.5	4	4	30	70	2.40	-
SEME640250308E	R0.3	2.5	4	4	8	50	2.40	-
SEME640250310E	R0.3	2.5	4	4	10	50	2.40	-
SEME640250312E	R0.3	2.5	4	4	12	50	2.40	-
SEME640250314E	R0.3	2.5	4	4	14	50	2.40	-
SEME640250316E	R0.3	2.5	4	4	16	50	2.40	-
SEME640250320E	R0.3	2.5	4	4	20	50	2.40	-
SEME640250326E	R0.3	2.5	4	4	26	60	2.40	-
SEME640250330E	R0.3	2.5	4	4	30	70	2.40	-
SEME640250508E	R0.5	2.5	4	4	8	50	2.40	-
SEME640250510E	R0.5	2.5	4	4	10	50	2.40	-
SEME640250512E	R0.5	2.5	4	4	12	50	2.40	-
SEME640250514E	R0.5	2.5	4	4	14	50	2.40	-
SEME640250516E	R0.5	2.5	4	4	16	50	2.40	-
SEME640250520E	R0.5	2.5	4	4	20	50	2.40	-
SEME640250526E	R0.5	2.5	4	4	26	60	2.40	-
SEME640250530E	R0.5	2.5	4	4	30	70	2.40	-
★ SEME640300108E	R0.1	3.0	6	4.5	8	50	2.85	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME64** SERIES

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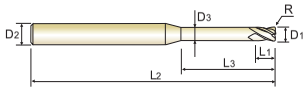
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★ SEME640300110E	R0.1	3.0	6	4.5	10	50	2.85	-
★ SEME640300112E	R0.1	3.0	6	4.5	12	50	2.85	-
SEME640300114E	R0.1	3.0	6	4.5	14	60	2.85	-
★ SEME640300116E	R0.1	3.0	6	4.5	16	60	2.85	-
SEME640300120E	R0.1	3.0	6	4.5	20	60	2.85	-
SEME640300126E	R0.1	3.0	6	4.5	26	65	2.85	-
SEME640300130E	R0.1	3.0	6	4.5	30	70	2.85	-
SEME640300135E	R0.1	3.0	6	4.5	35	70	2.85	-
SEME640300140E	R0.1	3.0	6	4.5	40	80	2.85	-
SEME640300208E	R0.2	3.0	6	4.5	8	50	2.85	-
★ SEME640300210E	R0.2	3.0	6	4.5	10	50	2.85	-
★ SEME640300212E	R0.2	3.0	6	4.5	12	50	2.85	-
SEME640300214E	R0.2	3.0	6	4.5	14	60	2.85	-
★ SEME640300216E	R0.2	3.0	6	4.5	16	60	2.85	-
SEME640300218E	R0.2	3.0	6	4.5	18	60	2.85	-
★ SEME640300220E	R0.2	3.0	6	4.5	20	60	2.85	-
SEME640300226E	R0.2	3.0	6	4.5	26	65	2.85	-
SEME640300230E	R0.2	3.0	6	4.5	30	70	2.85	-
SEME640300235E	R0.2	3.0	6	4.5	35	70	2.85	-
SEME640300240E	R0.2	3.0	6	4.5	40	80	2.85	-
★ SEME640300308E	R0.3	3.0	6	4.5	8	50	2.85	-
★ SEME640300310E	R0.3	3.0	6	4.5	10	50	2.85	-
★ SEME640300312E	R0.3	3.0	6	4.5	12	50	2.85	-
★ SEME640300314E	R0.3	3.0	6	4.5	14	60	2.85	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

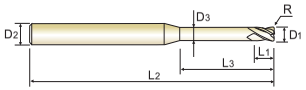
PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★	SEME640300316E	R0.3	3.0	6	4.5	16	60	2.85	-
★	SEME640300320E	R0.3	3.0	6	4.5	20	60	2.85	-
	SEME640300326E	R0.3	3.0	6	4.5	26	65	2.85	-
	SEME640300330E	R0.3	3.0	6	4.5	30	70	2.85	-
	SEME640300335E	R0.3	3.0	6	4.5	35	70	2.85	-
	SEME640300340E	R0.3	3.0	6	4.5	40	80	2.85	-
★	SEME640300508E	R0.5	3.0	6	4.5	8	50	2.85	-
★	SEME640300510E	R0.5	3.0	6	4.5	10	50	2.85	-
★	SEME640300512E	R0.5	3.0	6	4.5	12	50	2.85	-
	SEME640300514E	R0.5	3.0	6	4.5	14	60	2.85	-
★	SEME640300516E	R0.5	3.0	6	4.5	16	60	2.85	-
★	SEME640300520E	R0.5	3.0	6	4.5	20	60	2.85	-
★	SEME640300526E	R0.5	3.0	6	4.5	26	65	2.85	-
★	SEME640300530E	R0.5	3.0	6	4.5	30	70	2.85	-
	SEME640300535E	R0.5	3.0	6	4.5	35	70	2.85	-
	SEME640300540E	R0.5	3.0	6	4.5	40	80	2.85	-
★	SEME640301008E	R1.0	3.0	6	4.5	8	50	2.85	-
★	SEME640301010E	R1.0	3.0	6	4.5	10	50	2.85	-
★	SEME640301012E	R1.0	3.0	6	4.5	12	50	2.85	-
	SEME640301014E	R1.0	3.0	6	4.5	14	60	2.85	-
★	SEME640301016E	R1.0	3.0	6	4.5	16	60	2.85	-
★	SEME640301020E	R1.0	3.0	6	4.5	20	60	2.85	-
	SEME640301026E	R1.0	3.0	6	4.5	26	65	2.85	-
★	SEME640301030E	R1.0	3.0	6	4.5	30	70	2.85	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME64 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
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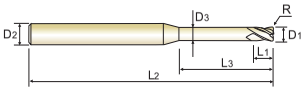
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
	SEME640301035E	R1.0	3.0	6	4.5	35	70	2.85	-
	SEME640301040E	R1.0	3.0	6	4.5	40	80	2.85	-
★	SEME640400110E	R0.1	4.0	6	6	10	50	3.85	-
★	SEME640400112E	R0.1	4.0	6	6	12	50	3.85	-
	SEME640400114E	R0.1	4.0	6	6	14	60	3.85	-
★	SEME640400116E	R0.1	4.0	6	6	16	60	3.85	-
★	SEME640400120E	R0.1	4.0	6	6	20	60	3.85	-
	SEME640400126E	R0.1	4.0	6	6	26	65	3.85	-
	SEME640400130E	R0.1	4.0	6	6	30	70	3.85	-
	SEME640400135E	R0.1	4.0	6	6	35	70	3.85	-
	SEME640400140E	R0.1	4.0	6	6	40	80	3.85	-
	SEME640400145E	R0.1	4.0	6	6	45	90	3.85	-
	SEME640400150E	R0.1	4.0	6	6	50	100	3.85	-
★	SEME640400210E	R0.2	4.0	6	6	10	50	3.85	-
★	SEME640400212E	R0.2	4.0	6	6	12	50	3.85	-
	SEME640400214E	R0.2	4.0	6	6	14	60	3.85	-
★	SEME640400216E	R0.2	4.0	6	6	16	60	3.85	-
★	SEME640400220E	R0.2	4.0	6	6	20	60	3.85	-
	SEME640400224E	R0.2	4.0	6	6	24	65	3.85	-
★	SEME640400226E	R0.2	4.0	6	6	26	65	3.85	-
	SEME640400230E	R0.2	4.0	6	6	30	70	3.85	-
	SEME640400235E	R0.2	4.0	6	6	35	70	3.85	-
	SEME640400240E	R0.2	4.0	6	6	40	80	3.85	-
	SEME640400245E	R0.2	4.0	6	6	45	90	3.85	-

★ : Stock Item
▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
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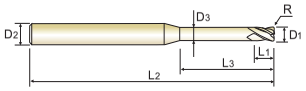
- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating

p.C286-289

D<Ø3, 30° HELIX

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
	SEME640400250E	R0.2	4.0	6	6	50	100	3.85	-
★	SEME640400310E	R0.3	4.0	6	6	10	50	3.85	-
★	SEME640400312E	R0.3	4.0	6	6	12	50	3.85	-
★	SEME640400314E	R0.3	4.0	6	6	14	60	3.85	-
★	SEME640400316E	R0.3	4.0	6	6	16	60	3.85	-
★	SEME640400320E	R0.3	4.0	6	6	20	60	3.85	-
★	SEME640400326E	R0.3	4.0	6	6	26	65	3.85	-
	SEME640400330E	R0.3	4.0	6	6	30	70	3.85	-
	SEME640400335E	R0.3	4.0	6	6	35	70	3.85	-
	SEME640400340E	R0.3	4.0	6	6	40	80	3.85	-
	SEME640400345E	R0.3	4.0	6	6	45	90	3.85	-
	SEME640400350E	R0.3	4.0	6	6	50	100	3.85	-
★	SEME640400510E	R0.5	4.0	6	6	10	50	3.85	-
★	SEME640400512E	R0.5	4.0	6	6	12	50	3.85	-
★	SEME640400514E	R0.5	4.0	6	6	14	60	3.85	-
★	SEME640400516E	R0.5	4.0	6	6	16	60	3.85	-
★	SEME640400520E	R0.5	4.0	6	6	20	60	3.85	-
★	SEME640400526E	R0.5	4.0	6	6	26	65	3.85	-
★	SEME640400530E	R0.5	4.0	6	6	30	70	3.85	-
★	SEME640400535E	R0.5	4.0	6	6	35	70	3.85	-
★	SEME640400540E	R0.5	4.0	6	6	40	80	3.85	-
	SEME640400545E	R0.5	4.0	6	6	45	90	3.85	-
	SEME640400550E	R0.5	4.0	6	6	50	100	3.85	-
★	SEME640401010E	R1.0	4.0	6	6	10	50	3.85	-

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
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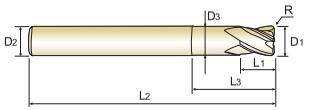
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating

p.C286-289

D<Ø3, 30° HELIX

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★	SEME640401012E	R1.0	4.0	6	6	12	50	3.85	-
	SEME640401014E	R1.0	4.0	6	6	14	60	3.85	-
★	SEME640401016E	R1.0	4.0	6	6	16	60	3.85	-
★	SEME640401020E	R1.0	4.0	6	6	20	60	3.85	-
★	SEME640401026E	R1.0	4.0	6	6	26	65	3.85	-
★	SEME640401030E	R1.0	4.0	6	6	30	70	3.85	-
	SEME640401035E	R1.0	4.0	6	6	35	70	3.85	-
	SEME640401040E	R1.0	4.0	6	6	40	80	3.85	-
	SEME640401045E	R1.0	4.0	6	6	45	90	3.85	-
	SEME640401050E	R1.0	4.0	6	6	50	100	3.85	-
	SEME6405001E	R0.1	5.0	6	8	15	60	4.85	-
	SEME6405002E	R0.2	5.0	6	8	15	60	4.85	-
	SEME6405003E	R0.3	5.0	6	8	15	60	4.85	-
	SEME6405005E	R0.5	5.0	6	8	15	60	4.85	-
	SEME6405010E	R1.0	5.0	6	8	15	60	4.85	-
	SEME6405015E	R1.5	5.0	6	8	15	60	4.85	-
	SEME6405020E	R2.0	5.0	6	8	15	60	4.85	-
	SEME6406001E	R0.1	6.0	6	9	20	60	5.85	Regular
★	SEME6406002E	R0.2	6.0	6	9	20	60	5.85	Regular
★	SEME6406003E	R0.3	6.0	6	9	20	60	5.85	Regular
★	SEME6406005E	R0.5	6.0	6	9	20	60	5.85	Regular
★	SEME6406010E	R1.0	6.0	6	9	20	60	5.85	Regular
	SEME6406015E	R1.5	6.0	6	9	20	60	5.85	Regular
	SEME6406020E	R2.0	6.0	6	9	20	60	5.85	Regular

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

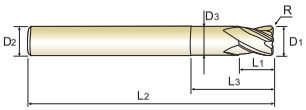
PLAIN SHANK **SEME64** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
★ SEME6406003090E	R0.3	6.0	6	15	30	90	5.85	Long Shank
SE5E640600524LE	R0.5	6.0	6	9	24	90	5.85	-
★ SEME6406005090E	R0.5	6.0	6	15	30	90	5.85	Long Shank
★ SEME6406010090E	R1.0	6.0	6	15	30	90	5.85	Long Shank
SEME6408001E	R0.1	8.0	8	12	25	70	7.70	Regular
★ SEME6408002E	R0.2	8.0	8	12	25	70	7.70	Regular
★ SEME6408003E	R0.3	8.0	8	12	25	70	7.70	Regular
★ SEME6408005E	R0.5	8.0	8	12	25	70	7.70	Regular
★ SEME6408010E	R1.0	8.0	8	12	25	70	7.70	Regular
SEME6408015E	R1.5	8.0	8	12	25	70	7.70	Regular
SEME6408020E	R2.0	8.0	8	12	25	70	7.70	Regular
SEME6408003100E	R0.3	8.0	8	20	35	100	7.70	Long Shank
★ SEME6408005100E	R0.5	8.0	8	20	35	100	7.70	Long Shank
★ SEME6408010100E	R1.0	8.0	8	20	35	100	7.70	Long Shank
SEME6410001E	R0.1	10.0	10	15	30	75	9.70	Regular
SEME6410002E	R0.2	10.0	10	15	30	75	9.70	Regular
SEME6410003E	R0.3	10.0	10	15	30	75	9.70	Regular
★ SEME6410005E	R0.5	10.0	10	15	30	75	9.70	Regular
★ SEME6410010E	R1.0	10.0	10	15	30	75	9.70	Regular
★ SEME6410015E	R1.5	10.0	10	15	30	75	9.70	Regular
SEME6410020E	R2.0	10.0	10	15	30	75	9.70	Regular
SEME6410003100E	R0.3	10.0	10	25	40	100	9.70	Long Shank
★ SEME6410005100E	R0.5	10.0	10	25	40	100	9.70	Long Shank
★ SEME6410010100E	R1.0	10.0	10	25	40	100	9.70	Long Shank

★ : Stock Item

▶ NEXT PAGE

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME64 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, hélice multiple, détalonnée
MD, 4 TAGLIENTI, SCARICATA, TORICA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
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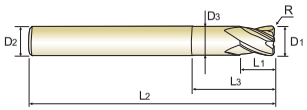
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | R ±0.02 | PLAIN | Y Coating | p.C286-289

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	Remark
SEME6412002E	R0.2	12.0	12	18	32	80	11.70	Regular
SEME6412003E	R0.3	12.0	12	18	32	80	11.70	Regular
★ SEME6412005E	R0.5	12.0	12	18	32	80	11.70	Regular
★ SEME6412010E	R1.0	12.0	12	18	32	80	11.70	Regular
★ SEME6412015E	R1.5	12.0	12	18	32	80	11.70	Regular
★ SEME6412020E	R2.0	12.0	12	18	32	80	11.70	Regular
SEME6412003110E	R0.3	12.0	12	30	50	110	11.70	Long Shank
★ SEME6412005110E	R0.5	12.0	12	30	50	110	11.70	Long Shank
★ SEME6412010110E	R1.0	12.0	12	30	50	110	11.70	Long Shank
★ SEME6416005E	R0.5	16.0	16	20	35	100	15.70	Regular
★ SEME6416010E	R1.0	16.0	16	20	35	100	15.70	Regular
SEME6416005150E	R0.5	16.0	16	35	50	150	15.70	Long Shank
SEME6416010150E	R1.0	16.0	16	35	50	150	15.70	Long Shank
★ SEME6420005E	R0.5	20.0	20	35	40	100	19.70	Regular
★ SEME6420010E	R1.0	20.0	20	35	40	100	19.70	Regular
SEME6420005150E	R0.5	20.0	20	35	55	150	19.70	Long Shank
SEME6420010150E	R1.0	20.0	20	35	55	150	19.70	Long Shank

★ : Stock Item

Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
± 0.02	0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	◎	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

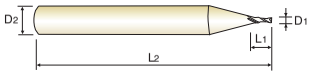
PLAIN SHANK **SEME35** SERIES

CARBIDE, 2 FLUTE

VOLLHARTMETALL, 2 SCHNEIDEN
Fraise carbure, 2 dents
MD, 2 TAGLIENTI, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C290-293

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME35001E	0.1	4	0.2	40
★ SEME350015E	0.15	4	0.3	40
★ SEME35002E	0.2	4	0.4	40
SEME350025E	0.25	4	0.5	40
★ SEME35003E	0.3	4	0.6	40
SEME350035E	0.35	4	0.7	40
★ SEME35004E	0.4	4	0.8	40
SEME350045E	0.45	4	0.9	40
★ SEME35005E	0.5	4	1.0	40
SEME350055E	0.55	4	1.1	40
★ SEME35006E	0.6	4	1.2	40
SEME350065E	0.65	4	1.3	40
★ SEME35007E	0.7	4	1.4	40
SEME350075E	0.75	4	1.5	40
★ SEME35008E	0.8	4	1.6	40
SEME350085E	0.85	4	1.7	40
★ SEME35009E	0.9	4	1.8	40
SEME350095E	0.95	4	2	40
★ SEME35010E	1.0	6	2.5	50
★ SEME35012E	1.2	6	3	50
★ SEME35015E	1.5	6	4	50
★ SEME35020E	2.0	6	6	50
★ SEME35025E	2.5	6	7	50
★ SEME35030E	3.0	6	8	50

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~ - 0.012	h5
over Ø6	0~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME35** SERIES

CARBIDE, 2 FLUTE

VOLLHARTMETALL, 2 SCHNEIDEN
Fraise carbure, 2 dents
MD, 2 TAGLIENTI, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
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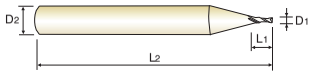
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C290-293

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME35035E	3.5	6	10	50
★ SEME35040E	4.0	6	10	50
★ SEME35045E	4.5	6	14	50
★ SEME35050E	5.0	6	15	60
★ SEME35055E	5.5	6	15	60
★ SEME35060E	6.0	6	15	60
★ SEME35065E	6.5	8	18	60
★ SEME35070E	7.0	8	20	60
★ SEME35075E	7.5	8	20	60
★ SEME35080E	8.0	8	20	70
★ SEME35085E	8.5	10	22	70
★ SEME35090E	9.0	10	22	70
★ SEME35095E	9.5	10	24	70
★ SEME35100E	10.0	10	25	75
★ SEME35105E	10.5	12	26	75
★ SEME35110E	11.0	12	30	75
SEME35115E	11.5	12	30	80
★ SEME35120E	12.0	12	30	80
★ SEME35130E	13.0	12	35	100
SEME3514012SE	14.0	12	35	100
★ SEME3514014SE	14.0	14	35	100
★ SEME35140E	14.0	16	35	100
★ SEME35150E	15.0	16	38	100
★ SEME35160E	16.0	16	40	100

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~ - 0.012	h5
over Ø6	0~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

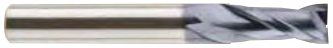
PLAIN SHANK **SEME35** SERIES

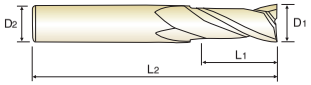
CARBIDE, 2 FLUTE

VOLLHARTMETALL, 2 SCHNEIDEN
Fraise carbure, 2 dents
MD, 2 TAGLIENTI, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.





CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C290-293

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
SEME35170E	17.0	16	42	100
★ SEME35180E	18.0	16	45	100
SEME3518018SE	18.0	18	45	100
SEME35190E	19.0	20	45	100
★ SEME35200E	20.0	20	45	100
SEME35210E	21.0	20	45	100
SEME35220E	22.0	20	45	100
SEME35230E	23.0	25	50	120
SEME35240E	24.0	25	50	120
SEME35250E	25.0	25	50	120

★ : Stock Item

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~ - 0.012	h5
over Ø6	0~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

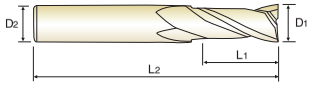
4G MILL END MILLS
PLAIN SHANK SEME35 SERIES

CARBIDE, 2 FLUTE (0.1mm a Unit / 4mm Shank)

VOLLHARTMETALL, 2 SCHNEIDEN
Fraise carbure, 2 dents (par 0.1mm / Ø queue 4mm)
MD, 2 TAGLIENTI, SPIGOLO VIVO (gambo 4 mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C290-293

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME350104SE	1.0	4	2.5	50
★ SEME350114SE	1.1	4	3	50
★ SEME350124SE	1.2	4	3	50
★ SEME350134SE	1.3	4	3	50
★ SEME350144SE	1.4	4	4	50
★ SEME350154SE	1.5	4	4	50
★ SEME350164SE	1.6	4	4	50
★ SEME350174SE	1.7	4	4	50
★ SEME350184SE	1.8	4	5	50
★ SEME350194SE	1.9	4	5	50
★ SEME350204SE	2.0	4	6	50
SEME350214SE	2.1	4	6	50
★ SEME350224SE	2.2	4	6	50
★ SEME350234SE	2.3	4	6	50
★ SEME350244SE	2.4	4	6	50
★ SEME350254SE	2.5	4	8	50
★ SEME350264SE	2.6	4	8	50
★ SEME350274SE	2.7	4	8	50
★ SEME350284SE	2.8	4	8	50
SEME350294SE	2.9	4	8	50
★ SEME350304SE	3.0	4	8	50
SEME350354SE	3.5	4	10	50
★ SEME350404SE	4.0	4	10	50
★ SEME350404S080E	4.0	4	10	80

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

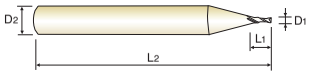
PLAIN SHANK **SEME35** SERIES

CARBIDE, 2 FLUTE (3mm Shank)

VOLLHARTMETALL, 2 SCHNEIDEN
Fraise carbure, 2 dents (Ø queue 3 mm)
MD, 2 TAGLIENTI, SPIGOLO VIVO (gambo 3mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶From a sharp edge geometry at the end tooth, cutting abilities at work process is increased.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der scharfen Schneidengeometrie wird eine bessere Schnittfreudigkeit während der Bearbeitung gewährleistet.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C290-293

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★	SEME350013SE	0.1	3	0.2	40
★	SEME350023SE	0.2	3	0.4	40
★	SEME350033SE	0.3	3	0.6	40
★	SEME350043SE	0.4	3	0.8	40
★	SEME350053SE	0.5	3	1.0	40
★	SEME350063SE	0.6	3	1.2	40
★	SEME350073SE	0.7	3	1.4	40
★	SEME350083SE	0.8	3	1.6	40
★	SEME350093SE	0.9	3	1.8	40
★	SEME350103SE	1.0	3	2.5	50
★	SEME350123SE	1.2	3	3	50
★	SEME350153SE	1.5	3	4	50
★	SEME350203SE	2.0	3	6	50
★	SEME350253SE	2.5	3	7	50
★	SEME350303SE	3.0	3	8	50

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0~ - 0.012	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

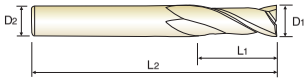
PLAIN SHANK **SEME70** SERIES

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Available in various lengths of cut and also overall lengths.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen Schneiden- und Gesamtlängen.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C294-299

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★	SEME7001003E	1.0	6	3	60
★	SEME7001004E	1.0	6	4	60
	SEME7001005E	1.0	6	5	60
★	SEME7001006E	1.0	6	6	60
	SEME7001007E	1.0	6	7	60
★	SEME7001008E	1.0	6	8	60
★	SEME7001010E	1.0	6	10	60
	SEME7001012E	1.0	6	12	60
	SEME7001204E	1.2	6	4	60
	SEME7001206E	1.2	6	6	60
	SEME7001208E	1.2	6	8	60
	SEME7001210E	1.2	6	10	60
	SEME7001212E	1.2	6	12	60
★	SEME7001506E	1.5	6	6	60
★	SEME7001508E	1.5	6	8	60
★	SEME7001510E	1.5	6	10	60
★	SEME7001512E	1.5	6	12	60
	SEME7001514E	1.5	6	14	60
★	SEME7001516E	1.5	6	16	60
★	SEME7002008E	2.0	6	8	60
★	SEME7002010E	2.0	6	10	60
★	SEME7002012E	2.0	6	12	60
	SEME7002014E	2.0	6	14	60
★	SEME7002016E	2.0	6	16	60

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

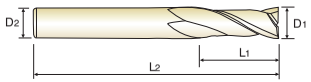
PLAIN SHANK **SEME70** SERIES

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Available in various lengths of cut and also overall lengths.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C294-299

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7002510E	2.5	6	10	60
SEME7002512E	2.5	6	12	60
★ SEME7002516E	2.5	6	16	60
SEME7002520E	2.5	6	20	60
SEME7002526E	2.5	6	26	60
SEME70030163SE	3.0	3	16	100
★ SEME7003010E	3.0	6	10	70
★ SEME7003012E	3.0	6	12	70
★ SEME7003014E	3.0	6	14	70
★ SEME7003016E	3.0	6	16	70
★ SEME7003020E	3.0	6	20	70
★ SEME7003026E	3.0	6	26	70
SEME7003030E	3.0	6	30	70
SEME70040204SE	4.0	4	20	100
★ SEME7004012E	4.0	6	12	70
★ SEME7004016E	4.0	6	16	70
★ SEME7004020E	4.0	6	20	70
★ SEME7004026E	4.0	6	26	70
★ SEME7004030E	4.0	6	30	70
★ SEME7005020E	5.0	6	20	70
★ SEME7005025E	5.0	6	25	70
SEME7005025100E	5.0	6	25	100
★ SEME7005030E	5.0	6	30	80
SEME7005035E	5.0	6	35	90

★ : Stock Item

▶ NEXT PAGE

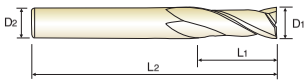
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME70 SERIES
CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Available in various lengths of cut and also overall lengths.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 2 | 30° | PLAIN | Y Coating
p.C294-299
Recommended ToolHolder
Flat Shank | Page | Plain Shank | Page
END MILL HOLDER | D118 - 137 | HYDRAULIC CHUCK / SHRINK FIT HOLDER | D15 - 46 / D47 - 72
- | - | POWER MILLING CHUCK | D161 - 176
- | - | ER COLLET CHUCK / SK SLIM CHUCK | D73 - 116 / D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7005040E	5.0	6	40	100
★ SEME7006015E	6.0	6	15	60
★ SEME7006015080E	6.0	6	15	80
★ SEME7006020E	6.0	6	20	70
★ SEME7006020090E	6.0	6	20	90
★ SEME7006025E	6.0	6	25	75
★ SEME7006030E	6.0	6	30	80
★ SEME7006030100E	6.0	6	30	100
★ SEME7006030150E	6.0	6	30	150
★ SEME7006035E	6.0	6	35	90
★ SEME7006040E	6.0	6	40	90
★ SEME7006040120E	6.0	6	40	120
★ SEME7006045E	6.0	6	45	150
★ SEME7008025E	8.0	8	25	80
★ SEME7008030E	8.0	8	30	80
★ SEME7008030100E	8.0	8	30	100
★ SEME7008035E	8.0	8	35	90
★ SEME7008040E	8.0	8	40	90
★ SEME7008040120E	8.0	8	40	120
SEME7008040150E	8.0	8	40	150
★ SEME7008045E	8.0	8	45	100
★ SEME7008050E	8.0	8	50	100
SEME7008050150E	8.0	8	50	150
★ SEME7010030E	10.0	10	30	80

★ : Stock Item
▶ NEXT PAGE
Mill Dia. Tolerance (mm) | Shank Dia. Tolerance
0 ~ - 0.03 | h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

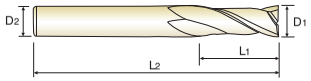
PLAIN SHANK **SEME70** SERIES

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Available in various lengths of cut and also overall lengths.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C294-299

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7010030100E	10.0	10	30	100
★ SEME7010035E	10.0	10	35	90
★ SEME7010040E	10.0	10	40	90
★ SEME7010040120E	10.0	10	40	120
★ SEME7010045E	10.0	10	45	100
★ SEME7010050E	10.0	10	50	100
★ SEME7010050150E	10.0	10	50	150
SEME7010050200E	10.0	10	50	200
SEME7010055E	10.0	10	55	150
★ SEME7010060E	10.0	10	60	110
SEME7010060200E	10.0	10	60	200
★ SEME7012035E	12.0	12	35	90
★ SEME7012040E	12.0	12	40	100
★ SEME7012040120E	12.0	12	40	120
★ SEME7012045E	12.0	12	45	130
★ SEME7012050E	12.0	12	50	100
★ SEME7012050150E	12.0	12	50	150
★ SEME7012055E	12.0	12	55	110
★ SEME7012060E	12.0	12	60	110
★ SEME7012060150E	12.0	12	60	150
SEME7012060200E	12.0	12	60	200
SEME7012065E	12.0	12	65	150
SEME7012070E	12.0	12	70	120
SEME7012070200E	12.0	12	70	200

★ : Stock Item

▶ NEXT PAGE

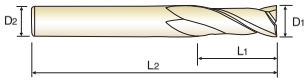
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME70 SERIES
CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Available in various lengths of cut and also overall lengths.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 2 | 30° | PLAIN | Y Coating
p.C294-299
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
SEME7014050E	14.0	16	50	110
★ SEME7014060E	14.0	16	60	150
★ SEME7016040E	16.0	16	40	150
SEME7016050E	16.0	16	50	110
SEME7016050150E	16.0	16	50	150
SEME7016060E	16.0	16	60	120
SEME7016070E	16.0	16	70	130
★ SEME7016070150E	16.0	16	70	150
SEME7016070200E	16.0	16	70	200
SEME7016080E	16.0	16	80	150
SEME7016090E	16.0	16	90	150
SEME70160110E	16.0	16	110	200
SEME70160120E	16.0	16	120	250
SEME7018050E	18.0	20	50	120
SEME7018070E	18.0	20	70	130
SEME70180100E	18.0	20	100	200
SEME7020050E	20.0	20	50	110
SEME7020050150E	20.0	20	50	150
SEME7020060E	20.0	20	60	130
SEME7020070E	20.0	20	70	130
SEME7020080E	20.0	20	80	150
SEME7020090E	20.0	20	90	150
★ SEME7020090200E	20.0	20	90	200
★ SEME70200110E	20.0	20	110	200

★ : Stock Item
▶ NEXT PAGE
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

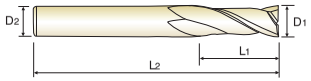
PLAIN SHANK **SEME70** SERIES

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Available in various lengths of cut and also overall lengths.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C294-299

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
SEME70200120E	20.0	20	120	250
SEME7022075E	22.0	20	75	150
SEME70220110E	22.0	20	110	200
SEME7025070E	25.0	25	70	150
SEME7025090E	25.0	25	90	150
SEME70250110E	25.0	25	110	200
SEME70250120E	25.0	25	120	250

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

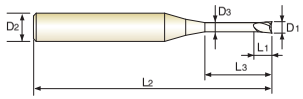
PLAIN SHANK **SEM845** SERIES

CARBIDE, 2 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
- ▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
- ▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C300-309

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEM845001003E	0.1	4	0.15	0.3	40	0.085
★ SEM845001005E	0.1	4	0.15	0.5	40	0.085
SEM84500101E	0.1	4	0.15	1	40	0.085
SEM84500150035SE	0.15	4	0.2	0.35	40	0.13
★ SEM845002005E	0.2	4	0.3	0.5	40	0.17
★ SEM84500201E	0.2	4	0.3	1	40	0.17
★ SEM845002015E	0.2	4	0.3	1.5	40	0.17
★ SEM84500202E	0.2	4	0.3	2	40	0.17
★ SEM84500301E	0.3	4	0.5	1	40	0.27
★ SEM845003015E	0.3	4	0.5	1.5	40	0.27
★ SEM84500302E	0.3	4	0.5	2	40	0.27
SEM845003025E	0.3	4	0.5	2.5	40	0.27
★ SEM84500303E	0.3	4	0.5	3	40	0.27
★ SEM84500304E	0.3	4	0.5	4	40	0.27
SEM84500305E	0.3	4	0.5	5	40	0.27
★ SEM84500401E	0.4	4	0.6	1	40	0.37
★ SEM845004015E	0.4	4	0.6	1.5	40	0.37
★ SEM84500402E	0.4	4	0.6	2	40	0.37
★ SEM845004025E	0.4	4	0.6	2.5	40	0.37
★ SEM84500403E	0.4	4	0.6	3	40	0.37
★ SEM84500404E	0.4	4	0.6	4	40	0.37
★ SEM84500405E	0.4	4	0.6	5	40	0.37
SEM84500406E	0.4	4	0.6	6	40	0.37
SEM84500408E	0.4	4	0.6	8	40	0.37

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEM845** SERIES

CARBIDE, 2 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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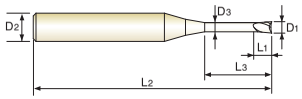
- ▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
- ▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
- ▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C300-309

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEM84500410E	0.4	4	0.6	10	40	0.37
★ SEM84500501E	0.5	4	0.7	1	45	0.45
SEM845005015E	0.5	4	0.7	1.5	45	0.45
★ SEM84500502E	0.5	4	0.7	2	45	0.45
SEM845005025E	0.5	4	0.7	2.5	45	0.45
★ SEM84500503E	0.5	4	0.7	3	45	0.45
★ SEM84500504E	0.5	4	0.7	4	45	0.45
★ SEM84500505E	0.5	4	0.7	5	45	0.45
★ SEM84500506E	0.5	4	0.7	6	45	0.45
SEM84500508E	0.5	4	0.7	8	45	0.45
SEM84500510E	0.5	4	0.7	10	45	0.45
SEM84500512E	0.5	4	0.7	12	45	0.45
SEM84500514E	0.5	4	0.7	14	45	0.45
SEM84500516E	0.5	4	0.7	16	45	0.45
★ SEM84500602E	0.6	4	0.9	2	45	0.55
★ SEM84500603E	0.6	4	0.9	3	45	0.55
★ SEM84500604E	0.6	4	0.9	4	45	0.55
★ SEM84500605E	0.6	4	0.9	5	45	0.55
★ SEM84500606E	0.6	4	0.9	6	45	0.55
★ SEM84500608E	0.6	4	0.9	8	45	0.55
★ SEM84500610E	0.6	4	0.9	10	45	0.55
SEM84500612E	0.6	4	0.9	12	45	0.55
SEM84500614E	0.6	4	0.9	14	45	0.55
SEM84500616E	0.6	4	0.9	16	45	0.55

★ : Stock Item

▶ NEXT PAGE

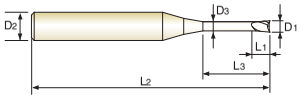
Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM845 SERIES
CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C300-309
Recommended Tool Holder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★ SEM84500702E	0.7	4	1.2	2	45	0.65
★ SEM84500704E	0.7	4	1.2	4	45	0.65
★ SEM84500706E	0.7	4	1.2	6	45	0.65
SEM84500708E	0.7	4	1.2	8	45	0.65
SEM84500710E	0.7	4	1.2	10	45	0.65
SEM84500712E	0.7	4	1.2	12	45	0.65
★ SEM84500802E	0.8	4	1.2	2	45	0.75
★ SEM84500803E	0.8	4	1.2	3	45	0.75
★ SEM84500804E	0.8	4	1.2	4	45	0.75
★ SEM84500805E	0.8	4	1.2	5	45	0.75
★ SEM84500806E	0.8	4	1.2	6	45	0.75
★ SEM84500808E	0.8	4	1.2	8	45	0.75
★ SEM84500810E	0.8	4	1.2	10	45	0.75
SEM84500812E	0.8	4	1.2	12	45	0.75
SEM84500814E	0.8	4	1.2	14	45	0.75
SEM84500816E	0.8	4	1.2	16	45	0.75
SEM84500820E	0.8	4	1.2	20	45	0.75
SEM84500906E	0.9	4	1.3	6	45	0.85
SEM84500908E	0.9	4	1.3	8	45	0.85
SEM84500910E	0.9	4	1.3	10	45	0.85
★ SEM84501002E	1.0	4	1.5	2	50	0.95
★ SEM84501003E	1.0	4	1.5	3	50	0.95
★ SEM84501004E	1.0	4	1.5	4	50	0.95
★ SEM84501005E	1.0	4	1.5	5	50	0.95

★ : Stock Item
▶ NEXT PAGE
Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	
◎ : Excellent ○ : Good
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

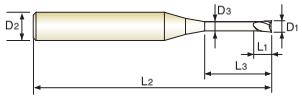
PLAIN SHANK **SEM845** SERIES

CARBIDE, 2 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
- ▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
- ▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C300-309

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★	SEM84501006E	1.0	4	1.5	6	50	0.95
	SEM84501007E	1.0	4	1.5	7	50	0.95
★	SEM84501008E	1.0	4	1.5	8	50	0.95
★	SEM84501010E	1.0	4	1.5	10	50	0.95
★	SEM84501012E	1.0	4	1.5	12	50	0.95
★	SEM84501014E	1.0	4	1.5	14	50	0.95
★	SEM84501016E	1.0	4	1.5	16	50	0.95
	SEM84501018E	1.0	4	1.5	18	50	0.95
★	SEM84501020E	1.0	4	1.5	20	50	0.95
	SEM84501022E	1.0	4	1.5	22	60	0.95
	SEM84501026E	1.0	4	1.5	26	60	0.95
	SEM84501030E	1.0	4	1.5	30	70	0.95
	SEM84501040E	1.0	4	1.5	40	80	0.95
	SEM84501050E	1.0	4	1.5	50	100	0.95
	SEM84501204E	1.2	4	1.8	4	50	1.15
★	SEM84501206E	1.2	4	1.8	6	50	1.15
★	SEM84501208E	1.2	4	1.8	8	50	1.15
★	SEM84501210E	1.2	4	1.8	10	50	1.15
★	SEM84501212E	1.2	4	1.8	12	50	1.15
	SEM84501214E	1.2	4	1.8	14	50	1.15
	SEM84501216E	1.2	4	1.8	16	50	1.15
	SEM84501220E	1.2	4	1.8	20	50	1.15
	SEM84501226E	1.2	4	1.8	26	60	1.15
	SEM84501230E	1.2	4	1.8	30	70	1.15

★ : Stock Item

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM845 SERIES
CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
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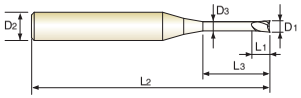
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C300-309
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★	SEM84501406E	1.4	4	2.1	6	50	1.35
★	SEM84501408E	1.4	4	2.1	8	50	1.35
	SEM84501410E	1.4	4	2.1	10	50	1.35
	SEM84501414E	1.4	4	2.1	14	50	1.35
	SEM84501416E	1.4	4	2.1	16	50	1.35
	SEM84501420E	1.4	4	2.1	20	50	1.35
★	SEM84501504E	1.5	4	2.3	4	50	1.45
	SEM84501505E	1.5	4	2.3	5	50	1.45
★	SEM84501506E	1.5	4	2.3	6	50	1.45
	SEM84501507E	1.5	4	2.3	7	50	1.45
★	SEM84501508E	1.5	4	2.3	8	50	1.45
★	SEM84501510E	1.5	4	2.3	10	50	1.45
★	SEM84501512E	1.5	4	2.3	12	50	1.45
★	SEM84501514E	1.5	4	2.3	14	50	1.45
★	SEM84501516E	1.5	4	2.3	16	50	1.45
★	SEM84501518E	1.5	4	2.3	18	50	1.45
★	SEM84501520E	1.5	4	2.3	20	50	1.45
	SEM84501522E	1.5	4	2.3	22	60	1.45
	SEM84501526E	1.5	4	2.3	26	60	1.45
	SEM84501530E	1.5	4	2.3	30	70	1.45
	SEM84501608E	1.6	4	2.3	8	50	1.55
	SEM84501610E	1.6	4	2.3	10	50	1.55
	SEM84501612E	1.6	4	2.3	12	50	1.55
	SEM84501616E	1.6	4	2.3	16	50	1.55

★ : Stock Item
▶ NEXT PAGE
Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	
◎ : Excellent ○ : Good
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEM845** SERIES

CARBIDE, 2 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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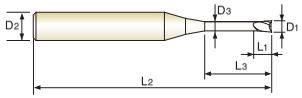
- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
- ▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C300-309

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
	SEM84501620E	1.6	4	2.3	20	50	1.55
★	SEM84501808E	1.8	4	2.7	8	50	1.75
★	SEM84501810E	1.8	4	2.7	10	50	1.75
★	SEM84501812E	1.8	4	2.7	12	50	1.75
	SEM84501816E	1.8	4	2.7	16	50	1.75
	SEM84501820E	1.8	4	2.7	20	50	1.75
★	SEM84502006E	2.0	4	3	6	50	1.95
★	SEM84502008E	2.0	4	3	8	50	1.95
★	SEM84502010E	2.0	4	3	10	50	1.95
★	SEM84502012E	2.0	4	3	12	50	1.95
★	SEM84502014E	2.0	4	3	14	50	1.95
★	SEM84502016E	2.0	4	3	16	50	1.95
	SEM84502018E	2.0	4	3	18	50	1.95
★	SEM84502020E	2.0	4	3	20	50	1.95
	SEM84502022E	2.0	4	3	22	60	1.95
★	SEM84502026E	2.0	4	3	26	60	1.95
★	SEM84502030E	2.0	4	3	30	70	1.95
★	SEM84502035E	2.0	4	3	35	70	1.95
★	SEM84502040E	2.0	4	3	40	80	1.95
	SEM84502045E	2.0	4	3	45	90	1.95
	SEM84502050E	2.0	4	3	50	100	1.95
	SEM84502060E	2.0	4	3	60	110	1.95
★	SEM84502508E	2.5	4	4	8	50	2.40
★	SEM84502510E	2.5	4	4	10	50	2.40

★ : Stock Item

▶ NEXT PAGE

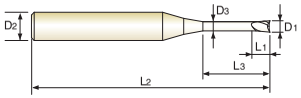
Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM845 SERIES
CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C300-309
Recommended ToolHolder
Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★	SEM84502512E	2.5	4	4	12	50	2.40
	SEM84502514E	2.5	4	4	14	50	2.40
★	SEM84502516E	2.5	4	4	16	50	2.40
	SEM84502518E	2.5	4	4	18	50	2.40
★	SEM84502520E	2.5	4	4	20	50	2.40
	SEM84502522E	2.5	4	4	22	60	2.40
★	SEM84502526E	2.5	4	4	26	60	2.40
	SEM84502530E	2.5	4	4	30	70	2.40
	SEM84502535E	2.5	4	4	35	70	2.40
	SEM84502540E	2.5	4	4	40	80	2.40
	SEM84502545E	2.5	4	4	45	90	2.40
	SEM84502550E	2.5	4	4	50	100	2.40
★	SEM84503006E	3.0	6	4.5	6	50	2.85
★	SEM84503008E	3.0	6	4.5	8	50	2.85
★	SEM84503010E	3.0	6	4.5	10	50	2.85
★	SEM84503012E	3.0	6	4.5	12	50	2.85
★	SEM84503014E	3.0	6	4.5	14	60	2.85
★	SEM84503016E	3.0	6	4.5	16	60	2.85
★	SEM84503018E	3.0	6	4.5	18	60	2.85
★	SEM84503020E	3.0	6	4.5	20	60	2.85
	SEM84503022E	3.0	6	4.5	22	65	2.85
★	SEM84503026E	3.0	6	4.5	26	65	2.85
★	SEM84503030E	3.0	6	4.5	30	70	2.85
★	SEM84503035E	3.0	6	4.5	35	70	2.85

★ : Stock Item
▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

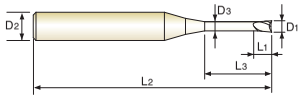
PLAIN SHANK **SEM845** SERIES

CARBIDE, 2 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
- ▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
- ▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C300-309

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★ SEM84503040E	3.0	6	4.5	40	80	2.85
SEM84503045E	3.0	6	4.5	45	90	2.85
SEM84503050E	3.0	6	4.5	50	100	2.85
SEM84503060E	3.0	6	4.5	60	100	2.85
SEM84504008E	4.0	6	6	8	50	3.85
★ SEM84504010E	4.0	6	6	10	50	3.85
★ SEM84504012E	4.0	6	6	12	50	3.85
SEM84504014E	4.0	6	6	14	60	3.85
★ SEM84504016E	4.0	6	6	16	60	3.85
★ SEM84504018E	4.0	6	6	18	60	3.85
★ SEM84504020E	4.0	6	6	20	60	3.85
SEM84504022E	4.0	6	6	22	65	3.85
★ SEM84504026E	4.0	6	6	26	65	3.85
★ SEM84504030E	4.0	6	6	30	70	3.85
★ SEM84504035E	4.0	6	6	35	70	3.85
★ SEM84504040E	4.0	6	6	40	80	3.85
★ SEM84504045E	4.0	6	6	45	90	3.85
SEM84504050E	4.0	6	6	50	100	3.85
SEM84504060E	4.0	6	6	60	100	3.85
SEM84505016E	5.0	6	8	16	60	4.85
★ SEM84505020E	5.0	6	8	20	60	4.85
SEM84505026E	5.0	6	8	26	65	4.85
★ SEM84505030E	5.0	6	8	30	70	4.85
★ SEM84505035E	5.0	6	8	35	75	4.85

★ : Stock Item

▶ NEXT PAGE

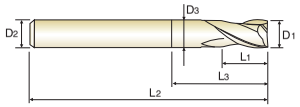
Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEM845 SERIES
CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée
MD, 2 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ For 1.0mm and under 1.0mm diameter size products, it is designed with a double neck to increase tool rigidity and to minimize vibration.
▶ Available in several effective lengths of cut and also overall lengths to apply on various rib processing.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Bei Fräsern mit einem ø ≤ 1,0mm gewährleistet die "Doppel-Hals-Geometrie" eine erhöhte Werkzeugsteifigkeit und minimiert Vibrationen während der Bearbeitung.
▶ Die Auswahl an verschiedenen Effektiv- und Gesamt-Längen der Werkzeuge ermöglicht die Herstellung der verschiedensten Steg- und Rippen-Variationen.



CARBIDE | 2 | 30° | PLAIN | Y Coating
p.C300-309
Recommended ToolHolder
Flat Shank Page Plain Shank Page
END MILL HOLDER D118 - 137 HYDRAULIC CHUCK D15 - 46 SHRINK FIT HOLDER D47 - 72
- - POWER MILLING CHUCK D161 - 176
- - ER COLLET CHUCK D73 - 116 SK SLIM CHUCK D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★ SEM84505040E	5.0	6	8	40	80	4.85
★ SEM84505050E	5.0	6	8	50	90	4.85
SEM84505060E	5.0	6	8	60	100	4.85
★ SEM84506015E	6.0	6	9	15	60	5.85
★ SEM84506020E	6.0	6	9	20	60	5.85
★ SEM84506030E	6.0	6	9	30	70	5.85
★ SEM84506032E	6.0	6	9	32	90	5.85
★ SEM84508025E	8.0	8	12	25	70	7.70
★ SEM84508030E	8.0	8	12	30	80	7.70
★ SEM84508042E	8.0	8	12	42	100	7.70
★ SEM84510030E	10.0	10	15	30	75	9.70
SEM84510035E	10.0	10	15	35	80	9.70
★ SEM84510045E	10.0	10	15	45	100	9.70
★ SEM84512035E	12.0	12	20	35	80	11.70
SEM84512040E	12.0	12	20	40	90	11.70
★ SEM84512050E	12.0	12	20	50	110	11.70

★ : Stock Item

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

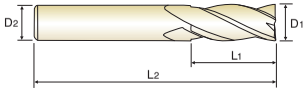
PLAIN SHANK **SEME36** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL
Fraise carbure, 4 dents, hélice multiple
MD, 4 TAGLIENTI, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter end mills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | PLAIN | Y Coating | p.C310-313

D<Ø3, 30° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME36008E	0.8	4	1.6	40	4mm Shank
SEME36009E	0.9	4	1.8	40	4mm Shank
SEME360104SE	1.0	4	2.5	50	4mm Shank
★ SEME36010E	1.0	6	2.5	50	-
SEME360124SE	1.2	4	3	50	4mm Shank
SEME36012E	1.2	6	3	50	-
SEME360154SE	1.5	4	4	50	4mm Shank
★ SEME36015E	1.5	6	4	50	-
SEME360204SE	2.0	4	6	50	4mm Shank
★ SEME36020E	2.0	6	6	50	-
SEME360254SE	2.5	4	7	50	4mm Shank
★ SEME36025E	2.5	6	7	50	-
★ SEME36030E	3.0	6	8	50	-
★ SEME36035E	3.5	6	10	50	-
★ SEME36040E	4.0	6	10	50	-
★ SEME36045E	4.5	6	14	50	-
★ SEME36050E	5.0	6	15	60	-
★ SEME36055E	5.5	6	15	60	-
★ SEME36060E	6.0	6	15	60	-
★ SEME36065E	6.5	8	18	60	-
★ SEME36070E	7.0	8	20	60	-
★ SEME36075E	7.5	8	20	60	-
★ SEME36080E	8.0	8	20	70	-
★ SEME36085E	8.5	10	22	70	-

★ : Stock Item

▶ NEXT PAGE

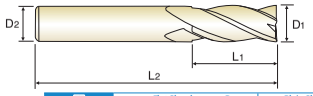
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME36 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL
Fraise carbure, 4 dents, hélice multiple
MD, 4 TAGLIENTI, SPIGOLO VIVO
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Multiple Helix for 3.0mm and over 3.0mm diameter end mills minimizing vibration and decreasing wear in cutting.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



CARBIDE | 4 | 27°/30° | PLAIN | Y Coating | p.C310-313
D<Ø3, 30° HELIX
Recommended Tool Holder | Flat Shank | Page | Plain Shank | Page
END MILL HOLDER D118 - 137 | HYDRAULIC CHUCK D15 - 46 | SHRINK FIT HOLDER D47 - 72
- - | POWER MILLING CHUCK D161 - 176
- - | ER COLLET CHUCK D73 - 116 | SK SLIM CHUCK D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEME36090E	9.0	10	22	70	-
★ SEME36095E	9.5	10	24	70	-
★ SEME36100E	10.0	10	25	75	-
SEME36105E	10.5	12	26	75	-
★ SEME36110E	11.0	12	30	75	-
SEME36115E	11.5	12	30	80	-
★ SEME36120E	12.0	12	30	80	-
SEME36130E	13.0	12	35	100	-
SEME3614012SE	14.0	12	35	100	-
★ SEME3614014SE	14.0	14	35	100	-
★ SEME36140E	14.0	16	35	100	-
SEME36150E	15.0	16	38	100	-
★ SEME36160E	16.0	16	40	100	-
SEME36170E	17.0	16	42	100	-
★ SEME36180E	18.0	16	45	100	-
★ SEME3618018SE	18.0	18	45	100	-
SEME36190E	19.0	20	45	100	-
★ SEME36200E	20.0	20	45	100	-
SEME36210E	21.0	20	45	100	-
SEME36220E	22.0	20	45	100	-
SEME36230E	23.0	25	50	120	-
SEME36240E	24.0	25	50	120	-
SEME36250E	25.0	25	50	120	-

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

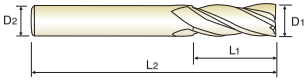
PLAIN SHANK **SEME71** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX (Sharp corner removal)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL (Scharfe Schneidenecken entfernt)
Fraise carbure, 4 dents, hélice multiple (Protection de l'angle d'attaque)
MD, 4 TAGLIENTI, TAGLIENTE RINFORZATO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
  - Equal index flutes design for long length and single helix (38°) end mills.
- ▶ Gash land geometry applied at the end tooth, achieving heavy duty cutting.
- ▶ Available various length products like short, regular and long length end mills etc.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
  -Designed mit gleichgeteilten Spannuten für überlange Schaftfräser.
- ▶ Aufgrund der korrigierten Stirnschneiden ist eine Schwerzerspanung möglich.
- ▶ Erhältlich in verschiedenen Variationen: kurz, lang und extra lang.



CARBIDE | 4 | 35°/38° | PLAIN | Y Coating

p.C310-313

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, Long Length 38° HELIX

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME71010014SE	1.0	4	1	40	4mm Shank
SEME71010024SE	1.0	4	2	40	4mm Shank
SEME710104SE	1.0	4	2.5	50	4mm Shank
SEME71010034SE	1.0	4	3	50	4mm Shank
SEME71010044SE	1.0	4	4	50	4mm Shank
SEME71010064SE	1.0	4	6	50	4mm Shank
SEME7101001E	1.0	6	1	40	Short
SEME7101002E	1.0	6	2	40	Short
★ SEME71010E	1.0	6	2.5	50	Regular
SEME7101003E	1.0	6	3	50	Long
SEME7101004E	1.0	6	4	50	Long
SEME7101006E	1.0	6	6	50	Long
SEME71012024SE	1.2	4	2	40	4mm Shank
SEME710124SE	1.2	4	3	50	4mm Shank
SEME71012044SE	1.2	4	4	50	4mm Shank
SEME71012064SE	1.2	4	6	50	4mm Shank
SEME7101202E	1.2	6	2	40	Short
★ SEME71012E	1.2	6	3	50	Regular
SEME7101204E	1.2	6	4	50	Long
SEME7101206E	1.2	6	6	50	Long
SEME710150154SE	1.5	4	1.5	40	4mm Shank
SEME71015034SE	1.5	4	3	40	4mm Shank
SEME710154SE	1.5	4	4	50	4mm Shank
SEME71015064SE	1.5	4	6	50	4mm Shank

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME71** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX (Sharp corner removal)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL (Scharfe Schneidenecken entfernt)
Fraise carbure, 4 dents, hélice multiple (Protection de l'angle d'attaque)
MD, 4 TAGLIENTI, TAGLIENTE RINFORZATO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
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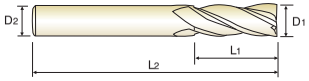
  - Equal index flutes design for long length and single helix (38°) end mills.
- ▶ Gash land geometry applied at the end tooth, achieving heavy duty cutting.
- ▶ Available various length products like short, regular and long length end mills etc.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeo-metrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
  -Designed mit gleichgeteilten Spannuten für überlange Schaftfräser.
- ▶ Aufgrund der korrigierten Stirnschneiden ist eine Schwerzerspanung möglich.
- ▶ Erhältlich in verschiedenen Variationen: kurz, lang und extra lang.



CARBIDE | 4 | 35°/38° | PLAIN | Y Coating

p.C310-313

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

D<Ø3, Long Length 38° HELIX

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME71015084SE	1.5	4	8	50	4mm Shank
SEME71015104SE	1.5	4	10	50	4mm Shank
SEME71015015E	1.5	6	1.5	40	Short
SEME7101503E	1.5	6	3	40	Short
★ SEME71015E	1.5	6	4	50	Regular
SEME7101506E	1.5	6	6	50	Long
SEME7101508E	1.5	6	8	50	Long
SEME7101510E	1.5	6	10	50	Long
SEME71020024SE	2.0	4	2	40	4mm Shank
SEME71020044SE	2.0	4	4	40	4mm Shank
SEME710204SE	2.0	4	6	50	4mm Shank
SEME71020084SE	2.0	4	8	50	4mm Shank
SEME71020104SE	2.0	4	10	50	4mm Shank
SEME71020124SE	2.0	4	12	50	4mm Shank
SEME7102002E	2.0	6	2	40	Short
SEME7102004E	2.0	6	4	40	Short
★ SEME71020E	2.0	6	6	50	Regular
SEME7102008E	2.0	6	8	50	Long
SEME7102010E	2.0	6	10	50	Long
SEME7102012E	2.0	6	12	50	Long
SEME710250254SE	2.5	4	2.5	40	4mm Shank
SEME71025054SE	2.5	4	5	40	4mm Shank
SEME710254SE	2.5	4	7	50	4mm Shank
SEME71025104SE	2.5	4	10	50	4mm Shank

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

4G MILL END MILLS

PLAIN SHANK **SEME71** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX (Sharp corner removal)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL (Scharfe Schneidenecken entfernt)
Fraise carbure, 4 dents, hélice multiple (Protection de l'angle d'attaque)
MD, 4 TAGLIENTI, TAGLIENTE RINFORZATO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
  - Equal index flutes design for long length and single helix (38°) end mills.
- ▶ Gash land geometry applied at the end tooth, achieving heavy duty cutting.
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- ▶ Available in short, regular and long shank end mills.

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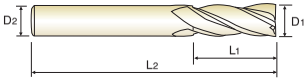
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
  - Designed mit gleichgeteilten Spannuten für überlange Schaftfräser.
- ▶ Aufgrund der korrigierten Stirnschneiden ist eine Schwerzerspanung möglich.
- ▶ Erhältlich in verschiedenen Variationen: kurz, lang und extra lang.



CARBIDE | 4 | 35°/38° | PLAIN | Y Coating | p.C310-313

D<Ø3, Long Length 38° HELIX

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME71025124SE	2.5	4	12	50	4mm Shank
SEME71025025E	2.5	6	2.5	40	Short
SEME7102505E	2.5	6	5	40	Short
★ SEME71025E	2.5	6	7	50	Regular
SEME7102510E	2.5	6	10	50	Long
SEME7102512E	2.5	6	12	50	Long
SEME7103003E	3.0	6	3	40	Short
SEME7103006E	3.0	6	6	40	Short
★ SEME71030E	3.0	6	8	50	Regular
SEME7103010E	3.0	6	10	50	Long
SEME7103012E	3.0	6	12	50	Long
SEME7103014E	3.0	6	14	50	Long
SEME7104004E	4.0	6	4	40	Short
SEME7104008E	4.0	6	8	40	Short
★ SEME71040E	4.0	6	10	50	Regular
SEME7104012E	4.0	6	12	50	Long
SEME7104014E	4.0	6	14	50	Long
SEME7104016E	4.0	6	16	50	Long
SEME7105005E	5.0	6	5	50	Short
SEME7105010E	5.0	6	10	50	Short
★ SEME71050E	5.0	6	15	60	Regular
SEME7105020E	5.0	6	20	60	Long
SEME7105025E	5.0	6	25	60	Long
SEME7106006E	6.0	6	6	50	Short

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME71 SERIES
CARBIDE, 4 FLUTE MULTIPLE HELIX (Sharp corner removal)
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL (Scharfe Schneidenecken entfernt)
Fraise carbure, 4 dents, hélice multiple (Protection de l'angle d'attaque)
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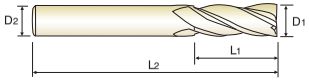
▶ Aufgrund der korrigierten Stirnschneiden ist eine Schwerzerspanung möglich.
▶ Erhältlich in verschiedenen Variationen: kurz, lang und extra lang.



CARBIDE | 4 | 35°/38° | PLAIN | Y Coating | p.C310-313
D<Ø3, Long Length 38° HELIX
Recommended Tool Holder | Flat Shank | Page | Plain Shank | Page
END MILL HOLDER | D118 - 137 | HYDRAULIC CHUCK / SHRINK FIT HOLDER | D15 - 46 / D47 - 72
- | - | POWER MILLING CHUCK | D161 - 176
- | - | ER COLLET CHUCK / SK SLIM CHUCK | D73 - 116 / D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME7106012E	6.0	6	12	50	Short
★ SEME71060E	6.0	6	15	60	Regular
SEME7106020E	6.0	6	20	60	Long
SEME7106025E	6.0	6	25	60	Long
SEME7108016E	8.0	8	16	60	Short
★ SEME71080E	8.0	8	20	70	Regular
SEME7108025E	8.0	8	25	70	Long
SEME7108030E	8.0	8	30	70	Long
★ SEME7110022E	10.0	10	22	65	Short
★ SEME71100E	10.0	10	25	75	Regular
★ SEME7110030E	10.0	10	30	75	Long
★ SEME7110035E	10.0	10	35	75	Long
SEME7112026E	12.0	12	26	70	Short
★ SEME71120E	12.0	12	30	80	Regular
★ SEME7112035E	12.0	12	35	80	Long
★ SEME7112040E	12.0	12	40	80	Long
SEME71140E	14.0	16	35	100	Regular
★ SEME7116032E	16.0	16	32	100	Short
★ SEME71160E	16.0	16	40	100	Regular
SEME71180E	18.0	20	45	100	Regular
★ SEME71200E	20.0	20	45	100	Regular

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

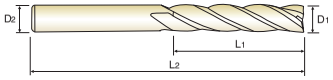
PLAIN SHANK **SEME72** SERIES

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C314-319

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7201003E	1.0	6	3	60
★ SEME7201004E	1.0	6	4	60
★ SEME7201005E	1.0	6	5	60
★ SEME7201006E	1.0	6	6	60
SEME7201007E	1.0	6	7	60
★ SEME7201008E	1.0	6	8	60
SEME7201010E	1.0	6	10	60
SEME7201012E	1.0	6	12	60
SEME7201204E	1.2	6	4	60
SEME7201206E	1.2	6	6	60
SEME7201208E	1.2	6	8	60
SEME7201210E	1.2	6	10	60
SEME7201212E	1.2	6	12	60
★ SEME7201506E	1.5	6	6	60
★ SEME7201508E	1.5	6	8	60
SEME7201510E	1.5	6	10	60
SEME7201512E	1.5	6	12	60
SEME7201514E	1.5	6	14	60
SEME7201516E	1.5	6	16	60
★ SEME7202008E	2.0	6	8	60
★ SEME7202010E	2.0	6	10	60
★ SEME7202012E	2.0	6	12	60
★ SEME7202014E	2.0	6	14	60
★ SEME7202016E	2.0	6	16	60

★ : Stock Item

▶ NEXT PAGE

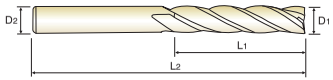
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME72 SERIES
CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available in short, regular and long shank end mills.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 4 | 30° | PLAIN | Y Coating
p.C314-319
Recommended Tool Holder | Flat Shank | Page | Plain Shank | Page
END MILL HOLDER | D118 - 137 | HYDRAULIC CHUCK / SHRINK FIT HOLDER | D15 - 46 / D47 - 72
- | - | POWER MILLING CHUCK | D161 - 176
- | - | ER COLLET CHUCK / SK SLIM CHUCK | D73 - 116 / D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7202510E	2.5	6	10	60
★ SEME7202512E	2.5	6	12	60
SEME7202516E	2.5	6	16	60
SEME7202520E	2.5	6	20	60
SEME7202526E	2.5	6	26	60
SEME72030163SE	3.0	3	16	100
★ SEME7203010E	3.0	6	10	70
★ SEME7203012E	3.0	6	12	70
★ SEME7203014E	3.0	6	14	70
★ SEME7203016E	3.0	6	16	70
★ SEME7203020E	3.0	6	20	70
★ SEME7203026E	3.0	6	26	70
★ SEME7203030E	3.0	6	30	70
★ SEME72040204SE	4.0	4	20	100
★ SEME7204012E	4.0	6	12	70
★ SEME7204016E	4.0	6	16	70
★ SEME7204020E	4.0	6	20	70
★ SEME7204026E	4.0	6	26	70
★ SEME7204030E	4.0	6	30	70
★ SEME7205020E	5.0	6	20	70
★ SEME7205025E	5.0	6	25	70
★ SEME7205025100E	5.0	6	25	100
★ SEME7205030E	5.0	6	30	80
★ SEME7205035E	5.0	6	35	90

★ : Stock Item
▶ NEXT PAGE
Mill Dia. Tolerance (mm) | Shank Dia. Tolerance
0 ~ - 0.03 | h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

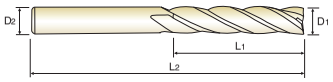
PLAIN SHANK **SEME72** SERIES

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C314-319

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7205040E	5.0	6	40	100
★ SEME7206015E	6.0	6	15	60
★ SEME7206015080E	6.0	6	15	80
★ SEME7206020E	6.0	6	20	70
★ SEME7206020090E	6.0	6	20	90
★ SEME7206025E	6.0	6	25	75
★ SEME7206030E	6.0	6	30	80
★ SEME7206030100E	6.0	6	30	100
SEME7206030150E	6.0	6	30	150
★ SEME7206035E	6.0	6	35	90
★ SEME7206040E	6.0	6	40	90
★ SEME7206040120E	6.0	6	40	120
★ SEME7206045E	6.0	6	45	150
★ SEME7208025E	8.0	8	25	80
★ SEME7208030E	8.0	8	30	80
★ SEME7208030100E	8.0	8	30	100
★ SEME7208035E	8.0	8	35	90
★ SEME7208040E	8.0	8	40	90
SEME7208040120E	8.0	8	40	120
SEME7208040150E	8.0	8	40	150
★ SEME7208045E	8.0	8	45	100
★ SEME7208050E	8.0	8	50	100
★ SEME7208050150E	8.0	8	50	150
★ SEME7210030E	10.0	10	30	80

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME72 SERIES
CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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▶ Available in short, regular and long shank end mills.
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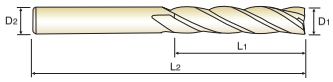
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 4 | 30° | PLAIN | Y Coating
p.C314-319
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7210030100E	10.0	10	30	100
★ SEME7210035E	10.0	10	35	90
★ SEME7210040E	10.0	10	40	90
★ SEME7210040120E	10.0	10	40	120
★ SEME7210045E	10.0	10	45	100
★ SEME7210050E	10.0	10	50	100
★ SEME7210050150E	10.0	10	50	150
SEME7210050200E	10.0	10	50	200
★ SEME7210055E	10.0	10	55	150
★ SEME7210060E	10.0	10	60	110
SEME7210060200E	10.0	10	60	200
★ SEME7212035E	12.0	12	35	90
★ SEME7212040E	12.0	12	40	100
★ SEME7212040120E	12.0	12	40	120
★ SEME7212045E	12.0	12	45	130
★ SEME7212050E	12.0	12	50	100
★ SEME7212050150E	12.0	12	50	150
★ SEME7212055E	12.0	12	55	110
★ SEME7212060E	12.0	12	60	110
★ SEME7212060150E	12.0	12	60	150
SEME7212060200E	12.0	12	60	200
SEME7212065E	12.0	12	65	150
SEME7212070E	12.0	12	70	120
SEME7212070200E	12.0	12	70	200

★ : Stock Item
▶ NEXT PAGE
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

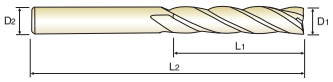
PLAIN SHANK **SEME72** SERIES

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C314-319

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME7214050E	14.0	16	50	110
★ SEME7214060E	14.0	16	60	150
SEME7216040E	16.0	16	40	150
★ SEME7216050E	16.0	16	50	110
SEME7216050150E	16.0	16	50	150
★ SEME7216060E	16.0	16	60	120
★ SEME7216070E	16.0	16	70	130
★ SEME7216070150E	16.0	16	70	150
SEME7216070200E	16.0	16	70	200
SEME7216080E	16.0	16	80	150
SEME7216090E	16.0	16	90	150
SEME72160110E	16.0	16	110	200
SEME72160120E	16.0	16	120	250
SEME7218050E	18.0	20	50	120
SEME7218070E	18.0	20	70	130
SEME72180100E	18.0	20	100	200
★ SEME7220050E	20.0	20	50	110
SEME7220050150E	20.0	20	50	150
★ SEME7220060E	20.0	20	60	130
★ SEME7220070E	20.0	20	70	130
SEME7220080E	20.0	20	80	150
★ SEME7220090E	20.0	20	90	150
★ SEME7220090200E	20.0	20	90	200
SEME72200110E	20.0	20	110	200

★ : Stock Item

▶ NEXT PAGE

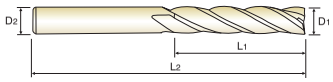
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME72 SERIES
CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
MD, 4 TAGLIENTI, SPIGOLO VIVO, SERIE LUNGA
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available in short, regular and long shank end mills.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Erhältlich in verschiebenen Schneiden- und Gesamtlängen.



CARBIDE | 4 | 30° | PLAIN | Y Coating
p.C314-319
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
★ SEME72200120E	20.0	20	120	250
SEME7222075E	22.0	20	75	150
SEME72220110E	22.0	20	110	200
SEME7225070E	25.0	25	70	150
★ SEME7225090E	25.0	25	90	150
SEME72250110E	25.0	25	110	200
SEME72250120E	25.0	25	120	250

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

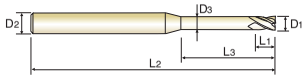
PLAIN SHANK **SEME73** SERIES

CARBIDE, 4 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, détalonnée
MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C320-325

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
	SEME7301002E	1.0	4	1.5	2	50	0.95
	SEME7301003E	1.0	4	1.5	3	50	0.95
★	SEME7301004E	1.0	4	1.5	4	50	0.95
★	SEME7301005E	1.0	4	1.5	5	50	0.95
★	SEME7301006E	1.0	4	1.5	6	50	0.95
	SEME7301007E	1.0	4	1.5	7	50	0.95
★	SEME7301008E	1.0	4	1.5	8	50	0.95
★	SEME7301010E	1.0	4	1.5	10	50	0.95
★	SEME7301012E	1.0	4	1.5	12	50	0.95
	SEME7301014E	1.0	4	1.5	14	50	0.95
	SEME7301016E	1.0	4	1.5	16	50	0.95
	SEME7301018E	1.0	4	1.5	18	50	0.95
	SEME7301020E	1.0	4	1.5	20	50	0.95
	SEME7301022E	1.0	4	1.5	22	60	0.95
	SEME7301026E	1.0	4	1.5	26	60	0.95
	SEME7301030E	1.0	4	1.5	30	70	0.95
	SEME7301040E	1.0	4	1.5	40	80	0.95
	SEME7301050E	1.0	4	1.5	50	100	0.95
	SEME7301204E	1.2	4	1.8	4	50	1.15
	SEME7301206E	1.2	4	1.8	6	50	1.15
	SEME7301208E	1.2	4	1.8	8	50	1.15
	SEME7301210E	1.2	4	1.8	10	50	1.15
	SEME7301212E	1.2	4	1.8	12	50	1.15
	SEME7301214E	1.2	4	1.8	14	50	1.15

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

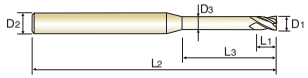
PLAIN SHANK **SEME73** SERIES

CARBIDE, 4 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, détalonnée
MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C320-325

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
	-	-	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

	EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
	SEME7301216E	1.2	4	1.8	16	50	1.15
	SEME7301220E	1.2	4	1.8	20	50	1.15
	SEME7301226E	1.2	4	1.8	26	60	1.15
	SEME7301230E	1.2	4	1.8	30	70	1.15
	SEME7301504E	1.5	4	2.3	4	50	1.45
	SEME7301505E	1.5	4	2.3	5	50	1.45
★	SEME7301506E	1.5	4	2.3	6	50	1.45
	SEME7301507E	1.5	4	2.3	7	50	1.45
★	SEME7301508E	1.5	4	2.3	8	50	1.45
★	SEME7301510E	1.5	4	2.3	10	50	1.45
★	SEME7301512E	1.5	4	2.3	12	50	1.45
	SEME7301514E	1.5	4	2.3	14	50	1.45
★	SEME7301516E	1.5	4	2.3	16	50	1.45
	SEME7301518E	1.5	4	2.3	18	50	1.45
	SEME7301520E	1.5	4	2.3	20	50	1.45
	SEME7301522E	1.5	4	2.3	22	60	1.45
	SEME7301526E	1.5	4	2.3	26	60	1.45
	SEME7301530E	1.5	4	2.3	30	70	1.45
★	SEME7302006E	2.0	4	3	6	50	1.95
★	SEME7302008E	2.0	4	3	8	50	1.95
★	SEME7302010E	2.0	4	3	10	50	1.95
★	SEME7302012E	2.0	4	3	12	50	1.95
★	SEME7302014E	2.0	4	3	14	50	1.95
★	SEME7302016E	2.0	4	3	16	50	1.95

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr C251

4G MILL END MILLS

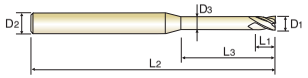
PLAIN SHANK **SEME73** SERIES

CARBIDE, 4 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, détalonnée
MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C320-325

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEME7302018E	2.0	4	3	18	50	1.95
★ SEME7302020E	2.0	4	3	20	50	1.95
SEME7302022E	2.0	4	3	22	60	1.95
★ SEME7302026E	2.0	4	3	26	60	1.95
SEME7302030E	2.0	4	3	30	70	1.95
SEME7302035E	2.0	4	3	35	70	1.95
SEME7302040E	2.0	4	3	40	80	1.95
SEME7302045E	2.0	4	3	45	90	1.95
SEME7302050E	2.0	4	3	50	100	1.95
SEME7302060E	2.0	4	3	60	110	1.95
SEME7302508E	2.5	4	4	8	50	2.40
★ SEME7302510E	2.5	4	4	10	50	2.40
★ SEME7302512E	2.5	4	4	12	50	2.40
SEME7302514E	2.5	4	4	14	50	2.40
SEME7302516E	2.5	4	4	16	50	2.40
SEME7302518E	2.5	4	4	18	50	2.40
SEME7302520E	2.5	4	4	20	50	2.40
SEME7302522E	2.5	4	4	22	60	2.40
SEME7302526E	2.5	4	4	26	60	2.40
SEME7302530E	2.5	4	4	30	70	2.40
SEME7302535E	2.5	4	4	35	70	2.40
SEME7302540E	2.5	4	4	40	80	2.40
SEME7302545E	2.5	4	4	45	90	2.40
SEME7302550E	2.5	4	4	50	100	2.40
SEME7303006E	3.0	6	4.5	6	50	2.85
★ SEME7303008E	3.0	6	4.5	8	50	2.85

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS
PLAIN SHANK SEME73 SERIES
CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, détalonnée
MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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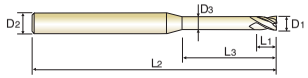
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 4 | 30° | PLAIN | Y Coating
p.C320-325
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
★ SEME7303010E	3.0	6	4.5	10	50	2.85
SEME7303012E	3.0	6	4.5	12	50	2.85
★ SEME7303014E	3.0	6	4.5	14	60	2.85
SEME7303016E	3.0	6	4.5	16	60	2.85
★ SEME7303018E	3.0	6	4.5	18	60	2.85
SEME7303020E	3.0	6	4.5	20	60	2.85
★ SEME7303022E	3.0	6	4.5	22	65	2.85
★ SEME7303026E	3.0	6	4.5	26	65	2.85
SEME7303030E	3.0	6	4.5	30	70	2.85
SEME7303035E	3.0	6	4.5	35	70	2.85
SEME7303040E	3.0	6	4.5	40	80	2.85
SEME7303045E	3.0	6	4.5	45	90	2.85
SEME7303050E	3.0	6	4.5	50	100	2.85
SEME7303060E	3.0	6	4.5	60	100	2.85
SEME7304008E	4.0	6	6	8	50	3.85
★ SEME7304010E	4.0	6	6	10	50	3.85
SEME7304012E	4.0	6	6	12	50	3.85
★ SEME7304014E	4.0	6	6	14	60	3.85
SEME7304016E	4.0	6	6	16	60	3.85
★ SEME7304018E	4.0	6	6	18	60	3.85
SEME7304020E	4.0	6	6	20	60	3.85
★ SEME7304022E	4.0	6	6	22	65	3.85
SEME7304025E	4.0	6	6	25	65	3.85
★ SEME7304026E	4.0	6	6	26	65	3.85
SEME7304030E	4.0	6	6	30	70	3.85
★ SEME7304035E	4.0	6	6	35	70	3.85

★ : Stock Item
▶ NEXT PAGE
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

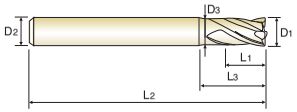
PLAIN SHANK **SEME73** SERIES

CARBIDE, 4 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, détalonnée
MD, 4 TAGLIENTI, SCARICATA, SPIGOLO VIVO

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in several effective lengths of cut and also overall lengths than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C320-325

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
SEME7304040E	4.0	6	6	40	80	3.85
SEME7304045E	4.0	6	6	45	90	3.85
SEME7304050E	4.0	6	6	50	100	3.85
SEME7304060E	4.0	6	6	60	100	3.85
★ SEME7305016E	5.0	6	8	16	60	4.85
SEME7305020E	5.0	6	8	20	60	4.85
SEME7305026E	5.0	6	8	26	65	4.85
SEME7305030E	5.0	6	8	30	70	4.85
★ SEME7305035E	5.0	6	8	35	75	4.85
SEME7305040E	5.0	6	8	40	80	4.85
SEME7305050E	5.0	6	8	50	90	4.85
★ SEME7305060E	5.0	6	8	60	100	4.85
★ SEME7306015E	6.0	6	9	15	60	5.85
★ SEME7306020E	6.0	6	9	20	60	5.85
★ SEME7306030E	6.0	6	9	30	70	5.85
★ SEME7306032E	6.0	6	9	32	90	5.85
SEME7308025E	8.0	8	12	25	70	7.70
★ SEME7308030E	8.0	8	12	30	80	7.70
★ SEME7308042E	8.0	8	12	42	100	7.70
SEME7310030E	10.0	10	15	30	75	9.70
★ SEME7310035E	10.0	10	15	35	80	9.70
★ SEME7310045E	10.0	10	15	45	100	9.70
SEME7312035E	12.0	12	20	35	80	11.70
★ SEME7312040E	12.0	12	20	40	90	11.70
SEME7312050E	12.0	12	20	50	110	11.70

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

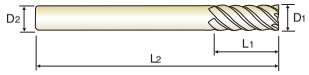
PLAIN SHANK **SEME75** SERIES

CARBIDE, 6 FLUTE 45° HELIX (Regular, Long Shank)

VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE
Fraise carbure, 6 dents, hélice 45°
MD, 6 TAGLIENTI, ELICA 45°, SPIGOLO VIVO (Serie media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ From the 45 helix angle, better surface roughness can be achieved at side cutting.
- ▶ Available in several effective lengths of cut and also overall lengths

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrung der 45° Spirale werden bessere Oberlächengüten bei der Eckbearbeitung erreicht
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen.



CARBIDE | 6 | 45° | PLAIN | Y Coating

p.C326-327

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEME75060E	6.0	6	15	60	Regular
SEME7506020E	6.0	6	20	70	Long
★ SEME7506030E	6.0	6	30	80	Long
SEME7506030110E	6.0	6	30	110	Long
★ SEME75080E	8.0	8	20	70	Regular
★ SEME7508030E	8.0	8	30	80	Long
SEME7508035E	8.0	8	35	90	Long
★ SEME7508040E	8.0	8	40	90	Long
SEME7508040130E	8.0	8	40	130	Long
★ SEME75100E	10.0	10	25	75	Regular
SEME7510030E	10.0	10	30	80	Long
★ SEME7510040E	10.0	10	40	90	Long
SEME7510050E	10.0	10	50	100	Long
SEME7510050150E	10.0	10	50	150	Long
★ SEME75120E	12.0	12	30	80	Regular
★ SEME7512040E	12.0	12	40	90	Long
★ SEME7512050E	12.0	12	50	100	Long
SEME7512060E	12.0	12	60	110	Long
SEME7512060150E	12.0	12	60	150	Long
★ SEME75160E	16.0	16	40	100	Regular
SEME7516050E	16.0	16	50	110	Long
★ SEME7516060E	16.0	16	60	120	Long
SEME7516090E	16.0	16	90	150	Long
SEME75160110E	16.0	16	110	200	Long

★ : Stock Item

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

PLAIN SHANK **SEME75** SERIES

CARBIDE, 6 FLUTE 45° HELIX (Regular, Long Shank)

VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE
Fraise carbure, 6 dents, hélice 45°
MD, 6 TAGLIENTI, ELICA 45°, SPIGOLO VIVO (Serie media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ From the 45 helix angle, better surface roughness can be achieved at side cutting.
- ▶ Available in several effective lengths of cut and also overall lengths

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrung der 45° Spirale werden bessere Oberlächengüten bei der Eckbearbeitung erreicht
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen.

CARBIDE | 6 | 45° | PLAIN | Y Coating

p.C326-327

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
-	-	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME75160110250E	16.0	16	110	250	Long
★ SEME75200E	20.0	20	45	100	Regular
★ SEME7520060E	20.0	20	60	120	Long
SEME7520070E	20.0	20	70	130	Long
SEME75200110E	20.0	20	110	200	Long
SEME75200110250E	20.0	20	110	250	Long
SEME75200110300E	20.0	20	110	300	Long

★ : Stock Item

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

4G MILL END MILLS

X-SPEED ROUGHER

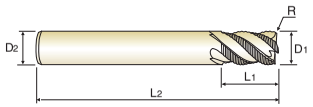
PLAIN SHANK **G9D75** SERIES
FLAT SHANK **G9D67** SERIES

CARBIDE, 4&5 FLUTE MULTIPLE HELIX CORNER RADIUS - SHORT LENGTH

VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser KURZ ECKENRADIUS
Fraise carbure, 4&5 dents, torique, hélice multiple, courte
MD, 4 & 5 TAGLIENTI, TORICA, SERIE CORTA

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

- ▶ einzigartige Nutengeometrie für hervorragenden Spänetransport und Vibrationsreduzierung
- ▶ neuartiges Schruppprofil zur reduzierung der Schnittkräfte
- ▶ Spezielle Werkzeuggeometrie für Hochvorschub- und Schwerzerspanung geeignet
- ▶ speziell entwickelte Schneidengeometrie für Tauch- und Taschenfräsen
- ▶ YG-1 eigene Beschichtung um lange lebensdauer und sehr guten Spänetransport zu gewährleisten



CARBIDE | 4&5 | 44°~45° | PLAIN | FLAT | Y Coating

p.C328

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
-	-	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	No. of Flute
G9D75060	G9D67060	R0.5	6.0	6	9	57	4
G9D75080	G9D67080	R0.5	8.0	8	12	63	4
G9D75100	G9D67100	R0.5	10.0	10	15	72	4
G9D75120	G9D67120	R0.5	12.0	12	18	83	4
G9D75160	G9D67160	R1.0	16.0	16	24	92	5
G9D75200	G9D67200	R1.0	20.0	20	30	104	5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.05	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

4G MILL END MILLS

X-SPEED ROUGHER

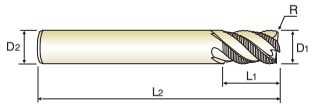
PLAIN SHANK **G9D76** SERIES
FLAT SHANK **G9D68** SERIES

CARBIDE, 4&5 FLUTE MULTIPLE HELIX CORNER RADIUS - LONG LENGTH

VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser KURZ ECKENRADIUS
Fraise carbure, 4&5 dents, torique, hélice multiple, courte
MD, 4 & 5 TAGLIENTI, TORICA, SERIE CORTA

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

- ▶ einzigartige Nutengeometrie für hervorragenden Spänetransport und Vibrationsreduzierung
- ▶ neuartiges Schruppprofil zur reduzierung der Schnittkräfte
- ▶ Spezielle Werkzeuggeometrie für Hochvorschub- und Schwerzerspanung geeignet
- ▶ speziell entwickelte Schneidengeometrie für Tauch- und Taschenfräsen
- ▶ YG-1 eigene Beschichtung um lange lebensdauer und sehr guten Spänetransport zu gewährleisten



CARBIDE | 4&5 | 44°~45° | PLAIN | FLAT | Y Coating

p.C328

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	R	D_1	D_2	L_1	L_2	
G9D76060	G9D68060	R0.5	6.0	6	12	57	4
G9D76080	G9D68080	R0.5	8.0	8	16	63	4
G9D76100	G9D68100	R0.5	10.0	10	20	72	4
G9D76120	G9D68120	R0.5	12.0	12	24	83	4
G9D76160	G9D68160	R1.0	16.0	16	32	92	5
G9D76200	G9D68200	R1.0	20.0	20	40	104	5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.05	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

4G MILL END MILLS

X-SPEED ROUGHER

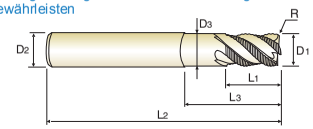
PLAIN SHANK **G9D77** SERIES
FLAT SHANK **G9D69** SERIES

CARBIDE, 4&5 FLUTE MULTIPLE HELIX LONG REACH CORNER RADIUS

VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser GROßE REICHWEITE ECKENRADIUS
Fraise carbure, 4&5 dents, torique longue portée, hélice multiple
MD, 4 & 5 TAGLIENTI, TORICA, SCARICATA, SERIE LUNGS

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

- ▶ einzigartige Nutengeometrie für hervorragenden Spänetransport und Vibrationsreduzierung
- ▶ neuartiges Schruppprofil zur reduzierung der Schnittkräfte
- ▶ Spezielle Werkzeuggeometrie für Hochvorschub- und Schwerzerspanung geeignet
- ▶ speziell entwickelte Schneidengeometrie für Tauch- und Taschenfräsen
- ▶ YG-1 eigene Beschichtung um lange lebensdauer und sehr guten Spänetransport zu gewährleisten



CARBIDE | 4&5 | 44°~45° | PLAIN | FLAT | Y Coating

p.C328

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	-	-	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute
PLAIN	FLAT	R	D_1	D_2	L_1	L_3	L_2	D_3	
G9D77060	G9D69060	R0.5	6.0	6	9	18	57	5.50	4
G9D77080	G9D69080	R0.5	8.0	8	12	24	63	7.50	4
G9D77100	G9D69100	R0.5	10.0	10	15	30	72	9.50	4
G9D77120	G9D69120	R0.5	12.0	12	18	36	83	11.50	4
G9D77160	G9D69160	R1.0	16.0	16	24	48	100	15.50	5
G9D77200	G9D69200	R1.0	20.0	20	30	60	110	19.20	5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.05	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	○	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

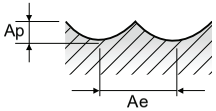
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEMD98 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5
P	1-5	Non-alloy steel	0.08D	0.05D	Vc	13	19	28	38	47	57	66	75	85	94	113	141	187	187
					fz	0.007	0.012	0.015	0.019	0.024	0.029	0.034	0.039	0.044	0.048	0.051	0.054	0.057	0.074
					RPM	41380	30239	29709	30239	29921	30239	30012	29842	30063	29921	29974	29921	29762	23810
					FEED	579	726	891	1149	1436	1754	2041	2328	2646	2872	3057	3231	3393	3524
	6-8	Low alloy steel	0.08D	0.05D	Vc	13	19	28	38	47	57	66	75	85	94	113	141	187	187
					fz	0.007	0.012	0.015	0.019	0.024	0.029	0.034	0.039	0.044	0.048	0.051	0.054	0.057	0.074
					RPM	41380	30239	29709	30239	29921	30239	30012	29842	30063	29921	29974	29921	29762	23810
					FEED	579	726	891	1149	1436	1754	2041	2328	2646	2872	3057	3231	3393	3524
	9		0.08D	0.05D	Vc	13	19	28	38	47	57	66	75	85	94	109	136	180	180
					fz	0.006	0.011	0.014	0.017	0.021	0.025	0.029	0.033	0.038	0.042	0.045	0.047	0.05	0.066
					RPM	41380	30239	29709	30239	29921	30239	30012	29842	30063	29921	28913	28860	28648	22918
					FEED	497	665	832	1028	1257	1512	1741	1970	2285	2513	2602	2713	2865	3025
	10-11.1	High alloyed steel, and tool steel	0.08D	0.05D	Vc	13	19	28	38	47	57	66	75	85	94	113	141	187	187
					fz	0.007	0.012	0.015	0.019	0.024	0.029	0.034	0.039	0.044	0.048	0.051	0.054	0.057	0.074
					RPM	41380	30239	29709	30239	29921	30239	30012	29842	30063	29921	29974	29921	29762	23810
					FEED	579	726	891	1149	1436	1754	2041	2328	2646	2872	3057	3231	3393	3524
	11.2		0.08D	0.05D	Vc	13	19	28	38	47	57	66	75	85	94	109	136	180	180
					fz	0.006	0.011	0.014	0.017	0.021	0.025	0.029	0.033	0.038	0.042	0.045	0.047	0.05	0.066
					RPM	41380	30239	29709	30239	29921	30239	30012	29842	30063	29921	28913	28860	28648	22918
					FEED	497	665	832	1028	1257	1512	1741	1970	2285	2513	2602	2713	2865	3025
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.08D	0.05D	Vc	13	19	28	38	47	57	66	75	85	94	113	141	187	187
					fz	0.007	0.012	0.015	0.019	0.024	0.029	0.034	0.039	0.044	0.048	0.051	0.054	0.057	0.074
					RPM	41380	30239	29709	30239	29921	30239	30012	29842	30063	29921	29974	29921	29762	23810
					FEED	579	726	891	1149	1436	1754	2041	2328	2646	2872	3057	3231	3393	3524
H	38.1 - 38.2	Hardened steel	0.08D	0.05D	Vc	10	17	25	34	42	51	59	68	76	85	97	122	151	151
					fz	0.006	0.011	0.013	0.017	0.021	0.024	0.029	0.033	0.038	0.042	0.045	0.047	0.05	0.063
					RPM	31831	27056	26526	27056	26738	27056	26829	27056	26880	27056	25730	25889	24032	19226
					FEED	382	595	690	920	1123	1299	1556	1786	2043	2273	2316	2434	2403	2422
	40	Chilled Cast Iron	0.08D	0.05D	Vc	13	19	28	38	47	57	66	75	85	94	109	136	180	180
					fz	0.006	0.011	0.014	0.017	0.021	0.025	0.029	0.033	0.038	0.042	0.045	0.047	0.05	0.066
					RPM	41380	30239	29709	30239	29921	30239	30012	29842	30063	29921	28913	28860	28648	22918
					FEED	497	665	832	1028	1257	1512	1741	1970	2285	2513	2602	2713	2865	3025
	41	Hardened Cast Iron	0.08D	0.05D	Vc	10	17	25	34	42	51	59	68	76	85	97	122	151	151
					fz	0.006	0.011	0.013	0.017	0.021	0.024	0.029	0.033	0.038	0.042	0.045	0.047	0.05	0.063
					RPM	31831	27056	26526	27056	26738	27056	26829	27056	26880	27056	25730	25889	24032	19226
					FEED	382	595	690	920	1123	1299	1556	1786	2043	2273	2316	2434	2403	2422

▶ NEXT PAGE

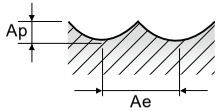


4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEMD98 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	8.5	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	18.0	20.0	25.0
1-5	Vc	187	187	187	184	175	168	157	159	159	167	168	168	175	168	157	162	165	167	168	170	168	167
	fz	0.091	0.106	0.121	0.136	0.156	0.164	0.174	0.179	0.184	0.189	0.192	0.195	0.199	0.205	0.212	0.218	0.224	0.23	0.238	0.25	0.264	0.27
	RPM	19841	17007	14881	13015	11141	9723	8329	7786	7230	6645	6291	5942	5570	4861	4165	3967	3752	3544	3342	3006	2674	2126
	FEED	3611	3605	3601	3540	3476	3189	2899	2788	2661	2512	2416	2317	2217	1993	1766	1729	1681	1630	1591	1503	1412	1148
6-8	Vc	187	187	187	184	175	168	157	159	159	167	168	168	175	168	157	162	165	167	168	170	168	167
	fz	0.091	0.106	0.121	0.136	0.156	0.164	0.174	0.179	0.184	0.189	0.192	0.195	0.199	0.205	0.212	0.218	0.224	0.23	0.238	0.25	0.264	0.27
	RPM	19841	17007	14881	13015	11141	9723	8329	7786	7230	6645	6291	5942	5570	4861	4165	3967	3752	3544	3342	3006	2674	2126
	FEED	3611	3605	3601	3540	3476	3189	2899	2788	2661	2512	2416	2317	2217	1993	1766	1729	1681	1630	1591	1503	1412	1148
9	Vc	180	180	180	177	168	162	152	153	153	161	162	161	168	161	151	155	158	160	161	164	162	162
	fz	0.083	0.097	0.111	0.122	0.138	0.144	0.153	0.156	0.159	0.164	0.167	0.17	0.174	0.18	0.188	0.197	0.208	0.221	0.206	0.215	0.227	0.231
	RPM	19099	16370	14324	12520	10695	9376	8064	7493	6957	6406	6067	5694	5348	4659	4005	3795	3592	3395	3203	2900	2578	2063
	FEED	3170	3176	3180	3055	2952	2700	2468	2338	2212	2101	2026	1936	1861	1677	1506	1495	1494	1501	1320	1247	1171	953
10 - 11.1	Vc	187	187	187	184	175	168	157	159	159	167	168	168	175	168	157	162	165	167	168	170	168	167
	fz	0.091	0.106	0.121	0.136	0.156	0.164	0.174	0.179	0.184	0.189	0.192	0.195	0.199	0.205	0.212	0.218	0.224	0.23	0.238	0.25	0.264	0.27
	RPM	19841	17007	14881	13015	11141	9723	8329	7786	7230	6645	6291	5942	5570	4861	4165	3967	3752	3544	3342	3006	2674	2126
	FEED	3611	3605	3601	3540	3476	3189	2899	2788	2661	2512	2416	2317	2217	1993	1766	1729	1681	1630	1591	1503	1412	1148
11.2	Vc	180	180	180	177	168	162	152	153	153	161	162	161	168	161	151	155	158	160	161	164	162	162
	fz	0.083	0.097	0.111	0.122	0.138	0.144	0.153	0.156	0.159	0.164	0.167	0.17	0.174	0.18	0.188	0.197	0.208	0.221	0.206	0.215	0.227	0.231
	RPM	19099	16370	14324	12520	10695	9376	8064	7493	6957	6406	6067	5694	5348	4659	4005	3795	3592	3395	3203	2900	2578	2063
	FEED	3170	3176	3180	3055	2952	2700	2468	2338	2212	2101	2026	1936	1861	1677	1506	1495	1494	1501	1320	1247	1171	953
15 - 20	Vc	187	187	187	184	175	168	157	159	159	167	168	168	175	168	157	162	165	167	168	170	168	167
	fz	0.091	0.106	0.121	0.136	0.156	0.164	0.174	0.179	0.184	0.189	0.192	0.195	0.199	0.205	0.212	0.218	0.224	0.23	0.238	0.25	0.264	0.27
	RPM	19841	17007	14881	13015	11141	9723	8329	7786	7230	6645	6291	5942	5570	4861	4165	3967	3752	3544	3342	3006	2674	2126
	FEED	3611	3605	3601	3540	3476	3189	2899	2788	2661	2512	2416	2317	2217	1993	1766	1729	1681	1630	1591	1503	1412	1148
38.1 - 38.2	Vc	151	151	151	148	141	135	124	127	128	136	136	136	141	136	127	131	133	135	136	137	136	136
	fz	0.075	0.088	0.1	0.111	0.125	0.132	0.141	0.144	0.147	0.15	0.153	0.156	0.16	0.164	0.17	0.173	0.178	0.183	0.189	0.198	0.208	0.211
	RPM	16022	13733	12016	10469	8976	7813	6578	6219	5821	5411	5093	4810	4488	3935	3369	3208	3024	2865	2706	2423	2165	1732
	FEED	2403	2417	2403	2324	2244	2063	1855	1791	1711	1623	1558	1501	1436	1291	1145	1110	1077	1049	1023	959	900	731
40	Vc	180	180	180	177	168	162	152	153	153	161	162	161	168	161	151	155	158	160	161	164	162	162
	fz	0.083	0.097	0.111	0.122	0.138	0.144	0.153	0.156	0.159	0.164	0.167	0.17	0.174	0.18	0.188	0.197	0.208	0.221	0.206	0.215	0.227	0.231
	RPM	19099	16370	14324	12520	10695	9376	8064	7493	6957	6406	6067	5694	5348	4659	4005	3795	3592	3395	3203	2900	2578	2063
	FEED	3170	3176	3180	3055	2952	2700	2468	2338	2212	2101	2026	1936	1861	1677	1506	1495	1494	1501	1320	1247	1171	953
41	Vc	151	151	151	148	141	135	124	127	128	136	136	136	141	136	127	131	133	135	136	137	136	136
	fz	0.075	0.088	0.1	0.111	0.125	0.132	0.141	0.144	0.147	0.15	0.153	0.156	0.16	0.164	0.17	0.173	0.178	0.183	0.189	0.198	0.208	0.211
	RPM	16022	13733	12016	10469	8976	7813	6578	6219	5821	5411	5093	4810	4488	3935	3369	3208	3024	2865	2706	2423	2165	1732
	FEED	2403	2417	2403	2324	2244	2063	1855	1791	1711	1623	1558	1501	1436	1291	1145	1110	1077	1049	1023	959	900	731



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES — 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)															
				0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
			LBS	0.2	0.3	0.5	1	0.5	1	1.5	2	3	1	1.5	2	2.5	3	4
P	1-5	Non-alloy steel	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319
			FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323
			Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004
	6-8	Low alloy steel	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319
			FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323
			Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004
	9		Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319
			FEED	204	204	204	178	296	296	267	267	267	399	399	357	357	357	242
			Ap	0.007	0.007	0.005	0.002	0.014	0.01	0.006	0.004	0.003	0.015	0.015	0.008	0.005	0.005	0.003
	10-11.1	High alloyed steel, and tool steel	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319
			FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323
			Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004
	11.2		Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319
			FEED	204	204	204	178	296	296	267	267	267	399	399	357	357	357	242
			Ap	0.007	0.007	0.005	0.002	0.014	0.01	0.006	0.004	0.003	0.015	0.015	0.008	0.005	0.005	0.003
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.004
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319
			FEED	204	204	204	178	296	296	267	267	267	499	499	357	357	357	323
			Ap	0.009	0.009	0.006	0.002	0.018	0.013	0.007	0.005	0.003	0.019	0.019	0.011	0.007	0.007	0.004
H	38.1 - 38.2	Hardened steel	Vc	16	16	16	14	27	27	24	24	24	40	40	36	36	36	32
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003
			RPM	50930	50930	50930	44563	42972	42972	38197	38197	38197	42441	42441	38197	38197	38197	33953
			FEED	204	204	204	178	258	258	229	229	229	340	340	306	306	306	204
			Ap	0.005	0.005	0.004	0.001	0.01	0.007	0.004	0.003	0.002	0.011	0.011	0.006	0.004	0.004	0.002
	40	Chilled Cast Iron	Vc	16	16	16	14	31	31	28	28	28	47	47	42	42	42	38
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003
			RPM	50930	50930	50930	44563	49338	49338	44563	44563	44563	49869	49869	44563	44563	44563	40319
			FEED	204	204	204	178	296	296	267	267	267	399	399	357	357	357	242
			Ap	0.007	0.007	0.005	0.002	0.014	0.01	0.006	0.004	0.003	0.015	0.015	0.008	0.005	0.005	0.003
	41	Hardened Cast Iron	Vc	16	16	16	14	27	27	24	24	24	40	40	36	36	36	32
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003
			RPM	50930	50930	50930	44563	42972	42972	38197	38197	38197	42441	42441	38197	38197	38197	33953
			FEED	204	204	204	178	258	258	229	229	229	340	340	306	306	306	204
			Ap	0.005	0.005	0.004	0.001	0.01	0.007	0.004	0.003	0.002	0.011	0.011	0.006	0.004	0.004	0.002

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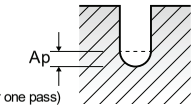

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEM846 SERIES — 2 FLUTE BALL NOSE - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																			
		0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	LBS	5	1	1.5	2	2.5	3	4	5	6	8	10	1	1.5	2	2.5	3	4	5	6	8
1-5	Vc	28	52	52	52	46	46	46	41	41	31	15	54	54	54	54	48	48	48	43	32
	fz	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007
	RPM	29709	41380	41380	41380	36606	36606	36606	32627	32627	24669	11937	34377	34377	34377	34377	30558	30558	30558	27375	20372
	FEED	178	497	497	497	366	366	366	326	326	197	95	688	688	688	688	550	550	550	438	285
	Ap	0.003	0.036	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007
6-8	Vc	28	52	52	52	46	46	46	41	41	31	15	54	54	54	54	48	48	48	43	32
	fz	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007
	RPM	29709	41380	41380	41380	36606	36606	36606	32627	32627	24669	11937	34377	34377	34377	34377	30558	30558	30558	27375	20372
	FEED	178	497	497	497	366	366	366	326	326	197	95	688	688	688	688	550	550	550	438	285
	Ap	0.003	0.036	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007
9	Vc	28	49	49	49	44	44	44	39	39	29	15	51	51	51	51	46	46	46	41	30
	fz	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.006
	RPM	29709	38993	38993	38993	35014	35014	35014	31035	31035	23077	11937	32468	32468	32468	32468	29285	29285	29285	26101	19099
	FEED	178	390	390	390	350	350	350	248	248	185	72	584	584	584	584	469	469	469	365	229
	Ap	0.002	0.028	0.02	0.02	0.011	0.011	0.007	0.007	0.004	0.003	0.003	0.035	0.035	0.025	0.025	0.014	0.014	0.009	0.009	0.005
10 - 11.1	Vc	28	52	52	52	46	46	46	41	41	31	15	54	54	54	54	48	48	48	43	32
	fz	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007
	RPM	29709	41380	41380	41380	36606	36606	36606	32627	32627	24669	11937	34377	34377	34377	34377	30558	30558	30558	27375	20372
	FEED	178	497	497	497	366	366	366	326	326	197	95	688	688	688	688	550	550	550	438	285
	Ap	0.003	0.036	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007
11.2	Vc	28	49	49	49	44	44	44	39	39	29	15	51	51	51	51	46	46	46	41	30
	fz	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.006
	RPM	29709	38993	38993	38993	35014	35014	35014	31035	31035	23077	11937	32468	32468	32468	32468	29285	29285	29285	26101	19099
	FEED	178	390	390	390	350	350	350	248	248	185	72	584	584	584	584	469	469	469	365	229
	Ap	0.002	0.028	0.02	0.02	0.011	0.011	0.007	0.007	0.004	0.003	0.003	0.035	0.035	0.025	0.025	0.014	0.014	0.009	0.009	0.005
15 - 20	Vc	28	52	52	52	46	46	46	41	41	31	15	54	54	54	54	48	48	48	43	32
	fz	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007
	RPM	29709	41380	41380	41380	36606	36606	36606	32627	32627	24669	11937	34377	34377	34377	34377	30558	30558	30558	27375	20372
	FEED	178	497	497	497	366	366	366	326	326	197	95	688	688	688	688	550	550	550	438	285
	Ap	0.003	0.036	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007
38.1 - 38.2	Vc	24	43	43	43	39	39	39	34	34	26	13	45	45	45	45	40	40	40	36	27
	fz	0.003	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.006
	RPM	25465	34218	34218	34218	31035	31035	31035	27056	27056	20690	10345	28648	28648	28648	28648	25465	25465	25465	22918	17189
	FEED	153	342	342	342	248	248	248	216	216	166	62	516	516	516	516	407	407	407	321	206
	Ap	0.002	0.02	0.014	0.014	0.008	0.008	0.005	0.005	0.003	0.002	0.002	0.025	0.025	0.018	0.018	0.01	0.01	0.006	0.006	0.004
40	Vc	28	49	49	49	44	44	44	39	39	29	15	51	51	51	51	46	46	46	41	30
	fz	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.006
	RPM	29709	38993	38993	38993	35014	35014	35014	31035	31035	23077	11937	32468	32468	32468	32468	29285	29285	29285	26101	19099
	FEED	178	390	390	390	350	350	350	248	248	185	72	584	584	584	584	469	469	469	365	229
	Ap	0.002	0.028	0.02	0.02	0.011	0.011	0.007	0.007	0.004	0.003	0.003	0.035	0.035	0.025	0.025	0.014	0.014	0.009	0.009	0.005
41	Vc	24	43	43	43	39	39	39	34	34	26	13	45	45	45	45	40	40	40	36	27
	fz	0.003	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.006
	RPM	25465	34218	34218	34218	31035	31035	31035	27056	27056	20690	10345	28648	28648	28648	28648	25465	25465	25465	22918	17189
	FEED	153	342	342	342	248	248	248	216	216	166	62	516	516	516	516	407	407	407	321	206
	Ap	0.002	0.02	0.014	0.014	0.008	0.008	0.005	0.005	0.003	0.002	0.002	0.025	0.025	0.018	0.018	0.01	0.01	0.006	0.006	0.004

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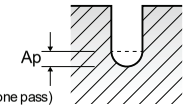

(Depth of cut per one pass)

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES — 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																
			0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7
		LBS	10	12	14	16	1	2	3	4	5	6	8	10	12	14	16	2	4
P	1-5	Vc	32	16	16	5	64	64	64	58	58	58	52	39	39	19	19	75	68
		fz	0.007	0.006	0.006	0.005	0.015	0.015	0.015	0.013	0.013	0.013	0.012	0.01	0.01	0.009	0.009	0.017	0.015
		RPM	20372	10186	10186	3183	33953	33953	33953	30770	30770	30770	27587	20690	20690	10080	10080	34105	30922
		FEED	285	122	122	32	1019	1019	1019	800	800	800	662	414	414	181	181	1160	928
		Ap	0.005	0.005	0.005	0.005	0.038	0.038	0.038	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025
	6-8	Vc	32	16	16	5	64	64	64	58	58	58	52	39	39	19	19	75	68
		fz	0.007	0.006	0.006	0.005	0.015	0.015	0.015	0.013	0.013	0.013	0.012	0.01	0.01	0.009	0.009	0.017	0.015
		RPM	20372	10186	10186	3183	33953	33953	33953	30770	30770	30770	27587	20690	20690	10080	10080	34105	30922
		FEED	285	122	122	32	1019	1019	1019	800	800	800	662	414	414	181	181	1160	928
		Ap	0.005	0.005	0.005	0.005	0.038	0.038	0.038	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025
	9	Vc	30	15	15	5	61	61	61	55	55	55	49	37	37	18	18	71	64
		fz	0.006	0.005	0.005	0.005	0.013	0.013	0.013	0.012	0.012	0.012	0.01	0.009	0.009	0.008	0.008	0.014	0.013
		RPM	19099	9549	9549	3183	32362	32362	32362	29178	29178	29178	25995	19629	19629	9549	9549	32286	29103
		FEED	229	95	95	32	841	841	841	700	700	700	520	353	353	153	153	904	757
		Ap	0.004	0.004	0.004	0.004	0.029	0.029	0.029	0.017	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.049	0.02
	10-11.1	Vc	32	16	16	5	64	64	64	58	58	58	52	39	39	19	19	75	68
		fz	0.007	0.006	0.006	0.005	0.015	0.015	0.015	0.013	0.013	0.013	0.012	0.01	0.01	0.009	0.009	0.017	0.015
		RPM	20372	10186	10186	3183	33953	33953	33953	30770	30770	30770	27587	20690	20690	10080	10080	34105	30922
		FEED	285	122	122	32	1019	1019	1019	800	800	800	662	414	414	181	181	1160	928
		Ap	0.005	0.005	0.005	0.005	0.038	0.038	0.038	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025
	11.2	Vc	30	15	15	5	61	61	61	55	55	55	49	37	37	18	18	71	64
		fz	0.006	0.005	0.005	0.005	0.013	0.013	0.013	0.012	0.012	0.012	0.01	0.009	0.009	0.008	0.008	0.014	0.013
		RPM	19099	9549	9549	3183	32362	32362	32362	29178	29178	29178	25995	19629	19629	9549	9549	32286	29103
		FEED	229	95	95	32	841	841	841	700	700	700	520	353	353	153	153	904	757
		Ap	0.004	0.004	0.004	0.004	0.029	0.029	0.029	0.017	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.049	0.02
K	15-20	Vc	32	16	16	5	64	64	64	58	58	58	52	39	39	19	19	75	68
		fz	0.007	0.006	0.006	0.005	0.015	0.015	0.015	0.013	0.013	0.013	0.012	0.01	0.01	0.009	0.009	0.017	0.015
		RPM	20372	10186	10186	3183	33953	33953	33953	30770	30770	30770	27587	20690	20690	10080	10080	34105	30922
		FEED	285	122	122	32	1019	1019	1019	800	800	800	662	414	414	181	181	1160	928
		Ap	0.005	0.005	0.005	0.005	0.038	0.038	0.038	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025
H	38.1 - 38.2	Vc	27	13	13	4	54	54	54	48	48	48	43	32	32	16	16	63	56
		fz	0.006	0.006	0.006	0.004	0.012	0.012	0.012	0.011	0.011	0.011	0.01	0.008	0.008	0.007	0.007	0.013	0.012
		RPM	17189	8276	8276	2546	28648	28648	28648	25465	25465	25465	22812	16977	16977	8488	8488	28648	25465
		FEED	206	99	99	20	688	688	688	560	560	560	456	272	272	119	119	745	611
		Ap	0.003	0.003	0.003	0.003	0.021	0.021	0.021	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.003	0.035	0.014
	40	Vc	30	15	15	5	61	61	61	55	55	55	49	37	37	18	18	71	64
		fz	0.006	0.005	0.005	0.005	0.013	0.013	0.013	0.012	0.012	0.012	0.01	0.009	0.009	0.008	0.008	0.014	0.013
		RPM	19099	9549	9549	3183	32362	32362	32362	29178	29178	29178	25995	19629	19629	9549	9549	32286	29103
		FEED	229	95	95	32	841	841	841	700	700	700	520	353	353	153	153	904	757
		Ap	0.004	0.004	0.004	0.004	0.029	0.029	0.029	0.017	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.049	0.02
	41	Vc	27	13	13	4	54	54	54	48	48	48	43	32	32	16	16	63	56
		fz	0.006	0.006	0.006	0.004	0.012	0.012	0.012	0.011	0.011	0.011	0.01	0.008	0.008	0.007	0.007	0.013	0.012
		RPM	17189	8276	8276	2546	28648	28648	28648	25465	25465	25465	22812	16977	16977	8488	8488	28648	25465
		FEED	206	99	99	20	688	688	688	560	560	560	456	272	272	119	119	745	611
		Ap	0.003	0.003	0.003	0.003	0.021	0.021	0.021	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.003	0.035	0.014

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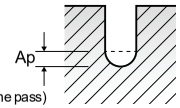

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES — 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																	
		0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0
	LBS	6	8	10	12	2	3	4	5	6	8	10	12	14	16	20	4	6	8	10	2
1-5	Vc	68	60	60	45	86	86	86	77	77	77	69	69	52	52	26	83	83	83	74	97
	fz	0.015	0.013	0.013	0.012	0.018	0.018	0.018	0.016	0.016	0.016	0.014	0.014	0.013	0.013	0.011	0.019	0.019	0.019	0.017	0.025
	RPM	30922	27284	27284	20463	34218	34218	34218	30637	30637	30637	27454	27454	20690	20690	10345	29355	29355	29355	26172	30876
	FEED	928	709	709	491	1232	1232	1232	980	980	980	769	769	538	538	228	1115	1115	1115	890	1544
	Ap	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.032	0.02	0.02	0.09
6-8	Vc	68	60	60	45	86	86	86	77	77	77	69	69	52	52	26	83	83	83	74	97
	fz	0.015	0.013	0.013	0.012	0.018	0.018	0.018	0.016	0.016	0.016	0.014	0.014	0.013	0.013	0.011	0.019	0.019	0.019	0.017	0.025
	RPM	30922	27284	27284	20463	34218	34218	34218	30637	30637	30637	27454	27454	20690	20690	10345	29355	29355	29355	26172	30876
	FEED	928	709	709	491	1232	1232	1232	980	980	980	769	769	538	538	228	1115	1115	1115	890	1544
	Ap	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.032	0.02	0.02	0.09
9	Vc	64	57	57	43	81	81	81	73	73	73	65	65	49	49	24	78	78	78	69	91
	fz	0.013	0.012	0.012	0.01	0.016	0.016	0.016	0.014	0.014	0.014	0.013	0.013	0.011	0.011	0.01	0.017	0.017	0.017	0.015	0.023
	RPM	29103	25920	25920	19553	32229	32229	32229	29046	29046	29046	25863	25863	19496	19496	9549	27587	27587	27587	24404	28966
	FEED	757	622	622	391	1031	1031	1031	813	813	813	672	672	429	429	191	938	938	938	732	1332
	Ap	0.012	0.012	0.007	0.005	0.056	0.039	0.039	0.022	0.022	0.014	0.014	0.008	0.006	0.006	0.006	0.025	0.025	0.016	0.016	0.07
10 - 11.1	Vc	68	60	60	45	86	86	86	77	77	77	69	69	52	52	26	83	83	83	74	97
	fz	0.015	0.013	0.013	0.012	0.018	0.018	0.018	0.016	0.016	0.016	0.014	0.014	0.013	0.013	0.011	0.019	0.019	0.019	0.017	0.025
	RPM	30922	27284	27284	20463	34218	34218	34218	30637	30637	30637	27454	27454	20690	20690	10345	29355	29355	29355	26172	30876
	FEED	928	709	709	491	1232	1232	1232	980	980	980	769	769	538	538	228	1115	1115	1115	890	1544
	Ap	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.032	0.02	0.02	0.09
11.2	Vc	64	57	57	43	81	81	81	73	73	73	65	65	49	49	24	78	78	78	69	91
	fz	0.013	0.012	0.012	0.01	0.016	0.016	0.016	0.014	0.014	0.014	0.013	0.013	0.011	0.011	0.01	0.017	0.017	0.017	0.015	0.023
	RPM	29103	25920	25920	19553	32229	32229	32229	29046	29046	29046	25863	25863	19496	19496	9549	27587	27587	27587	24404	28966
	FEED	757	622	622	391	1031	1031	1031	813	813	813	672	672	429	429	191	938	938	938	732	1332
	Ap	0.012	0.012	0.007	0.005	0.056	0.039	0.039	0.022	0.022	0.014	0.014	0.008	0.006	0.006	0.006	0.025	0.025	0.016	0.016	0.07
15 - 20	Vc	68	60	60	45	86	86	86	77	77	77	69	69	52	52	26	83	83	83	74	97
	fz	0.015	0.013	0.013	0.012	0.018	0.018	0.018	0.016	0.016	0.016	0.014	0.014	0.013	0.013	0.011	0.019	0.019	0.019	0.017	0.025
	RPM	30922	27284	27284	20463	34218	34218	34218	30637	30637	30637	27454	27454	20690	20690	10345	29355	29355	29355	26172	30876
	FEED	928	709	709	491	1232	1232	1232	980	980	980	769	769	538	538	228	1115	1115	1115	890	1544
	Ap	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.032	0.02	0.02	0.09
38.1 - 38.2	Vc	56	50	50	38	72	72	72	64	64	64	57	57	43	43	21	69	69	69	61	81
	fz	0.012	0.011	0.011	0.009	0.015	0.015	0.015	0.014	0.014	0.014	0.012	0.012	0.011	0.011	0.009	0.016	0.016	0.016	0.014	0.021
	RPM	25465	22736	22736	17280	28648	28648	28648	25465	25465	25465	22680	22680	17109	17109	8356	24404	24404	24404	21574	25783
	FEED	611	500	500	311	859	859	859	713	713	713	544	544	376	376	150	781	781	781	604	1083
	Ap	0.009	0.009	0.005	0.004	0.04	0.028	0.028	0.016	0.016	0.01	0.01	0.006	0.004	0.004	0.004	0.018	0.018	0.011	0.011	0.05
40	Vc	64	57	57	43	81	81	81	73	73	73	65	65	49	49	24	78	78	78	69	91
	fz	0.013	0.012	0.012	0.01	0.016	0.016	0.016	0.014	0.014	0.014	0.013	0.013	0.011	0.011	0.01	0.017	0.017	0.017	0.015	0.023
	RPM	29103	25920	25920	19553	32229	32229	32229	29046	29046	29046	25863	25863	19496	19496	9549	27587	27587	27587	24404	28966
	FEED	757	622	622	391	1031	1031	1031	813	813	813	672	672	429	429	191	938	938	938	732	1332
	Ap	0.012	0.012	0.007	0.005	0.056	0.039	0.039	0.022	0.022	0.014	0.014	0.008	0.006	0.006	0.006	0.025	0.025	0.016	0.016	0.07
41	Vc	56	50	50	38	72	72	72	64	64	64	57	57	43	43	21	69	69	69	61	81
	fz	0.012	0.011	0.011	0.009	0.015	0.015	0.015	0.014	0.014	0.014	0.012	0.012	0.011	0.011	0.009	0.016	0.016	0.016	0.014	0.021
	RPM	25465	22736	22736	17280	28648	28648	28648	25465	25465	25465	22680	22680	17109	17109	8356	24404	24404	24404	21574	25783
	FEED	611	500	500	311	859	859	859	713	713	713	544	544	376	376	150	781	781	781	604	1083
	Ap	0.009	0.009	0.005	0.004	0.04	0.028	0.028	0.016	0.016	0.01	0.01	0.006	0.004	0.004	0.004	0.018	0.018	0.011	0.011	0.05

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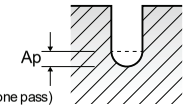

(Depth of cut per one pass)

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																	
			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		LBS	3	4	5	6	7	8	10	12	14	16	18	20	22	26	30	40	50	
P	1-5	Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10	
		fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012	
		RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183	
		FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76	
		Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006	
	6-8	Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10	
		fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012	
		RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183	
		FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76	
		Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006	
	9	Vc	91	91	91	82	82	82	82	73	73	55	55	55	27	27	27	9	9	
		fz	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.018	0.018	0.016	0.016	0.016	0.013	0.013	0.013	0.011	0.011	
		RPM	28966	28966	28966	26101	26101	26101	26101	23237	23237	17507	17507	17507	8594	8594	8594	2865	2865	
		FEED	1332	1332	1332	1044	1044	1044	1044	837	837	560	560	560	223	223	223	63	63	
		Ap	0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007	0.007	0.007	0.007	0.005	
	10-11.1	Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10	
		fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012	
		RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183	
		FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76	
		Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006	
	11.2	Vc	91	91	91	82	82	82	82	73	73	55	55	55	27	27	27	9	9	
		fz	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.018	0.018	0.016	0.016	0.016	0.013	0.013	0.013	0.011	0.011	
		RPM	28966	28966	28966	26101	26101	26101	26101	23237	23237	17507	17507	17507	8594	8594	8594	2865	2865	
		FEED	1332	1332	1332	1044	1044	1044	1044	837	837	560	560	560	223	223	223	63	63	
		Ap	0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007	0.007	0.007	0.007	0.005	
K	15-20	Vc	97	97	97	87	87	87	87	77	77	58	58	58	29	29	29	10	10	
		fz	0.025	0.025	0.025	0.022	0.022	0.022	0.022	0.02	0.02	0.017	0.017	0.017	0.015	0.015	0.015	0.012	0.012	
		RPM	30876	30876	30876	27693	27693	27693	27693	24510	24510	18462	18462	18462	9231	9231	9231	3183	3183	
		FEED	1544	1544	1544	1218	1218	1218	1218	980	980	628	628	628	277	277	277	76	76	
		Ap	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009	0.009	0.009	0.009	0.006	
H	38.1 - 38.2	Vc	81	81	81	73	73	73	73	65	65	48	48	48	24	24	24	8	8	
		fz	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013	0.013	0.013	0.011	0.011	
		RPM	25783	25783	25783	23237	23237	23237	23237	20690	20690	15279	15279	15279	7639	7639	7639	2546	2546	
		FEED	1083	1083	1083	883	883	883	883	703	703	458	458	458	199	199	199	56	56	
		Ap	0.05	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.008	0.008	0.005	0.005	0.005	0.005	0.005	0.005	0.003	
	40	Vc	91	91	91	82	82	82	82	73	73	55	55	55	27	27	27	9	9	
		fz	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.018	0.018	0.016	0.016	0.016	0.013	0.013	0.013	0.011	0.011	
		RPM	28966	28966	28966	26101	26101	26101	26101	23237	23237	17507	17507	17507	8594	8594	8594	2865	2865	
		FEED	1332	1332	1332	1044	1044	1044	1044	837	837	560	560	560	223	223	223	63	63	
		Ap	0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007	0.007	0.007	0.007	0.005	
	41	Vc	81	81	81	73	73	73	73	65	65	48	48	48	24	24	24	8	8	
		fz	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013	0.013	0.013	0.011	0.011	
		RPM	25783	25783	25783	23237	23237	23237	23237	20690	20690	15279	15279	15279	7639	7639	7639	2546	2546	
		FEED	1083	1083	1083	883	883	883	883	703	703	458	458	458	199	199	199	56	56	
		Ap	0.05	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.008	0.008	0.005	0.005	0.005	0.005	0.005	0.005	0.003	

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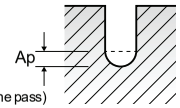

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																		
		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	LBS	4	6	8	10	12	16	20	26	6	8	10	16	4	5	6	7	8	10	12	14
1-5	Vc	99	99	89	89	89	79	59	30	95	85	85	76	113	113	113	113	101	101	101	101
	fz	0.026	0.026	0.024	0.024	0.024	0.021	0.018	0.016	0.03	0.027	0.027	0.024	0.033	0.033	0.033	0.033	0.03	0.03	0.03	0.03
	RPM	26261	26261	23608	23608	23608	20955	15650	7958	21600	19326	19326	17280	23979	23979	23979	23979	21433	21433	21433	21433
	FEED	1366	1366	1133	1133	1133	880	563	255	1296	1044	1044	829	1583	1583	1583	1583	1286	1286	1286	1286
	Ap	0.076	0.076	0.043	0.027	0.027	0.016	0.011	0.011	0.088	0.05	0.05	0.032	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034
6-8	Vc	99	99	89	89	89	79	59	30	95	85	85	76	113	113	113	113	101	101	101	101
	fz	0.026	0.026	0.024	0.024	0.024	0.021	0.018	0.016	0.03	0.027	0.027	0.024	0.033	0.033	0.033	0.033	0.03	0.03	0.03	0.03
	RPM	26261	26261	23608	23608	23608	20955	15650	7958	21600	19326	19326	17280	23979	23979	23979	23979	21433	21433	21433	21433
	FEED	1366	1366	1133	1133	1133	880	563	255	1296	1044	1044	829	1583	1583	1583	1583	1286	1286	1286	1286
	Ap	0.076	0.076	0.043	0.027	0.027	0.016	0.011	0.011	0.088	0.05	0.05	0.032	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034
9	Vc	93	93	84	84	84	75	56	28	89	80	80	71	106	106	106	106	96	96	96	96
	fz	0.023	0.023	0.021	0.021	0.021	0.019	0.016	0.014	0.027	0.024	0.024	0.022	0.03	0.03	0.03	0.03	0.027	0.027	0.027	0.027
	RPM	24669	24669	22282	22282	22282	19894	14854	7427	20235	18189	18189	16143	22494	22494	22494	22494	20372	20372	20372	20372
	FEED	1135	1135	936	936	936	756	475	208	1093	873	873	710	1350	1350	1350	1350	1100	1100	1100	1100
	Ap	0.059	0.059	0.034	0.021	0.021	0.013	0.008	0.008	0.069	0.039	0.039	0.025	0.105	0.074	0.074	0.074	0.042	0.042	0.042	0.026
10 - 11.1	Vc	99	99	89	89	89	79	59	30	95	85	85	76	113	113	113	113	101	101	101	101
	fz	0.026	0.026	0.024	0.024	0.024	0.021	0.018	0.016	0.03	0.027	0.027	0.024	0.033	0.033	0.033	0.033	0.03	0.03	0.03	0.03
	RPM	26261	26261	23608	23608	23608	20955	15650	7958	21600	19326	19326	17280	23979	23979	23979	23979	21433	21433	21433	21433
	FEED	1366	1366	1133	1133	1133	880	563	255	1296	1044	1044	829	1583	1583	1583	1583	1286	1286	1286	1286
	Ap	0.076	0.076	0.043	0.027	0.027	0.016	0.011	0.011	0.088	0.05	0.05	0.032	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034
11.2	Vc	93	93	84	84	84	75	56	28	89	80	80	71	106	106	106	106	96	96	96	96
	fz	0.023	0.023	0.021	0.021	0.021	0.019	0.016	0.014	0.027	0.024	0.024	0.022	0.03	0.03	0.03	0.03	0.027	0.027	0.027	0.027
	RPM	24669	24669	22282	22282	22282	19894	14854	7427	20235	18189	18189	16143	22494	22494	22494	22494	20372	20372	20372	20372
	FEED	1135	1135	936	936	936	756	475	208	1093	873	873	710	1350	1350	1350	1350	1100	1100	1100	1100
	Ap	0.059	0.059	0.034	0.021	0.021	0.013	0.008	0.008	0.069	0.039	0.039	0.025	0.105	0.074	0.074	0.074	0.042	0.042	0.042	0.026
15 - 20	Vc	99	99	89	89	89	79	59	30	95	85	85	76	113	113	113	113	101	101	101	101
	fz	0.026	0.026	0.024	0.024	0.024	0.021	0.018	0.016	0.03	0.027	0.027	0.024	0.033	0.033	0.033	0.033	0.03	0.03	0.03	0.03
	RPM	26261	26261	23608	23608	23608	20955	15650	7958	21600	19326	19326	17280	23979	23979	23979	23979	21433	21433	21433	21433
	FEED	1366	1366	1133	1133	1133	880	563	255	1296	1044	1044	829	1583	1583	1583	1583	1286	1286	1286	1286
	Ap	0.076	0.076	0.043	0.027	0.027	0.016	0.011	0.011	0.088	0.05	0.05	0.032	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034
38.1 - 38.2	Vc	83	83	74	74	74	66	50	25	79	71	71	63	94	94	94	94	85	85	85	85
	fz	0.022	0.022	0.02	0.02	0.02	0.017	0.015	0.013	0.026	0.023	0.023	0.021	0.027	0.027	0.027	0.027	0.024	0.024	0.024	0.024
	RPM	22016	22016	19629	19629	19629	17507	13263	6631	17962	16143	16143	14324	19947	19947	19947	19947	18038	18038	18038	18038
	FEED	969	969	785	785	785	595	398	172	934	743	743	602	1077	1077	1077	1077	866	866	866	866
	Ap	0.042	0.042	0.024	0.015	0.015	0.009	0.006	0.006	0.049	0.028	0.028	0.018	0.075	0.053	0.053	0.053	0.03	0.03	0.03	0.019
40	Vc	93	93	84	84	84	75	56	28	89	80	80	71	106	106	106	106	96	96	96	96
	fz	0.023	0.023	0.021	0.021	0.021	0.019	0.016	0.014	0.027	0.024	0.024	0.022	0.03	0.03	0.03	0.03	0.027	0.027	0.027	0.027
	RPM	24669	24669	22282	22282	22282	19894	14854	7427	20235	18189	18189	16143	22494	22494	22494	22494	20372	20372	20372	20372
	FEED	1135	1135	936	936	936	756	475	208	1093	873	873	710	1350	1350	1350	1350	1100	1100	1100	1100
	Ap	0.059	0.059	0.034	0.021	0.021	0.013	0.008	0.008	0.069	0.039	0.039	0.025	0.105	0.074	0.074	0.074	0.042	0.042	0.042	0.026
41	Vc	83	83	74	74	74	66	50	25	79	71	71	63	94	94	94	94	85	85	85	85
	fz	0.022	0.022	0.02	0.02	0.02	0.017	0.015	0.013	0.026	0.023	0.023	0.021	0.027	0.027	0.027	0.027	0.024	0.024	0.024	0.024
	RPM	22016	22016	19629	19629	19629	17507	13263	6631	17962	16143	16143	14324	19947	19947	19947	19947	18038	18038	18038	18038
	FEED	969	969	785	785	785	595	398	172	934	743	743	602	1077	1077	1077	1077	866	866	866	866
	Ap	0.042	0.042	0.024	0.015	0.015	0.009	0.006	0.006	0.049	0.028	0.028	0.018	0.075	0.053	0.053	0.053	0.03	0.03	0.03	0.019

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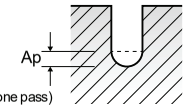

(Depth of cut per one pass)

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																
			1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.8	1.8
		LBS	16	18	20	22	26	30	35	40	4	6	8	10	12	16	20	4	6
P	1-5	Vc	90	90	90	90	68	68	34	34	112	112	112	100	100	100	89	126	126
		fz	0.026	0.026	0.026	0.026	0.023	0.023	0.02	0.02	0.035	0.035	0.035	0.032	0.032	0.032	0.028	0.04	0.04
		RPM	19099	19099	19099	19099	14430	14430	7215	7215	22282	22282	22282	19894	19894	19894	17706	22282	22282
		FEED	993	993	993	993	664	664	289	289	1560	1560	1560	1273	1273	1273	992	1783	1783
		Ap	0.034	0.034	0.02	0.02	0.014	0.014	0.01	0.01	0.101	0.101	0.101	0.058	0.058	0.036	0.036	0.113	0.113
	6-8	Vc	90	90	90	90	68	68	34	34	112	112	112	100	100	100	89	126	126
		fz	0.026	0.026	0.026	0.026	0.023	0.023	0.02	0.02	0.035	0.035	0.035	0.032	0.032	0.032	0.028	0.04	0.04
		RPM	19099	19099	19099	19099	14430	14430	7215	7215	22282	22282	22282	19894	19894	19894	17706	22282	22282
		FEED	993	993	993	993	664	664	289	289	1560	1560	1560	1273	1273	1273	992	1783	1783
		Ap	0.034	0.034	0.02	0.02	0.014	0.014	0.01	0.01	0.101	0.101	0.101	0.058	0.058	0.036	0.036	0.113	0.113
	9	Vc	85	85	85	85	64	64	32	32	106	106	106	95	95	95	84	119	119
		fz	0.024	0.024	0.024	0.024	0.021	0.021	0.018	0.018	0.031	0.031	0.031	0.028	0.028	0.028	0.025	0.035	0.035
		RPM	18038	18038	18038	18038	13581	13581	6791	6791	21088	21088	21088	18900	18900	18900	16711	21044	21044
		FEED	866	866	866	866	570	570	244	244	1307	1307	1307	1058	1058	1058	836	1473	1473
		Ap	0.026	0.026	0.016	0.016	0.011	0.011	0.008	0.008	0.078	0.078	0.078	0.045	0.045	0.028	0.028	0.088	0.088
	10-11.1	Vc	90	90	90	90	68	68	34	34	112	112	112	100	100	100	89	126	126
		fz	0.026	0.026	0.026	0.026	0.023	0.023	0.02	0.02	0.035	0.035	0.035	0.032	0.032	0.032	0.028	0.04	0.04
		RPM	19099	19099	19099	19099	14430	14430	7215	7215	22282	22282	22282	19894	19894	19894	17706	22282	22282
		FEED	993	993	993	993	664	664	289	289	1560	1560	1560	1273	1273	1273	992	1783	1783
		Ap	0.034	0.034	0.02	0.02	0.014	0.014	0.01	0.01	0.101	0.101	0.101	0.058	0.058	0.036	0.036	0.113	0.113
	11.2	Vc	85	85	85	85	64	64	32	32	106	106	106	95	95	95	84	119	119
		fz	0.024	0.024	0.024	0.024	0.021	0.021	0.018	0.018	0.031	0.031	0.031	0.028	0.028	0.028	0.025	0.035	0.035
		RPM	18038	18038	18038	18038	13581	13581	6791	6791	21088	21088	21088	18900	18900	18900	16711	21044	21044
		FEED	866	866	866	866	570	570	244	244	1307	1307	1307	1058	1058	1058	836	1473	1473
		Ap	0.026	0.026	0.016	0.016	0.011	0.011	0.008	0.008	0.078	0.078	0.078	0.045	0.045	0.028	0.028	0.088	0.088
K	15-20	Vc	90	90	90	90	68	68	34	34	112	112	112	100	100	100	89	126	126
		fz	0.026	0.026	0.026	0.026	0.023	0.023	0.02	0.02	0.035	0.035	0.035	0.032	0.032	0.032	0.028	0.04	0.04
		RPM	19099	19099	19099	19099	14430	14430	7215	7215	22282	22282	22282	19894	19894	19894	17706	22282	22282
		FEED	993	993	993	993	664	664	289	289	1560	1560	1560	1273	1273	1273	992	1783	1783
		Ap	0.034	0.034	0.02	0.02	0.014	0.014	0.01	0.01	0.101	0.101	0.101	0.058	0.058	0.036	0.036	0.113	0.113
H	38.1 - 38.2	Vc	75	75	75	75	57	57	28	28	93	93	93	84	84	84	74	105	105
		fz	0.022	0.022	0.022	0.022	0.019	0.019	0.016	0.016	0.03	0.03	0.03	0.027	0.027	0.027	0.024	0.033	0.033
		RPM	15915	15915	15915	15915	12096	12096	5942	5942	18502	18502	18502	16711	16711	16711	14722	18568	18568
		FEED	700	700	700	700	460	460	190	190	1110	1110	1110	902	902	902	707	1225	1225
		Ap	0.019	0.019	0.011	0.011	0.008	0.008	0.005	0.005	0.056	0.056	0.056	0.032	0.032	0.02	0.02	0.063	0.063
	40	Vc	85	85	85	85	64	64	32	32	106	106	106	95	95	95	84	119	119
		fz	0.024	0.024	0.024	0.024	0.021	0.021	0.018	0.018	0.031	0.031	0.031	0.028	0.028	0.028	0.025	0.035	0.035
		RPM	18038	18038	18038	18038	13581	13581	6791	6791	21088	21088	21088	18900	18900	18900	16711	21044	21044
		FEED	866	866	866	866	570	570	244	244	1307	1307	1307	1058	1058	1058	836	1473	1473
		Ap	0.026	0.026	0.016	0.016	0.011	0.011	0.008	0.008	0.078	0.078	0.078	0.045	0.045	0.028	0.028	0.088	0.088
	41	Vc	75	75	75	75	57	57	28	28	93	93	93	84	84	84	74	105	105
		fz	0.022	0.022	0.022	0.022	0.019	0.019	0.016	0.016	0.03	0.03	0.03	0.027	0.027	0.027	0.024	0.033	0.033
		RPM	15915	15915	15915	15915	12096	12096	5942	5942	18502	18502	18502	16711	16711	16711	14722	18568	18568
		FEED	700	700	700	700	460	460	190	190	1110	1110	1110	902	902	902	707	1225	1225
		Ap	0.019	0.019	0.011	0.011	0.008	0.008	0.005	0.005	0.056	0.056	0.056	0.032	0.032	0.02	0.02	0.063	0.063

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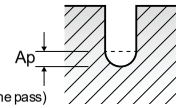

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																		
		1.8	1.8	1.8	1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	LBS	8	10	12	16	20	6	8	10	12	14	16	18	20	22	26	30	35	40	45	50
1-5	Vc	126	113	113	113	100	113	113	113	102	102	102	102	102	90	90	90	68	68	34	34
	fz	0.04	0.036	0.036	0.036	0.032	0.05	0.05	0.05	0.045	0.045	0.045	0.045	0.045	0.04	0.04	0.04	0.035	0.035	0.03	0.03
	RPM	22282	19983	19983	19983	17684	17985	17985	17985	16234	16234	16234	16234	16234	14324	14324	14324	10823	10823	5411	5411
	FEED	1783	1439	1439	1439	1132	1798	1798	1798	1461	1461	1461	1461	1461	1146	1146	1146	758	758	325	325
	Ap	0.113	0.065	0.065	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018
6-8	Vc	126	113	113	113	100	113	113	113	102	102	102	102	102	90	90	90	68	68	34	34
	fz	0.04	0.036	0.036	0.036	0.032	0.05	0.05	0.05	0.045	0.045	0.045	0.045	0.045	0.04	0.04	0.04	0.035	0.035	0.03	0.03
	RPM	22282	19983	19983	19983	17684	17985	17985	17985	16234	16234	16234	16234	16234	14324	14324	14324	10823	10823	5411	5411
	FEED	1783	1439	1439	1439	1132	1798	1798	1798	1461	1461	1461	1461	1461	1146	1146	1146	758	758	325	325
	Ap	0.113	0.065	0.065	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018
9	Vc	119	107	107	107	95	107	107	107	96	96	96	96	96	85	85	85	64	64	32	32
	fz	0.035	0.031	0.031	0.031	0.028	0.045	0.045	0.045	0.04	0.04	0.04	0.04	0.04	0.036	0.036	0.036	0.031	0.031	0.027	0.027
	RPM	21044	18922	18922	18922	16800	17030	17030	17030	15279	15279	15279	15279	15279	13528	13528	13528	10186	10186	5093	5093
	FEED	1473	1173	1173	1173	941	1533	1533	1533	1222	1222	1222	1222	1222	974	974	974	632	632	275	275
	Ap	0.088	0.05	0.05	0.032	0.032	0.14	0.098	0.098	0.056	0.056	0.056	0.035	0.035	0.035	0.035	0.021	0.014	0.014	0.014	0.014
10 - 11.1	Vc	126	113	113	113	100	113	113	113	102	102	102	102	102	90	90	90	68	68	34	34
	fz	0.04	0.036	0.036	0.036	0.032	0.05	0.05	0.05	0.045	0.045	0.045	0.045	0.045	0.04	0.04	0.04	0.035	0.035	0.03	0.03
	RPM	22282	19983	19983	19983	17684	17985	17985	17985	16234	16234	16234	16234	16234	14324	14324	14324	10823	10823	5411	5411
	FEED	1783	1439	1439	1439	1132	1798	1798	1798	1461	1461	1461	1461	1461	1146	1146	1146	758	758	325	325
	Ap	0.113	0.065	0.065	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018
11.2	Vc	119	107	107	107	95	107	107	107	96	96	96	96	96	85	85	85	64	64	32	32
	fz	0.035	0.031	0.031	0.031	0.028	0.045	0.045	0.045	0.04	0.04	0.04	0.04	0.04	0.036	0.036	0.036	0.031	0.031	0.027	0.027
	RPM	21044	18922	18922	18922	16800	17030	17030	17030	15279	15279	15279	15279	15279	13528	13528	13528	10186	10186	5093	5093
	FEED	1473	1173	1173	1173	941	1533	1533	1533	1222	1222	1222	1222	1222	974	974	974	632	632	275	275
	Ap	0.088	0.05	0.05	0.032	0.032	0.14	0.098	0.098	0.056	0.056	0.056	0.035	0.035	0.035	0.035	0.021	0.014	0.014	0.014	0.014
15 - 20	Vc	126	113	113	113	100	113	113	113	102	102	102	102	102	90	90	90	68	68	34	34
	fz	0.04	0.036	0.036	0.036	0.032	0.05	0.05	0.05	0.045	0.045	0.045	0.045	0.045	0.04	0.04	0.04	0.035	0.035	0.03	0.03
	RPM	22282	19983	19983	19983	17684	17985	17985	17985	16234	16234	16234	16234	16234	14324	14324	14324	10823	10823	5411	5411
	FEED	1783	1439	1439	1439	1132	1798	1798	1798	1461	1461	1461	1461	1461	1146	1146	1146	758	758	325	325
	Ap	0.113	0.065	0.065	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018
38.1 - 38.2	Vc	105	94	94	94	84	94	94	94	85	85	85	85	85	75	75	75	57	57	28	28
	fz	0.033	0.03	0.03	0.03	0.027	0.043	0.043	0.043	0.039	0.039	0.039	0.039	0.039	0.034	0.034	0.034	0.03	0.03	0.026	0.026
	RPM	18568	16623	16623	16623	14854	14961	14961	14961	13528	13528	13528	13528	13528	11937	11937	11937	9072	9072	4456	4456
	FEED	1225	997	997	997	802	1287	1287	1287	1055	1055	1055	1055	1055	812	812	812	544	544	232	232
	Ap	0.063	0.036	0.036	0.023	0.023	0.1	0.07	0.07	0.04	0.04	0.04	0.025	0.025	0.025	0.025	0.015	0.01	0.01	0.01	0.01
40	Vc	119	107	107	107	95	107	107	107	96	96	96	96	96	85	85	85	64	64	32	32
	fz	0.035	0.031	0.031	0.031	0.028	0.045	0.045	0.045	0.04	0.04	0.04	0.04	0.04	0.036	0.036	0.036	0.031	0.031	0.027	0.027
	RPM	21044	18922	18922	18922	16800	17030	17030	17030	15279	15279	15279	15279	15279	13528	13528	13528	10186	10186	5093	5093
	FEED	1473	1173	1173	1173	941	1533	1533	1533	1222	1222	1222	1222	1222	974	974	974	632	632	275	275
	Ap	0.088	0.05	0.05	0.032	0.032	0.14	0.098	0.098	0.056	0.056	0.056	0.035	0.035	0.035	0.035	0.021	0.014	0.014	0.014	0.014
41	Vc	105	94	94	94	84	94	94	94	85	85	85	85	85	75	75	75	57	57	28	28
	fz	0.033	0.03	0.03	0.03	0.027	0.043	0.043	0.043	0.039	0.039	0.039	0.039	0.039	0.034	0.034	0.034	0.03	0.03	0.026	0.026
	RPM	18568	16623	16623	16623	14854	14961	14961	14961	13528	13528	13528	13528	13528	11937	11937	11937	9072	9072	4456	4456
	FEED	1225	997	997	997	802	1287	1287	1287	1055	1055	1055	1055	1055	812	812	812	544	544	232	232
	Ap	0.063	0.036	0.036	0.023	0.023	0.1	0.07	0.07	0.04	0.04	0.04	0.025	0.025	0.025	0.025	0.015	0.01	0.01	0.01	0.01

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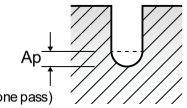

(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																
			2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0
		LBS	60	8	10	12	16	20	22	26	30	35	40	45	50	6	8	10	12
P	1-5	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129
		fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075
		RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687
		FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053
		Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189
	6-8	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129
		fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075
		RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687
		FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053
		Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189
	9	Vc	32	117	117	117	105	105	105	94	94	94	70	70	70	122	122	122	122
		fz	0.027	0.054	0.054	0.054	0.048	0.048	0.048	0.043	0.043	0.043	0.038	0.038	0.038	0.067	0.067	0.067	0.067
		RPM	5093	14897	14897	14897	13369	13369	13369	11968	11968	11968	8913	8913	8913	12945	12945	12945	12945
		FEED	275	1609	1609	1609	1283	1283	1283	1029	1029	1029	677	677	677	1735	1735	1735	1735
		Ap	0.014	0.123	0.123	0.123	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147
	10-11.1	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129
		fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075
		RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687
		FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053
		Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189
	11.2	Vc	32	117	117	117	105	105	105	94	94	94	70	70	70	122	122	122	122
		fz	0.027	0.054	0.054	0.054	0.048	0.048	0.048	0.043	0.043	0.043	0.038	0.038	0.038	0.067	0.067	0.067	0.067
		RPM	5093	14897	14897	14897	13369	13369	13369	11968	11968	11968	8913	8913	8913	12945	12945	12945	12945
		FEED	275	1609	1609	1609	1283	1283	1283	1029	1029	1029	677	677	677	1735	1735	1735	1735
		Ap	0.014	0.123	0.123	0.123	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147
K	15-20	Vc	34	124	124	124	112	112	112	99	99	99	74	74	74	129	129	129	129
		fz	0.03	0.061	0.061	0.061	0.055	0.055	0.055	0.049	0.049	0.049	0.043	0.043	0.043	0.075	0.075	0.075	0.075
		RPM	5411	15788	15788	15788	14260	14260	14260	12605	12605	12605	9422	9422	9422	13687	13687	13687	13687
		FEED	325	1926	1926	1926	1569	1569	1569	1235	1235	1235	810	810	810	2053	2053	2053	2053
		Ap	0.018	0.158	0.158	0.158	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189
H	38.1 - 38.2	Vc	28	104	104	104	93	93	93	83	83	83	62	62	62	107	107	107	107
		fz	0.026	0.049	0.049	0.049	0.044	0.044	0.044	0.04	0.04	0.04	0.035	0.035	0.035	0.063	0.063	0.063	0.063
		RPM	4456	13242	13242	13242	11841	11841	11841	10568	10568	10568	7894	7894	7894	11353	11353	11353	11353
		FEED	232	1298	1298	1298	1042	1042	1042	845	845	845	553	553	553	1430	1430	1430	1430
		Ap	0.01	0.088	0.088	0.088	0.05	0.05	0.031	0.031	0.031	0.019	0.019	0.013	0.013	0.15	0.15	0.105	0.105
	40	Vc	32	117	117	117	105	105	105	94	94	94	70	70	70	122	122	122	122
		fz	0.027	0.054	0.054	0.054	0.048	0.048	0.048	0.043	0.043	0.043	0.038	0.038	0.038	0.067	0.067	0.067	0.067
		RPM	5093	14897	14897	14897	13369	13369	13369	11968	11968	11968	8913	8913	8913	12945	12945	12945	12945
		FEED	275	1609	1609	1609	1283	1283	1283	1029	1029	1029	677	677	677	1735	1735	1735	1735
		Ap	0.014	0.123	0.123	0.123	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147
	41	Vc	28	104	104	104	93	93	93	83	83	83	62	62	62	107	107	107	107
		fz	0.026	0.049	0.049	0.049	0.044	0.044	0.044	0.04	0.04	0.04	0.035	0.035	0.035	0.063	0.063	0.063	0.063
		RPM	4456	13242	13242	13242	11841	11841	11841	10568	10568	10568	7894	7894	7894	11353	11353	11353	11353
		FEED	232	1298	1298	1298	1042	1042	1042	845	845	845	553	553	553	1430	1430	1430	1430
		Ap	0.01	0.088	0.088	0.088	0.05	0.05	0.031	0.031	0.031	0.019	0.019	0.013	0.013	0.15	0.15	0.105	0.105

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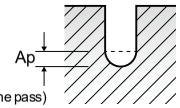

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																			
		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	LBS	14	16	18	20	22	26	30	35	40	45	50	60	8	10	12	14	16	18	20	22
1-5	Vc	129	116	116	116	116	116	116	103	103	103	77	77	123	123	123	123	123	123	123	111
	fz	0.075	0.067	0.067	0.067	0.067	0.067	0.067	0.06	0.06	0.06	0.052	0.052	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09
	RPM	13687	12308	12308	12308	12308	12308	12308	10929	10929	10929	8170	8170	9788	9788	9788	9788	9788	9788	9788	8833
	FEED	2053	1649	1649	1649	1649	1649	1649	1311	1311	1311	850	850	1958	1958	1958	1958	1958	1958	1958	1590
	Ap	0.189	0.108	0.108	0.108	0.108	0.068	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144
6-8	Vc	129	116	116	116	116	116	116	103	103	103	77	77	123	123	123	123	123	123	123	111
	fz	0.075	0.067	0.067	0.067	0.067	0.067	0.067	0.06	0.06	0.06	0.052	0.052	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09
	RPM	13687	12308	12308	12308	12308	12308	12308	10929	10929	10929	8170	8170	9788	9788	9788	9788	9788	9788	9788	8833
	FEED	2053	1649	1649	1649	1649	1649	1649	1311	1311	1311	850	850	1958	1958	1958	1958	1958	1958	1958	1590
	Ap	0.189	0.108	0.108	0.108	0.108	0.068	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144
9	Vc	122	109	109	109	109	109	109	97	97	97	73	73	117	117	117	117	117	117	117	105
	fz	0.067	0.06	0.06	0.06	0.06	0.06	0.06	0.054	0.054	0.054	0.047	0.047	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.081
	RPM	12945	11565	11565	11565	11565	11565	11565	10292	10292	10292	7746	7746	9311	9311	9311	9311	9311	9311	9311	8356
	FEED	1735	1388	1388	1388	1388	1388	1388	1112	1112	1112	728	728	1676	1676	1676	1676	1676	1676	1676	1354
	Ap	0.147	0.084	0.084	0.084	0.084	0.053	0.053	0.053	0.032	0.032	0.021	0.021	0.28	0.28	0.28	0.196	0.196	0.196	0.196	0.112
10 - 11.1	Vc	129	116	116	116	116	116	116	103	103	103	77	77	123	123	123	123	123	123	123	111
	fz	0.075	0.067	0.067	0.067	0.067	0.067	0.067	0.06	0.06	0.06	0.052	0.052	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09
	RPM	13687	12308	12308	12308	12308	12308	12308	10929	10929	10929	8170	8170	9788	9788	9788	9788	9788	9788	9788	8833
	FEED	2053	1649	1649	1649	1649	1649	1649	1311	1311	1311	850	850	1958	1958	1958	1958	1958	1958	1958	1590
	Ap	0.189	0.108	0.108	0.108	0.108	0.068	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144
11.2	Vc	122	109	109	109	109	109	109	97	97	97	73	73	117	117	117	117	117	117	117	105
	fz	0.067	0.06	0.06	0.06	0.06	0.06	0.06	0.054	0.054	0.054	0.047	0.047	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.081
	RPM	12945	11565	11565	11565	11565	11565	11565	10292	10292	10292	7746	7746	9311	9311	9311	9311	9311	9311	9311	8356
	FEED	1735	1388	1388	1388	1388	1388	1388	1112	1112	1112	728	728	1676	1676	1676	1676	1676	1676	1676	1354
	Ap	0.147	0.084	0.084	0.084	0.084	0.053	0.053	0.053	0.032	0.032	0.021	0.021	0.28	0.28	0.28	0.196	0.196	0.196	0.196	0.112
15 - 20	Vc	129	116	116	116	116	116	116	103	103	103	77	77	123	123	123	123	123	123	123	111
	fz	0.075	0.067	0.067	0.067	0.067	0.067	0.067	0.06	0.06	0.06	0.052	0.052	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.09
	RPM	13687	12308	12308	12308	12308	12308	12308	10929	10929	10929	8170	8170	9788	9788	9788	9788	9788	9788	9788	8833
	FEED	2053	1649	1649	1649	1649	1649	1649	1311	1311	1311	850	850	1958	1958	1958	1958	1958	1958	1958	1590
	Ap	0.189	0.108	0.108	0.108	0.108	0.068	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144
38.1 - 38.2	Vc	107	97	97	97	97	97	97	86	86	86	64	64	103	103	103	103	103	103	103	93
	fz	0.063	0.057	0.057	0.057	0.057	0.057	0.057	0.05	0.05	0.05	0.044	0.044	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.077
	RPM	11353	10292	10292	10292	10292	10292	10292	9125	9125	9125	6791	6791	8196	8196	8196	8196	8196	8196	8196	7401
	FEED	1430	1173	1173	1173	1173	1173	1173	912	912	912	598	598	1393	1393	1393	1393	1393	1393	1393	1140
	Ap	0.105	0.06	0.06	0.06	0.06	0.038	0.038	0.038	0.023	0.023	0.015	0.015	0.2	0.2	0.2	0.14	0.14	0.14	0.14	0.08
40	Vc	122	109	109	109	109	109	109	97	97	97	73	73	117	117	117	117	117	117	117	105
	fz	0.067	0.06	0.06	0.06	0.06	0.06	0.06	0.054	0.054	0.054	0.047	0.047	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.081
	RPM	12945	11565	11565	11565	11565	11565	11565	10292	10292	10292	7746	7746	9311	9311	9311	9311	9311	9311	9311	8356
	FEED	1735	1388	1388	1388	1388	1388	1388	1112	1112	1112	728	728	1676	1676	1676	1676	1676	1676	1676	1354
	Ap	0.147	0.084	0.084	0.084	0.084	0.053	0.053	0.053	0.032	0.032	0.021	0.021	0.28	0.28	0.28	0.196	0.196	0.196	0.196	0.112
41	Vc	107	97	97	97	97	97	97	86	86	86	64	64	103	103	103	103	103	103	103	93
	fz	0.063	0.057	0.057	0.057	0.057	0.057	0.057	0.05	0.05	0.05	0.044	0.044	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.077
	RPM	11353	10292	10292	10292	10292	10292	10292	9125	9125	9125	6791	6791	8196	8196	8196	8196	8196	8196	8196	7401
	FEED	1430	1173	1173	1173	1173	1173	1173	912	912	912	598	598	1393	1393	1393	1393	1393	1393	1393	1140
	Ap	0.105	0.06	0.06	0.06	0.06	0.038	0.038	0.038	0.023	0.023	0.015	0.015	0.2	0.2	0.2	0.14	0.14	0.14	0.14	0.08

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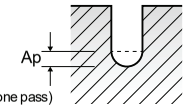

(Depth of cut per one pass)

CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)										
			4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
		LBS	26	30	35	40	45	50	60	15	20	26	30
P	1-5	Vc	111	111	111	111	99	99	99	121	121	109	109
		fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108
		RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939
		FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499
		Ap	0.144	0.144	0.09	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18
	6-8	Vc	111	111	111	111	99	99	99	121	121	109	109
		fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108
		RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939
		FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499
		Ap	0.144	0.144	0.09	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18
	9	Vc	105	105	105	105	93	93	93	115	115	103	103
		fz	0.081	0.081	0.081	0.081	0.072	0.072	0.072	0.1	0.1	0.09	0.09
		RPM	8356	8356	8356	8356	7401	7401	7401	7321	7321	6557	6557
		FEED	1354	1354	1354	1354	1066	1066	1066	1464	1464	1180	1180
		Ap	0.112	0.112	0.07	0.07	0.07	0.07	0.042	0.245	0.245	0.14	0.14
	10-11.1	Vc	111	111	111	111	99	99	99	121	121	109	109
		fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108
		RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939
		FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499
		Ap	0.144	0.144	0.09	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18
	11.2	Vc	105	105	105	105	93	93	93	115	115	103	103
		fz	0.081	0.081	0.081	0.081	0.072	0.072	0.072	0.1	0.1	0.09	0.09
		RPM	8356	8356	8356	8356	7401	7401	7401	7321	7321	6557	6557
		FEED	1354	1354	1354	1354	1066	1066	1066	1464	1464	1180	1180
		Ap	0.112	0.112	0.07	0.07	0.07	0.07	0.042	0.245	0.245	0.14	0.14
K	15-20	Vc	111	111	111	111	99	99	99	121	121	109	109
		fz	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.12	0.12	0.108	0.108
		RPM	8833	8833	8833	8833	7878	7878	7878	7703	7703	6939	6939
		FEED	1590	1590	1590	1590	1261	1261	1261	1849	1849	1499	1499
		Ap	0.144	0.144	0.09	0.09	0.09	0.09	0.054	0.315	0.315	0.18	0.18
H	38.1 - 38.2	Vc	93	93	93	93	82	82	82	101	101	90	90
		fz	0.077	0.077	0.077	0.077	0.068	0.068	0.068	0.1	0.1	0.09	0.09
		RPM	7401	7401	7401	7401	6525	6525	6525	6430	6430	5730	5730
		FEED	1140	1140	1140	1140	887	887	887	1286	1286	1031	1031
		Ap	0.08	0.08	0.05	0.05	0.05	0.05	0.03	0.175	0.175	0.1	0.1
	40	Vc	105	105	105	105	93	93	93	115	115	103	103
		fz	0.081	0.081	0.081	0.081	0.072	0.072	0.072	0.1	0.1	0.09	0.09
		RPM	8356	8356	8356	8356	7401	7401	7401	7321	7321	6557	6557
		FEED	1354	1354	1354	1354	1066	1066	1066	1464	1464	1180	1180
		Ap	0.112	0.112	0.07	0.07	0.07	0.07	0.042	0.245	0.245	0.14	0.14
	41	Vc	93	93	93	93	82	82	82	101	101	90	90
		fz	0.077	0.077	0.077	0.077	0.068	0.068	0.068	0.1	0.1	0.09	0.09
		RPM	7401	7401	7401	7401	6525	6525	6525	6430	6430	5730	5730
		FEED	1140	1140	1140	1140	887	887	887	1286	1286	1031	1031
		Ap	0.08	0.08	0.05	0.05	0.05	0.05	0.03	0.175	0.175	0.1	0.1

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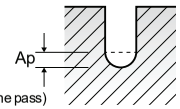
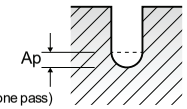


(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEM846 SERIES 2 FLUTE BALL NOSE - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)												
		5.0	5.0	5.0	5.0	6.0	6.0	8.0	8.0	10.0	10.0	12.0	12.0	12.0
	LBS	35	40	50	60	20	30	25	30	30	40	32	45	50
1-5	Vc	109	109	109	97	123	123	122	122	121	121	121	121	100
	fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.238	0.151
	RPM	6939	6939	6939	6175	6525	6525	4854	4854	3852	3852	3210	3210	2653
	FEED	1499	1499	1499	1186	1905	1905	1806	1806	1648	1648	1528	1528	801
	Ap	0.18	0.18	0.113	0.113	0.378	0.378	0.504	0.504	0.9	0.63	1.08	0.756	0.756
6-8	Vc	109	109	109	97	123	123	122	122	121	121	121	121	100
	fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.238	0.151
	RPM	6939	6939	6939	6175	6525	6525	4854	4854	3852	3852	3210	3210	2653
	FEED	1499	1499	1499	1186	1905	1905	1806	1806	1648	1648	1528	1528	801
	Ap	0.18	0.18	0.113	0.113	0.378	0.378	0.504	0.504	0.9	0.63	1.08	0.756	0.756
9	Vc	103	103	103	92	117	117	116	116	116	116	115	115	95
	fz	0.09	0.09	0.09	0.08	0.129	0.129	0.163	0.163	0.19	0.19	0.213	0.213	0.119
	RPM	6557	6557	6557	5857	6207	6207	4615	4615	3692	3692	3050	3050	2520
	FEED	1180	1180	1180	937	1601	1601	1505	1505	1403	1403	1300	1300	600
	Ap	0.14	0.14	0.088	0.088	0.294	0.294	0.392	0.392	0.7	0.49	0.84	0.588	0.588
10 - 11.1	Vc	109	109	109	97	123	123	122	122	121	121	121	121	100
	fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.238	0.151
	RPM	6939	6939	6939	6175	6525	6525	4854	4854	3852	3852	3210	3210	2653
	FEED	1499	1499	1499	1186	1905	1905	1806	1806	1648	1648	1528	1528	801
	Ap	0.18	0.18	0.113	0.113	0.378	0.378	0.504	0.504	0.9	0.63	1.08	0.756	0.756
11.2	Vc	103	103	103	92	117	117	116	116	116	116	115	115	95
	fz	0.09	0.09	0.09	0.08	0.129	0.129	0.163	0.163	0.19	0.19	0.213	0.213	0.119
	RPM	6557	6557	6557	5857	6207	6207	4615	4615	3692	3692	3050	3050	2520
	FEED	1180	1180	1180	937	1601	1601	1505	1505	1403	1403	1300	1300	600
	Ap	0.14	0.14	0.088	0.088	0.294	0.294	0.392	0.392	0.7	0.49	0.84	0.588	0.588
15 - 20	Vc	109	109	109	97	123	123	122	122	121	121	121	121	100
	fz	0.108	0.108	0.108	0.096	0.146	0.146	0.186	0.186	0.214	0.214	0.238	0.238	0.151
	RPM	6939	6939	6939	6175	6525	6525	4854	4854	3852	3852	3210	3210	2653
	FEED	1499	1499	1499	1186	1905	1905	1806	1806	1648	1648	1528	1528	801
	Ap	0.18	0.18	0.113	0.113	0.378	0.378	0.504	0.504	0.9	0.63	1.08	0.756	0.756
38.1 - 38.2	Vc	90	90	90	80	104	104	101	101	101	101	100	100	82
	fz	0.09	0.09	0.09	0.08	0.121	0.121	0.16	0.16	0.188	0.188	0.208	0.208	0.08
	RPM	5730	5730	5730	5093	5517	5517	4019	4019	3215	3215	2653	2653	2175
	FEED	1031	1031	1031	815	1335	1335	1286	1286	1209	1209	1103	1103	348
	Ap	0.1	0.1	0.063	0.063	0.21	0.21	0.28	0.28	0.5	0.35	0.6	0.42	0.42
40	Vc	103	103	103	92	117	117	116	116	116	116	115	115	95
	fz	0.09	0.09	0.09	0.08	0.129	0.129	0.163	0.163	0.19	0.19	0.213	0.213	0.119
	RPM	6557	6557	6557	5857	6207	6207	4615	4615	3692	3692	3050	3050	2520
	FEED	1180	1180	1180	937	1601	1601	1505	1505	1403	1403	1300	1300	600
	Ap	0.14	0.14	0.088	0.088	0.294	0.294	0.392	0.392	0.7	0.49	0.84	0.588	0.588
41	Vc	90	90	90	80	104	104	101	101	101	101	100	100	82
	fz	0.09	0.09	0.09	0.08	0.121	0.121	0.16	0.16	0.188	0.188	0.208	0.208	0.08
	RPM	5730	5730	5730	5093	5517	5517	4019	4019	3215	3215	2653	2653	2175
	FEED	1031	1031	1031	815	1335	1335	1286	1286	1209	1209	1103	1103	348
	Ap	0.1	0.1	0.063	0.063	0.21	0.21	0.28	0.28	0.5	0.35	0.6	0.42	0.42



(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEMD99 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5
P	1-5	Non-alloy steel	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.006
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
					FEED	178	166	166	218	242	240	239	241	222	247	265
	6-8	Low alloy steel	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.006
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
					FEED	178	166	166	218	242	240	239	241	222	247	265
	9		1.0D	0.2D	Vc	18	25	34	37	37	44	50	53	57	59	64
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.004
					RPM	28648	26526	27056	23555	19629	20008	19894	18745	18144	15650	13581
					FEED	57	53	54	94	79	80	80	75	109	94	109
	10-11.1	High alloyed steel, and tool steel	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.006
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
					FEED	178	166	166	218	242	240	239	241	222	247	265
	11.2		1.0D	0.2D	Vc	18	25	34	37	37	44	50	53	57	59	64
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.004
					RPM	28648	26526	27056	23555	19629	20008	19894	18745	18144	15650	13581
					FEED	57	53	54	94	79	80	80	75	109	94	109
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.2D	Vc	28	39	52	57	57	66	75	85	87	93	104
					fz	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.006
					RPM	44563	41380	41380	36287	30239	30012	29842	30063	27693	24669	22069
					FEED	178	166	166	218	242	240	239	241	222	247	265
H	38.1 - 38.2	Hardened steel	1.0D	0.2D	Vc	11	16	21	22	23	27	30	33	35	37	40
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.004
					RPM	17507	16977	16711	14006	12202	12278	11937	11671	11141	9815	8488
					FEED	35	34	33	56	49	49	48	47	67	59	68
	40	Chilled Cast Iron	1.0D	0.2D	Vc	18	25	34	37	37	44	50	53	57	59	64
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.004
					RPM	28648	26526	27056	23555	19629	20008	19894	18745	18144	15650	13581
					FEED	57	53	54	94	79	80	80	75	109	94	109
	41	Hardened Cast Iron	1.0D	0.2D	Vc	11	16	21	22	23	27	30	33	35	37	40
					fz	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.004
					RPM	17507	16977	16711	14006	12202	12278	11937	11671	11141	9815	8488
					FEED	35	34	33	56	49	49	48	47	67	59	68

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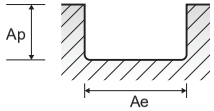
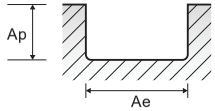


4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEMD99 SERIES 2 FLUTE CORNER RADIUS - SLOTTING
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0	10.0	11.0	12.0	14.0	16.0	20.0
1-5	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	252	270	292	312	344	379	422	459	506	515	541	543	475	419	390	360	282
6-8	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	252	270	292	312	344	379	422	459	506	515	541	543	475	419	390	360	282
9	Vc	73	75	81	85	86	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.005	0.007	0.008	0.01	0.012	0.015	0.017	0.021	0.025	0.028	0.033	0.038	0.04	0.041	0.041	0.04	0.037
	RPM	11618	9549	8594	7730	6844	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	116	134	138	155	164	189	197	228	252	247	252	249	243	228	199	169	121
10 - 11.1	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	252	270	292	312	344	379	422	459	506	515	541	543	475	419	390	360	282
11.2	Vc	73	75	81	85	86	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.005	0.007	0.008	0.01	0.012	0.015	0.017	0.021	0.025	0.028	0.033	0.038	0.04	0.041	0.041	0.04	0.037
	RPM	11618	9549	8594	7730	6844	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	116	134	138	155	164	189	197	228	252	247	252	249	243	228	199	169	121
15 - 20	Vc	113	118	125	132	135	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.007	0.009	0.011	0.013	0.016	0.019	0.023	0.027	0.032	0.037	0.045	0.054	0.052	0.051	0.054	0.058	0.056
	RPM	17985	15024	13263	12005	10743	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	252	270	292	312	344	379	422	459	506	515	541	543	475	419	390	360	282
38.1 - 38.2	Vc	45	48	50	53	54	61	60	61	62	64	63	63	64	63	65	64	63
	fz	0.005	0.006	0.007	0.008	0.009	0.01	0.013	0.016	0.018	0.021	0.024	0.03	0.03	0.03	0.03	0.031	0.03
	RPM	7162	6112	5305	4820	4297	4315	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003
	FEED	72	73	74	77	77	86	99	113	118	122	120	120	111	100	89	79	60
40	Vc	73	75	81	85	86	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.005	0.007	0.008	0.01	0.012	0.015	0.017	0.021	0.025	0.028	0.033	0.038	0.04	0.041	0.041	0.04	0.037
	RPM	11618	9549	8594	7730	6844	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	116	134	138	155	164	189	197	228	252	247	252	249	243	228	199	169	121
41	Vc	45	48	50	53	54	61	60	61	62	64	63	63	64	63	65	64	63
	fz	0.005	0.006	0.007	0.008	0.009	0.01	0.013	0.016	0.018	0.021	0.024	0.03	0.03	0.03	0.03	0.031	0.03
	RPM	7162	6112	5305	4820	4297	4315	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003
	FEED	72	73	74	77	77	86	99	113	118	122	120	120	111	100	89	79	60



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)											
				0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
			LBS	0.5	1	1.5	2	1	2	3	1	1.5	2	2.5	3
P	1-5	Non-alloy steel	Vc	31	31	28	28	47	42	42	63	63	63	57	57
			fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359
			FEED	197	197	178	178	199	178	178	201	201	201	181	181
			Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032	0.032
	6-8	Low alloy steel	Vc	31	31	28	28	47	42	42	63	63	63	57	57
			fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359
			FEED	197	197	178	178	199	178	178	201	201	201	181	181
			Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032	0.032
	9		Vc	22	22	20	20	30	27	27	40	40	40	36	36
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
			RPM	35014	35014	31831	31831	31831	28648	28648	31831	31831	31831	28648	28648
			FEED	70	70	64	64	64	57	57	64	64	64	57	57
			Ap	0.03	0.021	0.012	0.008	0.032	0.018	0.011	0.06	0.042	0.042	0.024	0.024
	10-11.1	High alloyed steel, and tool steel	Vc	31	31	28	28	47	42	42	63	63	63	57	57
			fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359
			FEED	197	197	178	178	199	178	178	201	201	201	181	181
			Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032	0.032
	11.2		Vc	22	22	20	20	30	27	27	40	40	40	36	36
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
			RPM	35014	35014	31831	31831	31831	28648	28648	31831	31831	31831	28648	28648
			FEED	70	70	64	64	64	57	57	64	64	64	57	57
			Ap	0.03	0.021	0.012	0.008	0.032	0.018	0.011	0.06	0.042	0.042	0.024	0.024
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	31	31	28	28	47	42	42	63	63	63	57	57
			fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	49338	49338	44563	44563	49869	44563	44563	50134	50134	50134	45359	45359
			FEED	197	197	178	178	199	178	178	201	201	201	181	181
			Ap	0.04	0.028	0.016	0.01	0.042	0.024	0.015	0.08	0.056	0.056	0.032	0.032
H	38.1 - 38.2	Hardened steel	Vc	13	13	12	12	19	17	17	25	25	25	23	23
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
			RPM	20690	20690	19099	19099	20160	18038	18038	19894	19894	19894	18303	18303
			FEED	41	41	38	38	40	36	36	40	40	40	37	37
			Ap	0.024	0.017	0.01	0.006	0.025	0.014	0.009	0.048	0.034	0.034	0.019	0.019
	40	Chilled Cast Iron	Vc	22	22	20	20	30	27	27	40	40	40	36	36
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
			RPM	35014	35014	31831	31831	31831	28648	28648	31831	31831	31831	28648	28648
			FEED	70	70	64	64	64	57	57	64	64	64	57	57
			Ap	0.03	0.021	0.012	0.008	0.032	0.018	0.011	0.06	0.042	0.042	0.024	0.024
	41	Hardened Cast Iron	Vc	13	13	12	12	19	17	17	25	25	25	23	23
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
			RPM	20690	20690	19099	19099	20160	18038	18038	19894	19894	19894	18303	18303
			FEED	41	41	38	38	40	36	36	40	40	40	37	37
			Ap	0.024	0.017	0.01	0.006	0.025	0.014	0.009	0.048	0.034	0.034	0.019	0.019

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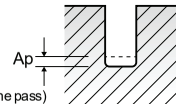

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)														
		0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7
	LBS	4	1	1.5	2	2.5	3	4	5	6	2	3	4	6	8	10	2
1-5	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80
	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003
	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378
	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218
	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012	0.14
6-8	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80
	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003
	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378
	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218
	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012	0.14
9	Vc	36	44	44	44	44	40	40	40	35	45	45	41	41	36	27	53
	fz	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	RPM	28648	28011	28011	28011	28011	25465	25465	25465	22282	23873	23873	21751	21751	19099	14324	24101
	FEED	57	112	112	112	112	51	51	51	45	95	95	87	87	76	57	96
	Ap	0.015	0.075	0.075	0.053	0.053	0.03	0.03	0.019	0.019	0.063	0.063	0.036	0.023	0.014	0.009	0.105
10 - 11.1	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80
	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003
	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378
	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218
	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012	0.14
11.2	Vc	36	44	44	44	44	40	40	40	35	45	45	41	41	36	27	53
	fz	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	RPM	28648	28011	28011	28011	28011	25465	25465	25465	22282	23873	23873	21751	21751	19099	14324	24101
	FEED	57	112	112	112	112	51	51	51	45	95	95	87	87	76	57	96
	Ap	0.015	0.075	0.075	0.053	0.053	0.03	0.03	0.019	0.019	0.063	0.063	0.036	0.023	0.014	0.009	0.105
15 - 20	Vc	57	68	68	68	68	61	61	61	54	69	69	62	62	55	41	80
	fz	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003
	RPM	45359	43290	43290	43290	43290	38834	38834	38834	34377	36606	36606	32892	32892	29178	21751	36378
	FEED	181	260	260	260	260	155	155	155	138	220	220	197	197	175	87	218
	Ap	0.02	0.1	0.1	0.07	0.07	0.04	0.04	0.025	0.025	0.084	0.084	0.048	0.03	0.018	0.012	0.14
38.1 - 38.2	Vc	23	27	27	27	27	24	24	24	21	27	27	25	25	22	16	32
	fz	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.002
	RPM	18303	17189	17189	17189	17189	15279	15279	15279	13369	14324	14324	13263	13263	11671	8488	14551
	FEED	37	69	69	69	69	61	61	61	27	57	57	53	53	47	17	58
	Ap	0.012	0.06	0.06	0.042	0.042	0.024	0.024	0.015	0.015	0.05	0.05	0.029	0.018	0.011	0.007	0.084
40	Vc	36	44	44	44	44	40	40	40	35	45	45	41	41	36	27	53
	fz	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	RPM	28648	28011	28011	28011	28011	25465	25465	25465	22282	23873	23873	21751	21751	19099	14324	24101
	FEED	57	112	112	112	112	51	51	51	45	95	95	87	87	76	57	96
	Ap	0.015	0.075	0.075	0.053	0.053	0.03	0.03	0.019	0.019	0.063	0.063	0.036	0.023	0.014	0.009	0.105
41	Vc	23	27	27	27	27	24	24	24	21	27	27	25	25	22	16	32
	fz	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.002
	RPM	18303	17189	17189	17189	17189	15279	15279	15279	13369	14324	14324	13263	13263	11671	8488	14551
	FEED	37	69	69	69	69	61	61	61	27	57	57	53	53	47	17	58
	Ap	0.012	0.06	0.06	0.042	0.042	0.024	0.024	0.015	0.015	0.05	0.05	0.029	0.018	0.011	0.007	0.084

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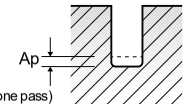

(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)															
			0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.0
		LBS	4	6	8	10	2	3	4	6	8	10	3	4	6	8	10	
P	1-5	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	
		fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	
		RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	
		FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	
		Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	
	6-8	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	
		fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	
		RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	
		FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	
		Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	
	9	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	
		fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	
		RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	
		FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	
		Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038	
	10-11.1	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	
		fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	
		RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	
		FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	
		Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	
	11.2	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	
		fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	
		RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	
		FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	
		Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038	
K	15-20	Vc	72	72	64	64	91	91	91	82	82	73	104	104	94	94	94	
		fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	
		RPM	32740	32740	29103	29103	36208	36208	36208	32627	32627	29046	33104	33104	29921	29921	29921	
		FEED	196	196	175	175	217	217	217	196	196	174	265	265	239	239	239	
		Ap	0.056	0.035	0.035	0.021	0.16	0.112	0.112	0.064	0.04	0.04	0.2	0.14	0.08	0.08	0.05	
H	38.1 - 38.2	Vc	29	29	26	26	36	36	36	33	33	29	41	41	37	37	37	
		fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	
		RPM	13187	13187	11823	11823	14324	14324	14324	13130	13130	11539	13051	13051	11777	11777	11777	
		FEED	53	53	47	47	57	57	57	53	53	46	78	78	47	47	47	
		Ap	0.034	0.021	0.021	0.013	0.096	0.067	0.067	0.038	0.024	0.024	0.12	0.084	0.048	0.048	0.03	
	40	Vc	48	48	42	42	60	60	60	54	54	48	68	68	61	61	61	
		fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	
		RPM	21827	21827	19099	19099	23873	23873	23873	21486	21486	19099	21645	21645	19417	19417	19417	
		FEED	87	87	76	76	95	95	95	86	86	76	130	130	78	78	78	
		Ap	0.042	0.026	0.026	0.016	0.12	0.084	0.084	0.048	0.03	0.03	0.15	0.105	0.06	0.06	0.038	
	41	Vc	29	29	26	26	36	36	36	33	33	29	41	41	37	37	37	
		fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	
		RPM	13187	13187	11823	11823	14324	14324	14324	13130	13130	11539	13051	13051	11777	11777	11777	
		FEED	53	53	47	47	57	57	57	53	53	46	78	78	47	47	47	
		Ap	0.034	0.021	0.021	0.013	0.096	0.067	0.067	0.038	0.024	0.024	0.12	0.084	0.048	0.048	0.03	

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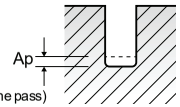

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)															
		1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.5	1.5	1.5
	LBS	12	14	16	20	3	4	6	8	10	12	16	20	4	6	8	10
1-5	Vc	83	83	62	62	112	112	112	101	101	101	90	67	124	124	112	112
	fz	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.006	0.006	0.005	0.005
	RPM	26420	26420	19735	19735	29709	29709	29709	26791	26791	26791	23873	17772	26314	26314	23767	23767
	FEED	159	159	118	118	297	297	297	214	214	214	191	107	316	316	238	238
	Ap	0.05	0.03	0.03	0.02	0.24	0.168	0.168	0.096	0.06	0.06	0.036	0.024	0.3	0.21	0.12	0.12
6-8	Vc	83	83	62	62	112	112	112	101	101	101	90	67	124	124	112	112
	fz	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.006	0.006	0.005	0.005
	RPM	26420	26420	19735	19735	29709	29709	29709	26791	26791	26791	23873	17772	26314	26314	23767	23767
	FEED	159	159	118	118	297	297	297	214	214	214	191	107	316	316	238	238
	Ap	0.05	0.03	0.03	0.02	0.24	0.168	0.168	0.096	0.06	0.06	0.036	0.024	0.3	0.21	0.12	0.12
9	Vc	54	54	41	41	71	71	71	64	64	64	57	43	76	76	69	69
	fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004
	RPM	17189	17189	13051	13051	18833	18833	18833	16977	16977	16977	15120	11406	16128	16128	14642	14642
	FEED	69	69	52	52	113	113	113	102	102	102	91	46	129	129	117	117
	Ap	0.038	0.023	0.023	0.015	0.18	0.126	0.126	0.072	0.045	0.045	0.027	0.018	0.225	0.158	0.09	0.09
10 - 11.1	Vc	83	83	62	62	112	112	112	101	101	101	90	67	124	124	112	112
	fz	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.006	0.006	0.005	0.005
	RPM	26420	26420	19735	19735	29709	29709	29709	26791	26791	26791	23873	17772	26314	26314	23767	23767
	FEED	159	159	118	118	297	297	297	214	214	214	191	107	316	316	238	238
	Ap	0.05	0.03	0.03	0.02	0.24	0.168	0.168	0.096	0.06	0.06	0.036	0.024	0.3	0.21	0.12	0.12
11.2	Vc	54	54	41	41	71	71	71	64	64	64	57	43	76	76	69	69
	fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004
	RPM	17189	17189	13051	13051	18833	18833	18833	16977	16977	16977	15120	11406	16128	16128	14642	14642
	FEED	69	69	52	52	113	113	113	102	102	102	91	46	129	129	117	117
	Ap	0.038	0.023	0.023	0.015	0.18	0.126	0.126	0.072	0.045	0.045	0.027	0.018	0.225	0.158	0.09	0.09
15 - 20	Vc	83	83	62	62	112	112	112	101	101	101	90	67	124	124	112	112
	fz	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.006	0.006	0.005	0.005
	RPM	26420	26420	19735	19735	29709	29709	29709	26791	26791	26791	23873	17772	26314	26314	23767	23767
	FEED	159	159	118	118	297	297	297	214	214	214	191	107	316	316	238	238
	Ap	0.05	0.03	0.03	0.02	0.24	0.168	0.168	0.096	0.06	0.06	0.036	0.024	0.3	0.21	0.12	0.12
38.1 - 38.2	Vc	33	33	25	25	44	44	44	40	40	40	35	26	48	48	43	43
	fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.003	0.003	0.003	0.003
	RPM	10504	10504	7958	7958	11671	11671	11671	10610	10610	10610	9284	6897	10186	10186	9125	9125
	FEED	42	42	32	32	70	70	70	64	64	64	37	28	61	61	55	55
	Ap	0.03	0.018	0.018	0.012	0.144	0.101	0.101	0.058	0.036	0.036	0.022	0.014	0.18	0.126	0.072	0.072
40	Vc	54	54	41	41	71	71	71	64	64	64	57	43	76	76	69	69
	fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004
	RPM	17189	17189	13051	13051	18833	18833	18833	16977	16977	16977	15120	11406	16128	16128	14642	14642
	FEED	69	69	52	52	113	113	113	102	102	102	91	46	129	129	117	117
	Ap	0.038	0.023	0.023	0.015	0.18	0.126	0.126	0.072	0.045	0.045	0.027	0.018	0.225	0.158	0.09	0.09
41	Vc	33	33	25	25	44	44	44	40	40	40	35	26	48	48	43	43
	fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.003	0.003	0.003	0.003
	RPM	10504	10504	7958	7958	11671	11671	11671	10610	10610	10610	9284	6897	10186	10186	9125	9125
	FEED	42	42	32	32	70	70	70	64	64	64	37	28	61	61	55	55
	Ap	0.03	0.018	0.018	0.012	0.144	0.101	0.101	0.058	0.036	0.036	0.022	0.014	0.18	0.126	0.072	0.072

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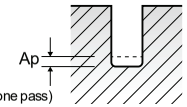

(Depth of cut per one pass)

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)														
			1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
		LBS	12	14	16	20	22	26	6	8	10	12	14	16	20	22	26
P	1-5	Vc	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109
		fz	0.005	0.005	0.004	0.004	0.004	0.004	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006
		RPM	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348
		FEED	238	238	170	170	170	127	303	303	303	233	233	233	233	208	208
		Ap	0.12	0.075	0.075	0.045	0.045	0.03	0.4	0.28	0.28	0.16	0.16	0.16	0.1	0.1	0.1
	6-8	Vc	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109
		fz	0.005	0.005	0.004	0.004	0.004	0.004	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006
		RPM	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348
		FEED	238	238	170	170	170	127	303	303	303	233	233	233	233	208	208
		Ap	0.12	0.075	0.075	0.045	0.045	0.03	0.4	0.28	0.28	0.16	0.16	0.16	0.1	0.1	0.1
	9	Vc	69	69	61	61	61	46	87	87	87	78	78	78	78	69	69
		fz	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004
		RPM	14642	14642	12945	12945	12945	9762	13846	13846	13846	12414	12414	12414	12414	10982	10982
		FEED	117	117	78	78	78	59	138	138	138	124	124	124	124	88	88
		Ap	0.09	0.056	0.056	0.034	0.034	0.023	0.3	0.21	0.21	0.12	0.12	0.12	0.075	0.075	0.075
	10-11.1	Vc	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109
		fz	0.005	0.005	0.004	0.004	0.004	0.004	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006
		RPM	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348
		FEED	238	238	170	170	170	127	303	303	303	233	233	233	233	208	208
		Ap	0.12	0.075	0.075	0.045	0.045	0.03	0.4	0.28	0.28	0.16	0.16	0.16	0.1	0.1	0.1
	11.2	Vc	69	69	61	61	61	46	87	87	87	78	78	78	78	69	69
		fz	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004
		RPM	14642	14642	12945	12945	12945	9762	13846	13846	13846	12414	12414	12414	12414	10982	10982
		FEED	117	117	78	78	78	59	138	138	138	124	124	124	124	88	88
		Ap	0.09	0.056	0.056	0.034	0.034	0.023	0.3	0.21	0.21	0.12	0.12	0.12	0.075	0.075	0.075
K	15-20	Vc	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109
		fz	0.005	0.005	0.004	0.004	0.004	0.004	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006
		RPM	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348
		FEED	238	238	170	170	170	127	303	303	303	233	233	233	233	208	208
		Ap	0.12	0.075	0.075	0.045	0.045	0.03	0.4	0.28	0.28	0.16	0.16	0.16	0.1	0.1	0.1
H	38.1 - 38.2	Vc	43	43	38	38	38	29	54	54	54	49	49	49	49	43	43
		fz	0.003	0.003	0.003	0.003	0.003	0.002	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004
		RPM	9125	9125	8064	8064	8064	6154	8594	8594	8594	7799	7799	7799	7799	6844	6844
		FEED	55	55	48	48	48	25	86	86	86	62	62	62	62	55	55
		Ap	0.072	0.045	0.045	0.027	0.027	0.018	0.24	0.168	0.168	0.096	0.096	0.096	0.06	0.06	0.06
	40	Vc	69	69	61	61	61	46	87	87	87	78	78	78	78	69	69
		fz	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004
		RPM	14642	14642	12945	12945	12945	9762	13846	13846	13846	12414	12414	12414	12414	10982	10982
		FEED	117	117	78	78	78	59	138	138	138	124	124	124	124	88	88
		Ap	0.09	0.056	0.056	0.034	0.034	0.023	0.3	0.21	0.21	0.12	0.12	0.12	0.075	0.075	0.075
	41	Vc	43	43	38	38	38	29	54	54	54	49	49	49	49	43	43
		fz	0.003	0.003	0.003	0.003	0.003	0.002	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004
		RPM	9125	9125	8064	8064	8064	6154	8594	8594	8594	7799	7799	7799	7799	6844	6844
		FEED	55	55	48	48	48	25	86	86	86	62	62	62	62	55	55
		Ap	0.072	0.045	0.045	0.027	0.027	0.018	0.24	0.168	0.168	0.096	0.096	0.096	0.06	0.06	0.06

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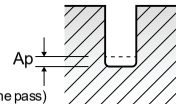

(Depth of cut per one pass)

CARBIDE
HSS

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)															
		2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	LBS	30	8	10	12	14	16	20	26	30	8	10	12	14	16	20	26
1-5	Vc	109	141	141	141	127	127	127	113	113	150	150	150	150	135	135	135
	fz	0.006	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.01	0.01	0.01	0.01	0.009	0.009	0.009
	RPM	17348	17953	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324
	FEED	208	323	323	323	259	259	259	201	201	318	318	318	318	258	258	258
	Ap	0.06	0.35	0.35	0.35	0.2	0.2	0.2	0.125	0.125	0.6	0.42	0.42	0.42	0.24	0.24	0.15
6-8	Vc	109	141	141	141	127	127	127	113	113	150	150	150	150	135	135	135
	fz	0.006	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.01	0.01	0.01	0.01	0.009	0.009	0.009
	RPM	17348	17953	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324
	FEED	208	323	323	323	259	259	259	201	201	318	318	318	318	258	258	258
	Ap	0.06	0.35	0.35	0.35	0.2	0.2	0.2	0.125	0.125	0.6	0.42	0.42	0.42	0.24	0.24	0.15
9	Vc	69	90	90	90	81	81	81	72	72	97	97	97	97	87	87	87
	fz	0.004	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007
	RPM	10982	11459	11459	11459	10313	10313	10313	9167	9167	10292	10292	10292	10292	9231	9231	9231
	FEED	88	160	160	160	124	124	124	92	92	165	165	165	165	129	129	129
	Ap	0.045	0.263	0.263	0.263	0.15	0.15	0.15	0.094	0.094	0.45	0.315	0.315	0.315	0.18	0.18	0.113
10 - 11.1	Vc	109	141	141	141	127	127	127	113	113	150	150	150	150	135	135	135
	fz	0.006	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.01	0.01	0.01	0.01	0.009	0.009	0.009
	RPM	17348	17953	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324
	FEED	208	323	323	323	259	259	259	201	201	318	318	318	318	258	258	258
	Ap	0.06	0.35	0.35	0.35	0.2	0.2	0.2	0.125	0.125	0.6	0.42	0.42	0.42	0.24	0.24	0.15
11.2	Vc	69	90	90	90	81	81	81	72	72	97	97	97	97	87	87	87
	fz	0.004	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007
	RPM	10982	11459	11459	11459	10313	10313	10313	9167	9167	10292	10292	10292	10292	9231	9231	9231
	FEED	88	160	160	160	124	124	124	92	92	165	165	165	165	129	129	129
	Ap	0.045	0.263	0.263	0.263	0.15	0.15	0.15	0.094	0.094	0.45	0.315	0.315	0.315	0.18	0.18	0.113
15 - 20	Vc	109	141	141	141	127	127	127	113	113	150	150	150	150	135	135	135
	fz	0.006	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.01	0.01	0.01	0.01	0.009	0.009	0.009
	RPM	17348	17953	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324
	FEED	208	323	323	323	259	259	259	201	201	318	318	318	318	258	258	258
	Ap	0.06	0.35	0.35	0.35	0.2	0.2	0.2	0.125	0.125	0.6	0.42	0.42	0.42	0.24	0.24	0.15
38.1 - 38.2	Vc	43	57	57	57	52	52	52	46	46	59	59	59	59	53	53	53
	fz	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	RPM	6844	7257	7257	7257	6621	6621	6621	5857	5857	6260	6260	6260	6260	5623	5623	5623
	FEED	55	73	73	73	66	66	66	47	47	75	75	75	75	67	67	67
	Ap	0.036	0.21	0.21	0.21	0.12	0.12	0.12	0.075	0.075	0.36	0.252	0.252	0.252	0.144	0.144	0.09
40	Vc	69	90	90	90	81	81	81	72	72	97	97	97	97	87	87	87
	fz	0.004	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007
	RPM	10982	11459	11459	11459	10313	10313	10313	9167	9167	10292	10292	10292	10292	9231	9231	9231
	FEED	88	160	160	160	124	124	124	92	92	165	165	165	165	129	129	129
	Ap	0.045	0.263	0.263	0.263	0.15	0.15	0.15	0.094	0.094	0.45	0.315	0.315	0.315	0.18	0.18	0.113
41	Vc	43	57	57	57	52	52	52	46	46	59	59	59	59	53	53	53
	fz	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	RPM	6844	7257	7257	7257	6621	6621	6621	5857	5857	6260	6260	6260	6260	5623	5623	5623
	FEED	55	73	73	73	66	66	66	47	47	75	75	75	75	67	67	67
	Ap	0.036	0.21	0.21	0.21	0.12	0.12	0.12	0.075	0.075	0.36	0.252	0.252	0.252	0.144	0.144	0.09

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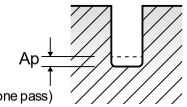

(Depth of cut per one pass)

CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)												
			3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
		LBS	30	35	40	10	12	14	16	20	26	30	35	40	45
P	1-5	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129
		fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012
		RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265
		FEED	258	204	204	410	410	410	410	410	323	323	323	323	246
		Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2
	6-8	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129
		fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012
		RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265
		FEED	258	204	204	410	410	410	410	410	323	323	323	323	246
		Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2
	9	Vc	87	78	78	103	103	103	103	103	93	93	93	93	82
		fz	0.007	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.01
		RPM	9231	8276	8276	8196	8196	8196	8196	8196	7401	7401	7401	7401	6525
		FEED	129	99	99	197	197	197	197	197	163	163	163	163	131
		Ap	0.113	0.113	0.068	0.6	0.6	0.42	0.42	0.42	0.24	0.24	0.15	0.15	0.15
	10-11.1	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129
		fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012
		RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265
		FEED	258	204	204	410	410	410	410	410	323	323	323	323	246
		Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2
	11.2	Vc	87	78	78	103	103	103	103	103	93	93	93	93	82
		fz	0.007	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.01
		RPM	9231	8276	8276	8196	8196	8196	8196	8196	7401	7401	7401	7401	6525
		FEED	129	99	99	197	197	197	197	197	163	163	163	163	131
		Ap	0.113	0.113	0.068	0.6	0.6	0.42	0.42	0.42	0.24	0.24	0.15	0.15	0.15
K	15-20	Vc	135	120	120	161	161	161	161	161	145	145	145	145	129
		fz	0.009	0.008	0.008	0.016	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012
		RPM	14324	12732	12732	12812	12812	12812	12812	12812	11539	11539	11539	11539	10265
		FEED	258	204	204	410	410	410	410	410	323	323	323	323	246
		Ap	0.15	0.15	0.09	0.8	0.8	0.56	0.56	0.56	0.32	0.32	0.2	0.2	0.2
H	38.1 - 38.2	Vc	53	48	48	65	65	65	65	65	58	58	58	58	52
		fz	0.006	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007
		RPM	5623	5093	5093	5173	5173	5173	5173	5173	4615	4615	4615	4615	4138
		FEED	67	51	51	93	93	93	93	93	74	74	74	74	58
		Ap	0.09	0.09	0.054	0.48	0.48	0.336	0.336	0.336	0.192	0.192	0.12	0.12	0.12
	40	Vc	87	78	78	103	103	103	103	103	93	93	93	93	82
		fz	0.007	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.01
		RPM	9231	8276	8276	8196	8196	8196	8196	8196	7401	7401	7401	7401	6525
		FEED	129	99	99	197	197	197	197	197	163	163	163	163	131
		Ap	0.113	0.113	0.068	0.6	0.6	0.42	0.42	0.42	0.24	0.24	0.15	0.15	0.15
	41	Vc	53	48	48	65	65	65	65	65	58	58	58	58	52
		fz	0.006	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007
		RPM	5623	5093	5093	5173	5173	5173	5173	5173	4615	4615	4615	4615	4138
		FEED	67	51	51	93	93	93	93	93	74	74	74	74	58
		Ap	0.09	0.09	0.054	0.48	0.48	0.336	0.336	0.336	0.192	0.192	0.12	0.12	0.12

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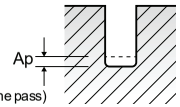


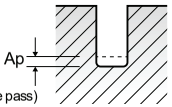
(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME61 SERIES 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)													
		4.0	5.0	6.0	6.0	8.0	8.0	10.0	10.0	12.0	12.0	16.0	16.0	20.0	20.0
	LBS	50	15	20	30	25	35	30	40	32	45	35	50	40	55
1-5	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329
	Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4
6-8	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329
	Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4
9	Vc	82	110	113	113	114	114	126	126	126	126	127	127	123	123
	fz	0.01	0.017	0.025	0.025	0.033	0.033	0.038	0.038	0.04	0.04	0.042	0.042	0.036	0.036
	RPM	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958
	FEED	131	238	300	300	299	299	305	305	267	267	212	212	141	141
	Ap	0.15	0.75	0.63	0.63	0.84	0.84	1.5	1.05	1.8	1.26	2.4	1.68	3	3
10 - 11.1	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329
	Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4
11.2	Vc	82	110	113	113	114	114	126	126	126	126	127	127	123	123
	fz	0.01	0.017	0.025	0.025	0.033	0.033	0.038	0.038	0.04	0.04	0.042	0.042	0.036	0.036
	RPM	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958
	FEED	131	238	300	300	299	299	305	305	267	267	212	212	141	141
	Ap	0.15	0.75	0.63	0.63	0.84	0.84	1.5	1.05	1.8	1.26	2.4	1.68	3	3
15 - 20	Vc	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.012	0.023	0.032	0.032	0.044	0.044	0.053	0.053	0.05	0.05	0.06	0.06	0.055	0.055
	RPM	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	246	507	608	608	634	634	634	634	499	499	446	446	329	329
	Ap	0.2	1	0.84	0.84	1.12	1.12	2	1.4	2.4	1.68	3.2	2.24	4	4
38.1 - 38.2	Vc	52	72	74	74	76	76	76	76	75	75	77	77	75	75
	fz	0.007	0.013	0.018	0.018	0.023	0.023	0.029	0.029	0.03	0.03	0.031	0.031	0.029	0.029
	RPM	4138	4584	3926	3926	3024	3024	2419	2419	1989	1989	1532	1532	1194	1194
	FEED	58	119	141	141	139	139	140	140	119	119	95	95	69	69
	Ap	0.12	0.6	0.504	0.504	0.672	0.672	1.2	0.84	1.44	1.008	1.92	1.344	2.4	2.4
40	Vc	82	110	113	113	114	114	126	126	126	126	127	127	123	123
	fz	0.01	0.017	0.025	0.025	0.033	0.033	0.038	0.038	0.04	0.04	0.042	0.042	0.036	0.036
	RPM	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958
	FEED	131	238	300	300	299	299	305	305	267	267	212	212	141	141
	Ap	0.15	0.75	0.63	0.63	0.84	0.84	1.5	1.05	1.8	1.26	2.4	1.68	3	3
41	Vc	52	72	74	74	76	76	76	76	75	75	77	77	75	75
	fz	0.007	0.013	0.018	0.018	0.023	0.023	0.029	0.029	0.03	0.03	0.031	0.031	0.029	0.029
	RPM	4138	4584	3926	3926	3024	3024	2419	2419	1989	1989	1532	1532	1194	1194
	FEED	58	119	141	141	139	139	140	140	119	119	95	95	69	69
	Ap	0.12	0.6	0.504	0.504	0.672	0.672	1.2	0.84	1.44	1.008	1.92	1.344	2.4	2.4



(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME01 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0
P	1-5	Non-alloy steel	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
					FEED	332	296	353	288	361	318	384	430
	6-8	Low alloy steel	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
					FEED	332	296	353	288	361	318	384	430
	9		0.05D	2D	Vc	57	59	64	73	75	81	85	86
					fz	0.003	0.004	0.004	0.005	0.007	0.008	0.009	0.011
					RPM	18144	15650	13581	11618	9549	8594	7730	6844
					FEED	218	250	217	232	267	275	278	301
	10-11.1	High alloyed steel, and tool steel	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
					FEED	332	296	353	288	361	318	384	430
	11.2		0.05D	2D	Vc	57	59	64	73	75	81	85	86
					fz	0.003	0.004	0.004	0.005	0.007	0.008	0.009	0.011
					RPM	18144	15650	13581	11618	9549	8594	7730	6844
					FEED	218	250	217	232	267	275	278	301
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2D	Vc	87	93	104	113	118	125	132	135
					fz	0.003	0.003	0.004	0.004	0.006	0.006	0.008	0.01
					RPM	27693	24669	22069	17985	15024	13263	12005	10743
					FEED	332	296	353	288	361	318	384	430
H	38.1 - 38.2	Hardened steel	0.02D	2D	Vc	35	37	40	45	48	50	53	54
					fz	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.008
					RPM	11141	9815	8488	7162	6112	5305	4820	4297
					FEED	134	118	136	143	122	127	135	138
	40	Chilled Cast Iron	0.05D	2D	Vc	57	59	64	73	75	81	85	86
					fz	0.003	0.004	0.004	0.005	0.007	0.008	0.009	0.011
					RPM	18144	15650	13581	11618	9549	8594	7730	6844
					FEED	218	250	217	232	267	275	278	301
	41	Hardened Cast Iron	0.02D	2D	Vc	35	37	40	45	48	50	53	54
					fz	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.008
					RPM	11141	9815	8488	7162	6112	5305	4820	4297
					FEED	134	118	136	143	122	127	135	138

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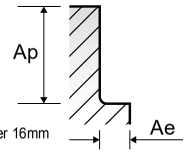
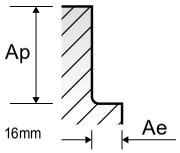


* 1.5XD Axial cutting depth should be for diameter over 16mm

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME01 SERIES 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 4.5	5.0	5.5	6.0	7.0	8.0	10.0	11.0	12.0	14.0	16.0	20.0
1-5	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
6-8	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
9	Vc	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.013	0.016	0.017	0.018	0.02	0.024	0.027	0.028	0.029	0.028	0.027	0.027
	RPM	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	327	371	370	363	353	367	354	340	323	272	228	177
10 - 11.1	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
11.2	Vc	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.013	0.016	0.017	0.018	0.02	0.024	0.027	0.028	0.029	0.028	0.027	0.027
	RPM	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	327	371	370	363	353	367	354	340	323	272	228	177
15 - 20	Vc	141	144	147	149	153	151	158	158	155	159	156	158
	fz	0.011	0.012	0.013	0.014	0.016	0.019	0.023	0.022	0.022	0.022	0.023	0.023
	RPM	9974	9167	8508	7905	6957	6008	5029	4572	4112	3615	3104	2515
	FEED	439	440	442	443	445	457	463	402	362	318	286	231
38.1 - 38.2	Vc	57	60	61	62	64	63	63	64	63	65	64	63
	fz	0.01	0.011	0.012	0.013	0.015	0.017	0.021	0.021	0.021	0.021	0.022	0.023
	RPM	4032	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003
	FEED	161	168	169	171	175	170	168	156	140	124	112	92
40	Vc	89	91	94	95	97	96	103	105	105	107	106	103
	fz	0.013	0.016	0.017	0.018	0.02	0.024	0.027	0.028	0.029	0.028	0.027	0.027
	RPM	6295	5793	5440	5040	4411	3820	3279	3038	2785	2433	2109	1639
	FEED	327	371	370	363	353	367	354	340	323	272	228	177
41	Vc	57	60	61	62	64	63	63	64	63	65	64	63
	fz	0.01	0.011	0.012	0.013	0.015	0.017	0.021	0.021	0.021	0.021	0.022	0.023
	RPM	4032	3820	3530	3289	2910	2507	2005	1852	1671	1478	1273	1003
	FEED	161	168	169	171	175	170	168	156	140	124	112	92



* 1.5XD Axial cutting depth should be for diameter over 16mm

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME64 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)															
				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2
			LBS	4	6	8	10	12	16	20	22	26	3	4	6	8	10	12	16
P	1-5	Non-alloy steel	Vc	104	94	94	94	83	62	62	31	31	112	112	112	101	101	101	90
			fz	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002
			RPM	33104	29921	29921	29921	26420	19735	19735	9868	9868	29709	29709	29709	26791	26791	26791	23873
			FEED	397	239	239	239	211	158	158	79	79	357	357	357	321	321	321	191
			Ae	0.021	0.012	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.036	0.025	0.025	0.014	0.009	0.009	0.005
	6-8	Low alloy steel	Vc	104	94	94	94	83	62	62	31	31	112	112	112	101	101	101	90
			fz	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002
			RPM	33104	29921	29921	29921	26420	19735	19735	9868	9868	29709	29709	29709	26791	26791	26791	23873
			FEED	397	239	239	239	211	158	158	79	79	357	357	357	321	321	321	191
			Ae	0.021	0.012	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.036	0.025	0.025	0.014	0.009	0.009	0.005
	9		Vc	68	61	61	61	54	41	41	20	20	71	71	71	64	64	64	57
			fz	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.003
			RPM	21645	19417	19417	19417	17189	13051	13051	6366	6366	18833	18833	18833	16977	16977	16977	15120
			FEED	260	233	233	233	138	104	104	51	51	301	301	301	204	204	204	181
			Ae	0.016	0.009	0.009	0.006	0.006	0.003	0.002	0.002	0.002	0.027	0.01	0.019	0.011	0.007	0.007	0.004
	10-11.1	High alloyed steel, and tool steel	Vc	104	94	94	94	83	62	62	31	31	112	112	112	101	101	101	90
			fz	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002
			RPM	33104	29921	29921	29921	26420	19735	19735	9868	9868	29709	29709	29709	26791	26791	26791	23873
			FEED	397	239	239	239	211	158	158	79	79	357	357	357	321	321	321	191
			Ae	0.021	0.012	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.036	0.025	0.025	0.014	0.009	0.009	0.005
	11.2		Vc	68	61	61	61	54	41	41	20	20	71	71	71	64	64	64	57
			fz	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.003
			RPM	21645	19417	19417	19417	17189	13051	13051	6366	6366	18833	18833	18833	16977	16977	16977	15120
			FEED	260	233	233	233	138	104	104	51	51	301	301	301	204	204	204	181
			Ae	0.016	0.009	0.009	0.006	0.006	0.003	0.002	0.002	0.002	0.027	0.01	0.019	0.011	0.007	0.007	0.004
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	104	94	94	94	83	62	62	31	31	112	112	112	101	101	101	90
			fz	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002
			RPM	33104	29921	29921	29921	26420	19735	19735	9868	9868	29709	29709	29709	26791	26791	26791	23873
			FEED	397	239	239	239	211	158	158	79	79	357	357	357	321	321	321	191
			Ae	0.021	0.012	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.036	0.025	0.025	0.014	0.009	0.009	0.005
H	38.1 - 38.2	Hardened steel	Vc	41	37	37	37	33	25	25	12	12	44	44	44	40	40	40	35
			fz	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002
			RPM	13051	11777	11777	11777	10504	7958	7958	3820	3820	11671	11671	11671	10610	10610	10610	9284
			FEED	157	94	94	94	84	64	64	31	31	140	140	140	127	127	127	74
			Ae	0.013	0.007	0.007	0.005	0.005	0.003	0.002	0.002	0.002	0.022	0.015	0.015	0.009	0.005	0.005	0.003
	40	Chilled Cast Iron	Vc	68	61	61	61	54	41	41	20	20	71	71	71	64	64	64	57
			fz	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.003
			RPM	21645	19417	19417	19417	17189	13051	13051	6366	6366	18833	18833	18833	16977	16977	16977	15120
			FEED	260	233	233	233	138	104	104	51	51	301	301	301	204	204	204	181
			Ae	0.016	0.009	0.009	0.006	0.006	0.003	0.002	0.002	0.002	0.027	0.01	0.019	0.011	0.007	0.007	0.004
	41	Hardened Cast Iron	Vc	41	37	37	37	33	25	25	12	12	44	44	44	40	40	40	35
			fz	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.002
			RPM	13051	11777	11777	11777	10504	7958	7958	3820	3820	11671	11671	11671	10610	10610	10610	9284
			FEED	157	94	94	94	84	64	64	31	31	140	140	140	127	127	127	74
			Ae	0.013	0.007	0.007	0.005	0.005	0.003	0.002	0.002	0.002	0.022	0.015	0.015	0.009	0.005	0.005	0.003

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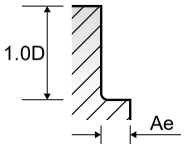

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME64 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																					
		1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5
	LBS	20	4	6	8	10	12	14	16	20	22	26	6	8	10	12	14	16	20	22	26	30	8
1-5	Vc	67	124	124	112	112	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109	109	141
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.005
	RPM	17772	26314	26314	23767	23767	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348	17348	17953
	FEED	142	421	421	285	285	285	285	255	255	255	127	346	346	346	311	311	311	311	278	278	278	359
	Ae	0.004	0.045	0.032	0.018	0.018	0.018	0.011	0.011	0.007	0.007	0.005	0.06	0.042	0.042	0.024	0.024	0.024	0.015	0.015	0.015	0.009	0.053
6-8	Vc	67	124	124	112	112	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109	109	141
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.005
	RPM	17772	26314	26314	23767	23767	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348	17348	17953
	FEED	142	421	421	285	285	285	285	255	255	255	127	346	346	346	311	311	311	311	278	278	278	359
	Ae	0.004	0.045	0.032	0.018	0.018	0.018	0.011	0.011	0.007	0.007	0.005	0.06	0.042	0.042	0.024	0.024	0.024	0.015	0.015	0.015	0.009	0.053
9	Vc	43	76	76	69	69	69	69	61	61	61	46	87	87	87	78	78	78	78	69	69	69	90
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.007
	RPM	11406	16128	16128	14642	14642	14642	14642	12945	12945	12945	9762	13846	13846	13846	12414	12414	12414	12414	10982	10982	10982	11459
	FEED	91	258	258	234	234	234	234	155	155	155	117	277	277	277	248	248	248	248	176	176	176	321
	Ae	0.003	0.034	0.024	0.014	0.014	0.014	0.008	0.008	0.005	0.005	0.003	0.045	0.032	0.032	0.018	0.018	0.018	0.011	0.011	0.011	0.007	0.039
10 - 11.1	Vc	67	124	124	112	112	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109	109	141
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.005
	RPM	17772	26314	26314	23767	23767	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348	17348	17953
	FEED	142	421	421	285	285	285	285	255	255	255	127	346	346	346	311	311	311	311	278	278	278	359
	Ae	0.004	0.045	0.032	0.018	0.018	0.018	0.011	0.011	0.007	0.007	0.005	0.06	0.042	0.042	0.024	0.024	0.024	0.015	0.015	0.015	0.009	0.053
11.2	Vc	43	76	76	69	69	69	69	61	61	61	46	87	87	87	78	78	78	78	69	69	69	90
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.007
	RPM	11406	16128	16128	14642	14642	14642	14642	12945	12945	12945	9762	13846	13846	13846	12414	12414	12414	12414	10982	10982	10982	11459
	FEED	91	258	258	234	234	234	234	155	155	155	117	277	277	277	248	248	248	248	176	176	176	321
	Ae	0.003	0.034	0.024	0.014	0.014	0.014	0.008	0.008	0.005	0.005	0.003	0.045	0.032	0.032	0.018	0.018	0.018	0.011	0.011	0.011	0.007	0.039
15 - 20	Vc	67	124	124	112	112	112	112	100	100	100	75	136	136	136	122	122	122	122	109	109	109	141
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.005
	RPM	17772	26314	26314	23767	23767	23767	23767	21221	21221	21221	15915	21645	21645	21645	19417	19417	19417	19417	17348	17348	17348	17953
	FEED	142	421	421	285	285	285	285	255	255	255	127	346	346	346	311	311	311	311	278	278	278	359
	Ae	0.004	0.045	0.032	0.018	0.018	0.018	0.011	0.011	0.007	0.007	0.005	0.06	0.042	0.042	0.024	0.024	0.024	0.015	0.015	0.015	0.009	0.053
38.1 - 38.2	Vc	26	48	48	43	43	43	43	38	38	38	29	54	54	54	49	49	49	49	43	43	43	57
	fz	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.005
	RPM	6897	10186	10186	9125	9125	9125	9125	8064	8064	8064	6154	8594	8594	8594	7799	7799	7799	7799	6844	6844	6844	7257
	FEED	55	122	122	109	109	109	109	97	97	97	49	138	138	138	125	125	125	125	82	82	82	145
	Ae	0.002	0.027	0.019	0.011	0.011	0.011	0.007	0.007	0.004	0.004	0.003	0.036	0.025	0.025	0.014	0.014	0.014	0.009	0.009	0.009	0.005	0.032
40	Vc	43	76	76	69	69	69	69	61	61	61	46	87	87	87	78	78	78	78	69	69	69	90
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.007
	RPM	11406	16128	16128	14642	14642	14642	14642	12945	12945	12945	9762	13846	13846	13846	12414	12414	12414	12414	10982	10982	10982	11459
	FEED	91	258	258	234	234	234	234	155	155	155	117	277	277	277	248	248	248	248	176	176	176	321
	Ae	0.003	0.034	0.024	0.014	0.014	0.014	0.008	0.008	0.005	0.005	0.003	0.045	0.032	0.032	0.018	0.018	0.018	0.011	0.011	0.011	0.007	0.039
41	Vc	26	48	48	43	43	43	43	38	38	38	29	54	54	54	49	49	49	49	43	43	43	57
	fz	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.005
	RPM	6897	10186	10186	9125	9125	9125	9125	8064	8064	8064	6154	8594	8594	8594	7799	7799	7799	7799	6844	6844	6844	7257
	FEED	55	122	122	109	109	109	109	97	97	97	49	138	138	138	125	125	125	125	82	82	82	145
	Ae	0.002	0.027	0.019	0.011	0.011	0.011	0.007	0.007	0.004	0.004	0.003	0.036	0.025	0.025	0.014	0.014	0.014	0.009	0.009	0.009	0.005	0.032

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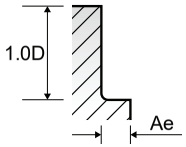

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME64 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																			
			2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0
		LBS	10	12	14	16	20	26	30	8	10	12	14	16	20	26	30	35	40	10	12
P	1-5	Vc	141	141	127	127	127	113	113	150	150	150	150	135	135	135	135	120	120	161	161
		fz	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.01	0.01
		RPM	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324	14324	12732	12732	12812	12812
		FEED	359	359	323	323	323	230	230	382	382	382	382	344	344	344	344	255	255	512	512
		Ae	0.053	0.053	0.03	0.03	0.03	0.019	0.019	0.09	0.063	0.063	0.063	0.036	0.036	0.023	0.023	0.023	0.014	0.12	0.12
	6-8	Vc	141	141	127	127	127	113	113	150	150	150	150	135	135	135	135	120	120	161	161
		fz	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.01	0.01
		RPM	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324	14324	12732	12732	12812	12812
		FEED	359	359	323	323	323	230	230	382	382	382	382	344	344	344	344	255	255	512	512
		Ae	0.053	0.053	0.03	0.03	0.03	0.019	0.019	0.09	0.063	0.063	0.063	0.036	0.036	0.023	0.023	0.023	0.014	0.12	0.12
	9	Vc	90	90	81	81	81	72	72	97	97	97	97	87	87	87	87	78	78	103	103
		fz	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.011	0.011
		RPM	11459	11459	10313	10313	10313	9167	9167	10292	10292	10292	10292	9231	9231	9231	9231	8276	8276	8196	8196
		FEED	321	321	248	248	248	183	183	329	329	329	329	258	258	258	258	199	199	361	361
		Ae	0.039	0.039	0.023	0.023	0.023	0.014	0.014	0.068	0.047	0.047	0.047	0.027	0.027	0.017	0.017	0.017	0.01	0.09	0.09
	10-11.1	Vc	141	141	127	127	127	113	113	150	150	150	150	135	135	135	135	120	120	161	161
		fz	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.01	0.01
		RPM	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324	14324	12732	12732	12812	12812
		FEED	359	359	323	323	323	230	230	382	382	382	382	344	344	344	344	255	255	512	512
		Ae	0.053	0.053	0.03	0.03	0.03	0.019	0.019	0.09	0.063	0.063	0.063	0.036	0.036	0.023	0.023	0.023	0.014	0.12	0.12
	11.2	Vc	90	90	81	81	81	72	72	97	97	97	97	87	87	87	87	78	78	103	103
		fz	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.011	0.011
		RPM	11459	11459	10313	10313	10313	9167	9167	10292	10292	10292	10292	9231	9231	9231	9231	8276	8276	8196	8196
		FEED	321	321	248	248	248	183	183	329	329	329	329	258	258	258	258	199	199	361	361
		Ae	0.039	0.039	0.023	0.023	0.023	0.014	0.014	0.068	0.047	0.047	0.047	0.027	0.027	0.017	0.017	0.017	0.01	0.09	0.09
K	15-20	Vc	141	141	127	127	127	113	113	150	150	150	150	135	135	135	135	120	120	161	161
		fz	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.01	0.01
		RPM	17953	17953	16170	16170	16170	14388	14388	15915	15915	15915	15915	14324	14324	14324	14324	12732	12732	12812	12812
		FEED	359	359	323	323	323	230	230	382	382	382	382	344	344	344	344	255	255	512	512
		Ae	0.053	0.053	0.03	0.03	0.03	0.019	0.019	0.09	0.063	0.063	0.063	0.036	0.036	0.023	0.023	0.023	0.014	0.12	0.12
H	38.1 - 38.2	Vc	57	57	52	52	52	46	46	59	59	59	59	53	53	53	53	48	48	65	65
		fz	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.008	0.008
		RPM	7257	7257	6621	6621	6621	5857	5857	6260	6260	6260	6260	5623	5623	5623	5623	5093	5093	5173	5173
		FEED	145	145	132	132	132	94	94	150	150	150	150	112	112	112	112	102	102	166	166
		Ae	0.032	0.032	0.018	0.018	0.018	0.011	0.011	0.054	0.038	0.038	0.038	0.022	0.022	0.014	0.014	0.014	0.008	0.072	0.072
	40	Vc	90	90	81	81	81	72	72	97	97	97	97	87	87	87	87	78	78	103	103
		fz	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.011	0.011
		RPM	11459	11459	10313	10313	10313	9167	9167	10292	10292	10292	10292	9231	9231	9231	9231	8276	8276	8196	8196
		FEED	321	321	248	248	248	183	183	329	329	329	329	258	258	258	258	199	199	361	361
		Ae	0.039	0.039	0.023	0.023	0.023	0.014	0.014	0.068	0.047	0.047	0.047	0.027	0.027	0.017	0.017	0.017	0.01	0.09	0.09
	41	Vc	57	57	52	52	52	46	46	59	59	59	59	53	53	53	53	48	48	65	65
		fz	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.008	0.008
		RPM	7257	7257	6621	6621	6621	5857	5857	6260	6260	6260	6260	5623	5623	5623	5623	5093	5093	5173	5173
		FEED	145	145	132	132	132	94	94	150	150	150	150	112	112	112	112	102	102	166	166
		Ae	0.032	0.032	0.018	0.018	0.018	0.011	0.011	0.054	0.038	0.038	0.038	0.022	0.022	0.014	0.014	0.014	0.008	0.072	0.072

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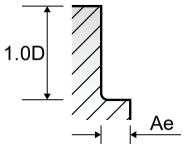
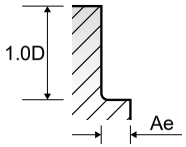


4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME64 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																				
		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	6.0	6.0	8.0	8.0	10.0	10.0	12.0	12.0	16.0	16.0	20.0	20.0
	LBS	14	16	20	26	30	35	40	45	50	15	20	30	25	35	30	40	32	45	35	50	40	55
1-5	Vc	161	161	161	145	145	145	145	129	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.01	0.01	0.01	0.009	0.009	0.009	0.009	0.008	0.008	0.012	0.013	0.013	0.019	0.019	0.023	0.023	0.022	0.022	0.022	0.022	0.023	0.023
	RPM	12812	12812	12812	11539	11539	11539	11539	10265	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	512	512	512	415	415	415	415	328	328	529	494	494	547	547	551	551	439	439	327	327	275	275
	Ae	0.084	0.084	0.084	0.048	0.048	0.03	0.03	0.03	0.03	0.15	0.126	0.126	0.168	0.168	0.3	0.21	0.36	0.252	0.48	0.336	0.6	0.6
6-8	Vc	161	161	161	145	145	145	145	129	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.01	0.01	0.01	0.009	0.009	0.009	0.009	0.008	0.008	0.012	0.013	0.013	0.019	0.019	0.023	0.023	0.022	0.022	0.022	0.022	0.023	0.023
	RPM	12812	12812	12812	11539	11539	11539	11539	10265	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	512	512	512	415	415	415	415	328	328	529	494	494	547	547	551	551	439	439	327	327	275	275
	Ae	0.084	0.084	0.084	0.048	0.048	0.03	0.03	0.03	0.03	0.15	0.126	0.126	0.168	0.168	0.3	0.21	0.36	0.252	0.48	0.336	0.6	0.6
9	Vc	103	103	103	93	93	93	93	82	82	110	113	113	114	114	126	126	126	126	127	127	123	123
	fz	0.011	0.011	0.011	0.01	0.01	0.01	0.01	0.009	0.009	0.015	0.018	0.018	0.024	0.024	0.027	0.027	0.028	0.028	0.028	0.028	0.027	0.027
	RPM	8196	8196	8196	7401	7401	7401	7401	6525	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958
	FEED	361	361	361	296	296	296	296	235	235	420	432	432	435	435	433	433	374	374	283	283	211	211
	Ae	0.063	0.063	0.063	0.036	0.036	0.023	0.023	0.023	0.023	0.113	0.095	0.095	0.126	0.126	0.225	0.158	0.27	0.189	0.36	0.252	0.45	0.45
10 - 11.1	Vc	161	161	161	145	145	145	145	129	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.01	0.01	0.01	0.009	0.009	0.009	0.009	0.008	0.008	0.012	0.013	0.013	0.019	0.019	0.023	0.023	0.022	0.022	0.022	0.022	0.023	0.023
	RPM	12812	12812	12812	11539	11539	11539	11539	10265	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	512	512	512	415	415	415	415	328	328	529	494	494	547	547	551	551	439	439	327	327	275	275
	Ae	0.084	0.084	0.084	0.048	0.048	0.03	0.03	0.03	0.03	0.15	0.126	0.126	0.168	0.168	0.3	0.21	0.36	0.252	0.48	0.336	0.6	0.6
11.2	Vc	103	103	103	93	93	93	93	82	82	110	113	113	114	114	126	126	126	126	127	127	123	123
	fz	0.011	0.011	0.011	0.01	0.01	0.01	0.01	0.009	0.009	0.015	0.018	0.018	0.024	0.024	0.027	0.027	0.028	0.028	0.028	0.028	0.027	0.027
	RPM	8196	8196	8196	7401	7401	7401	7401	6525	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958
	FEED	361	361	361	296	296	296	296	235	235	420	432	432	435	435	433	433	374	374	283	283	211	211
	Ae	0.063	0.063	0.063	0.036	0.036	0.023	0.023	0.023	0.023	0.113	0.095	0.095	0.126	0.126	0.225	0.158	0.27	0.189	0.36	0.252	0.45	0.45
15 - 20	Vc	161	161	161	145	145	145	145	129	129	173	179	179	181	181	188	188	188	188	187	187	188	188
	fz	0.01	0.01	0.01	0.009	0.009	0.009	0.009	0.008	0.008	0.012	0.013	0.013	0.019	0.019	0.023	0.023	0.022	0.022	0.022	0.022	0.023	0.023
	RPM	12812	12812	12812	11539	11539	11539	11539	10265	10265	11014	9496	9496	7202	7202	5984	5984	4987	4987	3720	3720	2992	2992
	FEED	512	512	512	415	415	415	415	328	328	529	494	494	547	547	551	551	439	439	327	327	275	275
	Ae	0.084	0.084	0.084	0.048	0.048	0.03	0.03	0.03	0.03	0.15	0.126	0.126	0.168	0.168	0.3	0.21	0.36	0.252	0.48	0.336	0.6	0.6
38.1 - 38.2	Vc	65	65	65	58	58	58	58	52	52	72	74	74	76	76	76	76	75	75	77	77	75	75
	fz	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.011	0.013	0.013	0.017	0.017	0.021	0.021	0.02	0.02	0.022	0.022	0.021	0.021
	RPM	5173	5173	5173	4615	4615	4615	4615	4138	4138	4584	3926	3926	3024	3024	2419	2419	1989	1989	1532	1532	1194	1194
	FEED	166	166	166	129	129	129	129	99	99	202	204	204	206	206	203	203	159	159	135	135	100	100
	Ae	0.05	0.05	0.05	0.029	0.029	0.018	0.018	0.018	0.018	0.09	0.076	0.076	0.101	0.101	0.18	0.126	0.216	0.151	0.288	0.202	0.36	0.36
40	Vc	103	103	103	93	93	93	93	82	82	110	113	113	114	114	126	126	126	126	127	127	123	123
	fz	0.011	0.011	0.011	0.01	0.01	0.01	0.01	0.009	0.009	0.015	0.018	0.018	0.024	0.024	0.027	0.027	0.028	0.028	0.028	0.028	0.027	0.027
	RPM	8196	8196	8196	7401	7401	7401	7401	6525	6525	7003	5995	5995	4536	4536	4011	4011	3342	3342	2527	2527	1958	1958
	FEED	361	361	361	296	296	296	296	235	235	420	432	432	435	435	433	433	374	374	283	283	211	211
	Ae	0.063	0.063	0.063	0.036	0.036	0.023	0.023	0.023	0.023	0.113	0.095	0.095	0.126	0.126	0.225	0.158	0.27	0.189	0.36	0.252	0.45	0.45
41	Vc	65	65	65	58	58	58	58	52	52	72	74	74	76	76	76	76	75	75	77	77	75	75
	fz	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.011	0.013	0.013	0.017	0.017	0.021	0.021	0.02	0.02	0.022	0.022	0.021	0.021
	RPM	5173	5173	5173	4615	4615	4615	4615	4138	4138	4584	3926	3926	3024	3024	2419	2419	1989	1989	1532	1532	1194	1194
	FEED	166	166	166	129	129	129	129	99	99	202	204	204	206	206	203	203	159	159	135	135	100	100
	Ae	0.05	0.05	0.05	0.029	0.029	0.018	0.018	0.018	0.018	0.09	0.076	0.076	0.101	0.101	0.18	0.126	0.216	0.151	0.288	0.202	0.36	0.36



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME35 SERIES 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
P	1-5	Non-alloy steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
					FEED	83	83	79	78	145	127	169	150	187
	6-8	Low alloy steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
					FEED	83	83	79	78	145	127	169	150	187
	9		1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	8	16	22	29	34	36	37	38	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
					RPM	25465	25465	23343	23077	21645	19099	16825	15120	14147
					FEED	51	51	47	46	87	76	101	91	85
	10 - 11.1	High alloyed steel, and tool steel	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
					FEED	83	83	79	78	145	127	169	150	187
	11.2		1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	8	16	22	29	34	36	37	38	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
					RPM	25465	25465	23343	23077	21645	19099	16825	15120	14147
					FEED	51	51	47	46	87	76	101	91	85
M	14.1	Stainless steel	1.0D	0.5D (up to Ø1: 0.02D)	Vc	7	13	18	25	28	30	31	31	33
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
					RPM	22282	20690	19099	19894	17825	15915	14097	12335	11671
					FEED	45	41	38	40	71	64	85	74	70
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	13	26	37	49	57	60	62	63	66
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004
					RPM	41380	41380	39258	38993	36287	31831	28193	25067	23343
					FEED	83	83	79	78	145	127	169	150	187
H	38.1 - 38.2	Hardened steel	1.0D	0.05D (up to Ø1: 0.02D)	Vc	5	11	15	20	23	24	25	25	27
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002
					RPM	15915	17507	15915	15915	14642	12732	11368	9947	9549
					FEED	16	35	32	32	29	25	23	40	38
	40	Chilled Cast Iron	1.0D	0.05D (up to Ø1: 0.02D)	Vc	8	16	22	29	34	36	37	38	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
					RPM	25465	25465	23343	23077	21645	19099	16825	15120	14147
					FEED	51	51	47	46	87	76	101	91	85
	41	Hardened Cast Iron	1.0D	0.05D (up to Ø1: 0.02D)	Vc	5	11	15	20	23	24	25	25	27
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002
					RPM	15915	17507	15915	15915	14642	12732	11368	9947	9549
					FEED	16	35	32	32	29	25	23	40	38

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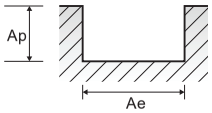

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME35 SERIES 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
1-5	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866
	FEED	173	180	181	209	204	214	265	318	319	340	354	368	377	380
6-8	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866
	FEED	173	180	181	209	204	214	265	318	319	340	354	368	377	380
9	Vc	41	41	42	48	52	52	56	58	59	59	62	63	64	65
	fz	0.004	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026	0.03	0.034	0.036	0.037
	RPM	13051	10876	8913	7639	6621	5517	5093	4615	4173	3756	3588	3342	3134	2956
	FEED	104	109	107	122	132	143	173	194	192	195	215	227	226	219
10 - 11.1	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866
	FEED	173	180	181	209	204	214	265	318	319	340	354	368	377	380
11.2	Vc	41	41	42	48	52	52	56	58	59	59	62	63	64	65
	fz	0.004	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026	0.03	0.034	0.036	0.037
	RPM	13051	10876	8913	7639	6621	5517	5093	4615	4173	3756	3588	3342	3134	2956
	FEED	104	109	107	122	132	143	173	194	192	195	215	227	226	219
14.1	Vc	34	34	35	40	43	44	47	49	50	50	52	54	54	54
	fz	0.004	0.005	0.006	0.008	0.01	0.014	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.038
	RPM	10823	9019	7427	6366	5475	4669	4274	3899	3537	3183	3009	2865	2644	2456
	FEED	87	90	89	102	109	131	137	164	163	172	181	189	190	187
15 - 20	Vc	68	68	71	73	80	84	91	95	98	99	102	105	107	107
	fz	0.004	0.005	0.006	0.009	0.01	0.012	0.016	0.021	0.023	0.027	0.03	0.033	0.036	0.039
	RPM	21645	18038	15067	11618	10186	8913	8276	7560	6932	6303	5903	5570	5240	4866
	FEED	173	180	181	209	204	214	265	318	319	340	354	368	377	380
38.1 - 38.2	Vc	27	27	28	32	33	32	35	37	37	36	37	38	39	40
	fz	0.002	0.002	0.003	0.004	0.005	0.006	0.007	0.007	0.009	0.011	0.013	0.015	0.016	0.018
	RPM	8594	7162	5942	5093	4202	3395	3183	2944	2617	2292	2141	2016	1910	1819
	FEED	34	29	36	41	42	41	45	41	47	50	56	60	61	65
40	Vc	41	41	42	48	52	52	56	58	59	59	62	63	64	65
	fz	0.004	0.005	0.006	0.008	0.01	0.013	0.017	0.021	0.023	0.026	0.03	0.034	0.036	0.037
	RPM	13051	10876	8913	7639	6621	5517	5093	4615	4173	3756	3588	3342	3134	2956
	FEED	104	109	107	122	132	143	173	194	192	195	215	227	226	219
41	Vc	27	27	28	32	33	32	35	37	37	36	37	38	39	40
	fz	0.002	0.002	0.003	0.004	0.005	0.006	0.007	0.007	0.009	0.011	0.013	0.015	0.016	0.018
	RPM	8594	7162	5942	5093	4202	3395	3183	2944	2617	2292	2141	2016	1910	1819
	FEED	34	29	36	41	42	41	45	41	47	50	56	60	61	65

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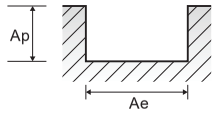

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME35 SERIES 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø) 7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0
P	1-5	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
				RPM	4541	4218	3970	3714	3485	3247	3122	3009	2879	2732
				FEED	391	405	389	371	355	344	331	319	305	295
	6-8	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
				RPM	4541	4218	3970	3714	3485	3247	3122	3009	2879	2732
				FEED	391	405	389	371	355	344	331	319	305	295
	9	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	64	63	64	64	64	63	63	64	64	63
				fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04
				RPM	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671
				FEED	212	211	201	190	180	172	160	152	142	134
	10 - 11.1	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
				RPM	4541	4218	3970	3714	3485	3247	3122	3009	2879	2732
				FEED	391	405	389	371	355	344	331	319	305	295
	11.2	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	64	63	64	64	64	63	63	64	64	63
				fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04
				RPM	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671
				FEED	212	211	201	190	180	172	160	152	142	134
M	14.1	1.0D	0.5D (up to Ø1: 0.02D)	Vc	54	53	53	53	53	53	53	53	52	51
				fz	0.042	0.045	0.046	0.048	0.049	0.051	0.05	0.049	0.049	0.05
				RPM	2292	2109	1985	1874	1776	1687	1607	1534	1439	1353
				FEED	193	190	183	180	174	172	161	150	141	135
K	15-20	1.0D	0.5D (up to Ø3: 0.2D) (up to Ø1: 0.15D)	Vc	107	106	106	105	104	102	103	104	104	103
				fz	0.043	0.048	0.049	0.05	0.051	0.053	0.053	0.053	0.053	0.054
				RPM	4541	4218	3970	3714	3485	3247	3122	3009	2879	2732
				FEED	391	405	389	371	355	344	331	319	305	295
H	38.1 - 38.2	1.0D	0.05D (up to Ø1: 0.02D)	Vc	41	42	43	43	43	43	43	44	44	44
				fz	0.021	0.024	0.023	0.022	0.022	0.023	0.023	0.023	0.024	0.025
				RPM	1740	1671	1610	1521	1441	1369	1304	1273	1218	1167
				FEED	73	80	74	67	63	63	60	59	58	58
	40	1.0D	0.05D (up to Ø1: 0.02D)	Vc	64	63	64	64	64	63	63	64	64	63
				fz	0.039	0.042	0.042	0.042	0.042	0.043	0.042	0.041	0.04	0.04
				RPM	2716	2507	2397	2264	2144	2005	1910	1852	1771	1671
				FEED	212	211	201	190	180	172	160	152	142	134
	41	1.0D	0.05D (up to Ø1: 0.02D)	Vc	41	42	43	43	43	43	43	44	44	44
				fz	0.021	0.024	0.023	0.022	0.022	0.023	0.023	0.023	0.024	0.025
				RPM	1740	1671	1610	1521	1441	1369	1304	1273	1218	1167
				FEED	73	80	74	67	63	63	60	59	58	58

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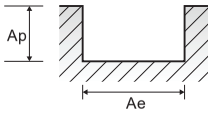
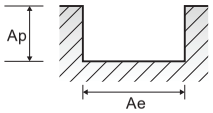


4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME35 SERIES 2 FLUTE - SLOTTING
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0
1-5	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
6-8	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
9	Vc	65	67	68	68	69	68	68	67	67	67	67	67	66
	fz	0.041	0.041	0.042	0.042	0.041	0.041	0.04	0.04	0.04	0.041	0.042	0.043	0.044
	RPM	1592	1523	1443	1353	1292	1203	1139	1066	1016	969	927	889	840
	FEED	131	125	121	114	106	99	91	85	81	79	78	76	74
10 - 11.1	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
11.2	Vc	65	67	68	68	69	68	68	67	67	67	67	67	66
	fz	0.041	0.041	0.042	0.042	0.041	0.041	0.04	0.04	0.04	0.041	0.042	0.043	0.044
	RPM	1592	1523	1443	1353	1292	1203	1139	1066	1016	969	927	889	840
	FEED	131	125	121	114	106	99	91	85	81	79	78	76	74
14.1	Vc	52	53	53	53	54	54	53	53	53	54	54	54	53
	fz	0.051	0.052	0.053	0.054	0.052	0.053	0.05	0.05	0.05	0.049	0.048	0.047	0.046
	RPM	1273	1205	1125	1054	1011	955	888	844	803	781	747	716	675
	FEED	130	125	119	114	105	101	89	84	80	77	72	67	62
15 - 20	Vc	106	109	110	111	111	110	108	106	107	107	107	107	107
	fz	0.054	0.054	0.052	0.052	0.052	0.053	0.052	0.054	0.053	0.053	0.051	0.049	0.05
	RPM	2595	2478	2334	2208	2078	1945	1809	1687	1622	1548	1481	1419	1362
	FEED	280	268	243	230	216	206	188	182	172	164	151	139	136
38.1 - 38.2	Vc	45	45	45	45	45	45	44	43	43	43	43	43	42
	fz	0.025	0.024	0.023	0.023	0.023	0.023	0.023	0.024	0.022	0.022	0.021	0.02	0.019
	RPM	1102	1023	955	895	843	796	737	684	652	622	595	570	535
	FEED	55	49	44	41	39	37	34	33	29	27	25	23	20
40	Vc	65	67	68	68	69	68	68	67	67	67	67	67	66
	fz	0.041	0.041	0.042	0.042	0.041	0.041	0.04	0.04	0.04	0.041	0.042	0.043	0.044
	RPM	1592	1523	1443	1353	1292	1203	1139	1066	1016	969	927	889	840
	FEED	131	125	121	114	106	99	91	85	81	79	78	76	74
41	Vc	45	45	45	45	45	45	44	43	43	43	43	43	42
	fz	0.025	0.024	0.023	0.023	0.023	0.023	0.023	0.024	0.022	0.022	0.021	0.02	0.019
	RPM	1102	1023	955	895	843	796	737	684	652	622	595	570	535
	FEED	55	49	44	41	39	37	34	33	29	27	25	23	20



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME70 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2
					LOC	3	4	5	6	7	8	10	12	4	6	8	10
P	1-5	Non-alloy steel	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002
					RPM	15915	15915	15915	14324	14324	14324	14324	12732	13528	13528	12202	12202
					FEED	64	64	64	57	57	57	57	51	81	81	49	49
	6-8	Low alloy steel	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002
					RPM	15915	15915	15915	14324	14324	14324	14324	12732	13528	13528	12202	12202
					FEED	64	64	64	57	57	57	57	51	81	81	49	49
	9		1.0D	0.3D (up to Ø3:0.4mm)	Vc	40	40	40	36	36	36	36	32	41	41	37	37
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
					RPM	12732	12732	12732	11459	11459	11459	11459	10186	10876	10876	9815	9815
					FEED	51	51	51	46	46	46	46	41	65	65	59	39
	10-11.1	High alloyed steel, and tool steel	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002
					RPM	15915	15915	15915	14324	14324	14324	14324	12732	13528	13528	12202	12202
					FEED	64	64	64	57	57	57	57	51	81	81	49	49
	11.2		1.0D	0.3D (up to Ø3:0.4mm)	Vc	40	40	40	36	36	36	36	32	41	41	37	37
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
					RPM	12732	12732	12732	11459	11459	11459	11459	10186	10876	10876	9815	9815
					FEED	51	51	51	46	46	46	46	41	65	65	59	39
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.3D (up to Ø3:0.4mm)	Vc	50	50	50	45	45	45	45	40	51	51	46	46
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002
					RPM	15915	15915	15915	14324	14324	14324	14324	12732	13528	13528	12202	12202
					FEED	64	64	64	57	57	57	57	51	81	81	49	49
H	38.1 - 38.2	Hardened steel	1.0D	0.05D	Vc	25	25	25	23	23	23	23	20	25	25	23	23
					fz	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002
					RPM	7958	7958	7958	7321	7321	7321	7321	6366	6631	6631	6101	6101
					FEED	32	32	32	29	29	15	15	13	27	27	24	24
	40	Chilled Cast Iron	1.0D	0.3D (up to Ø3:0.4mm)	Vc	40	40	40	36	36	36	36	32	41	41	37	37
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
					RPM	12732	12732	12732	11459	11459	11459	11459	10186	10876	10876	9815	9815
					FEED	51	51	51	46	46	46	46	41	65	65	59	39
	41	Hardened Cast Iron	1.0D	0.05D	Vc	25	25	25	23	23	23	23	20	25	25	23	23
					fz	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002
					RPM	7958	7958	7958	7321	7321	7321	7321	6366	6631	6631	6101	6101
					FEED	32	32	32	29	29	15	15	13	27	27	24	24

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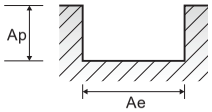

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME70 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																			
		1.2	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	3.0	3.0	3.0
	LOC	12	6	8	10	12	14	16	8	10	12	14	16	10	12	16	20	26	10	12	14
1-5	Vc	46	53	48	48	48	48	42	57	57	51	51	51	60	60	54	54	48	60	60	60
	fz	0.002	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.006	0.006	0.005	0.005	0.004	0.008	0.008	0.008
	RPM	12202	11247	10186	10186	10186	10186	8913	9072	9072	8117	8117	8117	7639	7639	6875	6875	6112	6366	6366	6366
	FEED	49	90	61	61	61	61	53	91	91	65	65	65	92	92	69	69	49	102	102	102
6-8	Vc	46	53	48	48	48	48	42	57	57	51	51	51	60	60	54	54	48	60	60	60
	fz	0.002	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.006	0.006	0.005	0.005	0.004	0.008	0.008	0.008
	RPM	12202	11247	10186	10186	10186	10186	8913	9072	9072	8117	8117	8117	7639	7639	6875	6875	6112	6366	6366	6366
	FEED	49	90	61	61	61	61	53	91	91	65	65	65	92	92	69	69	49	102	102	102
9	Vc	37	42	38	38	38	38	34	46	46	41	41	41	49	49	44	44	39	49	49	49
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.004	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008
	RPM	9815	8913	8064	8064	8064	8064	7215	7321	7321	6525	6525	6525	6239	6239	5602	5602	4966	5199	5199	5199
	FEED	39	71	65	48	48	48	43	73	73	65	65	52	75	75	67	56	50	83	83	83
10 - 11.1	Vc	46	53	48	48	48	48	42	57	57	51	51	51	60	60	54	54	48	60	60	60
	fz	0.002	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.006	0.006	0.005	0.005	0.004	0.008	0.008	0.008
	RPM	12202	11247	10186	10186	10186	10186	8913	9072	9072	8117	8117	8117	7639	7639	6875	6875	6112	6366	6366	6366
	FEED	49	90	61	61	61	61	53	91	91	65	65	65	92	92	69	69	49	102	102	102
11.2	Vc	37	42	38	38	38	38	34	46	46	41	41	41	49	49	44	44	39	49	49	49
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.004	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008
	RPM	9815	8913	8064	8064	8064	8064	7215	7321	7321	6525	6525	6525	6239	6239	5602	5602	4966	5199	5199	5199
	FEED	39	71	65	48	48	48	43	73	73	65	65	52	75	75	67	56	50	83	83	83
15 - 20	Vc	46	53	48	48	48	48	42	57	57	51	51	51	60	60	54	54	48	60	60	60
	fz	0.002	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.004	0.006	0.006	0.005	0.005	0.004	0.008	0.008	0.008
	RPM	12202	11247	10186	10186	10186	10186	8913	9072	9072	8117	8117	8117	7639	7639	6875	6875	6112	6366	6366	6366
	FEED	49	90	61	61	61	61	53	91	91	65	65	65	92	92	69	69	49	102	102	102
38.1 - 38.2	Vc	23	26	24	24	24	24	21	29	29	26	26	26	30	30	27	27	24	30	30	30
	fz	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.003	0.005	0.005	0.004	0.004	0.003	0.006	0.006	0.006
	RPM	6101	5517	5093	5093	5093	5093	4456	4615	4615	4138	4138	4138	3820	3820	3438	3438	3056	3183	3183	3183
	FEED	24	33	31	20	20	20	18	37	37	33	33	25	38	38	28	28	18	38	38	38
40	Vc	37	42	38	38	38	38	34	46	46	41	41	41	49	49	44	44	39	49	49	49
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.004	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008
	RPM	9815	8913	8064	8064	8064	8064	7215	7321	7321	6525	6525	6525	6239	6239	5602	5602	4966	5199	5199	5199
	FEED	39	71	65	48	48	48	43	73	73	65	65	52	75	75	67	56	50	83	83	83
41	Vc	23	26	24	24	24	24	21	29	29	26	26	26	30	30	27	27	24	30	30	30
	fz	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.003	0.005	0.005	0.004	0.004	0.003	0.006	0.006	0.006
	RPM	6101	5517	5093	5093	5093	5093	4456	4615	4615	4138	4138	4138	3820	3820	3438	3438	3056	3183	3183	3183
	FEED	24	33	31	20	20	20	18	37	37	33	33	25	38	38	28	28	18	38	38	38

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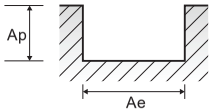

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME70 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)														
					3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	6.0
				LOC	16	20	26	30	12	16	20	26	30	20	25	30	35	40	15
P	1-5	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	62	72
				fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024
				RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820
				FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183
	6-8	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	62	72
				fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024
				RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820
				FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183
	9	1.0D	0.3D (up to Ø3:0.4mm)	Vc	44	44	44	44	52	52	52	46	46	55	55	49	49	49	57
				fz	0.008	0.008	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.018	0.018	0.016	0.016	0.014	0.025
				RPM	4669	4669	4669	4669	4138	4138	4138	3661	3661	3501	3501	3119	3119	3119	3024
				FEED	75	75	56	56	99	99	99	88	88	126	126	100	100	87	151
	10-11.1	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	62	72
				fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024
				RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820
				FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183
	11.2	1.0D	0.3D (up to Ø3:0.4mm)	Vc	44	44	44	44	52	52	52	46	46	55	55	49	49	49	57
				fz	0.008	0.008	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.018	0.018	0.016	0.016	0.014	0.025
				RPM	4669	4669	4669	4669	4138	4138	4138	3661	3661	3501	3501	3119	3119	3119	3024
				FEED	75	75	56	56	99	99	99	88	88	126	126	100	100	87	151
K	15-20	1.0D	0.3D (up to Ø3:0.4mm)	Vc	54	54	54	54	65	65	65	58	58	69	69	62	62	62	72
				fz	0.008	0.007	0.006	0.006	0.012	0.012	0.012	0.01	0.01	0.017	0.017	0.015	0.015	0.014	0.024
				RPM	5730	5730	5730	5730	5173	5173	5173	4615	4615	4393	4393	3947	3947	3947	3820
				FEED	92	80	69	69	124	124	124	92	92	149	149	118	118	111	183
H	38.1 - 38.2	1.0D	0.05D	Vc	27	27	27	27	32	32	32	29	29	36	36	32	32	32	37
				fz	0.007	0.006	0.005	0.005	0.01	0.01	0.01	0.009	0.009	0.012	0.012	0.011	0.011	0.01	0.018
				RPM	2865	2865	2865	2865	2546	2546	2546	2308	2308	2292	2292	2037	2037	2037	1963
				FEED	40	34	29	29	51	51	51	42	42	55	55	45	45	41	71
	40	1.0D	0.3D (up to Ø3:0.4mm)	Vc	44	44	44	44	52	52	52	46	46	55	55	49	49	49	57
				fz	0.008	0.008	0.006	0.006	0.012	0.012	0.012	0.012	0.012	0.018	0.018	0.016	0.016	0.014	0.025
				RPM	4669	4669	4669	4669	4138	4138	4138	3661	3661	3501	3501	3119	3119	3119	3024
				FEED	75	75	56	56	99	99	99	88	88	126	126	100	100	87	151
	41	1.0D	0.05D	Vc	27	27	27	27	32	32	32	29	29	36	36	32	32	32	37
				fz	0.007	0.006	0.005	0.005	0.01	0.01	0.01	0.009	0.009	0.012	0.012	0.011	0.011	0.01	0.018
				RPM	2865	2865	2865	2865	2546	2546	2546	2308	2308	2292	2292	2037	2037	2037	1963
				FEED	40	34	29	29	51	51	51	42	42	55	55	45	45	41	71

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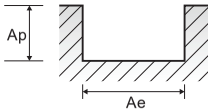

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME70 SERIES 2 FLUTE - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

VDI 3323	Paameter	Diameter (Ø)																			
		6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	12.0
	LOC	20	25	30	35	40	45	25	30	35	40	45	50	30	35	40	45	50	55	60	35
1-5	Vc	72	72	72	64	64	64	72	72	72	72	65	65	77	77	77	77	77	69	69	75
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.029	0.038
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2196	2196	1989
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	191	162	162	145	127	151
6-8	Vc	72	72	72	64	64	64	72	72	72	72	65	65	77	77	77	77	77	69	69	75
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.029	0.038
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2196	2196	1989
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	191	162	162	145	127	151
9	Vc	57	57	57	52	52	52	57	57	57	57	52	52	63	63	63	63	63	57	57	63
	fz	0.025	0.025	0.021	0.021	0.018	0.018	0.033	0.033	0.033	0.027	0.028	0.024	0.038	0.038	0.038	0.031	0.031	0.032	0.028	0.04
	RPM	3024	3024	3024	2759	2759	2759	2268	2268	2268	2268	2069	2069	2005	2005	2005	2005	2005	1814	1814	1671
	FEED	151	151	127	116	99	99	150	150	150	122	116	99	152	152	152	124	124	116	102	134
10 - 11.1	Vc	72	72	72	64	64	64	72	72	72	72	65	65	77	77	77	77	77	69	69	75
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.029	0.038
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2196	2196	1989
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	191	162	162	145	127	151
11.2	Vc	57	57	57	52	52	52	57	57	57	57	52	52	63	63	63	63	63	57	57	63
	fz	0.025	0.025	0.021	0.021	0.018	0.018	0.033	0.033	0.033	0.027	0.028	0.024	0.038	0.038	0.038	0.031	0.031	0.032	0.028	0.04
	RPM	3024	3024	3024	2759	2759	2759	2268	2268	2268	2268	2069	2069	2005	2005	2005	2005	2005	1814	1814	1671
	FEED	151	151	127	116	99	99	150	150	150	122	116	99	152	152	152	124	124	116	102	134
15 - 20	Vc	72	72	72	64	64	64	72	72	72	72	65	65	77	77	77	77	77	69	69	75
	fz	0.024	0.024	0.02	0.02	0.018	0.018	0.033	0.033	0.033	0.028	0.028	0.025	0.039	0.039	0.039	0.033	0.033	0.033	0.029	0.038
	RPM	3820	3820	3820	3395	3395	3395	2865	2865	2865	2865	2586	2586	2451	2451	2451	2451	2451	2196	2196	1989
	FEED	183	183	153	136	122	122	189	189	189	160	145	129	191	191	191	162	162	145	127	151
38.1 - 38.2	Vc	37	37	37	33	33	33	38	38	38	38	34	34	38	38	38	38	38	34	34	38
	fz	0.018	0.018	0.015	0.016	0.014	0.014	0.023	0.023	0.023	0.02	0.02	0.018	0.029	0.029	0.029	0.025	0.025	0.025	0.023	0.027
	RPM	1963	1963	1963	1751	1751	1751	1512	1512	1512	1512	1353	1353	1210	1210	1210	1210	1210	1082	1082	1008
	FEED	71	71	59	56	49	49	70	70	70	60	54	49	70	70	70	60	60	54	50	54
40	Vc	57	57	57	52	52	52	57	57	57	57	52	52	63	63	63	63	63	57	57	63
	fz	0.025	0.025	0.021	0.021	0.018	0.018	0.033	0.033	0.033	0.027	0.028	0.024	0.038	0.038	0.038	0.031	0.031	0.032	0.028	0.04
	RPM	3024	3024	3024	2759	2759	2759	2268	2268	2268	2268	2069	2069	2005	2005	2005	2005	2005	1814	1814	1671
	FEED	151	151	127	116	99	99	150	150	150	122	116	99	152	152	152	124	124	116	102	134
41	Vc	37	37	37	33	33	33	38	38	38	38	34	34	38	38	38	38	38	34	34	38
	fz	0.018	0.018	0.015	0.016	0.014	0.014	0.023	0.023	0.023	0.02	0.02	0.018	0.029	0.029	0.029	0.025	0.025	0.025	0.023	0.027
	RPM	1963	1963	1963	1751	1751	1751	1512	1512	1512	1512	1353	1353	1210	1210	1210	1210	1210	1082	1082	1008
	FEED	71	71	59	56	49	49	70	70	70	60	54	49	70	70	70	60	60	54	50	54

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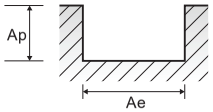

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME70 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)													
					12.0	12.0	12.0	12.0	12.0	12.0	12.0	14.0	14.0	16.0	16.0	16.0	16.0	16.0
				LOC	40	45	50	55	60	65	70	50	60	40	50	60	70	80
P	1-5	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85	85
				fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031
				RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691
				FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105
	6-8	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85	85
				fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031
				RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691
				FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105
	9	1.0D	0.3D (up to Ø3:0.4mm)	Vc	63	63	63	63	63	57	57	65	65	64	64	64	64	64
				fz	0.04	0.034	0.034	0.034	0.03	0.03	0.03	0.034	0.034	0.041	0.041	0.035	0.035	0.031
				RPM	1671	1671	1671	1671	1671	1512	1512	1478	1478	1273	1273	1273	1273	1273
				FEED	134	114	114	114	100	91	91	100	100	104	104	89	89	79
	10-11.1	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85	85
				fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031
				RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691
				FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105
	11.2	1.0D	0.3D (up to Ø3:0.4mm)	Vc	63	63	63	63	63	57	57	65	65	64	64	64	64	64
				fz	0.04	0.034	0.034	0.034	0.03	0.03	0.03	0.034	0.034	0.041	0.041	0.035	0.035	0.031
				RPM	1671	1671	1671	1671	1671	1512	1512	1478	1478	1273	1273	1273	1273	1273
				FEED	134	114	114	114	100	91	91	100	100	104	104	89	89	79
K	15-20	1.0D	0.3D (up to Ø3:0.4mm)	Vc	75	75	75	75	75	68	68	81	81	85	85	85	85	85
				fz	0.038	0.033	0.033	0.033	0.028	0.028	0.028	0.034	0.034	0.041	0.041	0.035	0.035	0.031
				RPM	1989	1989	1989	1989	1989	1804	1804	1842	1842	1691	1691	1691	1691	1691
				FEED	151	131	131	131	111	101	101	125	125	139	139	118	118	105
H	38.1 - 38.2	1.0D	0.05D	Vc	38	38	38	38	38	34	34	40	40	40	40	40	40	40
				fz	0.027	0.022	0.022	0.022	0.02	0.019	0.019	0.025	0.025	0.031	0.031	0.025	0.025	0.022
				RPM	1008	1008	1008	1008	1008	902	902	909	909	796	796	796	796	796
				FEED	54	44	44	44	40	34	34	45	45	49	49	40	40	35
	40	1.0D	0.3D (up to Ø3:0.4mm)	Vc	63	63	63	63	63	57	57	65	65	64	64	64	64	64
				fz	0.04	0.034	0.034	0.034	0.03	0.03	0.03	0.034	0.034	0.041	0.041	0.035	0.035	0.031
				RPM	1671	1671	1671	1671	1671	1512	1512	1478	1478	1273	1273	1273	1273	1273
				FEED	134	114	114	114	100	91	91	100	100	104	104	89	89	79
	41	1.0D	0.05D	Vc	38	38	38	38	38	34	34	40	40	40	40	40	40	40
				fz	0.027	0.022	0.022	0.022	0.02	0.019	0.019	0.025	0.025	0.031	0.031	0.025	0.025	0.022
				RPM	1008	1008	1008	1008	1008	902	902	909	909	796	796	796	796	796
				FEED	54	44	44	44	40	34	34	45	45	49	49	40	40	35

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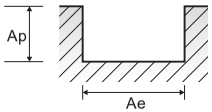


CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

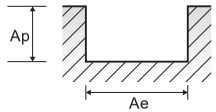
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME70 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																	
		16.0	16.0	16.0	18.0	18.0	18.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	22.0	22.0	25.0	25.0	25.0	25.0
	LOC	90	110	120	50	70	100	50	60	70	80	90	110	120	75	110	70	90	110	120
1-5	Vc	77	77	77	82	82	74	77	77	77	77	77	69	69	76	76	77	77	77	77
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036	0.031
	RPM	1532	1532	1532	1450	1450	1309	1225	1225	1225	1225	1225	1098	1098	1100	1100	980	980	980	980
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71	61
6-8	Vc	77	77	77	82	82	74	77	77	77	77	77	69	69	76	76	77	77	77	77
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036	0.031
	RPM	1532	1532	1532	1450	1450	1309	1225	1225	1225	1225	1225	1098	1098	1100	1100	980	980	980	980
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71	61
9	Vc	58	58	58	63	63	57	60	60	60	60	60	54	54	58	58	59	59	59	59
	fz	0.03	0.03	0.03	0.04	0.033	0.03	0.039	0.039	0.034	0.034	0.029	0.029	0.029	0.033	0.03	0.04	0.033	0.033	0.03
	RPM	1154	1154	1154	1114	1114	1008	955	955	955	955	955	859	859	839	839	751	751	751	751
	FEED	69	69	69	89	74	60	74	74	65	65	55	50	50	55	50	60	50	50	45
10 - 11.1	Vc	77	77	77	82	82	74	77	77	77	77	77	69	69	76	76	77	77	77	77
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036	0.031
	RPM	1532	1532	1532	1450	1450	1309	1225	1225	1225	1225	1225	1098	1098	1100	1100	980	980	980	980
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71	61
11.2	Vc	58	58	58	63	63	57	60	60	60	60	60	54	54	58	58	59	59	59	59
	fz	0.03	0.03	0.03	0.04	0.033	0.03	0.039	0.039	0.034	0.034	0.029	0.029	0.029	0.033	0.03	0.04	0.033	0.033	0.03
	RPM	1154	1154	1154	1114	1114	1008	955	955	955	955	955	859	859	839	839	751	751	751	751
	FEED	69	69	69	89	74	60	74	74	65	65	55	50	50	55	50	60	50	50	45
15 - 20	Vc	77	77	77	82	82	74	77	77	77	77	77	69	69	76	76	77	77	77	77
	fz	0.031	0.031	0.031	0.041	0.034	0.031	0.041	0.041	0.035	0.035	0.031	0.032	0.032	0.034	0.032	0.041	0.036	0.036	0.031
	RPM	1532	1532	1532	1450	1450	1309	1225	1225	1225	1225	1225	1098	1098	1100	1100	980	980	980	980
	FEED	95	95	95	119	99	81	100	100	86	86	76	70	70	75	70	80	71	71	61
38.1 - 38.2	Vc	36	36	36	40	40	36	38	38	38	38	38	34	34	38	38	38	38	38	38
	fz	0.021	0.021	0.021	0.029	0.025	0.024	0.029	0.029	0.025	0.025	0.021	0.023	0.023	0.027	0.023	0.031	0.026	0.026	0.026
	RPM	716	716	716	707	707	637	605	605	605	605	605	541	541	550	550	484	484	484	484
	FEED	30	30	30	41	35	31	35	35	30	30	25	25	25	30	25	30	25	25	25
40	Vc	58	58	58	63	63	57	60	60	60	60	60	54	54	58	58	59	59	59	59
	fz	0.03	0.03	0.03	0.04	0.033	0.03	0.039	0.039	0.034	0.034	0.029	0.029	0.029	0.033	0.03	0.04	0.033	0.033	0.03
	RPM	1154	1154	1154	1114	1114	1008	955	955	955	955	955	859	859	839	839	751	751	751	751
	FEED	69	69	69	89	74	60	74	74	65	65	55	50	50	55	50	60	50	50	45
41	Vc	36	36	36	40	40	36	38	38	38	38	38	34	34	38	38	38	38	38	38
	fz	0.021	0.021	0.021	0.029	0.025	0.024	0.029	0.029	0.025	0.025	0.021	0.023	0.023	0.027	0.023	0.031	0.026	0.026	0.026
	RPM	716	716	716	707	707	637	605	605	605	605	605	541	541	550	550	484	484	484	484
	FEED	30	30	30	41	35	31	35	35	30	30	25	25	25	30	25	30	25	25	25



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES — 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)																
				0.1	0.1	0.1	0.15	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
			LBS	0.3	0.5	1	0.35	0.5	1	1.5	2	1	1.5	2	2.5	3	4	5	1	1.5
P	1-5	Non-alloy steel	Vc	16	16	14	20	24	24	22	22	32	32	29	29	29	26	19	34	34
			fz	0.003	0.003	0.003	0.004	0.005	0.005	0.004	0.004	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.01	0.01
			RPM	50930	50930	44563	42441	38197	38197	35014	35014	33953	33953	30770	30770	30770	27587	20160	27056	27056
			FEED	306	306	267	340	382	382	280	280	407	407	308	308	308	276	161	541	541
			Ap	0.009	0.006	0.002	0.013	0.018	0.013	0.007	0.005	0.019	0.019	0.011	0.007	0.007	0.004	0.003	0.036	0.025
	6-8	Low alloy steel	Vc	16	16	14	20	24	24	22	22	32	32	29	29	29	26	19	34	34
			fz	0.003	0.003	0.003	0.004	0.005	0.005	0.004	0.004	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.01	0.01
			RPM	50930	50930	44563	42441	38197	38197	35014	35014	33953	33953	30770	30770	30770	27587	20160	27056	27056
			FEED	306	306	267	340	382	382	280	280	407	407	308	308	308	276	161	541	541
			Ap	0.009	0.006	0.002	0.013	0.018	0.013	0.007	0.005	0.019	0.019	0.011	0.007	0.007	0.004	0.003	0.036	0.025
	9		Vc	15	15	13	19	23	23	21	21	30	30	27	27	27	24	18	32	32
			fz	0.002	0.002	0.002	0.003	0.004	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.007	0.007
			RPM	47746	47746	41380	40319	36606	36606	33423	33423	31831	31831	28648	28648	28648	25465	19099	25465	25465
			FEED	191	191	166	242	293	293	201	201	255	255	229	229	229	153	115	357	357
			Ap	0.007	0.005	0.002	0.010	0.014	0.01	0.006	0.004	0.015	0.015	0.008	0.005	0.005	0.003	0.002	0.028	0.02
	10-11.1	High alloyed steel, and tool steel	Vc	16	16	14	20	24	24	22	22	32	32	29	29	29	26	19	34	34
			fz	0.003	0.003	0.003	0.004	0.005	0.005	0.004	0.004	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.01	0.01
			RPM	50930	50930	44563	42441	38197	38197	35014	35014	33953	33953	30770	30770	30770	27587	20160	27056	27056
			FEED	306	306	267	340	382	382	280	280	407	407	308	308	308	276	161	541	541
			Ap	0.009	0.006	0.002	0.013	0.018	0.013	0.007	0.005	0.019	0.019	0.011	0.007	0.007	0.004	0.003	0.036	0.025
	11.2		Vc	15	15	13	19	23	23	21	21	30	30	27	27	27	24	18	32	32
			fz	0.002	0.002	0.002	0.003	0.004	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.007	0.007
			RPM	47746	47746	41380	40319	36606	36606	33423	33423	31831	31831	28648	28648	28648	25465	19099	25465	25465
			FEED	191	191	166	242	293	293	201	201	255	255	229	229	229	153	115	357	357
			Ap	0.007	0.005	0.002	0.010	0.014	0.01	0.006	0.004	0.015	0.015	0.008	0.005	0.005	0.003	0.002	0.028	0.02
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	16	16	14	20	24	24	22	22	32	32	29	29	29	26	19	34	34
			fz	0.003	0.003	0.003	0.004	0.005	0.005	0.004	0.004	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.01	0.01
			RPM	50930	50930	44563	42441	38197	38197	35014	35014	33953	33953	30770	30770	30770	27587	20160	27056	27056
			FEED	306	306	267	340	382	382	280	280	407	407	308	308	308	276	161	541	541
			Ap	0.009	0.006	0.002	0.013	0.018	0.013	0.007	0.005	0.019	0.019	0.011	0.007	0.007	0.004	0.003	0.036	0.025
H	38.1 - 38.2	Hardened steel	Vc	13	13	11	16	20	20	18	18	27	27	24	24	24	21	16	29	29
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.006	0.006
			RPM	41380	41380	35014	33953	31831	31831	28648	28648	28648	28648	25465	25465	25465	22282	16977	23077	23077
			FEED	166	166	140	136	191	191	172	172	229	229	204	204	204	134	102	277	277
			Ap	0.005	0.004	0.001	0.007	0.01	0.007	0.004	0.003	0.011	0.011	0.006	0.004	0.004	0.002	0.002	0.02	0.014
	40	Chilled Cast Iron	Vc	15	15	13	19	23	23	21	21	30	30	27	27	27	24	18	32	32
			fz	0.002	0.002	0.002	0.003	0.004	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.007	0.007
			RPM	47746	47746	41380	40319	36606	36606	33423	33423	31831	31831	28648	28648	28648	25465	19099	25465	25465
			FEED	191	191	166	242	293	293	201	201	255	255	229	229	229	153	115	357	357
			Ap	0.007	0.005	0.002	0.010	0.014	0.01	0.006	0.004	0.015	0.015	0.008	0.005	0.005	0.003	0.002	0.028	0.02
	41	Hardened Cast Iron	Vc	13	13	11	16	20	20	18	18	27	27	24	24	24	21	16	29	29
			fz	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.006	0.006
			RPM	41380	41380	35014	33953	31831	31831	28648	28648	28648	28648	25465	25465	25465	22282	16977	23077	23077
			FEED	166	166	140	136	191	191	172	172	229	229	204	204	204	134	102	277	277
			Ap	0.005	0.004	0.001	0.007	0.01	0.007	0.004	0.003	0.011	0.011	0.006	0.004	0.004	0.002	0.002	0.02	0.014

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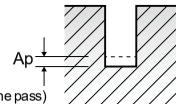

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEM845 SERIES — 2 FLUTE - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																								
		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6
	LBS	2	2.5	3	4	5	6	8	10	1	1.5	2	2.5	3	4	5	6	8	10	12	14	16	2	3
1-5	Vc	34	31	31	31	28	28	21	10	43	43	43	43	39	39	39	34	26	26	13	13	4	52	52
	fz	0.01	0.009	0.009	0.009	0.008	0.008	0.007	0.006	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.014	0.014
	RPM	27056	24669	24669	24669	22282	22282	16711	7958	27375	27375	27375	27375	24828	24828	24828	21645	16552	16552	8276	8276	2546	27587	27587
	FEED	541	444	444	444	357	357	234	95	547	547	547	547	447	447	447	346	232	232	99	99	25	772	772
	Ap	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007	0.005	0.005	0.005	0.005	0.038	0.038
6-8	Vc	34	31	31	31	28	28	21	10	43	43	43	43	39	39	39	34	26	26	13	13	4	52	52
	fz	0.01	0.009	0.009	0.009	0.008	0.008	0.007	0.006	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.014	0.014
	RPM	27056	24669	24669	24669	22282	22282	16711	7958	27375	27375	27375	27375	24828	24828	24828	21645	16552	16552	8276	8276	2546	27587	27587
	FEED	541	444	444	444	357	357	234	95	547	547	547	547	447	447	447	346	232	232	99	99	25	772	772
	Ap	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007	0.005	0.005	0.005	0.005	0.038	0.038
9	Vc	32	29	29	29	26	26	19	10	41	41	41	41	36	36	36	32	24	24	12	12	4	49	49
	fz	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.011	0.011
	RPM	25465	23077	23077	23077	20690	20690	15120	7958	26101	26101	26101	26101	22918	22918	22918	20372	15279	15279	7639	7639	2546	25995	25995
	FEED	357	323	323	323	248	248	151	80	418	418	418	418	321	321	321	285	183	183	76	76	20	572	572
	Ap	0.02	0.011	0.011	0.007	0.007	0.004	0.003	0.003	0.035	0.035	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.004	0.004	0.029	0.029
10 - 11.1	Vc	34	31	31	31	28	28	21	10	43	43	43	43	39	39	39	34	26	26	13	13	4	52	52
	fz	0.01	0.009	0.009	0.009	0.008	0.008	0.007	0.006	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.014	0.014
	RPM	27056	24669	24669	24669	22282	22282	16711	7958	27375	27375	27375	27375	24828	24828	24828	21645	16552	16552	8276	8276	2546	27587	27587
	FEED	541	444	444	444	357	357	234	95	547	547	547	547	447	447	447	346	232	232	99	99	25	772	772
	Ap	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007	0.005	0.005	0.005	0.005	0.038	0.038
11.2	Vc	32	29	29	29	26	26	19	10	41	41	41	41	36	36	36	32	24	24	12	12	4	49	49
	fz	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.011	0.011
	RPM	25465	23077	23077	23077	20690	20690	15120	7958	26101	26101	26101	26101	22918	22918	22918	20372	15279	15279	7639	7639	2546	25995	25995
	FEED	357	323	323	323	248	248	151	80	418	418	418	418	321	321	321	285	183	183	76	76	20	572	572
	Ap	0.02	0.011	0.011	0.007	0.007	0.004	0.003	0.003	0.035	0.035	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.004	0.004	0.029	0.029
15 - 20	Vc	34	31	31	31	28	28	21	10	43	43	43	43	39	39	39	34	26	26	13	13	4	52	52
	fz	0.01	0.009	0.009	0.009	0.008	0.008	0.007	0.006	0.01	0.01	0.01	0.01	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.014	0.014
	RPM	27056	24669	24669	24669	22282	22282	16711	7958	27375	27375	27375	27375	24828	24828	24828	21645	16552	16552	8276	8276	2546	27587	27587
	FEED	541	444	444	444	357	357	234	95	547	547	547	547	447	447	447	346	232	232	99	99	25	772	772
	Ap	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.045	0.045	0.032	0.032	0.018	0.018	0.011	0.011	0.007	0.005	0.005	0.005	0.005	0.038	0.038
38.1 - 38.2	Vc	29	26	26	26	23	23	17	9	36	36	36	36	32	32	32	29	21	21	11	11	4	43	43
	fz	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.009	0.009
	RPM	23077	20690	20690	20690	18303	18303	13528	7162	22918	22918	22918	22918	20372	20372	20372	18462	13369	13369	7003	7003	2546	22812	22812
	FEED	277	207	207	207	183	183	108	57	275	275	275	275	244	244	244	185	107	107	56	56	15	411	411
	Ap	0.014	0.008	0.008	0.005	0.005	0.003	0.002	0.002	0.025	0.025	0.018	0.018	0.01	0.01	0.006	0.006	0.004	0.003	0.003	0.003	0.003	0.021	0.021
40	Vc	32	29	29	29	26	26	19	10	41	41	41	41	36	36	36	32	24	24	12	12	4	49	49
	fz	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.011	0.011
	RPM	25465	23077	23077	23077	20690	20690	15120	7958	26101	26101	26101	26101	22918	22918	22918	20372	15279	15279	7639	7639	2546	25995	25995
	FEED	357	323	323	323	248	248	151	80	418	418	418	418	321	321	321	285	183	183	76	76	20	572	572
	Ap	0.02	0.011	0.011	0.007	0.007	0.004	0.003	0.003	0.035	0.035	0.025	0.025	0.014	0.014	0.009	0.009	0.005	0.004	0.004	0.004	0.004	0.029	0.029
41	Vc	29	26	26	26	23	23	17	9	36	36	36	36	32	32	32	29	21	21	11	11	4	43	43
	fz	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.009	0.009
	RPM	23077	20690	20690	20690	18303	18303	13528	7162	22918	22918	22918	22918	20372	20372	20372	18462	13369	13369	7003	7003	2546	22812	22812
	FEED	277	207	207	207	183	183	108	57	275	275	275	275	244	244	244	185	107	107	56	56	15	411	411
	Ap	0.014	0.008	0.008	0.005	0.005	0.003	0.002	0.002	0.025	0.025	0.018	0.018	0.01	0.01	0.006	0.006	0.004	0.003	0.003	0.003	0.003	0.021	0.021

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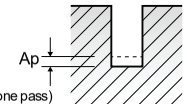

(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES — 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																		
			0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
		LBS	4	5	6	8	10	12	14	16	2	4	6	8	10	12	2	3	4	5	6
P	1-5	Vc	46	46	46	41	31	31	15	15	60	54	54	48	48	36	69	69	69	62	62
		fz	0.013	0.013	0.013	0.011	0.01	0.01	0.009	0.009	0.014	0.013	0.013	0.011	0.011	0.01	0.014	0.014	0.014	0.013	0.013
		RPM	24404	24404	24404	21751	16446	16446	7958	7958	27284	24555	24555	21827	21827	16370	27454	27454	27454	24669	24669
		FEED	634	634	634	479	329	329	143	143	764	638	638	480	480	327	769	769	769	641	641
		Ap	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029
	6-8	Vc	46	46	46	41	31	31	15	15	60	54	54	48	48	36	69	69	69	62	62
		fz	0.013	0.013	0.013	0.011	0.01	0.01	0.009	0.009	0.014	0.013	0.013	0.011	0.011	0.01	0.014	0.014	0.014	0.013	0.013
		RPM	24404	24404	24404	21751	16446	16446	7958	7958	27284	24555	24555	21827	21827	16370	27454	27454	27454	24669	24669
		FEED	634	634	634	479	329	329	143	143	764	638	638	480	480	327	769	769	769	641	641
		Ap	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029
	9	Vc	44	44	44	39	29	29	15	15	57	51	51	45	45	34	65	65	65	58	58
		fz	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.011	0.009	0.009	0.008	0.008	0.007	0.012	0.012	0.012	0.011	0.011
		RPM	23343	23343	23343	20690	15385	15385	7958	7958	25920	23191	23191	20463	20463	15461	25863	25863	25863	23077	23077
		FEED	420	420	420	331	215	215	95	95	570	417	417	327	327	216	621	621	621	508	508
		Ap	0.017	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.049	0.02	0.012	0.012	0.007	0.005	0.056	0.039	0.039	0.022	0.022
	10-11.1	Vc	46	46	46	41	31	31	15	15	60	54	54	48	48	36	69	69	69	62	62
		fz	0.013	0.013	0.013	0.011	0.01	0.01	0.009	0.009	0.014	0.013	0.013	0.011	0.011	0.01	0.014	0.014	0.014	0.013	0.013
		RPM	24404	24404	24404	21751	16446	16446	7958	7958	27284	24555	24555	21827	21827	16370	27454	27454	27454	24669	24669
		FEED	634	634	634	479	329	329	143	143	764	638	638	480	480	327	769	769	769	641	641
		Ap	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029
	11.2	Vc	44	44	44	39	29	29	15	15	57	51	51	45	45	34	65	65	65	58	58
		fz	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.011	0.009	0.009	0.008	0.008	0.007	0.012	0.012	0.012	0.011	0.011
		RPM	23343	23343	23343	20690	15385	15385	7958	7958	25920	23191	23191	20463	20463	15461	25863	25863	25863	23077	23077
		FEED	420	420	420	331	215	215	95	95	570	417	417	327	327	216	621	621	621	508	508
		Ap	0.017	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.049	0.02	0.012	0.012	0.007	0.005	0.056	0.039	0.039	0.022	0.022
K	15-20	Vc	46	46	46	41	31	31	15	15	60	54	54	48	48	36	69	69	69	62	62
		fz	0.013	0.013	0.013	0.011	0.01	0.01	0.009	0.009	0.014	0.013	0.013	0.011	0.011	0.01	0.014	0.014	0.014	0.013	0.013
		RPM	24404	24404	24404	21751	16446	16446	7958	7958	27284	24555	24555	21827	21827	16370	27454	27454	27454	24669	24669
		FEED	634	634	634	479	329	329	143	143	764	638	638	480	480	327	769	769	769	641	641
		Ap	0.022	0.014	0.014	0.008	0.005	0.005	0.005	0.005	0.063	0.025	0.016	0.016	0.009	0.006	0.072	0.05	0.05	0.029	0.029
H	38.1 - 38.2	Vc	39	39	39	34	26	26	13	13	50	45	45	40	40	30	57	57	57	52	52
		fz	0.008	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.009	0.008	0.008	0.007	0.007	0.006	0.01	0.01	0.01	0.009	0.009
		RPM	20690	20690	20690	18038	13793	13793	6897	6897	22736	20463	20463	18189	18189	13642	22680	22680	22680	20690	20690
		FEED	331	331	331	253	166	166	69	69	409	327	327	255	255	164	454	454	454	372	372
		Ap	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.003	0.035	0.014	0.009	0.009	0.005	0.004	0.04	0.028	0.028	0.016	0.016
	40	Vc	44	44	44	39	29	29	15	15	57	51	51	45	45	34	65	65	65	58	58
		fz	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.011	0.009	0.009	0.008	0.008	0.007	0.012	0.012	0.012	0.011	0.011
		RPM	23343	23343	23343	20690	15385	15385	7958	7958	25920	23191	23191	20463	20463	15461	25863	25863	25863	23077	23077
		FEED	420	420	420	331	215	215	95	95	570	417	417	327	327	216	621	621	621	508	508
		Ap	0.017	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.049	0.02	0.012	0.012	0.007	0.005	0.056	0.039	0.039	0.022	0.022
	41	Vc	39	39	39	34	26	26	13	13	50	45	45	40	40	30	57	57	57	52	52
		fz	0.008	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.009	0.008	0.008	0.007	0.007	0.006	0.01	0.01	0.01	0.009	0.009
		RPM	20690	20690	20690	18038	13793	13793	6897	6897	22736	20463	20463	18189	18189	13642	22680	22680	22680	20690	20690
		FEED	331	331	331	253	166	166	69	69	409	327	327	255	255	164	454	454	454	372	372
		Ap	0.012	0.008	0.008	0.005	0.003	0.003	0.003	0.003	0.035	0.014	0.009	0.009	0.005	0.004	0.04	0.028	0.028	0.016	0.016

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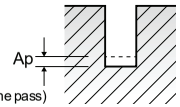

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEM845 SERIES — 2 FLUTE - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																							
		0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	LBS	8	10	12	14	16	20	6	8	10	2	3	4	5	6	7	8	10	12	14	16	18	20	22
1-5	Vc	62	55	55	41	41	21	63	63	56	77	77	77	77	70	70	70	70	62	62	46	46	46	23
	fz	0.013	0.011	0.011	0.01	0.01	0.009	0.013	0.013	0.012	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013
	RPM	24669	21884	21884	16313	16313	8356	22282	22282	19806	24510	24510	24510	24510	22282	22282	22282	22282	19735	19735	14642	14642	14642	7321
	FEED	641	481	481	326	326	150	579	579	475	1029	1029	1029	1029	847	847	847	847	671	671	439	439	439	190
	Ap	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.02	0.02	0.09	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009
6-8	Vc	62	55	55	41	41	21	63	63	56	77	77	77	77	70	70	70	70	62	62	46	46	46	23
	fz	0.013	0.011	0.011	0.01	0.01	0.009	0.013	0.013	0.012	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013
	RPM	24669	21884	21884	16313	16313	8356	22282	22282	19806	24510	24510	24510	24510	22282	22282	22282	22282	19735	19735	14642	14642	14642	7321
	FEED	641	481	481	326	326	150	579	579	475	1029	1029	1029	1029	847	847	847	847	671	671	439	439	439	190
	Ap	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.02	0.02	0.09	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009
9	Vc	58	52	52	39	39	19	59	59	53	73	73	73	73	66	66	66	66	59	59	44	44	44	22
	fz	0.011	0.009	0.009	0.008	0.008	0.007	0.01	0.01	0.009	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.015	0.015	0.013	0.013	0.013	0.011
	RPM	23077	20690	20690	15518	15518	7560	20867	20867	18745	23237	23237	23237	23237	21008	21008	21008	21008	18780	18780	14006	14006	14006	7003
	FEED	508	372	372	248	248	106	417	417	337	883	883	883	883	714	714	714	714	563	563	364	364	364	154
	Ap	0.014	0.014	0.008	0.006	0.006	0.006	0.025	0.016	0.016	0.07	0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007
10 - 11.1	Vc	62	55	55	41	41	21	63	63	56	77	77	77	77	70	70	70	70	62	62	46	46	46	23
	fz	0.013	0.011	0.011	0.01	0.01	0.009	0.013	0.013	0.012	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013
	RPM	24669	21884	21884	16313	16313	8356	22282	22282	19806	24510	24510	24510	24510	22282	22282	22282	22282	19735	19735	14642	14642	14642	7321
	FEED	641	481	481	326	326	150	579	579	475	1029	1029	1029	1029	847	847	847	847	671	671	439	439	439	190
	Ap	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.02	0.02	0.09	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009
11.2	Vc	58	52	52	39	39	19	59	59	53	73	73	73	73	66	66	66	66	59	59	44	44	44	22
	fz	0.011	0.009	0.009	0.008	0.008	0.007	0.01	0.01	0.009	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.015	0.015	0.013	0.013	0.013	0.011
	RPM	23077	20690	20690	15518	15518	7560	20867	20867	18745	23237	23237	23237	23237	21008	21008	21008	21008	18780	18780	14006	14006	14006	7003
	FEED	508	372	372	248	248	106	417	417	337	883	883	883	883	714	714	714	714	563	563	364	364	364	154
	Ap	0.014	0.014	0.008	0.006	0.006	0.006	0.025	0.016	0.016	0.07	0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007
15 - 20	Vc	62	55	55	41	41	21	63	63	56	77	77	77	77	70	70	70	70	62	62	46	46	46	23
	fz	0.013	0.011	0.011	0.01	0.01	0.009	0.013	0.013	0.012	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.017	0.017	0.015	0.015	0.015	0.013
	RPM	24669	21884	21884	16313	16313	8356	22282	22282	19806	24510	24510	24510	24510	22282	22282	22282	22282	19735	19735	14642	14642	14642	7321
	FEED	641	481	481	326	326	150	579	579	475	1029	1029	1029	1029	847	847	847	847	671	671	439	439	439	190
	Ap	0.018	0.018	0.011	0.007	0.007	0.007	0.032	0.02	0.02	0.09	0.09	0.063	0.063	0.036	0.036	0.036	0.023	0.023	0.014	0.014	0.009	0.009	0.009
38.1 - 38.2	Vc	52	46	46	34	34	17	52	52	46	64	64	64	64	58	58	58	58	52	52	39	39	39	19
	fz	0.009	0.008	0.008	0.007	0.007	0.006	0.009	0.009	0.008	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.015	0.013	0.013	0.011	0.011	0.011	0.01
	RPM	20690	18303	18303	13528	13528	6764	18391	18391	16269	20372	20372	20372	20372	18462	18462	18462	18462	16552	16552	12414	12414	12414	6048
	FEED	372	293	293	189	189	81	331	331	260	652	652	652	652	554	554	554	554	430	430	273	273	273	121
	Ap	0.01	0.01	0.006	0.004	0.004	0.004	0.018	0.011	0.011	0.05	0.05	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.008	0.008	0.005	0.005	0.005
40	Vc	58	52	52	39	39	19	59	59	53	73	73	73	73	66	66	66	66	59	59	44	44	44	22
	fz	0.011	0.009	0.009	0.008	0.008	0.007	0.01	0.01	0.009	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.015	0.015	0.013	0.013	0.013	0.011
	RPM	23077	20690	20690	15518	15518	7560	20867	20867	18745	23237	23237	23237	23237	21008	21008	21008	21008	18780	18780	14006	14006	14006	7003
	FEED	508	372	372	248	248	106	417	417	337	883	883	883	883	714	714	714	714	563	563	364	364	364	154
	Ap	0.014	0.014	0.008	0.006	0.006	0.006	0.025	0.016	0.016	0.07	0.07	0.049	0.049	0.028	0.028	0.028	0.018	0.018	0.011	0.011	0.007	0.007	0.007
41	Vc	52	46	46	34	34	17	52	52	46	64	64	64	64	58	58	58	58	52	52	39	39	39	19
	fz	0.009	0.008	0.008	0.007	0.007	0.006	0.009	0.009	0.008	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.015	0.013	0.013	0.011	0.011	0.011	0.01
	RPM	20690	18303	18303	13528	13528	6764	18391	18391	16269	20372	20372	20372	20372	18462	18462	18462	18462	16552	16552	12414	12414	12414	6048
	FEED	372	293	293	189	189	81	331	331	260	652	652	652	652	554	554	554	554	430	430	273	273	273	121
	Ap	0.01	0.01	0.006	0.004	0.004	0.004	0.018	0.011	0.011	0.05	0.05	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.008	0.008	0.005	0.005	0.005

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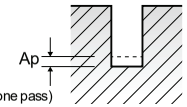

(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																		
			1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.4	1.4	1.4
		LBS	26	30	40	50	4	6	8	10	12	14	16	20	26	30	6	8	10	14	16
P	1-5	Vc	23	23	8	8	83	83	74	74	74	66	66	50	25	25	84	76	76	76	68
		fz	0.013	0.013	0.01	0.01	0.021	0.021	0.019	0.019	0.019	0.017	0.017	0.015	0.013	0.013	0.021	0.019	0.019	0.019	0.017
		RPM	7321	7321	2546	2546	22016	22016	19629	19629	19629	17507	17507	13263	6631	6631	19099	17280	17280	17280	15461
		FEED	190	190	51	51	925	925	746	746	746	595	595	398	172	172	802	657	657	657	526
		Ap	0.009	0.009	0.009	0.006	0.076	0.076	0.043	0.027	0.027	0.027	0.016	0.011	0.011	0.011	0.088	0.05	0.05	0.032	0.032
	6-8	Vc	23	23	8	8	83	83	74	74	74	66	66	50	25	25	84	76	76	76	68
		fz	0.013	0.013	0.01	0.01	0.021	0.021	0.019	0.019	0.019	0.017	0.017	0.015	0.013	0.013	0.021	0.019	0.019	0.019	0.017
		RPM	7321	7321	2546	2546	22016	22016	19629	19629	19629	17507	17507	13263	6631	6631	19099	17280	17280	17280	15461
		FEED	190	190	51	51	925	925	746	746	746	595	595	398	172	172	802	657	657	657	526
		Ap	0.009	0.009	0.009	0.006	0.076	0.076	0.043	0.027	0.027	0.027	0.016	0.011	0.011	0.011	0.088	0.05	0.05	0.032	0.032
	9	Vc	22	22	7	7	78	78	70	70	70	62	62	47	23	23	80	72	72	72	64
		fz	0.011	0.011	0.01	0.01	0.017	0.017	0.016	0.016	0.016	0.014	0.014	0.012	0.01	0.01	0.016	0.014	0.014	0.014	0.013
		RPM	7003	7003	2228	2228	20690	20690	18568	18568	18568	16446	16446	12467	6101	6101	18189	16370	16370	16370	14551
		FEED	154	154	45	45	703	703	594	594	594	460	460	299	122	122	582	458	458	458	378
		Ap	0.007	0.007	0.007	0.005	0.059	0.059	0.034	0.021	0.021	0.021	0.013	0.008	0.008	0.008	0.069	0.039	0.039	0.025	0.025
	10-11.1	Vc	23	23	8	8	83	83	74	74	74	66	66	50	25	25	84	76	76	76	68
		fz	0.013	0.013	0.01	0.01	0.021	0.021	0.019	0.019	0.019	0.017	0.017	0.015	0.013	0.013	0.021	0.019	0.019	0.019	0.017
		RPM	7321	7321	2546	2546	22016	22016	19629	19629	19629	17507	17507	13263	6631	6631	19099	17280	17280	17280	15461
		FEED	190	190	51	51	925	925	746	746	746	595	595	398	172	172	802	657	657	657	526
		Ap	0.009	0.009	0.009	0.006	0.076	0.076	0.043	0.027	0.027	0.027	0.016	0.011	0.011	0.011	0.088	0.05	0.05	0.032	0.032
	11.2	Vc	22	22	7	7	78	78	70	70	70	62	62	47	23	23	80	72	72	72	64
		fz	0.011	0.011	0.01	0.01	0.017	0.017	0.016	0.016	0.016	0.014	0.014	0.012	0.01	0.01	0.016	0.014	0.014	0.014	0.013
		RPM	7003	7003	2228	2228	20690	20690	18568	18568	18568	16446	16446	12467	6101	6101	18189	16370	16370	16370	14551
		FEED	154	154	45	45	703	703	594	594	594	460	460	299	122	122	582	458	458	458	378
		Ap	0.007	0.007	0.007	0.005	0.059	0.059	0.034	0.021	0.021	0.021	0.013	0.008	0.008	0.008	0.069	0.039	0.039	0.025	0.025
K	15-20	Vc	23	23	8	8	83	83	74	74	74	66	66	50	25	25	84	76	76	76	68
		fz	0.013	0.013	0.01	0.01	0.021	0.021	0.019	0.019	0.019	0.017	0.017	0.015	0.013	0.013	0.021	0.019	0.019	0.019	0.017
		RPM	7321	7321	2546	2546	22016	22016	19629	19629	19629	17507	17507	13263	6631	6631	19099	17280	17280	17280	15461
		FEED	190	190	51	51	925	925	746	746	746	595	595	398	172	172	802	657	657	657	526
		Ap	0.009	0.009	0.009	0.006	0.076	0.076	0.043	0.027	0.027	0.027	0.016	0.011	0.011	0.011	0.088	0.05	0.05	0.032	0.032
H	38.1 - 38.2	Vc	19	19	6	6	69	69	62	62	62	55	55	41	21	21	70	63	63	63	56
		fz	0.01	0.01	0.009	0.009	0.013	0.013	0.012	0.012	0.012	0.011	0.011	0.009	0.008	0.008	0.013	0.012	0.012	0.012	0.011
		RPM	6048	6048	1910	1910	18303	18303	16446	16446	16446	14589	14589	10876	5570	5570	15915	14324	14324	14324	12732
		FEED	121	121	34	34	476	476	395	395	395	321	321	196	89	89	414	344	344	344	280
		Ap	0.005	0.005	0.005	0.003	0.042	0.042	0.024	0.015	0.015	0.015	0.009	0.006	0.006	0.006	0.049	0.028	0.028	0.018	0.018
	40	Vc	22	22	7	7	78	78	70	70	70	62	62	47	23	23	80	72	72	72	64
		fz	0.011	0.011	0.01	0.01	0.017	0.017	0.016	0.016	0.016	0.014	0.014	0.012	0.01	0.01	0.016	0.014	0.014	0.014	0.013
		RPM	7003	7003	2228	2228	20690	20690	18568	18568	18568	16446	16446	12467	6101	6101	18189	16370	16370	16370	14551
		FEED	154	154	45	45	703	703	594	594	594	460	460	299	122	122	582	458	458	458	378
		Ap	0.007	0.007	0.007	0.005	0.059	0.059	0.034	0.021	0.021	0.021	0.013	0.008	0.008	0.008	0.069	0.039	0.039	0.025	0.025
	41	Vc	19	19	6	6	69	69	62	62	62	55	55	41	21	21	70	63	63	63	56
		fz	0.01	0.01	0.009	0.009	0.013	0.013	0.012	0.012	0.012	0.011	0.011	0.009	0.008	0.008	0.013	0.012	0.012	0.012	0.011
		RPM	6048	6048	1910	1910	18303	18303	16446	16446	16446	14589	14589	10876	5570	5570	15915	14324	14324	14324	12732
		FEED	121	121	34	34	476	476	395	395	395	321	321	196	89	89	414	344	344	344	280
		Ap	0.005	0.005	0.005	0.003	0.042	0.042	0.024	0.015	0.015	0.015	0.009	0.006	0.006	0.006	0.049	0.028	0.028	0.018	0.018

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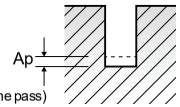

(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																					
		1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.8	1.8	1.8
	LBS	20	4	5	6	7	8	10	12	14	16	18	20	22	26	30	8	10	12	16	20	8	10	12
1-5	Vc	68	90	90	90	90	81	81	81	81	72	72	72	72	54	54	89	81	81	81	72	101	91	91
	fz	0.017	0.024	0.024	0.024	0.024	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.016	0.016	0.024	0.021	0.021	0.021	0.019	0.024	0.021	0.021
	RPM	15461	19099	19099	19099	19099	17189	17189	17189	17189	15279	15279	15279	15279	11459	11459	17706	16114	16114	16114	14324	17861	16092	16092
	FEED	526	917	917	917	917	722	722	722	722	581	581	581	581	367	367	850	677	677	677	544	857	676	676
	Ap	0.019	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034	0.034	0.034	0.02	0.02	0.014	0.014	0.101	0.058	0.058	0.036	0.036	0.113	0.065	0.065
6-8	Vc	68	90	90	90	90	81	81	81	81	72	72	72	72	54	54	89	81	81	81	72	101	91	91
	fz	0.017	0.024	0.024	0.024	0.024	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.016	0.016	0.024	0.021	0.021	0.021	0.019	0.024	0.021	0.021
	RPM	15461	19099	19099	19099	19099	17189	17189	17189	17189	15279	15279	15279	15279	11459	11459	17706	16114	16114	16114	14324	17861	16092	16092
	FEED	526	917	917	917	917	722	722	722	722	581	581	581	581	367	367	850	677	677	677	544	857	676	676
	Ap	0.019	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034	0.034	0.034	0.02	0.02	0.014	0.014	0.101	0.058	0.058	0.036	0.036	0.113	0.065	0.065
9	Vc	64	85	85	85	85	77	77	77	77	68	68	68	68	51	51	84	76	76	76	68	95	86	86
	fz	0.013	0.018	0.018	0.018	0.018	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012	0.012	0.019	0.018	0.018	0.018	0.016	0.019	0.018	0.018
	RPM	14551	18038	18038	18038	18038	16340	16340	16340	16340	14430	14430	14430	14430	10823	10823	16711	15120	15120	15120	13528	16800	15208	15208
	FEED	378	649	649	649	649	523	523	523	523	404	404	404	404	260	260	635	544	544	544	433	638	547	547
	Ap	0.015	0.105	0.074	0.074	0.074	0.042	0.042	0.042	0.026	0.026	0.026	0.016	0.016	0.011	0.011	0.078	0.045	0.045	0.028	0.028	0.088	0.05	0.05
10 - 11.1	Vc	68	90	90	90	90	81	81	81	81	72	72	72	72	54	54	89	81	81	81	72	101	91	91
	fz	0.017	0.024	0.024	0.024	0.024	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.016	0.016	0.024	0.021	0.021	0.021	0.019	0.024	0.021	0.021
	RPM	15461	19099	19099	19099	19099	17189	17189	17189	17189	15279	15279	15279	15279	11459	11459	17706	16114	16114	16114	14324	17861	16092	16092
	FEED	526	917	917	917	917	722	722	722	722	581	581	581	581	367	367	850	677	677	677	544	857	676	676
	Ap	0.019	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034	0.034	0.034	0.02	0.02	0.014	0.014	0.101	0.058	0.058	0.036	0.036	0.113	0.065	0.065
11.2	Vc	64	85	85	85	85	77	77	77	77	68	68	68	68	51	51	84	76	76	76	68	95	86	86
	fz	0.013	0.018	0.018	0.018	0.018	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012	0.012	0.019	0.018	0.018	0.018	0.016	0.019	0.018	0.018
	RPM	14551	18038	18038	18038	18038	16340	16340	16340	16340	14430	14430	14430	14430	10823	10823	16711	15120	15120	15120	13528	16800	15208	15208
	FEED	378	649	649	649	649	523	523	523	523	404	404	404	404	260	260	635	544	544	544	433	638	547	547
	Ap	0.015	0.105	0.074	0.074	0.074	0.042	0.042	0.042	0.026	0.026	0.026	0.016	0.016	0.011	0.011	0.078	0.045	0.045	0.028	0.028	0.088	0.05	0.05
15 - 20	Vc	68	90	90	90	90	81	81	81	81	72	72	72	72	54	54	89	81	81	81	72	101	91	91
	fz	0.017	0.024	0.024	0.024	0.024	0.021	0.021	0.021	0.021	0.019	0.019	0.019	0.019	0.016	0.016	0.024	0.021	0.021	0.021	0.019	0.024	0.021	0.021
	RPM	15461	19099	19099	19099	19099	17189	17189	17189	17189	15279	15279	15279	15279	11459	11459	17706	16114	16114	16114	14324	17861	16092	16092
	FEED	526	917	917	917	917	722	722	722	722	581	581	581	581	367	367	850	677	677	677	544	857	676	676
	Ap	0.019	0.135	0.095	0.095	0.095	0.054	0.054	0.054	0.034	0.034	0.034	0.02	0.02	0.014	0.014	0.101	0.058	0.058	0.036	0.036	0.113	0.065	0.065
38.1 - 38.2	Vc	56	75	75	75	75	68	68	68	68	60	60	60	60	45	45	74	67	67	67	60	84	75	75
	fz	0.011	0.015	0.015	0.015	0.015	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.01	0.01	0.017	0.015	0.015	0.015	0.013	0.017	0.015	0.015
	RPM	12732	15915	15915	15915	15915	14430	14430	14430	14430	12732	12732	12732	12732	9549	9549	14722	13329	13329	13329	11937	14854	13263	13263
	FEED	280	477	477	477	477	375	375	375	375	306	306	306	306	191	191	501	400	400	400	310	505	398	398
	Ap	0.011	0.075	0.053	0.053	0.053	0.03	0.03	0.03	0.019	0.019	0.019	0.011	0.011	0.008	0.008	0.056	0.032	0.032	0.02	0.02	0.063	0.036	0.036
40	Vc	64	85	85	85	85	77	77	77	77	68	68	68	68	51	51	84	76	76	76	68	95	86	86
	fz	0.013	0.018	0.018	0.018	0.018	0.016	0.016	0.016	0.016	0.014	0.014	0.014	0.014	0.012	0.012	0.019	0.018	0.018	0.018	0.016	0.019	0.018	0.018
	RPM	14551	18038	18038	18038	18038	16340	16340	16340	16340	14430	14430	14430	14430	10823	10823	16711	15120	15120	15120	13528	16800	15208	15208
	FEED	378	649	649	649	649	523	523	523	523	404	404	404	404	260	260	635	544	544	544	433	638	547	547
	Ap	0.015	0.105	0.074	0.074	0.074	0.042	0.042	0.042	0.026	0.026	0.026	0.016	0.016	0.011	0.011	0.078	0.045	0.045	0.028	0.028	0.088	0.05	0.05
41	Vc	56	75	75	75	75	68	68	68	68	60	60	60	60	45	45	74	67	67	67	60	84	75	75
	fz	0.011	0.015	0.015	0.015	0.015	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.01	0.01	0.017	0.015	0.015	0.015	0.013	0.017	0.015	0.015
	RPM	12732	15915	15915	15915	15915	14430	14430	14430	14430	12732	12732	12732	12732	9549	9549	14722	13329	13329	13329	11937	14854	13263	13263
	FEED	280	477	477	477	477	375	375	375	375	306	306	306	306	191	191	501	400	400	400	310	505	398	398
	Ap	0.011	0.075	0.053	0.053	0.053	0.03	0.03	0.03	0.019	0.019	0.019	0.011	0.011	0.008	0.008	0.056	0.032	0.032	0.02	0.02	0.063	0.036	0.036

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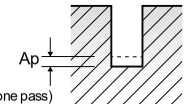

(Depth of cut per one pass)

CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES — 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																		
			1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5
		LBS	16	20	6	8	10	12	14	16	18	20	22	26	30	35	40	45	50	60	8
P	1-5	Vc	91	81	90	90	90	81	81	81	81	81	72	72	72	54	54	27	27	27	97
		fz	0.021	0.019	0.028	0.028	0.028	0.026	0.026	0.026	0.026	0.026	0.023	0.023	0.023	0.02	0.02	0.017	0.017	0.017	0.039
		RPM	16092	14324	14324	14324	14324	12892	12892	12892	12892	12892	11459	11459	11459	8594	8594	4297	4297	4297	12350
		FEED	676	544	802	802	802	670	670	670	670	670	527	527	527	344	344	146	146	146	963
		Ap	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018	0.018	0.158
	6-8	Vc	91	81	90	90	90	81	81	81	81	81	72	72	72	54	54	27	27	27	97
		fz	0.021	0.019	0.028	0.028	0.028	0.026	0.026	0.026	0.026	0.026	0.023	0.023	0.023	0.02	0.02	0.017	0.017	0.017	0.039
		RPM	16092	14324	14324	14324	14324	12892	12892	12892	12892	12892	11459	11459	11459	8594	8594	4297	4297	4297	12350
		FEED	676	544	802	802	802	670	670	670	670	670	527	527	527	344	344	146	146	146	963
		Ap	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018	0.018	0.158
	9	Vc	86	76	85	85	85	77	77	77	77	77	68	68	68	51	51	26	26	26	91
		fz	0.018	0.016	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.02	0.018	0.018	0.018	0.016	0.016	0.013	0.013	0.013	0.029
		RPM	15208	13440	13528	13528	13528	12255	12255	12255	12255	12255	10823	10823	10823	8117	8117	4138	4138	4138	11586
		FEED	547	430	622	622	622	490	490	490	490	490	390	390	390	260	260	108	108	108	672
		Ap	0.032	0.032	0.14	0.098	0.098	0.056	0.056	0.056	0.035	0.035	0.035	0.035	0.021	0.014	0.014	0.014	0.014	0.014	0.123
	10-11.1	Vc	91	81	90	90	90	81	81	81	81	81	72	72	72	54	54	27	27	27	97
		fz	0.021	0.019	0.028	0.028	0.028	0.026	0.026	0.026	0.026	0.026	0.023	0.023	0.023	0.02	0.02	0.017	0.017	0.017	0.039
		RPM	16092	14324	14324	14324	14324	12892	12892	12892	12892	12892	11459	11459	11459	8594	8594	4297	4297	4297	12350
		FEED	676	544	802	802	802	670	670	670	670	670	527	527	527	344	344	146	146	146	963
		Ap	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018	0.018	0.158
	11.2	Vc	86	76	85	85	85	77	77	77	77	77	68	68	68	51	51	26	26	26	91
		fz	0.018	0.016	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.02	0.018	0.018	0.018	0.016	0.016	0.013	0.013	0.013	0.029
		RPM	15208	13440	13528	13528	13528	12255	12255	12255	12255	12255	10823	10823	10823	8117	8117	4138	4138	4138	11586
		FEED	547	430	622	622	622	490	490	490	490	490	390	390	390	260	260	108	108	108	672
		Ap	0.032	0.032	0.14	0.098	0.098	0.056	0.056	0.056	0.035	0.035	0.035	0.035	0.021	0.014	0.014	0.014	0.014	0.014	0.123
K	15-20	Vc	91	81	90	90	90	81	81	81	81	81	72	72	72	54	54	27	27	27	97
		fz	0.021	0.019	0.028	0.028	0.028	0.026	0.026	0.026	0.026	0.026	0.023	0.023	0.023	0.02	0.02	0.017	0.017	0.017	0.039
		RPM	16092	14324	14324	14324	14324	12892	12892	12892	12892	12892	11459	11459	11459	8594	8594	4297	4297	4297	12350
		FEED	676	544	802	802	802	670	670	670	670	670	527	527	527	344	344	146	146	146	963
		Ap	0.041	0.041	0.18	0.126	0.126	0.072	0.072	0.072	0.045	0.045	0.045	0.045	0.027	0.018	0.018	0.018	0.018	0.018	0.158
H	38.1 - 38.2	Vc	75	67	75	75	75	68	68	68	68	68	60	60	60	45	45	23	23	23	81
		fz	0.015	0.013	0.02	0.02	0.02	0.018	0.018	0.018	0.018	0.018	0.016	0.016	0.016	0.014	0.014	0.012	0.012	0.012	0.025
		RPM	13263	11848	11937	11937	11937	10823	10823	10823	10823	10823	9549	9549	9549	7162	7162	3661	3661	3661	10313
		FEED	398	308	477	477	477	390	390	390	390	390	306	306	306	201	201	88	88	88	516
		Ap	0.023	0.023	0.1	0.07	0.07	0.04	0.04	0.04	0.025	0.025	0.025	0.025	0.015	0.01	0.01	0.01	0.01	0.01	0.088
	40	Vc	86	76	85	85	85	77	77	77	77	77	68	68	68	51	51	26	26	26	91
		fz	0.018	0.016	0.023	0.023	0.023	0.02	0.02	0.02	0.02	0.02	0.018	0.018	0.018	0.016	0.016	0.013	0.013	0.013	0.029
		RPM	15208	13440	13528	13528	13528	12255	12255	12255	12255	12255	10823	10823	10823	8117	8117	4138	4138	4138	11586
		FEED	547	430	622	622	622	490	490	490	490	490	390	390	390	260	260	108	108	108	672
		Ap	0.032	0.032	0.14	0.098	0.098	0.056	0.056	0.056	0.035	0.035	0.035	0.035	0.021	0.014	0.014	0.014	0.014	0.014	0.123
	41	Vc	75	67	75	75	75	68	68	68	68	68	60	60	60	45	45	23	23	23	81
		fz	0.015	0.013	0.02	0.02	0.02	0.018	0.018	0.018	0.018	0.018	0.016	0.016	0.016	0.014	0.014	0.012	0.012	0.012	0.025
		RPM	13263	11848	11937	11937	11937	10823	10823	10823	10823	10823	9549	9549	9549	7162	7162	3661	3661	3661	10313
		FEED	398	308	477	477	477	390	390	390	390	390	306	306	306	201	201	88	88	88	516
		Ap	0.023	0.023	0.1	0.07	0.07	0.04	0.04	0.04	0.025	0.025	0.025	0.025	0.015	0.01	0.01	0.01	0.01	0.01	0.088

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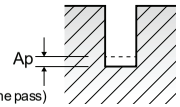

(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEM845 SERIES — 2 FLUTE - SLOTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																			
		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	LBS	10	12	14	16	18	20	22	26	30	35	40	45	50	6	8	10	12	14	16	18	20	22	26
1-5	Vc	97	97	87	87	87	87	87	77	77	77	58	58	58	103	103	103	103	103	92	92	92	92	92
	fz	0.039	0.039	0.035	0.035	0.035	0.035	0.035	0.032	0.032	0.032	0.027	0.027	0.027	0.039	0.039	0.039	0.039	0.039	0.035	0.035	0.035	0.035	0.035
	RPM	12350	12350	11077	11077	11077	11077	11077	9804	9804	9804	7385	7385	7385	10929	10929	10929	10929	10929	9762	9762	9762	9762	9762
	FEED	963	963	775	775	775	775	775	627	627	627	399	399	399	852	852	852	852	852	683	683	683	683	683
	Ap	0.158	0.158	0.09	0.09	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189	0.189	0.108	0.108	0.108	0.108	0.068
6-8	Vc	97	97	87	87	87	87	87	77	77	77	58	58	58	103	103	103	103	103	92	92	92	92	92
	fz	0.039	0.039	0.035	0.035	0.035	0.035	0.035	0.032	0.032	0.032	0.027	0.027	0.027	0.039	0.039	0.039	0.039	0.039	0.035	0.035	0.035	0.035	0.035
	RPM	12350	12350	11077	11077	11077	11077	11077	9804	9804	9804	7385	7385	7385	10929	10929	10929	10929	10929	9762	9762	9762	9762	9762
	FEED	963	963	775	775	775	775	775	627	627	627	399	399	399	852	852	852	852	852	683	683	683	683	683
	Ap	0.158	0.158	0.09	0.09	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189	0.189	0.108	0.108	0.108	0.108	0.068
9	Vc	91	91	82	82	82	82	82	73	73	73	55	55	55	97	97	97	97	97	87	87	87	87	87
	fz	0.029	0.029	0.026	0.026	0.026	0.026	0.026	0.023	0.023	0.023	0.02	0.02	0.02	0.029	0.029	0.029	0.029	0.029	0.026	0.026	0.026	0.026	0.026
	RPM	11586	11586	10441	10441	10441	10441	10441	9295	9295	9295	7003	7003	7003	10292	10292	10292	10292	10292	9231	9231	9231	9231	9231
	FEED	672	672	543	543	543	543	543	428	428	428	280	280	280	597	597	597	597	597	480	480	480	480	480
	Ap	0.123	0.123	0.07	0.07	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147	0.147	0.084	0.084	0.084	0.084	0.053
10 - 11.1	Vc	97	97	87	87	87	87	87	77	77	77	58	58	58	103	103	103	103	103	92	92	92	92	92
	fz	0.039	0.039	0.035	0.035	0.035	0.035	0.035	0.032	0.032	0.032	0.027	0.027	0.027	0.039	0.039	0.039	0.039	0.039	0.035	0.035	0.035	0.035	0.035
	RPM	12350	12350	11077	11077	11077	11077	11077	9804	9804	9804	7385	7385	7385	10929	10929	10929	10929	10929	9762	9762	9762	9762	9762
	FEED	963	963	775	775	775	775	775	627	627	627	399	399	399	852	852	852	852	852	683	683	683	683	683
	Ap	0.158	0.158	0.09	0.09	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189	0.189	0.108	0.108	0.108	0.108	0.068
11.2	Vc	91	91	82	82	82	82	82	73	73	73	55	55	55	97	97	97	97	97	87	87	87	87	87
	fz	0.029	0.029	0.026	0.026	0.026	0.026	0.026	0.023	0.023	0.023	0.02	0.02	0.02	0.029	0.029	0.029	0.029	0.029	0.026	0.026	0.026	0.026	0.026
	RPM	11586	11586	10441	10441	10441	10441	10441	9295	9295	9295	7003	7003	7003	10292	10292	10292	10292	10292	9231	9231	9231	9231	9231
	FEED	672	672	543	543	543	543	543	428	428	428	280	280	280	597	597	597	597	597	480	480	480	480	480
	Ap	0.123	0.123	0.07	0.07	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147	0.147	0.084	0.084	0.084	0.084	0.053
15 - 20	Vc	97	97	87	87	87	87	87	77	77	77	58	58	58	103	103	103	103	103	92	92	92	92	92
	fz	0.039	0.039	0.035	0.035	0.035	0.035	0.035	0.032	0.032	0.032	0.027	0.027	0.027	0.039	0.039	0.039	0.039	0.039	0.035	0.035	0.035	0.035	0.035
	RPM	12350	12350	11077	11077	11077	11077	11077	9804	9804	9804	7385	7385	7385	10929	10929	10929	10929	10929	9762	9762	9762	9762	9762
	FEED	963	963	775	775	775	775	775	627	627	627	399	399	399	852	852	852	852	852	683	683	683	683	683
	Ap	0.158	0.158	0.09	0.09	0.09	0.09	0.056	0.056	0.056	0.034	0.034	0.023	0.023	0.27	0.27	0.189	0.189	0.189	0.108	0.108	0.108	0.108	0.068
38.1 - 38.2	Vc	81	81	73	73	73	73	73	65	65	65	49	49	49	62	62	62	62	62	56	56	56	56	56
	fz	0.025	0.025	0.022	0.022	0.022	0.022	0.022	0.02	0.02	0.02	0.017	0.017	0.017	0.034	0.034	0.034	0.034	0.034	0.031	0.031	0.031	0.031	0.031
	RPM	10313	10313	9295	9295	9295	9295	9295	8276	8276	8276	6239	6239	6239	6578	6578	6578	6578	6578	5942	5942	5942	5942	5942
	FEED	516	516	409	409	409	409	409	331	331	331	212	212	212	447	447	447	447	447	368	368	368	368	368
	Ap	0.088	0.088	0.05	0.05	0.05	0.05	0.031	0.031	0.031	0.019	0.019	0.013	0.013	0.15	0.15	0.105	0.105	0.105	0.06	0.06	0.06	0.06	0.038
40	Vc	91	91	82	82	82	82	82	73	73	73	55	55	55	97	97	97	97	97	87	87	87	87	87
	fz	0.029	0.029	0.026	0.026	0.026	0.026	0.026	0.023	0.023	0.023	0.02	0.02	0.02	0.029	0.029	0.029	0.029	0.029	0.026	0.026	0.026	0.026	0.026
	RPM	11586	11586	10441	10441	10441	10441	10441	9295	9295	9295	7003	7003	7003	10292	10292	10292	10292	10292	9231	9231	9231	9231	9231
	FEED	672	672	543	543	543	543	543	428	428	428	280	280	280	597	597	597	597	597	480	480	480	480	480
	Ap	0.123	0.123	0.07	0.07	0.07	0.07	0.044	0.044	0.044	0.026	0.026	0.018	0.018	0.21	0.21	0.147	0.147	0.147	0.084	0.084	0.084	0.084	0.053
41	Vc	81	81	73	73	73	73	73	65	65	65	49	49	49	62	62	62	62	62	56	56	56	56	56
	fz	0.025	0.025	0.022	0.022	0.022	0.022	0.022	0.02	0.02	0.02	0.017	0.017	0.017	0.034	0.034	0.034	0.034	0.034	0.031	0.031	0.031	0.031	0.031
	RPM	10313	10313	9295	9295	9295	9295	9295	8276	8276	8276	6239	6239	6239	6578	6578	6578	6578	6578	5942	5942	5942	5942	5942
	FEED	516	516	409	409	409	409	409	331	331	331	212	212	212	447	447	447	447	447	368	368	368	368	368
	Ap	0.088	0.088	0.05	0.05	0.05	0.05	0.031	0.031	0.031	0.019	0.019	0.013	0.013	0.15	0.15	0.105	0.105	0.105	0.06	0.06	0.06	0.06	0.038

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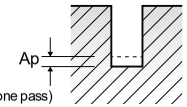

(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES — 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																		
			3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
		LBS	30	35	40	45	50	60	8	10	12	14	16	18	20	22	26	30	35	40	45
P	1-5	Vc	92	82	82	82	62	62	101	101	101	101	101	101	101	90	90	90	90	90	80
		fz	0.035	0.032	0.032	0.032	0.028	0.028	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.073	0.073	0.073	0.073	0.073	0.065
		RPM	9762	8700	8700	8700	6578	6578	8037	8037	8037	8037	8037	8037	8037	7162	7162	7162	7162	7162	6366
		FEED	683	557	557	557	368	368	1302	1302	1302	1302	1302	1302	1302	1046	1046	1046	1046	1046	828
		Ap	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144	0.144	0.144	0.09	0.09	0.09
	6-8	Vc	92	82	82	82	62	62	101	101	101	101	101	101	101	90	90	90	90	90	80
		fz	0.035	0.032	0.032	0.032	0.028	0.028	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.073	0.073	0.073	0.073	0.073	0.065
		RPM	9762	8700	8700	8700	6578	6578	8037	8037	8037	8037	8037	8037	8037	7162	7162	7162	7162	7162	6366
		FEED	683	557	557	557	368	368	1302	1302	1302	1302	1302	1302	1302	1046	1046	1046	1046	1046	828
		Ap	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144	0.144	0.144	0.09	0.09	0.09
	9	Vc	87	78	78	78	58	58	96	96	96	96	96	96	96	86	86	86	86	86	76
		fz	0.026	0.023	0.023	0.023	0.021	0.021	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.069	0.069	0.069	0.069	0.069	0.061
		RPM	9231	8276	8276	8276	6154	6154	7639	7639	7639	7639	7639	7639	7639	6844	6844	6844	6844	6844	6048
		FEED	480	381	381	381	258	258	1161	1161	1161	1161	1161	1161	1161	944	944	944	944	944	738
		Ap	0.053	0.053	0.032	0.032	0.021	0.021	0.28	0.28	0.28	0.196	0.196	0.196	0.196	0.112	0.112	0.112	0.07	0.07	0.07
	10-11.1	Vc	92	82	82	82	62	62	101	101	101	101	101	101	101	90	90	90	90	90	80
		fz	0.035	0.032	0.032	0.032	0.028	0.028	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.073	0.073	0.073	0.073	0.073	0.065
		RPM	9762	8700	8700	8700	6578	6578	8037	8037	8037	8037	8037	8037	8037	7162	7162	7162	7162	7162	6366
		FEED	683	557	557	557	368	368	1302	1302	1302	1302	1302	1302	1302	1046	1046	1046	1046	1046	828
		Ap	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144	0.144	0.144	0.09	0.09	0.09
	11.2	Vc	87	78	78	78	58	58	96	96	96	96	96	96	96	86	86	86	86	86	76
		fz	0.026	0.023	0.023	0.023	0.021	0.021	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.069	0.069	0.069	0.069	0.069	0.061
		RPM	9231	8276	8276	8276	6154	6154	7639	7639	7639	7639	7639	7639	7639	6844	6844	6844	6844	6844	6048
		FEED	480	381	381	381	258	258	1161	1161	1161	1161	1161	1161	1161	944	944	944	944	944	738
		Ap	0.053	0.053	0.032	0.032	0.021	0.021	0.28	0.28	0.28	0.196	0.196	0.196	0.196	0.112	0.112	0.112	0.07	0.07	0.07
K	15-20	Vc	92	82	82	82	62	62	101	101	101	101	101	101	101	90	90	90	90	90	80
		fz	0.035	0.032	0.032	0.032	0.028	0.028	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.073	0.073	0.073	0.073	0.073	0.065
		RPM	9762	8700	8700	8700	6578	6578	8037	8037	8037	8037	8037	8037	8037	7162	7162	7162	7162	7162	6366
		FEED	683	557	557	557	368	368	1302	1302	1302	1302	1302	1302	1302	1046	1046	1046	1046	1046	828
		Ap	0.068	0.068	0.041	0.041	0.027	0.027	0.36	0.36	0.36	0.252	0.252	0.252	0.252	0.144	0.144	0.144	0.09	0.09	0.09
H	38.1 - 38.2	Vc	56	50	50	50	37	37	84	84	84	84	84	84	84	76	76	76	76	76	67
		fz	0.031	0.027	0.027	0.027	0.024	0.024	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.052	0.052	0.052	0.052	0.052	0.046
		RPM	5942	5305	5305	5305	3926	3926	6685	6685	6685	6685	6685	6685	6685	6048	6048	6048	6048	6048	5332
		FEED	368	286	286	286	188	188	762	762	762	762	762	762	762	629	629	629	629	629	491
		Ap	0.038	0.038	0.023	0.023	0.015	0.015	0.2	0.2	0.2	0.14	0.14	0.14	0.14	0.08	0.08	0.08	0.05	0.05	0.05
	40	Vc	87	78	78	78	58	58	96	96	96	96	96	96	96	86	86	86	86	86	76
		fz	0.026	0.023	0.023	0.023	0.021	0.021	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.069	0.069	0.069	0.069	0.069	0.061
		RPM	9231	8276	8276	8276	6154	6154	7639	7639	7639	7639	7639	7639	7639	6844	6844	6844	6844	6844	6048
		FEED	480	381	381	381	258	258	1161	1161	1161	1161	1161	1161	1161	944	944	944	944	944	738
		Ap	0.053	0.053	0.032	0.032	0.021	0.021	0.28	0.28	0.28	0.196	0.196	0.196	0.196	0.112	0.112	0.112	0.07	0.07	0.07
	41	Vc	56	50	50	50	37	37	84	84	84	84	84	84	84	76	76	76	76	76	67
		fz	0.031	0.027	0.027	0.027	0.024	0.024	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.052	0.052	0.052	0.052	0.052	0.046
		RPM	5942	5305	5305	5305	3926	3926	6685	6685	6685	6685	6685	6685	6685	6048	6048	6048	6048	6048	5332
		FEED	368	286	286	286	188	188	762	762	762	762	762	762	762	629	629	629	629	629	491
		Ap	0.038	0.038	0.023	0.023	0.015	0.015	0.2	0.2	0.2	0.14	0.14	0.14	0.14	0.08	0.08	0.08	0.05	0.05	0.05

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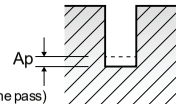


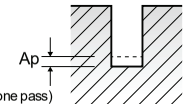
(Depth of cut per one pass)

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEM845 SERIES — 2 FLUTE - SLOTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ap = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																						
		4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	10.0	10.0	10.0	12.0	12.0	12.0
	LBS	50	60	16	20	26	30	35	40	50	60	15	20	30	32	25	30	42	30	35	45	35	40	50
1-5	Vc	80	80	101	101	90	90	90	90	90	80	100	100	100	90	101	101	90	101	101	101	100	100	100
	fz	0.065	0.065	0.09	0.09	0.081	0.081	0.081	0.081	0.081	0.072	0.1	0.1	0.1	0.09	0.119	0.119	0.107	0.141	0.141	0.141	0.151	0.151	0.151
	RPM	6366	6366	6430	6430	5730	5730	5730	5730	5730	5093	5305	5305	5305	4775	4019	4019	3581	3215	3215	3215	2653	2653	2653
	FEED	828	828	1157	1157	928	928	928	928	928	733	1061	1061	1061	859	956	956	766	907	907	907	801	801	801
	Ap	0.09	0.054	0.315	0.315	0.18	0.18	0.18	0.18	0.113	0.113	0.54	0.378	0.378	0.216	0.504	0.504	0.288	0.9	0.63	0.63	1.08	0.756	0.756
6-8	Vc	80	80	101	101	90	90	90	90	90	80	100	100	100	90	101	101	90	101	101	101	100	100	100
	fz	0.065	0.065	0.09	0.09	0.081	0.081	0.081	0.081	0.081	0.072	0.1	0.1	0.1	0.09	0.119	0.119	0.107	0.141	0.141	0.141	0.151	0.151	0.151
	RPM	6366	6366	6430	6430	5730	5730	5730	5730	5730	5093	5305	5305	5305	4775	4019	4019	3581	3215	3215	3215	2653	2653	2653
	FEED	828	828	1157	1157	928	928	928	928	928	733	1061	1061	1061	859	956	956	766	907	907	907	801	801	801
	Ap	0.09	0.054	0.315	0.315	0.18	0.18	0.18	0.18	0.113	0.113	0.54	0.378	0.378	0.216	0.504	0.504	0.288	0.9	0.63	0.63	1.08	0.756	0.756
9	Vc	76	76	96	96	86	86	86	86	86	77	94	94	94	85	96	96	85	96	96	96	95	95	95
	fz	0.061	0.061	0.074	0.074	0.066	0.066	0.066	0.066	0.066	0.059	0.082	0.082	0.082	0.074	0.099	0.099	0.089	0.111	0.111	0.111	0.119	0.119	0.119
	RPM	6048	6048	6112	6112	5475	5475	5475	5475	5475	4902	4987	4987	4987	4509	3820	3820	3382	3056	3056	3056	2520	2520	2520
	FEED	738	738	905	905	723	723	723	723	723	578	818	818	818	667	756	756	602	678	678	678	600	600	600
	Ap	0.07	0.042	0.245	0.245	0.14	0.14	0.14	0.14	0.088	0.088	0.42	0.294	0.294	0.168	0.392	0.392	0.224	0.7	0.49	0.49	0.84	0.588	0.588
10 - 11.1	Vc	80	80	101	101	90	90	90	90	90	80	100	100	100	90	101	101	90	101	101	101	100	100	100
	fz	0.065	0.065	0.09	0.09	0.081	0.081	0.081	0.081	0.081	0.072	0.1	0.1	0.1	0.09	0.119	0.119	0.107	0.141	0.141	0.141	0.151	0.151	0.151
	RPM	6366	6366	6430	6430	5730	5730	5730	5730	5730	5093	5305	5305	5305	4775	4019	4019	3581	3215	3215	3215	2653	2653	2653
	FEED	828	828	1157	1157	928	928	928	928	928	733	1061	1061	1061	859	956	956	766	907	907	907	801	801	801
	Ap	0.09	0.054	0.315	0.315	0.18	0.18	0.18	0.18	0.113	0.113	0.54	0.378	0.378	0.216	0.504	0.504	0.288	0.9	0.63	0.63	1.08	0.756	0.756
11.2	Vc	76	76	96	96	86	86	86	86	86	77	94	94	94	85	96	96	85	96	96	96	95	95	95
	fz	0.061	0.061	0.074	0.074	0.066	0.066	0.066	0.066	0.066	0.059	0.082	0.082	0.082	0.074	0.099	0.099	0.089	0.111	0.111	0.111	0.119	0.119	0.119
	RPM	6048	6048	6112	6112	5475	5475	5475	5475	5475	4902	4987	4987	4987	4509	3820	3820	3382	3056	3056	3056	2520	2520	2520
	FEED	738	738	905	905	723	723	723	723	723	578	818	818	818	667	756	756	602	678	678	678	600	600	600
	Ap	0.07	0.042	0.245	0.245	0.14	0.14	0.14	0.14	0.088	0.088	0.42	0.294	0.294	0.168	0.392	0.392	0.224	0.7	0.49	0.49	0.84	0.588	0.588
15 - 20	Vc	80	80	101	101	90	90	90	90	90	80	100	100	100	90	101	101	90	101	101	101	100	100	100
	fz	0.065	0.065	0.09	0.09	0.081	0.081	0.081	0.081	0.081	0.072	0.1	0.1	0.1	0.09	0.119	0.119	0.107	0.141	0.141	0.141	0.151	0.151	0.151
	RPM	6366	6366	6430	6430	5730	5730	5730	5730	5730	5093	5305	5305	5305	4775	4019	4019	3581	3215	3215	3215	2653	2653	2653
	FEED	828	828	1157	1157	928	928	928	928	928	733	1061	1061	1061	859	956	956	766	907	907	907	801	801	801
	Ap	0.09	0.054	0.315	0.315	0.18	0.18	0.18	0.18	0.113	0.113	0.54	0.378	0.378	0.216	0.504	0.504	0.288	0.9	0.63	0.63	1.08	0.756	0.756
38.1 - 38.2	Vc	67	67	85	85	76	76	76	76	76	68	83	83	83	75	83	83	74	83	83	83	82	82	82
	fz	0.046	0.046	0.056	0.056	0.05	0.05	0.05	0.05	0.05	0.045	0.063	0.063	0.063	0.056	0.076	0.076	0.069	0.076	0.076	0.076	0.08	0.08	0.08
	RPM	5332	5332	5411	5411	4838	4838	4838	4838	4838	4329	4403	4403	4403	3979	3302	3302	2944	2642	2642	2642	2175	2175	2175
	FEED	491	491	606	606	484	484	484	484	484	390	555	555	555	446	502	502	406	402	402	402	348	348	348
	Ap	0.05	0.03	0.175	0.175	0.1	0.1	0.1	0.1	0.063	0.063	0.3	0.21	0.21	0.12	0.28	0.28	0.16	0.5	0.35	0.35	0.6	0.42	0.42
40	Vc	76	76	96	96	86	86	86	86	86	77	94	94	94	85	96	96	85	96	96	96	95	95	95
	fz	0.061	0.061	0.074	0.074	0.066	0.066	0.066	0.066	0.066	0.059	0.082	0.082	0.082	0.074	0.099	0.099	0.089	0.111	0.111	0.111	0.119	0.119	0.119
	RPM	6048	6048	6112	6112	5475	5475	5475	5475	5475	4902	4987	4987	4987	4509	3820	3820	3382	3056	3056	3056	2520	2520	2520
	FEED	738	738	905	905	723	723	723	723	723	578	818	818	818	667	756	756	602	678	678	678	600	600	600
	Ap	0.07	0.042	0.245	0.245	0.14	0.14	0.14	0.14	0.088	0.088	0.42	0.294	0.294	0.168	0.392	0.392	0.224	0.7	0.49	0.49	0.84	0.588	0.588
41	Vc	67	67	85	85	76	76	76	76	76	68	83	83	83	75	83	83	74	83	83	83	82	82	82
	fz	0.046	0.046	0.056	0.056	0.05	0.05	0.05	0.05	0.05	0.045	0.063	0.063	0.063	0.056	0.076	0.076	0.069	0.076	0.076	0.076	0.08	0.08	0.08
	RPM	5332	5332	5411	5411	4838	4838	4838	4838	4838	4329	4403	4403	4403	3979	3302	3302	2944	2642	2642	2642	2175	2175	2175
	FEED	491	491	606	606	484	484	484	484	484	390	555	555	555	446	502	502	406	402	402	402	348	348	348
	Ap	0.05	0.03	0.175	0.175	0.1	0.1	0.1	0.1	0.063	0.063	0.3	0.21	0.21	0.12	0.28	0.28	0.16	0.5	0.35	0.35	0.6	0.42	0.42



(Depth of cut per one pass)

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
P	1-5	Non-alloy steel	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
					FEED	251	235	214	271	299	290	309	357
	6-8	Low alloy steel	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
					FEED	251	235	214	271	299	290	309	357
	9		0.05D	1.0D	Vc	47	50	51	51	53	59	64	66
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	18701	17684	16234	13528	11247	9390	8149	7003
					FEED	150	141	130	162	180	188	196	224
	10-11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
					FEED	251	235	214	271	299	290	309	357
	11.2		0.05D	1.0D	Vc	47	50	51	51	53	59	64	66
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	18701	17684	16234	13528	11247	9390	8149	7003
					FEED	150	141	130	162	180	188	196	224
M	14.1	Stainless steel	0.05D	1.0D	Vc	39	41	42	42	44	50	54	54
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	15518	14501	13369	11141	9337	7958	6875	5730
					FEED	124	116	107	134	149	159	165	183
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	79	83	84	85	88	91	101	105
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	31433	29355	26738	22547	18674	14483	12860	11141
					FEED	251	235	214	271	299	290	309	357
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	31	33	34	34	35	40	41	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.004
					RPM	12335	11671	10823	9019	7427	6366	5220	4244
					FEED	49	47	43	36	59	51	63	68
	40	Chilled Cast Iron	0.05D	1.0D	Vc	47	50	51	51	53	59	64	66
					fz	0.002	0.002	0.002	0.003	0.004	0.005	0.006	0.008
					RPM	18701	17684	16234	13528	11247	9390	8149	7003
					FEED	150	141	130	162	180	188	196	224
	41	Hardened Cast Iron	0.05D	1.0D	Vc	31	33	34	34	35	40	41	40
					fz	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.004
					RPM	12335	11671	10823	9019	7427	6366	5220	4244
					FEED	49	47	43	36	59	51	63	68

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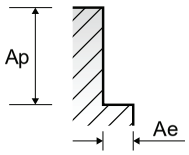

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0
1-5	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
6-8	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
9	Vc	70	73	74	74	77	79	80	81	80	79	80	80
	fz	0.011	0.016	0.018	0.02	0.023	0.026	0.027	0.028	0.03	0.032	0.032	0.031
	RPM	6366	5809	5234	4711	4456	4191	3918	3683	3395	3143	2996	2829
	FEED	280	372	377	377	410	436	423	413	407	402	383	351
10 - 11.1	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
11.2	Vc	70	73	74	74	77	79	80	81	80	79	80	80
	fz	0.011	0.016	0.018	0.02	0.023	0.026	0.027	0.028	0.03	0.032	0.032	0.031
	RPM	6366	5809	5234	4711	4456	4191	3918	3683	3395	3143	2996	2829
	FEED	280	372	377	377	410	436	423	413	407	402	383	351
14.1	Vc	58	61	62	62	65	67	68	68	67	66	66	67
	fz	0.011	0.015	0.017	0.02	0.022	0.024	0.026	0.029	0.031	0.035	0.036	0.036
	RPM	5275	4854	4386	3947	3762	3554	3330	3092	2844	2626	2472	2370
	FEED	232	291	298	316	331	341	346	359	353	368	356	341
15 - 20	Vc	113	119	122	124	128	131	133	134	134	132	132	132
	fz	0.011	0.016	0.018	0.02	0.022	0.025	0.027	0.03	0.032	0.035	0.036	0.037
	RPM	10277	9470	8630	7894	7408	6950	6513	6093	5687	5252	4943	4669
	FEED	452	606	621	632	652	695	703	731	728	735	712	691
38.1 - 38.2	Vc	43	46	47	46	47	47	49	51	52	53	53	54
	fz	0.004	0.004	0.005	0.006	0.007	0.009	0.01	0.011	0.013	0.014	0.014	0.014
	RPM	3911	3661	3325	2928	2720	2493	2400	2319	2207	2109	1985	1910
	FEED	63	59	66	70	76	90	96	102	115	118	111	107
40	Vc	70	73	74	74	77	79	80	81	80	79	80	80
	fz	0.011	0.016	0.018	0.02	0.023	0.026	0.027	0.028	0.03	0.032	0.032	0.031
	RPM	6366	5809	5234	4711	4456	4191	3918	3683	3395	3143	2996	2829
	FEED	280	372	377	377	410	436	423	413	407	402	383	351
41	Vc	43	46	47	46	47	47	49	51	52	53	53	54
	fz	0.004	0.004	0.005	0.006	0.007	0.009	0.01	0.011	0.013	0.014	0.014	0.014
	RPM	3911	3661	3325	2928	2720	2493	2400	2319	2207	2109	1985	1910
	FEED	63	59	66	70	76	90	96	102	115	118	111	107

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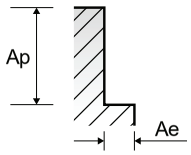

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)							
					9.5	10.0	10.5	11.0	11.5	12.0	13.0	14.0
P	1-5	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	0.04
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
				FEED	662	636	626	602	576	547	521	495
	6-8	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	0.04
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
				FEED	662	636	626	602	576	547	521	495
	9	0.05D	1.0D	Vc	79	79	79	79	79	79	82	84
				fz	0.031	0.032	0.032	0.032	0.032	0.032	0.031	0.031
				RPM	2647	2515	2395	2286	2187	2096	2008	1910
				FEED	328	322	307	293	280	268	249	237
	10-11.1	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	0.04
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
				FEED	662	636	626	602	576	547	521	495
	11.2	0.05D	1.0D	Vc	79	79	79	79	79	79	82	84
				fz	0.031	0.032	0.032	0.032	0.032	0.032	0.031	0.031
				RPM	2647	2515	2395	2286	2187	2096	2008	1910
				FEED	328	322	307	293	280	268	249	237
M	14.1	0.05D	1.0D	Vc	67	66	66	66	65	64	66	68
				fz	0.037	0.038	0.038	0.038	0.038	0.037	0.037	0.037
				RPM	2245	2101	2001	1910	1799	1698	1616	1546
				FEED	332	319	304	290	273	251	239	229
K	15-20	0.05D	1.0D	Vc	130	128	129	130	130	129	133	136
				fz	0.038	0.039	0.04	0.04	0.04	0.04	0.04	0.04
				RPM	4356	4074	3911	3762	3598	3422	3257	3092
				FEED	662	636	626	602	576	547	521	495
H	38.1 - 38.2	0.05D	1.0D	Vc	54	53	54	55	55	55	56	57
				fz	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.015
				RPM	1809	1687	1637	1592	1522	1459	1371	1296
				FEED	101	94	92	89	91	88	82	78
	40	0.05D	1.0D	Vc	79	79	79	79	79	79	82	84
				fz	0.031	0.032	0.032	0.032	0.032	0.032	0.031	0.031
				RPM	2647	2515	2395	2286	2187	2096	2008	1910
				FEED	328	322	307	293	280	268	249	237
	41	0.05D	1.0D	Vc	54	53	54	55	55	55	56	57
				fz	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.015
				RPM	1809	1687	1637	1592	1522	1459	1371	1296
				FEED	101	94	92	89	91	88	82	78

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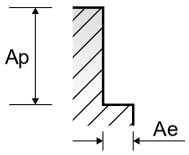
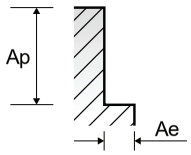


4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME36, SEME71 SERIES 4 FLUTE - SIDE CUTTING
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø)										
		15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0
1-5	Vc	138	138	138	137	135	132	133	134	134	134	134
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706
	FEED	457	439	413	388	362	336	323	310	297	277	266
6-8	Vc	138	138	138	137	135	132	133	134	134	134	134
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706
	FEED	457	439	413	388	362	336	323	310	297	277	266
9	Vc	85	85	86	85	85	84	84	84	84	84	82
	fz	0.031	0.032	0.031	0.031	0.032	0.032	0.032	0.033	0.031	0.032	0.032
	RPM	1804	1691	1610	1503	1424	1337	1273	1215	1163	1114	1044
	FEED	224	216	200	186	182	171	163	160	144	143	134
10 - 11.1	Vc	138	138	138	137	135	132	133	134	134	134	134
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706
	FEED	457	439	413	388	362	336	323	310	297	277	266
11.2	Vc	85	85	86	85	85	84	84	84	84	84	82
	fz	0.031	0.032	0.031	0.031	0.032	0.032	0.032	0.033	0.031	0.032	0.032
	RPM	1804	1691	1610	1503	1424	1337	1273	1215	1163	1114	1044
	FEED	224	216	200	186	182	171	163	160	144	143	134
14.1	Vc	69	69	69	68	67	66	67	67	67	67	67
	fz	0.038	0.038	0.039	0.038	0.039	0.038	0.037	0.037	0.038	0.037	0.037
	RPM	1464	1373	1292	1203	1122	1050	1016	969	927	889	853
	FEED	223	209	202	183	175	160	150	143	141	132	126
15 - 20	Vc	138	138	138	137	135	132	133	134	134	134	134
	fz	0.039	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.039	0.039
	RPM	2928	2745	2584	2423	2262	2101	2016	1939	1855	1777	1706
	FEED	457	439	413	388	362	336	323	310	297	277	266
38.1 - 38.2	Vc	57	57	57	56	55	53	54	54	54	54	53
	fz	0.014	0.014	0.014	0.014	0.013	0.012	0.013	0.013	0.012	0.011	0.012
	RPM	1210	1134	1067	990	921	844	819	781	747	716	675
	FEED	68	64	60	55	48	40	43	41	36	32	32
40	Vc	85	85	86	85	85	84	84	84	84	84	82
	fz	0.031	0.032	0.031	0.031	0.032	0.032	0.032	0.033	0.031	0.032	0.032
	RPM	1804	1691	1610	1503	1424	1337	1273	1215	1163	1114	1044
	FEED	224	216	200	186	182	171	163	160	144	143	134
41	Vc	57	57	57	56	55	53	54	54	54	54	53
	fz	0.014	0.014	0.014	0.014	0.013	0.012	0.013	0.013	0.012	0.011	0.012
	RPM	1210	1134	1067	990	921	844	819	781	747	716	675
	FEED	68	64	60	55	48	40	43	41	36	32	32



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME72 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2
					LOC	3	4	5	6	7	8	10	12	4	6	8	10
P	1-5	Non-alloy steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
					RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589
					FEED	153	153	153	138	138	138	138	122	194	194	175	117
	6-8	Low alloy steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
					RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589
					FEED	153	153	153	138	138	138	138	122	194	194	175	117
	9		0.05D	2.5D	Vc	34	34	34	31	31	31	31	28	35	35	31	31
					fz	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002
					RPM	10823	10823	10823	9868	9868	9868	9868	8913	9284	9284	8223	8223
					FEED	87	87	87	79	79	39	39	36	74	74	66	66
	10-11.1	High alloyed steel, and tool steel	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
					RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589
					FEED	153	153	153	138	138	138	138	122	194	194	175	117
	11.2		0.05D	2.5D	Vc	34	34	34	31	31	31	31	28	35	35	31	31
					fz	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002
					RPM	10823	10823	10823	9868	9868	9868	9868	8913	9284	9284	8223	8223
					FEED	87	87	87	79	79	39	39	36	74	74	66	66
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2.5D	Vc	60	60	60	54	54	54	54	48	61	61	55	55
					fz	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
					RPM	19099	19099	19099	17189	17189	17189	17189	15279	16181	16181	14589	14589
					FEED	153	153	153	138	138	138	138	122	194	194	175	117
H	38.1 - 38.2	Hardened steel	0.02D	2.0D	Vc	21	21	21	19	19	19	19	17	21	21	19	19
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001
					RPM	6685	6685	6685	6048	6048	6048	6048	5411	5570	5570	5040	5040
					FEED	27	27	27	24	24	24	24	22	45	45	40	20
	40	Chilled Cast Iron	0.05D	2.5D	Vc	34	34	34	31	31	31	31	28	35	35	31	31
					fz	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.002
					RPM	10823	10823	10823	9868	9868	9868	9868	8913	9284	9284	8223	8223
					FEED	87	87	87	79	79	39	39	36	74	74	66	66
	41	Hardened Cast Iron	0.02D	2.0D	Vc	21	21	21	19	19	19	19	17	21	21	19	19
					fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001
					RPM	6685	6685	6685	6048	6048	6048	6048	5411	5570	5570	5040	5040
					FEED	27	27	27	24	24	24	24	22	45	45	40	20

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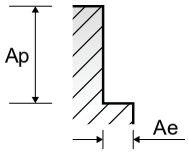

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME72 SERIES 4 FLUTE - SIDE CUTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																			
		1.2	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	3.0	3.0
	LOC	12	6	8	10	12	14	16	8	10	12	14	16	10	12	16	20	26	10	12
1-5	Vc	55	65	59	59	59	59	52	66	66	60	60	60	71	71	64	64	57	70	70
	fz	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.006	0.006	0.005	0.005	0.005	0.007	0.007	0.006	0.006	0.005	0.009	0.009
	RPM	14589	13793	12520	12520	12520	12520	11035	10504	10504	9549	9549	9549	9040	9040	8149	8149	7257	7427	7427
	FEED	117	221	200	200	150	150	132	252	252	191	191	191	253	253	196	196	145	267	267
6-8	Vc	55	65	59	59	59	59	52	66	66	60	60	60	71	71	64	64	57	70	70
	fz	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.006	0.006	0.005	0.005	0.005	0.007	0.007	0.006	0.006	0.005	0.009	0.009
	RPM	14589	13793	12520	12520	12520	12520	11035	10504	10504	9549	9549	9549	9040	9040	8149	8149	7257	7427	7427
	FEED	117	221	200	200	150	150	132	252	252	191	191	191	253	253	196	196	145	267	267
9	Vc	31	37	33	33	33	33	30	38	38	34	34	34	41	41	37	37	32	40	40
	fz	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.003	0.005	0.005	0.005	0.004	0.004	0.007	0.007
	RPM	8223	7852	7003	7003	7003	7003	6366	6048	6048	5411	5411	5411	5220	5220	4711	4711	4074	4244	4244
	FEED	66	94	84	56	56	56	51	97	97	87	87	65	104	104	94	75	65	119	119
10 - 11.1	Vc	55	65	59	59	59	59	52	66	66	60	60	60	71	71	64	64	57	70	70
	fz	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.006	0.006	0.005	0.005	0.005	0.007	0.007	0.006	0.006	0.005	0.009	0.009
	RPM	14589	13793	12520	12520	12520	12520	11035	10504	10504	9549	9549	9549	9040	9040	8149	8149	7257	7427	7427
	FEED	117	221	200	200	150	150	132	252	252	191	191	191	253	253	196	196	145	267	267
11.2	Vc	31	37	33	33	33	33	30	38	38	34	34	34	41	41	37	37	32	40	40
	fz	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.003	0.005	0.005	0.005	0.004	0.004	0.007	0.007
	RPM	8223	7852	7003	7003	7003	7003	6366	6048	6048	5411	5411	5411	5220	5220	4711	4711	4074	4244	4244
	FEED	66	94	84	56	56	56	51	97	97	87	87	65	104	104	94	75	65	119	119
15 - 20	Vc	55	65	59	59	59	59	52	66	66	60	60	60	71	71	64	64	57	70	70
	fz	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.006	0.006	0.005	0.005	0.005	0.007	0.007	0.006	0.006	0.005	0.009	0.009
	RPM	14589	13793	12520	12520	12520	12520	11035	10504	10504	9549	9549	9549	9040	9040	8149	8149	7257	7427	7427
	FEED	117	221	200	200	150	150	132	252	252	191	191	191	253	253	196	196	145	267	267
38.1 - 38.2	Vc	19	23	20	20	20	20	18	24	24	21	21	21	25	25	23	23	20	25	25
	fz	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.004	0.004	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.003	0.006	0.006
	RPM	5040	4881	4244	4244	4244	4244	3820	3820	3820	3342	3342	3342	3183	3183	2928	2928	2546	2653	2653
	FEED	20	39	34	34	34	34	31	61	61	40	40	40	64	64	47	47	31	64	64
40	Vc	31	37	33	33	33	33	30	38	38	34	34	34	41	41	37	37	32	40	40
	fz	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.003	0.005	0.005	0.005	0.004	0.004	0.007	0.007
	RPM	8223	7852	7003	7003	7003	7003	6366	6048	6048	5411	5411	5411	5220	5220	4711	4711	4074	4244	4244
	FEED	66	94	84	56	56	56	51	97	97	87	87	65	104	104	94	75	65	119	119
41	Vc	19	23	20	20	20	20	18	24	24	21	21	21	25	25	23	23	20	25	25
	fz	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.004	0.004	0.003	0.003	0.003	0.005	0.005	0.004	0.004	0.003	0.006	0.006
	RPM	5040	4881	4244	4244	4244	4244	3820	3820	3820	3342	3342	3342	3183	3183	2928	2928	2546	2653	2653
	FEED	20	39	34	34	34	34	31	61	61	40	40	40	64	64	47	47	31	64	64

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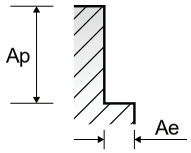

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME72 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)															
					3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
				LOC	14	16	20	26	30	12	16	20	26	30	20	25	30	35	40
P	1-5	0.05D	2.5D	Vc	70	63	63	63	63	75	75	75	68	68	80	80	72	72	72
				fz	0.009	0.009	0.008	0.008	0.008	0.014	0.014	0.014	0.013	0.013	0.021	0.021	0.019	0.019	0.017
				RPM	7427	6685	6685	6685	6685	5968	5968	5968	5411	5411	5093	5093	4584	4584	4584
				FEED	267	241	214	214	214	334	334	334	281	281	428	428	348	348	312
	6-8	0.05D	2.5D	Vc	70	63	63	63	63	75	75	75	68	68	80	80	72	72	72
				fz	0.009	0.009	0.008	0.008	0.008	0.014	0.014	0.014	0.013	0.013	0.021	0.021	0.019	0.019	0.017
				RPM	7427	6685	6685	6685	6685	5968	5968	5968	5411	5411	5093	5093	4584	4584	4584
				FEED	267	241	214	214	214	334	334	334	281	281	428	428	348	348	312
	9	0.05D	2.5D	Vc	40	36	36	36	36	43	43	43	39	39	46	46	41	41	41
				fz	0.007	0.007	0.006	0.006	0.006	0.01	0.01	0.01	0.009	0.009	0.015	0.015	0.013	0.013	0.011
				RPM	4244	3820	3820	3820	3820	3422	3422	3422	3104	3104	2928	2928	2610	2610	2610
				FEED	119	107	92	92	92	137	137	137	112	112	176	176	136	136	115
	10-11.1	0.05D	2.5D	Vc	70	63	63	63	63	75	75	75	68	68	80	80	72	72	72
				fz	0.009	0.009	0.008	0.008	0.008	0.014	0.014	0.014	0.013	0.013	0.021	0.021	0.019	0.019	0.017
				RPM	7427	6685	6685	6685	6685	5968	5968	5968	5411	5411	5093	5093	4584	4584	4584
				FEED	267	241	214	214	214	334	334	334	281	281	428	428	348	348	312
	11.2	0.05D	2.5D	Vc	40	36	36	36	36	43	43	43	39	39	46	46	41	41	41
				fz	0.007	0.007	0.006	0.006	0.006	0.01	0.01	0.01	0.009	0.009	0.015	0.015	0.013	0.013	0.011
				RPM	4244	3820	3820	3820	3820	3422	3422	3422	3104	3104	2928	2928	2610	2610	2610
				FEED	119	107	92	92	92	137	137	137	112	112	176	176	136	136	115
K	15-20	0.05D	2.5D	Vc	70	63	63	63	63	75	75	75	68	68	80	80	72	72	72
				fz	0.009	0.009	0.008	0.008	0.008	0.014	0.014	0.014	0.013	0.013	0.021	0.021	0.019	0.019	0.017
				RPM	7427	6685	6685	6685	6685	5968	5968	5968	5411	5411	5093	5093	4584	4584	4584
				FEED	267	241	214	214	214	334	334	334	281	281	428	428	348	348	312
H	38.1 - 38.2	0.02D	2.0D	Vc	25	22	22	22	22	27	27	27	24	24	30	30	27	27	27
				fz	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.008	0.011	0.011	0.01	0.01	0.009
				RPM	2653	2334	2334	2334	2334	2149	2149	2149	1910	1910	1910	1910	1719	1719	1719
				FEED	64	56	56	47	47	69	69	69	61	61	84	84	69	69	62
	40	0.05D	2.5D	Vc	40	36	36	36	36	43	43	43	39	39	46	46	41	41	41
				fz	0.007	0.007	0.006	0.006	0.006	0.01	0.01	0.01	0.009	0.009	0.015	0.015	0.013	0.013	0.011
				RPM	4244	3820	3820	3820	3820	3422	3422	3422	3104	3104	2928	2928	2610	2610	2610
				FEED	119	107	92	92	92	137	137	137	112	112	176	176	136	136	115
	41	0.02D	2.0D	Vc	25	22	22	22	22	27	27	27	24	24	30	30	27	27	27
				fz	0.006	0.006	0.006	0.005	0.005	0.008	0.008	0.008	0.008	0.008	0.011	0.011	0.01	0.01	0.009
				RPM	2653	2334	2334	2334	2334	2149	2149	2149	1910	1910	1910	1910	1719	1719	1719
				FEED	64	56	56	47	47	69	69	69	61	61	84	84	69	69	62

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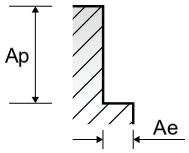

YG-1 CO., LTD.

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME72 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																	
		6.0	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0	10.0	10.0	10.0	10.0
	LOC	15	20	25	30	35	40	45	25	30	35	40	45	50	30	35	40	45	50	55
1-5	Vc	83	83	83	83	75	75	75	84	84	84	84	76	76	89	89	89	89	89	80
	fz	0.029	0.029	0.029	0.025	0.025	0.022	0.022	0.041	0.041	0.041	0.035	0.035	0.031	0.049	0.049	0.049	0.042	0.042	0.041
	RPM	4403	4403	4403	4403	3979	3979	3979	3342	3342	3342	3342	3024	3024	2833	2833	2833	2833	2833	2546
	FEED	511	511	511	440	398	350	350	548	548	548	468	423	375	555	555	555	476	476	418
6-8	Vc	83	83	83	83	75	75	75	84	84	84	84	76	76	89	89	89	89	89	80
	fz	0.029	0.029	0.029	0.025	0.025	0.022	0.022	0.041	0.041	0.041	0.035	0.035	0.031	0.049	0.049	0.049	0.042	0.042	0.041
	RPM	4403	4403	4403	4403	3979	3979	3979	3342	3342	3342	3342	3024	3024	2833	2833	2833	2833	2833	2546
	FEED	511	511	511	440	398	350	350	548	548	548	468	423	375	555	555	555	476	476	418
9	Vc	48	48	48	48	43	43	43	48	48	48	48	43	43	52	52	52	52	52	46
	fz	0.021	0.021	0.021	0.018	0.018	0.016	0.016	0.028	0.028	0.028	0.024	0.024	0.021	0.033	0.033	0.033	0.028	0.028	0.028
	RPM	2546	2546	2546	2546	2281	2281	2281	1910	1910	1910	1910	1711	1711	1655	1655	1655	1655	1655	1464
	FEED	214	214	214	183	164	146	146	214	214	214	183	164	144	218	218	218	185	185	164
10 - 11.1	Vc	83	83	83	83	75	75	75	84	84	84	84	76	76	89	89	89	89	89	80
	fz	0.029	0.029	0.029	0.025	0.025	0.022	0.022	0.041	0.041	0.041	0.035	0.035	0.031	0.049	0.049	0.049	0.042	0.042	0.041
	RPM	4403	4403	4403	4403	3979	3979	3979	3342	3342	3342	3342	3024	3024	2833	2833	2833	2833	2833	2546
	FEED	511	511	511	440	398	350	350	548	548	548	468	423	375	555	555	555	476	476	418
11.2	Vc	48	48	48	48	43	43	43	48	48	48	48	43	43	52	52	52	52	52	46
	fz	0.021	0.021	0.021	0.018	0.018	0.016	0.016	0.028	0.028	0.028	0.024	0.024	0.021	0.033	0.033	0.033	0.028	0.028	0.028
	RPM	2546	2546	2546	2546	2281	2281	2281	1910	1910	1910	1910	1711	1711	1655	1655	1655	1655	1655	1464
	FEED	214	214	214	183	164	146	146	214	214	214	183	164	144	218	218	218	185	185	164
15 - 20	Vc	83	83	83	83	75	75	75	84	84	84	84	76	76	89	89	89	89	89	80
	fz	0.029	0.029	0.029	0.025	0.025	0.022	0.022	0.041	0.041	0.041	0.035	0.035	0.031	0.049	0.049	0.049	0.042	0.042	0.041
	RPM	4403	4403	4403	4403	3979	3979	3979	3342	3342	3342	3342	3024	3024	2833	2833	2833	2833	2833	2546
	FEED	511	511	511	440	398	350	350	548	548	548	468	423	375	555	555	555	476	476	418
38.1 - 38.2	Vc	31	31	31	31	28	28	28	32	32	32	32	28	28	32	32	32	32	32	29
	fz	0.017	0.017	0.017	0.014	0.014	0.013	0.013	0.022	0.022	0.022	0.018	0.019	0.017	0.027	0.027	0.027	0.022	0.022	0.023
	RPM	1645	1645	1645	1645	1485	1485	1485	1273	1273	1273	1273	1114	1114	1019	1019	1019	1019	1019	923
	FEED	112	112	112	92	83	77	77	112	112	112	92	85	76	110	110	110	90	90	85
40	Vc	48	48	48	48	43	43	43	48	48	48	48	43	43	52	52	52	52	52	46
	fz	0.021	0.021	0.021	0.018	0.018	0.016	0.016	0.028	0.028	0.028	0.024	0.024	0.021	0.033	0.033	0.033	0.028	0.028	0.028
	RPM	2546	2546	2546	2546	2281	2281	2281	1910	1910	1910	1910	1711	1711	1655	1655	1655	1655	1655	1464
	FEED	214	214	214	183	164	146	146	214	214	214	183	164	144	218	218	218	185	185	164
41	Vc	31	31	31	31	28	28	28	32	32	32	32	28	28	32	32	32	32	32	29
	fz	0.017	0.017	0.017	0.014	0.014	0.013	0.013	0.022	0.022	0.022	0.018	0.019	0.017	0.027	0.027	0.027	0.022	0.022	0.023
	RPM	1645	1645	1645	1645	1485	1485	1485	1273	1273	1273	1273	1114	1114	1019	1019	1019	1019	1019	923
	FEED	112	112	112	92	83	77	77	112	112	112	92	85	76	110	110	110	90	90	85

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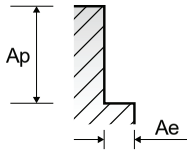

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME72 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

ISO	VDI 3323	Ae	Ap	Parameter	Diameter (Ø)														
					10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	14.0	14.0	16.0	16.0	16.0	16.0
				LOC	60	35	40	45	50	55	60	65	70	50	60	40	50	60	70
P	1-5	0.05D	2.5D	Vc	80	87	87	87	87	87	87	78	78	93	93	98	98	98	98
				fz	0.037	0.047	0.047	0.04	0.04	0.04	0.035	0.035	0.035	0.041	0.041	0.05	0.05	0.042	0.042
				RPM	2546	2308	2308	2308	2308	2308	2308	2069	2069	2114	2114	1950	1950	1950	1950
				FEED	377	434	434	369	369	369	323	290	290	347	347	390	390	328	328
	6-8	0.05D	2.5D	Vc	80	87	87	87	87	87	87	78	78	93	93	98	98	98	98
				fz	0.037	0.047	0.047	0.04	0.04	0.04	0.035	0.035	0.035	0.041	0.041	0.05	0.05	0.042	0.042
				RPM	2546	2308	2308	2308	2308	2308	2308	2069	2069	2114	2114	1950	1950	1950	1950
				FEED	377	434	434	369	369	369	323	290	290	347	347	390	390	328	328
	9	0.05D	2.5D	Vc	46	52	52	52	52	52	52	47	47	54	54	54	54	54	54
				fz	0.024	0.034	0.034	0.03	0.03	0.03	0.026	0.026	0.026	0.029	0.029	0.035	0.035	0.03	0.03
				RPM	1464	1379	1379	1379	1379	1379	1379	1247	1247	1228	1228	1074	1074	1074	1074
				FEED	141	188	188	166	166	166	143	130	130	142	142	150	150	129	129
	10-11.1	0.05D	2.5D	Vc	80	87	87	87	87	87	87	78	78	93	93	98	98	98	98
				fz	0.037	0.047	0.047	0.04	0.04	0.04	0.035	0.035	0.035	0.041	0.041	0.05	0.05	0.042	0.042
				RPM	2546	2308	2308	2308	2308	2308	2308	2069	2069	2114	2114	1950	1950	1950	1950
				FEED	377	434	434	369	369	369	323	290	290	347	347	390	390	328	328
	11.2	0.05D	2.5D	Vc	46	52	52	52	52	52	52	47	47	54	54	54	54	54	54
				fz	0.024	0.034	0.034	0.03	0.03	0.03	0.026	0.026	0.026	0.029	0.029	0.035	0.035	0.03	0.03
				RPM	1464	1379	1379	1379	1379	1379	1379	1247	1247	1228	1228	1074	1074	1074	1074
				FEED	141	188	188	166	166	166	143	130	130	142	142	150	150	129	129
K	15-20	0.05D	2.5D	Vc	80	87	87	87	87	87	87	78	78	93	93	98	98	98	98
				fz	0.037	0.047	0.047	0.04	0.04	0.04	0.035	0.035	0.035	0.041	0.041	0.05	0.05	0.042	0.042
				RPM	2546	2308	2308	2308	2308	2308	2308	2069	2069	2114	2114	1950	1950	1950	1950
				FEED	377	434	434	369	369	369	323	290	290	347	347	390	390	328	328
H	38.1 - 38.2	0.02D	2.0D	Vc	29	32	32	32	32	32	32	29	29	33	33	34	34	34	34
				fz	0.021	0.025	0.025	0.021	0.021	0.021	0.019	0.018	0.018	0.021	0.021	0.026	0.026	0.022	0.022
				RPM	923	849	849	849	849	849	849	769	769	750	750	676	676	676	676
				FEED	78	85	85	71	71	71	65	55	55	63	63	70	70	60	60
	40	0.05D	2.5D	Vc	46	52	52	52	52	52	52	47	47	54	54	54	54	54	54
				fz	0.024	0.034	0.034	0.03	0.03	0.03	0.026	0.026	0.026	0.029	0.029	0.035	0.035	0.03	0.03
				RPM	1464	1379	1379	1379	1379	1379	1379	1247	1247	1228	1228	1074	1074	1074	1074
				FEED	141	188	188	166	166	166	143	130	130	142	142	150	150	129	129
	41	0.02D	2.0D	Vc	29	32	32	32	32	32	32	29	29	33	33	34	34	34	34
				fz	0.021	0.025	0.025	0.021	0.021	0.021	0.019	0.018	0.018	0.021	0.021	0.026	0.026	0.022	0.022
				RPM	923	849	849	849	849	849	849	769	769	750	750	676	676	676	676
				FEED	78	85	85	71	71	71	65	55	55	63	63	70	70	60	60

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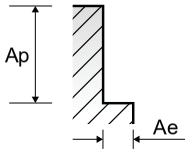
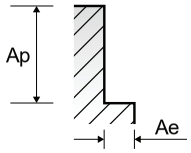


4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME72 SERIES 4 FLUTE - SIDE CUTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

VDI 3323	Parameter	Diameter (Ø)																		
		16.0	16.0	16.0	16.0	18.0	18.0	18.0	20.0	20.0	20.0	20.0	20.0	20.0	22.0	22.0	25.0	25.0	25.0	25.0
	LOC	80	90	110	120	50	70	100	50	60	70	80	90	110	120	75	110	70	90	110	120
1-5	Vc	98	88	88	88	95	95	85	89	89	89	89	89	80	80	87	87	86	86	86	86
	fz	0.037	0.037	0.037	0.037	0.049	0.042	0.037	0.048	0.048	0.041	0.041	0.036	0.036	0.036	0.041	0.036	0.049	0.042	0.042	0.036
	RPM	1950	1751	1751	1751	1680	1680	1503	1416	1416	1416	1416	1416	1273	1273	1259	1259	1095	1095	1095	1095
	FEED	289	259	259	259	329	282	222	272	272	232	232	204	183	183	206	181	215	184	184	158
6-8	Vc	98	88	88	88	95	95	85	89	89	89	89	89	80	80	87	87	86	86	86	86
	fz	0.037	0.037	0.037	0.037	0.049	0.042	0.037	0.048	0.048	0.041	0.041	0.036	0.036	0.036	0.041	0.036	0.049	0.042	0.042	0.036
	RPM	1950	1751	1751	1751	1680	1680	1503	1416	1416	1416	1416	1416	1273	1273	1259	1259	1095	1095	1095	1095
	FEED	289	259	259	259	329	282	222	272	272	232	232	204	183	183	206	181	215	184	184	158
9	Vc	54	48	48	48	53	53	48	52	52	52	52	52	46	46	57	57	64	64	64	64
	fz	0.027	0.026	0.026	0.026	0.035	0.029	0.025	0.034	0.034	0.027	0.027	0.024	0.026	0.026	0.027	0.024	0.034	0.027	0.027	0.024
	RPM	1074	955	955	955	937	937	849	828	828	828	828	828	732	732	825	825	815	815	815	815
	FEED	116	99	99	99	131	109	85	113	113	89	89	79	76	76	89	79	111	88	88	78
10 - 11.1	Vc	98	88	88	88	95	95	85	89	89	89	89	89	80	80	87	87	86	86	86	86
	fz	0.037	0.037	0.037	0.037	0.049	0.042	0.037	0.048	0.048	0.041	0.041	0.036	0.036	0.036	0.041	0.036	0.049	0.042	0.042	0.036
	RPM	1950	1751	1751	1751	1680	1680	1503	1416	1416	1416	1416	1416	1273	1273	1259	1259	1095	1095	1095	1095
	FEED	289	259	259	259	329	282	222	272	272	232	232	204	183	183	206	181	215	184	184	158
11.2	Vc	54	48	48	48	53	53	48	52	52	52	52	52	46	46	57	57	64	64	64	64
	fz	0.027	0.026	0.026	0.026	0.035	0.029	0.025	0.034	0.034	0.027	0.027	0.024	0.026	0.026	0.027	0.024	0.034	0.027	0.027	0.024
	RPM	1074	955	955	955	937	937	849	828	828	828	828	828	732	732	825	825	815	815	815	815
	FEED	116	99	99	99	131	109	85	113	113	89	89	79	76	76	89	79	111	88	88	78
15 - 20	Vc	98	88	88	88	95	95	85	89	89	89	89	89	80	80	87	87	86	86	86	86
	fz	0.037	0.037	0.037	0.037	0.049	0.042	0.037	0.048	0.048	0.041	0.041	0.036	0.036	0.036	0.041	0.036	0.049	0.042	0.042	0.036
	RPM	1950	1751	1751	1751	1680	1680	1503	1416	1416	1416	1416	1416	1273	1273	1259	1259	1095	1095	1095	1095
	FEED	289	259	259	259	329	282	222	272	272	232	232	204	183	183	206	181	215	184	184	158
38.1 - 38.2	Vc	34	30	30	30	33	33	30	31	31	31	31	31	28	28	35	35	39	39	39	39
	fz	0.021	0.021	0.021	0.021	0.028	0.023	0.021	0.028	0.028	0.023	0.023	0.02	0.019	0.019	0.023	0.02	0.028	0.023	0.023	0.02
	RPM	676	597	597	597	584	584	531	493	493	493	493	493	446	446	506	506	497	497	497	497
	FEED	57	50	50	50	65	54	45	55	55	45	45	39	34	34	47	41	56	46	46	40
40	Vc	54	48	48	48	53	53	48	52	52	52	52	52	46	46	57	57	64	64	64	64
	fz	0.027	0.026	0.026	0.026	0.035	0.029	0.025	0.034	0.034	0.027	0.027	0.024	0.026	0.026	0.027	0.024	0.034	0.027	0.027	0.024
	RPM	1074	955	955	955	937	937	849	828	828	828	828	828	732	732	825	825	815	815	815	815
	FEED	116	99	99	99	131	109	85	113	113	89	89	79	76	76	89	79	111	88	88	78
41	Vc	34	30	30	30	33	33	30	31	31	31	31	31	28	28	35	35	39	39	39	39
	fz	0.021	0.021	0.021	0.021	0.028	0.023	0.021	0.028	0.028	0.023	0.023	0.02	0.019	0.019	0.023	0.02	0.028	0.023	0.023	0.02
	RPM	676	597	597	597	584	584	531	493	493	493	493	493	446	446	506	506	497	497	497	497
	FEED	57	50	50	50	65	54	45	55	55	45	45	39	34	34	47	41	56	46	46	40



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME73 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)																	
				1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
			LBS	2	3	4	5	6	7	8	10	12	14	16	18	20	22	26	30	40
P	1-5	Non-alloy steel	Vc	69	69	69	69	62	62	62	62	55	55	41	41	41	21	21	21	7
			fz	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	21963	21963	21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228
			FEED	351	351	351	351	237	237	237	237	210	210	104	104	104	53	53	53	18
			Ae	0.021	0.021	0.015	0.015	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
	6-8	Low alloy steel	Vc	69	69	69	69	62	62	62	62	55	55	41	41	41	21	21	21	7
			fz	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	21963	21963	21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228
			FEED	351	351	351	351	237	237	237	237	210	210	104	104	104	53	53	53	18
			Ae	0.021	0.021	0.015	0.015	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
	9		Vc	42	42	42	42	38	38	38	38	34	34	25	25	25	13	13	13	4
			fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	13369	13369	13369	13369	12096	12096	12096	12096	10823	10823	7958	7958	7958	4138	4138	4138	1273
			FEED	160	160	160	160	145	145	145	145	130	130	64	64	64	33	33	33	10
			Ae	0.016	0.016	0.011	0.011	0.006	0.006	0.006	0.004	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	10-11.1	High alloyed steel, and tool steel	Vc	69	69	69	69	62	62	62	62	55	55	41	41	41	21	21	21	7
			fz	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	21963	21963	21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228
			FEED	351	351	351	351	237	237	237	237	210	210	104	104	104	53	53	53	18
			Ae	0.021	0.021	0.015	0.015	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
	11.2		Vc	42	42	42	42	38	38	38	38	34	34	25	25	25	13	13	13	4
			fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	13369	13369	13369	13369	12096	12096	12096	12096	10823	10823	7958	7958	7958	4138	4138	4138	1273
			FEED	160	160	160	160	145	145	145	145	130	130	64	64	64	33	33	33	10
			Ae	0.016	0.016	0.011	0.011	0.006	0.006	0.006	0.004	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	69	69	69	69	62	62	62	62	55	55	41	41	41	21	21	21	7
			fz	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	21963	21963	21963	21963	19735	19735	19735	19735	17507	17507	13051	13051	13051	6685	6685	6685	2228
			FEED	351	351	351	351	237	237	237	237	210	210	104	104	104	53	53	53	18
			Ae	0.021	0.021	0.015	0.015	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
H	38.1 - 38.2	Hardened steel	Vc	27	27	27	27	24	24	24	24	21	21	16	16	16	8	8	8	3
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
			RPM	8594	8594	8594	8594	7639	7639	7639	7639	6685	6685	5093	5093	5093	2546	2546	2546	955
			FEED	34	34	34	34	31	31	31	31	27	27	20	20	20	10	10	10	4
			Ae	0.013	0.013	0.009	0.009	0.005	0.005	0.005	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
	40	Chilled Cast Iron	Vc	42	42	42	42	38	38	38	38	34	34	25	25	25	13	13	13	4
			fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
			RPM	13369	13369	13369	13369	12096	12096	12096	12096	10823	10823	7958	7958	7958	4138	4138	4138	1273
			FEED	160	160	160	160	145	145	145	145	130	130	64	64	64	33	33	33	10
			Ae	0.016	0.016	0.011	0.011	0.006	0.006	0.006	0.004	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	41	Hardened Cast Iron	Vc	27	27	27	27	24	24	24	24	21	21	16	16	16	8	8	8	3
			fz	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
			RPM	8594	8594	8594	8594	7639	7639	7639	7639	6685	6685	5093	5093	5093	2546	2546	2546	955
			FEED	34	34	34	34	31	31	31	31	27	27	20	20	20	10	10	10	4
			Ae	0.013	0.013	0.009	0.009	0.005	0.005	0.005	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001

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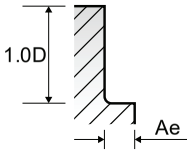

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME73 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																						
		1.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	LBS	50	4	6	8	10	12	14	16	20	26	30	4	5	6	7	8	10	12	14	16	18	20
1-5	Vc	7	74	74	66	66	66	59	59	44	22	22	80	80	80	80	72	72	72	72	64	64	64
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	2228	19629	19629	17507	17507	17507	15650	15650	11671	5836	5836	16977	16977	16977	16977	15279	15279	15279	15279	13581	13581	13581
	FEED	18	314	314	280	280	280	188	188	140	47	47	340	340	340	340	244	244	244	244	217	217	217
	Ae	0.002	0.018	0.018	0.01	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.032	0.022	0.022	0.022	0.013	0.013	0.013	0.008	0.008	0.008	0.005
6-8	Vc	7	74	74	66	66	66	59	59	44	22	22	80	80	80	80	72	72	72	72	64	64	64
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	2228	19629	19629	17507	17507	17507	15650	15650	11671	5836	5836	16977	16977	16977	16977	15279	15279	15279	15279	13581	13581	13581
	FEED	18	314	314	280	280	280	188	188	140	47	47	340	340	340	340	244	244	244	244	217	217	217
	Ae	0.002	0.018	0.018	0.01	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.032	0.022	0.022	0.022	0.013	0.013	0.013	0.008	0.008	0.008	0.005
9	Vc	4	46	46	41	41	41	36	36	27	14	14	50	50	50	50	45	45	45	45	40	40	40
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	1273	12202	12202	10876	10876	10876	9549	9549	7162	3714	3714	10610	10610	10610	10610	9549	9549	9549	9549	8488	8488	8488
	FEED	10	195	195	131	131	131	115	115	86	30	30	170	170	170	170	153	153	153	153	136	136	136
	Ae	0.002	0.013	0.013	0.008	0.005	0.005	0.005	0.003	0.002	0.002	0.002	0.024	0.017	0.017	0.017	0.009	0.009	0.009	0.006	0.006	0.006	0.004
10 - 11.1	Vc	7	74	74	66	66	66	59	59	44	22	22	80	80	80	80	72	72	72	72	64	64	64
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	2228	19629	19629	17507	17507	17507	15650	15650	11671	5836	5836	16977	16977	16977	16977	15279	15279	15279	15279	13581	13581	13581
	FEED	18	314	314	280	280	280	188	188	140	47	47	340	340	340	340	244	244	244	244	217	217	217
	Ae	0.002	0.018	0.018	0.01	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.032	0.022	0.022	0.022	0.013	0.013	0.013	0.008	0.008	0.008	0.005
11.2	Vc	4	46	46	41	41	41	36	36	27	14	14	50	50	50	50	45	45	45	45	40	40	40
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	1273	12202	12202	10876	10876	10876	9549	9549	7162	3714	3714	10610	10610	10610	10610	9549	9549	9549	9549	8488	8488	8488
	FEED	10	195	195	131	131	131	115	115	86	30	30	170	170	170	170	153	153	153	153	136	136	136
	Ae	0.002	0.013	0.013	0.008	0.005	0.005	0.005	0.003	0.002	0.002	0.002	0.024	0.017	0.017	0.017	0.009	0.009	0.009	0.006	0.006	0.006	0.004
15 - 20	Vc	7	74	74	66	66	66	59	59	44	22	22	80	80	80	80	72	72	72	72	64	64	64
	fz	0.002	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	2228	19629	19629	17507	17507	17507	15650	15650	11671	5836	5836	16977	16977	16977	16977	15279	15279	15279	15279	13581	13581	13581
	FEED	18	314	314	280	280	280	188	188	140	47	47	340	340	340	340	244	244	244	244	217	217	217
	Ae	0.002	0.018	0.018	0.01	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.032	0.022	0.022	0.022	0.013	0.013	0.013	0.008	0.008	0.008	0.005
38.1 - 38.2	Vc	3	28	28	25	25	25	23	23	17	8	8	31	31	31	31	28	28	28	28	25	25	25
	fz	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
	RPM	955	7427	7427	6631	6631	6631	6101	6101	4509	2122	2122	6578	6578	6578	6578	5942	5942	5942	5942	5305	5305	5305
	FEED	4	59	59	27	27	27	24	24	18	8	8	53	53	53	53	48	48	48	48	21	21	21
	Ae	0.001	0.011	0.011	0.006	0.004	0.004	0.004	0.002	0.002	0.002	0.002	0.019	0.013	0.013	0.013	0.008	0.008	0.008	0.005	0.005	0.005	0.003
40	Vc	4	46	46	41	41	41	36	36	27	14	14	50	50	50	50	45	45	45	45	40	40	40
	fz	0.002	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	1273	12202	12202	10876	10876	10876	9549	9549	7162	3714	3714	10610	10610	10610	10610	9549	9549	9549	9549	8488	8488	8488
	FEED	10	195	195	131	131	131	115	115	86	30	30	170	170	170	170	153	153	153	153	136	136	136
	Ae	0.002	0.013	0.013	0.008	0.005	0.005	0.005	0.003	0.002	0.002	0.002	0.024	0.017	0.017	0.017	0.009	0.009	0.009	0.006	0.006	0.006	0.004
41	Vc	3	28	28	25	25	25	23	23	17	8	8	31	31	31	31	28	28	28	28	25	25	25
	fz	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
	RPM	955	7427	7427	6631	6631	6631	6101	6101	4509	2122	2122	6578	6578	6578	6578	5942	5942	5942	5942	5305	5305	5305
	FEED	4	59	59	27	27	27	24	24	18	8	8	53	53	53	53	48	48	48	48	21	21	21
	Ae	0.001	0.011	0.011	0.006	0.004	0.004	0.004	0.002	0.002	0.002	0.002	0.019	0.013	0.013	0.013	0.008	0.008	0.008	0.005	0.005	0.005	0.003

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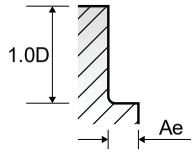

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME73 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																			
			1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5
		LBS	22	26	30	6	8	10	12	16	18	20	22	26	30	35	40	45	50	60	8	10
P	1-5	Vc	64	48	48	87	87	87	79	79	79	79	70	70	70	52	52	26	26	26	94	94
		fz	0.004	0.003	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.007	0.007
		RPM	13581	10186	10186	13846	13846	13846	12573	12573	12573	12573	11141	11141	11141	8276	8276	4138	4138	4138	11968	11968
		FEED	217	122	122	332	332	332	251	251	251	251	223	223	223	132	132	66	66	66	335	335
		Ae	0.005	0.003	0.003	0.042	0.029	0.029	0.017	0.017	0.011	0.011	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.004	0.037	0.037
	6-8	Vc	64	48	48	87	87	87	79	79	79	79	70	70	70	52	52	26	26	26	94	94
		fz	0.004	0.003	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.007	0.007
		RPM	13581	10186	10186	13846	13846	13846	12573	12573	12573	12573	11141	11141	11141	8276	8276	4138	4138	4138	11968	11968
		FEED	217	122	122	332	332	332	251	251	251	251	223	223	223	132	132	66	66	66	335	335
		Ae	0.005	0.003	0.003	0.042	0.029	0.029	0.017	0.017	0.011	0.011	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.004	0.037	0.037
	9	Vc	40	30	30	57	57	57	51	51	51	51	46	46	46	34	34	17	17	17	60	60
		fz	0.004	0.003	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.007	0.007
		RPM	8488	6366	6366	9072	9072	9072	8117	8117	8117	8117	7321	7321	7321	5411	5411	2706	2706	2706	7639	7639
		FEED	136	76	76	218	218	218	162	162	162	162	117	117	117	87	87	32	32	32	214	214
		Ae	0.004	0.002	0.002	0.032	0.022	0.022	0.013	0.013	0.008	0.008	0.008	0.008	0.005	0.003	0.003	0.003	0.003	0.003	0.028	0.028
	10-11.1	Vc	64	48	48	87	87	87	79	79	79	79	70	70	70	52	52	26	26	26	94	94
		fz	0.004	0.003	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.007	0.007
		RPM	13581	10186	10186	13846	13846	13846	12573	12573	12573	12573	11141	11141	11141	8276	8276	4138	4138	4138	11968	11968
		FEED	217	122	122	332	332	332	251	251	251	251	223	223	223	132	132	66	66	66	335	335
		Ae	0.005	0.003	0.003	0.042	0.029	0.029	0.017	0.017	0.011	0.011	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.004	0.037	0.037
	11.2	Vc	40	30	30	57	57	57	51	51	51	51	46	46	46	34	34	17	17	17	60	60
		fz	0.004	0.003	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.007	0.007
		RPM	8488	6366	6366	9072	9072	9072	8117	8117	8117	8117	7321	7321	7321	5411	5411	2706	2706	2706	7639	7639
		FEED	136	76	76	218	218	218	162	162	162	162	117	117	117	87	87	32	32	32	214	214
		Ae	0.004	0.002	0.002	0.032	0.022	0.022	0.013	0.013	0.008	0.008	0.008	0.008	0.005	0.003	0.003	0.003	0.003	0.003	0.028	0.028
K	15-20	Vc	64	48	48	87	87	87	79	79	79	79	70	70	70	52	52	26	26	26	94	94
		fz	0.004	0.003	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.007	0.007
		RPM	13581	10186	10186	13846	13846	13846	12573	12573	12573	12573	11141	11141	11141	8276	8276	4138	4138	4138	11968	11968
		FEED	217	122	122	332	332	332	251	251	251	251	223	223	223	132	132	66	66	66	335	335
		Ae	0.005	0.003	0.003	0.042	0.029	0.029	0.017	0.017	0.011	0.011	0.011	0.011	0.006	0.004	0.004	0.004	0.004	0.004	0.037	0.037
H	38.1 - 38.2	Vc	25	18	18	38	38	38	34	34	34	34	30	30	30	23	23	11	11	11	35	35
		fz	0.001	0.001	0.001	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.003	0.003
		RPM	5305	3820	3820	6048	6048	6048	5411	5411	5411	5411	4775	4775	4775	3661	3661	1751	1751	1751	4456	4456
		FEED	21	15	15	73	73	73	43	43	43	43	38	38	38	29	29	7	7	7	53	53
		Ae	0.003	0.002	0.002	0.025	0.018	0.018	0.01	0.01	0.006	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.003	0.003	0.022	0.022
	40	Vc	40	30	30	57	57	57	51	51	51	51	46	46	46	34	34	17	17	17	60	60
		fz	0.004	0.003	0.003	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.007	0.007
		RPM	8488	6366	6366	9072	9072	9072	8117	8117	8117	8117	7321	7321	7321	5411	5411	2706	2706	2706	7639	7639
		FEED	136	76	76	218	218	218	162	162	162	162	117	117	117	87	87	32	32	32	214	214
		Ae	0.004	0.002	0.002	0.032	0.022	0.022	0.013	0.013	0.008	0.008	0.008	0.008	0.005	0.003	0.003	0.003	0.003	0.003	0.028	0.028
	41	Vc	25	18	18	38	38	38	34	34	34	34	30	30	30	23	23	11	11	11	35	35
		fz	0.001	0.001	0.001	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.003	0.003
		RPM	5305	3820	3820	6048	6048	6048	5411	5411	5411	5411	4775	4775	4775	3661	3661	1751	1751	1751	4456	4456
		FEED	21	15	15	73	73	73	43	43	43	43	38	38	38	29	29	7	7	7	53	53
		Ae	0.003	0.002	0.002	0.025	0.018	0.018	0.01	0.01	0.006	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.003	0.003	0.022	0.022

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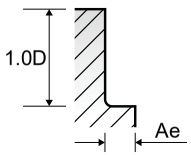

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME73 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																				
		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	LBS	12	14	16	18	20	22	26	30	35	40	45	50	6	8	10	12	14	16	18	20	22	26
1-5	Vc	94	85	85	85	85	85	75	75	75	57	57	57	101	101	101	101	101	91	91	91	91	91
	fz	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
	RPM	11968	10823	10823	10823	10823	10823	9549	9549	9549	7257	7257	7257	10716	10716	10716	10716	10716	9655	9655	9655	9655	9655
	FEED	335	303	303	303	303	303	229	229	229	145	145	145	386	386	386	386	386	309	309	309	309	309
	Ae	0.037	0.021	0.021	0.021	0.021	0.013	0.013	0.013	0.008	0.008	0.005	0.005	0.063	0.063	0.044	0.044	0.044	0.025	0.025	0.025	0.025	0.016
6-8	Vc	94	85	85	85	85	85	75	75	75	57	57	57	101	101	101	101	101	91	91	91	91	91
	fz	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
	RPM	11968	10823	10823	10823	10823	10823	9549	9549	9549	7257	7257	7257	10716	10716	10716	10716	10716	9655	9655	9655	9655	9655
	FEED	335	303	303	303	303	303	229	229	229	145	145	145	386	386	386	386	386	309	309	309	309	309
	Ae	0.037	0.021	0.021	0.021	0.021	0.013	0.013	0.013	0.008	0.008	0.005	0.005	0.063	0.063	0.044	0.044	0.044	0.025	0.025	0.025	0.025	0.016
9	Vc	60	54	54	54	54	54	48	48	48	36	36	36	63	63	63	63	63	57	57	57	57	57
	fz	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
	RPM	7639	6875	6875	6875	6875	6875	6112	6112	6112	4584	4584	4584	6685	6685	6685	6685	6685	6048	6048	6048	6048	6048
	FEED	214	193	193	193	193	193	147	147	147	92	92	92	241	241	241	241	241	194	194	194	194	194
	Ae	0.028	0.016	0.016	0.016	0.016	0.01	0.01	0.01	0.006	0.006	0.004	0.004	0.047	0.047	0.033	0.033	0.033	0.019	0.019	0.019	0.019	0.012
10 - 11.1	Vc	94	85	85	85	85	85	75	75	75	57	57	57	101	101	101	101	101	91	91	91	91	91
	fz	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
	RPM	11968	10823	10823	10823	10823	10823	9549	9549	9549	7257	7257	7257	10716	10716	10716	10716	10716	9655	9655	9655	9655	9655
	FEED	335	303	303	303	303	303	229	229	229	145	145	145	386	386	386	386	386	309	309	309	309	309
	Ae	0.037	0.021	0.021	0.021	0.021	0.013	0.013	0.013	0.008	0.008	0.005	0.005	0.063	0.063	0.044	0.044	0.044	0.025	0.025	0.025	0.025	0.016
11.2	Vc	60	54	54	54	54	54	48	48	48	36	36	36	63	63	63	63	63	57	57	57	57	57
	fz	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
	RPM	7639	6875	6875	6875	6875	6875	6112	6112	6112	4584	4584	4584	6685	6685	6685	6685	6685	6048	6048	6048	6048	6048
	FEED	214	193	193	193	193	193	147	147	147	92	92	92	241	241	241	241	241	194	194	194	194	194
	Ae	0.028	0.016	0.016	0.016	0.016	0.01	0.01	0.01	0.006	0.006	0.004	0.004	0.047	0.047	0.033	0.033	0.033	0.019	0.019	0.019	0.019	0.012
15 - 20	Vc	94	85	85	85	85	85	75	75	75	57	57	57	101	101	101	101	101	91	91	91	91	91
	fz	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
	RPM	11968	10823	10823	10823	10823	10823	9549	9549	9549	7257	7257	7257	10716	10716	10716	10716	10716	9655	9655	9655	9655	9655
	FEED	335	303	303	303	303	303	229	229	229	145	145	145	386	386	386	386	386	309	309	309	309	309
	Ae	0.037	0.021	0.021	0.021	0.021	0.013	0.013	0.013	0.008	0.008	0.005	0.005	0.063	0.063	0.044	0.044	0.044	0.025	0.025	0.025	0.025	0.016
38.1 - 38.2	Vc	35	32	32	32	32	32	28	28	28	21	21	21	38	38	38	38	38	34	34	34	34	34
	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	4456	4074	4074	4074	4074	4074	3565	3565	3565	2674	2674	2674	4032	4032	4032	4032	4032	3608	3608	3608	3608	3608
	FEED	53	49	49	49	49	49	43	43	43	21	21	21	65	65	65	65	65	58	58	58	58	58
	Ae	0.022	0.013	0.013	0.013	0.013	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.038	0.038	0.026	0.026	0.026	0.015	0.015	0.015	0.015	0.009
40	Vc	60	54	54	54	54	54	48	48	48	36	36	36	63	63	63	63	63	57	57	57	57	57
	fz	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
	RPM	7639	6875	6875	6875	6875	6875	6112	6112	6112	4584	4584	4584	6685	6685	6685	6685	6685	6048	6048	6048	6048	6048
	FEED	214	193	193	193	193	193	147	147	147	92	92	92	241	241	241	241	241	194	194	194	194	194
	Ae	0.028	0.016	0.016	0.016	0.016	0.01	0.01	0.01	0.006	0.006	0.004	0.004	0.047	0.047	0.033	0.033	0.033	0.019	0.019	0.019	0.019	0.012
41	Vc	35	32	32	32	32	32	28	28	28	21	21	21	38	38	38	38	38	34	34	34	34	34
	fz	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	RPM	4456	4074	4074	4074	4074	4074	3565	3565	3565	2674	2674	2674	4032	4032	4032	4032	4032	3608	3608	3608	3608	3608
	FEED	53	49	49	49	49	49	43	43	43	21	21	21	65	65	65	65	65	58	58	58	58	58
	Ae	0.022	0.013	0.013	0.013	0.013	0.008	0.008	0.008	0.005	0.005	0.003	0.003	0.038	0.038	0.026	0.026	0.026	0.015	0.015	0.015	0.015	0.009

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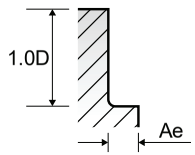

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME73 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

ISO	VDI 3323	Parameter	Diameter (Ø)																			
			3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
		LBS	30	35	40	45	50	60	8	10	12	14	16	18	20	22	26	30	35	40	45	50
P	1-5	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242
		FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434
		Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021
	6-8	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242
		FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434
		Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021
	9	Vc	57	50	50	50	38	38	70	70	70	70	70	70	70	63	63	63	63	63	56	56
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	6048	5305	5305	5305	4032	4032	5570	5570	5570	5570	5570	5570	5570	5013	5013	5013	5013	5013	4456	4456
		FEED	194	149	149	149	97	97	423	423	423	423	423	423	423	341	341	341	341	341	267	267
		Ae	0.012	0.012	0.007	0.007	0.005	0.005	0.063	0.063	0.063	0.044	0.044	0.044	0.044	0.025	0.025	0.025	0.016	0.016	0.016	0.016
	10-11.1	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242
		FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434
		Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021
	11.2	Vc	57	50	50	50	38	38	70	70	70	70	70	70	70	63	63	63	63	63	56	56
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	6048	5305	5305	5305	4032	4032	5570	5570	5570	5570	5570	5570	5570	5013	5013	5013	5013	5013	4456	4456
		FEED	194	149	149	149	97	97	423	423	423	423	423	423	423	341	341	341	341	341	267	267
		Ae	0.012	0.012	0.007	0.007	0.005	0.005	0.063	0.063	0.063	0.044	0.044	0.044	0.044	0.025	0.025	0.025	0.016	0.016	0.016	0.016
K	15-20	Vc	91	81	81	81	61	61	114	114	114	114	114	114	114	103	103	103	103	103	91	91
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	9655	8594	8594	8594	6472	6472	9072	9072	9072	9072	9072	9072	9072	8196	8196	8196	8196	8196	7242	7242
		FEED	309	241	241	241	155	155	689	689	689	689	689	689	689	557	557	557	557	557	434	434
		Ae	0.016	0.016	0.009	0.009	0.006	0.006	0.084	0.084	0.084	0.059	0.059	0.059	0.059	0.034	0.034	0.034	0.021	0.021	0.021	0.021
H	38.1 - 38.2	Vc	34	30	30	30	23	23	44	44	44	44	44	44	44	40	40	40	40	40	35	35
		fz	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
		RPM	3608	3183	3183	3183	2440	2440	3501	3501	3501	3501	3501	3501	3501	3183	3183	3183	3183	3183	2785	2785
		FEED	58	38	38	38	29	29	70	70	70	70	70	70	70	51	51	51	51	51	45	45
		Ae	0.009	0.009	0.006	0.006	0.004	0.004	0.05	0.05	0.05	0.035	0.035	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.013	0.013
	40	Vc	57	50	50	50	38	38	70	70	70	70	70	70	70	63	63	63	63	63	56	56
		fz	0.008	0.007	0.007	0.007	0.006	0.006	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.017	0.017	0.017	0.015	0.015
		RPM	6048	5305	5305	5305	4032	4032	5570	5570	5570	5570	5570	5570	5570	5013	5013	5013	5013	5013	4456	4456
		FEED	194	149	149	149	97	97	423	423	423	423	423	423	423	341	341	341	341	341	267	267
		Ae	0.012	0.012	0.007	0.007	0.005	0.005	0.063	0.063	0.063	0.044	0.044	0.044	0.044	0.025	0.025	0.025	0.016	0.016	0.016	0.016
	41	Vc	34	30	30	30	23	23	44	44	44	44	44	44	44	40	40	40	40	40	35	35
		fz	0.004	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
		RPM	3608	3183	3183	3183	2440	2440	3501	3501	3501	3501	3501	3501	3501	3183	3183	3183	3183	3183	2785	2785
		FEED	58	38	38	38	29	29	70	70	70	70	70	70	70	51	51	51	51	51	45	45
		Ae	0.009	0.009	0.006	0.006	0.004	0.004	0.05	0.05	0.05	0.035	0.035	0.035	0.035	0.02	0.02	0.02	0.013	0.013	0.013	0.013

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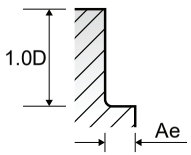
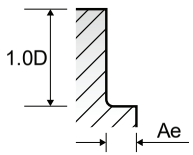


4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME73 SERIES — 4 FLUTE - SIDE CUTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
Ae = mm LBS = Length Below Shank

VDI 3323	Parameter	Diameter (Ø)																				
		4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	10.0	10.0	10.0	12.0	12.0	12.0
	LBS	60	16	20	26	30	35	40	50	60	15	20	30	32	25	30	42	30	35	45	35	40	50
1-5	Vc	91	119	119	107	107	107	107	107	95	126	126	126	113	127	127	114	123	123	123	124	124	124
	fz	0.015	0.024	0.024	0.022	0.022	0.022	0.022	0.022	0.019	0.03	0.03	0.03	0.027	0.042	0.042	0.038	0.047	0.047	0.047	0.047	0.047	0.047
	RPM	7242	7576	7576	6812	6812	6812	6812	6812	6048	6685	6685	6685	5995	5053	5053	4536	3915	3915	3915	3289	3289	3289
	FEED	434	727	727	599	599	599	599	599	460	802	802	802	647	849	849	689	736	736	736	618	618	618
	Ae	0.013	0.074	0.074	0.042	0.042	0.042	0.042	0.026	0.026	0.126	0.088	0.088	0.05	0.118	0.118	0.067	0.21	0.147	0.147	0.252	0.176	0.176
6-8	Vc	91	119	119	107	107	107	107	107	95	126	126	126	113	127	127	114	123	123	123	124	124	124
	fz	0.015	0.024	0.024	0.022	0.022	0.022	0.022	0.022	0.019	0.03	0.03	0.03	0.027	0.042	0.042	0.038	0.047	0.047	0.047	0.047	0.047	0.047
	RPM	7242	7576	7576	6812	6812	6812	6812	6812	6048	6685	6685	6685	5995	5053	5053	4536	3915	3915	3915	3289	3289	3289
	FEED	434	727	727	599	599	599	599	599	460	802	802	802	647	849	849	689	736	736	736	618	618	618
	Ae	0.013	0.074	0.074	0.042	0.042	0.042	0.042	0.026	0.026	0.126	0.088	0.088	0.05	0.118	0.118	0.067	0.21	0.147	0.147	0.252	0.176	0.176
9	Vc	56	71	71	64	64	64	64	64	57	76	76	76	68	76	76	68	75	75	75	76	76	76
	fz	0.015	0.024	0.024	0.021	0.021	0.021	0.021	0.021	0.019	0.03	0.03	0.03	0.027	0.037	0.037	0.034	0.038	0.038	0.038	0.037	0.037	0.037
	RPM	4456	4520	4520	4074	4074	4074	4074	4074	3629	4032	4032	4032	3608	3024	3024	2706	2387	2387	2387	2016	2016	2016
	FEED	267	434	434	342	342	342	342	342	276	484	484	484	390	448	448	368	363	363	363	298	298	298
	Ae	0.009	0.055	0.055	0.032	0.032	0.032	0.032	0.02	0.02	0.095	0.066	0.066	0.038	0.088	0.088	0.05	0.158	0.11	0.11	0.189	0.132	0.132
10 - 11.1	Vc	91	119	119	107	107	107	107	107	95	126	126	126	113	127	127	114	123	123	123	124	124	124
	fz	0.015	0.024	0.024	0.022	0.022	0.022	0.022	0.022	0.019	0.03	0.03	0.03	0.027	0.042	0.042	0.038	0.047	0.047	0.047	0.047	0.047	0.047
	RPM	7242	7576	7576	6812	6812	6812	6812	6812	6048	6685	6685	6685	5995	5053	5053	4536	3915	3915	3915	3289	3289	3289
	FEED	434	727	727	599	599	599	599	599	460	802	802	802	647	849	849	689	736	736	736	618	618	618
	Ae	0.013	0.074	0.074	0.042	0.042	0.042	0.042	0.026	0.026	0.126	0.088	0.088	0.05	0.118	0.118	0.067	0.21	0.147	0.147	0.252	0.176	0.176
11.2	Vc	56	71	71	64	64	64	64	64	57	76	76	76	68	76	76	68	75	75	75	76	76	76
	fz	0.015	0.024	0.024	0.021	0.021	0.021	0.021	0.021	0.019	0.03	0.03	0.03	0.027	0.037	0.037	0.034	0.038	0.038	0.038	0.037	0.037	0.037
	RPM	4456	4520	4520	4074	4074	4074	4074	4074	3629	4032	4032	4032	3608	3024	3024	2706	2387	2387	2387	2016	2016	2016
	FEED	267	434	434	342	342	342	342	342	276	484	484	484	390	448	448	368	363	363	363	298	298	298
	Ae	0.009	0.055	0.055	0.032	0.032	0.032	0.032	0.02	0.02	0.095	0.066	0.066	0.038	0.088	0.088	0.05	0.158	0.11	0.11	0.189	0.132	0.132
15 - 20	Vc	91	119	119	107	107	107	107	107	95	126	126	126	113	127	127	114	123	123	123	124	124	124
	fz	0.015	0.024	0.024	0.022	0.022	0.022	0.022	0.022	0.019	0.03	0.03	0.03	0.027	0.042	0.042	0.038	0.047	0.047	0.047	0.047	0.047	0.047
	RPM	7242	7576	7576	6812	6812	6812	6812	6812	6048	6685	6685	6685	5995	5053	5053	4536	3915	3915	3915	3289	3289	3289
	FEED	434	727	727	599	599	599	599	599	460	802	802	802	647	849	849	689	736	736	736	618	618	618
	Ae	0.013	0.074	0.074	0.042	0.042	0.042	0.042	0.026	0.026	0.126	0.088	0.088	0.05	0.118	0.118	0.067	0.21	0.147	0.147	0.252	0.176	0.176
38.1 - 38.2	Vc	35	44	44	39	39	39	39	39	35	45	45	45	41	51	51	45	51	51	51	53	53	53
	fz	0.004	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.006	0.01	0.01	0.01	0.009	0.016	0.016	0.015	0.016	0.016	0.016	0.017	0.017	0.017
	RPM	2785	2801	2801	2483	2483	2483	2483	2483	2228	2387	2387	2387	2175	2029	2029	1790	1623	1623	1623	1406	1406	1406
	FEED	45	90	90	70	70	70	70	70	53	95	95	95	78	130	130	107	104	104	104	96	96	96
	Ae	0.008	0.044	0.044	0.025	0.025	0.025	0.025	0.016	0.016	0.076	0.053	0.053	0.03	0.071	0.071	0.04	0.126	0.088	0.088	0.151	0.106	0.106
40	Vc	56	71	71	64	64	64	64	64	57	76	76	76	68	76	76	68	75	75	75	76	76	76
	fz	0.015	0.024	0.024	0.021	0.021	0.021	0.021	0.021	0.019	0.03	0.03	0.03	0.027	0.037	0.037	0.034	0.038	0.038	0.038	0.037	0.037	0.037
	RPM	4456	4520	4520	4074	4074	4074	4074	4074	3629	4032	4032	4032	3608	3024	3024	2706	2387	2387	2387	2016	2016	2016
	FEED	267	434	434	342	342	342	342	342	276	484	484	484	390	448	448	368	363	363	363	298	298	298
	Ae	0.009	0.055	0.055	0.032	0.032	0.032	0.032	0.02	0.02	0.095	0.066	0.066	0.038	0.088	0.088	0.05	0.158	0.11	0.11	0.189	0.132	0.132
41	Vc	35	44	44	39	39	39	39	39	35	45	45	45	41	51	51	45	51	51	51	53	53	53
	fz	0.004	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.006	0.01	0.01	0.01	0.009	0.016	0.016	0.015	0.016	0.016	0.016	0.017	0.017	0.017
	RPM	2785	2801	2801	2483	2483	2483	2483	2483	2228	2387	2387	2387	2175	2029	2029	1790	1623	1623	1623	1406	1406	1406
	FEED	45	90	90	70	70	70	70	70	53	95	95	95	78	130	130	107	104	104	104	96	96	96
	Ae	0.008	0.044	0.044	0.025	0.025	0.025	0.025	0.016	0.016	0.076	0.053	0.053	0.03	0.071	0.071	0.04	0.126	0.088	0.088	0.151	0.106	0.106



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SEME75 SERIES 6 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						6.0	6.0	6.0	8.0	8.0	8.0	8.0	10.0	10.0	10.0
					LOC	15	20	30	20	30	35	40	25	30	40
P	1-5	Non-alloy steel	0.1D	1.5D	Vc	110	110	110	111	111	111	111	111	111	111
					fz	0.06	0.06	0.051	0.079	0.079	0.079	0.067	0.099	0.099	0.099
					RPM	5836	5836	5836	4417	4417	4417	4417	3533	3533	3533
					FEED	2101	2101	1786	2093	2093	2093	1775	2099	2099	2099
	6-8	Low alloy steel	0.1D	1.5D	Vc	110	110	110	111	111	111	111	111	111	111
					fz	0.06	0.06	0.051	0.079	0.079	0.079	0.067	0.099	0.099	0.099
					RPM	5836	5836	5836	4417	4417	4417	4417	3533	3533	3533
					FEED	2101	2101	1786	2093	2093	2093	1775	2099	2099	2099
	9		0.05D	1.5D	Vc	77	77	77	78	78	78	78	76	76	76
					fz	0.059	0.059	0.05	0.078	0.078	0.078	0.066	0.099	0.099	0.099
					RPM	4085	4085	4085	3104	3104	3104	3104	2419	2419	2419
					FEED	1446	1446	1225	1452	1452	1452	1229	1437	1437	1437
	10-11.1	High alloyed steel, and tool steel	0.1D	1.5D	Vc	110	110	110	111	111	111	111	111	111	111
					fz	0.06	0.06	0.051	0.079	0.079	0.079	0.067	0.099	0.099	0.099
					RPM	5836	5836	5836	4417	4417	4417	4417	3533	3533	3533
					FEED	2101	2101	1786	2093	2093	2093	1775	2099	2099	2099
	11.2		0.05D	1.5D	Vc	77	77	77	78	78	78	78	76	76	76
					fz	0.059	0.059	0.05	0.078	0.078	0.078	0.066	0.099	0.099	0.099
					RPM	4085	4085	4085	3104	3104	3104	3104	2419	2419	2419
					FEED	1446	1446	1225	1452	1452	1452	1229	1437	1437	1437
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	110	110	110	111	111	111	111	111	111	111
					fz	0.06	0.06	0.051	0.079	0.079	0.079	0.067	0.099	0.099	0.099
					RPM	5836	5836	5836	4417	4417	4417	4417	3533	3533	3533
					FEED	2101	2101	1786	2093	2093	2093	1775	2099	2099	2099
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	31	31	31	31	31	31	31	33	33	33
					fz	0.022	0.022	0.019	0.03	0.03	0.03	0.026	0.035	0.035	0.035
					RPM	1645	1645	1645	1233	1233	1233	1233	1050	1050	1050
					FEED	217	217	187	222	222	222	192	221	221	221
	40	Chilled Cast Iron	0.05D	1.5D	Vc	77	77	77	78	78	78	78	76	76	76
					fz	0.059	0.059	0.05	0.078	0.078	0.078	0.066	0.099	0.099	0.099
					RPM	4085	4085	4085	3104	3104	3104	3104	2419	2419	2419
					FEED	1446	1446	1225	1452	1452	1452	1229	1437	1437	1437
	41	Hardened Cast Iron	0.05D	1.0D	Vc	31	31	31	31	31	31	31	33	33	33
					fz	0.022	0.022	0.019	0.03	0.03	0.03	0.026	0.035	0.035	0.035
					RPM	1645	1645	1645	1233	1233	1233	1233	1050	1050	1050
					FEED	217	217	187	222	222	222	192	221	221	221

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						6.0	6.0	6.0	8.0	8.0	8.0	8.0	10.0	10.0	10.0
					LOC	15	20	30	20	30	35	40	25	30	40
P	11.2	High alloyed steel, and tool steel	0.05D	1.5D	Vc	333	333	333	333	333	333	333	329	329	329
					fz	0.06	0.06	0.051	0.081	0.081	0.081	0.068	0.1	0.1	0.1
					RPM	17666	17666	17666	13250	13250	13250	13250	10472	10472	10472
					FEED	6360	6360	5406	6439	6439	6439	5406	6283	6283	6283
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	166	166	166	166	166	166	166	166	166	166
					fz	0.061	0.061	0.051	0.081	0.081	0.081	0.069	0.101	0.101	0.101
					RPM	8807	8807	8807	6605	6605	6605	6605	5284	5284	5284
					FEED	3223	3223	2695	3210	3210	3210	2734	3202	3202	3202
	40	Chilled Cast Iron	0.05D	1.5D	Vc	333	333	333	333	333	333	333	329	329	329
					fz	0.06	0.06	0.051	0.081	0.081	0.081	0.068	0.1	0.1	0.1
					RPM	17666	17666	17666	13250	13250	13250	13250	10472	10472	10472
					FEED	6360	6360	5406	6439	6439	6439	5406	6283	6283	6283
	41	Hardened Cast Iron	0.05D	1.0D	Vc	166	166	166	166	166	166	166	166	166	166
					fz	0.061	0.061	0.051	0.081	0.081	0.081	0.069	0.101	0.101	0.101
					RPM	8807	8807	8807	6605	6605	6605	6605	5284	5284	5284
					FEED	3223	3223	2695	3210	3210	3210	2734	3202	3202	3202

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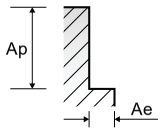


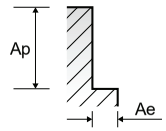
4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
SEME75 SERIES 6 FLUTE - SIDE CUTTING
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.
LOC = Length of Cut

NORMAL SPEED

VDI 3323	Parameter	Diameter (Ø)													
		10.0	12.0	12.0	12.0	12.0	16.0	16.0	16.0	16.0	16.0	20.0	20.0	20.0	20.0
	LOC	50	30	40	50	60	40	50	60	90	110	45	60	70	110
1-5	Vc	111	112	112	112	112	111	111	111	100	100	111	111	111	100
	fz	0.084	0.099	0.099	0.084	0.074	0.1	0.1	0.085	0.075	0.075	0.1	0.1	0.085	0.075
	RPM	3533	2971	2971	2971	2971	2208	2208	2208	1989	1989	1767	1767	1767	1592
	FEED	1781	1765	1765	1497	1319	1325	1325	1126	895	895	1060	1060	901	716
6-8	Vc	111	112	112	112	112	111	111	111	100	100	111	111	111	100
	fz	0.084	0.099	0.099	0.084	0.074	0.1	0.1	0.085	0.075	0.075	0.1	0.1	0.085	0.075
	RPM	3533	2971	2971	2971	2971	2208	2208	2208	1989	1989	1767	1767	1767	1592
	FEED	1781	1765	1765	1497	1319	1325	1325	1126	895	895	1060	1060	901	716
9	Vc	76	79	79	79	79	78	78	78	70	70	77	77	77	68
	fz	0.084	0.097	0.097	0.082	0.073	0.099	0.099	0.085	0.075	0.075	0.099	0.099	0.084	0.075
	RPM	2419	2096	2096	2096	2096	1552	1552	1552	1393	1393	1225	1225	1225	1082
	FEED	1219	1220	1220	1031	918	922	922	791	627	627	728	728	618	487
10 - 11.1	Vc	111	112	112	112	112	111	111	111	100	100	111	111	111	100
	fz	0.084	0.099	0.099	0.084	0.074	0.1	0.1	0.085	0.075	0.075	0.1	0.1	0.085	0.075
	RPM	3533	2971	2971	2971	2971	2208	2208	2208	1989	1989	1767	1767	1767	1592
	FEED	1781	1765	1765	1497	1319	1325	1325	1126	895	895	1060	1060	901	716
11.2	Vc	76	79	79	79	79	78	78	78	70	70	77	77	77	68
	fz	0.084	0.097	0.097	0.082	0.073	0.099	0.099	0.085	0.075	0.075	0.099	0.099	0.084	0.075
	RPM	2419	2096	2096	2096	2096	1552	1552	1552	1393	1393	1225	1225	1225	1082
	FEED	1219	1220	1220	1031	918	922	922	791	627	627	728	728	618	487
15 - 20	Vc	111	112	112	112	112	111	111	111	100	100	111	111	111	100
	fz	0.084	0.099	0.099	0.084	0.074	0.1	0.1	0.085	0.075	0.075	0.1	0.1	0.085	0.075
	RPM	3533	2971	2971	2971	2971	2208	2208	2208	1989	1989	1767	1767	1767	1592
	FEED	1781	1765	1765	1497	1319	1325	1325	1126	895	895	1060	1060	901	716
38.1 - 38.2	Vc	33	33	33	33	33	34	34	34	31	31	33	33	33	30
	fz	0.03	0.036	0.036	0.031	0.027	0.034	0.034	0.029	0.026	0.026	0.037	0.037	0.032	0.028
	RPM	1050	875	875	875	875	676	676	676	617	617	525	525	525	477
	FEED	189	189	189	163	142	138	138	118	96	96	117	117	101	80
40	Vc	76	79	79	79	79	78	78	78	70	70	77	77	77	68
	fz	0.084	0.097	0.097	0.082	0.073	0.099	0.099	0.085	0.075	0.075	0.099	0.099	0.084	0.075
	RPM	2419	2096	2096	2096	2096	1552	1552	1552	1393	1393	1225	1225	1225	1082
	FEED	1219	1220	1220	1031	918	922	922	791	627	627	728	728	618	487
41	Vc	33	33	33	33	33	34	34	34	31	31	33	33	33	30
	fz	0.03	0.036	0.036	0.031	0.027	0.034	0.034	0.029	0.026	0.026	0.037	0.037	0.032	0.028
	RPM	1050	875	875	875	875	676	676	676	617	617	525	525	525	477
	FEED	189	189	189	163	142	138	138	118	96	96	117	117	101	80

HIGH SPEED

VDI 3323	Parameter	Diameter (Ø)													
		10.0	12.0	12.0	12.0	12.0	16.0	16.0	16.0	16.0	16.0	20.0	20.0	20.0	20.0
	LOC	50	30	40	50	60	40	50	60	90	110	45	60	70	110
11.2	Vc	329	333	333	333	333	333	333	333	299	299	332	332	332	299
	fz	0.085	0.1	0.1	0.085	0.075	0.1	0.1	0.085	0.075	0.075	0.101	0.101	0.086	0.076
	RPM	10472	8833	8833	8833	8833	6625	6625	6625	5948	5948	5284	5284	5284	4759
	FEED	5341	5300	5300	4505	3975	3975	3975	3379	2677	2677	3202	3202	2727	2170
38.1 - 38.2	Vc	166	166	166	166	166	167	167	167	150	150	166	166	166	150
	fz	0.086	0.1	0.1	0.085	0.075	0.1	0.1	0.085	0.075	0.075	0.097	0.097	0.083	0.073
	RPM	5284	4403	4403	4403	4403	3322	3322	3322	2984	2984	2642	2642	2642	2387
	FEED	2727	2642	2642	2246	1981	1993	1993	1694	1343	1343	1538	1538	1316	1046
40	Vc	329	333	333	333	333	333	333	333	299	299	332	332	332	299
	fz	0.085	0.1	0.1	0.085	0.075	0.1	0.1	0.085	0.075	0.075	0.101	0.101	0.086	0.076
	RPM	10472	8833	8833	8833	8833	6625	6625	6625	5948	5948	5284	5284	5284	4759
	FEED	5341	5300	5300	4505	3975	3975	3975	3379	2677	2677	3202	3202	2727	2170
41	Vc	166	166	166	166	166	167	167	167	150	150	166	166	166	150
	fz	0.086	0.1	0.1	0.085	0.075	0.1	0.1	0.085	0.075	0.075	0.097	0.097	0.083	0.073
	RPM	5284	4403	4403	4403	4403	3322	3322	3322	2984	2984	2642	2642	2642	2387
	FEED	2727	2642	2642	2246	1981	1993	1993	1694	1343	1343	1538	1538	1316	1046



4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

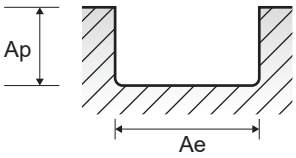
G9D75 G9D76 G9D77 G9D67 G9D68 G9D69

4&5 FLUTE CORNER RADIUS ROUGHING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

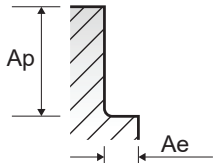
SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	1-3	Non-alloy steel	1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
					RPM	11937	8952	7162	5968	4476	3581
					FEED	1528	1647	1633	1528	1500	1325
	4-5		1.0D	0.8D	Vc	200	205	200	205	205	200
					fz	0.026	0.036	0.046	0.053	0.051	0.056
					RPM	10610	8157	6366	5438	4078	3183
					FEED	1103	1175	1171	1153	1040	891
	6	Low alloy steel	1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
					RPM	11937	8952	7162	5968	4476	3581
					FEED	1528	1647	1633	1528	1500	1325
	7-9		1.0D	0.8D	Vc	200	205	200	205	205	200
					fz	0.026	0.036	0.046	0.053	0.051	0.056
					RPM	10610	8157	6366	5438	4078	3183
					FEED	1103	1175	1171	1153	1040	891
	10	High alloyed steel, and tool steel	1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
					RPM	11937	8952	7162	5968	4476	3581
					FEED	1528	1647	1633	1528	1500	1325
	11.1		1.0D	0.8D	Vc	200	205	200	205	205	200
					fz	0.026	0.036	0.046	0.053	0.051	0.056
					RPM	10610	8157	6366	5438	4078	3183
					FEED	1103	1175	1171	1153	1040	891
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
					RPM	11937	8952	7162	5968	4476	3581
					FEED	1528	1647	1633	1528	1500	1325



SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	1-3	Non-alloy steel	0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
					RPM	15915	11937	9549	7958	5968	4775
					FEED	2610	2722	2712	2546	2447	2125
	4-5		0.35D	1.0D	Vc	270	270	265	270	270	270
					fz	0.032	0.046	0.057	0.065	0.065	0.07
					RPM	14324	10743	8435	7162	5371	4297
					FEED	1833	1977	1923	1862	1746	1504
	6	Low alloy steel	0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
					RPM	15915	11937	9549	7958	5968	4775
					FEED	2610	2722	2712	2546	2447	2125
	7-9		0.35D	1.0D	Vc	270	270	265	270	270	270
					fz	0.032	0.046	0.057	0.065	0.065	0.07
					RPM	14324	10743	8435	7162	5371	4297
					FEED	1833	1977	1923	1862	1746	1504
	10	High alloyed steel, and tool steel	0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
					RPM	15915	11937	9549	7958	5968	4775
					FEED	2610	2722	2712	2546	2447	2125
	11.1		0.35D	1.0D	Vc	270	270	265	270	270	270
					fz	0.032	0.046	0.057	0.065	0.065	0.07
					RPM	14324	10743	8435	7162	5371	4297
					FEED	1833	1977	1923	1862	1746	1504
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
					RPM	15915	11937	9549	7958	5968	4775
					FEED	2610	2722	2712	2546	2447	2125



Leading Through Innovation

SOLID CARBIDE

X-POWER PRO END MILLS

X-POWER PRO VHM - FRÄSER

- For Pre-Hardened Steels up to HRc55
- Für vorgehärtete Stähle bis HRc55

SELECTION GUIDE

YG MILLING TOOLS

SOLID CARBIDE X-POWER PRO END MILLS

for Pre-Hardened Steels up to HRc55, Mold & Die, Dry & Wet Cutting

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C354

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	GM876	GM813	GM886	GM902
			FLUTE				2	2	2	2
			HELIX ANGLE				30°	30°	30°	30°
			CUTTING EDGE SHAPE				BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
			SIZE MIN				R0.5	R0.5	R0.25	R0.5
			SIZE MAX				R8.0	R10.0	R3.0	R4.0
			PAGE				C332	C333	C334	C336
							SHORT LENGTH	LONG LENGTH	RIB PROCESSING	TAPER NECK
							Y-Coating	Y-Coating	Y-Coating	Y-Coating
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○	○
	2		About 0.45% C	Annealed	190	13	○	○	○	○
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○	○
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	○
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	○
	6	Low alloy steel		Annealed	180	10	○	○	○	○
	7			Quenched & Tempered	275	29	◎	◎	◎	○
	8			Quenched & Tempered	300	32	◎	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○
	11			Quenched & Tempered	325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	
	16		Pearlitic (Martensitic)		260	26	○	○	○	
	17	Nodular cast iron	Ferritic		160	3	○	○	○	
	18		Pearlitic		250	25	○	○	○	
	19	Malleable cast iron	Ferritic		130		○	○	○	
	20		Pearlitic		230	21	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55	○	○	○	○
	39			Hardened	630	60	○			
	40	Chilled Cast Iron		Cast	400	42	◎	◎	◎	◎
	41	Hardened Cast Iron		Hardened	550	55	○	○	○	○

GM815	GM818	GM8A1	GM839	GM819	GM810	GM883	GM895	GM811	GM817	GM812	GM834	GM814	
4	2	2	4	4	2	2	3	4	4	6&8	6	3&4	FLUTE
30°	30°	30°	30°	30°	30°	30°	38°	30°	30°	45°	45°	20°	HELIX ANGLE
BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	CUTTING EDGE SHAPE
R1.0	D4.0	D1.0	D2.0	D3.0	D0.4	D0.4	D1.0	D2.0	D2.0	D6.0	D6.0	D6.0	SIZE MIN
R8.0	D12.0	D6.0	D12.0	D20.0	D20.0	D6.0	D16.0	D25.0	D20.0	D20.0	D25.0	D20.0	SIZE MAX
C337	C338	C339	C341	C342	C343	C345	C348	C349	C350	C351	C352	C353	PAGE
LONG LENGTH	LONG LENGTH	RIB PROCESSING	STUB LENGTH	LONG LENGTH	SHORT LENGTH	RIB PROCESSING	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	
Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	
○	○	○	○	○	○	○	○	○	○	○	○	○	1
○	○	○	○	○	○	○	○	○	○	○	○	○	2
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○													39
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CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X-POWER PRO END MILLS

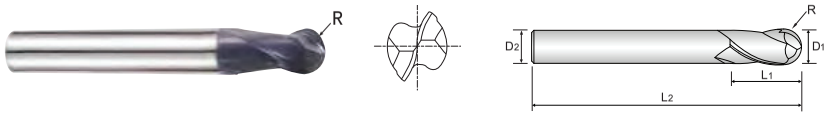
PLAIN SHANK **GM876** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ KUGELSTIRN
Fraise carbure, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Economic type with short overall length.
- ▶ Radius tolerance ±0.02mm & short length of cut.

- ▶ Günstige Variante, kurze Gesamlänge.
- ▶ Radius Toleranz ±0.02mm und kurze Schneidenlänge.



CARBIDE | 2 | 30° | R ±0.02 | PLAIN | Y Coating

p.C354-355

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R(±0.02)	D_1	D_2	L_1	L_2
GM876010	R0.5	1.0	3	3	38
GM876020	R1.0	2.0	6	3	50
GM876030	R1.5	3.0	6	4	50
GM876040	R2.0	4.0	6	5	54
GM876060	R.3.0	6.0	6	7	54
GM876080	R4.0	8.0	8	9	58
GM876100	R5.0	10.0	10	11	66
GM876120	R6.0	12.0	12	12	73
GM876160	R8.0	16.0	16	16	82

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

X-POWER PRO END MILLS

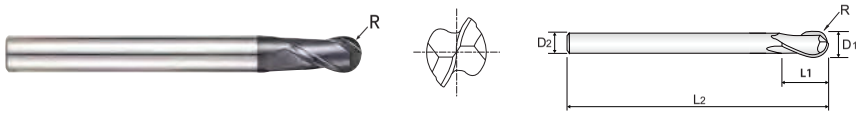
PLAIN SHANK **GM813** SERIES

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN LANG KUGELSTIRN
Fraise carbure, 2 dents, hémisphérique, longue
2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ For copy - milling machines.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Für Kopierfräsmaschinen.



CARBIDE | 2 | 30° | R ±0.02 | PLAIN | Y Coating

p.C354-355

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R(±0.02)	D_1	D_2	L_1	L_2
GM813010	R0.5	1.0	4	2.5	50
GM813020	R1.0	2.0	6	5	50
GM813030	R1.5	3.0	6	8	60
GM813040	R2.0	4.0	6	8	70
GM813050	R2.5	5.0	6	10	80
GM813060	R3.0	6.0	6	12	90
GM813080	R4.0	8.0	8	14	100
GM813100	R5.0	10.0	10	18	100
GM813120	R6.0	12.0	12	22	110
GM813160	R8.0	16.0	16	30	140
GM813200	R10.0	20.0	20	38	160

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

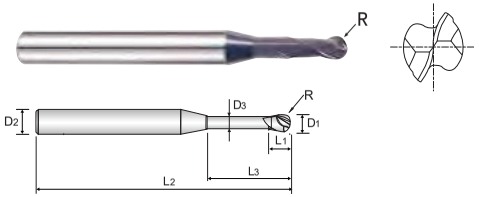
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

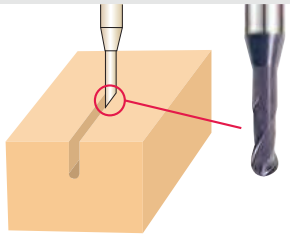
X-POWER PRO END MILLS

PLAIN SHANK **GM886** SERIES

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN KUGELSTIRN für SCHMALE RIPPEN
Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
2 TAGLIENTI, SEMISFERICA PER NERVATURE





CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Y Coating

p.C356-357

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D1	D2	L1	L3	L2	D3
GM886005	R0.25	0.5	4	0.7	2	45	0.45
GM886962	R0.25	0.5	4	0.7	4	45	0.45
GM886957	R0.3	0.6	4	0.9	2	45	0.55
GM886915	R0.3	0.6	4	0.9	4	45	0.55
GM886916	R0.3	0.6	4	0.9	6	45	0.55
GM886919	R0.4	0.8	4	1.2	4	45	0.75
GM886008	R0.4	0.8	4	1.2	6	45	0.75
GM886921	R0.5	1.0	4	1.5	4	45	0.95
GM886923	R0.5	1.0	4	1.5	5	45	0.95
GM886010	R0.5	1.0	4	1.5	6	45	0.95
GM886902	R0.5	1.0	4	1.5	8	45	0.95
GM886903	R0.5	1.0	4	1.5	10	45	0.95
GM886904	R0.5	1.0	4	1.5	12	45	0.95
GM886927	R0.5	1.0	4	1.5	16	50	0.95
GM886012	R0.6	1.2	4	1.8	8	45	1.15
GM886930	R0.75	1.5	4	2.3	6	45	1.45
GM886015	R0.75	1.5	4	2.3	8	45	1.45
GM886931	R0.75	1.5	4	2.3	10	45	1.45
GM886906	R0.75	1.5	4	2.3	12	45	1.45
GM886940	R1.0	2.0	4	3	6	45	1.95
GM886020	R1.0	2.0	4	3	8	45	1.95
GM886941	R1.0	2.0	4	3	10	45	1.95
GM886942	R1.0	2.0	4	3	12	50	1.95
GM886909	R1.0	2.0	4	3	16	50	1.95

▶ NEXT PAGE

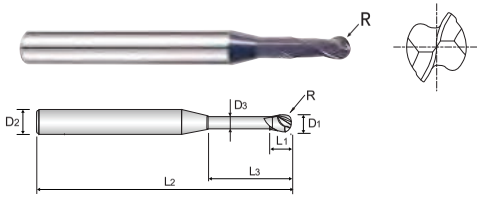
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

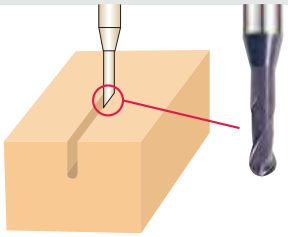
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS
PLAIN SHANK GM886 SERIES
CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN KUGELSTIRN für SCHMALE RIPPEN
Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
2 TAGLIENTI, SEMISFERICA PER NERVATURE





CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Y Coating

p.C356-357

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D1	D2	L1	L3	L2	D3
GM886910	R1.0	2.0	4	3	20	55	1.95
GM886945	R1.0	2.0	4	3	25	60	1.95
GM886967	R1.0	2.0	4	3	30	70	1.95
GM886947	R1.5	3.0	6	4.5	10	50	2.85
GM886948	R1.5	3.0	6	4.5	12	50	2.85
GM886030	R1.5	3.0	6	4.5	16	55	2.85
GM886911	R1.5	3.0	6	4.5	20	60	2.85
GM886968	R1.5	3.0	6	4.5	25	65	2.85
GM886040	R2.0	4.0	6	6	16	60	3.85
GM886912	R2.0	4.0	6	6	20	65	3.85
GM886913	R2.0	4.0	6	6	25	70	3.85
GM886971	R2.0	4.0	6	6	30	70	3.85
GM886972	R2.0	4.0	6	6	35	80	3.85
GM886050	R2.5	5.0	6	7.5	16	60	4.85
GM886060	R3.0	6.0	6	9	20	80	5.85
GM886954	R3.0	6.0	6	9	30	90	5.85

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

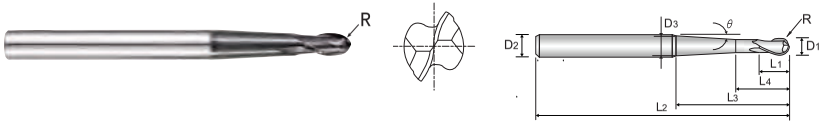
X-POWER PRO END MILLS

PLAIN SHANK **GM902** SERIES

CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK

VOLLHARTMETALL, 2 SCHNEIDEN KUGELSTIRN mit KONISCH ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, hémisphérique avec entrée conique
2 TAGLIENTI, SEMISFERICA, SCARICO CONICO

- ▶ High efficiency milling in deep slotting due to long projection of the end mills.
- ▶ Effizientes Tiefnutenfräsen von tiefliegenden Bereichen möglich.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Y Coating

p.C358-359

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Under Neck Parallel Length	Length Below Shank	Overall Length	Neck Diameter	Taper Neck Angle
	R(±0.01)	D1	D2	L1	L4	L3	L2	D3	θ
GM902010	R0.5	**1.0**	6	2	4	23	60	2	1° 30´
GM902901	R0.5	**1.0**	6	2	4	23	60	4.3	5°
GM902902	R0.5	**1.0**	6	2	4	42	80	5	3°
GM902020	R1.0	**2.0**	6	4	6	23	60	2.9	1° 30´
GM902903	R1.0	**2.0**	6	4	6	23	60	5	5°
GM902904	R1.0	**2.0**	6	4	6	41	80	5.7	3°
GM902030	R1.5	**3.0**	6	6	8	32	70	5.6	3°
GM902905	R1.5	**3.0**	6	6	8	52	90	5.3	1° 30´
GM902040	R2.0	**4.0**	6	8	10	28	70	5.9	3°
GM902906	R2.0	**4.0**	6	8	10	49	90	6	1° 30´
GM902060	R3.0	**6.0**	8	12	15	34	90	8	3°
GM902908	R3.0	**6.0**	8	12	15	53	110	8	1° 30´
GM902080	R4.0	**8.0**	10	14	17	36	100	10	3°
GM902909	R4.0	**8.0**	10	14	17	55	120	10	1° 30´

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	◎	◎	○	◎									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

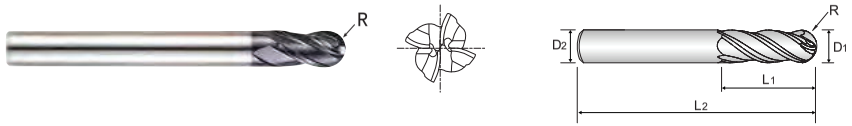
X-POWER PRO END MILLS

PLAIN SHANK **GM815** SERIES

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE

VOLLHARTMETALL, 4 SCHNEIDEN LANG KUGELSTIRN
Fraise carbure, 4 dents, hémisphérique, longue
4 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other high hardened materials.
- ▶ For copy - milling machines.
- ▶ 4 Flute design - higher feed than GM813 series
- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Für Kopierfräsmaschinen.
- ▶ 4 Schneiden - Höherer Vorschub als bei GM813 serien.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Y Coating

p.C360-361

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R(±0.02)	D1	D2	L1	L2
GM815020	R1.0	**2.0**	6	5	50
GM815030	R1.5	**3.0**	6	8	60
GM815040	R2.0	**4.0**	6	8	70
GM815050	R2.5	**5.0**	6	10	80
GM815060	R3.0	**6.0**	6	12	90
GM815080	R4.0	**8.0**	8	14	100
GM815100	R5.0	**10.0**	10	18	100
GM815120	R6.0	**12.0**	12	22	110
GM815160	R8.0	**16.0**	16	30	140

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	◎	◎	◎	◎	○	◎									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	◎	○

X-POWER PRO END MILLS

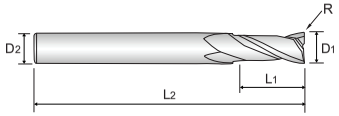
PLAIN SHANK **GM818** SERIES

CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS
Fraise carbure, 2 dents, torique, longue
2 TAGLIENTI, TORICA, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschubwerte.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C362

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
GM818911	R0.5	4.0	6	15	50
GM818060	R0.5	6.0	6	20	60
GM818901	R1.0	6.0	6	20	60
GM818080	R0.5	8.0	8	25	70
GM818902	R1.0	8.0	8	25	70
GM818100	R0.5	10.0	10	30	90
GM818905	R1.0	10.0	10	30	90
GM818908	R1.0	12.0	12	30	90

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

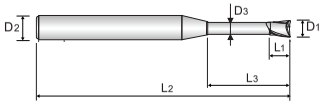
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

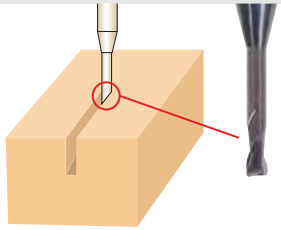
X-POWER PRO END MILLS

PLAIN SHANK **GM8A1** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA PER NERVATURE





CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C363-364

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
GM8A1010	R0.1	1.0	4	1.5	6	45	0.95
GM8A1920	R0.1	1.0	4	1.5	8	45	0.95
GM8A1921	R0.1	1.0	4	1.5	10	45	0.95
GM8A1012	R0.2	1.2	4	1.8	6	45	1.15
GM8A1015	R0.2	1.5	4	2.3	6	45	1.45
GM8A1937	R0.2	1.5	4	2.3	8	45	1.45
GM8A1938	R0.2	1.5	4	2.3	10	45	1.45
GM8A1939	R0.2	1.5	4	2.3	12	45	1.45
GM8A1941	R0.2	1.5	4	2.3	16	50	1.45
GM8A1018	R0.2	1.8	4	2.7	6	45	1.75
GM8A1960	R0.2	2.0	4	3	6	45	1.95
GM8A1020	R0.2	2.0	4	3	8	45	1.95
GM8A1962	R0.2	2.0	4	3	12	45	1.95
GM8A1961	R0.2	2.0	4	3	10	45	1.95
GM8A1964	R0.2	2.0	4	3	16	50	1.95
GM8A1966	R0.2	2.0	4	3	20	55	1.95
GM8A1967	R0.2	2.0	4	3	25	60	1.95
GM8A1969	R0.2	2.5	4	3.7	12	45	2.40

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

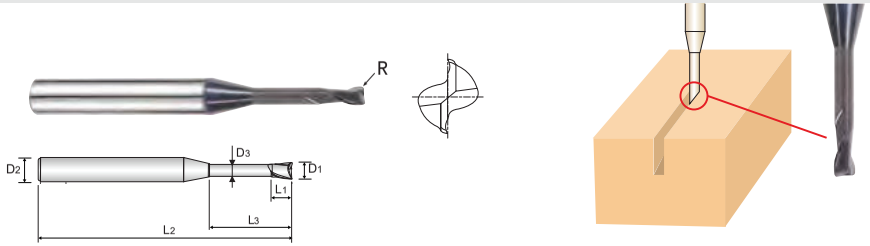
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

PLAIN SHANK **GM8A1** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA PER NERVATURE



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C363-364

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
GM8A1981	R0.3	**3.0**	6	4.5	16	55	2.85
GM8A1983	R0.3	**3.0**	6	4.5	20	60	2.85
GM8A1984	R0.3	**3.0**	6	4.5	25	65	2.85
GM8A1976	R0.3	**3.0**	6	4.5	30	70	2.85
GM8A1985	R0.3	**3.0**	6	4.5	40	90	2.85
GM8A1040	R0.3	**4.0**	6	6	12	50	3.85
GM8A1986	R0.3	**4.0**	6	6	16	60	3.85
GM8A1987	R0.3	**4.0**	6	6	20	60	3.85
GM8A1060	R0.5	**6.0**	6	9	20	80	5.85
GM8A1802	R0.5	**6.0**	6	9	40	100	5.85

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

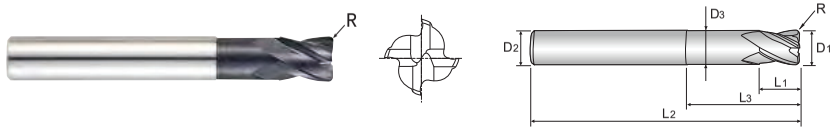
PLAIN SHANK **GM839** SERIES

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS
Fraise carbure, 4 dents, torique, extra-courte
4 TAGLIENTI, TORICA, TAGLIENTE CORTO, SCARICATA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschubwerte.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C365

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
GM839020	R0.2	**2.0**	6	2.5	5	50	1.9
GM839030	R0.3	**3.0**	6	4	7	50	2.8
GM839040	R0.4	**4.0**	6	5	9	50	3.7
GM839060	R0.6	**6.0**	6	7	14	55	5.6
GM839080	R0.8	**8.0**	8	10	18	60	7.4
GM839100	R1.0	**10.0**	10	12	25	70	9.4
GM839120	R1.2	**12.0**	12	15	30	80	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

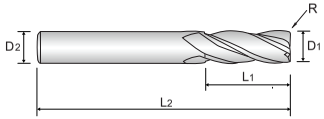
PLAIN SHANK **GM819** SERIES

CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS
Fraise carbure, 4 dents, torique, longue
4 TAGLIENTI, TORICA, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden für bessere Oberflächengüte des Werkstücks.
- ▶ Gesteigerte Productivität.



CARBIDE | 4 | 30° | PLAIN | Y Coating | p.C366

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
GM819030	R0.3	3.0	6	12	50
GM819040	R0.3	4.0	6	15	50
GM819911	R0.5	4.0	6	15	50
GM819912	R0.5	5.0	6	20	60
GM819060	R0.5	6.0	6	20	60
GM819901	R1.0	6.0	6	20	60
GM819080	R0.5	8.0	8	25	70
GM819902	R1.0	8.0	8	25	70
GM819904	R2.0	8.0	8	25	70
GM819100	R0.5	10.0	10	30	90
GM819905	R1.0	10.0	10	30	90
GM819906	R1.5	10.0	10	30	90
GM819907	R2.0	10.0	10	30	90
GM819120	R0.5	12.0	12	30	90
GM819908	R1.0	12.0	12	30	90
GM819909	R1.5	12.0	12	30	90
GM819910	R2.0	12.0	12	30	90
GM819160	R0.5	16.0	16	50	110
GM819916	R1.0	16.0	16	50	110
GM819918	R2.0	16.0	16	50	110
GM819921	R2.0	20.0	20	55	110

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

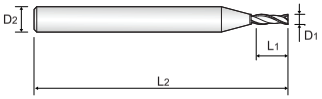
PLAIN SHANK **GM810** SERIES

CARBIDE, 2 FLUTE MINIATURE

VOLLHARTMETALL, 2 SCHNEIDEN MINI
Fraise carbure, 2 dents, micro-fraise
2 TAGLIENTI, MINI

- ▶ High precision milling in medical, optical, electronics and aerospace industries.
- ▶ Excellent performance on hardened steel

- ▶ Hochpräzises Fräsen für Medizintechnik, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.



CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C367

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
GM810004	0.4	3	0.8	40
GM810005	0.5	3	1	40
GM810006	0.6	3	1.2	40
GM810007	0.7	3	1.4	40
GM810008	0.8	3	1.6	40
GM810009	0.9	3	2	40
GM810010	1.0	4	2.5	40
GM810901	1.0	6	2.5	40
GM810012	1.2	4	4	40
GM810014	1.4	4	4	40
GM810015	1.5	4	4	40
GM810902	1.5	6	4	40
GM810020	2.0	4	6	40
GM810903	2.0	6	6	40
GM810025	2.5	4	8	40
GM810030	3.0	6	8	45

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

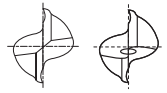
PLAIN SHANK **GM810** SERIES

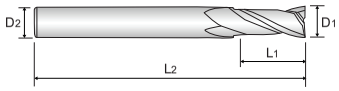
CARBIDE, 2 FLUTE SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, SERIE CORTA

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- Superior workpiece finishes.
- Increased feed rates.

- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- Bessere Werkstückoberflächen.
- Höhere Vorschübe.





CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C367

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GM810035	3.5	6	10	45
GM810040	4.0	6	11	45
GM810050	5.0	6	13	50
GM810060	6.0	6	13	50
GM810070	7.0	8	16	60
GM810080	8.0	8	19	60
GM810090	9.0	10	19	70
GM810100	10.0	10	22	70
GM810110	11.0	12	22	75
GM810120	12.0	12	26	75
GM810140	14.0	14	26	85
GM810160	16.0	16	32	100
GM810180	18.0	18	32	100
GM810200	20.0	20	38	105

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

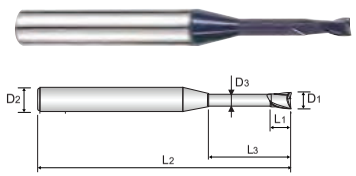
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

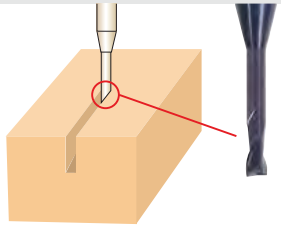
X-POWER PRO END MILLS

PLAIN SHANK **GM883** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI, SCARICATA PER NERVATURE





CARBIDE | 2 | 30° | PLAIN | Y Coating | p.C368-369

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
GM883004	0.4	4	0.6	2	45	0.37
GM883005	0.5	4	0.7	2	45	0.45
GM883988	0.5	4	0.7	4	45	0.45
GM883820	0.7	4	1	3	45	0.65
GM883008	0.8	4	1.2	4	45	0.75
GM883908	0.8	4	1.2	6	45	0.75
GM883996	1.0	4	1.5	4	45	0.95
GM883010	1.0	4	1.5	6	45	0.95
GM883912	1.0	4	1.5	8	45	0.95
GM883913	1.0	4	1.5	10	45	0.95
GM883914	1.0	4	1.5	12	45	0.95
GM883997	1.0	4	1.5	16	50	0.95
GM883998	1.0	4	1.5	20	55	0.95
GM883012	1.2	4	1.8	6	45	1.15
GM883015	1.5	4	2.3	6	45	1.45
GM883923	1.5	4	2.3	8	45	1.45
GM883924	1.5	4	2.3	10	45	1.45
GM883925	1.5	4	2.3	12	45	1.45
GM883927	1.5	4	2.3	16	50	1.45
GM883810	1.5	4	2.3	20	55	1.45

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

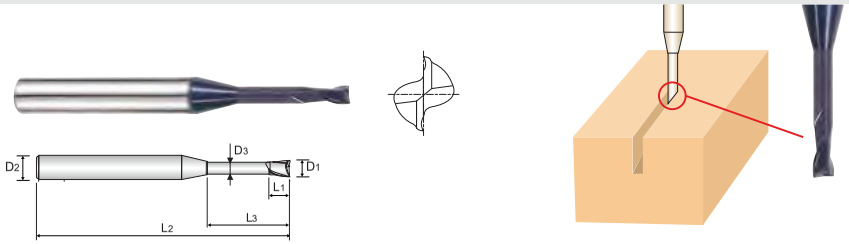
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X-POWER PRO END MILLS

PLAIN SHANK **GM883** SERIES

CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI, SCARICATA PER NERVATURE



CARBIDE | 2 | 30° | PLAIN | Y Coating

p.C368-369

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GM883946	1.8	4	2.7	12	45	1.75
GM883958	2.0	4	3	6	45	1.95
GM883020	2.0	4	3	8	45	1.95
GM883959	2.0	4	3	10	45	1.95
GM883960	2.0	4	3	12	45	1.95
GM883961	2.0	4	3	14	50	1.95
GM883962	2.0	4	3	16	50	1.95
GM883964	2.0	4	3	20	55	1.95
GM883966	2.0	4	3	25	60	1.95
GM883814	2.0	4	3	30	70	1.95
GM883970	2.5	4	3.7	16	55	2.40
GM883975	3.0	6	4.5	10	45	2.85
GM883976	3.0	6	4.5	12	45	2.85
GM883978	3.0	6	4.5	16	55	2.85
GM883979	3.0	6	4.5	18	55	2.85
GM883980	3.0	6	4.5	20	60	2.85
GM883981	3.0	6	4.5	25	65	2.85
GM883832	3.0	6	4.5	30	70	2.85
GM883983	3.0	6	4.5	40	90	2.85

▶ NEXT PAGE

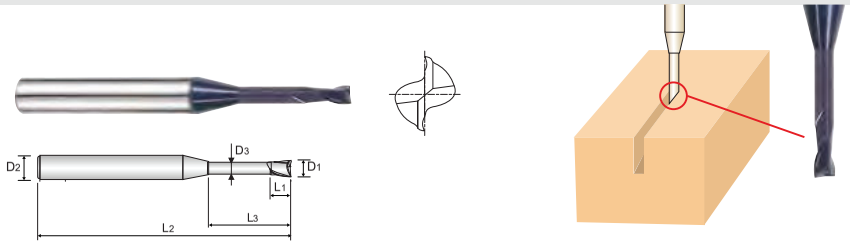
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS
PLAIN SHANK GM883 SERIES
CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI, SCARICATA PER NERVATURE



CARBIDE | 2 | 30° | PLAIN | Y Coating
p.C368-369
Recommended ToolHolder
HYDRAULIC CHUCK D15 - 46
SHRINK FIT HOLDER D47 - 72
POWER MILLING CHUCK D161 - 176
ER COLLET CHUCK D73 - 116
SK SLIM CHUCK D183 - 201
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GM883801	4.0	6	6	16	60	3.85
GM883802	4.0	6	6	20	60	3.85
GM883803	4.0	6	6	25	70	3.85
GM883834	4.0	6	6	30	70	3.85
GM883836	4.0	6	6	40	90	3.85
GM883838	4.0	6	6	50	100	3.85
GM883807	6.0	6	9	30	90	5.85
GM883809	6.0	6	9	50	110	5.85

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

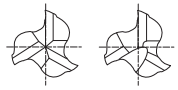
PLAIN SHANK **GM895** SERIES

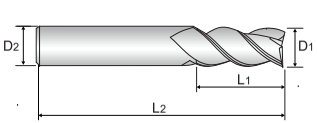
CARBIDE, 3 FLUTE 38° HELIX SHORT LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 38° RECHTSSPIRALE KURZ
Fraise carbure, 3 dents, hélice 38°, courte
3 TAGLIENTI, ELICA 38°, SERIE CORTA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Possesses the advantage of 2 flute and 4 flute end mill.
- ▶ Superior workpiece finishes.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Besitzt die Vorteile von 2 und 4 Schneiden Fräsem
- ▶ Bessere Werkstückoberflächen





CARBIDE | 3 | 38° | PLAIN | Y Coating

p.C370-371

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
GM895010	1.0	3	2.5	38
GM895015	1.5	4	5	50
GM895025	2.5	3	7	38
GM895030	3.0	3	10	38
GM895901	3.0	6	10	50
GM895040	4.0	4	12	50
GM895903	4.0	6	12	50
GM895050	5.0	5	14	50
GM895904	5.0	6	14	57
GM895060	6.0	6	16	57
GM895080	8.0	8	20	63
GM895100	10.0	10	22	72
GM895120	12.0	12	25	73
GM895160	16.0	16	32	82

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

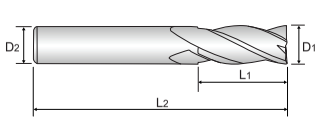
PLAIN SHANK **GM811** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, SERIE CORTA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased Productivity.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C372

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
GM811020	2.0	4	6	40
GM811901	2.0	6	6	40
GM811025	2.5	4	8	40
GM811902	2.5	6	8	40
GM811030	3.0	6	8	45
GM811035	3.5	6	10	45
GM811040	4.0	6	11	45
GM811045	4.5	6	11	45
GM811050	5.0	6	13	50
GM811060	6.0	6	13	50
GM811080	8.0	8	19	60
GM811100	10.0	10	22	70
GM811120	12.0	12	26	75
GM811140	14.0	14	26	85
GM811160	16.0	16	32	100
GM811200	20.0	20	38	105
GM811250	25.0	25	45	120

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

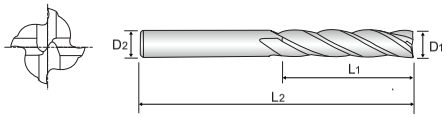
PLAIN SHANK **GM817** SERIES

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased Productivity.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.



CARBIDE | 4 | 30° | PLAIN | Y Coating

p.C373

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
GM817020	2.0	4	8	40
GM817030	3.0	6	12	50
GM817040	4.0	6	15	50
GM817050	5.0	6	20	60
GM817060	6.0	6	20	60
GM817080	8.0	8	25	70
GM817100	10.0	10	30	90
GM817120	12.0	12	30	90
GM817140	14.0	16	40	110
GM817160	16.0	16	50	110
GM817200	20.0	20	55	110

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

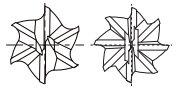
PLAIN SHANK **GM812** SERIES

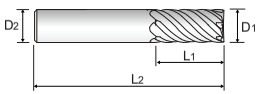
CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 6&8 dents, hélice 45°, longue
6&8 TAGLIENTI, ELICA 45°, SERIE

- ▶ Designed to machine hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistance.
- ▶ Suitable for dry milling.

- ▶ Geeignet zum Fräsen von gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.





CARBIDE | 6&8 | 45° | PLAIN | Y Coating

p.C374

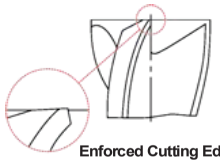
Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D_1	D_2	L_1	L_2	
GM812060	6.0	6	13	57	6
GM812080	8.0	8	19	63	6
GM812100	10.0	10	22	72	6
GM812120	12.0	12	26	83	6
GM812160	16.0	16	32	92	6
GM812200	20.0	20	38	104	8

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

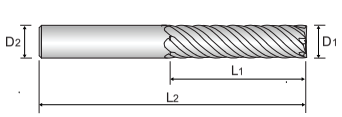
PLAIN SHANK **GM834** SERIES

CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG LENGTH

VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG
Fraise carbure, 6 dents, hélice 45°, extra-longue
6 TAGLIENTI, ELICA 45°, SERIE EXTRA LUNGA

- ▶ Designed to machine hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistance.
- ▶ Suitable for dry milling.

- ▶ Geeignet zum Fräsen von gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.



CARBIDE | 6 | 45° | PLAIN | Y Coating p.C375

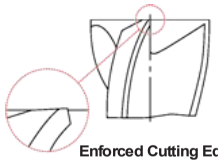
Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
GM834060	6.0	6	26	70
GM834080	8.0	8	36	90
GM834100	10.0	10	46	100
GM834120	12.0	12	56	110
GM834160	16.0	16	66	130
GM834200	20.0	20	76	140
GM834250	25.0	25	92	180

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5


Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

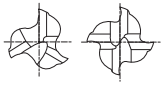
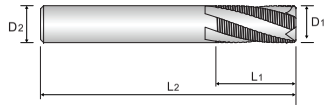
PLAIN SHANK **GM814** SERIES

CARBIDE, 3&4 FLUTE 20° HELIX LONG LENGTH ROUGHING - FINE

VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN
Fraise carbure, 3&4-dents ébauche, hélice 20°, pas fin, longue
3 - 4 TAGLIENTI, BOMBATO FINE PER SGROSSATURA, ELICA 20° SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ High velocity milling of hardened steels.
- ▶ For dry and wet milling.
- ▶ Fast chip ejection.

- ▶ Zur Bearbeitung von Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- ▶ Für Trocken - und Nassfräsen.
- ▶ Schnelle Spanabfuhr.

CARBIDE | HR | 3&4 | 20° | PLAIN | C x 45° | Y Coating p.C376

Recommended ToolHolder

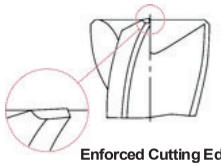
	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D_1	D_2	L_1	L_2		
GM814060	6.0	6	16	57	3	0.38
GM814080	8.0	8	16	63	3	0.38
GM814100	10.0	10	22	72	4	0.60
GM814120	12.0	12	26	83	4	0.60
GM814160	16.0	16	32	92	4	0.60
GM814200	20.0	20	38	104	4	0.60

Tolerances according to DIN 7160 & 7161

	Tolerance range in µm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h5	0 - 4	0 - 5	0 - 6	0 - 8	0 - 9


Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	◎	◎	○	◎	◎	◎	○	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○		◎	○

X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

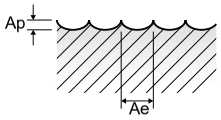
GM876, GM813 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.2D	Vc	55	85	100	125	140	150	160	180	200	225	245	270	290
				fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.18	0.2
				RPM	17507	18038	15915	15915	14854	11937	10186	9549	7958	7162	6499	5371	4615
				FEED	280	397	828	828	772	836	917	1146	1432	1719	1950	1934	1846
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	5		0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230
				fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160
				RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661
				FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	6-7	Low alloy steel	0.2D	Vc	55	85	100	125	140	150	160	180	200	225	245	270	290
				fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.18	0.2
				RPM	17507	18038	15915	15915	14854	11937	10186	9549	7958	7162	6499	5371	4615
				FEED	280	397	828	828	772	836	917	1146	1432	1719	1950	1934	1846
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	8-9		0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230
				fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160
				RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661
				FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	10	High alloyed steel, and tool steel	0.2D	Vc	55	85	100	125	140	150	160	180	200	225	245	270	290
				fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.18	0.2
				RPM	17507	18038	15915	15915	14854	11937	10186	9549	7958	7162	6499	5371	4615
				FEED	280	397	828	828	772	836	917	1146	1432	1719	1950	1934	1846
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	11.1 - 11.2		0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230
				fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160
				RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661
				FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron, Nodular cast iron, Malleable cast iron	0.2D	Vc	55	80	100	125	135	145	160	180	200	220	245	265	290
				fz	0.008	0.011	0.026	0.026	0.026	0.035	0.045	0.06	0.09	0.12	0.15	0.181	0.201
				RPM	17507	16977	15915	15915	14324	11539	10186	9549	7958	7003	6499	5272	4615
				FEED	280	373	828	828	745	808	917	1146	1432	1681	1950	1908	1855
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
H	38.1 - 38.2	Hardened steel	0.1D	Vc	20	30	35	40	50	60	65	65	70	70	75	75	80
				fz	0.008	0.011	0.016	0.016	0.017	0.021	0.024	0.030	0.044	0.055	0.070	0.091	0.113
				RPM	6366	6366	5570	5093	5305	4775	4138	3448	2785	2228	1989	1492	1273
				FEED	102	140	178	163	180	201	199	207	245	245	279	272	288
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.2D	Vc	45	65	75	95	105	120	130	145	160	180	195	215	230
				fz	0.008	0.011	0.023	0.023	0.023	0.032	0.040	0.060	0.080	0.100	0.120	0.140	0.160
				RPM	14324	13793	11937	12096	11141	9549	8276	7692	6366	5730	5173	4277	3661
				FEED	229	303	549	556	512	611	662	923	1019	1146	1241	1198	1171
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	41	Hardened Cast Iron	0.1D	Vc	20	30	35	40	50	60	65	65	70	70	75	75	80
				fz	0.008	0.011	0.016	0.016	0.017	0.021	0.024	0.030	0.044	0.055	0.070	0.091	0.113
				RPM	6366	6366	5570	5093	5305	4775	4138	3448	2785	2228	1989	1492	1273
				FEED	102	140	178	163	180	201	199	207	245	245	279	272	288
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3

▶ NEXT PAGE



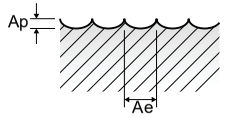
X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM876, GM813 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-5	Non-alloy steel	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560
				fz	0.026	0.03	0.035	0.042	0.048	0.07	0.086	0.095	0.12	0.139	0.16	0.181	0.2
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	6-9	Low alloy steel	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560
				fz	0.026	0.030	0.035	0.042	0.048	0.070	0.086	0.095	0.120	0.139	0.160	0.181	0.200
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	10 - 11.2	High alloyed steel, and tool steel	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560
				fz	0.026	0.03	0.035	0.042	0.048	0.07	0.086	0.095	0.12	0.139	0.16	0.181	0.2
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron, Nodular cast iron, Malleable cast iron	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560
				fz	0.026	0.03	0.035	0.042	0.048	0.07	0.086	0.095	0.12	0.139	0.16	0.181	0.2
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
H	38.1 - 38.2	Hardened steel	0.05D	Vc	90	120	150	165	180	190	210	220	235	245	255	270	280
				fz	0.016	0.019	0.022	0.026	0.031	0.042	0.050	0.060	0.075	0.086	0.095	0.105	0.115
				RPM	28648	25465	23873	21008	19099	15120	13369	11671	9350	7799	6764	5371	4456
				FEED	917	968	1050	1092	1184	1270	1337	1401	1403	1341	1285	1128	1025
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.05D	Vc	90	120	150	185	220	295	370	445	470	495	515	540	560
				fz	0.026	0.030	0.035	0.042	0.048	0.070	0.086	0.095	0.120	0.139	0.160	0.181	0.200
				RPM	28648	25465	23873	23555	23343	23475	23555	23608	18701	15756	13661	10743	8913
				FEED	1490	1528	1671	1979	2241	3287	4051	4486	4488	4380	4371	3889	3565
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	41	Hardened Cast Iron	0.05D	Vc	90	120	150	165	180	190	210	220	235	245	255	270	280
				fz	0.016	0.019	0.022	0.026	0.031	0.042	0.050	0.060	0.075	0.086	0.095	0.105	0.115
				RPM	28648	25465	23873	21008	19099	15120	13369	11671	9350	7799	6764	5371	4456
				FEED	917	968	1050	1092	1184	1270	1337	1401	1403	1341	1285	1128	1025
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3



X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM886 SERIES — 2 FLUTE BALL NOSE RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 0.5	0.6	0.8	1.0	1.2	1.4
P	1-4	Non-alloy steel	Vc	49~63	58~75	78~101	91~115	90~115	92~114
			fz	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010	0.005~0.013	0.006~0.015
			RPM	32550~42000	32550~42000	32550~42000	30450~38330	25200~32030	22050~27300
			FEED	185~515	235~660	235~660	265~735	265~820	265~820
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
	5		Vc	35~45	42~54	57~72	64~82	64~81	66~79
			fz	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.008	0.004~0.009	0.004~0.011
			RPM	23630~29930	23630~29930	23630~29930	21530~27300	17850~22580	15750~18900
			FEED	90~285	115~370	115~370	130~410	130~410	130~410
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
	6-7	Low alloy steel	Vc	49~63	58~75	78~101	91~115	90~115	92~114
			fz	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010	0.005~0.013	0.006~0.015
			RPM	32550~42000	32550~42000	32550~42000	30450~38330	25200~32030	22050~27300
			FEED	185~515	235~660	235~660	265~735	265~820	265~820
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
	8-9		Vc	35~45	42~54	57~72	64~82	64~81	66~79
			fz	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.008	0.004~0.009	0.004~0.011
			RPM	23630~29930	23630~29930	23630~29930	21530~27300	17850~22580	15750~18900
			FEED	90~285	115~370	115~370	130~410	130~410	130~410
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
	10	High alloyed steel, and tool steel	Vc	49~63	58~75	78~101	91~115	90~115	92~114
			fz	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010	0.005~0.013	0.006~0.015
			RPM	32550~42000	32550~42000	32550~42000	30450~38330	25200~32030	22050~27300
			FEED	185~515	235~660	235~660	265~735	265~820	265~820
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
	11.1 - 11.2		Vc	35~45	42~54	57~72	64~82	64~81	66~79
			fz	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.008	0.004~0.009	0.004~0.011
			RPM	23630~29930	23630~29930	23630~29930	21530~27300	17850~22580	15750~18900
			FEED	90~285	115~370	115~370	130~410	130~410	130~410
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	49~63	58~75	78~101	91~115	90~115	92~114
			fz	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010	0.005~0.013	0.006~0.015
			RPM	32550~42000	32550~42000	32550~42000	30450~38330	25200~32030	22050~27300
			FEED	185~515	235~660	235~660	265~735	265~820	265~820
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
H	38.1 - 38.2	Hardened steel	Vc	22~28	27~34	36~45	41~51	41~52	41~51
			fz	0.003~0.005	0.004~0.006	0.004~0.006	0.005~0.008	0.006~0.009	0.007~0.011
			RPM	15020~18900	15020~18900	15020~18900	13650~17120	11340~14390	9870~12290
			FEED	90~185	115~235	115~235	130~265	130~265	130~265
			Ap	0.005~0.009	0.005~0.011	0.007~0.014	0.009~0.018	0.010~0.022	0.012~0.025
	40	Chilled Cast Iron	Vc	35~45	42~54	57~72	64~82	64~81	66~79
			fz	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.008	0.004~0.009	0.004~0.011
			RPM	23630~29930	23630~29930	23630~29930	21530~27300	17850~22580	15750~18900
			FEED	90~285	115~370	115~370	130~410	130~410	130~410
			Ap	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090	0.055~0.100	0.062~0.125
	41	Hardened Cast Iron	Vc	22~28	27~34	36~45	41~51	41~52	41~51
			fz	0.003~0.005	0.004~0.006	0.004~0.006	0.005~0.008	0.006~0.009	0.007~0.011
			RPM	15020~18900	15020~18900	15020~18900	13650~17120	11340~14390	9870~12290
			FEED	90~185	115~235	115~235	130~265	130~265	130~265
			Ap	0.005~0.009	0.005~0.011	0.007~0.014	0.009~0.018	0.010~0.022	0.012~0.025

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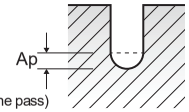


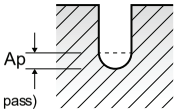
(Depth of cut per one pass)

X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM886 SERIES — 2 FLUTE BALL NOSE RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

VDI 3323	Parameter	Diameter (Ø) 1.5	1.6	1.8	2.0	3.0	4.0	5.0	6.0
1-4	Vc	90~113	90~118	96~122	97~119	99~123	107~138	107~138	107~138
	fz	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.035	0.018~0.044	0.022~0.053
	RPM	19950~25200	18900~24680	17850~22580	16280~19950	11030~13650	8930~11550	7140~9240	5990~7670
	FEED	265~820	265~820	265~820	265~820	265~820	265~820	265~820	265~820
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
5	Vc	64~82	66~83	68~85	69~85	66~85	73~98	72~97	74~98
	fz	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.022	0.011~0.025	0.014~0.031	0.016~0.038
	RPM	14180~18380	13860~17330	12600~15750	11550~14180	7350~9450	6090~8190	4830~6510	4100~5460
	FEED	130~410	130~410	130~410	130~410	130~410	130~410	130~410	130~410
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
6-7	Vc	90~113	90~118	96~122	97~119	99~123	107~138	107~138	107~138
	fz	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.035	0.018~0.044	0.022~0.053
	RPM	19950~25200	18900~24680	17850~22580	16280~19950	11030~13650	8930~11550	7140~9240	5990~7670
	FEED	265~820	265~820	265~820	265~820	265~820	265~820	265~820	265~820
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
8-9	Vc	64~82	66~83	68~85	69~85	66~85	73~98	72~97	74~98
	fz	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.022	0.011~0.025	0.014~0.031	0.016~0.038
	RPM	14180~18380	13860~17330	12600~15750	11550~14180	7350~9450	6090~8190	4830~6510	4100~5460
	FEED	130~410	130~410	130~410	130~410	130~410	130~410	130~410	130~410
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
10	Vc	90~113	90~118	96~122	97~119	99~123	107~138	107~138	107~138
	fz	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.035	0.018~0.044	0.022~0.053
	RPM	19950~25200	18900~24680	17850~22580	16280~19950	11030~13650	8930~11550	7140~9240	5990~7670
	FEED	265~820	265~820	265~820	265~820	265~820	265~820	265~820	265~820
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
11.1 - 11.2	Vc	64~82	66~83	68~85	69~85	66~85	73~98	72~97	74~98
	fz	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.022	0.011~0.025	0.014~0.031	0.016~0.038
	RPM	14180~18380	13860~17330	12600~15750	11550~14180	7350~9450	6090~8190	4830~6510	4100~5460
	FEED	130~410	130~410	130~410	130~410	130~410	130~410	130~410	130~410
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
15 - 20	Vc	90~113	90~118	96~122	97~119	99~123	107~138	107~138	107~138
	fz	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.035	0.018~0.044	0.022~0.053
	RPM	19950~25200	18900~24680	17850~22580	16280~19950	11030~13650	8930~11550	7140~9240	5990~7670
	FEED	265~820	265~820	265~820	265~820	265~820	265~820	265~820	265~820
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
38.1 - 38.2	Vc	41~50	42~52	42~53	43~54	43~54	49~62	49~61	49~62
	fz	0.007~0.012	0.008~0.012	0.008~0.013	0.009~0.015	0.014~0.022	0.016~0.026	0.020~0.032	0.024~0.038
	RPM	9140~11240	8720~10920	7770~9870	7250~9030	4830~5990	4100~5150	3260~4100	2730~3470
	FEED	130~265	130~265	130~265	130~265	130~265	130~265	130~265	130~265
	Ap	0.014~0.028	0.015~0.030	0.016~0.032	0.018~0.035	0.028~0.055	0.035~0.070	0.044~0.088	0.053~0.105
40	Vc	64~82	66~83	68~85	69~85	66~85	73~98	72~97	74~98
	fz	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.022	0.011~0.025	0.014~0.031	0.016~0.038
	RPM	14180~18380	13860~17330	12600~15750	11550~14180	7350~9450	6090~8190	4830~6510	4100~5460
	FEED	130~410	130~410	130~410	130~410	130~410	130~410	130~410	130~410
	Ap	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
41	Vc	41~50	42~52	42~53	43~54	43~54	49~62	49~61	49~62
	fz	0.007~0.012	0.008~0.012	0.008~0.013	0.009~0.015	0.014~0.022	0.016~0.026	0.020~0.032	0.024~0.038
	RPM	9140~11240	8720~10920	7770~9870	7250~9030	4830~5990	4100~5150	3260~4100	2730~3470
	FEED	130~265	130~265	130~265	130~265	130~265	130~265	130~265	130~265
	Ap	0.014~0.028	0.015~0.030	0.016~0.032	0.018~0.035	0.028~0.055	0.035~0.070	0.044~0.088	0.053~0.105



(Depth of cut per one pass)

X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM902 SERIES — 2 FLUTE BALL NOSE with TAPER NECK

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0
	5	Non-alloy steel	0.2D	Vc	35	60	80	90	95	110	120
				fz	0.008	0.014	0.023	0.031	0.040	0.060	0.080
				RPM	11141	9549	8488	7162	6048	5836	4775
				FEED	178	267	390	444	484	700	764
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
	8-9	Low alloy steel	0.2D	Vc	35	60	80	90	95	110	120
				fz	0.008	0.014	0.023	0.031	0.040	0.060	0.080
				RPM	11141	9549	8488	7162	6048	5836	4775
				FEED	178	267	390	444	484	700	764
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
	11.1	High alloyed steel, and tool steel	0.2D	Vc	35	60	80	90	95	110	120
				fz	0.008	0.014	0.023	0.031	0.040	0.060	0.080
				RPM	11141	9549	8488	7162	6048	5836	4775
				FEED	178	267	390	444	484	700	764
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
	11.2		0.1D	Vc	55	75	100	110	125	135	150
				fz	0.012	0.028	0.043	0.052	0.059	0.067	0.075
				RPM	17507	11937	10610	8754	7958	7162	5968
				FEED	420	668	912	910	939	960	895
				Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25
H	38.1	Hardened steel	0.1D	Vc	55	75	100	110	125	135	150
				fz	0.012	0.028	0.043	0.052	0.059	0.067	0.075
				RPM	17507	11937	10610	8754	7958	7162	5968
				FEED	420	668	912	910	939	960	895
				Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25
	38.2		0.1D	Vc	55	75	95	110	125	130	140
				fz	0.012	0.026	0.043	0.052	0.059	0.068	0.075
				RPM	17507	11937	10080	8754	7958	6897	5570
				FEED	420	621	867	910	939	938	836
				Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25
	40	Chilled Cast Iron	0.1D	Vc	55	75	100	110	125	135	150
				fz	0.012	0.028	0.043	0.052	0.059	0.067	0.075
				RPM	17507	11937	10610	8754	7958	7162	5968
				FEED	420	668	912	910	939	960	895
				Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25
	41	Hardened Cast Iron	0.1D	Vc	55	75	95	110	125	130	140
				fz	0.012	0.026	0.043	0.052	0.059	0.068	0.075
				RPM	17507	11937	10080	8754	7958	6897	5570
				FEED	420	621	867	910	939	938	836
				Ap	0.05	0.1	0.15	0.2	0.25	0.25	0.25

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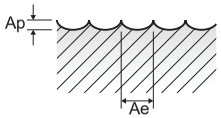


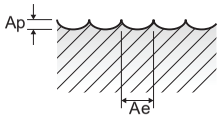
X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM902 SERIES — 2 FLUTE BALL NOSE with TAPER NECK

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0
P	1-5	Non-alloy steel	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
	6-9	Low alloy steel	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.070	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
	10 - 11.2	High alloyed steel, and tool steel	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
H	38	Hardened steel	0.05D	Vc	55	75	100	110	125	135	150
				fz	0.019	0.037	0.069	0.080	0.088	0.101	0.112
				RPM	17507	11937	10610	8754	7958	7162	5968
				FEED	665	883	1464	1401	1401	1447	1337
				Ap	0.05	0.10	0.15	0.2	0.25	0.25	0.25
	38.2		0.05D	Vc	55	75	95	110	120	130	140
				fz	0.017	0.043	0.066	0.079	0.087	0.102	0.109
				RPM	17507	11937	10080	8754	7639	6897	5570
				FEED	595	1027	1331	1383	1329	1407	1214
				Ap	0.05	0.10	0.15	0.2	0.25	0.25	0.25
	40	Chilled Cast Iron	0.05D	Vc	65	110	165	220	275	335	355
				fz	0.026	0.036	0.048	0.07	0.086	0.095	0.119
				RPM	20690	17507	17507	17507	17507	17772	14125
				FEED	1076	1261	1681	2451	3011	3377	3362
				Ap	0.2	0.2	0.2	0.2	0.2	0.2	0.3
	41	Hardened Cast Iron	0.05D	Vc	55	75	95	110	120	130	140
				fz	0.017	0.043	0.066	0.079	0.087	0.102	0.109
				RPM	17507	11937	10080	8754	7639	6897	5570
				FEED	595	1027	1331	1383	1329	1407	1214
				Ap	0.05	0.10	0.15	0.2	0.25	0.25	0.25



X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM815 SERIES — 4 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-4	Non-alloy steel	0.2D	Vc	105	130	140	150	170	190	210	230	250
				fz	0.013	0.019	0.026	0.034	0.045	0.068	0.09	0.111	0.136
				RPM	16711	13793	11141	9549	9019	7560	6685	6101	4974
				FEED	869	1048	1159	1299	1623	2056	2406	2709	2706
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	5		0.2D	Vc	75	100	110	120	135	150	170	185	200
				fz	0.010	0.017	0.024	0.030	0.045	0.060	0.075	0.089	0.106
				RPM	11937	10610	8754	7639	7162	5968	5411	4907	3979
				FEED	477	722	840	917	1289	1432	1623	1747	1687
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	6-7	Low alloy steel	0.2D	Vc	105	130	140	150	170	190	210	230	250
				fz	0.013	0.019	0.026	0.034	0.045	0.068	0.09	0.111	0.136
				RPM	16711	13793	11141	9549	9019	7560	6685	6101	4974
				FEED	869	1048	1159	1299	1623	2056	2406	2709	2706
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	8-9		0.2D	Vc	75	100	110	120	135	150	170	185	200
				fz	0.010	0.017	0.024	0.030	0.045	0.060	0.075	0.089	0.106
				RPM	11937	10610	8754	7639	7162	5968	5411	4907	3979
				FEED	477	722	840	917	1289	1432	1623	1747	1687
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	10	High alloyed steel, and tool steel	0.2D	Vc	105	130	140	150	170	190	210	230	250
				fz	0.013	0.019	0.026	0.034	0.045	0.068	0.09	0.111	0.136
				RPM	16711	13793	11141	9549	9019	7560	6685	6101	4974
				FEED	869	1048	1159	1299	1623	2056	2406	2709	2706
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	11.1 - 11.2		0.2D	Vc	75	100	110	120	135	150	170	185	200
				fz	0.010	0.017	0.024	0.030	0.045	0.060	0.075	0.089	0.106
				RPM	11937	10610	8754	7639	7162	5968	5411	4907	3979
				FEED	477	722	840	917	1289	1432	1623	1747	1687
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.2D	Vc	105	130	140	150	170	190	210	230	250
				fz	0.013	0.019	0.026	0.034	0.045	0.068	0.09	0.111	0.136
				RPM	16711	13793	11141	9549	9019	7560	6685	6101	4974
				FEED	869	1048	1159	1299	1623	2056	2406	2709	2706
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
H	38.1 - 39.2	Hardened steel	0.1D	Vc	30	45	55	60	65	65	65	70	70
				fz	0.008	0.012	0.016	0.018	0.022	0.033	0.041	0.053	0.069
				RPM	4775	4775	4377	3820	3448	2586	2069	1857	1393
				FEED	153	229	280	275	303	341	339	394	384
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.2D	Vc	75	100	110	120	135	150	170	185	200
				fz	0.01	0.017	0.024	0.03	0.045	0.06	0.075	0.089	0.106
				RPM	11937	10610	8754	7639	7162	5968	5411	4907	3979
				FEED	477	722	840	917	1289	1432	1623	1747	1687
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	41	Hardened Cast Iron	0.1D	Vc	30	45	55	60	65	65	65	70	70
				fz	0.008	0.012	0.016	0.018	0.022	0.033	0.041	0.053	0.069
				RPM	4775	4775	4377	3820	3448	2586	2069	1857	1393
				FEED	153	229	280	275	303	341	339	394	384
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3

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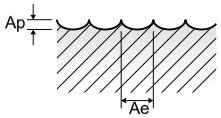


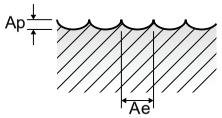
X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM815 SERIES — 4 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-5	Non-alloy steel	0.05D	Vc	140	210	275	345	415	440	460	485	505
				fz	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136
				RPM	22282	22282	21884	21963	22016	17507	14642	12865	10047
				FEED	2317	3209	4552	5623	6253	6303	6150	6175	5465
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	6-9	Low alloy steel	0.05D	Vc	140	210	275	345	415	440	460	485	505
				fz	0.026	0.036	0.052	0.064	0.071	0.090	0.105	0.120	0.136
				RPM	22282	22282	21884	21963	22016	17507	14642	12865	10047
				FEED	2317	3209	4552	5623	6253	6303	6150	6175	5465
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	10 - 11.2	High alloyed steel, and tool steel	0.05D	Vc	140	210	275	345	415	440	460	485	505
				fz	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136
				RPM	22282	22282	21884	21963	22016	17507	14642	12865	10047
				FEED	2317	3209	4552	5623	6253	6303	6150	6175	5465
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	Vc	140	210	275	345	415	440	460	485	505
				fz	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136
				RPM	22282	22282	21884	21963	22016	17507	14642	12865	10047
				FEED	2317	3209	4552	5623	6253	6303	6150	6175	5465
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
H	38.1 - 39.2	Hardened steel	0.05D	Vc	140	170	180	200	210	220	230	240	250
				fz	0.017	0.023	0.032	0.038	0.045	0.056	0.064	0.071	0.079
				RPM	22282	18038	14324	12732	11141	8754	7321	6366	4974
				FEED	1515	1659	1833	1935	2005	1961	1874	1808	1572
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.05D	Vc	140	210	275	345	415	440	460	485	505
				fz	0.026	0.036	0.052	0.064	0.071	0.09	0.105	0.12	0.136
				RPM	22282	22282	21884	21963	22016	17507	14642	12865	10047
				FEED	2317	3209	4552	5623	6253	6303	6150	6175	5465
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
	41	Hardened Cast Iron	0.05D	Vc	140	170	180	200	210	220	230	240	250
				fz	0.017	0.023	0.032	0.038	0.045	0.056	0.064	0.071	0.079
				RPM	22282	18038	14324	12732	11141	8754	7321	6366	4974
				FEED	1515	1659	1833	1935	2005	1961	1874	1808	1572
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3



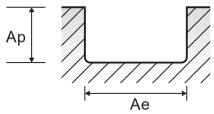
X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM818 SERIES — 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 4.0	5.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	1.0D	0.3D	Vc	75	80	80	85	85	85
					fz	0.016	0.023	0.032	0.045	0.053	0.051
					RPM	5968	5093	4244	3382	2706	2255
					FEED	191	234	272	304	287	230
	5		1.0D	0.3D	Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
					RPM	3581	3183	2653	2188	1751	1592
					FEED	93	108	133	144	137	131
	6-7	Low alloy steel	1.0D	0.3D	Vc	75	80	80	85	85	85
					fz	0.016	0.023	0.032	0.045	0.053	0.051
					RPM	5968	5093	4244	3382	2706	2255
					FEED	191	234	272	304	287	230
	8-9		1.0D	0.3D	Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
					RPM	3581	3183	2653	2188	1751	1592
					FEED	93	108	133	144	137	131
	10	High alloyed steel, and tool steel	1.0D	0.3D	Vc	75	80	80	85	85	85
					fz	0.016	0.023	0.032	0.045	0.053	0.051
					RPM	5968	5093	4244	3382	2706	2255
					FEED	191	234	272	304	287	230
	11.1 - 11.2		1.0D	0.3D	Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
					RPM	3581	3183	2653	2188	1751	1592
					FEED	93	108	133	144	137	131
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.3D	Vc	75	80	80	85	85	85
					fz	0.016	0.023	0.032	0.045	0.053	0.051
					RPM	5968	5093	4244	3382	2706	2255
					FEED	191	234	272	304	287	230
H	38.1 - 38.2	Hardened steel	1.0D	0.3D	Vc	30	35	35	35	35	35
					fz	0.006	0.008	0.010	0.013	0.016	0.019
					RPM	2387	2228	1857	1393	1114	928
					FEED	29	36	37	36	36	35
	40	Chilled Cast Iron	1.0D	0.3D	Vc	45	50	50	55	55	60
					fz	0.013	0.017	0.025	0.033	0.039	0.041
					RPM	3581	3183	2653	2188	1751	1592
					FEED	93	108	133	144	137	131
	41	Hardened Cast Iron	1.0D	0.3D	Vc	30	35	35	35	35	35
					fz	0.006	0.008	0.01	0.013	0.016	0.019
					RPM	2387	2228	1857	1393	1114	928
					FEED	29	36	37	36	36	35



X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM8A1 SERIES — 2 FLUTE CORNER RADIUS RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 1.0	1.2	1.4	1.5	1.6	1.8
P	1-4	Non-alloy steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93
			fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027
			RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330
			FEED	295~850	295~945	295~945	295~945	295~945	295~945
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
	5		Vc	49~63	49~62	51~62	49~64	51~64	52~65
			fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026
			RPM	16490~21000	13650~17330	12080~14700	11030~14180	10710~13440	9660~12080
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
	6-7	Low alloy steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93
			fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027
			RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330
			FEED	295~850	295~945	295~945	295~945	295~945	295~945
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
	8-9		Vc	49~63	49~62	51~62	49~64	51~64	52~65
			fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026
			RPM	16490~21000	13650~17330	12080~14700	11030~14180	10710~13440	9660~12080
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
	10	High alloyed steel, and tool steel	Vc	71~88	70~85	70~88	68~87	70~90	74~93
			fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027
			RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330
			FEED	295~850	295~945	295~945	295~945	295~945	295~945
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
	11.1 - 11.2		Vc	49~63	49~62	51~62	49~64	51~64	52~65
			fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026
			RPM	16490~21000	13650~17330	12080~14700	11030~14180	10710~13440	9660~12080
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	71~88	70~85	70~88	68~87	70~90	74~93
			fz	0.006~0.014	0.008~0.020	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027
			RPM	23630~29400	19430~23630	16800~21000	15230~19430	14700~18900	13650~17330
			FEED	295~850	295~945	295~945	295~945	295~945	295~945
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
H	38.1 - 38.2	Hardened steel	Vc	31~39	31~40	32~40	32~39	32~40	32~41
			fz	0.003~0.005	0.004~0.006	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009
			RPM	10500~13130	8720~11030	7560~9450	7040~8610	6720~8400	5990~7560
			FEED	70~135	70~135	70~135	70~135	70~135	70~135
			Ap	0.009~0.018	0.010~0.022	0.012~0.025	0.014~0.028	0.015~0.030	0.016~0.032
	40	Chilled Cast Iron	Vc	49~63	49~62	51~62	49~64	51~64	52~65
			fz	0.006~0.015	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026
			RPM	16490~21000	13650~17330	12080~14700	11030~14180	10710~13440	9660~12080
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.045~0.090	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160
	41	Hardened Cast Iron	Vc	31~39	31~40	32~40	32~39	32~40	32~41
			fz	0.003~0.005	0.004~0.006	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009
			RPM	10500~13130	8720~11030	7560~9450	7040~8610	6720~8400	5990~7560
			FEED	70~135	70~135	70~135	70~135	70~135	70~135
			Ap	0.009~0.018	0.010~0.022	0.012~0.025	0.014~0.028	0.015~0.030	0.016~0.032

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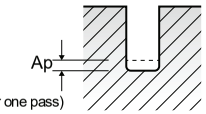


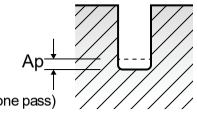
X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM8A1 SERIES — 2 FLUTE CORNER RADIUS RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 2.0	2.5	3.0	4.0	5.0	6.0
P	1-4	Non-alloy steel	Vc	75~91	75~94	75~94	75~94	75~94	75~94
			fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
			RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
			FEED	295~945	295~945	295~945	295~945	295~945	295~945
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
	5		Vc	52~66	53~67	52~66	52~67	52~66	53~66
			fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
			RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
	6-7	Low alloy steel	Vc	75~91	75~94	75~94	75~94	75~94	75~94
			fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
			RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
			FEED	295~945	295~945	295~945	295~945	295~945	295~945
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
	8-9		Vc	52~66	53~67	52~66	52~67	52~66	53~66
			fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
			RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
	10	High alloyed steel, and tool steel	Vc	75~91	75~94	75~94	75~94	75~94	75~94
			fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
			RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
			FEED	295~945	295~945	295~945	295~945	295~945	295~945
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
	11.1 - 11.2		Vc	52~66	53~67	52~66	52~67	52~66	53~66
			fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
			RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	75~91	75~94	75~94	75~94	75~94	75~94
			fz	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
			RPM	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
			FEED	295~945	295~945	295~945	295~945	295~945	295~945
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
H	38.1 - 38.2	Hardened steel	Vc	33~41	34~42	33~41	33~41	33~41	33~49
			fz	0.006~0.010	0.008~0.012	0.009~0.015	0.013~0.020	0.015~0.025	0.019~0.025
			RPM	5570~6930	4520~5570	3680~4620	2730~3470	2210~2730	1840~2730
			FEED	70~135	70~135	70~135	70~135	70~135	70~135
			Ap	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108
	40	Chilled Cast Iron	Vc	52~66	53~67	52~66	52~67	52~66	53~66
			fz	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
			RPM	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
			FEED	200~630	200~630	200~630	200~630	200~630	200~630
			Ap	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
	41	Hardened Cast Iron	Vc	33~41	34~42	33~41	33~41	33~41	33~49
			fz	0.006~0.010	0.008~0.012	0.009~0.015	0.013~0.020	0.015~0.025	0.019~0.025
			RPM	5570~6930	4520~5570	3680~4620	2730~3470	2210~2730	1840~2730
			FEED	70~135	70~135	70~135	70~135	70~135	70~135
			Ap	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108



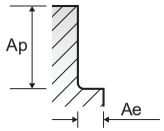
(Depth of cut per one pass)

X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM839 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135
					fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048
					RPM	15120	11671	9947	7427	5570	4297	3581
					FEED	363	420	756	891	936	808	688
	5		0.05D	1.0D	Vc	65	70	75	85	85	85	85
					fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037
					RPM	10345	7427	5968	4509	3382	2706	2255
					FEED	248	267	454	541	514	400	334
	6-7	Low alloy steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135
					fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048
					RPM	15120	11671	9947	7427	5570	4297	3581
					FEED	363	420	756	891	936	808	688
	8-9		0.05D	1.0D	Vc	65	70	75	85	85	85	85
					fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037
					RPM	10345	7427	5968	4509	3382	2706	2255
					FEED	248	267	454	541	514	400	334
	10	High alloyed steel, and tool steel	0.05D	1.0D	Vc	95	110	125	140	140	135	135
					fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048
					RPM	15120	11671	9947	7427	5570	4297	3581
					FEED	363	420	756	891	936	808	688
	11.1 - 11.2		0.05D	1.0D	Vc	65	70	75	85	85	85	85
					fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037
					RPM	10345	7427	5968	4509	3382	2706	2255
					FEED	248	267	454	541	514	400	334
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	95	110	125	140	140	135	135
					fz	0.006	0.009	0.019	0.03	0.042	0.047	0.048
					RPM	15120	11671	9947	7427	5570	4297	3581
					FEED	363	420	756	891	936	808	688
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	40	40	50	50	55	55	60
					fz	0.002	0.004	0.005	0.010	0.016	0.017	0.017
					RPM	6366	4244	3979	2653	2188	1751	1592
					FEED	51	68	80	106	140	119	108
	40	Chilled Cast Iron	0.05D	1.0D	Vc	65	70	75	85	85	85	85
					fz	0.006	0.009	0.019	0.030	0.038	0.037	0.037
					RPM	10345	7427	5968	4509	3382	2706	2255
					FEED	248	267	454	541	514	400	334
	41	Hardened Cast Iron	0.05D	1.0D	Vc	40	40	50	50	55	55	60
					fz	0.002	0.004	0.005	0.010	0.016	0.017	0.017
					RPM	6366	4244	3979	2653	2188	1751	1592
					FEED	51	68	80	106	140	119	108



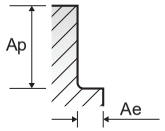
X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM819 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING

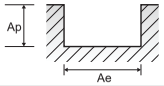
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.05D	2.5D	Vc	70	75	80	80	85	85	85	95	85
					fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022
					RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353
					FEED	178	239	244	238	257	249	198	174	119
	5		0.05D	2.5D	Vc	45	45	50	50	55	55	60	60	55
					fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028
					RPM	4775	3581	3183	2653	2188	1751	1592	1194	875
					FEED	153	158	204	191	210	196	185	143	98
	6-7	Low alloy steel	0.05D	2.5D	Vc	70	75	80	80	85	85	85	95	85
					fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022
					RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353
					FEED	178	239	244	238	257	249	198	174	119
	8-9		0.05D	2.5D	Vc	45	45	50	50	55	55	60	60	55
					fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028
					RPM	4775	3581	3183	2653	2188	1751	1592	1194	875
					FEED	153	158	204	191	210	196	185	143	98
	10	High alloyed steel, and tool steel	0.05D	2.5D	Vc	70	75	80	80	85	85	85	95	85
					fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022
					RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353
					FEED	178	239	244	238	257	249	198	174	119
	11.1 - 11.2		0.05D	2.5D	Vc	45	45	50	50	55	55	60	60	55
					fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028
					RPM	4775	3581	3183	2653	2188	1751	1592	1194	875
					FEED	153	158	204	191	210	196	185	143	98
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2.5D	Vc	70	75	80	80	85	85	85	95	85
					fz	0.006	0.01	0.012	0.014	0.019	0.023	0.022	0.023	0.022
					RPM	7427	5968	5093	4244	3382	2706	2255	1890	1353
					FEED	178	239	244	238	257	249	198	174	119
H	38.1 - 38.2	Hardened steel	0.02D	2.0D	Vc	25	30	35	35	35	35	35	35	35
					fz	0.006	0.008	0.011	0.013	0.017	0.021	0.020	0.022	0.023
					RPM	2653	2387	2228	1857	1393	1114	928	696	557
					FEED	64	76	98	97	95	94	74	61	51
	40	Chilled Cast Iron	0.05D	2.5D	Vc	45	45	50	50	55	55	60	60	55
					fz	0.008	0.011	0.016	0.018	0.024	0.028	0.029	0.030	0.028
					RPM	4775	3581	3183	2653	2188	1751	1592	1194	875
					FEED	153	158	204	191	210	196	185	143	98
	41	Hardened Cast Iron	0.02D	2.0D	Vc	25	30	35	35	35	35	35	35	35
					fz	0.006	0.008	0.011	0.013	0.017	0.021	0.020	0.022	0.023
					RPM	2653	2387	2228	1857	1393	1114	928	696	557
					FEED	64	76	98	97	95	94	74	61	51



X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM810 SERIES — 2 FLUTE - SLOTTING



Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.4	0.8	1.0	1.2	1.5
P	5	Non-alloy steel	1.0D	D<1:0.15D D≥1:0.25D	Vc	40	65	70	65	60
					fz	0.002	0.003	0.004	0.005	0.006
					RPM	31831	25863	22282	17242	12732
					FEED	127	155	178	172	153
	8-9	Low alloy steel	1.0D	D<1:0.15D D≥1:0.25D	Vc	40	65	70	65	60
					fz	0.002	0.003	0.004	0.005	0.006
					RPM	31831	25863	22282	17242	12732
					FEED	127	155	178	172	153
	11.1 - 11.2	High alloyed steel, and tool steel	1.0D	D<1:0.15D D≥1:0.25D	Vc	40	65	70	65	60
					fz	0.002	0.003	0.004	0.005	0.006
					RPM	31831	25863	22282	17242	12732
					FEED	127	155	178	172	153
H	38.1 - 38.2	Hardened steel	1.0D	D<1:0.02D D≥1:0.05D	Vc	30	50	50	50	45
					fz	0.001	0.002	0.003	0.003	0.004
					RPM	23873	19894	15915	13263	9549
					FEED	48	80	95	80	76
	40	Chilled Cast Iron	1.0D	D<1:0.15D D≥1:0.25D	Vc	40	65	70	65	60
					fz	0.002	0.003	0.004	0.005	0.006
					RPM	31831	25863	22282	17242	12732
					FEED	127	155	178	172	153
	41	Hardened Cast Iron	1.0D	D<1:0.02D D≥1:0.05D	Vc	30	50	50	50	45
					fz	0.001	0.002	0.003	0.003	0.004
					RPM	23873	19894	15915	13263	9549
					FEED	48	80	95	80	76

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	65	75	85	90	95	95	90	95	100	95
					fz	0.01	0.015	0.025	0.032	0.039	0.057	0.064	0.064	0.062	0.063
					RPM	10345	7958	6764	5730	5040	3780	2865	2520	1989	1512
					FEED	207	239	338	367	393	431	367	323	247	191
	5		1.0D	D≤3:0.2D D>3:0.5D	Vc	45	45	50	55	55	55	55	55	60	60
					fz	0.010	0.016	0.024	0.032	0.041	0.050	0.050	0.048	0.051	0.047
					RPM	7162	4775	3979	3501	2918	2188	1751	1459	1194	955
					FEED	143	153	191	224	239	219	175	140	122	90
	6-7	Low alloy steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	65	75	85	90	95	95	90	95	100	95
					fz	0.01	0.015	0.025	0.032	0.039	0.057	0.064	0.064	0.062	0.063
					RPM	10345	7958	6764	5730	5040	3780	2865	2520	1989	1512
					FEED	207	239	338	367	393	431	367	323	247	191
	8-9		1.0D	D≤3:0.2D D>3:0.5D	Vc	45	45	50	55	55	55	55	55	60	60
					fz	0.010	0.016	0.024	0.032	0.041	0.050	0.050	0.048	0.051	0.047
					RPM	7162	4775	3979	3501	2918	2188	1751	1459	1194	955
					FEED	143	153	191	224	239	219	175	140	122	90
	10	High alloyed steel, and tool steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	65	75	85	90	95	95	90	95	100	95
					fz	0.01	0.015	0.025	0.032	0.039	0.057	0.064	0.064	0.062	0.063
					RPM	10345	7958	6764	5730	5040	3780	2865	2520	1989	1512
					FEED	207	239	338	367	393	431	367	323	247	191
	11.1 - 11.2		1.0D	D≤3:0.2D D>3:0.5D	Vc	45	45	50	55	55	55	55	55	60	60
					fz	0.010	0.016	0.024	0.032	0.041	0.050	0.050	0.048	0.051	0.047
					RPM	7162	4775	3979	3501	2918	2188	1751	1459	1194	955
					FEED	143	153	191	224	239	219	175	140	122	90
M	14.1	Stainless steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	35	40	45	45	50	45	45	45	50	45
					fz	0.009	0.016	0.024	0.032	0.039	0.053	0.06	0.059	0.066	0.06
					RPM	5570	4244	3581	2865	2653	1790	1432	1194	995	716
					FEED	100	136	172	183	207	190	172	141	131	86
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	D≤3:0.2D D>3:0.5D	Vc	65	75	85	90	95	95	90	95	100	95
					fz	0.01	0.015	0.025	0.032	0.039	0.057	0.064	0.064	0.062	0.063
					RPM	10345	7958	6764	5730	5040	3780	2865	2520	1989	1512
					FEED	207	239	338	367	393	431	367	323	247	191
H	38.1 - 38.2	Hardened steel	1.0D	0.05D	Vc	30	30	35	35	35	40	40	40	40	40
					fz	0.004	0.007	0.009	0.013	0.017	0.028	0.027	0.029	0.028	0.028
					RPM	4775	3183	2785	2228	1857	1592	1273	1061	796	637
					FEED	38	45	50	58	63	89	69	62	45	36
	40	Chilled Cast Iron	1.0D	D≤3:0.2D D>3:0.5D	Vc	45	45	50	55	55	55	55	55	60	60
					fz	0.01	0.016	0.024	0.032	0.041	0.05	0.05	0.048	0.051	0.047
					RPM	7162	4775	3979	3501	2918	2188	1751	1459	1194	955
					FEED	143	153	191	224	239	219	175	140	122	90
	41	Hardened Cast Iron	1.0D	0.05D	Vc	30	30	35	35	35	40	40	40	40	40
					fz	0.004	0.007	0.009	0.013	0.017	0.028	0.027	0.029	0.028	0.028
					RPM	4775	3183	2785	2228	1857	1592	1273	1061	796	637
					FEED	38	45	50	58	63	89	69	62	45	36

X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM883 SERIES — 2 FLUTE RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2
P	1-4	Non-alloy steel	Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85
			fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020
			RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630
			FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
	5		Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62
			fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330
			FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
	6-7	Low alloy steel	Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85
			fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020
			RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630
			FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
	8-9		Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62
			fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330
			FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
	10	High alloyed steel, and tool steel	Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85
			fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020
			RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630
			FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
	11.1 ~ 11.2		Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62
			fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330
			FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	Vc	39~50	49~63	58~75	68~88	68~88	71~89	71~88	70~85
			fz	0.003~0.006	0.003~0.006	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014	0.008~0.020
			RPM	32550~42000	32550~42000	32550~42000	32550~42000	28350~36750	26250~33080	23630~29400	19430~23630
			FEED	210~460	210~460	265~600	265~600	295~660	295~755	295~850	295~945
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
H	38.1 ~ 38.2	Hardened steel	Vc	18~21	22~27	27~32	31~37	31~37	31~35	31~39	31~40
			fz	0.001~0.003	0.001~0.003	0.001~0.003	0.001~0.003	0.002~0.004	0.003~0.005	0.003~0.005	0.004~0.006
			RPM	15020~17850	15020~17850	15020~17850	15020~17850	13130~15540	11550~13130	10500~13130	8720~11030
			FEED	30~95	30~95	40~115	40~115	45~130	60~135	70~135	70~135
			Ap	0.004~0.008	0.004~0.009	0.005~0.011	0.006~0.013	0.007~0.015	0.008~0.016	0.009~0.018	0.010~0.022
	40	Chilled Cast Iron	Vc	28~35	35~44	42~53	49~62	49~62	49~64	49~63	49~62
			fz	0.002~0.006	0.002~0.006	0.002~0.008	0.002~0.008	0.003~0.010	0.005~0.012	0.006~0.015	0.007~0.018
			RPM	23630~29400	23630~29400	23630~29400	23630~29400	20480~25730	18380~23630	16490~21000	13650~17330
			FEED	90~355	90~355	115~450	115~450	125~505	170~565	200~630	200~630
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090	0.055~0.100
	41	Hardened Cast Iron	Vc	18~21	22~27	27~32	31~37	31~37	31~35	31~39	31~40
			fz	0.001~0.003	0.001~0.003	0.001~0.003	0.001~0.003	0.002~0.004	0.003~0.005	0.003~0.005	0.004~0.006
			RPM	15020~17850	15020~17850	15020~17850	15020~17850	13130~15540	11550~13130	10500~13130	8720~11030
			FEED	30~95	30~95	40~115	40~115	45~130	60~135	70~135	70~135
			Ap	0.004~0.008	0.004~0.009	0.005~0.011	0.006~0.013	0.007~0.015	0.008~0.016	0.009~0.018	0.010~0.022

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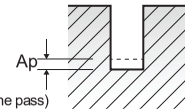


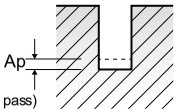
(Depth of cut per one pass)

X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM883 SERIES — 2 FLUTE RIB PROCESSING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

VDI 3323	Parameter	1.4	1.5	1.6	1.8	2.0	2.5	3.0	4.0	5.0	6.0
1-4	Vc	70~88	68~87	70~90	74~93	75~91	75~94	75~94	75~94	75~94	75~94
	fz	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
	RPM	16800~21000	15230~19430	14700~18900	13650~17330	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
	FEED	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
5	Vc	51~62	49~64	51~64	52~65	52~66	53~67	52~66	52~67	52~66	53~66
	fz	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
	RPM	12080~14700	11030~14180	10710~13440	9660~12080	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
	FEED	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
6-7	Vc	70~88	68~87	70~90	74~93	75~91	75~94	75~94	75~94	75~94	75~94
	fz	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
	RPM	16800~21000	15230~19430	14700~18900	13650~17330	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
	FEED	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
8-9	Vc	51~62	49~64	51~64	52~65	52~66	53~67	52~66	52~67	52~66	53~66
	fz	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
	RPM	12080~14700	11030~14180	10710~13440	9660~12080	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
	FEED	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
10	Vc	70~88	68~87	70~90	74~93	75~91	75~94	75~94	75~94	75~94	75~94
	fz	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
	RPM	16800~21000	15230~19430	14700~18900	13650~17330	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
	FEED	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
11.1 ~ 11.2	Vc	51~62	49~64	51~64	52~65	52~66	53~67	52~66	52~67	52~66	53~66
	fz	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
	RPM	12080~14700	11030~14180	10710~13440	9660~12080	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
	FEED	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
15 ~ 20	Vc	70~88	68~87	70~90	74~93	75~91	75~94	75~94	75~94	75~94	75~94
	fz	0.009~0.023	0.010~0.024	0.010~0.025	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.023~0.060	0.029~0.075	0.035~0.090
	RPM	16800~21000	15230~19430	14700~18900	13650~17330	12600~15230	9980~12600	8400~10500	6300~7880	5040~6300	4200~5250
	FEED	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945	295~945
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
38.1 ~ 38.2	Vc	32~40	32~39	32~40	32~41	33~41	34~42	33~41	33~41	33~41	33~49
	fz	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009	0.006~0.010	0.008~0.012	0.009~0.015	0.013~0.020	0.015~0.025	0.019~0.025
	RPM	7560~9450	7040~8610	6720~8400	5990~7560	5570~6930	4520~5570	3680~4620	2730~3470	2210~2730	1840~2730
	FEED	70~135	70~135	70~135	70~135	70~135	70~135	70~135	70~135	70~135	70~135
	Ap	0.012~0.025	0.014~0.028	0.015~0.030	0.016~0.032	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108
40	Vc	51~62	49~64	51~64	52~65	52~66	53~67	52~66	52~67	52~66	53~66
	fz	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.029	0.014~0.035	0.017~0.043	0.023~0.057	0.029~0.071	0.034~0.086
	RPM	12080~14700	11030~14180	10710~13440	9660~12080	8720~11030	7040~8930	5780~7350	4310~5570	3470~4410	2940~3680
	FEED	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630	200~630
	Ap	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360	0.225~0.450	0.270~0.540
41	Vc	32~40	32~39	32~40	32~41	33~41	34~42	33~41	33~41	33~41	33~49
	fz	0.005~0.007	0.005~0.008	0.005~0.008	0.006~0.009	0.006~0.010	0.008~0.012	0.009~0.015	0.013~0.020	0.015~0.025	0.019~0.025
	RPM	7560~9450	7040~8610	6720~8400	5990~7560	5570~6930	4520~5570	3680~4620	2730~3470	2210~2730	1840~2730
	FEED	70~135	70~135	70~135	70~135	70~135	70~135	70~135	70~135	70~135	70~135
	Ap	0.012~0.025	0.014~0.028	0.015~0.030	0.016~0.032	0.018~0.035	0.022~0.045	0.028~0.055	0.036~0.072	0.045~0.090	0.054~0.108



(Depth of cut per one pass)

X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM895 SERIES — 3 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-4	Non-alloy steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.005	0.007	0.012	0.015	0.019	0.027	0.031	0.03	0.03
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	191	201	301	315	348	371	340	275	215
	5		1.0D	D≤3:0.2D D>3:0.5D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.005	0.008	0.011	0.015	0.020	0.024	0.023	0.023	0.024
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	119	153	171	186	223	201	154	128	107
	6-7	Low alloy steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.005	0.007	0.012	0.015	0.019	0.027	0.031	0.03	0.03
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	191	201	301	315	348	371	340	275	215
	8-9		1.0D	D≤3:0.2D D>3:0.5D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.005	0.008	0.011	0.015	0.020	0.024	0.023	0.023	0.024
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	119	153	171	186	223	201	154	128	107
	10	High alloyed steel, and tool steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.005	0.007	0.012	0.015	0.019	0.027	0.031	0.03	0.03
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	191	201	301	315	348	371	340	275	215
	11.1 - 11.2		1.0D	D≤3:0.2D D>3:0.5D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.005	0.008	0.011	0.015	0.020	0.024	0.023	0.023	0.024
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	119	153	171	186	223	201	154	128	107
M	14.1	Stainless steel	1.0D	D≤3:0.2D D>3:0.5D	Vc	45	50	55	55	60	60	60	55	60
					fz	0.004	0.008	0.011	0.015	0.019	0.025	0.029	0.029	0.031
					RPM	7162	5305	4377	3501	3183	2387	1910	1459	1194
					FEED	86	127	144	158	181	179	166	127	111
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	D≤3:0.2D D>3:0.5D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.005	0.007	0.012	0.015	0.019	0.027	0.031	0.03	0.03
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	191	201	301	315	348	371	340	275	215
H	38.1 - 38.2	Hardened steel	1.0D	0.05D	Vc	35	35	40	40	40	45	45	50	50
					fz	0.002	0.004	0.004	0.007	0.008	0.013	0.013	0.014	0.013
					RPM	5570	3714	3183	2546	2122	1790	1432	1326	995
					FEED	33	45	38	53	51	70	56	56	39
	40	Chilled Cast Iron	1.0D	D≤3:0.2D D>3:0.5D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.005	0.008	0.011	0.015	0.020	0.024	0.023	0.023	0.024
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	119	153	171	186	223	201	154	128	107
	41	Hardened Cast Iron	1.0D	0.05D	Vc	35	35	40	40	40	45	45	50	50
					fz	0.002	0.004	0.004	0.007	0.008	0.013	0.013	0.014	0.013
					RPM	5570	3714	3183	2546	2122	1790	1432	1326	995
					FEED	33	45	38	53	51	70	56	56	39

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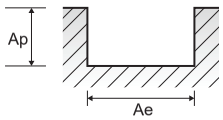
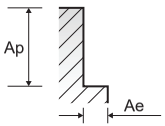


X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM895 SERIES — 3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0
P	1-4	Non-alloy steel	0.05D	1.0D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.048	0.047
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	229	258	476	504	549	577	516	439	337
	5		0.05D	1.0D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.006	0.009	0.019	0.024	0.031	0.039	0.039	0.038	0.037
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	143	172	295	298	345	326	261	212	166
	6-7	Low alloy steel	0.05D	1.0D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.048	0.047
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	229	258	476	504	549	577	516	439	337
	8-9		0.05D	1.0D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.006	0.009	0.019	0.024	0.031	0.039	0.039	0.038	0.037
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	143	172	295	298	345	326	261	212	166
	10	High alloyed steel, and tool steel	0.05D	1.0D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.048	0.047
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	229	258	476	504	549	577	516	439	337
	11.1 - 11.2		0.05D	1.0D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.006	0.009	0.019	0.024	0.031	0.039	0.039	0.038	0.037
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	143	172	295	298	345	326	261	212	166
M	14.1	Stainless steel	0.05D	1.0D	Vc	45	50	55	55	60	60	60	55	60
					fz	0.006	0.009	0.018	0.024	0.029	0.042	0.046	0.044	0.047
					RPM	7162	5305	4377	3501	3183	2387	1910	1459	1194
					FEED	129	143	236	252	277	301	264	193	168
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	80	90	105	110	115	115	115	115	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.048	0.047
					RPM	12732	9549	8356	7003	6101	4576	3661	3050	2387
					FEED	229	258	476	504	549	577	516	439	337
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	35	35	40	40	40	45	45	50	50
					fz	0.002	0.004	0.005	0.008	0.010	0.016	0.017	0.017	0.017
					RPM	5570	3714	3183	2546	2122	1790	1432	1326	995
					FEED	33	45	48	61	64	86	73	68	51
	40	Chilled Cast Iron	0.05D	1.0D	Vc	50	60	65	65	70	70	70	70	75
					fz	0.006	0.009	0.019	0.024	0.031	0.039	0.039	0.038	0.037
					RPM	7958	6366	5173	4138	3714	2785	2228	1857	1492
					FEED	143	172	295	298	345	326	261	212	166
	41	Hardened Cast Iron	0.05D	1.0D	Vc	35	35	40	40	40	45	45	50	50
					fz	0.002	0.004	0.005	0.008	0.010	0.016	0.017	0.017	0.017
					RPM	5570	3714	3183	2546	2122	1790	1432	1326	995
					FEED	33	45	48	61	64	86	73	68	51



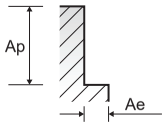
X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM811 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528
					FEED	306	363	635	672	732	802	688	573	468	367	281
	5		0.05D	1.0D	Vc	55	60	65	65	70	70	70	70	75	75	75
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039
					RPM	8754	6366	5173	4138	3714	2785	2228	1857	1492	1194	955
					FEED	210	229	393	397	460	423	330	275	221	181	149
	6-7	Low alloy steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528
					FEED	306	363	635	672	732	802	688	573	468	367	281
	8-9		0.05D	1.0D	Vc	55	60	65	65	70	70	70	70	75	75	75
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039
					RPM	8754	6366	5173	4138	3714	2785	2228	1857	1492	1194	955
					FEED	210	229	393	397	460	423	330	275	221	181	149
	10	High alloyed steel, and tool steel	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528
					FEED	306	363	635	672	732	802	688	573	468	367	281
	11.1 - 11.2		0.05D	1.0D	Vc	55	60	65	65	70	70	70	70	75	75	75
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039
					RPM	8754	6366	5173	4138	3714	2785	2228	1857	1492	1194	955
					FEED	210	229	393	397	460	423	330	275	221	181	149
M	14.1	Stainless steel	0.05D	1.0D	Vc	45	50	55	55	60	60	60	55	60	60	60
					fz	0.005	0.009	0.018	0.024	0.029	0.041	0.045	0.044	0.046	0.045	0.044
					RPM	7162	5305	4377	3501	3183	2387	1910	1459	1194	955	764
					FEED	143	191	315	336	369	392	344	257	220	172	134
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	80	95	105	110	115	120	115	115	125	120	120
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	12732	10080	8356	7003	6101	4775	3661	3050	2487	1910	1528
					FEED	306	363	635	672	732	802	688	573	468	367	281
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	35	35	40	40	40	45	50	50	50	50	45
					fz	0.002	0.004	0.005	0.008	0.010	0.017	0.016	0.017	0.016	0.015	0.015
					RPM	5570	3714	3183	2546	2122	1790	1592	1326	995	796	573
					FEED	45	59	64	81	85	122	102	90	64	48	34
	40	Chilled Cast Iron	0.05D	1.0D	Vc	55	60	65	65	70	70	70	70	75	75	75
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.037	0.037	0.037	0.038	0.039
					RPM	8754	6366	5173	4138	3714	2785	2228	1857	1492	1194	955
					FEED	210	229	393	397	460	423	330	275	221	181	149
	41	Hardened Cast Iron	0.05D	1.0D	Vc	35	35	40	40	40	45	50	50	50	50	45
					fz	0.002	0.004	0.005	0.008	0.010	0.017	0.016	0.017	0.016	0.015	0.015
					RPM	5570	3714	3183	2546	2122	1790	1592	1326	995	796	573
					FEED	45	59	64	81	85	122	102	90	64	48	34

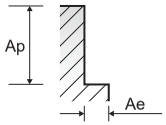


X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM817 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

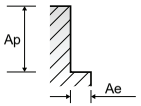
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85
					fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049
					RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353
					FEED	229	248	312	401	492	522	530	399	358	265
	5		0.05D	2.5D	Vc	35	40	40	45	45	45	50	50	50	50
					fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033
					RPM	5570	4244	3183	2865	2387	1790	1592	1326	995	796
					FEED	89	119	127	160	201	201	210	186	139	105
	6-7	Low alloy steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85
					fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049
					RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353
					FEED	229	248	312	401	492	522	530	399	358	265
	8-9		0.05D	2.5D	Vc	35	40	40	45	45	45	50	50	50	50
					fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033
					RPM	5570	4244	3183	2865	2387	1790	1592	1326	995	796
					FEED	89	119	127	160	201	201	210	186	139	105
	10	High alloyed steel, and tool steel	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85
					fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049
					RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353
					FEED	229	248	312	401	492	522	530	399	358	265
	11.1 - 11.2		0.05D	2.5D	Vc	35	40	40	45	45	45	50	50	50	50
					fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033
					RPM	5570	4244	3183	2865	2387	1790	1592	1326	995	796
					FEED	89	119	127	160	201	201	210	186	139	105
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	2.5D	Vc	60	65	70	75	80	80	85	80	90	85
					fz	0.006	0.009	0.014	0.021	0.029	0.041	0.049	0.047	0.05	0.049
					RPM	9549	6897	5570	4775	4244	3183	2706	2122	1790	1353
					FEED	229	248	312	401	492	522	530	399	358	265
H	38.1 - 38.2	Hardened steel	0.02D	2.0D	Vc	20	25	25	30	30	30	30	30	30	30
					fz	0.004	0.006	0.008	0.011	0.016	0.021	0.027	0.026	0.026	0.027
					RPM	3183	2653	1989	1910	1592	1194	955	796	597	477
					FEED	51	64	64	84	102	100	103	83	62	52
	40	Chilled Cast Iron	0.05D	2.5D	Vc	35	40	40	45	45	45	50	50	50	50
					fz	0.004	0.007	0.010	0.014	0.021	0.028	0.033	0.035	0.035	0.033
					RPM	5570	4244	3183	2865	2387	1790	1592	1326	995	796
					FEED	89	119	127	160	201	201	210	186	139	105
	41	Hardened Cast Iron	0.02D	2.0D	Vc	20	25	25	30	30	30	30	30	30	30
					fz	0.004	0.006	0.008	0.011	0.016	0.021	0.027	0.026	0.026	0.027
					RPM	3183	2653	1989	1910	1592	1194	955	796	597	477
					FEED	51	64	64	84	102	100	103	83	62	52



X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM812 SERIES — 6&8 FLUTE - SIDE CUTTING



Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.1D	1.5D	Vc	105	110	110	110	110	105
					fz	0.06	0.079	0.099	0.099	0.1	0.075
					RPM	5570	4377	3501	2918	2188	1671
					FEED	2005	2075	2080	1733	1313	1003
	5		0.05D	1.5D	Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
					RPM	3979	2984	2387	1989	1492	1194
					FEED	1409	1397	1404	1158	886	716
	6-7	Low alloy steel	0.1D	1.5D	Vc	105	110	110	110	110	105
					fz	0.06	0.079	0.099	0.099	0.1	0.075
					RPM	5570	4377	3501	2918	2188	1671
					FEED	2005	2075	2080	1733	1313	1003
	8-9		0.05D	1.5D	Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
					RPM	3979	2984	2387	1989	1492	1194
					FEED	1409	1397	1404	1158	886	716
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	105	110	110	110	110	105
					fz	0.06	0.079	0.099	0.099	0.1	0.075
					RPM	5570	4377	3501	2918	2188	1671
					FEED	2005	2075	2080	1733	1313	1003
	11.1 - 11.2		0.05D	1.5D	Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
					RPM	3979	2984	2387	1989	1492	1194
					FEED	1409	1397	1404	1158	886	716
H	38.1	Hardened steel	0.05D	1.5D	Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
					RPM	3979	2984	2387	1989	1492	1194
					FEED	1409	1397	1404	1158	886	716
	38.2		0.05D	1.0D	Vc	30	30	30	30	35	30
					fz	0.022	0.030	0.035	0.036	0.035	0.027
					RPM	1592	1194	955	796	696	477
					FEED	210	215	201	172	146	103
	40	Chilled Cast Iron	0.05D	1.5D	Vc	75	75	75	75	75	75
					fz	0.059	0.078	0.098	0.097	0.099	0.075
					RPM	3979	2984	2387	1989	1492	1194
					FEED	1409	1397	1404	1158	886	716
	41	Hardened Cast Iron	0.05D	1.0D	Vc	30	30	30	30	35	30
					fz	0.022	0.030	0.035	0.036	0.035	0.027
					RPM	1592	1194	955	796	696	477
					FEED	210	215	201	172	146	103

HIGH SPEED

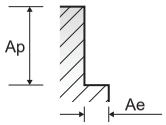
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	1-5	Non-alloy steel	0.05D	1.5D	Vc	325	325	320	325	325	325
					fz	0.06	0.081	0.1	0.1	0.1	0.076
					RPM	17242	12931	10186	8621	6466	5173
					FEED	6207	6285	6112	5173	3879	3145
	6-9	Low alloy steel	0.05D	1.5D	Vc	325	325	320	325	325	325
					fz	0.06	0.081	0.1	0.1	0.1	0.076
					RPM	17242	12931	10186	8621	6466	5173
					FEED	6207	6285	6112	5173	3879	3145
	10 - 11.2	High alloyed steel, and tool steel	0.05D	1.5D	Vc	325	325	320	325	325	325
					fz	0.06	0.081	0.1	0.1	0.1	0.076
					RPM	17242	12931	10186	8621	6466	5173
					FEED	6207	6285	6112	5173	3879	3145
H	38.1	Hardened steel	0.05D	1.5D	Vc	325	325	320	325	325	325
					fz	0.060	0.081	0.100	0.100	0.100	0.076
					RPM	17242	12931	10186	8621	6466	5173
					FEED	6207	6285	6112	5173	3879	3145
	38.2		0.05D	1.0D	Vc	160	160	160	160	160	160
					fz	0.060	0.081	0.101	0.100	0.100	0.073
					RPM	8488	6366	5093	4244	3183	2546
					FEED	3056	3094	3086	2546	1910	1487
	40	Chilled Cast Iron	0.05D	1.5D	Vc	325	325	320	325	325	325
					fz	0.060	0.081	0.100	0.100	0.100	0.076
					RPM	17242	12931	10186	8621	6466	5173
					FEED	6207	6285	6112	5173	3879	3145
	41	Hardened Cast Iron	0.05D	1.0D	Vc	160	160	160	160	160	160
					fz	0.060	0.081	0.101	0.100	0.100	0.073
					RPM	8488	6366	5093	4244	3183	2546
					FEED	3056	3094	3086	2546	1910	1487

X-POWER PRO END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM834 SERIES — 6 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.01D	3.0D	Vc	45	45	45	45	45	45	45
					fz	0.035	0.045	0.055	0.06	0.065	0.07	0.074
					RPM	2387	1790	1432	1194	895	716	573
					FEED	501	483	473	430	349	301	254
	5		0.01D	3.0D	Vc	30	30	30	30	30	30	30
					fz	0.035	0.044	0.050	0.053	0.061	0.067	0.071
					RPM	1592	1194	955	796	597	477	382
					FEED	334	315	286	253	218	192	163
	6-7	Low alloy steel	0.01D	3.0D	Vc	45	45	45	45	45	45	45
					fz	0.035	0.045	0.055	0.06	0.065	0.07	0.074
					RPM	2387	1790	1432	1194	895	716	573
					FEED	501	483	473	430	349	301	254
	8-9		0.01D	3.0D	Vc	30	30	30	30	30	30	30
					fz	0.035	0.044	0.050	0.053	0.061	0.067	0.071
					RPM	1592	1194	955	796	597	477	382
					FEED	334	315	286	253	218	192	163
	10	High alloyed steel, and tool steel	0.01D	3.0D	Vc	45	45	45	45	45	45	45
					fz	0.035	0.045	0.055	0.06	0.065	0.07	0.074
					RPM	2387	1790	1432	1194	895	716	573
					FEED	501	483	473	430	349	301	254
	11.1 - 11.2		0.01D	3.0D	Vc	30	30	30	30	30	30	30
					fz	0.035	0.044	0.050	0.053	0.061	0.067	0.071
					RPM	1592	1194	955	796	597	477	382
					FEED	334	315	286	253	218	192	163
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.01D	3.0D	Vc	45	45	45	45	45	45	45
					fz	0.035	0.045	0.055	0.06	0.065	0.07	0.074
					RPM	2387	1790	1432	1194	895	716	573
					FEED	501	483	473	430	349	301	254
H	38.1 - 38.2	Hardened steel	0.005D	3.0D	Vc	25	25	25	25	25	25	25
					fz	0.030	0.038	0.046	0.051	0.054	0.060	0.064
					RPM	1326	995	796	663	497	398	318
					FEED	239	227	220	203	161	143	122
	40	Chilled Cast Iron	0.01D	3.0D	Vc	30	30	30	30	30	30	30
					fz	0.035	0.044	0.050	0.053	0.061	0.067	0.071
					RPM	1592	1194	955	796	597	477	382
					FEED	334	315	286	253	218	192	163
	41	Hardened Cast Iron	0.005D	3.0D	Vc	25	25	25	25	25	25	25
					fz	0.030	0.038	0.046	0.051	0.054	0.060	0.064
					RPM	1326	995	796	663	497	398	318
					FEED	239	227	220	203	161	143	122



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

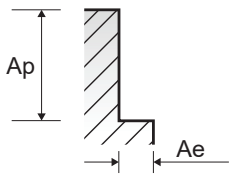
X-POWER PRO END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GM814 SERIES — 3&4 FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	310	305	305	315	315	315
					fz	0.05	0.067	0.063	0.075	0.1	0.113
					RPM	16446	12136	9708	8356	6267	5013
					FEED	2467	2439	2447	2507	2507	2266
	5		0.3D	1.5D	Vc	245	245	250	240	255	240
					fz	0.023	0.030	0.028	0.033	0.040	0.039
					RPM	12998	9748	7958	6366	5073	3820
					FEED	897	877	891	840	812	596
	6-7	Low alloy steel	0.3D	1.5D	Vc	310	305	305	315	315	315
					fz	0.05	0.067	0.063	0.075	0.1	0.113
					RPM	16446	12136	9708	8356	6267	5013
					FEED	2467	2439	2447	2507	2507	2266
	8-9		0.3D	1.5D	Vc	245	245	250	240	255	240
					fz	0.023	0.030	0.028	0.033	0.040	0.039
					RPM	12998	9748	7958	6366	5073	3820
					FEED	897	877	891	840	812	596
	10	High alloyed steel, and tool steel	0.3D	1.5D	Vc	310	305	305	315	315	315
					fz	0.05	0.067	0.063	0.075	0.1	0.113
					RPM	16446	12136	9708	8356	6267	5013
					FEED	2467	2439	2447	2507	2507	2266
	11.1 - 11.2		0.3D	1.5D	Vc	245	245	250	240	255	240
					fz	0.023	0.030	0.028	0.033	0.040	0.039
					RPM	12998	9748	7958	6366	5073	3820
					FEED	897	877	891	840	812	596
M	14.1	Stainless steel	0.3D	1.5D	Vc	165	165	170	165	175	160
					fz	0.023	0.03	0.028	0.034	0.039	0.038
					RPM	8754	6565	5411	4377	3482	2546
					FEED	604	591	606	595	543	387
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.3D	1.5D	Vc	310	305	305	315	315	315
					fz	0.05	0.067	0.063	0.075	0.1	0.113
					RPM	16446	12136	9708	8356	6267	5013
					FEED	2467	2439	2447	2507	2507	2266
H	38.1 - 38.2	Hardened steel	0.05D	1.0D	Vc	65	65	65	65	65	65
					fz	0.026	0.033	0.036	0.039	0.034	0.038
					RPM	3448	2586	2069	1724	1293	1035
					FEED	269	256	298	269	176	157
	40	Chilled Cast Iron	0.3D	1.5D	Vc	245	245	250	240	255	240
					fz	0.023	0.030	0.028	0.033	0.040	0.039
					RPM	12998	9748	7958	6366	5073	3820
					FEED	897	877	891	840	812	596
	41	Hardened Cast Iron	0.05D	1.0D	Vc	65	65	65	65	65	65
					fz	0.026	0.033	0.036	0.039	0.034	0.038
					RPM	3448	2586	2069	1724	1293	1035
					FEED	269	256	298	269	176	157



Leading Through Innovation

SOLID CARBIDE

TitaNox-POWER END MILLS

TitaNox-Power VHM - Schaftfräser

- High Speed Machining for Exotic Materials: Titanium and Stainless Steels
- Hochgeschwindigkeitsbearbeitung von Sonderwerkstoffen: Titan und rostfreie Stähle

SELECTION GUIDE

YG MILLING TOOLS

SOLID CARBIDE

TitaNox-POWER END MILLS

High Speed Machining for Exotic Materials: Titanium and Stainless Steels

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C388

SERIES	GMG40 GMG41	GMG28 GMG29	GMG30 GMG31	GMG24 GMG25	GMG26 GMG27	EHE54 EHE55
FLUTE	4	5	5	5	5	5
HELIX ANGLE	43°/45°	43°/44°/45°	43°/44°/45°	43°/44°/45°	43°/44°/45°	40°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	ROUGHING CORNER RADIUS
SIZE MIN	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
PAGE	C380	C382	C383	C385	C386	C387
	LONG LENGTH DOUBLE CORE	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	-
	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	TiAlN

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	GMG40 GMG41	GMG28 GMG29	GMG30 GMG31	GMG24 GMG25	GMG26 GMG27	EHE54 EHE55	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○	○	○		P 1
	2		About 0.45% C	Annealed	190	13	○	○	○	○	○		2
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○	○	○		3
	4		About 0.75% C	Annealed	270	28	○	○	○	○	○		4
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	○		5
	6	Low alloy steel		Annealed	180	10	○	○	○	○	○		6
	7			Quenched & Tempered	275	29	○	○	○	○	○		7
	8			Quenched & Tempered	300	32	○	○	○	○	○		8
	9			Quenched & Tempered	350	38	○	○	○	○	○		9
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○	○		10
	11			Quenched & Tempered	325	35	○	○	○	○			11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎	◎	◎	○	M 12
	13		Martensitic	Quenched & Tempered	240	23	◎	◎	◎	◎	◎	○	13
	14		Austenitic		180	10	◎	◎	◎	◎	◎	○	14
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	○	○		K 15
	16		Pearlitic (Martensitic)		260	26	○	○	○	○	○		16
	17	Nodular cast iron	Ferritic		160	3	○	○	○	○	○		17
	18		Pearlitic		250	25	○	○	○	○	○		18
	19	Malleable cast iron	Ferritic		130		○	○	○	○	○		19
	20		Pearlitic		230	21	○	○	○	○	○		20
N	21	Aluminum-wrought alloy	Not Curable		60								N 21
	22		Curable	Hardened	100								22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75								23
	24		≤ 12% Si, Curable	Hardened	90								24
	25		> 12% Si, Not Curable		130								25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110								26
	27		CuZn, CuSnZn (Brass)		90								27
	28		CuSn, lead-free copper and electrolytic copper		100								28
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic										29
	30		Rubber, Wood, etc.										30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○	○	○	S 31
	32			Cured	280	30	○	○	○	○	○	○	32
	33		Ni or Co Based	Annealed	250	25	○	○	○	○	○	○	33
	34			Cured	350	38	○	○	○	○	○	○	34
	35			Cast	320	34	○	○	○	○	○	○	35
	36	Titanium Alloys	Pure Titanium		400 Rm		◎	◎	◎	◎	◎	◎	36
	37		Alpha + Beta Alloys	Hardened	1050 Rm		◎	◎	◎	◎	◎	◎	37
H	38	Hardened steel		Hardened	550	55							H 38
	39			Hardened	630	60							39
	40	Chilled Cast Iron		Cast	400	42							40
	41	Hardened Cast Iron		Hardened	550	55							41

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
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ALU-POWER HPC END MILLS
ALU-POWER END MILLS
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CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TitaNox-POWER END MILLS

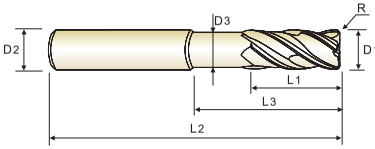
PLAIN SHANK **GMG40** SERIES
FLAT SHANK **GMG41** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE

VOLLHARTMETALL, 4 SCHNEIDEN ECKRADIUS mit DOPPELKERN
CARBURE, 4 DENTS, TORIQUE AVEC ÂME DOUBLE
FRESA IN MD, 4 TAGLIENTI, TORICA, DOUBLE CORE

▶Double core end mill has a unique flute design for excellent chip evacuation and higher rigidity.
▶The double core adds stability and aids chip flow, reducing tool deflection, improving dimensional stability and workpiece accuracy.

▶Der Doppelkern hat ein einzigartiges Schneiden Design für eine exzellente Spanabfuhr und bessere Zähigkeit.
▶Der Doppelkern erhöht die Stabilität und unterstützt den Spänefluss, reduziert die Werkzeugabdrängung, verbessert die Formstabilität und die Werkstückgenauigkeit.



CARBIDE | 4 | 43°/45° | PLAIN | FLAT | Y Coating | p.C388-389

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

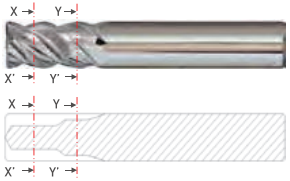
Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D_1	D_2	L_1	L_3	L_2	D_3
GMG40060	**GMG41060**	R0.5	**6.0**	6	13	20	57	5.5
GMG40901	**GMG41901**	R1.0	**6.0**	6	13	20	57	5.5
GMG40080	**GMG41080**	R0.5	**8.0**	8	19	25	63	7.5
GMG40902	**GMG41902**	R1.0	**8.0**	8	19	25	63	7.5
GMG40903	**GMG41903**	R1.5	**8.0**	8	19	25	63	7.5
GMG40904	**GMG41904**	R2.0	**8.0**	8	19	25	63	7.5
GMG40100	**GMG41100**	R0.5	**10.0**	10	22	30	72	9.2
GMG40905	**GMG41905**	R1.0	**10.0**	10	22	30	72	9.2
GMG40906	**GMG41906**	R1.5	**10.0**	10	22	30	72	9.2
GMG40907	**GMG41907**	R2.0	**10.0**	10	22	30	72	9.2
GMG40120	**GMG41120**	R0.5	**12.0**	12	26	35	83	11.0
GMG40908	**GMG41908**	R1.0	**12.0**	12	26	35	83	11.0
GMG40909	**GMG41909**	R1.5	**12.0**	12	26	35	83	11.0
GMG40910	**GMG41910**	R2.0	**12.0**	12	26	35	83	11.0
GMG40911	**GMG41911**	R3.0	**12.0**	12	26	35	83	11.0
GMG40140	**GMG41140**	R1.0	**14.0**	14	26	35	83	13.0
GMG40912	**GMG41912**	R2.0	**14.0**	14	26	35	83	13.0
GMG40160	**GMG41160**	R1.0	**16.0**	16	35	43	92	15.0

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

▶ NEXT PAGE

◆ **2 STEP CORE**



<SECTION X-X'> EXCELLENT CHIP EVACUATION

<SECTION Y-Y'> HIGHER RIGIDITY

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

TitaNox-POWER END MILLS
PLAIN SHANK GMG40 SERIES
FLAT SHANK GMG41 SERIES
CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE
VOLLHARTMETALL, 4 SCHNEIDEN ECKRADIUS mit DOPPELKERN
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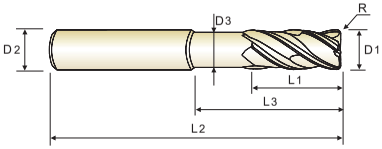


CARBIDE | 4 | 43°/45° | PLAIN | FLAT | Y Coating | p.C388-389

Recommended Tool Holder

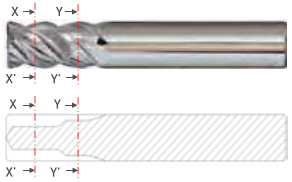
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D_1	D_2	L_1	L_3	L_2	D_3
GMG40913	**GMG41913**	R1.5	**16.0**	16	35	43	92	15.0
GMG40914	**GMG41914**	R2.0	**16.0**	16	35	43	92	15.0
GMG40915	**GMG41915**	R3.0	**16.0**	16	35	43	92	15.0
GMG40916	**GMG41916**	R4.0	**16.0**	16	35	43	92	15.0
GMG40200	**GMG41200**	R1.0	**20.0**	20	44	56	110	19.0
GMG40917	**GMG41917**	R1.5	**20.0**	20	44	56	110	19.0
GMG40918	**GMG41918**	R2.0	**20.0**	20	44	56	110	19.0
GMG40919	**GMG41919**	R3.0	**20.0**	20	44	56	110	19.0
GMG40920	**GMG41920**	R3.5	**20.0**	20	44	56	110	19.0
GMG40921	**GMG41921**	R4.0	**20.0**	20	44	56	110	19.0
GMG40250	**GMG41250**	R1.0	**25.0**	25	55	70	130	24.0
GMG40922	**GMG41922**	R1.5	**25.0**	25	55	70	130	24.0
GMG40923	**GMG41923**	R2.0	**25.0**	25	55	70	130	24.0
GMG40924	**GMG41924**	R3.0	**25.0**	25	55	70	130	24.0
GMG40925	**GMG41925**	R4.0	**25.0**	25	55	70	130	24.0

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◆ **2 STEP CORE**



<SECTION X-X'> EXCELLENT CHIP EVACUATION

<SECTION Y-Y'> HIGHER RIGIDITY

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

TitaNox-POWER END MILLS

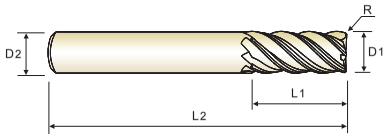
PLAIN SHANK **GMG28** SERIES
FLAT SHANK **GMG29** SERIES

CARBIDE, 5 FLUTE CORNER RADIUS SHORT LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN KURZ mit ECKRADIUS
CARBURE, 5 DENTS, TORIQUE, SÉRIE COURTE
FRESA IN MD, 5 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE | 5 | 43°/44°/45° | PLAIN | FLAT | Y Coating | p.C390

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GMG28060	**GMG29060**	R0.5	**6.0**	6	10	54
GMG28080	**GMG29080**	R0.5	**8.0**	8	12	58
GMG28100	**GMG29100**	R0.5	**10.0**	10	14	66
GMG28120	**GMG29120**	R0.5	**12.0**	12	16	73
GMG28160	**GMG29160**	R1.0	**16.0**	16	22	82
GMG28200	**GMG29200**	R1.0	**20.0**	20	26	92
GMG28250	**GMG29250**	R1.0	**25.0**	25	29	100

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

TitaNox-POWER END MILLS

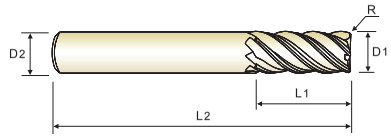
PLAIN SHANK **GMG30** SERIES
FLAT SHANK **GMG31** SERIES

CARBIDE, 5 FLUTE CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS
CARBURE, 5 DENTS, TORIQUE, SÉRIE LONGUE
FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE | 5 | 43°/44°/45° | PLAIN | FLAT | Y Coating | p.C390

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GMG30060	**GMG31060**	R0.3	**6.0**	6	13	57
GMG30901	**GMG31901**	R0.5	**6.0**	6	13	57
GMG30902	**GMG31902**	R1.0	**6.0**	6	13	57
GMG30080	**GMG31080**	R0.5	**8.0**	8	19	63
GMG30903	**GMG31903**	R1.0	**8.0**	8	19	63
GMG30904	**GMG31904**	R1.5	**8.0**	8	19	63
GMG30905	**GMG31905**	R2.0	**8.0**	8	19	63
GMG30100	**GMG31100**	R0.5	**10.0**	10	22	72
GMG30906	**GMG31906**	R1.0	**10.0**	10	22	72
GMG30907	**GMG31907**	R1.5	**10.0**	10	22	72
GMG30908	**GMG31908**	R2.0	**10.0**	10	22	72
GMG30120	**GMG31120**	R0.5	**12.0**	12	26	83
GMG30909	**GMG31909**	R1.0	**12.0**	12	26	83
GMG30910	**GMG31910**	R1.5	**12.0**	12	26	83
GMG30911	**GMG31911**	R2.0	**12.0**	12	26	83
GMG30912	**GMG31912**	R2.5	**12.0**	12	26	83
GMG30913	**GMG31913**	R3.0	**12.0**	12	26	83
GMG30160	**GMG31160**	R1.0	**16.0**	16	36	92
GMG30914	**GMG31914**	R1.5	**16.0**	16	36	92
GMG30915	**GMG31915**	R2.0	**16.0**	16	36	92
GMG30916	**GMG31916**	R2.5	**16.0**	16	36	92
GMG30917	**GMG31917**	R3.0	**16.0**	16	36	92

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

TitaNox-POWER END MILLS

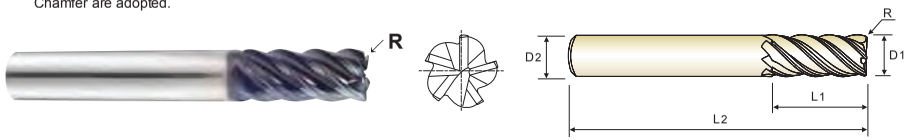
PLAIN SHANK **GMG30** SERIES
FLAT SHANK **GMG31** SERIES

CARBIDE, 5 FLUTE CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS
CARBURE, 5 DENTS, TORIQUE, SÉRIE LONGUE
FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE | 5 | 43°/44°/45° | PLAIN | FLAT | Y Coating

p.C390

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GMG30918	**GMG31918**	R4.0	**16.0**	16	36	92
GMG30200	**GMG31200**	R1.0	**20.0**	20	44	104
GMG30919	**GMG31919**	R1.5	**20.0**	20	44	104
GMG30920	**GMG31920**	R2.0	**20.0**	20	44	104
GMG30921	**GMG31921**	R2.5	**20.0**	20	44	104
GMG30922	**GMG31922**	R3.0	**20.0**	20	44	104
GMG30923	**GMG31923**	R4.0	**20.0**	20	44	104
GMG30924	**GMG31924**	R5.0	**20.0**	20	44	104
GMG30250	**GMG31250**	R1.0	**25.0**	25	54	121
GMG30925	**GMG31925**	R1.5	**25.0**	25	54	121
GMG30926	**GMG31926**	R2.0	**25.0**	25	54	121
GMG30927	**GMG31927**	R2.5	**25.0**	25	54	121
GMG30928	**GMG31928**	R3.0	**25.0**	25	54	121
GMG30929	**GMG31929**	R4.0	**25.0**	25	54	121
GMG30930	**GMG31930**	R5.0	**25.0**	25	54	121

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

TitaNox-POWER END MILLS

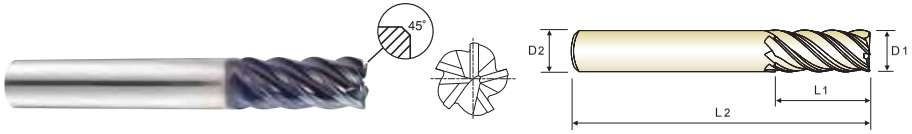
PLAIN SHANK **GMG24** SERIES
FLAT SHANK **GMG25** SERIES

CARBIDE, 5 FLUTE SHORT LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN KURZ
CARBURE, 5 DENTS, SÉRIE COURTE
FRESA IN MD, 5 TAGLIENTI, SERIE CORTA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE | 5 | 43°/44°/45° | PLAIN | FLAT | C x 45° | Y Coating

p.C391

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_2	
GMG24060	**GMG25060**	**6.0**	6	10	54	0.20
GMG24080	**GMG25080**	**8.0**	8	12	58	0.20
GMG24100	**GMG25100**	**10.0**	10	14	66	0.30
GMG24120	**GMG25120**	**12.0**	12	16	73	0.35
GMG24160	**GMG25160**	**16.0**	16	22	82	0.40
GMG24200	**GMG25200**	**20.0**	20	26	92	0.50
GMG24250	**GMG25250**	**25.0**	25	29	100	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

TitaNox-POWER END MILLS

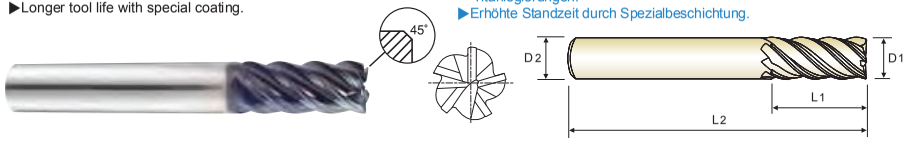
PLAIN SHANK **GMG26** SERIES
FLAT SHANK **GMG27** SERIES

CARBIDE, 5 FLUTE LONG LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN LANG
CARBURE, 5 DENTS, SÉRIE LONGUE
FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for Titanium, Titanium Alloys, Inconel and Stainless Steels.
- ▶ Optimized flute design for chip evacuation and rigidity when machining difficult-to-cut materials.
- ▶ Special roughing profile for machining Titanium and Titanium Alloys.
- ▶ Longer tool life with special coating.

- ▶ Einsetzbar für Titan, Titanlegierungen, Nickellegierungen und rostfreie Stähle.
- ▶ Verbessertes Schneidendesign für eine optimale Spanabfuhr und Stabilität beim Bearbeiten von schwer zerspanbaren Materialien.
- ▶ Spezielles Schruppprofil zum Bearbeiten von Titan und Titanlegierungen.
- ▶ Erhöhte Standzeit durch Spezialbeschichtung.



CARBIDE | 5 | 43°/44°/45° | PLAIN | FLAT | C x 45° | Y Coating | p.C391

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_2	
GMG26060	GMG27060	6.0	6	13	57	0.20
GMG26080	GMG27080	8.0	8	19	63	0.20
GMG26100	GMG27100	10.0	10	22	72	0.30
GMG26120	GMG27120	12.0	12	26	83	0.35
GMG26160	GMG27160	16.0	16	36	92	0.40
GMG26200	GMG27200	20.0	20	44	104	0.50
GMG26250	GMG27250	25.0	25	54	121	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	○	○	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

TitaNox-POWER END MILLS

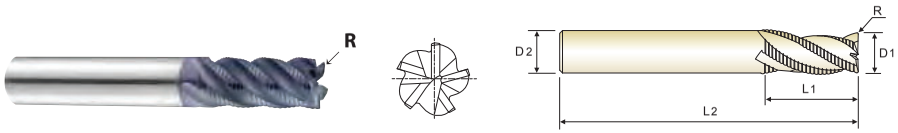
PLAIN SHANK **EHE54** SERIES
FLAT SHANK **EHE55** SERIES

CARBIDE, 5 FLUTE 40˚ HELIX CORNER RADIUS ROUGHING - FINE

VOLLHARTMETALL, 5 SCHNEIDEN 40° HELIX mit ECKRADIUS FÜR FEINSCHRUPPEN
CARBURE, 5 DENTS, HÉLICE 40°, TORIQUE, ÉBAUCHE PAS FINS
FRESA IN MD, 5 TAGLIENTI, ELICA 40°, TORICA, BOMBATO FINE

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶ Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶ Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶ Durch die Fase und den Eckradius werden Ausbrüche verhindert.



CARBIDE | 5 | 40° | HR | PLAIN | FLAT | Y Coating | p.C391

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1 (h10)	D_2 (h6)	L_1	L_2
EHE54060	EHE55060	R0.2	6.0	6	16	57
EHE54080	EHE55080	R0.2	8.0	8	16	63
EHE54100	EHE55100	R0.3	10.0	10	22	72
EHE54120	EHE55120	R0.3	12.0	12	26	83
EHE54140	EHE55140	R0.3	14.0	14	26	83
EHE54160	EHE55160	R0.3	16.0	16	32	92
EHE54200	EHE55200	R0.3	20.0	20	38	104
EHE54250	EHE55250	R0.3	25.0	25	45	121

Tolerances according to DIN 7160 & 7161

	Tolerance range in ㎛				
	Nominal-Diameter in ㎜				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h5	0 - 4	0 - 5	0 - 6	0 - 8	0 - 9

* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend												○	○	○						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

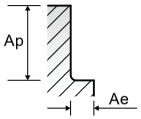
TitaNox-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GMG40, GMG41 SERIES — 4 FLUTES CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.4D	1.0D	Vc	160	160	160	160	160	160	160	160
					fz	0.027	0.035	0.042	0.053	0.058	0.063	0.077	0.084
					RPM	8488	6366	5093	4244	3638	3183	2546	2037
					FEED	917	891	856	900	844	802	784	684
	5	Low alloy steel	0.4D	1.0D	Vc	150	150	150	150	150	150	150	150
					fz	0.025	0.035	0.042	0.049	0.056	0.063	0.070	0.084
					RPM	7958	5968	4775	3979	3410	2984	2387	1910
					FEED	796	836	802	780	764	752	668	642
	6-7		0.4D	1.0D	Vc	160	160	160	160	160	160	160	160
					fz	0.027	0.035	0.042	0.053	0.058	0.063	0.077	0.084
					RPM	8488	6366	5093	4244	3638	3183	2546	2037
					FEED	917	891	856	900	844	802	784	684
	8		0.4D	1.0D	Vc	150	150	150	150	150	150	150	150
					fz	0.025	0.035	0.042	0.049	0.056	0.063	0.070	0.084
					RPM	7958	5968	4775	3979	3410	2984	2387	1910
					FEED	796	836	802	780	764	752	668	642
	9		0.4D	1.0D	Vc	150	150	150	150	150	150	150	150
					fz	0.027	0.035	0.046	0.053	0.060	0.067	0.077	0.084
					RPM	7958	5968	4775	3979	3410	2984	2387	1910
					FEED	859	836	879	844	819	800	735	642
	10-11.1	High alloyed steel, and tool steel	0.4D	1.0D	Vc	150	150	150	150	150	150	150	150
					fz	0.027	0.035	0.046	0.053	0.060	0.067	0.077	0.084
					RPM	7958	5968	4775	3979	3410	2984	2387	1910
					FEED	859	836	879	844	819	800	735	642
M	12-13	Stainless steel	0.4D	1.0D	Vc	155	155	155	155	155	155	155	155
					fz	0.034	0.046	0.057	0.067	0.076	0.086	0.095	0.114
					RPM	8223	6167	4934	4112	3524	3084	2467	1974
					FEED	1118	1135	1125	1102	1071	1061	937	900
	14.1		0.4D	1.0D	Vc	105	105	105	105	105	105	105	105
					fz	0.025	0.034	0.042	0.048	0.055	0.062	0.071	0.081
					RPM	5570	4178	3342	2785	2387	2089	1671	1337
					FEED	557	568	561	535	525	518	475	433
	14.2		0.4D	0.6D	Vc	44	44	44	44	44	44	44	44
					fz	0.016	0.021	0.027	0.032	0.036	0.040	0.046	0.052
					RPM	2334	1751	1401	1167	1000	875	700	560
					FEED	149	147	151	149	144	140	129	117
K	15-20	Grey cast iron	0.4D	1.0D	Vc	175	175	175	175	175	175	175	175
					fz	0.021	0.028	0.035	0.042	0.048	0.053	0.060	0.070
					RPM	9284	6963	5570	4642	3979	3482	2785	2228
					FEED	780	780	780	780	764	738	668	624
S	31-35	Heat Resistant Super Alloys	0.3D	0.6D	Vc	32	32	32	32	32	32	32	32
					fz	0.020	0.026	0.032	0.038	0.044	0.048	0.055	0.065
					RPM	1698	1273	1019	849	728	637	509	407
					FEED	136	132	130	129	128	122	112	106
	36-37	Titanium Alloys	0.4D	1.0D	Vc	70	70	70	70	70	70	70	70
					fz	0.034	0.048	0.057	0.067	0.076	0.086	0.095	0.114
					RPM	3714	2785	2228	1857	1592	1393	1114	891
					FEED	505	535	508	498	484	479	423	406

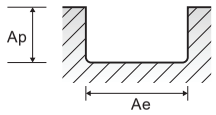


TitaNox-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GMG40, GMG41 SERIES — 4 FLUTES CORNER RADIUS - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	1.0D	1.0D	Vc	125	125	125	125	125	125	125	125
					fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.084
					RPM	6631	4974	3979	3316	2842	2487	1989	1592
					FEED	663	676	668	650	637	627	557	535
	5	Low alloy steel	1.0D	1.0D	Vc	120	120	120	120	120	120	120	120
					fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.077
					RPM	6366	4775	3820	3183	2728	2387	1910	1528
					FEED	637	649	642	624	611	602	535	471
	6-7		1.0D	1.0D	Vc	125	125	125	125	125	125	125	125
					fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.084
					RPM	6631	4974	3979	3316	2842	2487	1989	1592
					FEED	663	676	668	650	637	627	557	535
	8-9		1.0D	1.0D	Vc	120	120	120	120	120	120	120	120
					fz	0.025	0.034	0.042	0.049	0.056	0.063	0.070	0.077
					RPM	6366	4775	3820	3183	2728	2387	1910	1528
					FEED	637	649	642	624	611	602	535	471
	10-11.1	High alloyed steel, and tool steel	1.0D	1.0D	Vc	120	120	120	120	120	120	120	120
					fz	0.027	0.035	0.042	0.053	0.058	0.063	0.077	0.084
					RPM	6366	4775	3820	3183	2728	2387	1910	1528
					FEED	688	668	642	675	633	602	588	513
M	12-13	Stainless steel	1.0D	1.0D	Vc	125	125	125	125	125	125	125	125
					fz	0.034	0.046	0.057	0.067	0.074	0.081	0.095	0.105
					RPM	6631	4974	3979	3316	2842	2487	1989	1592
					FEED	902	915	907	889	841	806	756	668
	14.1		1.0D	1.0D	Vc	85	85	85	85	85	85	85	85
					fz	0.025	0.034	0.042	0.048	0.055	0.062	0.071	0.081
					RPM	4509	3382	2706	2255	1933	1691	1353	1082
					FEED	451	460	455	433	425	419	384	351
	14.2		1.0D	0.5D	Vc	36	36	36	36	36	36	36	36
					fz	0.016	0.021	0.027	0.032	0.036	0.040	0.046	0.052
					RPM	1910	1432	1146	955	819	716	573	458
					FEED	122	120	124	122	118	115	105	95
K	15-20	Grey cast iron	1.0D	1.0D	Vc	140	140	140	140	140	140	140	140
					fz	0.021	0.028	0.035	0.042	0.048	0.053	0.060	0.067
					RPM	7427	5570	4456	3714	3183	2785	2228	1783
					FEED	624	624	624	624	611	590	535	478
S	31-35	Heat Resistant Super Alloys	1.0D	0.4D	Vc	25	25	25	25	25	25	25	25
					fz	0.018	0.024	0.030	0.036	0.040	0.044	0.050	0.055
					RPM	1326	995	796	663	568	497	398	318
					FEED	95	95	95	95	91	88	80	70
	36-37	Titanium Alloys	1.0D	1.0D	Vc	55	55	55	55	55	55	55	55
					fz	0.034	0.046	0.057	0.067	0.076	0.086	0.095	0.105
					RPM	2918	2188	1751	1459	1251	1094	875	700
					FEED	397	403	399	391	380	376	333	294



TitaNox-POWER END MILLS

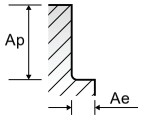
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GMG28 GMG29 GMG30 GMG31 5 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833
					FEED	1299	1089	1146	1203	1130	1089	1057	1020	926
	5	Low alloy steel	0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286
					FEED	911	764	804	844	792	764	741	715	649
	6-7		0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833
					FEED	1299	1089	1146	1203	1130	1089	1057	1020	926
	8-9		0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286
					FEED	911	764	804	844	792	764	741	715	649
	10-11.1	High alloyed steel, and tool steel	0.3D	1.5D(*)	Vc	60	60	60	60	60	60	60	60	60
					fz	0.024	0.027	0.035	0.044	0.049	0.054	0.058	0.062	0.071
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	382	322	334	350	334	322	308	296	271
M	12-13	Stainless steel	0.3D	1.5D(*)	Vc	117	117	117	117	117	117	117	117	117
					fz	0.024	0.025	0.030	0.046	0.051	0.054	0.057	0.061	0.071
					RPM	6207	4655	3724	3104	2660	2328	2069	1862	1490
					FEED	745	582	559	714	678	628	590	568	529
	14.1		0.3D	1.5D(*)	Vc	82	82	82	82	82	82	82	82	82
					fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088
					RPM	4350	3263	2610	2175	1864	1631	1450	1305	1044
					FEED	653	522	496	685	606	563	508	496	459
	14.2		0.3D	1.5D(*)	Vc	59	59	59	59	59	59	59	59	59
					fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088
					RPM	3130	2348	1878	1565	1341	1174	1043	939	751
					FEED	470	376	357	493	436	405	365	357	331
K	15-20	Grey cast iron	0.3D	1.5D(*)	Vc	106	106	106	106	106	106	106	106	106
					fz	0.043	0.048	0.063	0.079	0.087	0.096	0.103	0.111	0.126
					RPM	5623	4218	3374	2812	2410	2109	1874	1687	1350
					FEED	1209	1012	1063	1111	1048	1012	965	936	850
S	31-35	Heat Resistant Super Alloys	0.1D	1.5D	Vc	31	31	31	31	31	31	31	31	31
					fz	0.021	0.022	0.027	0.044	0.046	0.048	0.049	0.053	0.062
					RPM	1645	1233	987	822	705	617	548	493	395
					FEED	173	136	133	181	162	148	134	131	122
	36-37	Titanium Alloys	0.3D	1.5D(*)	Vc	69	69	69	69	69	69	69	69	69
					fz	0.027	0.029	0.034	0.057	0.059	0.062	0.063	0.069	0.079
					RPM	3661	2745	2196	1830	1569	1373	1220	1098	879
					FEED	494	398	373	522	463	426	384	379	347

* Maximum recommended depth shown.
* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
* Reduce speed and feed recommendations for materials harder than listed.
* Above recommendations are based on ideal conditions.
  Adjust parameters accordingly for smaller taper machining centers or less rigid conditions.



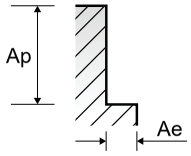
TitaNox-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GMG24 GMG25 GMG26 GMG27 5 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833
					FEED	1299	1089	1146	1203	1130	1089	1057	1020	926
	5	Low alloy steel	0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286
					FEED	911	764	804	844	792	764	741	715	649
	6-7		0.3D	1.5D(*)	Vc	144	144	144	144	144	144	144	144	144
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	7639	5730	4584	3820	3274	2865	2546	2292	1833
					FEED	1299	1089	1146	1203	1130	1089	1057	1020	926
	8-9		0.3D	1.5D(*)	Vc	101	101	101	101	101	101	101	101	101
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.083	0.089	0.101
					RPM	5358	4019	3215	2679	2296	2009	1786	1607	1286
					FEED	911	764	804	844	792	764	741	715	649
	10-11.1	High alloyed steel, and tool steel	0.3D	1.5D(*)	Vc	60	60	60	60	60	60	60	60	60
					fz	0.024	0.027	0.035	0.044	0.049	0.054	0.058	0.062	0.071
					RPM	3183	2387	1910	1592	1364	1194	1061	955	764
					FEED	382	322	334	350	334	322	308	296	271
M	12-13	Stainless steel	0.3D	1.5D(*)	Vc	117	117	117	117	117	117	117	117	117
					fz	0.024	0.025	0.030	0.046	0.051	0.054	0.057	0.061	0.071
					RPM	6207	4655	3724	3104	2660	2328	2069	1862	1490
					FEED	745	582	559	714	678	628	590	568	529
	14.1		0.3D	1.5D(*)	Vc	82	82	82	82	82	82	82	82	82
					fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088
					RPM	4350	3263	2610	2175	1864	1631	1450	1305	1044
					FEED	653	522	496	685	606	563	508	496	459
	14.2		0.3D	1.5D(*)	Vc	59	59	59	59	59	59	59	59	59
					fz	0.030	0.032	0.038	0.063	0.065	0.069	0.070	0.076	0.088
					RPM	3130	2348	1878	1565	1341	1174	1043	939	751
					FEED	470	376	357	493	436	405	365	357	331
K	15-20	Grey cast iron	0.3D	1.5D(*)	Vc	106	106	106	106	106	106	106	106	106
					fz	0.043	0.048	0.063	0.079	0.087	0.096	0.103	0.111	0.126
					RPM	5623	4218	3374	2812	2410	2109	1874	1687	1350
					FEED	1209	1012	1063	1111	1048	1012	965	936	850
S	31-35	Heat Resistant Super Alloys	0.1D	1.5D	Vc	31	31	31	31	31	31	31	31	31
					fz	0.021	0.022	0.027	0.044	0.046	0.048	0.049	0.053	0.062
					RPM	1645	1233	987	822	705	617	548	493	395
					FEED	173	136	133	181	162	148	134	131	122
	36-37	Titanium Alloys	0.3D	1.5D(*)	Vc	69	69	69	69	69	69	69	69	69
					fz	0.027	0.029	0.034	0.057	0.059	0.062	0.063	0.069	0.079
					RPM	3661	2745	2196	1830	1569	1373	1220	1098	879
					FEED	494	398	373	522	463	426	384	379	347

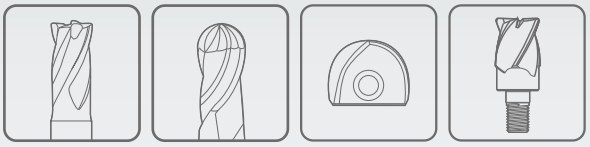
* Maximum recommended depth shown.
* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
* Reduce speed and feed recommendations for materials harder than listed.
* Above recommendations are based on ideal conditions.
  Adjust parameters accordingly for smaller taper machining centers or less rigid conditions.



EHE54, EHE55 SERIES 5 FLUTES ROUGHING - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0
M	12-13	Stainless steel	~Ø10/0.15D ~Ø16/0.10D ~Ø25/0.05D	1.5D	Vc	80	80	80	80	80	80	80	80
					fz	0.025	0.034	0.041	0.051	0.057	0.063	0.081	0.091
					RPM	4244	3183	2546	2122	1819	1592	1273	1019
					FEED	531	541	522	541	518	501	516	463
S	31-35	Heat Resistant Super Alloys	0.05D	1.0D	Vc	40	40	40	40	40	40	40	40
					fz	0.020	0.025	0.037	0.040	0.046	0.052	0.061	0.068
					RPM	2122	1592	1273	1061	909	796	637	509
					FEED	212	199	236	212	209	207	194	173
	36-37	Titanium Alloys	~Ø10/0.15D ~Ø16/0.10D ~Ø25/0.05D	1.5D	Vc	65	65	65	65	65	65	65	65
					fz	0.022	0.031	0.038	0.046	0.052	0.058	0.074	0.084
					RPM	3448	2586	2069	1724	1478	1293	1035	828
					FEED	379	401	393	397	384	375	383	348

Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

SOLID CARBIDE

JET-POWER END MILLS

JET - POWER VHM/HSS-PM - FRÄSERFRÄSER

- For Exotic materials like Stainless Steels, Nickel Alloys and Titanium
- Für Sonderwerkstoffe wie rostfreie Stähle, Nickellegierungen und Titan.

SELECTION GUIDE

YG MILLING TOOLS

SOLID CARBIDE JET-POWER END MILLS

Exotic materials like Stainless Steels
Nickel alloys and Titanium

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C405

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	EH911 EH912	EH913 EH914	EH915 EH916	EH831 EH841	EH917 EH918	EH919 EH920	EH921 EH942
			SERIES				EH911 EH912	EH913 EH914	EH915 EH916	EH831 EH841	EH917 EH918	EH919 EH920	EH921 EH942
			FLUTE				2	4	6&8	Multi Flute	Multi Flute	Multi Flute	Multi Flute
			HELIX ANGLE				35°	35°	45°	30°	45°	45°	45°
			CUTTING EDGE SHAPE				SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING	ROUGHING	ROUGHING
			SIZE MIN				D1.0	D2.0	D6.0	D6.0	D6.0	D4.0	D6.0
			SIZE MAX				D25.0	D25.0	D25.0	D25.0	D20.0	D25.0	D20.0
			PAGE				C396	C398	C400	C401	C402	C403	C404
							SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH
							TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	○	○	○	○	○	○
P	2	Non-alloy steel	About 0.45% C	Annealed	190	13	○	○	○	○	○	○	○
P	3	Non-alloy steel	About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	◎
P	4	Non-alloy steel	About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎	◎
P	5	Non-alloy steel	About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	◎
P	6	Low alloy steel		Annealed	180	10	○	○	○	○	○	○	○
P	7	Low alloy steel		Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎	◎
P	8	Low alloy steel		Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	◎
P	9	Low alloy steel		Quenched & Tempered	350	38	◎	◎	◎	◎	◎	◎	◎
P	10	High alloyed steel, and tool steel		Annealed	200	15	○	○	○	○	○	○	○
P	11	High alloyed steel, and tool steel		Quenched & Tempered	325	35	◎	◎	◎	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○	○	○	○
M	13	Stainless steel	Martensitic	Quenched & Tempered	240	23	○	○	○	○	○	○	○
M	14	Stainless steel	Austenitic		180	10	◎	◎	◎	◎	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10							
K	16	Grey cast iron	Pearlitic (Martensitic)		260	26							
K	17	Nodular cast iron	Ferritic		160	3							
K	18	Nodular cast iron	Pearlitic		250	25							
K	19	Malleable cast iron	Ferritic		130								
K	20	Malleable cast iron	Pearlitic		230	21							
N	21	Aluminum-wrought alloy	Not Curable		60								
N	22	Aluminum-wrought alloy	Curable	Hardened	100								
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75								
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	Hardened	90								
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable		130								
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110								
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90								
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper		100								
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic										
N	30	Non Metallic Materials	Rubber, Wood, etc.										
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			○	○	○	○	○
S	32	Heat Resistant Super Alloys	Fe Based	Cured	280	30			○	○	○	○	○
S	33	Heat Resistant Super Alloys	Ni or Co Based	Annealed	250	25			○	○	○	○	○
S	34	Heat Resistant Super Alloys	Ni or Co Based	Cured	350	38			○	○	○	○	○
S	35	Heat Resistant Super Alloys	Ni or Co Based	Cast	320	34			○	○	○	○	○
S	36	Titanium Alloys	Pure Titanium		400 Rm		◎	◎	◎	◎	◎	◎	◎
S	37	Titanium Alloys	Alpha + Beta Alloys	Hardened	1050 Rm		◎	◎	◎	◎	◎	◎	◎
H	38	Hardened steel		Hardened	550	55							
H	39	Hardened steel		Hardened	630	60							
H	40	Chilled Cast Iron		Cast	400	42	○	○	○	○	○	○	○
H	41	Hardened Cast Iron		Hardened	550	55							

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

JET-POWER END MILLS

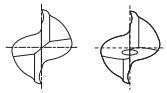
PLAIN SHANK **EH911** SERIES
FLAT SHANK **EH912** SERIES

CARBIDE, 2 FLUTE 35° HELIX SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN 35° RECHTSSPIRALE KURZ
Fraise carbure, 2 dents, hélice 35°, courte
2 TAGLIENTI, ELICA 35°, CORTA

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall.
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



up to Ø3mm over Ø3mm

CARBIDE | 2 | 35° | PLAIN | FLAT | TiAlN

p.C405

Recommended Tool Holder

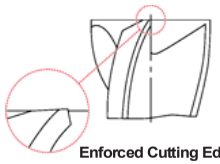
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
EH911010	-	1.0	4	2.5	40
EH911901	EH912901	1.0	6	2.5	40
EH911015	-	1.5	4	4	40
EH911902	EH912902	1.5	6	4	40
EH911020	-	2.0	4	6	40
EH911903	EH912903	2.0	6	6	40
EH911025	-	2.5	4	8	40
EH911904	EH912904	2.5	6	8	40
EH911030	EH912030	3.0	6	8	45
EH911035	EH912035	3.5	6	10	45
EH911040	EH912040	4.0	6	11	45
EH911045	EH912045	4.5	6	11	45
EH911050	EH912050	5.0	6	13	50
EH911055	EH912055	5.5	6	13	50
EH911060	EH912060	6.0	6	13	50
EH911065	EH912065	6.5	8	16	60
EH911070	EH912070	7.0	8	16	60
EH911075	EH912075	7.5	8	16	60
EH911080	EH912080	8.0	8	19	60
EH911085	EH912085	8.5	10	19	70

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



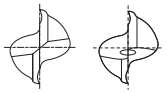
Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																◎	◎			○	

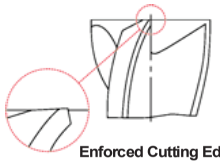
JET-POWER END MILLS
PLAIN SHANK EH911 SERIES
FLAT SHANK EH912 SERIES
CARBIDE, 2 FLUTE 35° HELIX SHORT LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN 35° RECHTSSPIRALE KURZ
Fraise carbure, 2 dents, hélice 35°, courte
2 TAGLIENTI, ELICA 35°, CORTA
▶ Ultra micro grain carbide
▶ Reduces chipping of corner edges
▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
▶ Ultra Feinstkorn - Vollhartmetall.
▶ Verstärkte Schneidkante.
▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



up to Ø3mm over Ø3mm
CARBIDE | 2 | 35° | PLAIN | FLAT | TiAlN
p.C405
Recommended Tool Holder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116
Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
EH911090	EH912090	9.0	10	19	70
EH911095	EH912095	9.5	10	19	70
EH911100	EH912100	10.0	10	22	70
EH911110	EH912110	11.0	12	22	75
EH911120	EH912120	12.0	12	26	75
EH911140	EH912140	14.0	16	26	85
EH911160	EH912160	16.0	16	32	100
EH911180	EH912180	18.0	16	32	100
EH911200	EH912200	20.0	20	38	105
EH911220	EH912220	22.0	20	38	105
EH911250	EH912250	25.0	25	45	120

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																◎	◎			○	

JET-POWER END MILLS

PLAIN SHANK **EH913** SERIES
FLAT SHANK **EH914** SERIES

CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ
Fraise carbure, 4 dents, hélice 35°, courte
4 TAGLIENTI, ELICA 35°, CORTA

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.

CARBIDE | 4 | 35° | PLAIN | FLAT | TiAlN

p.C406

Recommended Tool Holder

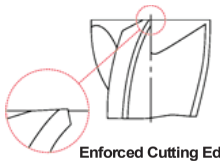
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
EH913020	-	2.0	4	6	40
EH913901	EH914901	2.0	6	6	40
EH913025	-	2.5	4	8	40
EH913902	EH914902	2.5	6	8	40
EH913030	EH914030	3.0	6	8	45
EH913035	EH914035	3.5	6	10	45
EH913040	EH914040	4.0	6	11	45
EH913045	EH914045	4.5	6	11	45
EH913050	EH914050	5.0	6	13	50
EH913055	EH914055	5.5	6	13	50
EH913060	EH914060	6.0	6	13	50
EH913065	EH914065	6.5	8	16	60
EH913070	EH914070	7.0	8	16	60
EH913075	EH914075	7.5	8	16	60
EH913080	EH914080	8.0	8	19	60
EH913085	EH914085	8.5	10	19	70
EH913090	EH914090	9.0	10	19	70
EH913095	EH914095	9.5	10	19	70
EH913100	EH914100	10.0	10	22	70
EH913110	EH914110	11.0	12	22	75

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

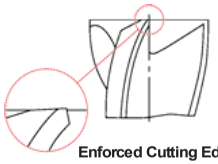
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																◎	◎			○	

JET-POWER END MILLS
PLAIN SHANK EH913 SERIES
FLAT SHANK EH914 SERIES
CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ
Fraise carbure, 4 dents, hélice 35°, courte
4 TAGLIENTI, ELICA 35°, CORTA
▶ Ultra micro grain carbide
▶ Reduces chipping of corner edges
▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
▶ Ultra Feinstkorn - Vollhartmetall
▶ Verstärkte Schneidkante.
▶ Für die Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.

CARBIDE | 4 | 35° | PLAIN | FLAT | TiAlN
p.C406
Recommended Tool Holder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
EH913120	EH914120	12.0	12	26	75
EH913140	EH914140	14.0	16	26	85
EH913160	EH914160	16.0	16	32	100
EH913180	EH914180	18.0	16	32	100
EH913200	EH914200	20.0	20	38	105
EH913220	EH914220	22.0	20	38	105
EH913250	EH914250	25.0	25	45	120

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																◎	◎			○	

JET-POWER END MILLS

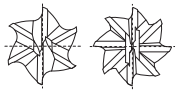
PLAIN SHANK **EH915** SERIES
FLAT SHANK **EH916** SERIES

CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH (Positive Rake Angle)

VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 6&8 dents, hélice 45°, longue (Angle de coupe positif)
6&8 TAGLIENTI, ELICA 45°, LUNGA (Tagliente positivizzato)

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



CARBIDE | 6&8 | 45° | PLAIN | FLAT | TiAlN

p.C407

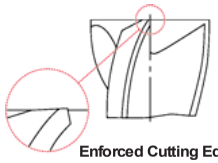
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2	No. of Flute
EH915060	EH916060	6.0	6	13	57	6
EH915070	EH916070	7.0	8	16	63	6
EH915080	EH916080	8.0	8	19	63	6
EH915090	EH916090	9.0	10	19	72	6
EH915100	EH916100	10.0	10	22	72	6
EH915120	EH916120	12.0	12	26	83	6
EH915140	EH916140	14.0	14	26	83	6
EH915160	EH916160	16.0	16	32	92	6
EH915180	EH916180	18.0	18	32	92	8
EH915200	EH916200	20.0	20	38	104	8
EH915250	EH916250	25.0	25	44	104	8

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎			○	

JET-POWER END MILLS

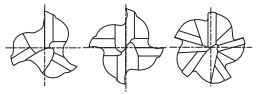
PLAIN SHANK **EH831** SERIES
FLAT SHANK **EH841** SERIES

CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN
Fraise carbure, multi-dents ébauche, pas fin, longue
3 - 4 - 5 TAGLIENTI, PER SGROSSATURA, LUNGA - Bombato fine

- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc.
- ▶ High velocity milling operation.
- ▶ Fast chip ejection.

- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen..
- ▶ Hochgeschwindigkeitsfräsen.
- ▶ Schnelle Spanausfuhr.



CARBIDE | HR | 3-5 | 30° | PLAIN | FLAT | C x 45° | TiAlN

p.C408-409

Recommended Tool Holder

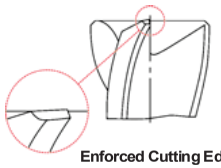
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h5	Length of Cut	Overall Length	No. of Flute	Chamfer
EH831060	EH841060	6.0	6	16	57	3	0.38
EH831070	EH841070	7.0	8	16	63	3	0.38
EH831080	EH841080	8.0	8	16	63	3	0.38
EH831090	EH841090	9.0	10	19	72	4	0.38
EH831100	EH841100	10.0	10	22	72	4	0.38
EH831120	EH841120	12.0	12	26	83	4	0.55
EH831140	EH841140	14.0	14	26	83	4	0.55
EH831160	EH841160	16.0	16	32	92	4	0.55
EH831180	EH841180	18.0	18	32	92	4	0.55
EH831200	EH841200	20.0	20	38	104	4	0.55
EH831250	EH841250	25.0	25	45	121	5	0.55

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛	Nominal-Diameter in ㎜				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h5	0 - 4	0 - 5	0 - 6	0 - 8	0 - 9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎			○	

JET-POWER END MILLS

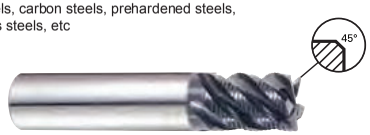
PLAIN SHANK **EH917** SERIES
FLAT SHANK **EH918** SERIES

CARBIDE, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN
Fraise carbure, multi-dents ébauche, hélice 45°, pas fin, courte
4 - 5 - 6 TAGLIENTI, ELICA 45°, PER SGROSSATURA, CORTA - Bombato fine

- Ultra micro grain carbide
- High chip removal and minimizing breakages of cutting edges.
- Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- Ultra Feinstkorn - Vollhartmetall
- Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



CARBIDE | HR | 4-6 | 45° | PLAIN | FLAT | C x 45° | TiAlN

p.C410-411

Recommended Tool Holder

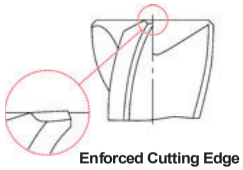
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h5	Length of Cut	Overall Length	No. of Flute	Chamfer
EH917060	EH918060	6.0	6	7	54	4	0.15
EH917080	EH918080	8.0	8	9	58	4	0.18
EH917100	EH918100	10.0	10	14	66	4	0.20
EH917120	EH918120	12.0	12	16	73	4	0.20
EH917160	EH918160	16.0	16	22	82	5	0.20
EH917200	EH918200	20.0	20	26	92	6	0.20

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛ / Nominal-Diameter in ㎜	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 / - 40	0 / - 48	0 / - 58	0 / - 70	0 / - 84
h5	0 / - 4	0 / - 5	0 / - 6	0 / - 8	0 / - 9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎			○	

JET-POWER END MILLS

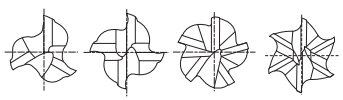
PLAIN SHANK **EH919** SERIES
FLAT SHANK **EH920** SERIES

CARBIDE, MULTI FLUTE 45° HELIX LONG LENGTH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN
Fraise carbure, multi-dents ébauche, hélice 45°, pas fin, longue
MULTITAGLIENTI, ELICA 45°, PER SGROSSATURA, LUNGA - Bombato fine

- Ultra micro grain carbide
- High chip removal and minimizing breakages of cutting edges.
- Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- Ultra Feinstkorn - Vollhartmetall
- Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



CARBIDE | HR | 3-6 | 45° | PLAIN | FLAT | C x 45° | TiAlN

p.C412-413

Recommended Tool Holder

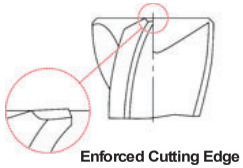
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h5	Length of Cut	Overall Length	No. of Flute	Chamfer
EH919040	EH920040	4.0	6	11	57	3	0.1
EH919050	EH920050	5.0	6	13	57	4	0.13
EH919060	EH920060	6.0	6	16	57	4	0.15
EH919070	EH920070	7.0	8	16	63	4	0.15
EH919080	EH920080	8.0	8	16	63	4	0.18
EH919090	EH920090	9.0	10	19	72	4	0.18
EH919100	EH920100	10.0	10	22	72	4	0.2
EH919120	EH920120	12.0	12	26	83	4	0.2
EH919140	EH920140	14.0	14	26	83	5	0.2
EH919160	EH920160	16.0	16	32	92	5	0.2
EH919200	EH920200	20.0	20	38	104	6	0.2
EH919250	EH920250	25.0	25	45	121	6	0.2

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛ / Nominal-Diameter in ㎜	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 / - 40	0 / - 48	0 / - 58	0 / - 70	0 / - 84
h5	0 / - 4	0 / - 5	0 / - 6	0 / - 8	0 / - 9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎			○	

JET-POWER END MILLS

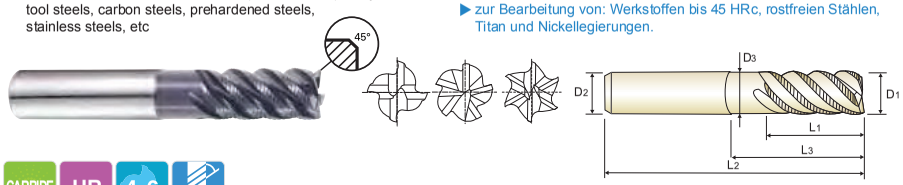
PLAIN SHANK **EH921** SERIES
FLAT SHANK **EH942** SERIES

CARBIDE, MULTI FLUTE 45° HELIX LONG REACH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE GROßE REICHWEITE SCHRUPPFRÄSER - FEIN
Fraise carbure, multi-dents ébauche longue portée, hélice 45°, pas fin
MULTITAGLIENTI, ELICA 45° SCARICATA, PER SGROSSATURA, LUNGA - Bombato fine

- Ultra micro grain carbide
- High chip removal and minimizing breakages of cutting edges.
- Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- Ultra Feinstkorn - Vollhartmetall
- Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



CARBIDE | HR | 4-6 | 45° | PLAIN | FLAT | C x 45° | TiAlN

p.C410-411

Recommended Tool Holder

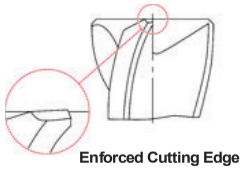
Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎ -	-	HYDRAULIC CHUCK	D15 - 46
		SHRINK FIT HOLDER	D47 - 72
○ -	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1(h10)	Shank Diameter D_2(h5)	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	No. of Flute	Chamfer
EH921060	EH942060	6.0	6	16	20	57	5.5	4	0.15
EH921080	EH942080	8.0	8	16	26	63	7.5	4	0.18
EH921100	EH942100	10.0	10	22	31	72	9.5	4	0.2
EH921120	EH942120	12.0	12	26	37	83	11.5	4	0.2
EH921160	EH942160	16.0	16	32	51	100	15.5	5	0.2
EH921200	EH942200	20.0	20	38	59	110	19.2	6	0.2

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm / Nominal-Diameter in mm: from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 / - 40	0 / - 48	0 / - 58	0 / - 70	0 / - 84
h5	0 / - 4	0 / - 5	0 / - 6	0 / - 8	0 / - 9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	◎	◎	◎	○	◎	◎	◎	○	◎	○	○	◎						

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎			○	

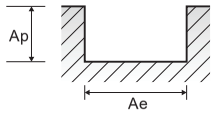
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH911, EH912 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	1.0D	0.5D (up to Ø3:0.2D)	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.008	0.012	0.02	0.025	0.031	0.045	0.051	0.051	0.05	0.051	0.048
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	191	216	302	318	345	376	325	284	219	170	128
	5		1.0D	0.5D (up to Ø3:0.2D)	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.008	0.013	0.019	0.025	0.033	0.04	0.04	0.039	0.04	0.038	0.042
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	127	138	181	191	228	207	166	134	111	79	70
	6-7	Low alloy steel	1.0D	0.5D (up to Ø3:0.2D)	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.008	0.012	0.02	0.025	0.031	0.045	0.051	0.051	0.05	0.051	0.048
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	191	216	302	318	345	376	325	284	219	170	128
	8-9		1.0D	0.5D (up to Ø3:0.2D)	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.008	0.013	0.019	0.025	0.033	0.04	0.04	0.039	0.04	0.038	0.042
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	127	138	181	191	228	207	166	134	111	79	70
	10	High alloyed steel, and tool steel	1.0D	0.5D (up to Ø3:0.2D)	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.008	0.012	0.02	0.025	0.031	0.045	0.051	0.051	0.05	0.051	0.048
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	191	216	302	318	345	376	325	284	219	170	128
	11.1 - 11.2		1.0D	0.5D (up to Ø3:0.2D)	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.008	0.013	0.019	0.025	0.033	0.04	0.04	0.039	0.04	0.038	0.042
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	127	138	181	191	228	207	166	134	111	79	70
M	14.1	Stainless steel	1.0D	0.5D (up to Ø3:0.2D)	Vc	40	45	50	50	55	55	55	50	55	55	55
					fz	0.007	0.013	0.019	0.025	0.032	0.043	0.048	0.048	0.052	0.048	0.044
					RPM	6366	4775	3979	3183	2918	2188	1751	1326	1094	875	700
					FEED	89	124	151	159	187	188	168	127	114	84	62
S	36-37	Titanium Alloys	1.0D	0.5D (up to Ø3:0.2D)	Vc	40	45	50	50	55	55	55	50	55	55	55
					fz	0.007	0.013	0.019	0.025	0.032	0.043	0.048	0.048	0.052	0.048	0.044
					RPM	6366	4775	3979	3183	2918	2188	1751	1326	1094	875	700
					FEED	89	124	151	159	187	188	168	127	114	84	62
H	40	Chilled Cast Iron	1.0D	0.5D (up to Ø3:0.2D)	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.008	0.013	0.019	0.025	0.033	0.04	0.04	0.039	0.04	0.038	0.042
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	127	138	181	191	228	207	166	134	111	79	70



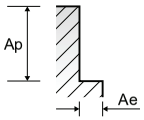
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH913, EH914 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	1.0D	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	286	325	575	611	668	702	598	524	411	321	246
	5		0.05D	1.0D	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	191	191	363	367	428	393	314	255	206	157	129
	6-7	Low alloy steel	0.05D	1.0D	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	286	325	575	611	668	702	598	524	411	321	246
	8-9		0.05D	1.0D	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	191	191	363	367	428	393	314	255	206	157	129
	10	High alloyed steel, and tool steel	0.05D	1.0D	Vc	75	85	95	100	105	105	100	105	110	105	105
					fz	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.046
					RPM	11937	9019	7560	6366	5570	4178	3183	2785	2188	1671	1337
					FEED	286	325	575	611	668	702	598	524	411	321	246
	11.1 - 11.2		0.05D	1.0D	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	191	191	363	367	428	393	314	255	206	157	129
M	14.1	Stainless steel	0.05D	1.0D	Vc	40	45	50	50	55	55	55	50	55	55	55
					fz	0.006	0.009	0.018	0.024	0.029	0.042	0.045	0.044	0.047	0.045	0.044
					RPM	6366	4775	3979	3183	2918	2188	1751	1326	1094	875	700
					FEED	153	172	286	306	338	368	315	233	206	158	123
S	36-37	Titanium Alloys	0.05D	1.0D	Vc	40	45	50	50	55	55	55	50	55	55	55
					fz	0.006	0.009	0.018	0.024	0.029	0.042	0.045	0.044	0.047	0.045	0.044
					RPM	6366	4775	3979	3183	2918	2188	1751	1326	1094	875	700
					FEED	153	172	286	306	338	368	315	233	206	158	123
H	40	Chilled Cast Iron	0.05D	1.0D	Vc	50	50	60	60	65	65	65	65	70	65	65
					fz	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.039
					RPM	7958	5305	4775	3820	3448	2586	2069	1724	1393	1035	828
					FEED	191	191	363	367	428	393	314	255	206	157	129



JET-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH915, EH916 SERIES — 6&8 FLUTE - SIDE CUTTING

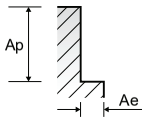
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

NORMAL SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.1D	1.5D	Vc	105	105	105	105	105	105	120
					fz	0.06	0.079	0.099	0.099	0.1	0.075	0.075
					RPM	5570	4178	3342	2785	2089	1671	1528
					FEED	2005	1980	1985	1654	1253	1003	917
	5		0.05D	1.5D	Vc	75	75	75	75	75	75	85
					fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068
					RPM	3979	2984	2387	1989	1492	1194	1082
					FEED	1409	1397	1404	1158	886	707	589
	6-7	Low alloy steel	0.1D	1.5D	Vc	105	105	105	105	105	105	120
					fz	0.06	0.079	0.099	0.099	0.1	0.075	0.075
					RPM	5570	4178	3342	2785	2089	1671	1528
					FEED	2005	1980	1985	1654	1253	1003	917
	8-9		0.05D	1.5D	Vc	75	75	75	75	75	75	85
					fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068
					RPM	3979	2984	2387	1989	1492	1194	1082
					FEED	1409	1397	1404	1158	886	707	589
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	105	105	105	105	105	105	120
					fz	0.06	0.079	0.099	0.099	0.1	0.075	0.075
					RPM	5570	4178	3342	2785	2089	1671	1528
					FEED	2005	1980	1985	1654	1253	1003	917
	11.1 - 11.2		0.05D	1.5D	Vc	75	75	75	75	75	75	85
					fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068
					RPM	3979	2984	2387	1989	1492	1194	1082
					FEED	1409	1397	1404	1158	886	707	589
M	14.1	Stainless steel	0.05D	1.5D	Vc	65	65	60	60	60	55	65
					fz	0.054	0.074	0.095	0.104	0.111	0.086	0.079
					RPM	3448	2586	1910	1592	1194	875	828
					FEED	1117	1148	1089	993	795	602	523
S	31-35	Heat Resistant Super Alloys	0.02D	1.0D	Vc	25	25	15	15	15	15	15
					fz	0.035	0.047	0.106	0.104	0.102	0.078	0.077
					RPM	1326	995	477	398	298	239	191
					FEED	279	281	304	248	183	149	118
	36-37	Titanium Alloys	0.05D	1.5D	Vc	65	65	60	60	60	55	65
					fz	0.054	0.074	0.095	0.104	0.111	0.086	0.079
					RPM	3448	2586	1910	1592	1194	875	828
					FEED	1117	1148	1089	993	795	602	523
H	40	Chilled Cast Iron	0.05D	1.5D	Vc	75	75	75	75	75	75	85
					fz	0.059	0.078	0.098	0.097	0.099	0.074	0.068
					RPM	3979	2984	2387	1989	1492	1194	1082
					FEED	1409	1397	1404	1158	886	707	589

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.1D	1.5D	Vc	420	420	420	430	420	420	470
					fz	0.060	0.079	0.100	0.099	0.100	0.075	0.075
					RPM	22282	16711	13369	11406	8356	6685	5984
					FEED	8021	7921	8021	6775	5013	4011	3591
	5		0.05D	1.5D	Vc	315	315	315	315	315	315	355
					fz	0.060	0.081	0.100	0.100	0.100	0.076	0.075
					RPM	16711	12533	10027	8356	6267	5013	4520
					FEED	6016	6091	6016	5013	3760	3048	2712
	6-7	Low alloy steel	0.1D	1.5D	Vc	420	420	420	430	420	420	470
					fz	0.060	0.079	0.100	0.099	0.100	0.075	0.075
					RPM	22282	16711	13369	11406	8356	6685	5984
					FEED	8021	7921	8021	6775	5013	4011	3591
	8-9		0.05D	1.5D	Vc	315	315	315	315	315	315	355
					fz	0.060	0.081	0.100	0.100	0.100	0.076	0.075
					RPM	16711	12533	10027	8356	6267	5013	4520
					FEED	6016	6091	6016	5013	3760	3048	2712
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	420	420	420	430	420	420	470
					fz	0.060	0.079	0.100	0.099	0.100	0.075	0.075
					RPM	22282	16711	13369	11406	8356	6685	5984
					FEED	8021	7921	8021	6775	5013	4011	3591
	11.1 - 11.2		0.05D	1.5D	Vc	315	315	315	315	315	315	355
					fz	0.060	0.081	0.100	0.100	0.100	0.076	0.075
					RPM	16711	12533	10027	8356	6267	5013	4520
					FEED	6016	6091	6016	5013	3760	3048	2712
H	40	Chilled Cast Iron	0.05D	1.5D	Vc	315	315	315	315	315	315	355
					fz	0.060	0.081	0.100	0.100	0.100	0.076	0.075
					RPM	16711	12533	10027	8356	6267	5013	4520
					FEED	6016	6091	6016	5013	3760	3048	2712



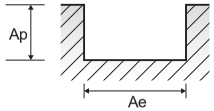
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH831, EH841 SERIES MULTI FLUTES ROUGHING - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	1.0D	0.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.03	0.04	0.038	0.045	0.053	0.06	0.067	0.068	0.06
					RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304
					FEED	1404	1394	1398	1442	1441	1442	1393	1307	1291
	5		1.0D	0.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	484	496	487	480	500	460	423	345	368
	6-7	Low alloy steel	1.0D	0.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.03	0.04	0.038	0.045	0.053	0.06	0.067	0.068	0.06
					RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304
					FEED	1404	1394	1398	1442	1441	1442	1393	1307	1291
	8-9		1.0D	0.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	484	496	487	480	500	460	423	345	368
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.03	0.04	0.038	0.045	0.053	0.06	0.067	0.068	0.06
					RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304
					FEED	1404	1394	1398	1442	1441	1442	1393	1307	1291
	11.1 - 11.2		1.0D	0.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	484	496	487	480	500	460	423	345	368
M	14.1	Stainless steel	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.1D	Vc	158	158	160	158	158	166	153	151	170
					fz	0.013	0.018	0.017	0.02	0.024	0.023	0.023	0.023	0.023
					RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165
					FEED	327	339	346	335	345	304	249	221	249
S	31-35	Heat Resistant Super Alloys	1.0D	0.05D	Vc	45	45	41	45	40	40	40	41	47
					fz	0.016	0.02	0.022	0.024	0.022	0.02	0.021	0.023	0.022
					RPM	2387	1790	1305	1194	909	796	707	653	598
					FEED	115	107	115	115	80	64	59	60	66
	36-37	Titanium Alloys	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.1D	Vc	158	158	160	158	158	166	153	151	170
					fz	0.013	0.018	0.017	0.02	0.024	0.023	0.023	0.023	0.023
					RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165
					FEED	327	339	346	335	345	304	249	221	249
H	40	Chilled Cast Iron	1.0D	0.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.013	0.018	0.016	0.02	0.024	0.024	0.024	0.024	0.023
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	484	496	487	480	500	460	423	345	368

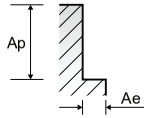


JET-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH831, EH841 SERIES MULTI FLUTES ROUGHING - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.113	0.1
					RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304
					FEED	2340	2335	2318	2403	2393	2403	2329	2173	2152
	5		0.3D	1.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	857	827	852	791	833	767	722	561	623
	6-7	Low alloy steel	0.3D	1.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.113	0.1
					RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304
					FEED	2340	2335	2318	2403	2393	2403	2329	2173	2152
	8-9		0.3D	1.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	857	827	852	791	833	767	722	561	623
	10	High alloyed steel, and tool steel	0.3D	1.5D	Vc	294	292	289	302	299	302	294	302	338
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.113	0.1
					RPM	15597	11618	9199	8011	6798	6008	5199	4806	4304
					FEED	2340	2335	2318	2403	2393	2403	2329	2173	2152
	11.1 - 11.2		0.3D	1.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	857	827	852	791	833	767	722	561	623
M	14.1	Stainless steel	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	1.5D	Vc	158	158	160	158	158	166	153	151	170
					fz	0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038
					RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165
					FEED	578	566	570	570	575	515	422	365	411
S	31-35	Heat Resistant Super Alloys	0.05D	1.0D	Vc	45	45	41	45	40	40	40	41	47
					fz	0.026	0.033	0.037	0.04	0.036	0.034	0.036	0.038	0.037
					RPM	2387	1790	1305	1194	909	796	707	653	598
					FEED	186	177	193	191	131	108	102	99	111
	36-37	Titanium Alloys	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	1.5D	Vc	158	158	160	158	158	166	153	151	170
					fz	0.023	0.03	0.028	0.034	0.04	0.039	0.039	0.038	0.038
					RPM	8382	6287	5093	4191	3592	3302	2706	2403	2165
					FEED	578	566	570	570	575	515	422	365	411
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	234	231	239	226	229	241	249	226	251
					fz	0.023	0.03	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	12414	9191	7608	5995	5207	4795	4403	3597	3196
					FEED	857	827	852	791	833	767	722	561	623



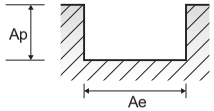
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH917 EH918 EH921 EH942 MULTI FLUTES ROUGHING - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	1.0D	0.5D	Vc	294	292	289	302	302	302
					fz	0.022	0.03	0.038	0.045	0.048	0.045
					RPM	15597	11618	9199	8011	6008	4806
					FEED	1373	1394	1398	1442	1442	1298
	5		1.0D	0.5D	Vc	234	231	239	226	241	226
					fz	0.01	0.014	0.016	0.02	0.019	0.016
					RPM	12414	9191	7608	5995	4795	3597
					FEED	497	515	487	480	455	345
	6-7	Low alloy steel	1.0D	0.5D	Vc	294	292	289	302	302	302
					fz	0.022	0.03	0.038	0.045	0.048	0.045
					RPM	15597	11618	9199	8011	6008	4806
					FEED	1373	1394	1398	1442	1442	1298
	8-9		1.0D	0.5D	Vc	234	231	239	226	241	226
					fz	0.01	0.014	0.016	0.02	0.019	0.016
					RPM	12414	9191	7608	5995	4795	3597
					FEED	497	515	487	480	455	345
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	294	292	289	302	302	302
					fz	0.022	0.03	0.038	0.045	0.048	0.045
					RPM	15597	11618	9199	8011	6008	4806
					FEED	1373	1394	1398	1442	1442	1298
	11.1 - 11.2		1.0D	0.5D	Vc	234	231	239	226	241	226
					fz	0.01	0.014	0.016	0.02	0.019	0.016
					RPM	12414	9191	7608	5995	4795	3597
					FEED	497	515	487	480	455	345
M	14.1	Stainless steel	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.10D	Vc	158	158	160	158	166	151
					fz	0.01	0.013	0.017	0.02	0.019	0.015
					RPM	8382	6287	5093	4191	3302	2403
					FEED	335	327	346	335	314	216
S	31-35	Heat Resistant Super Alloys	1.0D	0.5D	Vc	45	45	41	45	40	41
					fz	0.012	0.015	0.022	0.024	0.016	0.015
					RPM	2387	1790	1305	1194	796	653
					FEED	115	107	115	115	64	59
	36-37	Titanium Alloys	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.10D	Vc	158	158	160	158	166	151
					fz	0.01	0.013	0.017	0.02	0.019	0.015
					RPM	8382	6287	5093	4191	3302	2403
					FEED	335	327	346	335	314	216
H	40	Chilled Cast Iron	1.0D	0.5D	Vc	234	231	239	226	241	226
					fz	0.01	0.014	0.016	0.02	0.019	0.016
					RPM	12414	9191	7608	5995	4795	3597
					FEED	372	386	487	480	455	345



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

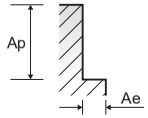
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH917 EH918 EH921 EH942 MULTI FLUTES ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	294	292	289	302	302	302
					fz	0.037	0.05	0.063	0.075	0.08	0.075
					RPM	15597	11618	9199	8011	6008	4806
					FEED	2308	2324	2318	2403	2403	2163
	5		0.3D	1.5D	Vc	234	231	239	226	241	226
					fz	0.017	0.023	0.028	0.033	0.032	0.026
					RPM	12414	9191	7608	5995	4795	3597
					FEED	844	846	852	791	767	561
	6-7	Low alloy steel	0.3D	1.5D	Vc	294	292	289	302	302	302
					fz	0.037	0.05	0.063	0.075	0.08	0.075
					RPM	15597	11618	9199	8011	6008	4806
					FEED	2308	2324	2318	2403	2403	2163
	8-9		0.3D	1.5D	Vc	234	231	239	226	241	226
					fz	0.017	0.023	0.028	0.033	0.032	0.026
					RPM	12414	9191	7608	5995	4795	3597
					FEED	844	846	852	791	767	561
	10	High alloyed steel, and tool steel	0.3D	1.5D	Vc	294	292	289	302	302	302
					fz	0.037	0.05	0.063	0.075	0.08	0.075
					RPM	15597	11618	9199	8011	6008	4806
					FEED	2308	2324	2318	2403	2403	2163
	11.1 - 11.2		0.3D	1.5D	Vc	234	231	239	226	241	226
					fz	0.017	0.023	0.028	0.033	0.032	0.026
					RPM	12414	9191	7608	5995	4795	3597
					FEED	844	846	852	791	767	561
M	14.1	Stainless steel	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	1.5D	Vc	158	158	160	158	166	151
					fz	0.017	0.023	0.028	0.034	0.031	0.025
					RPM	8382	6287	5093	4191	3302	2403
					FEED	570	578	570	570	512	360
S	31-35	Heat Resistant Super Alloys	0.05D	1.0D	Vc	45	45	41	45	40	41
					fz	0.02	0.025	0.037	0.04	0.028	0.025
					RPM	2387	1790	1305	1194	796	653
					FEED	191	179	193	191	111	98
	36-37	Titanium Alloys	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	1.5D	Vc	158	158	160	158	166	151
					fz	0.017	0.023	0.028	0.034	0.031	0.025
					RPM	8382	6287	5093	4191	3302	2403
					FEED	570	578	570	570	512	360
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	234	231	239	226	241	226
					fz	0.017	0.023	0.028	0.033	0.032	0.026
					RPM	12414	9191	7608	5995	4795	3597
					FEED	844	846	852	791	767	561



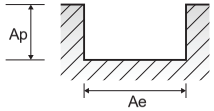
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH919, EH920 SERIES — MULTI FLUTES ROUGHING - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	1.0D	0.5D	Vc	294	294	292	289	302	299	302	302	338
					fz	0.02	0.022	0.03	0.038	0.045	0.042	0.048	0.045	0.05
					RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304
					FEED	1404	1373	1394	1398	1442	1428	1442	1298	1291
	5		1.0D	0.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	503	497	515	487	480	495	455	345	364
	6-7	Low alloy steel	1.0D	0.5D	Vc	294	294	292	289	302	299	302	302	338
					fz	0.02	0.022	0.03	0.038	0.045	0.042	0.048	0.045	0.05
					RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304
					FEED	1404	1373	1394	1398	1442	1428	1442	1298	1291
	8-9		1.0D	0.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	503	497	515	487	480	495	455	345	364
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	294	294	292	289	302	299	302	302	338
					fz	0.02	0.022	0.03	0.038	0.045	0.042	0.048	0.045	0.05
					RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304
					FEED	1404	1373	1394	1398	1442	1428	1442	1298	1291
	11.1 - 11.2		1.0D	0.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	503	497	515	487	480	495	455	345	364
M	14.1	Stainless steel	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.10D	Vc	158	158	158	160	158	158	166	151	170
					fz	0.009	0.01	0.013	0.017	0.02	0.019	0.019	0.015	0.019
					RPM	12573	8382	6287	5093	4191	3592	3302	2403	2165
					FEED	339	335	327	346	335	341	314	216	247
S	31-35	Heat Resistant Super Alloys	1.0D	0.05D	Vc	45	45	45	41	45	40	40	41	47
					fz	0.011	0.012	0.015	0.022	0.024	0.018	0.016	0.015	0.018
					RPM	3581	2387	1790	1305	1194	909	796	653	598
					FEED	118	115	107	115	115	82	64	59	65
	36-37	Titanium Alloys	1.0D	Ø4 ~10:0.25D Ø12~16:0.15D Ø18~25:0.10D	Vc	158	158	158	160	158	158	166	151	170
					fz	0.009	0.01	0.013	0.017	0.02	0.019	0.019	0.015	0.019
					RPM	12573	8382	6287	5093	4191	3592	3302	2403	2165
					FEED	339	335	327	346	335	341	314	216	247
H	40	Chilled Cast Iron	1.0D	0.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.009	0.01	0.014	0.016	0.02	0.019	0.019	0.016	0.019
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	503	497	515	487	480	495	455	345	364



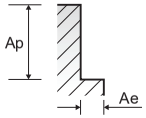
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EH919, EH920 SERIES — MULTI FLUTES ROUGHING - SIDE CUTTING

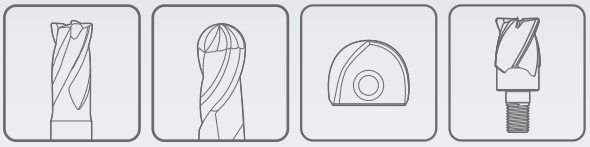
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 4.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	294	294	292	289	302	299	302	302	338
					fz	0.033	0.037	0.05	0.063	0.075	0.071	0.08	0.075	0.083
					RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304
					FEED	2316	2308	2324	2318	2403	2413	2403	2163	2143
	5		0.3D	1.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	838	844	846	852	791	833	767	561	614
	6-7	Low alloy steel	0.3D	1.5D	Vc	294	294	292	289	302	299	302	302	338
					fz	0.033	0.037	0.05	0.063	0.075	0.071	0.08	0.075	0.083
					RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304
					FEED	2316	2308	2324	2318	2403	2413	2403	2163	2143
	8-9		0.3D	1.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	838	844	846	852	791	833	767	561	614
	10	High alloyed steel, and tool steel	0.3D	1.5D	Vc	294	294	292	289	302	299	302	302	338
					fz	0.033	0.037	0.05	0.063	0.075	0.071	0.08	0.075	0.083
					RPM	23396	15597	11618	9199	8011	6798	6008	4806	4304
					FEED	2316	2308	2324	2318	2403	2413	2403	2163	2143
	11.1 - 11.2		0.3D	1.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	838	844	846	852	791	833	767	561	614
M	14.1	Stainless steel	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	1.5D	Vc	158	158	158	160	158	158	166	151	170
					fz	0.015	0.017	0.023	0.028	0.034	0.032	0.031	0.025	0.032
					RPM	12573	8382	6287	5093	4191	3592	3302	2403	2165
					FEED	566	570	578	570	570	575	512	360	416
S	31-35	Heat Resistant Super Alloys	0.05D	1.0D	Vc	45	45	45	41	45	40	40	41	47
					fz	0.018	0.02	0.025	0.037	0.04	0.029	0.028	0.025	0.031
					RPM	3581	2387	1790	1305	1194	909	796	653	598
					FEED	193	191	179	193	191	132	111	98	111
	36-37	Titanium Alloys	Ø4 ~10:0.15D Ø12~16:0.10D Ø18~25:0.05D	1.0D	Vc	158	158	158	160	158	158	166	151	170
					fz	0.015	0.017	0.023	0.028	0.034	0.032	0.031	0.025	0.032
					RPM	12573	8382	6287	5093	4191	3592	3302	2403	2165
					FEED	566	570	578	570	570	575	512	360	416
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	234	234	231	239	226	229	241	226	251
					fz	0.015	0.017	0.023	0.028	0.033	0.032	0.032	0.026	0.032
					RPM	18621	12414	9191	7608	5995	5207	4795	3597	3196
					FEED	838	844	846	852	791	833	767	561	614



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

SOLID CARBIDE

V7 PLUS END MILLS

V7 Plus VHM - Schaftfräser

- High Performance Carbide End Mills for Steels, Cast Iron and Stainless Steels

- Hochleistungs-VHM-Schaftfräser für Stähle, Gusseisen und rostfreie Stähle

SELECTION GUIDE

MILLING TOOLS

SOLID CARBIDE V7 PLUS END MILLS

High performance carbide end mills for Steels, Cast Iron and Stainless Steels

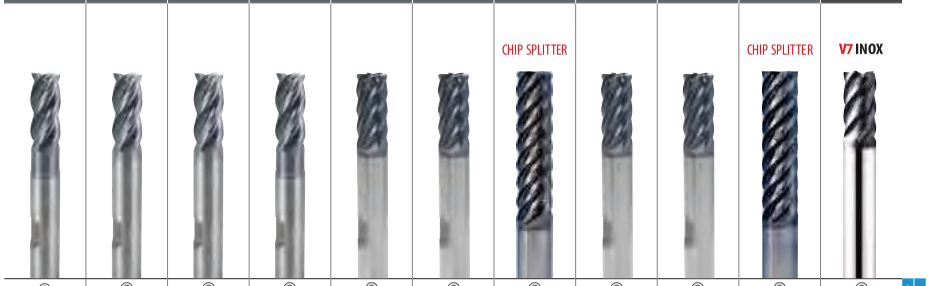
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C436

SERIES	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59
FLUTE	4	4	4
HELIX ANGLE	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)
CUTTING EDGE SHAPE	BALL NOSE	CORNER RADIUS	CORNER RADIUS
SIZE MIN	R1.5	D3.0	D3.0
SIZE MAX	R12.5	D20.0	D25.0
PAGE	C418	C419	C420
	LONG LENGTH	SHORT LENGTH	LONG LENGTH
	Y-Coating	Y-Coating	Y-Coating

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	GMG55 GMG56	GMF54 GMF55	GMF58 GMF59
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎
	11			Quenched & Tempered	325	35	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎
	13		Martensitic	Quenched & Tempered	240	23	◎	◎	◎
	14		Austenitic		180	10	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎
	19	Malleable cast iron	Ferritic		130		◎	◎	◎
	20		Pearlitic		230	21	◎	◎	◎
N	21	Aluminum-wrought alloy	Not Curable		60				
	22		Curable	Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○
	32			Cured	280	30	○	○	○
	33		Ni or Co Based	Annealed	250	25	○	○	○
	34			Cured	350	38	○	○	○
	35			Cast	320	34	○	○	○
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm		○	○	○
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			



GMF62 GMF63	GMF52 GMF53	GMF56 GMF57	GMF60 GMF61	GMG16 GMG17	GMG18 GMG19	GMH58 GMH59	GMG12 GMG13	GMG14 GMG15	GMH56 GMH57	EMB72 EMB73
4	4	4	4	6	6	6	6	6	6	5
35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	35°/37° (MULTIPLE HELIX)	45°	45°	45°	45°	45°	45°	41°~ 45°
CORNER RADIUS	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE
D3.0	D3.0	D3.0	D3.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0	D6.0
D20.0	D20.0	D25.0	D20.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
C421	C424	C425	C426	C428	C429	C431	C432	C433	C434	C435
LONG LENGTH with NECK	SHORT LENGTH	LONG LENGTH	LONG LENGTH with NECK	LONG LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH	EXTRA LONG LENGTH	EXTRA LONG LENGTH	LONG LENGTH
Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	AlTiN
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V7 PLUS END MILLS

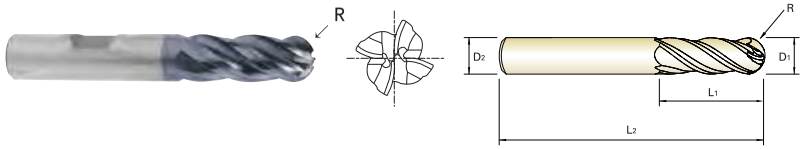
PLAIN SHANK **GMG55** SERIES
FLAT SHANK **GMG56** SERIES

CARBIDE, 4 FLUTE BALL NOSE

VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS
CARBURE, 4 DENTS, HÉMISPHÉRIQUE
MD, 4 TAGLIENTI SEMISFERICA

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | R ±0.02 | PLAIN | FLAT | Y Coating

p.C436

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎ -	-	SHRINK FIT HOLDER	D47 - 72
○ -	-	HYDRAULIC CHUCK	D15 - 46
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Radius of Ball Nose R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
GMG55030	GMG56030	R1.5	3.0	6	8	57
GMG55040	GMG56040	R2.0	4.0	6	11	57
GMG55050	GMG56050	R2.5	5.0	6	13	57
GMG55060	GMG56060	R3.0	6.0	6	13	57
GMG55080	GMG56080	R4.0	8.0	8	19	63
GMG55100	GMG56100	R5.0	10.0	10	22	72
GMG55120	GMG56120	R6.0	12.0	12	26	83
GMG55160	GMG56160	R8.0	16.0	16	32	92
GMG55200	GMG56200	R10.0	20.0	20	38	104
GMG55250	GMG56250	R12.5	25.0	25	38	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

PLAIN SHANK **GMF54** SERIES
FLAT SHANK **GMF55** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS KURZ
CARBURE, 4 DENTS, SÉRIE COURTE, RAYONNÉE
MD, 4 TAGLIENTI SERIE CORTA TORICA

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc

CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating

p.C437

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎ -	-	SHRINK FIT HOLDER	D47 - 72
○ -	-	HYDRAULIC CHUCK	D15 - 46
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
GMF54030	GMF55030	R0.3	3.0	6	7	54
GMF54901	GMF55901	R0.5	3.0	6	7	54
GMF54040	GMF55040	R0.3	4.0	6	8	54
GMF54902	GMF55902	R0.5	4.0	6	8	54
GMF54050	GMF55050	R0.3	5.0	6	10	54
GMF54903	GMF55903	R0.5	5.0	6	10	54
GMF54060	GMF55060	R0.3	6.0	6	10	54
GMF54904	GMF55904	R0.5	6.0	6	10	54
GMF54905	GMF55905	R1.0	6.0	6	10	54
GMF54080	GMF55080	R0.5	8.0	8	12	58
GMF54906	GMF55906	R1.0	8.0	8	12	58
GMF54100	GMF55100	R0.5	10.0	10	14	66
GMF54907	GMF55907	R1.0	10.0	10	14	66
GMF54120	GMF55120	R0.5	12.0	12	16	73
GMF54908	GMF55908	R1.0	12.0	12	16	73
GMF54909	GMF55909	R2.0	12.0	12	16	73
GMF54140	GMF55140	R0.5	14.0	14	18	75
GMF54160	GMF55160	R1.0	16.0	16	22	82
GMF54912	GMF55912	R2.0	16.0	16	22	82
GMF54913	GMF55913	R3.0	16.0	16	22	82
GMF54180	GMF55180	R1.0	18.0	18	24	84
GMF54200	GMF55200	R1.0	20.0	20	26	92
GMF54916	GMF55916	R2.0	20.0	20	26	92
GMF54917	GMF55917	R3.0	20.0	20	26	92

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

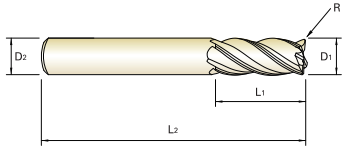
PLAIN SHANK **GMF58** SERIES
FLAT SHANK **GMF59** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS LANG
CARBURE, 4 DENTS, SÉRIE LONGUE, RAYONNÉE
MD, 4 TAGLIENTI SERIE LUNGA TORICA

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating | p.C437

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMF58030	GMF59030	R0.3	3.0	6	8	57
GMF58901	GMF59901	R0.5	3.0	6	8	57
GMF58040	GMF59040	R0.3	4.0	6	11	57
GMF58902	GMF59902	R0.5	4.0	6	11	57
GMF58050	GMF59050	R0.3	5.0	6	13	57
GMF58903	GMF59903	R0.5	5.0	6	13	57
GMF58060	GMF59060	R0.3	6.0	6	13	57
GMF58904	GMF59904	R0.5	6.0	6	13	57
GMF58905	GMF59905	R1.0	6.0	6	13	57
GMF58080	GMF59080	R0.5	8.0	8	19	63
GMF58906	GMF59906	R1.0	8.0	8	19	63
GMF58100	GMF59100	R0.5	10.0	10	22	72
GMF58907	GMF59907	R1.0	10.0	10	22	72
GMF58120	GMF59120	R0.5	12.0	12	26	83
GMF58908	GMF59908	R1.0	12.0	12	26	83
GMF58909	GMF59909	R2.0	12.0	12	26	83
GMF58140	GMF59140	R0.5	14.0	14	26	83
GMF58160	GMF59160	R1.0	16.0	16	32	92
GMF58912	GMF59912	R2.0	16.0	16	32	92
GMF58913	GMF59913	R3.0	16.0	16	32	92
GMF58180	GMF59180	R1.0	18.0	18	32	92
GMF58200	GMF59200	R1.0	20.0	20	38	104
GMF58916	GMF59916	R2.0	20.0	20	38	104
GMF58917	GMF59917	R3.0	20.0	20	38	104
GMF58250	GMF59250	R1.0	25.0	25	38	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

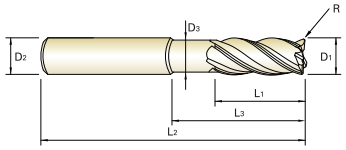
PLAIN SHANK **GMF62** SERIES
FLAT SHANK **GMF63** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM HALS
CARBURE, 4 DENTS, DÉTALONNÉE, RAYONNÉE
MD, 4 TAGLIENTI CON SCARICO ESTESO TORICA

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating | p.C437

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GMF62030	GMF63030	R0.3	3.0	6	7	12	54	2.7
GMF62901	GMF63901	R0.5	3.0	6	7	12	54	2.7
GMF62902	GMF63902	R0.3	3.0	6	7	17	57	2.7
GMF62903	GMF63903	R0.5	3.0	6	7	17	57	2.7
GMF62040	GMF63040	R0.3	4.0	6	8	15	57	3.7
GMF62904	GMF63904	R0.5	4.0	6	8	15	57	3.7
GMF62905	GMF63905	R0.3	4.0	6	8	22	63	3.7
GMF62906	GMF63906	R0.5	4.0	6	8	22	63	3.7
GMF62050	GMF63050	R0.3	5.0	6	10	17	57	4.7
GMF62907	GMF63907	R0.5	5.0	6	10	17	57	4.7
GMF62908	GMF63908	R0.3	5.0	6	10	27	67	4.7
GMF62909	GMF63909	R0.5	5.0	6	10	27	67	4.7
GMF62060	GMF63060	R0.3	6.0	6	10	15	57	5.5
GMF62910	GMF63910	R0.5	6.0	6	10	15	57	5.5
GMF62911	GMF63911	R1.0	6.0	6	10	15	57	5.5
GMF62912	GMF63912	R0.3	6.0	6	10	20	62	5.5
GMF62913	GMF63913	R0.5	6.0	6	10	20	62	5.5
GMF62914	GMF63914	R1.0	6.0	6	10	20	62	5.5
GMF62915	GMF63915	R0.3	6.0	6	10	32	74	5.5
GMF62916	GMF63916	R0.5	6.0	6	10	32	74	5.5
GMF62917	GMF63917	R1.0	6.0	6	10	32	74	5.5
GMF62080	GMF63080	R0.5	8.0	8	12	20	63	7.5
GMF62918	GMF63918	R1.0	8.0	8	12	20	63	7.5
GMF62919	GMF63919	R0.5	8.0	8	12	30	73	7.5

▶ NEXT PAGE

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

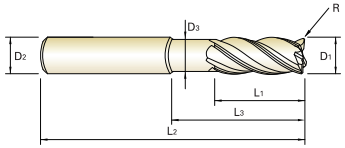
PLAIN SHANK **GMF62** SERIES
FLAT SHANK **GMF63** SERIES

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM HALS
CARBURE, 4 DENTS, DÉTALONNÉE, RAYONNÉE
MD, 4 TAGLIENTI CON SCARICO ESTESO TORICA

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating | p.C437

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
GMF62920	**GMF63920**	R1.0	**8.0**	8	12	30	73	7.5
GMF62921	**GMF63921**	R0.5	**8.0**	8	12	46	90	7.5
GMF62922	**GMF63922**	R1.0	**8.0**	8	12	46	90	7.5
GMF62100	**GMF63100**	R0.5	**10.0**	10	14	25	72	9.2
GMF62923	**GMF63923**	R1.0	**10.0**	10	14	25	72	9.2
GMF62924	**GMF63924**	R0.5	**10.0**	10	14	35	82	9.2
GMF62925	**GMF63925**	R1.0	**10.0**	10	14	35	82	9.2
GMF62926	**GMF63926**	R0.5	**10.0**	10	14	55	102	9.2
GMF62927	**GMF63927**	R1.0	**10.0**	10	14	55	102	9.2
GMF62120	**GMF63120**	R0.5	**12.0**	12	16	30	83	11.0
GMF62928	**GMF63928**	R1.0	**12.0**	12	16	30	83	11.0
GMF62929	**GMF63929**	R2.0	**12.0**	12	16	30	83	11.0
GMF62930	**GMF63930**	R0.5	**12.0**	12	16	40	93	11.0
GMF62931	**GMF63931**	R1.0	**12.0**	12	16	40	93	11.0
GMF62932	**GMF63932**	R2.0	**12.0**	12	16	40	93	11.0
GMF62933	**GMF63933**	R0.5	**12.0**	12	16	64	117	11.0
GMF62934	**GMF63934**	R1.0	**12.0**	12	16	64	117	11.0
GMF62935	**GMF63935**	R2.0	**12.0**	12	16	64	117	11.0
GMF62160	**GMF63160**	R1.0	**16.0**	16	22	38	92	15.0
GMF62936	**GMF63936**	R2.0	**16.0**	16	22	38	92	15.0
GMF62937	**GMF63937**	R3.0	**16.0**	16	22	38	92	15.0
GMF62938	**GMF63938**	R1.0	**16.0**	16	22	55	109	15.0
GMF62939	**GMF63939**	R2.0	**16.0**	16	22	55	109	15.0
GMF62940	**GMF63940**	R3.0	**16.0**	16	22	55	109	15.0

▶ NEXT PAGE

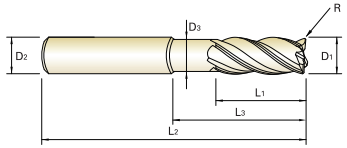
Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS
PLAIN SHANK GMF62 SERIES
FLAT SHANK GMF63 SERIES
CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM HALS
CARBURE, 4 DENTS, DÉTALONNÉE, RAYONNÉE
MD, 4 TAGLIENTI CON SCARICO ESTESO TORICA
▶Special flute geometry and multiple helix eliminate vibrations
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40
▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | Y Coating | p.C437
Recommended Tool Holder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201
Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
GMF62941	**GMF63941**	R1.0	**16.0**	16	22	87	141	15.0
GMF62942	**GMF63942**	R2.0	**16.0**	16	22	87	141	15.0
GMF62943	**GMF63943**	R3.0	**16.0**	16	22	87	141	15.0
GMF62200	**GMF63200**	R1.0	**20.0**	20	26	50	104	19.0
GMF62944	**GMF63944**	R2.0	**20.0**	20	26	50	104	19.0
GMF62945	**GMF63945**	R3.0	**20.0**	20	26	50	104	19.0
GMF62946	**GMF63946**	R1.0	**20.0**	20	26	70	124	19.0
GMF62947	**GMF63947**	R2.0	**20.0**	20	26	70	124	19.0
GMF62948	**GMF63948**	R3.0	**20.0**	20	26	70	124	19.0
GMF62949	**GMF63949**	R1.0	**20.0**	20	26	110	164	19.0
GMF62950	**GMF63950**	R2.0	**20.0**	20	26	110	164	19.0
GMF62951	**GMF63951**	R3.0	**20.0**	20	26	110	164	19.0

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

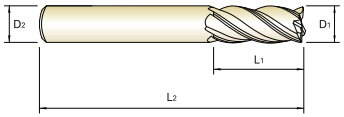
PLAIN SHANK **GMF52** SERIES
FLAT SHANK **GMF53** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
CARBURE, 4 DENTS, SÉRIE COURTE
MD, 4 TAGLIENTI SERIE CORTA

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating

p.C437

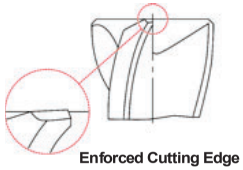
Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK ER COLLET CHUCK SK SLIM CHUCK	D15 - 46 D73 - 116 D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_2	
GMF52030	GMF53030	3.0	6	7	54	0.10
GMF52040	GMF53040	4.0	6	8	54	0.15
GMF52050	GMF53050	5.0	6	10	54	0.15
GMF52060	GMF53060	6.0	6	10	54	0.20
GMF52080	GMF53080	8.0	8	12	58	0.20
GMF52100	GMF53100	10.0	10	14	66	0.30
GMF52120	GMF53120	12.0	12	16	73	0.35
GMF52140	GMF53140	14.0	14	18	75	0.40
GMF52160	GMF53160	16.0	16	22	82	0.40
GMF52180	GMF53180	18.0	18	24	84	0.50
GMF52200	GMF53200	20.0	20	26	92	0.50

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

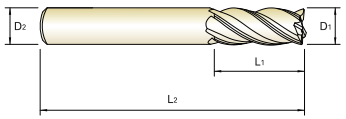
PLAIN SHANK **GMF56** SERIES
FLAT SHANK **GMF57** SERIES

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
CARBURE, 4 DENTS, SÉRIE LONGUE
MD, 4 TAGLIENTI SERIE LUNGA

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating

p.C437

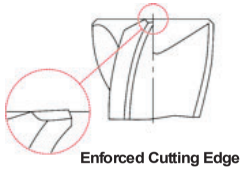
Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK ER COLLET CHUCK SK SLIM CHUCK	D15 - 46 D73 - 116 D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_2	
GMF56030	GMF57030	3.0	6	8	57	0.10
GMF56040	GMF57040	4.0	6	11	57	0.15
GMF56050	GMF57050	5.0	6	13	57	0.15
GMF56060	GMF57060	6.0	6	13	57	0.20
GMF56080	GMF57080	8.0	8	19	63	0.20
GMF56100	GMF57100	10.0	10	22	72	0.30
GMF56120	GMF57120	12.0	12	26	83	0.35
GMF56140	GMF57140	14.0	14	26	83	0.40
GMF56160	GMF57160	16.0	16	32	92	0.40
GMF56180	GMF57180	18.0	18	32	92	0.50
GMF56200	GMF57200	20.0	20	38	104	0.50
GMF56250	GMF57250	25.0	25	38	104	0.50

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

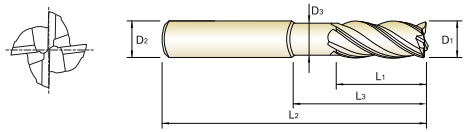
PLAIN SHANK **GMF60** SERIES
FLAT SHANK **GMF61** SERIES

CARBIDE, 4 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM HALS
CARBURE, 4 DENTS, DÉTALONNÉE
MD, 4 TAGLIENTI CON SCARICO ESTESO

- ▶Special flute geometry and multiple helix eliminate vibrations
- ▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

- ▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
- ▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating | p.C437

Recommended ToolHolder

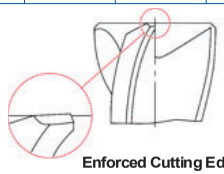
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Chamfer
GMF60030	GMF61030	3.0	6	7	12	54	2.7	0.10
GMF60901	GMF61901	3.0	6	7	17	57	2.7	0.10
GMF60902	GMF61902	3.0	6	8	14	57	2.7	0.10
GMF60040	GMF61040	4.0	6	8	15	57	3.7	0.15
GMF60903	GMF61903	4.0	6	8	22	63	3.7	0.15
GMF60904	GMF61904	4.0	6	11	16	57	3.7	0.15
GMF60050	GMF61050	5.0	6	10	17	57	4.7	0.15
GMF60905	GMF61905	5.0	6	10	27	67	4.7	0.15
GMF60906	GMF61906	5.0	6	13	18	57	4.7	0.15
GMF60060	GMF61060	6.0	6	10	15	57	5.5	0.20
GMF60907	GMF61907	6.0	6	10	20	62	5.5	0.20
GMF60908	GMF61908	6.0	6	10	32	74	5.5	0.20
GMF60909	GMF61909	6.0	6	13	21	57	5.5	0.20
GMF60080	GMF61080	8.0	8	12	20	63	7.5	0.20
GMF60910	GMF61910	8.0	8	12	30	73	7.5	0.20
GMF60911	GMF61911	8.0	8	12	46	90	7.5	0.20
GMF60912	GMF61912	8.0	8	19	27	63	7.5	0.20
GMF60100	GMF61100	10.0	10	14	25	72	9.2	0.30
GMF60913	GMF61913	10.0	10	14	35	82	9.2	0.30
GMF60914	GMF61914	10.0	10	14	55	102	9.2	0.30
GMF60915	GMF61915	10.0	10	22	32	72	9.2	0.30

▶ NEXT PAGE

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



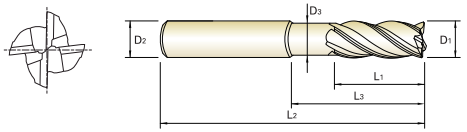
Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

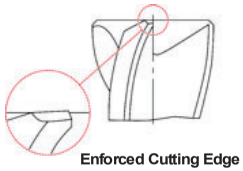
V7 PLUS END MILLS
PLAIN SHANK GMF60 SERIES
FLAT SHANK GMF61 SERIES
CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM HALS
CARBURE, 4 DENTS, DÉTALONNÉE
MD, 4 TAGLIENTI CON SCARICO ESTESO
▶Special flute geometry and multiple helix eliminate vibrations
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40
▶Die spezielle Schneidengeometrie und der ungleiche Drall verhindern Vibrationen
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 4 | 35°/37° | PLAIN | FLAT | C x 45° | Y Coating | p.C437
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201
Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3	Chamfer
GMF60120	GMF61120	12.0	12	16	30	83	11.0	0.35
GMF60916	GMF61916	12.0	12	16	40	93	11.0	0.35
GMF60917	GMF61917	12.0	12	16	64	117	11.0	0.35
GMF60918	GMF61918	12.0	12	26	38	83	11.0	0.35
GMF60160	GMF61160	16.0	16	22	38	92	15.0	0.40
GMF60919	GMF61919	16.0	16	22	55	109	15.0	0.40
GMF60920	GMF61920	16.0	16	22	87	141	15.0	0.40
GMF60921	GMF61921	16.0	16	32	44	92	15.0	0.40
GMF60200	GMF61200	20.0	20	26	50	104	19.0	0.50
GMF60922	GMF61922	20.0	20	26	70	124	19.0	0.50
GMF60923	GMF61923	20.0	20	26	110	164	19.0	0.50
GMF60924	GMF61924	20.0	20	38	54	104	19.0	0.50

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

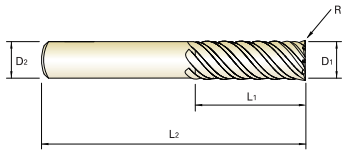
PLAIN SHANK **GMG16** SERIES
FLAT SHANK **GMG17** SERIES

CARBIDE, 6 FLUTE CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 6 SCHNEIDEN ECKENRADIUS LANG
CARBURE, 6 DENTS, SÉRIE LONGUE, RAYONNÉE
MD, 6 TAGLIENTI SERIE LUNGA TORICA

▶The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochiodales Fräsen.
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating | p.C438

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMG16060	GMG17060	R0.5	6.0	6	13	57
GMG16901	GMG17901	R1.0	6.0	6	13	57
GMG16080	GMG17080	R0.5	8.0	8	19	63
GMG16902	GMG17902	R1.0	8.0	8	19	63
GMG16100	GMG17100	R0.5	10.0	10	22	72
GMG16903	GMG17903	R1.0	10.0	10	22	72
GMG16904	GMG17904	R1.5	10.0	10	22	72
GMG16905	GMG17905	R2.0	10.0	10	22	72
GMG16120	GMG17120	R0.5	12.0	12	26	83
GMG16906	GMG17906	R1.0	12.0	12	26	83
GMG16907	GMG17907	R1.5	12.0	12	26	83
GMG16908	GMG17908	R2.0	12.0	12	26	83
GMG16909	GMG17909	R3.0	12.0	12	26	83
GMG16160	GMG17160	R1.0	16.0	16	32	92
GMG16910	GMG17910	R1.5	16.0	16	32	92
GMG16911	GMG17911	R2.0	16.0	16	32	92
GMG16912	GMG17912	R3.0	16.0	16	32	92
GMG16200	GMG17200	R1.0	20.0	20	38	104
GMG16913	GMG17913	R1.5	20.0	20	38	104
GMG16914	GMG17914	R2.0	20.0	20	38	104
GMG16915	GMG17915	R3.0	20.0	20	38	104
GMG16250	GMG17250	R1.0	25.0	25	44	104
GMG16916	GMG17916	R1.5	25.0	25	44	104
GMG16917	GMG17917	R2.0	25.0	25	44	104
GMG16918	GMG17918	R3.0	25.0	25	44	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

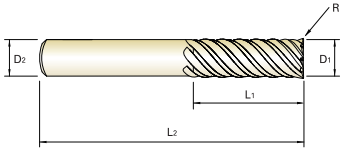
PLAIN SHANK **GMG18** SERIES
FLAT SHANK **GMG19** SERIES

CARBIDE, 6 FLUTE CORNER RADIUS EXTRA LONG LENGTH

VOLLHARTMETALL, 6 SCHNEIDEN ECKENRADIUS EXTRA LANG
CARBURE, 6 DENTS, SÉRIE EXTRA-LONGUE, RAYONNÉE
MD, 6 TAGLIENTI SERIE EXTRA LUNGA TORICA

▶The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochiodales Fräsen.
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating | p.C438

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMG18060	GMG19060	R0.5	6.0	6	24	75
GMG18901	GMG19901	R1.0	6.0	6	24	75
GMG18080	GMG19080	R0.5	8.0	8	32	75
GMG18902	GMG19902	R1.0	8.0	8	32	75
GMG18903	GMG19903	R2.0	8.0	8	32	75
GMG18100	GMG19100	R0.5	10.0	10	40	100
GMG18904	GMG19904	R1.0	10.0	10	40	100
GMG18905	GMG19905	R1.5	10.0	10	40	100
GMG18906	GMG19906	R2.0	10.0	10	40	100
GMG18120	GMG19120	R0.5	12.0	12	48	120
GMG18907	GMG19907	R1.0	12.0	12	48	120
GMG18908	GMG19908	R1.5	12.0	12	48	120
GMG18909	GMG19909	R2.0	12.0	12	48	120
GMG18910	GMG19910	R3.0	12.0	12	48	120
GMG18160	GMG19160	R1.0	16.0	16	64	140
GMG18911	GMG19911	R1.5	16.0	16	64	140
GMG18912	GMG19912	R2.0	16.0	16	64	140
GMG18913	GMG19913	R3.0	16.0	16	64	140
GMG18200	GMG19200	R1.0	20.0	20	80	150
GMG18914	GMG19914	R1.5	20.0	20	80	150
GMG18915	GMG19915	R2.0	20.0	20	80	150
GMG18916	GMG19916	R3.0	20.0	20	80	150
GMG18917	GMG19917	R4.0	20.0	20	80	150
GMG18918	GMG19918	R5.0	20.0	20	80	150

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

V7 PLUS END MILLS

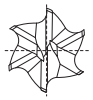
PLAIN SHANK **GMG18** SERIES
FLAT SHANK **GMG19** SERIES

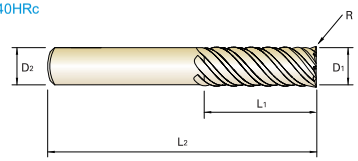
CARBIDE, 6 FLUTE CORNER RADIUS EXTRA LONG LENGTH

VOLLHARTMETALL, 6 SCHNEIDEN ECKENRADIUS EXTRA LANG
CARBURE, 6 DENTS, SÉRIE EXTRA-LONGUE, RAYONNÉE
MD, 6 TAGLIENTI SERIE EXTRA LUNGA TORICA

▶The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochiodales Fräsen.
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc





CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating | p.C438

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMG18250	GMG19250	R1.0	25.0	25	100	170
GMG18919	GMG19919	R1.5	25.0	25	100	170
GMG18920	GMG19920	R2.0	25.0	25	100	170
GMG18921	GMG19921	R3.0	25.0	25	100	170
GMG18922	GMG19922	R4.0	25.0	25	100	170
GMG18923	GMG19923	R5.0	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

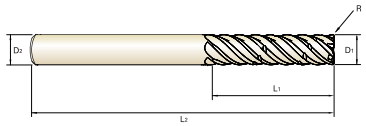
PLAIN SHANK **GMH58** SERIES
FLAT SHANK **GMH59** SERIES

6 FLUTE CORNER RADIUS EXTRA LONG LENGTH CHIP SPLITTER

VOLLHARTMETALL,6 SCHNEIDEN ECKRADIUS EXTRA LANG SPANTEILER
CARBURE, 6 dents, extra-longue, fendeur des copeaux
MD, 6 TAGLIENTI, TORICA, SERIE EXTRA LUNGA CON ROMPI TRUCIOLO

▶Special chip splitter design for better chip removal shortened chip length at high axial machining
▶High Performance for Steels, Stainless Steels and Cast Iron

▶ Spezielles Spanteilerdesign für verbesserte Spanabfuhr durch kurze Späne bei hohem axialen Eingriff
▶ Hohe Leistung bei der Bearbeiting von Stählen, rostfreien Stählen und Gusseisen.



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating | p.C439

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMH58060	GMH59060	R0.5	6.0	6	24	75
GMH58901	GMH59901	R1.0	6.0	6	24	75
GMH58080	GMH59080	R0.5	8.0	8	32	75
GMH58902	GMH59902	R1.0	8.0	8	32	75
GMH58903	GMH59903	R2.0	8.0	8	32	75
GMH58100	GMH59100	R0.5	10.0	10	40	100
GMH58904	GMH59904	R1.0	10.0	10	40	100
GMH58905	GMH59905	R1.5	10.0	10	40	100
GMH58906	GMH59906	R2.0	10.0	10	40	100
GMH58120	GMH59120	R0.5	12.0	12	48	120
GMH58907	GMH59907	R1.0	12.0	12	48	120
GMH58908	GMH59908	R1.5	12.0	12	48	120
GMH58909	GMH59909	R2.0	12.0	12	48	120
GMH58910	GMH59910	R3.0	12.0	12	48	120
GMH58160	GMH59160	R1.0	16.0	16	64	140
GMH58911	GMH59911	R1.5	16.0	16	64	140
GMH58912	GMH59912	R2.0	16.0	16	64	140
GMH58913	GMH59913	R3.0	16.0	16	64	140
GMH58200	GMH59200	R1.0	20.0	20	80	150
GMH58914	GMH59914	R1.5	20.0	20	80	150
GMH58915	GMH59915	R2.0	20.0	20	80	150
GMH58916	GMH59916	R3.0	20.0	20	80	150
GMH58917	GMH59917	R4.0	20.0	20	80	150
GMH58918	GMH59918	R5.0	20.0	20	80	150
GMH58250	GMH59250	R1.0	25.0	25	100	170
GMH58919	GMH59919	R1.5	25.0	25	100	170
GMH58920	GMH59920	R2.0	25.0	25	100	170
GMH58921	GMH59921	R3.0	25.0	25	100	170
GMH58922	GMH59922	R4.0	25.0	25	100	170
GMH58923	GMH59923	R5.0	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

V7 PLUS END MILLS

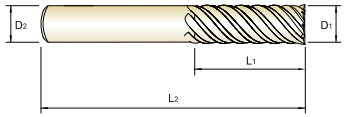
PLAIN SHANK **GMG12** SERIES
FLAT SHANK **GMG13** SERIES

CARBIDE, 6 FLUTE LONG LENGTH

VOLLHARTMETALL, 6 SCHNEIDEN, LANG
CARBURE, 6 DENTS, SÉRIE -LONGUE
MD, 6 TAGLIENTI SERIE LUNGA

▶The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochiodales Fräsen.
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating | p.C438

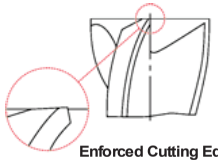
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
GMG12060	GMG13060	6.0	6	13	57
GMG12080	GMG13080	8.0	8	19	63
GMG12100	GMG13100	10.0	10	22	72
GMG12120	GMG13120	12.0	12	26	83
GMG12160	GMG13160	16.0	16	32	92
GMG12200	GMG13200	20.0	20	38	104
GMG12250	GMG13250	25.0	25	44	104

Mill Dia. Tolerance (mm)		Shank Dia. Tolerance
Up to Ø12	0 ~ - 0.02	h5
Over Ø12	0 ~ - 0.03	* Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 PLUS END MILLS

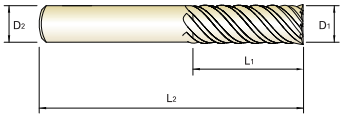
PLAIN SHANK **GMG14** SERIES
FLAT SHANK **GMG15** SERIES

CARBIDE, 6 FLUTE EXTRA LONG LENGTH

VOLLHARTMETALL, 6 SCHNEIDEN, EXTRA LANG
CARBURE, 6 DENTS, SÉRIE EXTRA-LONGUE
MD, 6 TAGLIENTI SERIE EXTRA LUNGA

▶The unique geometry of the variable pitch provides the best chatter free tool for high speed and trochoidal milling
▶Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40

▶Durch die einzigartige Geometrie und die ungleiche Teilung der Schneiden, eignet sich Fräser Bestens für hohe Bearbeitungsgeschwindigkeiten und trochiodales Fräsen.
▶Exzellente Leistung in Edelstählen, Baustählen, Guss und Stählen unter 40HRc



CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating | p.C438

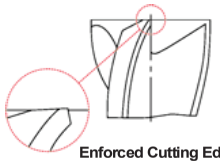
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	HYDRAULIC CHUCK	D15 - 46
			ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
GMG14060	GMG15060	6.0	6	24	75
GMG14080	GMG15080	8.0	8	32	75
GMG14100	GMG15100	10.0	10	40	100
GMG14120	GMG15120	12.0	12	48	120
GMG14160	GMG15160	16.0	16	64	140
GMG14200	GMG15200	20.0	20	80	150
GMG14250	GMG15250	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5
	* Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

V7 PLUS END MILLS

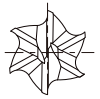
PLAIN SHANK **GMH56** SERIES
FLAT SHANK **GMH57** SERIES

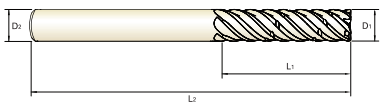
CARBIDE, 6 FLUTE EXTRA LONG LENGTH CHIP SPLITTER

VOLLHARTMETALL, 6-SCHNEIDEN-SPANTEILER MIT EXTRA LANGER LÄNGE
Carbure, 6 Dents, Torique, Extra-Longue, Fendeur Des Copeaux
MD, 6 TAGLIENTI, SERIE EXTRA LUNGA CON ROMPI TRUCIOLO

- ▶Special chip splitter design for better chip removal shortened chip length at high axial machining
- ▶High Performance for Steels, Stainless Steels and Cast Iron

- ▶ Spezielles Spanteilerdesign für verbesserte Spanabfuhr durch kurze Späne bei hohem axialen Eingriff
- ▶ Hohe Leistung bei der Bearbeiting von Stählen, rostfreien Stählen und Gusseisen.





CARBIDE | 6 | 45° | PLAIN | FLAT | Y Coating | p.C439

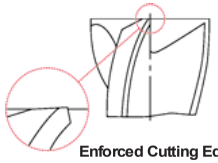
Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎ -	-	SHRINK FIT HOLDER	D47 - 72
○ -	-	HYDRAULIC CHUCK	D15 - 46
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GMH56060	GMH57060	6.0	6	24	75
GMH56080	GMH57080	8.0	8	32	75
GMH56100	GMH57100	10.0	10	40	100
GMH56120	GMH57120	12.0	12	48	120
GMH56160	GMH57160	16.0	16	64	140
GMH56200	GMH57200	20.0	20	80	150
GMH56250	GMH57250	25.0	25	100	170

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

V7 INOX END MILLS

PLAIN SHANK **EMB72** SERIES
FLAT SHANK **EMB73** SERIES

CARBIDE, 5 FLUTE LONG LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN LANG
Fraise carbure, 5 dents, longue
5 TAGLIENTI, SERIE LUNGA, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

CARBIDE | 5 | Sinusoidal | PLAIN | FLAT | C x 45° | AlTiN | p.C440

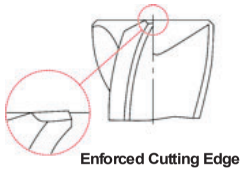
Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎ -	-	SHRINK FIT HOLDER	D47 - 72
○ -	-	HYDRAULIC CHUCK	D15 - 46
		ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
EMB72060	EMB73060	6.0	6	13	57	0.1
EMB72080	EMB73080	8.0	8	19	63	0.1
EMB72100	EMB73100	10.0	10	22	72	0.1
EMB72120	EMB73120	12.0	12	26	83	0.1
EMB72140	EMB73140	14.0	14	26	83	0.2
EMB72160	EMB73160	16.0	16	32	92	0.2
EMB72180	EMB73180	18.0	18	32	92	0.2
EMB72200	EMB73200	20.0	20	38	104	0.2
EMB72250	EMB73250	25.0	25	38	104	0.2

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5 * Shank Dia.≥Ø12 : h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	○	○	○	◎	○	○	○	◎	○	◎	◎	◎	○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	◎	◎				

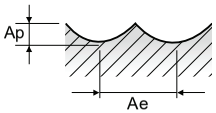
V7 PLUS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GMG55, GMG56 SERIES — 4 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.5D	1.0D	Vc	162	162	162	162	162	162	162	162	162	162	162
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.075	0.08	0.09	0.099
					RPM	17189	12892	10313	8594	6446	5157	4297	3223	2865	2578	2063
					FEED	1719	1392	1238	1375	1547	1341	1203	967	917	928	817
	5	Low alloy steel	0.5D	1.0D	Vc	113	113	113	113	113	113	113	113	113	113	113
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.074	0.079	0.09	0.099
					RPM	11990	8992	7194	5995	4496	3597	2997	2248	1998	1798	1439
					FEED	1199	971	863	959	1079	935	839	665	631	647	570
	6-7		0.5D	1.0D	Vc	162	162	162	162	162	162	162	162	162	162	162
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.075	0.08	0.09	0.099
					RPM	17189	12892	10313	8594	6446	5157	4297	3223	2865	2578	2063
					FEED	1719	1392	1238	1375	1547	1341	1203	967	917	928	817
	8-9		0.5D	1.0D	Vc	113	113	113	113	113	113	113	113	113	113	113
					fz	0.025	0.027	0.03	0.04	0.06	0.065	0.07	0.074	0.079	0.09	0.099
					RPM	11990	8992	7194	5995	4496	3597	2997	2248	1998	1798	1439
					FEED	1199	971	863	959	1079	935	839	665	631	647	570
	10-11.1	High alloyed steel, and tool steel	0.5D	1.0D	Vc	68	68	68	68	68	68	68	68	68	68	68
					fz	0.017	0.019	0.021	0.028	0.042	0.045	0.049	0.052	0.056	0.063	0.07
					RPM	7215	5411	4329	3608	2706	2165	1804	1353	1203	1082	866
					FEED	491	411	364	404	455	390	354	281	269	273	242
M	12-13	Stainless steel	0.5D	1.0D	Vc	77	77	77	77	77	77	77	77	77	77	77
					fz	0.015	0.015	0.025	0.03	0.04	0.045	0.05	0.054	0.059	0.058	0.059
					RPM	8170	6127	4902	4085	3064	2451	2042	1532	1362	1225	980
					FEED	490	368	490	490	490	441	408	331	321	284	231
	14.1		0.5D	1.0D	Vc	85	85	85	85	85	85	85	85	85	85	85
					fz	0.02	0.02	0.025	0.041	0.045	0.05	0.055	0.06	0.064	0.065	0.068
					RPM	9019	6764	5411	4509	3382	2706	2255	1691	1503	1353	1082
					FEED	722	541	541	740	609	541	496	406	385	352	294
	14.2		0.5D	1.0D	Vc	77	77	77	77	77	77	77	77	77	77	77
					fz	0.02	0.02	0.025	0.041	0.045	0.05	0.055	0.06	0.064	0.065	0.068
					RPM	8170	6127	4902	4085	3064	2451	2042	1532	1362	1225	980
					FEED	654	490	490	670	551	490	449	368	349	319	267
K	15-20	Grey cast iron	0.5D	1.0D	Vc	119	119	119	119	119	119	119	119	119	119	119
					fz	0.031	0.033	0.037	0.05	0.074	0.081	0.087	0.093	0.099	0.112	0.124
					RPM	12626	9470	7576	6313	4735	3788	3157	2367	2104	1894	1515
					FEED	1566	1250	1121	1263	1402	1227	1098	881	833	848	752
S	31-35	Heat Resistant Super Alloys	0.2D	0.3D	Vc	21	21	21	21	21	21	21	21	21	21	21
					fz	0.014	0.014	0.017	0.028	0.031	0.035	0.038	0.042	0.045	0.045	0.048
					RPM	2228	1671	1337	1114	836	668	557	418	371	334	267
					FEED	125	94	91	125	104	94	85	70	67	60	51
	36-37	Titanium Alloys	0.5D	0.3D	Vc	47	47	47	47	47	47	47	47	47	47	47
					fz	0.018	0.018	0.022	0.037	0.04	0.045	0.049	0.054	0.058	0.058	0.061
					RPM	4987	3740	2992	2493	1870	1496	1247	935	831	748	598
					FEED	359	269	263	369	299	269	244	202	193	174	146



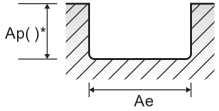
V7 PLUS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

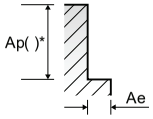
GMF52 GMF53 / GMF54 GMF55 / GMF56 GMF57 / GMF58 GMF59 / GMF60 GMF61 / GMF62 GMF63 — 4 FLUTE - SIDE & SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae Side	Ae Slotting	Ap Side	Ap Slotting	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	152	152	152	152	152	168	168	168	168	168	168	168
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139
							FEED	323	387	426	516	653	813	838	749	709	701	695	548
	5	Low alloy steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	107	107	107	107	107	117	117	117	117	117	117	117
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	11353	8515	6812	5677	4257	3724	3104	2660	2328	2069	1862	1490
							FEED	227	272	300	363	460	566	583	521	493	488	484	381
	6-7		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	152	152	152	152	152	168	168	168	168	168	168	168
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	16128	12096	9677	8064	6048	5348	4456	3820	3342	2971	2674	2139
							FEED	323	387	426	516	653	813	838	749	709	701	695	548
	8-9		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	107	107	107	107	107	117	117	117	117	117	117	117
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.049	0.053	0.059	0.065	0.064
							RPM	11353	8515	6812	5677	4257	3724	3104	2660	2328	2069	1862	1490
							FEED	227	272	300	363	460	566	583	521	493	488	484	381
	10-11.1	High alloyed steel, and tool steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	64	64	64	64	64	70	70	70	70	70	70	70
							fz	0.003	0.006	0.008	0.011	0.019	0.027	0.032	0.034	0.037	0.041	0.045	0.045
							RPM	6791	5093	4074	3395	2546	2228	1857	1592	1393	1238	1114	891
							FEED	81	122	130	149	194	241	238	216	206	203	201	160
M	12-13	Stainless steel	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	148	148	148	148	148	148	148	148	148	148	148	148
							fz	0.004	0.006	0.009	0.013	0.022	0.034	0.039	0.042	0.045	0.05	0.055	0.055
							RPM	15703	11777	9422	7852	5889	4711	3926	3365	2944	2617	2355	1884
							FEED	251	283	339	408	518	641	612	565	530	523	518	415
	14.1		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	106	106	106	106	106	106	106	106	106	106	106	106
							fz	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.059	0.062	0.07	0.077	0.077
							RPM	11247	8435	6748	5623	4218	3374	2812	2410	2109	1874	1687	1350
							FEED	225	270	351	405	472	648	619	569	523	525	520	416
	14.2		0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	95	95	95	95	95	95	95	95	95	95	95	95
							fz	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.059	0.062	0.069	0.076	0.076
							RPM	10080	7560	6048	5040	3780	3024	2520	2160	1890	1680	1512	1210
							FEED	202	242	314	363	423	581	554	510	469	464	460	368
K	15-20	Grey cast iron	0.5D	1.0D	1.5D (1.2D)	1.0D (0.8D)	Vc	112	112	112	112	112	123	123	123	123	123	123	123
							fz	0.006	0.01	0.014	0.02	0.034	0.048	0.058	0.061	0.065	0.073	0.081	0.079
							RPM	11884	8913	7130	5942	4456	3915	3263	2797	2447	2175	1958	1566
							FEED	285	357	399	475	606	752	757	682	636	635	634	495
S	31-35	Heat Resistant Super Alloys	0.25D	1.0D	1.0D	0.5D	Vc	26	26	26	26	26	26	26	26	26	26	26	26
							fz	0.005	0.007	0.008	0.012	0.019	0.033	0.038	0.04	0.043	0.048	0.054	0.052
							RPM	2759	2069	1655	1379	1035	828	690	591	517	460	414	331
							FEED	55	58	53	66	79	109	105	95	89	88	89	69
	36-37	Titanium Alloys	0.4D	1.0D	1.0D	0.5D	Vc	58	58	58	58	58	58	58	58	58	58	58	58
							fz	0.004	0.007	0.011	0.016	0.025	0.042	0.05	0.053	0.055	0.062	0.068	0.069
							RPM	6154	4615	3692	3077	2308	1846	1538	1319	1154	1026	923	738
							FEED	98	129	162	197	231	310	308	280	254	254	251	204

*( ) : Short length & Neck type





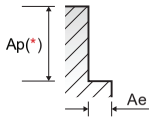
V7 PLUS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GMG16 GMG17 GMG18 GMG19 GMG12 GMG13 GMG14 GMG15 — 6 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	2.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	5	Low alloy steel	0.05D	2.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	6-7		0.05D	2.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	8-9		0.05D	2.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	10-11.1	High alloyed steel, and tool steel	0.05D	2.0D	Vc	100	100	100	100	100	100	100
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.144
					RPM	5305	3979	3183	2653	1989	1592	1273
					FEED	1305	1695	1681	1671	1468	1308	1100
M	12-13	Stainless steel	0.05D	2.0D	Vc	215	215	215	215	215	215	215
					fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168
					RPM	11406	8555	6844	5703	4277	3422	2737
					FEED	3353	4312	4270	4277	3747	3326	2759
	14.1		0.05D	2.0D	Vc	145	145	145	145	145	145	145
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143
					RPM	7692	5769	4615	3846	2885	2308	1846
					FEED	1892	2458	2437	2423	2129	1897	1584
	14.2		0.05D	2.0D	Vc	135	135	135	135	135	135	135
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142
					RPM	7162	5371	4297	3581	2686	2149	1719
					FEED	1762	2288	2269	2256	1982	1766	1464
K	15-20	Grey cast iron	0.05D	2.0D	Vc	225	225	225	225	225	225	225
					fz	0.082	0.139	0.173	0.208	0.242	0.270	0.278
					RPM	11937	8952	7162	5968	4476	3581	2865
					FEED	5844	7477	7426	7434	6510	5801	4785
S	31-35	Heat Resistant Super Alloys	0.05D	2.0D	Vc	35	35	35	35	35	35	35
					fz	0.033	0.055	0.070	0.082	0.097	0.112	0.115
					RPM	1857	1393	1114	928	696	557	446
					FEED	368	460	468	457	405	374	307
	36-37	Titanium Alloys	0.05D	2.0D	Vc	115	115	115	115	115	115	115
					fz	0.033	0.055	0.070	0.083	0.097	0.113	0.117
					RPM	6101	4576	3661	3050	2288	1830	1464
					FEED	1208	1510	1537	1519	1332	1241	1028



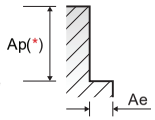
(*) : If product's Length of Cut(L.O.C) is below 2D, it must be applied with L.O.C x 90%

V7 PLUS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GMH58 GMH59 GMH56 GMH57 — 6 FLUTE CHIP SPLITTER - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1-4	Non-alloy steel	0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	5	Low alloy steel	0.05D	3.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	6-7		0.05D	3.0D	Vc	300	300	300	300	300	300	300
					fz	0.068	0.116	0.144	0.173	0.202	0.225	0.232
					RPM	15915	11937	9549	7958	5968	4775	3820
					FEED	6494	8308	8251	8260	7234	6446	5317
	8-9		0.05D	3.0D	Vc	205	205	205	205	205	205	205
					fz	0.050	0.085	0.106	0.128	0.149	0.167	0.174
					RPM	10876	8157	6525	5438	4078	3263	2610
					FEED	3263	4160	4150	4176	3646	3269	2725
	10-11.1	High alloyed steel, and tool steel	0.05D	3.0D	Vc	100	100	100	100	100	100	100
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.144
					RPM	5305	3979	3183	2653	1989	1592	1273
					FEED	1305	1695	1681	1671	1468	1308	1100
M	12-13	Stainless steel	0.05D	3.0D	Vc	215	215	215	215	215	215	215
					fz	0.049	0.084	0.104	0.125	0.146	0.162	0.168
					RPM	11406	8555	6844	5703	4277	3422	2737
					FEED	3353	4312	4270	4277	3747	3326	2759
	14.1		0.05D	3.0D	Vc	145	145	145	145	145	145	145
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.143
					RPM	7692	5769	4615	3846	2885	2308	1846
					FEED	1892	2458	2437	2423	2129	1897	1584
	14.2		0.05D	3.0D	Vc	135	135	135	135	135	135	135
					fz	0.041	0.071	0.088	0.105	0.123	0.137	0.142
					RPM	7162	5371	4297	3581	2686	2149	1719
					FEED	1762	2288	2269	2256	1982	1766	1464
K	15-20	Grey cast iron	0.05D	3.0D	Vc	225	225	225	225	225	225	225
					fz	0.082	0.139	0.173	0.208	0.242	0.270	0.278
					RPM	11937	8952	7162	5968	4476	3581	2865
					FEED	5844	7477	7426	7434	6510	5801	4785
S	31-35	Heat Resistant Super Alloys	0.05D	3.0D	Vc	35	35	35	35	35	35	35
					fz	0.033	0.055	0.070	0.082	0.097	0.112	0.115
					RPM	1857	1393	1114	928	696	557	446
					FEED	368	460	468	457	405	374	307
	36-37	Titanium Alloys	0.05D	3.0D	Vc	115	115	115	115	115	115	115
					fz	0.033	0.055	0.070	0.083	0.097	0.113	0.117
					RPM	6101	4576	3661	3050	2288	1830	1464
					FEED	1208	1510	1537	1519	1332	1241	1028



(*) : If product's Length of Cut(L.O.C) is below 2D, it must be applied with L.O.C x 90%

V7 INOX END MILLS

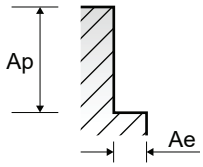
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EMB72, EMB73 SERIES

5 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-2	Non-alloy steel	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
	6		0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
	10	High alloyed steel, and tool steel	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
M	12-13	Stainless steel	0.25D	1.25D	Vc	105	105	105	145	105	105	105
					fz	0.030	0.032	0.038	0.043	0.064	0.068	0.076
					RPM	5570	4178	3342	3846	2387	2089	1671
					FEED	836	668	635	827	764	710	635
	14.1		0.25D	1.25D	Vc	115	115	115	115	115	115	115
					fz	0.030	0.032	0.038	0.063	0.065	0.069	0.076
					RPM	6101	4576	3661	3050	2615	2288	1830
					FEED	915	732	696	961	850	789	696
K	15-20	Grey cast iron	0.25D	1.25D	Vc	135	135	135	135	135	135	135
					fz	0.034	0.038	0.050	0.063	0.069	0.076	0.089
					RPM	7162	5371	4297	3581	3069	2686	2149
					FEED	1218	1021	1074	1128	1059	1021	956
S	31-35	Heat Resistant Super Alloys	0.25D	1.0D	Vc	25	25	25	25	25	25	25
					fz	0.017	0.020	0.025	0.036	0.045	0.048	0.060
					RPM	1326	995	796	663	568	497	398
					FEED	113	99	99	119	128	119	119
	36-37	Titanium Alloys	0.25D	1.25D	Vc	85	85	85	85	85	85	85
					fz	0.030	0.031	0.038	0.050	0.057	0.063	0.075
					RPM	4509	3382	2706	2255	1933	1691	1353
					FEED	676	524	514	564	551	533	507



Leading Through Innovation

SOLID CARBIDE

ALU-POWER HPC END MILLS

Alu Power HPC VHM Fräser

- For Aluminium, Aluminum Die Cast, Non-ferrous Alloys and Plastics
- Für Aluminium, Aluminiumdruckguss, Nichteisenlegierungen und Kunststoffe

SELECTION GUIDE

MILLING TOOLS

SOLID CARBIDE
ALU-POWER HPC END MILLS

3-Flute, High-Performance,
For Aluminum, Aluminum Die Cast,
Non-Ferrous Alloys And Plastics

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C452

SERIES	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
FLUTE	3	3	3	3
HELIX ANGLE	37°	37°	37°	37°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	D6.0	D6.0	D3.0	D6.0
SIZE MAX	D20.0	D20.0	D25.0	D20.0
PAGE	C444	C447	C450	C451
	-	EXTENDED NECK	-	EXTENDED NECK
	Uncoated	Uncoated	Uncoated	Uncoated
	DLC	DLC	DLC	DLC

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
P	1	Non-alloy steel	About 0.15% C	Annealed	125					
	2		About 0.45% C	Annealed	190	13				
	3		About 0.45% C	Quenched & Tempered	250	25				
	4		About 0.75% C	Annealed	270	28				
	5		About 0.75% C	Quenched & Tempered	300	32				
	6	Low alloy steel		Annealed	180	10				
	7			Quenched & Tempered	275	29				
	8			Quenched & Tempered	300	32				
	9			Quenched & Tempered	350	38				
	10	High alloyed steel, and tool steel		Annealed	200	15				
	11			Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10				
	16		Pearlitic (Martensitic)		260	26				
	17	Nodular cast iron	Ferritic		160	3				
	18		Pearlitic		250	25				
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎	◎	◎
	22		Curable	Hardened	100		◎	◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎	◎	◎
	25		> 12% Si, Not Curable		130		○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○
	27		CuZn, CuSnZn (Brass)		90		○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○	○
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

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AEROSPACE SOLUTIONS & COMPOSITE METERIALS

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTER
TECHNICAL DATA

ALU-POWER HPC END MILLS

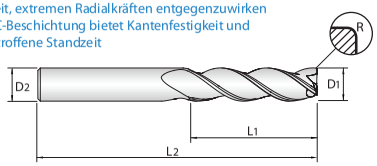
UNCOATED **E5H24** SERIES
DLC COATED **JAH24** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS

Vollhartmetall, 3 Schneiden 37° Eckradius
Fraise carbure, 3 dents, torique, hélice 37°
3 TAGLIENTI, ELICA 37°, SPIGOLO RAGGIATO

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C452

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Uncoated	DLC	R	D_1	D_2	L_1	L_2
E5H24060	**JAH24060**	R0.5	**6.0**	6	13	57
E5H24901	**JAH24901**	R1.0	**6.0**	6	13	57
E5H24902	**JAH24902**	R1.5	**6.0**	6	13	57
E5H24903	**JAH24903**	R0.8	**6.0**	6	13	72
E5H24904	**JAH24904**	R1.2	**6.0**	6	13	72
E5H24905	**JAH24905**	R0.5	**6.0**	6	24	75
E5H24906	**JAH24906**	R1.0	**6.0**	6	24	75
E5H24080	**JAH24080**	R0.3	**8.0**	8	19	63
E5H24907	**JAH24907**	R0.5	**8.0**	8	19	63
E5H24908	**JAH24908**	R1.0	**8.0**	8	19	63
E5H24909	**JAH24909**	R1.5	**8.0**	8	19	63
E5H24910	**JAH24910**	R0.5	**8.0**	8	32	75
E5H24911	**JAH24911**	R1.0	**8.0**	8	32	75
E5H24912	**JAH24912**	R1.5	**8.0**	8	32	75
E5H24913	**JAH24913**	R2.0	**8.0**	8	32	75
E5H24100	**JAH24100**	R0.3	**10.0**	10	22	72
E5H24914	**JAH24914**	R0.5	**10.0**	10	22	72
E5H24915	**JAH24915**	R1.0	**10.0**	10	22	72
E5H24916	**JAH24916**	R1.5	**10.0**	10	22	72
E5H24917	**JAH24917**	R0.5	**10.0**	10	40	100

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS
UNCOATED E5H24 SERIES
DLC COATED JAH24 SERIES
PLAIN SHANK
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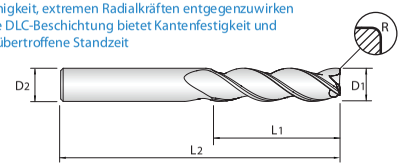


CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC
p.C452
Recommended ToolHolder
Plain Shank Page
HYDRAULIC CHUCK D15-46
SHRINK FIT HOLDER D47-72
POWER MILLING CHUCK D161-176
ER COLLET CHUCK D73-116
SK SLIM CHUCK D183-201
Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Uncoated	DLC	R	D_1	D_2	L_1	L_2
E5H24918	**JAH24918**	R1.0	**10.0**	10	40	100
E5H24919	**JAH24919**	R1.5	**10.0**	10	40	100
E5H24920	**JAH24920**	R2.0	**10.0**	10	40	100
E5H24120	**JAH24120**	R1.5	**12.0**	12	26	83
E5H24921	**JAH24921**	R2.0	**12.0**	12	26	83
E5H24922	**JAH24922**	R2.5	**12.0**	12	26	83
E5H24923	**JAH24923**	R3.0	**12.0**	12	26	83
E5H24924	**JAH24924**	R0.5	**12.0**	12	48	100
E5H24925	**JAH24925**	R1.0	**12.0**	12	48	100
E5H24926	**JAH24926**	R1.5	**12.0**	12	48	100
E5H24927	**JAH24927**	R2.0	**12.0**	12	48	100
E5H24928	**JAH24928**	R2.5	**12.0**	12	48	100
E5H24929	**JAH24929**	R3.0	**12.0**	12	48	100
E5H24140	**JAH24140**	R1.0	**14.0**	14	30	89
E5H24930	**JAH24930**	R2.0	**14.0**	14	30	89
E5H24931	**JAH24931**	R3.0	**14.0**	14	30	89
E5H24160	**JAH24160**	R1.5	**16.0**	16	32	92
E5H24932	**JAH24932**	R2.0	**16.0**	16	32	92
E5H24933	**JAH24933**	R2.5	**16.0**	16	32	92
E5H24934	**JAH24934**	R3.0	**16.0**	16	32	92

▶ NEXT PAGE

Mill Diameter Tolerences (mm) | Shank Diameter Tolerance
Diameter | Tolerance
Up to 3 | +0/-0.006
Over 3 ~ up to 6 | +0/-0.008
Over 6 ~ up to 10 | +0/-0.009
Over 10 ~ up to 18 | +0/-0.011
Over 18 ~ up to 25 | +0/-0.013
h5
◎ : Excellent ○ : Good
ISO | P | | | | | | | | | | | M | | | K | | | | | |
Material Description | Non-alloy steel | | | | | Low alloy steel | | | | High alloyed steel, and tool steel | | Stainless steel | | | Grey cast iron | | Nodular cast iron | | Malleable cast iron | |
VDI 3323 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20
HRc | | 13 | 25 | 28 | 32 | 10 | 29 | 32 | 38 | 15 | 35 | 15 | 23 | 10 | 10 | 26 | 3 | 25 | | 21
HB | 125 | 190 | 250 | 270 | 300 | 180 | 275 | 300 | 350 | 200 | 325 | 200 | 240 | 180 | 180 | 260 | 160 | 250 | 130 | 230
Recommend
ISO | N | | | | | | | | | | S | | | | | | | H | | |
Material Description | Aluminum-wrought alloy | | Aluminum-cast, alloyed | | | Copper and Copper Alloys (Bronze / Brass) | | | Non Metallic Materials | | Heat Resistant Super Alloys | | | | | Titanium Alloys | | Hardened steel | Chilled Cast Iron | Hardened Cast Iron
VDI 3323 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41
HRc | | | | | | | | | | | 15 | 30 | 25 | 38 | 34 | | | 55 | 60 | 42 | 55
HB | 60 | 100 | 75 | 90 | 130 | 110 | 90 | 100 | | | 200 | 280 | 250 | 350 | 320 | 400 Rm | 1050 Rm | 550 | 630 | 400 | 550
Recommend | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | ○ | | | | | | | | | | | | |

ALU-POWER HPC END MILLS

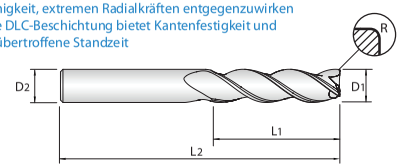
UNCOATED **E5H24** SERIES
DLC COATED **JAH24** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS

Vollhartmetall, 3 Schneiden 37° Eckradius
Fraise carbure, 3 dents, torique, hélice 37°
3 TAGLIENTI, ELICA 37°, SPIGOLO RAGGIATO

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C452

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Uncoated	DLC	R	D_1	D_2	L_1	L_2
E5H24935	JAH24935	R4.0	16.0	16	32	92
E5H24936	JAH24936	R0.5	16.0	16	64	125
E5H24937	JAH24937	R1.0	16.0	16	64	125
E5H24938	JAH24938	R1.5	16.0	16	64	125
E5H24939	JAH24939	R2.0	16.0	16	64	125
E5H24940	JAH24940	R2.5	16.0	16	64	125
E5H24941	JAH24941	R3.0	16.0	16	64	125
E5H24942	JAH24942	R4.0	16.0	16	64	125
E5H24200	JAH24200	R2.0	20.0	20	38	104
E5H24943	JAH24943	R2.5	20.0	20	38	104
E5H24944	JAH24944	R3.0	20.0	20	38	104
E5H24945	JAH24945	R4.0	20.0	20	38	104
E5H24946	JAH24946	R0.5	20.0	20	80	150
E5H24947	JAH24947	R1.0	20.0	20	80	150
E5H24948	JAH24948	R1.5	20.0	20	80	150
E5H24949	JAH24949	R2.0	20.0	20	80	150
E5H24950	JAH24950	R2.5	20.0	20	80	150
E5H24951	JAH24951	R3.0	20.0	20	80	150
E5H24952	JAH24952	R4.0	20.0	20	80	150

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

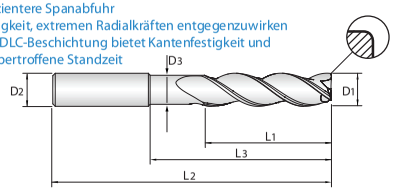
UNCOATED **E5H25** SERIES
DLC COATED **JAH25** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK

Vollhartmetall, 3 Schneiden 37° Eckradius mit verlängertem Hals
Fraise carbure, 3 dents, torique, hélice 37°, détalonnée, extra-courte
3 TAGLIENTI , ELICA 37°, SPIGOLO RAGGIATO SCARICATA

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C452

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15-46
	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SLIM CHUCK	D183-201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
Uncoated	DLC	R	D_1	D_2	L_1	L_3	L2	D3
E5H25060	JAH25060	R0.5	6.0	6	10	20	63	5.7
E5H25901	JAH25901	R1.0	6.0	6	10	20	63	5.7
E5H25902	JAH25902	R0.5	6.0	6	13	30	72	5.7
E5H25903	JAH25903	R1.0	6.0	6	13	30	72	5.7
E5H25080	JAH25080	R0.3	8.0	8	12	25	75	7.4
E5H25904	JAH25904	R0.5	8.0	8	12	25	75	7.4
E5H25905	JAH25905	R0.8	8.0	8	12	25	75	7.4
E5H25906	JAH25906	R1.0	8.0	8	12	25	75	7.4
E5H25907	JAH25907	R1.2	8.0	8	12	25	75	7.4
E5H25908	JAH25908	R1.5	8.0	8	12	25	75	7.4
E5H25909	JAH25909	R1.6	8.0	8	12	25	75	7.4
E5H25100	JAH25100	R0.3	10.0	10	14	35	100	9.2
E5H25910	JAH25910	R0.5	10.0	10	14	35	100	9.2
E5H25911	JAH25911	R0.8	10.0	10	14	35	100	9.2
E5H25912	JAH25912	R1.0	10.0	10	14	35	100	9.2
E5H25913	JAH25913	R1.2	10.0	10	14	35	100	9.2
E5H25914	JAH25914	R1.5	10.0	10	14	35	100	9.2
E5H25915	JAH25915	R1.6	10.0	10	14	35	100	9.2

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○	○												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTER
TECHNICAL DATA

ALU-POWER HPC END MILLS

UNCOATED **E5H25** SERIES
DLC COATED **JAH25** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK

Vollhartmetall, 3 Schneiden 37° Eckradius mit verlängertem Hals
Fraise carbure, 3 dents, torique, hélice 37°, détalonnée, extra-courte
3 TAGLIENTI , ELICA 37°, SPIGOLO RAGGIATO SCARICATA

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
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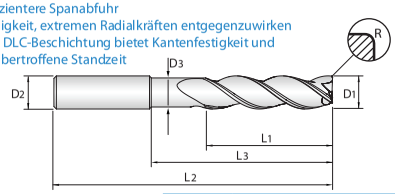
- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C452

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
Uncoated	DLC	R	D_1	D_2	L_1	L_3	L2	D3
E5H25916	**JAH25916**	R2.4	**10.0**	10	14	35	100	9.2
E5H25120	**JAH25120**	R0.5	**12.0**	12	16	40	100	11.0
E5H25917	**JAH25917**	R0.8	**12.0**	12	16	40	100	11.0
E5H25918	**JAH25918**	R1.0	**12.0**	12	16	40	100	11.0
E5H25919	**JAH25919**	R1.2	**12.0**	12	16	40	100	11.0
E5H25920	**JAH25920**	R1.5	**12.0**	12	16	40	100	11.0
E5H25921	**JAH25921**	R1.6	**12.0**	12	16	40	100	11.0
E5H25922	**JAH25922**	R2.0	**12.0**	12	16	40	100	11.0
E5H25923	**JAH25923**	R2.4	**12.0**	12	16	40	100	11.0
E5H25924	**JAH25924**	R2.5	**12.0**	12	16	40	100	11.0
E5H25925	**JAH25925**	R3.0	**12.0**	12	16	40	100	11.0
E5H25926	**JAH25926**	R4.0	**12.0**	12	16	40	100	11.0
E5H25140	**JAH25140**	R1.0	**14.0**	14	18	45	125	13.0
E5H25927	**JAH25927**	R2.0	**14.0**	14	18	45	125	13.0
E5H25928	**JAH25928**	R3.0	**14.0**	14	18	45	125	13.0
E5H25929	**JAH25929**	R4.0	**14.0**	14	18	45	125	13.0
E5H25160	**JAH25160**	R0.8	**16.0**	16	20	50	125	15.0
E5H25930	**JAH25930**	R1.2	**16.0**	16	20	50	125	15.0

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS
UNCOATED E5H25 SERIES
DLC COATED JAH25 SERIES
PLAIN SHANK
CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK
Vollhartmetall, 3 Schneiden 37° Eckradius mit verlängertem Hals
Fraise carbure, 3 dents, torique, hélice 37°, détalonnée, extra-courte
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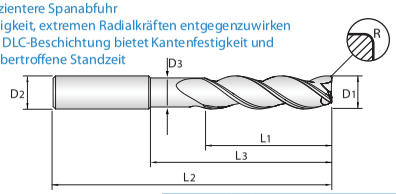
Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC
p.C452
Recommended ToolHolder
	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201
Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
Uncoated	DLC	R	D_1	D_2	L_1	L_3	L2	D3
E5H25931	**JAH25931**	R1.6	**16.0**	16	20	50	125	15.0
E5H25932	**JAH25932**	R2.0	**16.0**	16	20	50	125	15.0
E5H25933	**JAH25933**	R2.4	**16.0**	16	20	50	125	15.0
E5H25934	**JAH25934**	R2.5	**16.0**	16	20	50	125	15.0
E5H25935	**JAH25935**	R3.0	**16.0**	16	20	50	125	15.0
E5H25936	**JAH25936**	R3.2	**16.0**	16	20	50	125	15.0
E5H25937	**JAH25937**	R4.0	**16.0**	16	20	50	125	15.0
E5H25200	**JAH25200**	R0.8	**20.0**	20	25	65	150	19.0
E5H25938	**JAH25938**	R1.2	**20.0**	20	25	65	150	19.0
E5H25939	**JAH25939**	R1.6	**20.0**	20	25	65	150	19.0
E5H25940	**JAH25940**	R2.0	**20.0**	20	25	65	150	19.0
E5H25941	**JAH25941**	R2.4	**20.0**	20	25	65	150	19.0
E5H25942	**JAH25942**	R2.5	**20.0**	20	25	65	150	19.0
E5H25943	**JAH25943**	R3.0	**20.0**	20	25	65	150	19.0
E5H25944	**JAH25944**	R3.2	**20.0**	20	25	65	150	19.0
E5H25945	**JAH25945**	R4.0	**20.0**	20	25	65	150	19.0

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
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Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

UNCOATED **E5H22** SERIES
DLC COATED **JAH22** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX

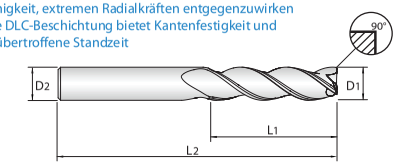
Vollhartmetall, 3 Schneiden 37°
Fraise carbure, torique, hélice 37°
3 TAGLIENTI, ELICA 37°

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit

UNCOATED

DLC COATED



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

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Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
◎	SHRINK FIT HOLDER	D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
○	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Uncoated	DLC	D_1	D_2	L_1	L_2
E5H22030	JAH22030	3.0	6	8	52
E5H22040	JAH22040	4.0	6	11	55
E5H22050	JAH22050	5.0	6	13	57
E5H22060	JAH22060	6.0	6	13	57
E5H22901	JAH22901	6.0	6	13	72
E5H22902	JAH22902	6.0	6	24	75
E5H22080	JAH22080	8.0	8	19	63
E5H22903	JAH22903	8.0	8	32	75
E5H22100	JAH22100	10.0	10	22	72
E5H22904	JAH22904	10.0	10	40	100
E5H22120	JAH22120	12.0	12	26	83
E5H22905	JAH22905	12.0	12	48	100
E5H22140	JAH22140	14.0	14	30	89
E5H22160	JAH22160	16.0	16	32	92
E5H22906	JAH22906	16.0	16	64	125
E5H22200	JAH22200	20.0	20	38	104
E5H22907	JAH22907	20.0	20	80	150
E5H22250	JAH22250	25.0	25	50	125

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

UNCOATED **E5H23** SERIES
DLC COATED **JAH23** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX with EXTENDED NECK

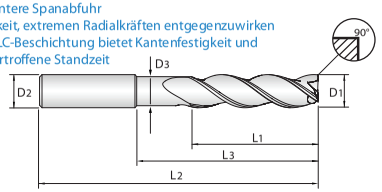
Vollhartmetall, 3 Schneiden 37°
Fraise carbure, 3 dents, hélice 37°, détalonnée, extra-courte
3 TAGLIENTI, ELICA 37°, SCARICATA

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit

UNCOATED

DLC COATED



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C453

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
◎	SHRINK FIT HOLDER	D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
○	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
Uncoated	DLC	D_1	D_2	L_1	L_3	L2	D3
E5H23060	JAH23060	6.0	6	10	20	75	5.7
E5H23080	JAH23080	8.0	8	12	25	75	7.4
E5H23100	JAH23100	10.0	10	14	35	100	9.2
E5H23120	JAH23120	12.0	12	16	40	100	11.0
E5H23140	JAH23140	14.0	14	18	45	125	13.0
E5H23160	JAH23160	16.0	16	20	50	125	15.0
E5H23200	JAH23200	20.0	20	25	65	150	19.0

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

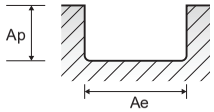
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5H24, JAH24, E5H25, JAH25 SERIES

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

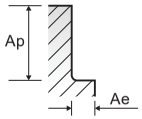
3 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	25889	15533	12945	9708	7767
					FEED	5918	5326	5918	4883	4439
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	9708	5825	4854	3641	2913
					FEED	2219	1997	2219	1831	1665
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	268	268	268	268	268
					fz	0.051	0.102	0.127	0.140	0.152
					RPM	14218	8531	7109	5332	4265
					FEED	2167	2600	2708	2235	1950
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	503	503	503	503	503
					fz	0.102	0.191	0.254	0.279	0.305
					RPM	26685	16011	13342	10007	8005
					FEED	8134	9150	10167	8388	7320



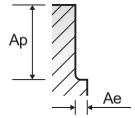
3 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	610	610	610	610	610
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	32361	19417	16181	12136	9708
					FEED	7398	6658	7398	6103	5548
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	244	244	244	244	244
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	12945	7767	6472	4854	3883
					FEED	2959	2663	2959	2441	2219
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	351	351	351	351	351
					fz	0.051	0.102	0.127	0.140	0.152
					RPM	18621	11173	9311	6983	5586
					FEED	2838	3405	3547	2927	2554
	29.1	Non Metallic Materials	0.5D	1.5D	Vc	625	625	625	625	625
					fz	0.102	0.191	0.254	0.279	0.305
					RPM	33157	19894	16579	12434	9947
					FEED	10106	11370	12633	10422	9096



3 FLUTE CORNER RADIUS - SIDE CUTTING HSM (Light)

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.05D	2.0D	Vc	1006	1006	1006	1006	1006
					fz	0.140	0.267	0.356	0.381	0.419
					RPM	53370	32022	26685	20014	16011
					FEED	22367	25621	28467	22876	20131
	23~25	Aluminum-cast, alloyed	0.05D	2.0D	Vc	366	366	366	366	366
					fz	0.140	0.267	0.356	0.381	0.419
					RPM	19417	11650	9708	7281	5825
					FEED	8138	9321	10357	8323	7324
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	2.0D	Vc	564	564	564	564	564
					fz	0.114	0.216	0.292	0.330	0.356
					RPM	29921	17953	14961	11220	8976
					FEED	10260	11628	13110	11115	9576
	29.1	Non Metallic Materials	0.05D	2.0D	Vc	1021	1021	1021	1021	1021
					fz	0.229	0.432	0.584	0.635	0.699
					RPM	54166	32499	27083	20312	16250
					FEED	37147	42100	47465	38695	34051



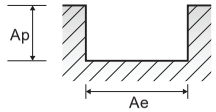
ALU-POWER HPC END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5H22, JAH22, E5H23, JAH23 SERIES

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

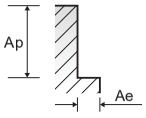
3 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488	488	488
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	51778	25889	15533	12945	9708	7767	6213
					FEED	3946	5918	5326	5918	4883	4439	4735
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183	183	183
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	19417	9708	5825	4854	3641	2913	2330
					FEED	1480	2219	1997	2219	1831	1665	1775
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	268	268	268	268	268	268	268
					fz	0.020	0.051	0.102	0.127	0.140	0.152	0.178
					RPM	28436	14218	8531	7109	5332	4265	3412
					FEED	1733	2167	2600	2708	2235	1950	1820
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	503	503	503	503	503	503	503
					fz	0.038	0.102	0.191	0.254	0.279	0.305	0.356
					RPM	53370	26685	16011	13342	10007	8005	6404
					FEED	6100	8134	9150	10167	8388	7320	6832



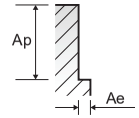
3 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	610	610	610	610	610	610	610
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	64723	32361	19417	16181	12136	9708	7767
					FEED	4932	7398	6658	7398	6103	5548	5918
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	244	244	244	244	244	244	244
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	25889	12945	7767	6472	4854	3883	3107
					FEED	1973	2959	2663	2959	2441	2219	2367
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	351	351	351	351	351	351	351
					fz	0.020	0.051	0.102	0.127	0.140	0.152	0.178
					RPM	37242	18621	11173	9311	6983	5586	4469
					FEED	2270	2838	3405	3547	2927	2554	2384
	29.1	Non Metallic Materials	0.5D	1.5D	Vc	625	625	625	625	625	625	625
					fz	0.038	0.102	0.191	0.254	0.279	0.305	0.356
					RPM	66314	33157	19894	16579	12434	9947	7958
					FEED	7580	10106	11370	12633	10422	9096	8489

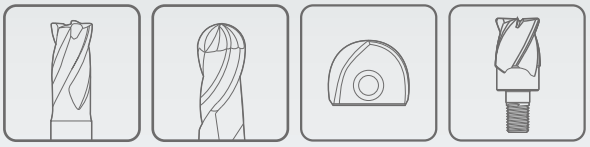


3 FLUTE - SIDE CUTTING HSM (Light)

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	0.05D	2.0D	Vc	1006	1006	1006	1006	1006	1006	1006
					fz	0.053	0.140	0.267	0.356	0.381	0.419	0.495
					RPM	106740	53370	32022	26685	20014	16011	12809
					FEED	17080	22367	25621	28467	22876	20131	19033
	23~25	Aluminum-cast, alloyed	0.05D	2.0D	Vc	366	366	366	366	366	366	366
					fz	0.053	0.140	0.267	0.356	0.381	0.419	0.495
					RPM	38834	19417	11650	9708	7281	5825	4660
					FEED	6214	8138	9321	10357	8323	7324	6924
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	2.0D	Vc	564	564	564	564	564	564	564
					fz	0.043	0.114	0.216	0.292	0.330	0.356	0.406
					RPM	59842	29921	17953	14961	11220	8976	7181
					FEED	7752	10260	11628	13110	11115	9576	8755
	29.1	Non Metallic Materials	0.05D	2.0D	Vc	1021	1021	1021	1021	1021	1021	1021
					fz	0.086	0.229	0.432	0.584	0.635	0.699	0.813
					RPM	108331	54166	32499	27083	20312	16250	13000
					FEED	28066	37147	42100	47465	38695	34051	31699



Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

SOLID CARBIDE

ALU-POWER END MILLS

Alu - Power Fräser

- For Aluminium Alloys and Silent Cutting
- Für Aluminiumlegierungen und geräuscharmen Schnitt

SELECTION GUIDE

MILLING TOOLS

SOLID CARBIDE ALU POWER END MILLS

Aluminium Alloys and Silent Cutting

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C470

SERIES	E5910	E5908	E5909
FLUTE	2	3	2
HELIX ANGLE	50°	40°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	CORNER RADIUS
SIZE MIN	R3.0	R1.0	D4.0
SIZE MAX	R10.0	R8.0	D20.0
PAGE	C458	C459	C460
	NECK	NECK	NECK
	Uncoated	Uncoated	Uncoated

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	E5910	E5908	E5909
P	1	Non-alloy steel	About 0.15% C	Annealed	125				
	2		About 0.45% C	Annealed	190	13			
	3		About 0.45% C	Quenched & Tempered	250	25			
	4		About 0.75% C	Annealed	270	28			
	5		About 0.75% C	Quenched & Tempered	300	32			
	6	Low alloy steel		Annealed	180	10			
	7			Quenched & Tempered	275	29			
	8			Quenched & Tempered	300	32			
	9			Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15			
	11			Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10			
	16		Pearlitic (Martensitic)		260	26			
	17	Nodular cast iron	Ferritic		160	3			
	18		Pearlitic		250	25			
	19	Malleable cast iron	Ferritic		130				
	20		Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable		60		◎	◎	◎
	22		Curable	Hardened	100		◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎
	24		≤ 12% Si, Curable	Hardened	90		◎	◎	◎
	25		> 12% Si, Not Curable		130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○
	27		CuZn, CuSnZn (Brass)		90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

SERIES	E5930	E5E51	E5E47	E5E48	E5522 E5521	E5E49	E5E50	E5742 E5711	E5E39 E5E40
FLUTE	2	3	1	2	2	3	3	3	3
HELIX ANGLE	25°	45°	30°	45°	45°	45°	45°	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING
SIZE MIN	D2.0	D3.0	D2.0	D3.0	D3.0	D3.0	D3.0	D6.0	D6.0
SIZE MAX	D20.0	D20.0	D12.0	D20.0	D20.0	D20.0	D20.0	D25.0	D20.0
PAGE	C461	C462	C463	C464	C465	C466	C467	C468	C469
	NECK	LONG LENGTH	-	SHORT LENGTH	LONG LENGTH	LONG LENGTH	NECK	LONG LENGTH	NECK
	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated

ISO	VDI 3323	E5930	E5E51	E5E47	E5E48	E5522 E5521	E5E49	E5E50	E5742 E5711	E5E39 E5E40
P	1								○	○
	2								○	○
	3								○	○
	4								○	○
	5									
	6								○	○
	7								○	○
	8									
	9									
	10								○	○
	11									
M	12									
	13									
	14									
K	15								○	○
	16								○	○
	17								○	○
	18								○	○
	19								○	○
	20								○	○
N	21	◎	◎	◎	◎	◎	◎	◎	◎	◎
	22	◎	◎	◎	◎	◎	◎	◎	◎	◎
	23	◎	◎	◎	◎	◎	◎	◎	◎	◎
	24	◎	◎	◎	◎	◎	◎	◎	◎	◎
	25	○	○	○	○	○	○	○	○	○
	26									
	27									
	28									
	29			◎						
	30									
S	31									
	32									
	33									
	34									
	35									
	36									
	37									
H	38									
	39									
	40									
	41									

ALU-POWER END MILLS

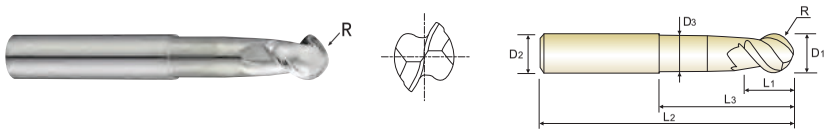
PLAIN SHANK **E5910** SERIES

CARBIDE, 2 FLUTE 50° HELIX BALL NOSE with NECK

VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, hélice 50°, détalonnée
2 TAGLIENTI, ELICA 50°, SEMISFERICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



CARBIDE | 2 | 50° | R ±0.02 | PLAIN | UNCOATED p.C470

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.02)	D_1	D_2	L_1	L_3	L_2	D_3
E5910060	R3.0	**6.0**	6	5.5	25	55	5.4
E5910080	R4.0	**8.0**	8	7	30	65	7.2
E5910100	R5.0	**10.0**	10	8.5	35	75	9
E5910120	R6.0	**12.0**	12	10.5	40	75	11
E5910160	R8.0	**16.0**	16	14	50	90	14.5
E5910200	R10.0	**20.0**	20	17	50	100	18

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
± 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○													

ALU-POWER END MILLS

PLAIN SHANK **E5908** SERIES

CARBIDE, 3 FLUTE 40° HELIX BALL NOSE with NECK

VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 3 dents, hémisphérique, hélice 40°, détalonnée
3 TAGLIENTI, ELICA 40°, SEMISFERICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.

CARBIDE | 3 | 40° | R ±0.02 | PLAIN | UNCOATED p.C470

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.02)	D_1	D_2	L_1	L_3	L_2	D_3
E5908020	R1.0	**2.0**	6	3	5	60	1.9
E5908025	R1.25	**2.5**	6	4	6	60	2.4
E5908030	R1.5	**3.0**	6	4.5	6.5	60	2.8
E5908035	R1.75	**3.5**	6	5	7	65	3.2
E5908040	R2.0	**4.0**	6	6	8	65	3.7
E5908050	R2.5	**5.0**	6	7.5	10	65	4.6
E5908060	R3.0	**6.0**	6	9	12	75	5.6
E5908080	R4.0	**8.0**	8	12	25	75	7.4
E5908100	R5.0	**10.0**	10	15	30	80	9.4
E5908120	R6.0	**12.0**	12	18	36	90	11.4
E5908160	R8.0	**16.0**	16	24	40	100	15.4

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○													

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

ALU-POWER END MILLS

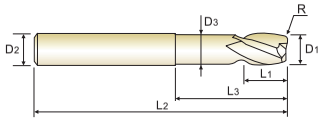
PLAIN SHANK **E5909** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
2 TAGLIENTI, TORICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Reduces chipping of corner edges

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr
- ▶ Reduzierung von Schneideckenausbrüchen.



CARBIDE | 2 | 30° | PLAIN | UNCOATED p.C471

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
			HYDRAULIC CHUCK	D15-46
	◎ END MILL HOLDER	D118-137	SHRINK FIT HOLDER	D47-72
			POWER MILLING CHUCK	D161-176
	○ -	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
E5909040	R0.3	**4.0**	6.0	5	10	50	3.6
E5909060	R0.5	**6.0**	6.0	8	20	60	5.4
E5909080	R0.6	**8.0**	8.0	10	30	70	7.2
E5909100	R0.8	**10.0**	10.0	12	36	80	9
E5909120	R1.0	**12.0**	12.0	14	40	90	11
E5909160	R1.3	**16.0**	16.0	18	45	100	14.5
E5909200	R1.6	**20.0**	20.0	24	45	100	18

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○	○	○	○													

ALU-POWER END MILLS

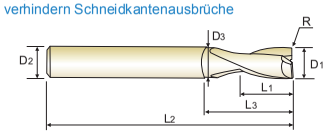
PLAIN SHANK **E5930** SERIES

CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS with NECK

VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, hélice 25°, détalonnée
2 TAGLIENTI, ELICA 25°, TORICA, SCARICATA

- ▶ Designed for machining aluminum, aluminum alloys and non-ferrous material
- ▶ Mirror surface - Excellent surface finish
- ▶ Increased tool life and higher cutting accuracy
- ▶ Maximum-metal removal rate
- ▶ Superior chip evacuation
- ▶ Corner Radius to avoid chipping problems

- ▶ Entwickelt für die Bearbeitung von Aluminium, Aluminiumlegierungen, NE-Metalle
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Maximale Zerspanungsleistung.
- ▶ Überlegene Spanabfuhr
- ▶ Eckradien verhindern Schneidkantenausbrüche



CARBIDE | 2 | 25° | PLAIN | UNCOATED p.C470

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
			HYDRAULIC CHUCK	D15-46
	◎ END MILL HOLDER	D118-137	SHRINK FIT HOLDER	D47-72
			POWER MILLING CHUCK	D161-176
	○ -	-	ER COLLET CHUCK	D73-116

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
E5930020	R0.2	**2.0**	3	3	6	40	1.9
E5930030	R0.2	**3.0**	3	4	8	40	2.9
E5930040	R0.2	**4.0**	4	5	12	50	3.8
E5930050	R0.2	**5.0**	5	8	14	50	4.8
E5930060	R0.2	**6.0**	6	8	18	65	5.7
E5930080	R0.2	**8.0**	8	10	22	70	7.7
E5930100	R0.2	**10.0**	10	14	28	80	9.7
E5930120	R0.2	**12.0**	12	16	35	90	11.5
E5930160	R0.2	**16.0**	16	20	40	90	15.5
E5930200	R0.2	**20.0**	20	25	50	100	19.5

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

ALU-POWER END MILLS

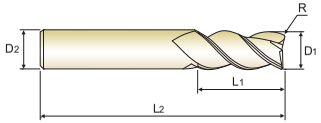
PLAIN SHANK **E5E51** SERIES

CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS
Fraise carbure, 3 dents, torique, hélice 45°, longue
3 TAGLIENTI, ELICA 45°, TORICA, SERIE LUNGA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Reduces chipping of corner edges

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr
- ▶ Reduzierung von Schneideckenausbrüchen.



CARBIDE | 3 | 45° | PLAIN | UNCOATED p.C471

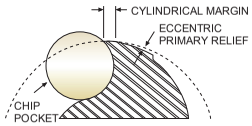
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2
E5E51030	R0.5	3.0	6	12	57
E5E51901	R1.0	3.0	6	12	57
E5E51040	R0.5	4.0	6	15	57
E5E51902	R1.0	4.0	6	15	57
E5E51050	R0.5	5.0	6	20	57
E5E51903	R1.0	5.0	6	20	57
E5E51060	R0.5	6.0	6	20	65
E5E51904	R1.0	6.0	6	20	65
E5E51080	R0.5	8.0	8	22	65
E5E51905	R1.0	8.0	8	22	65
E5E51100	R0.5	10.0	10	25	70
E5E51906	R1.0	10.0	10	25	70
E5E51907	R2.0	10.0	10	25	70
E5E51120	R0.5	12.0	12	25	75
E5E51908	R1.0	12.0	12	25	75
E5E51909	R2.0	12.0	12	25	75
E5E51160	R0.5	16.0	16	35	90
E5E51910	R1.0	16.0	16	35	90
E5E51911	R2.0	16.0	16	35	90
E5E51200	R0.5	20.0	20	40	100
E5E51912	R1.0	20.0	20	40	100
E5E51913	R2.0	20.0	20	40	100

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

ALU-POWER END MILLS

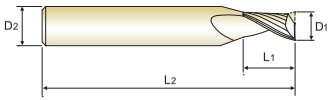
PLAIN SHANK **E5E47** SERIES

CARBIDE, 1 FLUTE

VOLLHARTMETALL, 1 SCHNEIDEN
Fraise carbure, 1 dent
1 TAGLIENTE

- ▶ Designed for non-ferrous material, non-metal like aluminum and acrylic
- ▶ 1 Flute allows excellent finished workpiece and chip evacuation

- ▶ Entwickelt für NE-Metalle und nichtmetallische Werkstoffe wie Aluminium und Acryl
- ▶ 1 Spannute ermöglicht hervorragende Werkstückoberflächen und Spanabfuhr



CARBIDE | 1 | 30° | PLAIN | C x 45° | UNCOATED p.C472

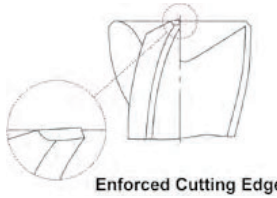
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall Length L_2	Chamfer
E5E47020	2.0	3	8	50	0.04
E5E47030	3.0	3	12	50	0.05
E5E47040	4.0	4	15	60	0.07
E5E47050	5.0	5	17	60	0.09
E5E47060	6.0	6	20	65	0.10
E5E47080	8.0	8	22	65	0.14
E5E47100	10.0	10	25	75	0.14
E5E47120	12.0	12	30	80	0.14

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○				◎												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

ALU-POWER END MILLS

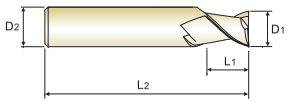
PLAIN SHANK **E5E48** SERIES

CARBIDE, 2 FLUTE 45° HELIX SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE KURZ
Fraise carbure, 2 dents, hélice 45°, courte
2 TAGLIENTI, ELICA 45°, SERIE CORTA

- ▶ Suitable for high speed machining in aluminum and other non-ferrous materials
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation

- ▶ Zur HSC- Bearbeitung von Aluminium und anderen Nichteisenmetallen.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr



CARBIDE | 2 | 45° | PLAIN | UNCOATED

p.C472

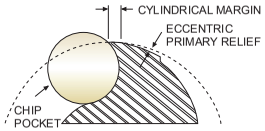
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116

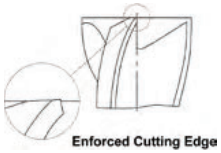
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
E5E48030	3.0	6	5	50
E5E48040	4.0	6	8	54
E5E48050	5.0	6	9	54
E5E48060	6.0	6	10	54
E5E48080	8.0	8	12	58
E5E48100	10.0	10	14	66
E5E48120	12.0	12	16	73
E5E48140	14.0	14	18	75
E5E48160	16.0	16	22	82
E5E48180	18.0	18	24	84
E5E48200	20.0	20	26	92

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5





Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

ALU-POWER END MILLS

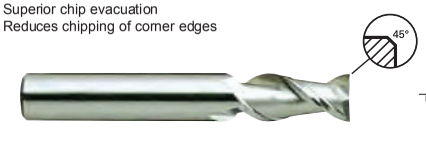
PLAIN SHANK **E5522** SERIES
FLAT SHANK **E5521** SERIES

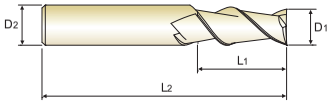
CARBIDE, 2 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 2 dents, hélice 45°, longue
2 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for high speed machining in aluminum and other non-ferrous materials
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Reduces chipping of corner edges

- ▶ Zur HSC- Bearbeitung von Aluminium und anderen Nichteisenmetallen.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr
- ▶ Reduzierung von Schneideckenausbrüchen.





CARBIDE | 2 | 45° | PLAIN | FLAT | C x 45° | UNCOATED

p.C472

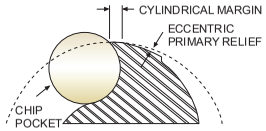
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall ength	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_2	
E5522030	E5521030	3.0	6	8	57	0.05
E5522040	E5521040	4.0	6	11	57	0.05
E5522050	E5521050	5.0	6	13	57	0.05
E5522060	E5521060	6.0	6	13	57	0.05
E5522080	E5521080	8.0	8	19	63	0.05
E5522100	E5521100	10.0	10	22	72	0.10
E5522120	E5521120	12.0	12	26	83	0.10
E5522140	E5521140	14.0	14	26	83	0.10
E5522160	E5521160	16.0	16	32	92	0.10
E5522180	E5521180	18.0	18	32	92	0.10
E5522200	E5521200	20.0	20	38	104	0.10

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

ALU-POWER END MILLS

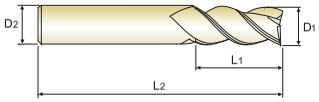
PLAIN SHANK **E5E49** SERIES

CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 3 dents, hélice 45°, longue
3 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr



CARBIDE | 3 | 45° | PLAIN | UNCOATED p.C473

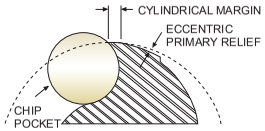
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
			HYDRAULIC CHUCK	D15-46
	◎ END MILL HOLDER	D118-137	SHRINK FIT HOLDER	D47-72
			POWER MILLING CHUCK	D161-176
	○ -	-	ER COLLET CHUCK	D73-116

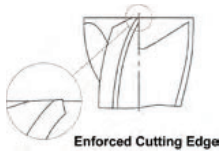
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
E5E49030	3.0	6	12	57
E5E49040	4.0	6	15	57
E5E49050	5.0	6	20	57
E5E49060	6.0	6	20	65
E5E49080	8.0	8	22	65
E5E49100	10.0	10	25	70
E5E49120	12.0	12	25	75
E5E49160	16.0	16	35	90
E5E49200	20.0	20	40	100

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5





Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

ALU-POWER END MILLS

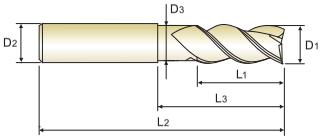
PLAIN SHANK **E5E50** SERIES

CARBIDE, 3 FLUTE 45° HELIX with NECK

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 3 dents, hélice 45°, détalonnée
3 TAGLIENTI, ELICA 45°, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr



CARBIDE | 3 | 45° | PLAIN | UNCOATED p.C473

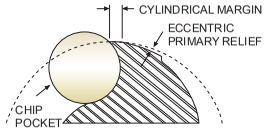
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
			HYDRAULIC CHUCK	D15-46
	◎ END MILL HOLDER	D118-137	SHRINK FIT HOLDER	D47-72
			POWER MILLING CHUCK	D161-176
	○ -	-	ER COLLET CHUCK	D73-116

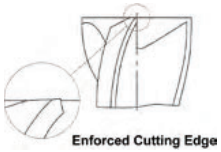
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D_1	D_2	L_1	L_3	L_2	D_3
E5E50030	3.0	6	8	12	57	2.7
E5E50040	4.0	6	11	18	57	3.7
E5E50050	5.0	6	13	18	57	4.7
E5E50060	6.0	6	13	18	57	5.7
E5E50080	8.0	8	21	25	63	7.4
E5E50100	10.0	10	22	30	72	9.2
E5E50120	12.0	12	26	36	83	11
E5E50160	16.0	16	36	42	92	15
E5E50200	20.0	20	41	52	104	19

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.015	h5





Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

ALU-POWER END MILLS

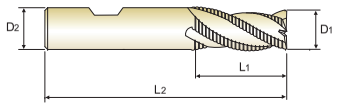
PLAIN SHANK **E5742** SERIES
FLAT SHANK **E5711** SERIES

CARBIDE, 3 FLUTE LONG LENGTH ROUGHING

VOLLHARTMETALL, 3 SCHNEIDEN LANG SCHRUPPFRÄSER
Fraise carbure, 3 dents, ébauche, longue
3 TAGLIENTI, PER SGROSSATURA, SERIE LUNGA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



CARBIDE | YG STD | WR | 3 | 30° | DIN 6535HA | DIN 6535HB | C x 45° | UNCOATED

p.C473

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Overall ength L_2	Chamfer
E5742060	E5711060	6.0	6	16	57	0.60
E5742070	E5711070	7.0	8	16	63	0.60
E5742080	E5711080	8.0	8	16	63	0.60
E5742090	E5711090	9.0	10	19	72	0.60
E5742100	E5711100	10.0	10	22	72	0.60
E5742120	E5711120	12.0	12	26	83	0.60
E5742140	E5711140	14.0	14	26	83	0.91
E5742160	E5711160	16.0	16	32	92	0.91
E5742180	E5711180	18.0	18	32	92	0.91
E5742200	E5711200	20.0	20	38	104	0.91
E5742250	E5711250	25.0	25	45	121	0.91

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 / - 40	0 / - 48	0 / - 58	0 / - 70	0 / - 84
h5	0 / - 4	0 / - 5	0 / - 6	0 / - 8	0 / - 9

Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○		○	○			○					○	○	○	○	○	○

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

ALU-POWER END MILLS

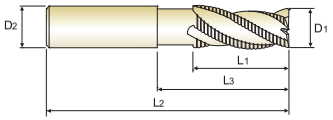
PLAIN SHANK **E5E39** SERIES
FLAT SHANK **E5E40** SERIES

CARBIDE, 3 FLUTE ROUGHING with NECK

VOLLHARTMETALL, 3 SCHNEIDEN SCHRUPPFRÄSER mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 3 dents, ébauche détalonnée
3 TAGLIENTI, PER SGROSSATURA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



CARBIDE | YG STD | WR | 3 | 30° | DIN 6535HA | DIN 6535HB | C x 45° | UNCOATED

p.C473

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK	D15 - 46
			SHRINK FIT HOLDER	D47 - 72
			POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall ength L_2	Neck Diameter D_3	Chamfer
E5E39060	E5E40060	6.0	6	16	20	57	5	0.60
E5E39080	E5E40080	8.0	8	16	25	63	7	0.60
E5E39100	E5E40100	10.0	10	22	30	72	9	0.60
E5E39120	E5E40120	12.0	12	26	36	83	10.5	0.60
E5E39160	E5E40160	16.0	16	32	42	92	14.5	0.91
E5E39200	E5E40200	20.0	20	38	52	104	18.5	0.91

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 / - 40	0 / - 48	0 / - 58	0 / - 70	0 / - 84
h5	0 / - 4	0 / - 5	0 / - 6	0 / - 8	0 / - 9

Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○		○	○			○					○	○	○	○	○	○

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

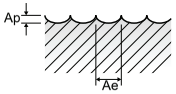
ALU-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5910 SERIES — 2 FLUTE BALL

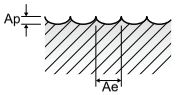
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.2D	0.5D	Vc	270	280	350	420	440	350
					fz	0.049	0.071	0.084	0.107	0.123	0.157
					RPM	14324	11141	11141	11141	8754	5570
					FEED	1404	1582	1872	2384	2153	1749
	23~24	Aluminum-cast, alloyed	0.2D	0.5D	Vc	176	182	228	273	286	228
					fz	0.049	0.071	0.084	0.107	0.123	0.157
					RPM	9311	7242	7242	7242	5690	3621
					FEED	912	1028	1217	1550	1400	1137
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.2D	0.5D	Vc	85	85	105	125	135	105
					fz	0.04	0.06	0.069	0.089	0.101	0.131
					RPM	4509	3382	3342	3316	2686	1671
					FEED	361	406	461	590	543	438



E5908 SERIES — 3 FLUTE BALL

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0	16.0
N	21~22	Aluminum-wrought alloy	0.2D	0.5D	Vc	135	140	135	160	180	225	270	280	350	420	440
					fz	0.018	0.022	0.026	0.028	0.035	0.038	0.049	0.071	0.084	0.107	0.123
					RPM	21486	17825	14324	14551	14324	14324	14324	11141	11141	11141	8754
					FEED	1160	1176	1117	1222	1504	1633	2106	2373	2807	3576	3230
	23~24	Aluminum-cast, alloyed	0.2D	0.5D	Vc	88	91	88	104	117	146	176	182	228	273	286
					fz	0.018	0.022	0.026	0.028	0.035	0.038	0.049	0.071	0.084	0.107	0.123
					RPM	13966	11586	9311	9458	9311	9311	9311	7242	7242	7242	5690
					FEED	754	765	726	795	978	1061	1369	1542	1825	2325	2100
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.2D	0.5D	Vc	40	40	40	50	55	70	85	85	105	125	135
					fz	0.015	0.018	0.022	0.022	0.028	0.031	0.04	0.06	0.069	0.089	0.101
					RPM	6366	5093	4244	4547	4377	4456	4509	3382	3342	3316	2686
					FEED	286	275	280	300	368	414	541	609	692	885	814



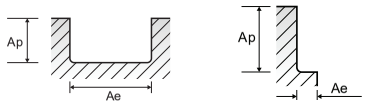
E5930 SERIES

2 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	65	100	130	165	195	200	250	300	320	250
					fz	0.022	0.035	0.046	0.05	0.058	0.09	0.11	0.135	0.156	0.2
					RPM	10345	10610	10345	10504	10345	7958	7958	7958	6366	3979
					FEED	455	743	952	1050	1200	1432	1751	2149	1986	1592
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	42	65	85	107	127	130	163	195	208	163
					fz	0.022	0.035	0.046	0.05	0.058	0.09	0.11	0.135	0.156	0.2
					RPM	6724	6897	6724	6828	6724	5173	5173	5173	4138	2586
					FEED	296	483	619	683	780	931	1138	1397	1291	1035

2 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	Ø2~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	65	100	130	165	195	200	250	300	320	250
					fz	0.039	0.046	0.054	0.065	0.077	0.115	0.135	0.170	0.194	0.250
					RPM	10345	10610	10345	10504	10345	7958	7958	7958	6366	3979
					FEED	807	976	1117	1366	1593	1830	2149	2706	2470	1989
	23~24	Aluminum-cast, alloyed	Ø2~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	42	65	85	107	127	130	163	195	208	163
					fz	0.039	0.046	0.054	0.065	0.077	0.115	0.135	0.170	0.194	0.250
					RPM	6724	6897	6724	6828	6724	5173	5173	5173	4138	2586
					FEED	524	634	726	888	1036	1190	1397	1759	1606	1293



ALU-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5909 SERIES

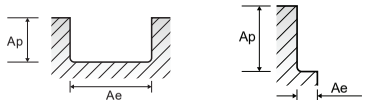
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

2 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 4.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	130	195	200	250	300	320	250
					fz	0.046	0.058	0.09	0.11	0.135	0.156	0.2
					RPM	10345	10345	7958	7958	7958	6366	3979
					FEED	952	1200	1432	1751	2149	1986	1592
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	85	127	130	163	195	208	163
					fz	0.046	0.058	0.09	0.11	0.135	0.156	0.2
					RPM	6724	6724	5173	5173	5173	4138	2586
					FEED	619	780	931	1138	1397	1291	1035
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	Vc	40	60	60	75	90	95	75
					fz	0.038	0.049	0.075	0.092	0.114	0.132	0.167
					RPM	3183	3183	2387	2387	2387	1890	1194
					FEED	242	312	358	439	544	499	399

2 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 4.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	130	195	200	250	300	320	250
					fz	0.054	0.077	0.115	0.135	0.17	0.194	0.25
					RPM	10345	10345	7958	7958	7958	6366	3979
					FEED	1117	1593	1830	2149	2706	2470	1989
	23~24	Aluminum-cast, alloyed	~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	85	127	130	163	195	208	163
					fz	0.054	0.077	0.115	0.135	0.17	0.194	0.25
					RPM	6724	6724	5173	5173	5173	4138	2586
					FEED	726	1036	1190	1397	1759	1606	1293
	26-28	Copper and Copper Alloys (Bronze / Brass)	~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	40	60	60	75	90	95	75
					fz	0.045	0.064	0.097	0.114	0.142	0.163	0.21
					RPM	3183	3183	2387	2387	2387	1890	1194
					FEED	286	407	463	544	678	616	501



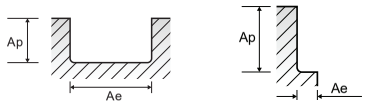
E5E51 SERIES

3 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	95	125	155	190	200	250	300	300	250
					fz	0.039	0.050	0.055	0.066	0.096	0.117	0.145	0.174	0.220
					RPM	10080	9947	9868	10080	7958	7958	7958	5968	3979
					FEED	1179	1492	1628	1996	2292	2793	3462	3115	2626
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	62	81	101	124	130	163	195	195	163
					fz	0.039	0.050	0.055	0.066	0.096	0.117	0.145	0.174	0.220
					RPM	6552	6466	6414	6552	5173	5173	5173	3879	2586
					FEED	767	970	1058	1297	1490	1816	2250	2025	1707

3 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.15D	2.5D	Vc	95	125	155	190	200	250	300	300	250
					fz	0.050	0.061	0.072	0.083	0.125	0.145	0.179	0.220	0.262
					RPM	10080	9947	9868	10080	7958	7958	7958	5968	3979
					FEED	1512	1820	2131	2510	2984	3462	4273	3939	3127
	23~24	Aluminum-cast, alloyed	0.15D	2.5D	Vc	62	81	101	124	130	163	195	195	163
					fz	0.050	0.061	0.072	0.083	0.125	0.145	0.179	0.220	0.262
					RPM	6552	6466	6414	6552	5173	5173	5173	3879	2586
					FEED	983	1183	1385	1631	1940	2250	2778	2560	2033



ALU-POWER END MILLS

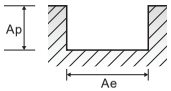
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5E47 SERIES

1 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	21~22	Aluminum-wrought alloy	1.0D	1.5D	Vc	145	170	190	190	190	195	190	190
					fz	0.065	0.094	0.120	0.150	0.180	0.244	0.333	0.440
					RPM	23077	18038	15120	12096	10080	7759	6048	5040
					FEED	1500	1696	1814	1814	1814	1893	2014	2218
	23~24	Aluminum-cast, alloyed	1.0D	1.5D	Vc	94	111	124	124	124	127	124	124
					fz	0.065	0.094	0.120	0.150	0.180	0.244	0.333	0.440
					RPM	15000	11724	9828	7862	6552	5043	3931	3276
					FEED	975	1102	1179	1179	1179	1231	1309	1441
	29.1	Non Metallic Materials (Duroplastic)	1.0D	1.5D	Vc	200	235	250	235	255	250	250	255
					fz	0.069	0.096	0.120	0.147	0.170	0.240	0.300	0.343
					RPM	31831	24934	19894	14961	13528	9947	7958	6764
					FEED	2196	2394	2387	2199	2300	2387	2387	2320



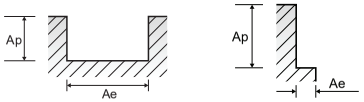
E5E48, E5522, E5521 SERIES

2 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)										
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	95	125	155	190	200	250	300	265	300	225	250
					fz	0.035	0.045	0.050	0.060	0.088	0.106	0.131	0.150	0.158	0.175	0.200
					RPM	10080	9947	9868	10080	7958	7958	7958	6025	5968	3979	3979
					FEED	706	895	987	1210	1401	1687	2085	1808	1886	1393	1592
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	62	81	101	124	130	163	195	172	195	146	163
					fz	0.035	0.045	0.050	0.060	0.088	0.106	0.131	0.150	0.158	0.175	0.200
					RPM	6552	6466	6414	6552	5173	5173	5173	3916	3879	2586	2586
					FEED	459	582	641	786	910	1097	1355	1175	1226	905	1035

2 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)										
						3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21~22	Aluminum-wrought alloy	Ø3~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	95	125	155	190	200	250	300	265	300	225	250
					fz	0.045	0.055	0.065	0.075	0.113	0.131	0.163	0.183	0.200	0.225	0.238
					RPM	10080	9947	9868	10080	7958	7958	7958	6025	5968	3979	3979
					FEED	907	1094	1283	1512	1798	2085	2594	2205	2387	1790	1894
	23~24	Aluminum-cast, alloyed	Ø3~Ø10=0.25D Ø12~Ø20=0.5D	1.0D	Vc	62	81	101	124	130	163	195	172	195	146	163
					fz	0.045	0.055	0.065	0.075	0.113	0.131	0.163	0.183	0.200	0.225	0.238
					RPM	6552	6466	6414	6552	5173	5173	5173	3916	3879	2586	2586
					FEED	590	711	834	983	1169	1355	1686	1433	1552	1164	1231



ALU-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5E49, E5E50 SERIES

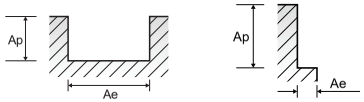
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

3 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)									
						3.0	4.0	5.0	6.0	8.0	9.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	65	90	110	130	140	160	175	210	210	175
					fz	0.035	0.045	0.050	0.060	0.088	0.097	0.106	0.131	0.158	0.200
					RPM	6897	7162	7003	6897	5570	5659	5570	5570	4178	2785
					FEED	724	967	1050	1241	1471	1647	1771	2189	1980	1671
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	42	59	72	85	91	104	114	137	137	114
					fz	0.035	0.045	0.050	0.060	0.088	0.097	0.106	0.131	0.158	0.200
					RPM	4483	4655	4552	4483	3621	3678	3621	3621	2716	1810
					FEED	471	628	683	807	956	1070	1151	1423	1287	1086

3 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)									
						3.0	4.0	5.0	6.0	8.0	9.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.15D	1.5D ~ 2.5D	Vc	65	90	110	130	140	160	175	210	210	175
					fz	0.045	0.055	0.065	0.075	0.113	0.122	0.131	0.163	0.200	0.238
					RPM	6897	7162	7003	6897	5570	5659	5570	5570	4178	2785
					FEED	931	1182	1366	1552	1888	2071	2189	2724	2507	1989
	23~24	Aluminum-cast, alloyed	0.15D	1.5D ~ 2.5D	Vc	42	59	72	85	91	104	114	137	137	114
					fz	0.045	0.055	0.065	0.075	0.113	0.122	0.131	0.163	0.200	0.238
					RPM	4483	4655	4552	4483	3621	3678	3621	3621	2716	1810
					FEED	605	768	888	1009	1227	1346	1423	1771	1629	1293



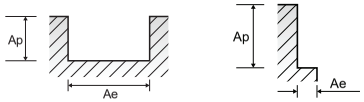
E5E39, E5E40, E5742, E5711 SERIES

3 FLUTE ROUGHING - SLOTTING

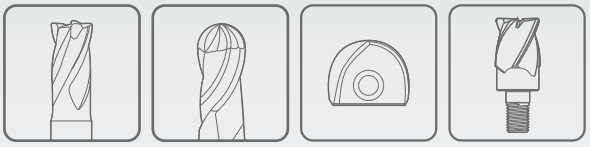
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	1.5D	Vc	198	201	204	241	241	242
					fz	0.168	0.167	0.179	0.167	0.167	0.165
					RPM	10504	7998	6494	6393	4795	3852
					FEED	5294	4007	3487	3203	2402	1907
	23~24	Aluminum-cast, alloyed	1.0D	1.5D	Vc	129	131	133	157	157	157
					fz	0.168	0.167	0.179	0.167	0.167	0.165
					RPM	6828	5198	4221	4155	3116	2504
					FEED	3441	2604	2267	2082	1561	1239

3 FLUTE ROUGHING - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	254	264	267	320	322	320
					fz	0.168	0.168	0.169	0.165	0.167	0.163
					RPM	13475	10504	8499	8488	6406	5093
					FEED	6791	5294	4309	4202	3209	2490
	23~24	Aluminum-cast, alloyed	0.5D	1.5D	Vc	165	172	174	208	209	208
					fz	0.168	0.168	0.169	0.165	0.167	0.163
					RPM	8759	6828	5524	5517	4164	3310
					FEED	4414	3441	2801	2731	2086	1619



Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

SOLID CARBIDE

D-POWER GRAPHITE END MILLS

D - POWER Graphit VHM - Fräser

- For Graphites
- Für Graphite

SELECTION GUIDE

YG MILLING TOOLS

SOLID CARBIDE D-POWER for GRAPHITE END MILLS

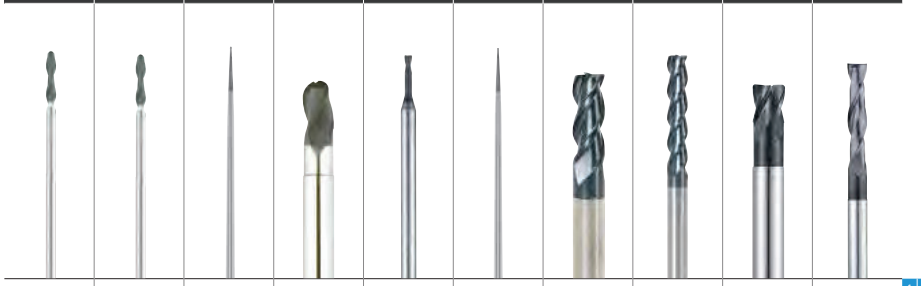
High performance on graphite

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C493

SERIES	EI997	EIB93	EI880	EI451	EI450	EIB87	EI881	EI996	EIB86	EIA13	EIA14	EIB88	EIB04
FLUTE	2	2	2	2	2	2	3	2	2	3	3	4	2
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°	30°	30°	40°	40°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE
SIZE MIN	R0.1	R0.2	R1.0	R1.0	R1.0	R0.5	R1.0	D0.2	D1.0	D2.0	D2.0	D6.0	D0.5
SIZE MAX	R3.0	R2.0	R6.0	R6.0	R6.0	R1.0	R6.0	D6.0	D2.0	D12.0	D12.0	D12.0	D12.0
PAGE	C478	C480	C481	C482	C483	C484	C485	C486	C488	C489	C490	C491	C492
	MINIATURE NECK	MINIATURE NECK	SHORT LENGTH NECK	LONG LENGTH NECK	LONG REACH NECK	TAPER NECK	SHORT LENGTH NECK	MINIATURE NECK	TAPER NECK	SHORT LENGTH	LONG LENGTH	NECK	LONG LENGTH NECK
	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	EI997	EIB93	EI880	EI451	EI450	EIB87	EI881	EI996	EIB86	EIA13	EIA14	EIB88	EIB04
P	1	Non-alloy steel	About 0.15% C	Annealed	125														
	2		About 0.45% C	Annealed	190	13													
	3		About 0.45% C	Quenched & Tempered	250	25													
	4		About 0.75% C	Annealed	270	28													
	5		About 0.75% C	Quenched & Tempered	300	32													
	6	Low alloy steel		Annealed	180	10													
	7			Quenched & Tempered	275	29													
	8			Quenched & Tempered	300	32													
	9			Quenched & Tempered	350	38													
	10	High alloyed steel, and tool steel		Annealed	200	15													
	11			Quenched & Tempered	325	35													
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15													
	13		Martensitic	Quenched & Tempered	240	23													
	14		Austenitic		180	10													
K	15	Grey cast iron	Pearlitic / ferritic		180	10													
	16		Pearlitic (Martensitic)		260	26													
	17	Nodular cast iron	Ferritic		160	3													
	18		Pearlitic		250	25													
	19	Malleable cast iron	Ferritic		130														
	20		Pearlitic		230	21													
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○	○	○	○	○	○	○	○	○	○
	22		Curable	Hardened	100		○	○	○	○	○	○	○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○	○	○	○	○	○	○	○	○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○	○	○	○	○	○	○	○	○	○	○	○
	25		> 12% Si, Not Curable		130		○	○	○	○	○	○	○	○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110														
	27		CuZn, CuSnZn (Brass)		90														
	28		CuSn, lead-free copper and electrolytic copper		100														
	29.1	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic																
	29.2		Graphite				◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
	29.3		CFRP, GFRP																
	30		Rubber, Wood, etc.																
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15													
	32			Cured	280	30													
	33		Ni or Co Based	Annealed	250	25													
	34			Cured	350	38													
	35			Cast	320	34													
	36	Titanium Alloys	Pure Titanium		400 Rm														
	37		Alpha + Beta Alloys	Hardened	1050 Rm														
H	38	Hardened steel		Hardened	550	55													
	39			Hardened	630	60													
	40	Chilled Cast Iron		Cast	400	42													
	41	Hardened Cast Iron		Hardened	550	55													

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

D-POWER GRAPHITE END MILLS

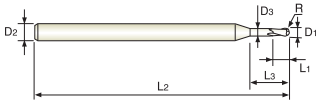
PLAIN SHANK **EI997 SERIES**

CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée, micro-fraise
2 TAGLIENTI, SEMISFERICA, SERIE MINI, SCARICATA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Diamond p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EI997002000040	R0.1	0.2	3	0.2	-	40	-
EI997003000040	R0.15	0.3	3	0.3	-	40	-
EI997004000040	R0.2	0.4	3	0.4	-	40	-
EI997005025040	R0.25	0.5	3	0.5	2.5	40	0.45
EI997006	R0.3	0.6	3	0.6	3	40	0.55
EI997006050040	R0.3	0.6	3	0.6	5	40	0.55
EI997008	R0.4	0.8	3	0.8	4	40	0.75
EI997008070040	R0.4	0.8	3	0.8	7	40	0.75
EI997010	R0.5	1.0	3	1	5	40	0.95
EI997903	R0.5	1.0	3	1	8.5	40	0.95
EI997010120040	R0.5	1.0	3	1	12	40	0.95
EI997012	R0.6	1.2	3	1.2	6	50	1.15
EI997012100050	R0.6	1.2	3	1.2	10	50	1.15
EI997015	R0.75	1.5	3	1.5	7.5	50	1.4
EI997906	R0.75	1.5	3	1.5	12	50	1.4
EI997015180050	R0.75	1.5	3	1.5	18	50	1.4
EI997020	R1.0	2.0	3	2.2	10	60	1.9
EI997908	R1.0	2.0	3	2.2	16	60	1.9
EI997020250060	R1.0	2.0	3	2.2	25	60	1.9
EI997030100065	R1.5	3.0	4	3	10	65	2.9
EI997030150065	R1.5	3.0	4	3	15	65	2.9
EI997030200065	R1.5	3.0	4	3	20	65	2.9
EI997030250075	R1.5	3.0	4	3	25	75	2.9
EI997030300075	R1.5	3.0	4	3	30	75	2.9

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS
PLAIN SHANK EI997 SERIES
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VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL
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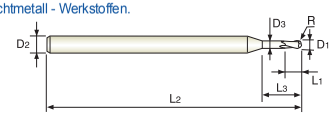
Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Diamond p.C493
Recommended ToolHolder
HYDRAULIC CHUCK SHRINK FIT HOLDER D15 - 46 D47 - 72
POWER MILLING CHUCK D161 - 176
ER COLLET CHUCK SK SLIM CHUCK D73 - 116 D183 - 201
Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EI997040200065	R2.0	4.0	6	4	20	65	3.9
EI997040300075	R2.0	4.0	6	4	30	75	3.9
EI997040400090	R2.0	4.0	6	4	40	90	3.9
EI997050200065	R2.5	5.0	6	5	20	65	4.9
EI997050300075	R2.5	5.0	6	5	30	75	4.9
EI997050400090	R2.5	5.0	6	5	40	90	4.9
EI997050500090	R2.5	5.0	6	5	50	90	4.9
EI997060300075	R3.0	6.0	6	6	30	75	5.9
EI997060400090	R3.0	6.0	6	6	40	90	5.9
EI997060500090	R3.0	6.0	6	6	50	90	5.9
EI997060600100	R3.0	6.0	6	6	60	100	5.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS

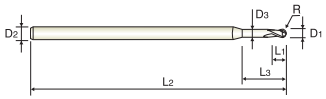
PLAIN SHANK **EIB93 SERIES**

CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée, micro-fraise
2 TAGLIENTI, SEMISFERICA, SERIE MINI, SCARICATA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Diamond

p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EIB93004040	R0.2	0.4	4	0.6	4	45	0.36
EIB93004060	R0.2	0.4	4	0.6	6	45	0.36
EIB93006040	R0.3	0.6	4	1	4	45	0.56
EIB93006060	R0.3	0.6	4	1	6	45	0.56
EIB93006080	R0.3	0.6	4	1	8	45	0.56
EIB93010060	R0.5	1.0	4	1.5	6	45	0.95
EIB93010080	R0.5	1.0	4	1.5	8	45	0.95
EIB93010120	R0.5	1.0	4	1.5	12	45	0.95
EIB93015120	R0.75	1.5	4	1.75	12	45	1.45
EIB93020080	R1.0	2.0	4	3	8	60	1.95
EIB93020120	R1.0	2.0	4	3	12	60	1.95
EIB93020160	R1.0	2.0	4	3	16	60	1.95
EIB93040160	R2.0	4.0	4	6	16	60	3.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS

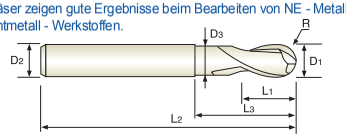
PLAIN SHANK **EI880 SERIES**

CARBIDE, 2 FLUTE BALL NOSE SHORT LENGTH with NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA, SCARICATA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.'
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Diamond

p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EI880020	R1.0	2.0	6	3	5	60	1.9
EI880025	R1.25	2.5	6	4	6	60	2.4
EI880030	R1.5	3.0	6	4.5	6.5	60	2.8
EI880035	R1.75	3.5	6	5	7	65	3.2
EI880040	R2.0	4.0	6	6	8	65	3.7
EI880050	R2.5	5.0	6	7.5	10	65	4.6
EI880060	R3.0	6.0	6	9	12	75	5.6
EI880080	R4.0	8.0	8	12	25	75	7.4
EI880100	R5.0	10.0	10	15	30	80	9.4
EI880120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

D-POWER GRAPHITE END MILLS

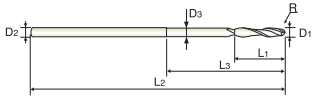
PLAIN SHANK **EI451 SERIES**

CARBIDE, 2 FLUTE BALL NOSE LONG LENGTH with NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS LANG mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée, longue
2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Diamond p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EI451020	R1.0	2.0	4	10	20	80	1.95
EI451030	R1.5	3.0	4	15	25	80	2.9
EI451040	R2.0	4.0	4	20	30	80	3.9
EI451050	R2.5	5.0	6	30	50	100	4.9
EI451060	R3.0	6.0	6	30	50	100	5.5
EI451070	R3.5	7.0	6	30	-	100	-
EI451080	R4.0	8.0	8	40	60	110	7.5
EI451090	R4.5	9.0	8	40	-	110	-
EI451100	R5.0	10.0	10	50	70	120	9.5
EI451120	R6.0	12.0	12	55	75	130	11.5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS

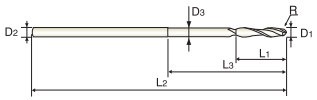
PLAIN SHANK **EI450 SERIES**

CARBIDE, 2 FLUTE BALL NOSE LONG REACH with NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS GROßE REICHWEITE mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique longue portée, détalonnée
2 TAGLIENTI, SEMISFERICA PER CAVITA' PROFONDE

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Diamond p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EI450020	R1.0	2.0	4	10	20	100	1.95
EI450030	R1.5	3.0	4	15	25	100	2.9
EI450040	R2.0	4.0	4	20	30	100	3.9
EI450050	R2.5	5.0	6	30	50	120	4.9
EI450060	R3.0	6.0	6	30	50	150	5.5
EI450070	R3.5	7.0	6	30	-	150	-
EI450080	R4.0	8.0	8	40	60	150	7.5
EI450090	R4.5	9.0	8	40	-	150	-
EI450100	R5.0	10.0	10	50	70	180	9.5
EI450120	R6.0	12.0	12	55	75	200	11.5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

D-POWER GRAPHITE END MILLS

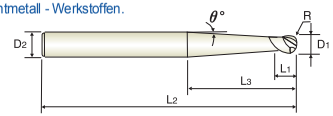
PLAIN SHANK **EIB87** SERIES

CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, hémisphérique avec entrée conique
2 TAGLIENTI, SEMISFERICA CON SCARICO CONICO

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | R ±0.01 | PLAIN | Diamond | p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	θ°
EIB87010	R0.5	**1.0**	3	2	-	40	8° 30´
EIB87901	R0.5	**1.0**	3	2	30	60	2°
EIB87902	R0.5	**1.0**	3	2	70	100	1°
EIB87015	R0.75	**1.5**	3	3	-	40	6° 15´
EIB87903	R0.75	**1.5**	3	3	30	60	1° 30´
EIB87904	R0.75	**1.5**	3	3	58	100	45´
EIB87020	R1.0	**2.0**	3	4	-	40	4° 15´
EIB87905	R1.0	**2.0**	3	4	30	60	1°
EIB87906	R1.0	**2.0**	4	4	70	100	1°

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS

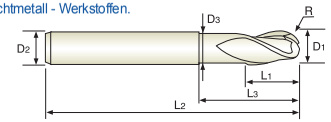
PLAIN SHANK **EI881** SERIES

CARBIDE, 3 FLUTE BALL NOSE SHORT LENGTH with NECK

VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 3 dents, hémisphérique, détalonnée, courte
3 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 3 | 30° | R ±0.01 | PLAIN | Diamond | p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EI881020	R1.0	**2.0**	6	3	5	60	1.9
EI881025	R1.25	**2.5**	6	4	6	60	2.4
EI881030	R1.5	**3.0**	6	4.5	6.5	60	2.8
EI881035	R1.75	**3.5**	6	5	7	65	3.2
EI881040	R2.0	**4.0**	6	6	8	65	3.7
EI881050	R2.5	**5.0**	6	7.5	10	65	4.6
EI881060	R3.0	**6.0**	6	9	12	75	5.6
EI881080	R4.0	**8.0**	8	12	25	75	7.4
EI881100	R5.0	**10.0**	10	15	30	80	9.4
EI881120	R6.0	**12.0**	12	18	36	90	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

D-POWER GRAPHITE END MILLS

PLAIN SHANK **EI996 SERIES**

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK

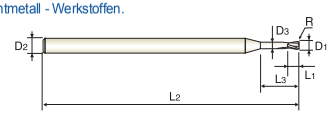
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée, micro-fraise

2 TAGLIENTI, TORICA, SERIE MINI, SCARICATA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | PLAIN | Diamond p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
○	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
EI99600200000	-	0.2	3	0.3	-	40	-
EI99600300000	-	0.3	3	0.5	-	40	-
EI99600400000	-	0.4	3	0.6	-	40	-
EI99600505025	R0.05	0.5	3	0.7	2.5	40	0.45
EI99600505040	R0.05	0.5	3	0.7	4	40	0.45
EI996006	R0.05	0.6	3	0.9	3	40	0.55
EI99600605050	R0.05	0.6	3	0.9	5	40	0.55
EI996008	R0.05	0.8	3	1.2	4	40	0.75
EI99600805070	R0.05	0.8	3	1.2	7	40	0.75
EI996010	R0.1	1.0	3	1.5	5	40	0.95
EI996904	R0.1	1.0	3	1.5	8.5	40	0.95
EI99601010120	R0.1	1.0	3	1.5	12	40	0.95
EI996012	R0.1	1.2	3	1.8	6	50	1.15
EI99601210100	R0.1	1.2	3	1.8	10	50	1.15
EI996015	R0.15	1.5	3	2.2	7.5	50	1.4
EI996907	R0.15	1.5	3	2.2	12	50	1.4
EI99601515180	R0.15	1.5	3	2.2	18	50	1.4
EI996020	R0.15	2.0	3	2.2	10	60	1.9
EI996909	R0.15	2.0	3	2.2	16	60	1.9
EI99602015250	R0.15	2.0	3	2.2	25	60	1.9
EI99603020100	R0.2	3.0	4	3	10	65	2.9
EI99603020150	R0.2	3.0	4	3	15	65	2.9
EI99603020200	R0.2	3.0	4	3	20	65	2.9
EI99603020250	R0.2	3.0	4	3	25	75	2.9

▶ NEXT PAGE

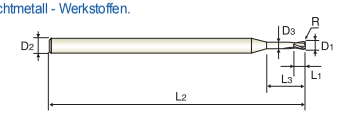
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS
PLAIN SHANK EI996 SERIES
CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée, micro-fraise
2 TAGLIENTI, TORICA, SERIE MINI, SCARICATA
▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | PLAIN | Diamond p.C493
Recommended ToolHolder
	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
○	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
EI99603020300	R0.2	3.0	4	3	30	75	2.9
EI99604020200	R0.2	4.0	6	4	20	65	3.9
EI99604020300	R0.2	4.0	6	4	30	75	3.9
EI99604020400	R0.2	4.0	6	4	40	90	3.9
EI99605030200	R0.3	5.0	6	5	20	75	4.9
EI99605030300	R0.3	5.0	6	5	30	75	4.9
EI99605030400	R0.3	5.0	6	5	40	90	4.9
EI99605030500	R0.3	5.0	6	5	50	90	4.9
EI99606030300	R0.3	6.0	6	6	30	75	5.9
EI99606030400	R0.3	6.0	6	6	40	90	5.9
EI99606030500	R0.3	6.0	6	6	50	90	5.9
EI99606030600	R0.3	6.0	6	6	60	100	5.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5
◎ : Excellent ○ : Good
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS

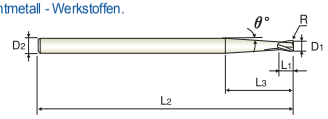
PLAIN SHANK **EIB86** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK

VOLLHARTMETALL, 2 SCHEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, torique avec entrée conique
2 TAGLIENTI, TORICA CON SCARICO CONICO

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | PLAIN | Diamond p.C493

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R	D_1	D_2	L_1	L_3	L_2	θ°
EIB86010	R0.1	**1.0**	3	2	30	60	2°
EIB86901	R0.1	**1.0**	3	2	70	100	1°
EIB86015	R0.15	**1.5**	3	3	30	60	1° 30´
EIB86902	R0.15	**1.5**	3	3	50	100	1°
EIB86020	R0.15	**2.0**	3	4	30	60	1°
EIB86903	R0.15	**2.0**	4	4	70	100	1°

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS

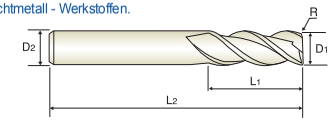
PLAIN SHANK **EIA13** SERIES

CARBIDE, 3 FLUTE 40° HELIX CORNER RADIUS SHORT LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE ECKENRADIUS KURZ
Fraise carbure, 3 dents, torique, hélice 40°, courte
3 TAGLIENTI, ELICA 40°, TORICA, SERIE CORTA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 3 | 40° | PLAIN | Diamond p.C494

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
EIA13020	R0.15	**2.0**	3	6	40
EIA13030	R0.15	**3.0**	3	12	40
EIA13040	R0.2	**4.0**	4	14	50
EIA13050	R0.3	**5.0**	5	16	50
EIA13060	R0.3	**6.0**	6	20	65
EIA13080	R0.5	**8.0**	8	20	65
EIA13100	R0.5	**10.0**	10	25	75
EIA13120	R0.5	**12.0**	12	25	75

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

D-POWER GRAPHITE END MILLS

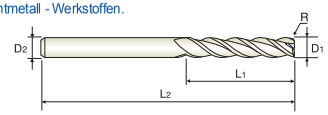
PLAIN SHANK **EIA14 SERIES**

CARBIDE, 3 FLUTE 40° HELIX CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDN 40° RECHTSSPIRALE ECKENRADIUS LANG
Fraise carbure, 3 dents, torique, hélice 40°, longue
3 TAGLIENTI, ELICA 40°, TORICA, SERIE LUNGA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 3 | 40° | PLAIN | Diamond

p.C494

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
EIA14020	R0.15	2.0	3	9	60
EIA14030	R0.15	3.0	3	30	60
EIA14040	R0.2	4.0	4	30	60
EIA14050	R0.3	5.0	5	35	70
EIA14060	R0.3	6.0	6	40	100
EIA14080	R0.5	8.0	8	40	100
EIA14100	R0.5	10.0	10	40	100
EIA14120	R0.5	12.0	12	45	100

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

D-POWER GRAPHITE END MILLS

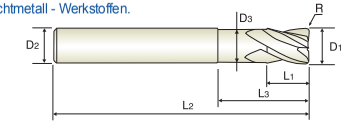
PLAIN SHANK **EIB88 SERIES**

CARBIDE, 4 FLUTE CORNER RADIUS with NECK

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, détalonnée
4 TAGLIENTI, TORICA, SCARICATA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 4 | 30° | PLAIN | Diamond

p.C494

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
◎	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
EIB88060	R0.5	6.0	6	10	40	80	5.9
EIB88080	R0.5	8.0	8	10	40	80	7.8
EIB88901	R1.0	8.0	8	10	60	100	7.8
EIB88100	R0.5	10.0	10	25	-	75	-
EIB88902	R0.5	10.0	10	12	40	80	9.8
EIB88903	R1.0	10.0	10	12	40	80	9.8
EIB88904	R0.5	10.0	10	12	80	125	9.8
EIB88120	R0.5	12.0	12	25	-	80	-
EIB88905	R0.5	12.0	12	15	40	80	11.8
EIB88906	R1.0	12.0	12	15	40	80	11.8
EIB88907	R1.0	12.0	12	15	80	125	11.8

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

D-POWER GRAPHITE END MILLS

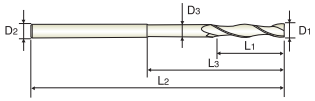
PLAIN SHANK **EIB04 SERIES**

CARBIDE, 2 FLUTE LONG LENGTH with NECK

VOLLHARTMETALL, 2 SCHNEIDEN LANG mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée, longue
2 TAGLIENTI, SERIE LUNGA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



CARBIDE | 2 | 30° | PLAIN | Diamond

p.C494

Recommended ToolHolder

Plain Shank	Page
HYDRAULIC CHUCK	D15 - 46
SHRINK FIT HOLDER	D47 - 72
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116
SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
EIB0400502040	0.5	3	1	2	40	0.45
EIB0400603040	0.6	3	2	3	40	0.55
EIB0400704040	0.7	3	2	4	40	0.65
EIB0400805040	0.8	3	2	5	40	0.75
EIB0400906040	0.9	3	2	6	40	0.85
EIB0401008075	1.0	4	3	8	75	0.95
EIB0401510075	1.5	4	4	10	75	1.45
EIB0402016100	2.0	4	6	16	100	1.9
EIB0402520100	2.5	4	8	20	100	2.4
EIB0403030100	3.0	6	8	30	100	2.8
EIB0403535100	3.5	6	10	35	100	3.2
EIB0404040100	4.0	6	20	40	100	3.7
EIB0405050125	5.0	6	25	50	125	4.6
EIB0406060140	6.0	6	30	60	140	5.6
EIB0407000140	7.0	6	35	-	140	-
EIB0408080150	8.0	8	40	80	150	7.4
EIB0409000150	9.0	8	45	-	150	-
EIB0410080150	10.0	10	50	80	150	9.4
EIB0411000150	11.0	10	50	-	150	-
EIB0412080150	12.0	12	55	80	150	11.4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

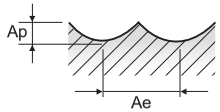
D-POWER GRAPHITE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

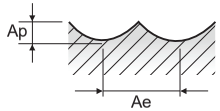
EI997, EIB93, EIB87 SERIES — 2 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.4	0.6	0.8	1.0	1.2	1.5	2.0	3.0	4.0	5.0	6.0
N	29.2	Graphite	0.2D	0.2D	Vc	50	75	100	125	150	190	250	255	250	250	265
					fz	0.008	0.010	0.012	0.015	0.018	0.020	0.025	0.041	0.073	0.091	0.104
					RPM	39789	39789	39789	39789	39789	40319	39789	27056	19894	15915	14059
					FEED	637	796	955	1194	1432	1613	1989	2219	2905	2897	2924



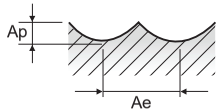
EI880, EI451, EI450 SERIES — 2 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0
N	29.2	Graphite	0.2D	0.2D	Vc	100	125	150	175	200	245	285	325	360	395
					fz	0.025	0.035	0.045	0.055	0.066	0.082	0.098	0.115	0.133	0.150
					RPM	15915	15915	15915	15915	15915	15597	15120	12931	11459	10478
					FEED	796	1114	1432	1751	2101	2558	2963	2974	3048	3143



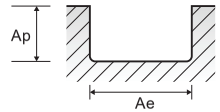
EI881 SERIES — 3 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0
N	29.2	Graphite	0.2D	0.2D	Vc	100	125	150	175	200	245	285	325	360	395
					fz	0.025	0.035	0.045	0.055	0.065	0.082	0.099	0.115	0.133	0.151
					RPM	15915	15915	15915	15915	15915	15597	15120	12931	11459	10478
					FEED	1194	1671	2149	2626	3104	3837	4491	4461	4572	4746



EI996, EIB86 SERIES — 2 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.4	0.6	0.8	1.0	1.2	1.5	2.0	3.0	4.0	5.0	6.0
N	29.2	Graphite	1.0D	0.5D	Vc	50	75	100	125	150	190	250	255	250	250	265
					fz	0.008	0.008	0.010	0.012	0.015	0.018	0.020	0.035	0.058	0.072	0.082
					RPM	39789	39789	39789	39789	39789	40319	39789	27056	19894	15915	14059
					FEED	637	637	796	955	1194	1451	1592	1894	2308	2292	2306



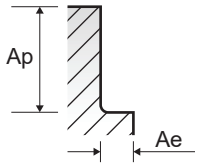
D-POWER GRAPHITE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EIA13, EIA14 SERIES — 3 FLUTE CORNER RADIUS - SIDE CUTTING

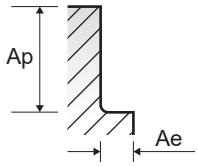
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	29.2	Graphite	0.3D	0.3D	Vc	250	375	505	630	755	805	815	790
					fz	0.025	0.035	0.05	0.06	0.07	0.088	0.11	0.13
					RPM	39789	39789	40187	40107	40054	32030	25942	20955
					FEED	2984	4178	6028	7219	8411	8456	8561	8173



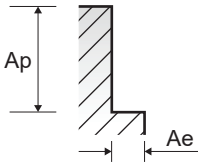
EIB88 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0
N	29.2	Graphite	0.3D	0.3D	Vc	755	805	815	790
					fz	0.035	0.044	0.055	0.065
					RPM	40054	32030	25942	20955
					FEED	5608	5637	5707	5448



EIB04 SERIES — 2 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.4	0.6	0.8	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	29.2	Graphite	0.1D	1.5D	Vc	50	75	100	125	190	155	190	225	220	205	200	205	205
					fz	0.003	0.004	0.007	0.009	0.010	0.016	0.020	0.026	0.043	0.064	0.081	0.092	0.109
					RPM	39789	39789	39789	39789	40319	24669	20160	17905	14006	10876	7958	6525	5438
					FEED	239	318	557	716	806	789	806	931	1204	1392	1289	1201	1185



Leading Through Innovation

SOLID CARBIDE

CRX S END MILLS

CRX S FRÄSER

- DLC Coated Carbide End Mills for Copper
- DLC beschichtete VHM Fräser für die Kuper

SELECTION GUIDE

MILLING TOOLS

SERIES	SGED28	SGED27	SGED29	SGED31	SGED30
FLUTE	2	2	2	2	2
HELIX ANGLE	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	R0.5	R0.25	D1.0	D1.0	D0.5
SIZE MAX	R6.0	R6.0	D12.0	D12.0	D12.0
PAGE	C497	C498	C500	C502	C503
	-	EXTENDED NECK	EXTENDED NECK	-	EXTENDED NECK
	DLC	DLC	DLC	DLC	DLC

SOLID CARBIDE
CRX S
END MILLS

DLC Coated Carbide End Mills for Copper

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C505

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc					
P	1	Non-alloy steel	About 0.15% C	Annealed	125						
	2		About 0.45% C	Annealed	190	13					
	3		About 0.45% C	Quenched & Tempered	250	25					
	4		About 0.75% C	Annealed	270	28					
	5		About 0.75% C	Quenched & Tempered	300	32					
	6	Low alloy steel		Annealed	180	10					
	7			Quenched & Tempered	275	29					
	8			Quenched & Tempered	300	32					
	9			Quenched & Tempered	350	38					
	10	High alloyed steel, and tool steel		Annealed	200	15					
	11			Quenched & Tempered	325	35					
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15					
	13		Martensitic	Quenched & Tempered	240	23					
	14		Austenitic		180	10					
K	15	Grey cast iron	Pearlitic / ferritic		180	10					
	16		Pearlitic (Martensitic)		260	26					
	17	Nodular cast iron	Ferritic		160	3					
	18		Pearlitic		250	25					
	19	Malleable cast iron	Ferritic		130						
	20		Pearlitic		230	21					
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○	○
	22		Curable	Hardened	100		○	○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75						
	24		≤ 12% Si, Curable	Hardened	90						
	25		> 12% Si, Not Curable		130						
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		◎	◎	◎	◎	◎
	27		CuZn, CuSnZn (Brass)		90		◎	◎	◎	◎	◎
	28		CuSn, lead-free copper and electrolytic copper		100		◎	◎	◎	◎	◎
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○	○	○
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					
	32			Cured	280	30					
	33		Ni or Co Based	Annealed	250	25					
	34			Cured	350	38					
	35			Cast	320	34					
	36	Titanium Alloys	Pure Titanium		400 Rm						
	37		Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55					
	39			Hardened	630	60					
	40	Chilled Cast Iron		Cast	400	42					
	41	Hardened Cast Iron		Hardened	550	55					

CRX S END MILLS

PLAIN SHANK **SGED28** SERIES

CARBIDE, 2 FLUTE BALL NOSE DLC COATING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG
Fraise carbure, 2 dents, hémisphérique, revêtue DLC
2 TAGLIENTI, SEMISFERICA, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶Tight radius tolerance is applied (±0.005mm tolerance under R3).
- ▶Excellent surface roughness from Mirror Face of cutting edges

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶Hochgenaue Raduistoleranz (±0.005mm Toleranz unter R3mm)
- ▶Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht

CARBIDE | 2 | 30° | R ±0.005 | PLAIN | DLC | p.C505

Recommended ToolHolder

	Plain Shank	Page
	HYDRAULIC CHUCK	D15-46
◎	SHRINK FIT HOLDER	D47-72
	POWER MILLING CHUCK	D161-176
○	ER COLLET CHUCK	D73-116
	SK SUM CHUCK	D183-201

Unit : mm

EDP No.	Radius of Ball Nose R(±0.005)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
SGED28010	R0.5	1.0	6	2.5	50
SGED28015	R0.75	1.5	6	4	50
SGED28020	R1.0	2.0	6	5	50
SGED28030	R1.5	3.0	6	8	60
SGED28040	R2.0	4.0	6	8	70
SGED28050	R2.5	5.0	6	12	90
SGED28060	R3.0	6.0	6	12	90
SGED28080	R4.0	8.0	8	16	100
SGED28100	R5.0	10.0	10	20	100
SGED28120	R6.0	12.0	12	25	110

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0 ~ - 0.012	h5
over R3		0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CRX S END MILLS

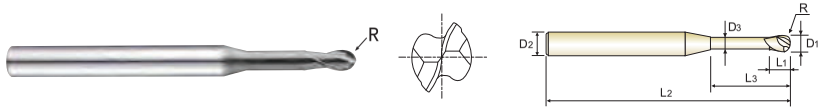
PLAIN SHANK **SGED27** SERIES

CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée, revêtue DLC
2 TAGLIENTI, SEMISFERICA CON SCARICO ESTESO, RIV. DLC

- ▶ Designed for copper, copper alloys soft graphite, reinforced plastics and the materials affiliated with non-ferrous metals.
- ▶ Tight radius tolerance is applied (± 0.005mm tolerance under R3).
- ▶ Excellent surface roughness thanks to Mirror Face of cutting edges
- ▶ High strength and minimized vibration are available due to two step taper neck(under R0.5).

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶Hochgenaue Raduistoleranz (± 0.005mm Toleranz unter R3mm)
- ▶Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht
- ▶Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter R 0,5mm)



CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | DLC | p.C506

R0.25~R3 R4~R6

Recommended ToolHolder	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
◎	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.005)	D_1	D_2	L_1	L_3	L_2	D_3
SGED2700502	R0.25	0.5	4	0.5	2	45	0.45
SGED2700504	R0.25	0.5	4	0.5	4	45	0.45
SGED2700506	R0.25	0.5	4	0.5	6	45	0.45
SGED2700508	R0.25	0.5	4	0.5	8	45	0.45
SGED2700510	R0.25	0.5	4	0.5	10	45	0.45
SGED2700602	R0.3	0.6	4	0.6	2	45	0.55
SGED2700604	R0.3	0.6	4	0.6	4	45	0.55
SGED2700606	R0.3	0.6	4	0.6	6	45	0.55
SGED2700608	R0.3	0.6	4	0.6	8	45	0.55
SGED2700610	R0.3	0.6	4	0.6	10	45	0.55
SGED2700804	R0.4	0.8	4	0.8	4	45	0.75
SGED2700806	R0.4	0.8	4	0.8	6	45	0.75
SGED2700808	R0.4	0.8	4	0.8	8	45	0.75
SGED2700810	R0.4	0.8	4	0.8	10	45	0.75
SGED2700812	R0.4	0.8	4	0.8	12	45	0.75
SGED2701004	R0.5	1.0	4	1	4	45	0.95
SGED2701006	R0.5	1.0	4	1	6	45	0.95
SGED2701008	R0.5	1.0	4	1	8	45	0.95
SGED2701010	R0.5	1.0	4	1	10	45	0.95
SGED2701012	R0.5	1.0	4	1	12	45	0.95
SGED2701506	R0.75	1.5	4	1.5	6	45	1.45
SGED2701508	R0.75	1.5	4	1.5	8	45	1.45
SGED2701510	R0.75	1.5	4	1.5	10	45	1.45
SGED2701512	R0.75	1.5	4	1.5	12	45	1.45

▶ NEXT PAGE

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

CRX S END MILLS
PLAIN SHANK SGED27 SERIES
CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée, revêtue DLC
2 TAGLIENTI, SEMISFERICA CON SCARICO ESTESO, RIV. DLC
▶ Designed to copper, copper alloys soft graphite, reinforced plastics and the materials affiliated with non-ferrous metals.
▶ Tight radius tolerance is applied (± 0.005mm tolerance under R3).
▶ Excellent surface roughness thanks to Mirror Face of cutting edges
▶ High strength and minimized vibration are available due to two step taper neck(under R0.5).
▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
▶Hochgenaue Raduistoleranz (± 0.005mm Toleranz unter R3mm)
▶Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht
▶Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter R 0,5mm)

CARBIDE | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN | DLC | p.C506
R0.25~R3 R4~R6
Recommended ToolHolder: HYDRAULIC CHUCK D15 - 46; SHRINK FIT HOLDER D47 - 72; POWER MILLING CHUCK D161 - 176; ER COLLET CHUCK D73 - 116; SK SLIM CHUCK D183 - 201
Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.005)	D_1	D_2	L_1	L_3	L_2	D_3
SGED2701516	R0.75	1.5	4	1.5	16	50	1.45
SGED2702006	R1.0	2.0	4	3	6	45	1.95
SGED2702008	R1.0	2.0	4	3	8	45	1.95
SGED2702010	R1.0	2.0	4	3	10	45	1.95
SGED2702012	R1.0	2.0	4	3	12	45	1.95
SGED2702016	R1.0	2.0	4	3	16	50	1.95
SGED2703010	R1.5	3.0	6	4	10	50	2.85
SGED2703012	R1.5	3.0	6	4	12	50	2.85
SGED2703016	R1.5	3.0	6	4	16	60	2.85
SGED2703020	R1.5	3.0	6	4	20	60	2.85
SGED2704010	R2.0	4.0	6	5	10	50	3.85
SGED2704012	R2.0	4.0	6	5	12	50	3.85
SGED2704016	R2.0	4.0	6	5	16	60	3.85
SGED2704020	R2.0	4.0	6	5	20	60	3.85
SGED2704025	R2.0	4.0	6	5	25	60	3.85
SGED2706020	R3.0	6.0	6	8	20	60	5.85
SGED2706030	R3.0	6.0	6	8	30	90	5.85
SGED2708020	R4.0	8.0	8	10	20	70	7.70
SGED2710025	R5.0	10.0	10	12	25	80	9.70
SGED2712025	R6.0	12.0	12	14	25	80	11.70

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0 ~ - 0.012	h5
over R3	± 0.010	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

CRX S END MILLS

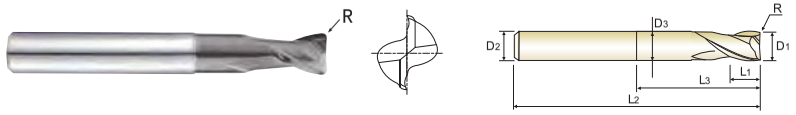
PLAIN SHANK **SGED29** SERIES

CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC Beschichtung mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée, revêtue DLC
2 TAGLIENTI, TORICA CON SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ Excellent surface roughness from Mirror Face of cutting edges

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶Ausgelegt für verschiedene Anwendungen, z.B. schruppen, schruppschlichten und zur schlicht Bearbeitung, aufgrund der neuartigen Geometrie



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | DLC | p.C505

Ø1~Ø6 Ø8~Ø12

Recommended ToolHolder	Plain Shank	Page
	HYDRAULIC CHUCK	D15 - 46
◎	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
SGED290100104	R0.1	1.0	4	1.5	4	45	0.95
SGED290100106	R0.1	1.0	4	1.5	6	45	0.95
SGED290100108	R0.1	1.0	4	1.5	8	45	0.95
SGED290100204	R0.2	1.0	4	1.5	4	45	0.95
SGED290100206	R0.2	1.0	4	1.5	6	45	0.95
SGED290100208	R0.2	1.0	4	1.5	8	45	0.95
SGED290150106	R0.1	1.5	4	2.3	6	45	1.45
SGED290150108	R0.1	1.5	4	2.3	8	45	1.45
SGED290150110	R0.1	1.5	4	2.3	10	45	1.45
SGED290150206	R0.2	1.5	4	2.3	6	45	1.45
SGED290150208	R0.2	1.5	4	2.3	8	45	1.45
SGED290150210	R0.2	1.5	4	2.3	10	45	1.45
SGED290200208	R0.2	2.0	4	3	8	45	1.95
SGED290200210	R0.2	2.0	4	3	10	45	1.95
SGED290200212	R0.2	2.0	4	3	12	45	1.95
SGED290200508	R0.5	2.0	4	3	8	45	1.95
SGED290200510	R0.5	2.0	4	3	10	45	1.95
SGED290200512	R0.5	2.0	4	3	12	45	1.95
SGED290300210	R0.2	3.0	6	4.5	10	50	2.85
SGED290300212	R0.2	3.0	6	4.5	12	50	2.85
SGED290300216	R0.2	3.0	6	4.5	16	60	2.85
SGED290300310	R0.3	3.0	6	4.5	10	50	2.85
SGED290300312	R0.3	3.0	6	4.5	12	50	2.85
SGED290300316	R0.3	3.0	6	4.5	16	60	2.85

▶ NEXT PAGE

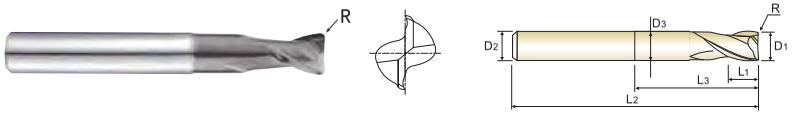
Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

CRX S END MILLS
PLAIN SHANK SGED29 SERIES
CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC Beschichtung mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée, revêtue DLC
2 TAGLIENTI, TORICA CON SCARICO ESTESO, RIVESTIMENTO DLC
▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
▶ Excellent surface roughness from Mirror Face of cutting edges
▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
▶Ausgelegt für verschiedene Anwendungen, z.B. schruppen, schruppschlichten und zur schlicht Bearbeitung, aufgrund der neuartigen Geometrie



CARBIDE | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN | DLC | p.C505
Ø1~Ø6 Ø8~Ø12
Recommended ToolHolder | Plain Shank | Page
HYDRAULIC CHUCK D15 - 46
◎ SHRINK FIT HOLDER D47 - 72
POWER MILLING CHUCK D161 - 176
○ ER COLLET CHUCK D73 - 116
SK SLIM CHUCK D183 - 201
Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
SGED290400212	R0.2	4.0	6	6	12	50	3.85
SGED290400216	R0.2	4.0	6	6	16	60	3.85
SGED290400220	R0.2	4.0	6	6	20	60	3.85
SGED290400512	R0.5	4.0	6	6	12	50	3.85
SGED290400516	R0.5	4.0	6	6	16	60	3.85
SGED290400520	R0.5	4.0	6	6	20	60	3.85
SGED290600320	R0.3	6.0	6	9	20	60	5.85
SGED290600520	R0.5	6.0	6	9	20	60	5.85
SGED290601020	R1.0	6.0	6	9	20	60	5.85
SGED290800325	R0.3	8.0	8	12	25	65	7.70
SGED290800525	R0.5	8.0	8	12	25	65	7.70
SGED290801025	R1.0	8.0	8	12	25	65	7.70
SGED291000530	R0.5	10.0	10	15	30	70	9.70
SGED291001030	R1.0	10.0	10	15	30	70	9.70
SGED291200532	R0.5	12.0	12	18	32	80	11.70
SGED291201032	R1.0	12.0	12	18	32	80	11.70

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	± 0.010	0 ~ - 0.012	h5
over Ø6	± 0.015	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

CRX S END MILLS

PLAIN SHANK **SGED31** SERIES

CARBIDE, 2 FLUTE DLC COATING

VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG
Fraise carbure, 2 dents, revêtue DLC
2 TAGLIENTI, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie was zur verminderten Gratbildung führt

CARBIDE | 2 | 30° | PLAIN | DLC p.C506

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
SGED31010	1.0	6	2.5	50
SGED31015	1.5	6	4	50
SGED31020	2.0	6	6	50
SGED31025	2.5	6	8	50
SGED31030	3.0	6	10	50
SGED31040	4.0	6	12	50
SGED31050	5.0	6	15	60
SGED31060	6.0	6	15	60
SGED31080	8.0	8	20	65
SGED31100	10.0	10	25	70
SGED31120	12.0	12	30	80

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

CRX S END MILLS

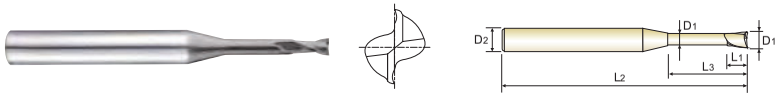
PLAIN SHANK **SGED30** SERIES

CARBIDE, 2 FLUTE DLC COATING with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée, revêtue DLC
2 TAGLIENTI, SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ High toughness and minimized vibration applied from two step taper neck (under dia. 1.0mm)
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter Ø 1mm)
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie



CARBIDE | 2 | 30° | PLAIN | DLC p.C506

Recommended ToolHolder

	Plain Shank	Page
◎	HYDRAULIC CHUCK	D15 - 46
	SHRINK FIT HOLDER	D47 - 72
	POWER MILLING CHUCK	D161 - 176
○	ER COLLET CHUCK	D73 - 116
	SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D_1	D_2	L_1	L_3	L_2	D_3
SGED3000502	0.5	4	0.7	2	45	0.45
SGED3000504	0.5	4	0.7	4	45	0.45
SGED3000506	0.5	4	0.7	6	45	0.45
SGED3000508	0.5	4	0.7	8	45	0.45
SGED3000510	0.5	4	0.7	10	45	0.45
SGED3000602	0.6	4	0.9	2	45	0.55
SGED3000604	0.6	4	0.9	4	45	0.55
SGED3000606	0.6	4	0.9	6	45	0.55
SGED3000608	0.6	4	0.9	8	45	0.55
SGED3000610	0.6	4	0.9	10	45	0.55
SGED3000804	0.8	4	1.2	4	45	0.75
SGED3000806	0.8	4	1.2	6	45	0.75
SGED3000808	0.8	4	1.2	8	45	0.75
SGED3000810	0.8	4	1.2	10	45	0.75
SGED3000812	0.8	4	1.2	12	45	0.75
SGED3001004	1.0	4	1.5	4	45	0.95
SGED3001006	1.0	4	1.5	6	45	0.95
SGED3001008	1.0	4	1.5	8	45	0.95
SGED3001010	1.0	4	1.5	10	45	0.95
SGED3001012	1.0	4	1.5	12	45	0.95
SGED3001506	1.5	4	2.3	6	45	1.45
SGED3001508	1.5	4	2.3	8	45	1.45
SGED3001510	1.5	4	2.3	10	45	1.45
SGED3001512	1.5	4	2.3	12	45	1.45

▶ NEXT PAGE

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CRX S END MILLS

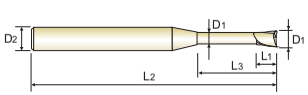
PLAIN SHANK **SGED30** SERIES

CARBIDE, 2 FLUTE DLC COATING with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, détalonnée, revêtue DLC
2 TAGLIENTI, SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ High toughness and minimized vibration applied from two step taper neck (under dia. 1.0mm)
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter Ø 1mm)
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie



CARBIDE | 2 | 30° | PLAIN | DLC | p.C506

Recommended ToolHolder

Plain Shank	Page
HYDRAULIC CHUCK	D15 - 46
SHRINK FIT HOLDER	D47 - 72
POWER MILLING CHUCK	D161 - 176
ER COLLET CHUCK	D73 - 116
SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D_1	Shank Diameter D_2	Length of Cut L_1	Length Below Shank L_3	Overall Length L_2	Neck Diameter D_3
SGED3001516	1.5	4	2.3	16	50	1.45
SGED3002008	2.0	4	3	8	45	1.95
SGED3002010	2.0	4	3	10	45	1.95
SGED3002012	2.0	4	3	12	45	1.95
SGED3002016	2.0	4	3	16	50	1.95
SGED3003008	3.0	6	4.5	8	50	2.85
SGED3003010	3.0	6	4.5	10	50	2.85
SGED3003012	3.0	6	4.5	12	50	2.85
SGED3003016	3.0	6	4.5	16	60	2.85
SGED3003020	3.0	6	4.5	20	60	2.85
SGED3004010	4.0	6	6	10	50	3.85
SGED3004012	4.0	6	6	12	50	3.85
SGED3004016	4.0	6	6	16	60	3.85
SGED3004020	4.0	6	6	20	60	3.85
SGED3004025	4.0	6	6	25	60	3.85
SGED3006020	6.0	6	8	20	60	5.85
SGED3006030	6.0	6	8	30	90	5.85
SGED3008020	8.0	8	12	20	70	7.70
SGED3010025	10.0	10	15	25	80	9.70
SGED3012025	12.0	12	18	25	80	11.70

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0 ~ - 0.012	h5
over Ø6	0 ~ - 0.015	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○				◎	◎	◎	○												

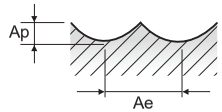
CRX S END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SGED28 SERIES 2 FLUTE BALL

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	21-22	Aluminum-wrought alloy	0.05D	0.02D	Vc	155	300	295	285	290	295	300	300	300
					fz	0.01	0.022	0.031	0.042	0.052	0.061	0.079	0.101	0.12
					RPM	49338	47746	31300	22680	18462	15650	11937	9549	7958
					FEED	987	2101	1941	1905	1920	1909	1886	1929	1910
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	0.02D	Vc	130	150	150	145	145	145	150	150	150
					fz	0.011	0.02	0.028	0.038	0.047	0.055	0.072	0.092	0.109
					RPM	41380	23873	15915	11539	9231	7692	5968	4775	3979
					FEED	910	955	891	877	868	846	859	879	867
	29.1	Duroplastic	0.05D	0.02D	Vc	155	315	445	435	440	445	450	455	450
					fz	0.008	0.015	0.019	0.026	0.033	0.038	0.05	0.063	0.076
					RPM	49338	50134	47216	34616	28011	23608	17905	14483	11937
					FEED	789	1504	1794	1800	1849	1794	1790	1825	1814



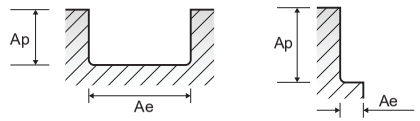
SGED29 SERIES

2 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	155	315	470	630	785	840	840	840	835
					fz	0.01	0.018	0.026	0.037	0.043	0.052	0.068	0.089	0.105
					RPM	49338	50134	49869	50134	49975	44563	33423	26738	22149
					FEED	987	1805	2593	3710	4298	4635	4545	4759	4651
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	Vc	155	315	420	420	425	420	420	420	420
					fz	0.01	0.017	0.026	0.031	0.039	0.047	0.063	0.079	0.095
					RPM	49338	50134	44563	33423	27056	22282	16711	13369	11141
					FEED	987	1705	2317	2072	2110	2094	2106	2112	2117
	29.1	Duroplastic	1.0D	0.5D	Vc	155	315	470	630	785	940	1255	1255	1265
					fz	0.007	0.014	0.021	0.026	0.034	0.042	0.057	0.069	0.084
					RPM	49338	50134	49869	50134	49975	49869	49935	39948	33555
					FEED	691	1404	2094	2607	3398	4189	5693	5513	5637

2 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	21-22	Aluminum-wrought alloy	0.5D	1.0D	Vc	155	315	470	630	785	940	940	940	940
					fz	0.014	0.028	0.042	0.053	0.065	0.079	0.105	0.131	0.157
					RPM	49338	50134	49869	50134	49975	49869	37401	29921	24934
					FEED	1381	2807	4189	5314	6497	7879	7854	7839	7829
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.0D	Vc	155	315	470	630	630	630	630	630	630
					fz	0.012	0.025	0.037	0.047	0.06	0.073	0.094	0.12	0.141
					RPM	49338	50134	49869	50134	40107	33423	25067	20054	16711
					FEED	1184	2507	3690	4713	4813	4880	4713	4813	4713
	29.1	Duroplastic	0.5D	1.0D	Vc	155	315	470	630	785	940	1255	1255	1265
					fz	0.012	0.025	0.037	0.05	0.065	0.075	0.084	0.105	0.125
					RPM	49338	50134	49869	50134	49975	49869	49935	39948	33555
					FEED	1184	2507	3690	5013	6497	7480	8389	8389	8389



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

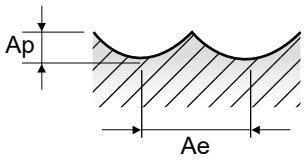
CRX S END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

SGED27 SERIES — 2 FLUTE BALL

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.5	0.6	0.8	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
N	21	Aluminum-wrought alloy	0.05D	0.02D	Vc	80	95	125	155	250	245	240	240	245	250	250	250
					fz	0.005	0.007	0.009	0.01	0.022	0.03	0.042	0.052	0.061	0.079	0.1	0.122
					RPM	50930	50399	49736	49338	39789	25995	19099	15279	12998	9947	7958	6631
					FEED	509	706	895	987	1751	1560	1604	1589	1586	1572	1592	1618
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	0.02D	Vc	80	95	110	110	125	125	120	120	125	125	125	125
					fz	0.005	0.007	0.009	0.011	0.02	0.028	0.038	0.047	0.055	0.072	0.091	0.111
					RPM	50930	50399	43768	35014	19894	13263	9549	7639	6631	4974	3979	3316
					FEED	509	706	788	770	796	743	726	718	729	716	724	736
	29.1	Duroplastic	0.05D	0.02D	Vc	80	95	125	155	315	370	360	365	370	375	375	375
					fz	0.004	0.005	0.006	0.006	0.013	0.019	0.027	0.033	0.039	0.05	0.064	0.077
					RPM	50930	50399	49736	49338	50134	39258	28648	23237	19629	14921	11937	9947
					FEED	407	504	597	592	1303	1492	1547	1534	1531	1492	1528	1532



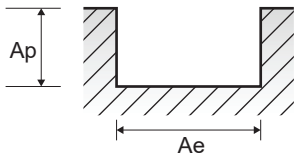
SGED30, SGED31 SERIES

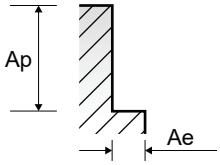
2 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.5	0.6	0.8	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.0
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	80	95	125	155	315	330	325	325	330	325	330
					fz	0.005	0.006	0.008	0.01	0.01	0.023	0.032	0.048	0.064	0.081	0.097
					RPM	50930	50399	49736	49338	50134	35014	25863	17242	13130	10345	8754
					FEED	509	605	796	987	1003	1611	1655	1655	1681	1676	1698
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	0.5D	Vc	80	95	105	110	160	165	160	165	165	160	165
					fz	0.005	0.006	0.008	0.01	0.01	0.023	0.032	0.048	0.064	0.081	0.097
					RPM	50930	50399	41778	35014	25465	17507	12732	8754	6565	5093	4377
					FEED	509	605	668	700	509	805	815	840	840	825	849
	29.1	Duroplastic	1.0D	0.5D	Vc	80	95	125	155	315	470	490	490	500	490	495
					fz	0.001	0.002	0.002	0.003	0.004	0.007	0.009	0.014	0.018	0.023	0.028
					RPM	50930	50399	49736	49338	50134	49869	38993	25995	19894	15597	13130
					FEED	102	202	199	296	401	698	702	728	716	717	735

2 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 0.5	0.6	0.8	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.0
N	21-22	Aluminum-wrought alloy	0.5D	1.0D	Vc	80	95	125	130	260	260	265	270	265	265	270
					fz	0.005	0.006	0.008	0.01	0.011	0.025	0.034	0.053	0.069	0.086	0.107
					RPM	50930	50399	49736	41380	41380	27587	21088	14324	10544	8435	7162
					FEED	509	605	796	828	910	1379	1434	1518	1455	1451	1533
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.0D	Vc	80	85	85	85	170	175	175	180	175	175	180
					fz	0.005	0.006	0.008	0.01	0.01	0.023	0.032	0.05	0.064	0.08	0.1
					RPM	50930	45094	33820	27056	27056	18568	13926	9549	6963	5570	4775
					FEED	509	541	541	541	541	854	891	955	891	891	955
	29.1	Duroplastic	0.5D	1.0D	Vc	80	95	125	155	315	350	350	360	350	350	360
					fz	0.004	0.005	0.006	0.008	0.009	0.018	0.026	0.04	0.051	0.064	0.08
					RPM	50930	50399	49736	49338	50134	37136	27852	19099	13926	11141	9549
					FEED	407	504	597	789	902	1337	1448	1528	1420	1426	1528





Leading Through Innovation

SOLID CARBIDE

K-2 END MILLS

K-2 VHM - Fräser

- General Purpose / Conventional or High Speed Milling / Wet & Dry Cutting
- Für allgemeinen Einsatz / Konventionelles oder Hochgeschwindigkeitsfräsen

SELECTION GUIDE

YG MILLING TOOLS

SOLID CARBIDE K-2 END MILLS

General Purpose
Conventional or High Speed Milling
Wet & Dry Cutting

Please visit globalyg1.com/mat for material search

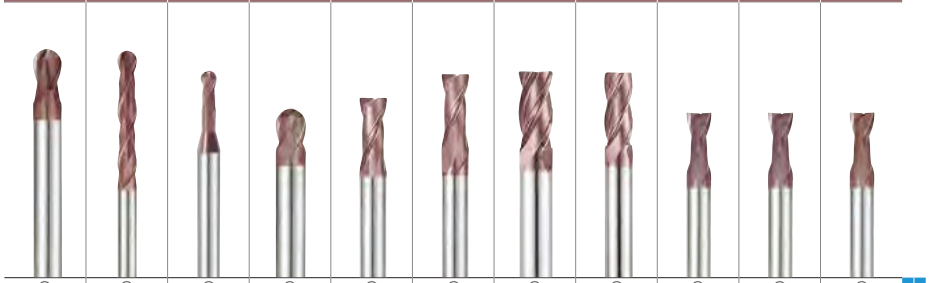
◎ : Excellent ○ : Good

Recommended cutting conditions : P 597

SERIES	G9624	G9A70	G9437	G9438
FLUTE	2	2	2	2
HELIX ANGLE	30°	30°	≈ 30°	≈ 30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R1.0	R0.5	R1.0	R1.0
SIZE MAX	R10.0	R10.0	R10.0	R10.0
PAGE	C514	C515	C516	C517
	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH
	TiAlN	TiAlN	TiAlN	TiAlN

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	G9624	G9A70	G9437	G9438
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎
	11			Quenched & Tempered	325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○	○	○
	14		Austenitic		180	10	○	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	○
	16		Pearlitic (Martensitic)		260	26	○	○	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○	○	○
	18		Pearlitic		250	25	○	○	○	○
	19	Malleable cast iron	Ferritic		130		○	○	○	○
	20		Pearlitic		230	21	○	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○
	22		Curable	Hardened	100		○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○	○	○
	25		> 12% Si, Not Curable		130		○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○
	27		CuZn, CuSnZn (Brass)		90		○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○
	32			Cured	280	30	○	○	○	○
	33		Ni or Co Based	Annealed	250	25	○	○	○	○
	34			Cured	350	38	○	○	○	○
	35			Cast	320	34	○	○	○	○
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm		○	○	○	○
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42	○	○	○	○
	41	Hardened Cast Iron		Hardened	550	55				

SERIES	G9454	G9455	G9B81	G9634	G9B82	G9B83	G9B84	G9B85	G9424	G9G44	G9A68
FLUTE	2	2	2	4	2	2	4	4	2	2	2
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	SQUARE
SIZE MIN	R1.5	R1.5	R0.2	R1.0	D2.0	D3.0	D2.0	D3.0	D1.0	D3.0	D1.0
SIZE MAX	R10.0	R10.0	R2.0	R10.0	D12.0	D12.0	D12.0	D12.0	D20.0	D20.0	D20.0
PAGE	C518	C519	C520	C522	C523	C525	C526	C528	C529	C530	C531
	LONG REACH	EXTRA LONG LENGTH	RIB PROCESSING	SHORT LENGTH	SHORT LENGTH	LONG REACH	SHORT LENGTH	LONG REACH	SHORT LENGTH	SHORT LENGTH WITH CHAMFER	SHORT LENGTH
	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN



G9454	G9455	G9B81	G9634	G9B82	G9B83	G9B84	G9B85	G9424	G9G44	G9A68		
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CARBIDE
HSS
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SELECTION GUIDE

YG MILLING TOOLS

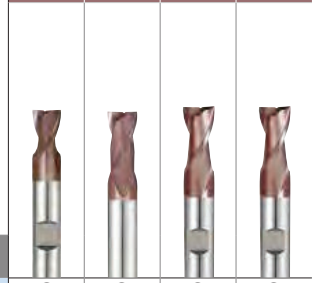
SOLID CARBIDE K-2 END MILLS

General Purpose with Coating
Conventional or High Speed Milling, Wet or Dry Cutting

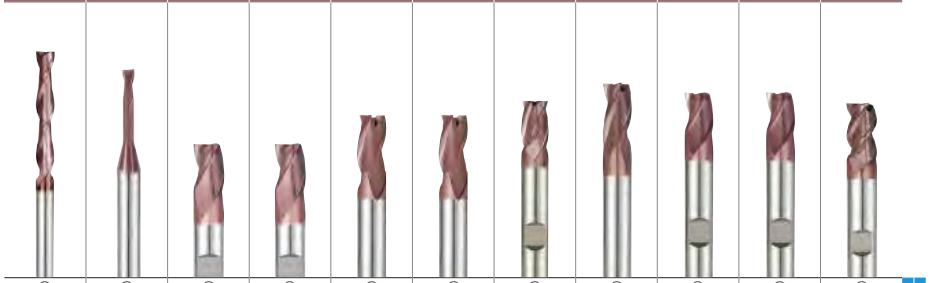
Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C565



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	G9444	G9527	G9445	G9G45
			SERIES				G9444	G9527	G9445	G9G45
			FLUTE				2	2	2	2
			HELIX ANGLE				≈ 30°	≈ 30°	≈ 30°	≈ 30°
			CUTTING EDGE SHAPE				SQUARE	SQUARE	SQUARE	SQUARE
			SIZE MIN				D2.0	D3.5	D2.0	D3.0
			SIZE MAX				D20.0	D20.0	D20.0	D20.0
			PAGE				C532	C533	C534	C535
							SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH with CHAMFER
							TiAlN	TiAlN	TiAlN	TiAlN
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎
P	2	Non-alloy steel	About 0.45% C	Annealed	190	13	◎	◎	◎	◎
P	3	Non-alloy steel	About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎
P	4	Non-alloy steel	About 0.75% C	Annealed	270	28	◎	◎	◎	◎
P	5	Non-alloy steel	About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎
P	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎
P	7	Low alloy steel		Quenched & Tempered	275	29	◎	◎	◎	◎
P	8	Low alloy steel		Quenched & Tempered	300	32	◎	◎	◎	◎
P	9	Low alloy steel		Quenched & Tempered	350	38	◎	◎	◎	◎
P	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎
P	11	High alloyed steel, and tool steel		Quenched & Tempered	325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○	○
M	13	Stainless steel	Martensitic	Quenched & Tempered	240	23	○	○	○	○
M	14	Stainless steel	Austenitic		180	10	○	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○	○
K	16	Grey cast iron	Pearlitic (Martensitic)		260	26	○	○	○	○
K	17	Nodular cast iron	Ferritic		160	3	○	○	○	○
K	18	Nodular cast iron	Pearlitic		250	25	○	○	○	○
K	19	Malleable cast iron	Ferritic		130		○	○	○	○
K	20	Malleable cast iron	Pearlitic		230	21	○	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○
N	22	Aluminum-wrought alloy	Curable	Hardened	100		○	○	○	○
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	Hardened	90		○	○	○	○
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable		130		○	○	○	○
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90		○	○	○	○
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper		100		○	○	○	○
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○	○
N	30	Non Metallic Materials	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○
S	32	Heat Resistant Super Alloys	Fe Based	Cured	280	30	○	○	○	○
S	33	Heat Resistant Super Alloys	Ni or Co Based	Annealed	250	25	○	○	○	○
S	34	Heat Resistant Super Alloys	Ni or Co Based	Cured	350	38	○	○	○	○
S	35	Heat Resistant Super Alloys	Ni or Co Based	Cast	320	34	○	○	○	○
S	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○
S	37	Titanium Alloys	Alpha + Beta Alloys	Hardened	1050 Rm		○	○	○	○
H	38	Hardened steel		Hardened	550	55				
H	39	Hardened steel		Hardened	630	60				
H	40	Chilled Cast Iron		Cast	400	42	○	○	○	○
H	41	Hardened Cast Iron		Hardened	550	55				



G9452	G9B80	G9410 G9553	G9G46	G9425	G9G47	G9439	G9528	G9433	G9G48	G9447	ISO	VDI 3323
G9452	G9B80	G9410 G9553	G9G46	G9425	G9G47	G9439	G9528	G9433	G9G48	G9447		
2	2	3	3	3	3	3	3	3	3	3		
30°	30°	30°	30°	30°	30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	45°		
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE		
D3.0	D0.4	D0.5	D3.0	D1.0	D3.0	D2.0	D3.5	D3.0	D3.0	D3.0		
D20.0	D4.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0		
C537	C538	C541	C543	C544	C545	C546	C547	C548	C549	C550		
EXTRA LONG LENGTH	RIB PROCESSING	THROW AWAY	THROW AWAY with CHAMFER	SHORT LENGTH	SHORT LENGTH with CHAMFER	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH with CHAMFER	LONG LENGTH		
TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	TiAlN		
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	1	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	2	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	3	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	4	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	5	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	6	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	7	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	8	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	9	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	10	P
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	11	P
○	○	○	○	○	○	○	○	○	○	○	12	M
○	○	○	○	○	○	○	○	○	○	○	13	M
○	○	○	○	○	○	○	○	○	○	○	14	M
○	○	○	○	○	○	○	○	○	○	○	15	K
○	○	○	○	○	○	○	○	○	○	○	16	K
○	○	○	○	○	○	○	○	○	○	○	17	K
○	○	○	○	○	○	○	○	○	○	○	18	K
○	○	○	○	○	○	○	○	○	○	○	19	K
○	○	○	○	○	○	○	○	○	○	○	20	K
○	○	○	○	○	○	○	○	○	○	○	21	N
○	○	○	○	○	○	○	○	○	○	○	22	N
○	○	○	○	○	○	○	○	○	○	○	23	N
○	○	○	○	○	○	○	○	○	○	○	24	N
○	○	○	○	○	○	○	○	○	○	○	25	N
○	○	○	○	○	○	○	○	○	○	○	26	N
○	○	○	○	○	○	○	○	○	○	○	27	N
○	○	○	○	○	○	○	○	○	○	○	28	N
○		○	○	○	○	○	○	○	○	○	29	N
											30	N
○		○	○	○	○	○	○	○	○	○	31	S
○		○	○	○	○	○	○	○	○	○	32	S
○		○	○	○	○	○	○	○	○	○	33	S
○		○	○	○	○	○	○	○	○	○	34	S
○		○	○	○	○	○	○	○	○	○	35	S
○		○	○	○	○	○	○	○	○	○	36	S
○		○	○	○	○	○	○	○	○	○	37	S
											38	H
											39	H
○		○	○	○	○	○	○	○	○	○	40	H
											41	H

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
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SELECTION GUIDE

YG MILLING TOOLS

SOLID CARBIDE K-2 END MILLS

General Purpose with Coating
Conventional or High Speed Milling, Wet or Dry Cutting

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C565

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	G9G49	G9432	G9G50
			SERIES				G9G49	G9432	G9G50
			FLUTE				3	4	4
			HELIX ANGLE				45°	30°	30°
			CUTTING EDGE SHAPE				SQUARE	SQUARE	SQUARE
			SIZE MIN				D3.0	D1.0	D3.0
			SIZE MAX				D20.0	D20.0	D20.0
			PAGE				C551	C552	C553
							LONG LENGTH with CHAMFER	SHORT LENGTH	SHORT LENGTH with CHAMFER
							TiAlN	TiAlN	TiAlN
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎
	9			Quenched & Tempered	350	38	◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎
	11			Quenched & Tempered	325	35	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○	○
	14		Austenitic		180	10	○	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○	○
	16		Pearlitic (Martensitic)		260	26	○	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○	○
	18		Pearlitic		250	25	○	○	○
	19	Malleable cast iron	Ferritic		130		○	○	○
	20		Pearlitic		230	21	○	○	○
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○
	22		Curable	Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○	○
	25		> 12% Si, Not Curable		130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○
	27		CuZn, CuSnZn (Brass)		90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○
	32			Cured	280	30	○	○	○
	33		Ni or Co Based	Annealed	250	25	○	○	○
	34			Cured	350	38	○	○	○
	35			Cast	320	34	○	○	○
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm		○	○	○
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42	○	○	○
	41	Hardened Cast Iron		Hardened	550	55			

G9A69	G9448	G9540	G9449	G9G51	G9H73 G9H74	G9H75 G9H76	G9453	G9F45 G9F46	G9A42	G9400
4	4	4	4	4	4	4	4	4&6	Multi Flute	2
30°	≈ 30°	≈ 30°	≈ 30°	≈ 30°	Multiple Helix	Multiple Helix	30°	45°	30°	30°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	DRILL MILL
D1.0	D2.0	D3.5	D2.0	D3.0	D3.0	D3.0	D3.0	D3.0	D6.0	D3.0
D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D20.0	D25.0	D20.0
C554	C555	C556	C557	C558	C559	C560	C561	C562	C563	C564
SHORT LENGTH	SHORT LENGTH	LONG LENGTH	LONG LENGTH	LONG LENGTH with CHAMFER	SHORT LENGTH	LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH LONG LENGTH	LONG LENGTH	-
TiAlN	TiAlN	TiAlN	TiAlN	TiAlN	X-Coating	X-Coating	TiAlN	TiAlN	X-Coating	TiAlN
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CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
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TECHNICAL DATA

K-2 END MILLS

PLAIN SHANK **G9624** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 2 | 30° | R ±0.02 | DIN 6535HA | TiAlN p.C565

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
	-	-	SHRINK FIT HOLDER	D47 - 72
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9624020	R1.0	2.0	6	4	48
G9624025	R1.25	2.5	6	4	48
G9624030	R1.5	3.0	6	4	48
G9624040	R2.0	4.0	6	6	50
G9624901	R2.0	4.0	4	12	40
G9624050	R2.5	5.0	6	7	51
G9624902	R2.5	5.0	5	14	50
G9624060	R3.0	6.0	6	7	51
G9624080	R4.0	8.0	8	9	59
G9624100	R5.0	10.0	10	10	60
G9624120	R6.0	12.0	12	14	71
G9624140	R7.0	14.0	14	14	71
G9624160	R8.0	16.0	16	16	76
G9624180	R9.0	18.0	18	18	76
G9624200	R10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9A70** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 2 | 30° | R ±0.02 | DIN 6535HA | TiAlN p.C565

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
	-	-	SHRINK FIT HOLDER	D47 - 72
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A70010	R0.5	1.0	3	3	39
G9A70015	R0.75	1.5	3	5	39
G9A70020	R1.0	2.0	3	7	39
G9A70025	R1.25	2.5	3	8	39
G9A70030	R1.5	3.0	3	9	39
G9A70040	R2.0	4.0	4	14	51
G9A70050	R2.5	5.0	5	16	51
G9A70060	R3.0	6.0	6	19	64
G9A70080	R4.0	8.0	8	21	64
G9A70100	R5.0	10.0	10	22	70
G9A70110	R5.5	11.0	11	25	70
G9A70120	R6.0	12.0	12	25	76
G9A70160	R8.0	16.0	16	32	89
G9A70200	R10.0	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9437** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | DIN 6527 | 2 | 30° | R ±0.02 | DIN 6535HB | TiAlN

p.C565

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9437020	R1.0	2.0	6	3	50
G9437030	R1.5	3.0	6	4	50
G9437040	R2.0	4.0	6	5	54
G9437050	R2.5	5.0	6	6	54
G9437060	R3.0	6.0	6	7	54
G9437080	R4.0	8.0	8	9	58
G9437100	R5.0	10.0	10	11	66
G9437120	R6.0	12.0	12	12	73
G9437140	R7.0	14.0	14	14	75
G9437180	R9.0	18.0	18	18	84
G9437200	R10.0	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9438** SERIES

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, longue
2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | DIN 6527 | 2 | 30° | R ±0.02 | DIN 6535HA | DIN 6535HB | TiAlN

p.C565

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9438020	R1.0	2.0	● 3	6	38
G9438030	R1.5	3.0	6	7	57
G9438040	R2.0	4.0	6	8	57
G9438050	R2.5	5.0	6	10	57
G9438060	R3.0	6.0	6	10	57
G9438080	R4.0	8.0	8	16	63
G9438100	R5.0	10.0	10	19	72
G9438120	R6.0	12.0	12	22	83
G9438140	R7.0	14.0	14	22	83
G9438160	R8.0	16.0	16	26	92
G9438180	R9.0	18.0	18	26	92
G9438200	R10.0	20.0	20	32	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

K-2 END MILLS

PLAIN SHANK **G9454** SERIES

CARBIDE, 2 FLUTE LONG REACH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique longue portée
2 TAGLIENTI, SEMISFERICA, GAMBO LUNGO

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 2 | 30° | R ±0.02 | DIN 6535HA | TiAlN p.C565

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9454030	R1.5	3.0	3	5	75
G9454040	R2.0	4.0	4	8	75
G9454050	R2.5	5.0	5	9	75
G9454060	R3.0	6.0	6	10	100
G9454080	R4.0	8.0	8	12	100
G9454100	R5.0	10.0	10	14	100
G9454120	R6.0	12.0	12	16	100
G9454140	R7.0	14.0	14	18	100
G9454160	R8.0	16.0	16	22	150
G9454200	R10.0	20.0	20	26	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9455** SERIES

CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, extra-longue
2 TAGLIENTI, SEMISFERICA, SERIE EXTRA LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 2 | 30° | R ±0.02 | DIN 6535HA | TiAlN p.C565

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
-	-	SHRINK FIT HOLDER	D47 - 72
-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9455903	R1.5	3.0	3	20	60
G9455030	R1.5	3.0	3	30	75
G9455904	R2.0	4.0	4	20	60
G9455040	R2.0	4.0	4	30	75
G9455905	R2.5	5.0	5	25	75
G9455050	R2.5	5.0	5	40	100
G9455906	R3.0	6.0	6	30	75
G9455060	R3.0	6.0	6	50	150
G9455908	R4.0	8.0	8	30	75
G9455080	R4.0	8.0	8	50	150
G9455910	R5.0	10.0	10	40	100
G9455100	R5.0	10.0	10	60	150
G9455912	R6.0	12.0	12	45	100
G9455120	R6.0	12.0	12	75	150
G9455914	R7.0	14.0	14	45	100
G9455140	R7.0	14.0	14	75	150
G9455916	R8.0	16.0	16	45	100
G9455160	R8.0	16.0	16	75	150
G9455918	R9.0	18.0	18	45	100
G9455180	R9.0	18.0	18	75	150
G9455920	R10.0	20.0	20	45	100
G9455200	R10.0	20.0	20	75	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

K-2 END MILLS

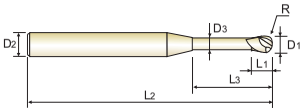
PLAIN SHANK **G9B81** SERIES

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE | 2 | 30° | R ±0.02 | DIN 6535HA | TiAlN

p.C566-567

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
	-	-	SHRINK FIT HOLDER	D47 - 72
	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (± 0.02)	D1	D2	L1	L3	D3	D3
G9B81004	R0.2	0.4	4	0.7	2	50	0.37
G9B81005	R0.25	0.5	4	0.75	2	50	0.45
G9B81901	R0.25	0.5	4	0.75	4	50	0.45
G9B81902	R0.25	0.5	4	0.75	6	50	0.45
G9B81006	R0.3	0.6	4	0.9	2	50	0.55
G9B81903	R0.3	0.6	4	0.9	4	50	0.55
G9B81904	R0.3	0.6	4	0.9	6	50	0.55
G9B81008	R0.4	0.8	4	1.2	4	50	0.75
G9B81905	R0.4	0.8	4	1.2	6	50	0.75
G9B81906	R0.4	0.8	4	1.2	8	50	0.75
G9B81010	R0.5	1.0	4	1.5	6	50	0.95
G9B81907	R0.5	1.0	4	1.5	8	50	0.95
G9B81908	R0.5	1.0	4	1.5	10	50	0.95
G9B81909	R0.5	1.0	4	1.5	12	50	0.95
G9B81012	R0.6	1.2	4	1.8	8	50	1.15
G9B81910	R0.6	1.2	4	1.8	12	50	1.15
G9B81014	R0.7	1.4	4	2.1	16	50	1.35
G9B81015	R0.75	1.5	4	2.3	6	50	1.45
G9B81911	R0.75	1.5	4	2.3	8	50	1.45
G9B81912	R0.75	1.5	4	2.3	10	50	1.45
G9B81913	R0.75	1.5	4	2.3	12	50	1.45
G9B81914	R0.75	1.5	4	2.3	16	50	1.45
G9B81915	R0.75	1.5	4	2.3	20	50	1.45
G9B81016	R0.8	1.6	4	2.4	8	50	1.55

▶ NEXT PAGE

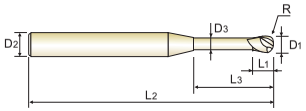
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○													

K-2 END MILLS
PLAIN SHANK G9B81 SERIES
CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, hémisphérique pour usinage de rainure
2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE
▶ Suitable for dry milling applications at high temperatures.
▶ Excellent high-performance end mills.
▶ Designed for milling of radius bottom slots, fillets and special contours.
▶ Für die Trockenbearbeitung.
▶ Hervorragendes Preis - Leistungsverhältnis.
▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



CARBIDE | 2 | 30° | R ±0.02 | DIN 6535HA | TiAlN
p.C566-567
Recommended Tool Holder | Flat Shank | Page | Plain Shank | Page
END MILL HOLDER | D118 - 137 | HYDRAULIC CHUCK / POWER MILLING CHUCK | D15 - 46 / D161 - 176
- | - | SHRINK FIT HOLDER | D47 - 72
- | - | ER COLLET CHUCK / SK SLIM CHUCK | D73 - 116 / D183 - 201
Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (± 0.02)	D1	D2	L1	L3	D3	D3
G9B81916	R0.8	1.6	4	2.4	12	50	1.55
G9B81917	R0.8	1.6	4	2.4	16	50	1.55
G9B81918	R0.8	1.6	4	2.4	20	50	1.55
G9B81020	R1.0	2.0	4	3	8	50	1.95
G9B81919	R1.0	2.0	4	3	10	50	1.95
G9B81920	R1.0	2.0	4	3	12	50	1.95
G9B81921	R1.0	2.0	4	3	14	50	1.95
G9B81922	R1.0	2.0	4	3	16	50	1.95
G9B81923	R1.0	2.0	4	3	20	50	1.95
G9B81030	R1.5	3.0	6	4.5	10	50	2.85
G9B81924	R1.5	3.0	6	4.5	12	50	2.85
G9B81925	R1.5	3.0	6	4.5	16	60	2.85
G9B81926	R1.5	3.0	6	4.5	20	60	2.85
G9B81927	R1.5	3.0	6	4.5	25	75	2.85
G9B81040	R2.0	4.0	6	6	12	50	3.85
G9B81928	R2.0	4.0	6	6	16	60	3.85
G9B81929	R2.0	4.0	6	6	20	75	3.85
G9B81930	R2.0	4.0	6	6	25	75	3.85
G9B81931	R2.0	4.0	6	6	30	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○													

K-2 END MILLS

PLAIN SHANK **G9634** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 4 dents, hémisphérique, courte
4 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 4 | 30° | R ±0.02 | DIN 6535HA | TiAlN

p.C568

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
○	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9634020	R1.0	2.0	6	4	48
G9634030	R1.5	3.0	6	4	48
G9634040	R2.0	4.0	6	6	50
G9634050	R2.5	5.0	6	7	51
G9634060	R3.0	6.0	6	7	51
G9634080	R4.0	8.0	8	9	59
G9634100	R5.0	10.0	10	10	60
G9634120	R6.0	12.0	12	14	71
G9634140	R7.0	14.0	14	14	71
G9634160	R8.0	16.0	16	16	76
G9634180	R9.0	18.0	18	18	76
G9634200	R10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9B82** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS
Fraise carbure, 2 dents, torique, courte
2 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C569

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B82020	R0.2	2.0	4	4	50
G9B82901	R0.3	2.0	4	4	50
G9B82902	R0.5	2.0	4	4	50
G9B82025	R0.2	2.5	4	5	50
G9B82903	R0.3	2.5	4	5	50
G9B82904	R0.5	2.5	4	5	50
G9B82030	R0.2	3.0	4	6	50
G9B82905	R0.3	3.0	4	6	50
G9B82906	R0.5	3.0	4	6	50
G9B82907	R1.0	3.0	4	6	50
G9B82040	R0.2	4.0	4	8	50
G9B82908	R0.3	4.0	4	8	50
G9B82909	R0.5	4.0	4	8	50
G9B82910	R1.0	4.0	4	8	50
G9B82050	R0.2	5.0	6	10	50
G9B82911	R0.3	5.0	6	10	50
G9B82912	R0.5	5.0	6	10	50
G9B82913	R1.0	5.0	6	10	50
G9B82060	R0.2	6.0	6	12	50
G9B82914	R0.3	6.0	6	12	50
G9B82915	R0.5	6.0	6	12	50
G9B82916	R1.0	6.0	6	12	50

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○											○	

K-2 END MILLS

PLAIN SHANK **G9B82** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS
Fraise carbure, 2 dents, torique, courte
2 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C569

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B82080	R0.5	8.0	8	16	60
G9B82917	R1.0	8.0	8	16	60
G9B82918	R1.5	8.0	8	16	60
G9B82919	R2.0	8.0	8	16	60
G9B82920	R2.5	8.0	8	16	60
G9B82100	R0.5	10.0	10	20	75
G9B82921	R1.0	10.0	10	20	75
G9B82922	R1.5	10.0	10	20	75
G9B82923	R2.0	10.0	10	20	75
G9B82924	R2.5	10.0	10	20	75
G9B82120	R0.5	12.0	12	24	75
G9B82925	R1.0	12.0	12	24	75
G9B82926	R1.5	12.0	12	24	75
G9B82927	R2.0	12.0	12	24	75
G9B82928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○											○	

K-2 END MILLS

PLAIN SHANK **G9B83** SERIES

CARBIDE, 2 FLUTE LONG REACH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE ECKENRADIUS
Fraise carbure, 2 dents, torique longue portée
2 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C569

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B83030	R0.5	3.0	4	6	75
G9B83901	R1.0	3.0	4	6	75
G9B83040	R0.5	4.0	4	8	75
G9B83902	R1.0	4.0	4	8	75
G9B83050	R0.5	5.0	6	10	75
G9B83903	R1.0	5.0	6	10	75
G9B83060	R0.5	6.0	6	12	75
G9B83904	R1.0	6.0	6	12	75
G9B83080	R0.5	8.0	8	16	100
G9B83905	R1.0	8.0	8	16	100
G9B83906	R1.5	8.0	8	16	100
G9B83907	R2.0	8.0	8	16	100
G9B83908	R2.5	8.0	8	16	100
G9B83100	R0.5	10.0	10	20	100
G9B83909	R1.0	10.0	10	20	100
G9B83910	R1.5	10.0	10	20	100
G9B83911	R2.0	10.0	10	20	100
G9B83912	R2.5	10.0	10	20	100
G9B83120	R0.5	12.0	12	24	100
G9B83913	R1.0	12.0	12	24	100
G9B83914	R1.5	12.0	12	24	100
G9B83915	R2.0	12.0	12	24	100
G9B83916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○											○	

K-2 END MILLS

PLAIN SHANK **G9B84** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS
Fraise carbure, 4 dents, torique, courte
4 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 4 | 30° | DIN 6535HA | TiAlN p.C570

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B84020	R0.2	2.0	4	4	50
G9B84901	R0.3	2.0	4	4	50
G9B84902	R0.5	2.0	4	4	50
G9B84025	R0.2	2.5	4	5	50
G9B84903	R0.3	2.5	4	5	50
G9B84904	R0.5	2.5	4	5	50
G9B84030	R0.2	3.0	4	6	50
G9B84905	R0.3	3.0	4	6	50
G9B84906	R0.5	3.0	4	6	50
G9B84907	R1.0	3.0	4	6	50
G9B84040	R0.2	4.0	4	8	50
G9B84908	R0.3	4.0	4	8	50
G9B84909	R0.5	4.0	4	8	50
G9B84910	R1.0	4.0	4	8	50
G9B84050	R0.2	5.0	6	10	50
G9B84911	R0.3	5.0	6	10	50
G9B84912	R0.5	5.0	6	10	50
G9B84913	R1.0	5.0	6	10	50
G9B84060	R0.2	6.0	6	12	50
G9B84914	R0.3	6.0	6	12	50
G9B84915	R0.5	6.0	6	12	50
G9B84916	R1.0	6.0	6	12	50
G9B84080	R0.5	8.0	8	16	60
G9B84917	R1.0	8.0	8	16	60

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○											○	

K-2 END MILLS
PLAIN SHANK G9B84 SERIES
CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS
Fraise carbure, 4 dents, torique, courte
4 TAGLIENTI, SERIE CORTA, TORICA
▶ Suitable for dry milling applications at high temperatures.
▶ Excellent high-performance end mills.
▶ Designed for milling of radius bottom slots, fillets and special contours.
▶ Für die Trockenbearbeitung.
▶ Hervorragendes Preis - Leistungsverhältnis.
▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 4 | 30° | DIN 6535HA | TiAlN p.C570

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B84918	R1.5	8.0	8	16	60
G9B84919	R2.0	8.0	8	16	60
G9B84920	R2.5	8.0	8	16	60
G9B84100	R0.5	10.0	10	20	75
G9B84921	R1.0	10.0	10	20	75
G9B84922	R1.5	10.0	10	20	75
G9B84923	R2.0	10.0	10	20	75
G9B84924	R2.5	10.0	10	20	75
G9B84120	R0.5	12.0	12	24	75
G9B84925	R1.0	12.0	12	24	75
G9B84926	R1.5	12.0	12	24	75
G9B84927	R2.0	12.0	12	24	75
G9B84928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○											○	

K-2 END MILLS

PLAIN SHANK **G9B85** SERIES

CARBIDE, 4 FLUTE LONG REACH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN GROßE REICHWEITE ECKENRADIUS
Fraise carbure, 4 dents, torique longue portée
4 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

CARBIDE | 4 | 30° | DIN 6535HA | TiAlN p.C570

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B85030	R0.5	3.0	4	6	75
G9B85901	R1.0	3.0	4	6	75
G9B85040	R0.5	4.0	4	8	75
G9B85902	R1.0	4.0	4	8	75
G9B85050	R0.5	5.0	6	10	75
G9B85903	R1.0	5.0	6	10	75
G9B85060	R0.5	6.0	6	12	75
G9B85904	R1.0	6.0	6	12	75
G9B85080	R0.5	8.0	8	16	100
G9B85905	R1.0	8.0	8	16	100
G9B85906	R1.5	8.0	8	16	100
G9B85907	R2.0	8.0	8	16	100
G9B85908	R2.5	8.0	8	16	100
G9B85100	R0.5	10.0	10	20	100
G9B85909	R1.0	10.0	10	20	100
G9B85910	R1.5	10.0	10	20	100
G9B85911	R2.0	10.0	10	20	100
G9B85912	R2.5	10.0	10	20	100
G9B85120	R0.5	12.0	12	24	100
G9B85913	R1.0	12.0	12	24	100
G9B85914	R1.5	12.0	12	24	100
G9B85915	R2.0	12.0	12	24	100
G9B85916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○											○	

K-2 END MILLS

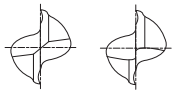
PLAIN SHANK **G9424** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE | 2 | 30° | DIN 6535HA | TiAlN p.C571

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9424010	1.0	4	3	40
G9424015	1.5	4	4.5	40
G9424020	2.0	2	8	32
G9424025	2.5	2.5	8	32
G9424030	3.0	3	12	32
G9424035	3.5	3.5	12	32
G9424040	4.0	4	12	40
G9424045	4.5	4.5	14	50
G9424050	5.0	5	14	50
G9424055	5.5	5.5	16	50
G9424060	6.0	6	16	50
G9424070	7.0	7	20	60
G9424080	8.0	8	20	60
G9424090	9.0	9	20	60
G9424100	10.0	10	22	70
G9424120	12.0	12	22	70
G9424140	14.0	14	25	75
G9424160	16.0	16	25	75
G9424200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9G44** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH WITH CHAMFER

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | 2 | 30° | DIN 6535HA | C x 45° | TiAlN

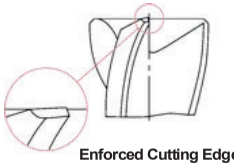
p.C571

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G44030	3.0	3	12	32	0.10
G9G44040	4.0	4	12	40	0.10
G9G44050	5.0	5	14	50	0.10
G9G44060	6.0	6	16	50	0.10
G9G44080	8.0	8	20	60	0.13
G9G44100	10.0	10	22	70	0.13
G9G44120	12.0	12	22	70	0.18
G9G44140	14.0	14	25	75	0.18
G9G44160	16.0	16	25	75	0.18
G9G44200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

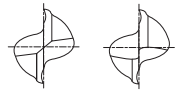
PLAIN SHANK **G9A68** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



under Ø3mm from Ø3mm

CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C571

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A68010	1.0	3	3	39
G9A68015	1.5	3	5	39
G9A68020	2.0	3	7	39
G9A68025	2.5	3	7	39
G9A68030	3.0	3	9	39
G9A68040	4.0	4	14	51
G9A68050	5.0	5	16	51
G9A68060	6.0	6	19	64
G9A68080	8.0	8	21	64
G9A68100	10.0	10	22	70
G9A68120	12.0	12	25	76
G9A68160	16.0	16	32	89
G9A68200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

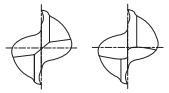
FLAT SHANK **G9444** SERIES

CARBIDE, 2 FLUTE SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



under Ø3mm from Ø3mm

CARBIDE | DIN 6527 | 2 | ≈30° | DIN 6535HB | TiAlN

p.C571

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9444020	2.0	6	3	50
G9444030	3.0	6	4	50
G9444035	3.5	6	4	50
G9444040	4.0	6	5	54
G9444045	4.5	6	5	54
G9444050	5.0	6	6	54
G9444060	6.0	6	7	54
G9444070	7.0	8	8	58
G9444080	8.0	8	9	58
G9444090	9.0	10	10	66
G9444100	10.0	10	11	66
G9444120	12.0	12	12	73
G9444140	14.0	14	14	75
G9444160	16.0	16	16	82
G9444180	18.0	18	18	84
G9444200	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9527** SERIES

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | DIN 6528 | 2 | ≈30° | DIN 6535HA | TiAlN

p.C571

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9527035	3.5	3.5	7	50
G9527040	4.0	4	8	50
G9527045	4.5	4.5	8	50
G9527050	5.0	5	10	50
G9527055	5.5	5.5	10	57
G9527060	6.0	6	10	57
G9527065	6.5	6.5	13	60
G9527070	7.0	7	13	60
G9527075	7.5	7.5	16	63
G9527080	8.0	8	16	63
G9527085	8.5	8.5	16	67
G9527090	9.0	9	16	67
G9527095	9.5	9.5	19	72
G9527100	10.0	10	19	72
G9527110	11.0	11	22	83
G9527120	12.0	12	22	83
G9527130	13.0	13	22	83
G9527140	14.0	14	22	83
G9527150	15.0	15	26	92
G9527160	16.0	16	26	92
G9527180	18.0	18	26	92
G9527200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

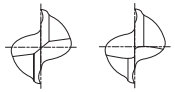
FLAT SHANK **G9445** SERIES

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE | DIN 6527 | 2 | ≈30° | DIN 6535HA | DIN 6535HB | TiAlN

p.C571

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445901	2.0	● 3	6	38
G9445028	2.8	6	7	57
G9445030	3.0	6	7	57
G9445035	3.5	6	7	57
G9445038	3.8	6	8	57
G9445040	4.0	6	8	57
G9445045	4.5	6	8	57
G9445048	4.8	6	10	57
G9445050	5.0	6	10	57
G9445957	5.8	6	10	57
G9445060	6.0	6	10	57
G9445967	6.8	8	13	63
G9445070	7.0	8	13	63
G9445977	7.8	8	16	63
G9445080	8.0	8	16	63
G9445087	8.7	10	16	72
G9445090	9.0	10	16	72
G9445097	9.7	10	19	72
G9445100	10.0	10	19	72
G9445117	11.7	12	22	83
G9445120	12.0	12	22	83
G9445137	13.7	14	22	83
G9445140	14.0	14	22	83

● with plain shank

▶ NEXT PAGE

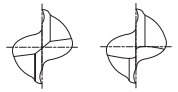
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS
FLAT SHANK G9445 SERIES
CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA
▶ Suitable for dry milling applications at high temperatures.
▶ Excellent high-performance end mills.
▶ 2 flute design for slotting.
▶ Für die Trockenbearbeitung.
▶ Hervorragendes Preis - Leistungsverhältnis.
▶ 2 Schneiden zum Nutenfräsen.



CARBIDE | DIN 6527 | 2 | ≈30° | DIN 6535HA | DIN 6535HB | TiAlN
p.C571
Recommended ToolHolder
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445157	15.7	16	26	92
G9445160	16.0	16	26	92
G9445177	17.7	18	26	92
G9445180	18.0	18	26	92
G9445197	19.7	20	32	104
G9445200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9G45** SERIES

CARBIDE, 2 FLUTE LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | DIN 6527 | 2 | ≈30° | DIN 6535HB | C x 45° | TiAlN

p.C571

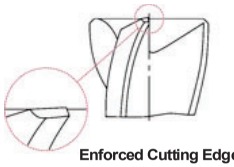
Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G45030	3.0	6	7	57	0.10
G9G45040	4.0	6	8	57	0.10
G9G45050	5.0	6	10	57	0.10
G9G45060	6.0	6	10	57	0.10
G9G45080	8.0	8	16	63	0.13
G9G45100	10.0	10	19	72	0.13
G9G45120	12.0	12	22	83	0.18
G9G45140	14.0	14	22	83	0.18
G9G45160	16.0	16	26	92	0.18
G9G45200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9452** SERIES

CARBIDE, 2 FLUTE EXTRA LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG
Fraise carbure, 2 dents, extra-longue
2 TAGLIENTI, SERIE EXTRA LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C571

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9452903	3.0	3	20	60
G9452030	3.0	3	30	75
G9452904	4.0	4	20	60
G9452040	4.0	4	30	75
G9452905	5.0	5	25	75
G9452050	5.0	5	40	100
G9452906	6.0	6	30	75
G9452060	6.0	6	50	150
G9452908	8.0	8	30	75
G9452080	8.0	8	50	150
G9452910	10.0	10	40	100
G9452100	10.0	10	60	150
G9452912	12.0	12	45	100
G9452120	12.0	12	75	150
G9452914	14.0	14	45	100
G9452140	14.0	14	65	150
G9452916	16.0	16	45	100
G9452160	16.0	16	65	150
G9452918	18.0	18	45	100
G9452180	18.0	18	65	150
G9452920	20.0	20	45	100
G9452200	20.0	20	65	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9B80** SERIES

CARBIDE, 2 FLUTE RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C572-573

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	D3	D3
G9B80004	0.4	4	0.7	2	50	0.37
G9B80901	0.4	4	0.7	4	50	0.37
G9B80005	0.5	4	0.75	2	50	0.45
G9B80902	0.5	4	0.75	4	50	0.45
G9B80903	0.5	4	0.75	6	50	0.45
G9B80006	0.6	4	0.9	2	50	0.55
G9B80904	0.6	4	0.9	4	50	0.55
G9B80905	0.6	4	0.9	6	50	0.55
G9B80007	0.7	4	1.1	4	50	0.65
G9B80906	0.7	4	1.1	6	50	0.65
G9B80008	0.8	4	1.2	4	50	0.75
G9B80907	0.8	4	1.2	6	50	0.75
G9B80908	0.8	4	1.2	8	50	0.75
G9B80009	0.9	4	1.4	6	50	0.85
G9B80909	0.9	4	1.4	8	50	0.85
G9B80910	0.9	4	1.4	10	50	0.85
G9B80010	1.0	4	1.5	6	50	0.95
G9B80911	1.0	4	1.5	8	50	0.95
G9B80912	1.0	4	1.5	10	50	0.95
G9B80913	1.0	4	1.5	12	50	0.95
G9B80012	1.2	4	1.8	6	50	1.15
G9B80914	1.2	4	1.8	8	50	1.15
G9B80915	1.2	4	1.8	10	50	1.15
G9B80916	1.2	4	1.8	12	50	1.15

▶ NEXT PAGE

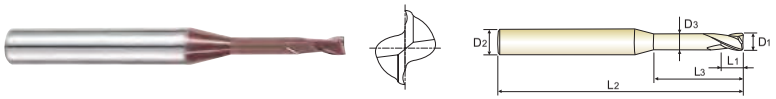
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○													

K-2 END MILLS
PLAIN SHANK G9B80 SERIES
CARBIDE, 2 FLUTE RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI, SCARICATA PER NERVATURE
▶ Suitable for dry milling applications at high temperatures.
▶ Excellent high-performance end mills.
▶ 2 flute design for slotting.
▶ Für die Trockenbearbeitung.
▶ Hervorragendes Preis - Leistungsverhältnis.
▶ 2 Schneiden zum Nutenfräsen.



CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C572-573

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	D3	D3
G9B80015	1.5	4	2.3	6	50	1.45
G9B80917	1.5	4	2.3	8	50	1.45
G9B80918	1.5	4	2.3	10	50	1.45
G9B80919	1.5	4	2.3	12	50	1.45
G9B80920	1.5	4	2.3	14	50	1.45
G9B80921	1.5	4	2.3	16	50	1.45
G9B80922	1.5	4	2.3	18	50	1.45
G9B80923	1.5	4	2.3	20	50	1.45
G9B80020	2.0	4	3	6	50	1.95
G9B80924	2.0	4	3	8	50	1.95
G9B80925	2.0	4	3	10	50	1.95
G9B80926	2.0	4	3	12	50	1.95
G9B80927	2.0	4	3	14	50	1.95
G9B80928	2.0	4	3	16	50	1.95
G9B80929	2.0	4	3	18	50	1.95
G9B80930	2.0	4	3	20	50	1.95
G9B80025	2.5	4	3.7	8	50	2.40
G9B80931	2.5	4	3.7	12	50	2.40
G9B80932	2.5	4	3.7	16	50	2.40
G9B80933	2.5	4	3.7	20	50	2.40

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○													

K-2 END MILLS

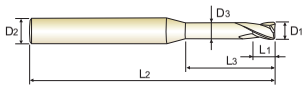
PLAIN SHANK **G9B80** SERIES

CARBIDE, 2 FLUTE RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



CARBIDE | 2 | 30° | DIN 6535HA | TiAlN

p.C572-573

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER D118 - 137		HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D_1	D_2	L_1	L_3	D_3	D_3
G9B80030	3.0	6	4.5	8	50	2.85
G9B80934	3.0	6	4.5	12	50	2.85
G9B80935	3.0	6	4.5	16	60	2.85
G9B80936	3.0	6	4.5	20	60	2.85
G9B80937	3.0	6	4.5	25	75	2.85
G9B80040	4.0	6	6	12	50	3.85
G9B80938	4.0	6	6	16	60	3.85
G9B80939	4.0	6	6	20	75	3.85
G9B80940	4.0	6	6	25	75	3.85
G9B80941	4.0	6	6	30	75	3.85
G9B80942	4.0	6	6	35	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○													

K-2 END MILLS

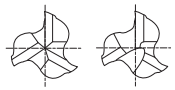
FLAT SHANK **G9410** SERIES
PLAIN SHANK **G9553** SERIES

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY

VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER
Fraise carbure, 3 dents, à jeter, courte
3 TAGLIENTI, SERIE EXTRA CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



under Ø2mm from Ø2mm

CARBIDE | 3 | 30° | PLAIN | FLAT | TiAlN

p.C574-575

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER D118 - 137		HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
G9553005	-	0.5	3	1.5	38
G9553006	-	0.6	3	1.5	38
G9553008	-	0.8	3	2	38
G9553010	-	1.0	3	2	38
G9553012	-	1.2	3	2	38
G9553015	-	1.5	3	2	38
G9553018	-	1.8	3	2	38
-	G9410020	2.0	6	4	35
-	G9410025	2.5	6	5	36
-	G9410030	3.0	6	5	36
-	G9410035	3.5	6	6	37
-	G9410040	4.0	6	7	38
-	G9410045	4.5	6	8	38
-	G9410050	5.0	6	8	39
-	G9410055	5.5	6	8	39
-	G9410957	5.8	6	8	39
-	G9410060	6.0	6	8	39
-	G9410967	6.8	8	10	42
-	G9410070	7.0	8	10	42
-	G9410977	7.8	8	10	42
-	G9410080	8.0	8	11	43
-	G9410087	8.7	10	11	48
-	G9410090	9.0	10	11	48
-	G9410097	9.7	10	11	48

▶ NEXT PAGE

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

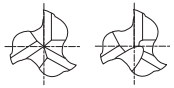
FLAT SHANK **G9410** SERIES
PLAIN SHANK **G9553** SERIES

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY

VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER
Fraise carbure, 3 dents, à jeter, courte
3 TAGLIENTI, SERIE EXTRA CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



under Ø2mm from Ø2mm

CARBIDE | 3 | 30° | PLAIN | FLAT | TiAlN

p.C574-575

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
-	G9410100	10.0	10	13	50
-	G9410120	12.0	12	15	55
-	G9410140	14.0	14	15	58
-	G9410160	16.0	16	18	62
-	G9410180	18.0	18	20	70
-	G9410200	20.0	20	22	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

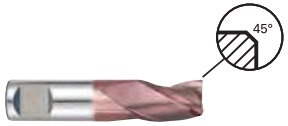
FLAT SHANK **G9G46** SERIES

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY WITH CHAMFER

VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER
Fraise carbure, 3 dents, à jeter, courte
3 TAGLIENTI, SERIE EXTRA CORTA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



CARBIDE | 3 | 30° | FLAT | C x 45° | TiAlN

p.C574-575

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G46030	3.0	6	5	36	0.1
G9G46040	4.0	6	7	38	0.1
G9G46050	5.0	6	8	39	0.1
G9G46060	6.0	6	8	39	0.1
G9G46080	8.0	8	11	43	0.13
G9G46100	10.0	10	13	50	0.13
G9G46120	12.0	12	15	55	0.18
G9G46140	14.0	14	15	58	0.18
G9G46160	16.0	16	18	62	0.18
G9G46200	20.0	20	22	75	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

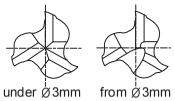
PLAIN SHANK **G9425** SERIES

CARBIDE, 3 FLUTE SHORT LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN KURZ
Fraise carbure, 3 dents, courte
3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



CARBIDE | 3 | 30° | DIN 6535HA | TiAlN

p.C574-575

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9425010	1.0	4	3	40
G9425015	1.5	4	4.5	40
G9425020	2.0	2	8	32
G9425025	2.5	3	8	32
G9425030	3.0	3	12	32
G9425035	3.5	4	12	32
G9425040	4.0	4	12	40
G9425045	4.5	5	14	50
G9425050	5.0	5	14	50
G9425055	5.5	6	16	50
G9425060	6.0	6	16	50
G9425070	7.0	7	20	60
G9425080	8.0	8	20	60
G9425090	9.0	9	20	60
G9425100	10.0	10	22	70
G9425120	12.0	12	22	70
G9425140	14.0	14	25	75
G9425160	16.0	16	25	75
G9425200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9G47** SERIES

CARBIDE, 3 FLUTE SHORT LENGTH WITH CHAMFER

VOLLHARTMETALL, 3 SCHNEIDEN KURZ
Fraise carbure, 3 dents, courte
3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

CARBIDE | 3 | 30° | DIN 6535HA | C x 45° | TiAlN

p.C574-575

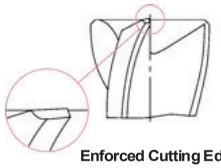
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G47030	3.0	3	12	32	0.1
G9G47040	4.0	4	12	40	0.1
G9G47050	5.0	5	14	50	0.1
G9G47060	6.0	6	16	50	0.1
G9G47080	8.0	8	20	60	0.13
G9G47100	10.0	10	22	70	0.13
G9G47120	12.0	12	22	70	0.18
G9G47140	14.0	14	25	75	0.18
G9G47160	16.0	16	25	75	0.18
G9G47200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

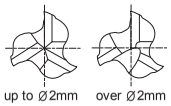
FLAT SHANK **G9439** SERIES

CARBIDE, 3 FLUTE SHORT LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN KURZ
Fraise carbure, 3 dents, courte
3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



CARBIDE | DIN 6527 | 3 | ≈30° | DIN 6535HB | TiAlN

p.C574-575

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9439020	2.0	6	3	50
G9439030	3.0	6	4	50
G9439035	3.5	6	4	50
G9439040	4.0	6	5	54
G9439045	4.5	6	5	54
G9439050	5.0	6	6	54
G9439060	6.0	6	7	54
G9439070	7.0	8	8	58
G9439080	8.0	8	9	58
G9439090	9.0	10	10	66
G9439100	10.0	10	11	66
G9439120	12.0	12	12	73
G9439140	14.0	14	14	75
G9439160	16.0	16	16	82
G9439180	18.0	18	18	84
G9439200	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9528** SERIES

CARBIDE, 3 FLUTE LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN LANG
Fraise carbure, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

CARBIDE | DIN 6528 | 3 | ≈30° | DIN 6535HA | TiAlN

p.C574-575

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9528035	3.5	3.5	7	50
G9528040	4.0	4	8	50
G9528045	4.5	4.5	8	50
G9528050	5.0	5	10	50
G9528055	5.5	5.5	10	57
G9528060	6.0	6	10	57
G9528065	6.5	6.5	13	60
G9528070	7.0	7	13	60
G9528075	7.5	7.5	16	63
G9528080	8.0	8	16	63
G9528085	8.5	8.5	16	67
G9528090	9.0	9	16	67
G9528095	9.5	9.5	19	72
G9528100	10.0	10	19	72
G9528110	11.0	11	22	83
G9528120	12.0	12	22	83
G9528130	13.0	13	22	83
G9528140	14.0	14	22	83
G9528150	15.0	15	26	92
G9528160	16.0	16	26	92
G9528180	18.0	18	26	92
G9528200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9433** SERIES

CARBIDE, 3 FLUTE LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN LANG
Fraise carbure, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

CARBIDE | DIN 6527 | 3 | ≈30° | DIN 6535HB | TiAlN

p.C574-575

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9433030	3.0	6	7	57
G9433040	4.0	6	8	57
G9433050	5.0	6	10	57
G9433060	6.0	6	10	57
G9433080	8.0	8	16	63
G9433090	9.0	10	16	72
G9433100	10.0	10	19	72
G9433120	12.0	12	22	83
G9433140	14.0	14	22	83
G9433160	16.0	16	26	92
G9433180	18.0	18	26	92
G9433200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9G48** SERIES

CARBIDE, 3 FLUTE LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 3 SCHNEIDEN LANG
Fraise carbure, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possesses the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

CARBIDE | DIN 6527 | 3 | ≈30° | DIN 6535HB | C x 45° | TiAlN

p.C574-575

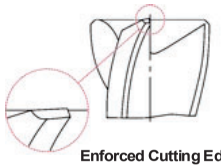
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G48030	3.0	6	7	57	0.10
G9G48040	4.0	6	8	57	0.10
G9G48050	5.0	6	10	57	0.10
G9G48060	6.0	6	10	57	0.10
G9G48080	8.0	8	16	63	0.13
G9G48100	10.0	10	19	72	0.13
G9G48120	12.0	12	22	83	0.18
G9G48140	14.0	14	22	83	0.18
G9G48160	16.0	16	26	92	0.18
G9G48200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9447** SERIES

CARBIDE, 3 FLUTE 45° HELIX, LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 3 dents, hélice 45°, longue
3 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.

CARBIDE | DIN 6527 | 3 | 45° | DIN 6535HB | TiAlN

p.C574-575

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9447030	3.0	6	7	57
G9447035	3.5	6	7	57
G9447040	4.0	6	8	57
G9447045	4.5	6	8	57
G9447050	5.0	6	10	57
G9447060	6.0	6	10	57
G9447070	7.0	8	13	63
G9447080	8.0	8	16	63
G9447090	9.0	10	16	72
G9447100	10.0	10	19	72
G9447120	12.0	12	22	83
G9447140	14.0	14	22	83
G9447160	16.0	16	26	92
G9447180	18.0	18	26	92
G9447200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9G49** SERIES

CARBIDE, 3 FLUTE 45° HELIX, LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 3 dents, hélice 45°, longue
3 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.

CARBIDE | DIN 6527 | 3 | 45° | DIN 6535HB | C x 45° | TiAlN

p.C574-575

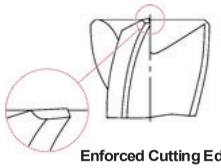
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G49030	3.0	6	7	57	0.10
G9G49040	4.0	6	8	57	0.10
G9G49050	5.0	6	10	57	0.10
G9G49060	6.0	6	10	57	0.10
G9G49080	8.0	8	16	63	0.13
G9G49100	10.0	10	19	72	0.13
G9G49120	12.0	12	22	83	0.18
G9G49140	14.0	14	22	83	0.18
G9G49160	16.0	16	26	92	0.18
G9G49200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9432** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

CARBIDE | 4 | 30° | DIN 6535HA | TiAlN | p.C576

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9432010	1.0	4	3	40
G9432015	1.5	4	4.5	40
G9432020	2.0	2	8	32
G9432025	2.5	2.5	8	32
G9432030	3.0	3	12	32
G9432035	3.5	3.5	12	32
G9432040	4.0	4	12	40
G9432045	4.5	4.5	14	50
G9432050	5.0	5	14	50
G9432055	5.5	5.5	16	50
G9432060	6.0	6	16	50
G9432070	7.0	7	20	60
G9432080	8.0	8	20	60
G9432090	9.0	9	20	60
G9432100	10.0	10	22	70
G9432120	12.0	12	22	70
G9432140	14.0	14	25	75
G9432160	16.0	16	25	75
G9432200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9G50** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH WITH CHAMFER

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

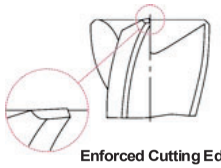
CARBIDE | 4 | 30° | DIN 6535HA | C x 45° | TiAlN | p.C576

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G50030	3.0	3	12	32	0.10
G9G50040	4.0	4	12	40	0.10
G9G50050	5.0	5	14	50	0.10
G9G50060	6.0	6	16	50	0.10
G9G50080	8.0	8	20	60	0.13
G9G50100	10.0	10	22	70	0.13
G9G50120	12.0	12	22	70	0.18
G9G50140	14.0	14	25	75	0.18
G9G50160	16.0	16	25	75	0.18
G9G50200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9A69** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

CARBIDE | 4 | 30° | DIN 6535HA | TiAlN p.C576

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A69010	1.0	3	3	39
G9A69015	1.5	3	5	39
G9A69020	2.0	3	7	39
G9A69025	2.5	3	7	39
G9A69030	3.0	3	10	39
G9A69040	4.0	4	14	51
G9A69050	5.0	5	16	51
G9A69060	6.0	6	19	64
G9A69080	8.0	8	21	64
G9A69100	10.0	10	22	70
G9A69120	12.0	12	25	76
G9A69160	16.0	16	32	89
G9A69200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9448** SERIES

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

CARBIDE | DIN 6527 | 4 | 30° | DIN 6535HB | TiAlN p.C576

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9448020	2.0	6	4	50
G9448025	2.5	6	4	50
G9448030	3.0	6	5	50
G9448035	3.5	6	6	50
G9448040	4.0	6	8	54
G9448045	4.5	6	8	54
G9448050	5.0	6	9	54
G9448060	6.0	6	10	54
G9448070	7.0	8	11	58
G9448080	8.0	8	12	58
G9448090	9.0	10	13	66
G9448100	10.0	10	14	66
G9448120	12.0	12	16	73
G9448140	14.0	14	18	75
G9448160	16.0	16	22	82
G9448180	18.0	18	24	84
G9448200	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9540** SERIES

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

CARBIDE | DIN 6528 | 4 | ≈30° | DIN 6535HA | TiAlN

p.C576

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
○	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9540035	3.5	3.5	10	50
G9540040	4.0	4	11	50
G9540045	4.5	4.5	11	50
G9540050	5.0	5	13	50
G9540055	5.5	5.5	13	57
G9540060	6.0	6	13	57
G9540065	6.5	6.5	16	60
G9540070	7.0	7	16	60
G9540075	7.5	7.5	19	63
G9540080	8.0	8	19	63
G9540085	8.5	8.5	19	67
G9540090	9.0	9	19	67
G9540095	9.5	9.5	22	72
G9540100	10.0	10	22	72
G9540110	11.0	11	26	83
G9540120	12.0	12	26	83
G9540130	13.0	13	26	83
G9540140	14.0	14	26	83
G9540150	15.0	15	32	92
G9540160	16.0	16	32	92
G9540180	18.0	18	32	92
G9540200	20.0	20	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

FLAT SHANK **G9449** SERIES

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

CARBIDE | DIN 6527 | 4 | ≈30° | DIN 6535HB | DIN 6535HA | TiAlN

p.C576

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
○	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9449901	2.0	● 3	7	38
G9449030	3.0	6	8	57
G9449035	3.5	6	10	57
G9449040	4.0	6	11	57
G9449045	4.5	6	11	57
G9449050	5.0	6	13	57
G9449060	6.0	6	13	57
G9449070	7.0	8	16	63
G9449080	8.0	8	19	63
G9449090	9.0	10	19	72
G9449100	10.0	10	22	72
G9449120	12.0	12	26	83
G9449140	14.0	14	26	83
G9449160	16.0	16	32	92
G9449180	18.0	18	32	92
G9449200	20.0	20	38	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

K-2 END MILLS

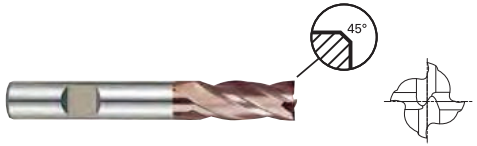
FLAT SHANK **G9G51** SERIES

CARBIDE, 4 FLUTE LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



CARBIDE | DIN 6527 | 4 | ≈30° | DIN 6535HB | C x 45° | TiAlN

p.C576

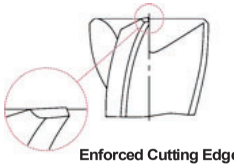
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G51030	3.0	6	8	57	0.10
G9G51040	4.0	6	11	57	0.10
G9G51050	5.0	6	13	57	0.10
G9G51060	6.0	6	13	57	0.10
G9G51080	8.0	8	19	63	0.13
G9G51100	10.0	10	22	72	0.13
G9G51120	12.0	12	26	83	0.18
G9G51140	14.0	14	26	83	0.18
G9G51160	16.0	16	32	92	0.18
G9G51200	20.0	20	38	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9H73** SERIES
FLAT SHANK **G9H74** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX SHORT LENGTH WITH CHAMFER

HARTMETALL, 4-SCHNEIDEN-VARIABLER DRALL KURZE LÄNGE MIT FASE
Fraise carbure, 4 dents, hélice multiple, courte
MD, 4 TAGLIENTI, PASSO ED ELICA DIFFERENZIATI, SPIGOLO CON SMUSSO 45°

- ▶ New Coating enhances heat and oxidation resistance
- ▶ Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation
- ▶ Unique Geometry applied to Reduce Vibration

- ▶ Neue Beschichtung verbessert die Hitze- und Oxidationsbeständigkeit
- ▶ Multiple Helix Design zur Reduzierung von Vibrationen
- ▶ Einzigartige Geometrie für optimale Spanbildung und Spanabfuhr

CARBIDE | DIN 6527 | 4 | 35°/37° | PLAIN | FLAT | C x 45° | X Coating

p.C577

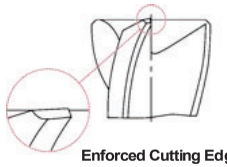
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT					
G9H73030N	G9H74030N	3.0	6	5	50	0.10
G9H73040N	G9H74040N	4.0	6	8	54	0.15
G9H73050N	G9H74050N	5.0	6	9	54	0.15
G9H73060N	G9H74060N	6.0	6	10	54	0.20
G9H73080N	G9H74080N	8.0	8	12	58	0.20
G9H73100N	G9H74100N	10.0	10	14	66	0.30
G9H73120N	G9H74120N	12.0	12	16	73	0.35
G9H73160N	G9H74160N	16.0	16	22	82	0.40
G9H73200N	G9H74200N	20.0	20	26	92	0.50

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

X-Coating
Excellent heat and oxidation resistance

Unequal Index
Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Chip Evacuation with Better Surface Finish

Multiple Helix
Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation Concluding Faster and Heavier Cutting making Higher Productivity

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

K-2 END MILLS

PLAIN SHANK **G9H75** SERIES
FLAT SHANK **G9H76** SERIES

CARBIDE, 4 FLUTE MULTIPLE HELIX LONG LENGTH WITH CHAMFER

HARTMETALL, 4-SCHNEIDEN-VARIABLER LANG LÄNGE MIT FASE
Fraise carbure, 4 dents, hélice multiple, longue
MD, 4 TAGLIENTI, PASSO ED ELICA DIFFERENZIATI, CON SMUSSO 45° - SERIE LUNGA

- New Coating enhances heat and oxidation resistance
- Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation
- Unique Geometry applied to Reduce Vibration

- Neue Beschichtung verbessert die Hitze- und Oxidationsbeständigkeit
- Multiple Helix Design zur Reduzierung von Vibrationen
- Einzigartige Geometrie für optimale Spanbildung und Spanabfuhr

CARBIDE | DIN 6527 | 4 | 35°/37° | PLAIN | FLAT | C x 45° | X Coating p.C577

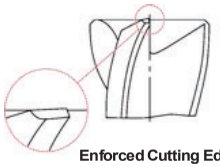
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9H75030N	G9H76030N	3.0	6	8	57	0.10
G9H75040N	G9H76040N	4.0	6	11	57	0.15
G9H75050N	G9H76050N	5.0	6	13	57	0.15
G9H75060N	G9H76060N	6.0	6	13	57	0.20
G9H75080N	G9H76080N	8.0	8	19	63	0.20
G9H75100N	G9H76100N	10.0	10	22	72	0.30
G9H75120N	G9H76120N	12.0	12	26	83	0.35
G9H75160N	G9H76160N	16.0	16	32	92	0.40
G9H75200N	G9H76200N	20.0	20	38	104	0.50

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

X-Coating
Excellent heat and oxidation resistance

Unequal Index
Exclusively Designed Unique Geometry applied to Reduce Vibration and also to achieve Excellent Chip Evacuation with Better Surface Finish

Multiple Helix
Multiple Helix Designed for Optimal Chip Formation and Chip Evacuation Concluding Faster and Heavier Cutting making Higher Productivity

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend											○	○	○	○	○	○	○				

K-2 END MILLS

PLAIN SHANK **G9453** SERIES

CARBIDE, 4 FLUTE EXTRA LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG
Fraise carbure, 4 dents, extra-longue
4 TAGLIENTI, SERIE EXTRA LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- 4 flute allows for better work piece finishes.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

CARBIDE | 4 | 30° | DIN 6535HA | TiAlN p.C576

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9453903	3.0	3	20	60
G9453030	3.0	3	30	75
G9453904	4.0	4	20	60
G9453040	4.0	4	30	75
G9453905	5.0	5	25	75
G9453050	5.0	5	40	100
G9453906	6.0	6	30	75
G9453060	6.0	6	50	150
G9453908	8.0	8	30	75
G9453080	8.0	8	50	150
G9453910	10.0	10	40	100
G9453100	10.0	10	60	150
G9453912	12.0	12	45	100
G9453120	12.0	12	75	150
G9453914	14.0	14	45	100
G9453140	14.0	14	65	150
G9453916	16.0	16	45	100
G9453160	16.0	16	65	150
G9453918	18.0	18	45	100
G9453180	18.0	18	65	150
G9453920	20.0	20	45	100
G9453200	20.0	20	65	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○			○	

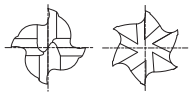
K-2 END MILLS

PLAIN SHANK **G9F45** SERIES
PLAIN SHANK **G9F46** SERIES

CARBIDE, 4&6 FLUTE 45° HELIX SHORT / LONG LENGTH

VOLLHARTMETALL, 4&6 SCHNEIDEN 45° RECHTSSPIRALE KURZ / LANG
Fraise carbure, 4&6 dents, hélice 45°, courte / longue
4&6 TAGLIENTI, ELICA 45°, SERIE CORTA / LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung geeignet.
- ▶ Exzellente Hochleistungs Mühlen.



CARBIDE | 4&6 | 45° | DIN 6535HA | TiAlN | p.C578

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

SHORT

Unit : mm

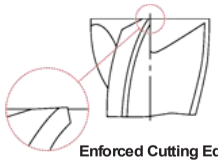
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F45030	3.0	4	6	50	4
G9F45040	4.0	4	11	50	4
G9F45050	5.0	6	13	50	6
G9F45060	6.0	6	16	50	6
G9F45080	8.0	8	19	60	6
G9F45100	10.0	10	22	75	6
G9F45120	12.0	12	26	75	6
G9F45140	14.0	14	30	90	6
G9F45160	16.0	16	32	100	6
G9F45180	18.0	18	38	100	6
G9F45200	20.0	20	38	100	6

LONG

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F46120	12.0	12	50	100	6
G9F46160	16.0	16	65	150	6
G9F46200	20.0	20	75	150	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h5



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○	○	○	○	○	○	○	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend																		○	○	○	○

K-2 END MILLS

FLAT SHANK **G9A42** SERIES

CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - COARSE

VOLLHARTMETALL, MEHRSCHNEIDEN LANG SCHRUPPFRÄSER - GROB
Fraise carbure, multi-dents, ébauche, pas grossier, longue
3 - 4 - 5 TAGLIENTI, PER SGROSSATURA, SERIE LUNGA - Bombato grosso

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Fast chip ejection.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Guter Spanauswurf.

CARBIDE | NR | 3-5 | 30° | DIN 6535HB | C x 45° | X Coating | p.C579

Recommended Tool Holder

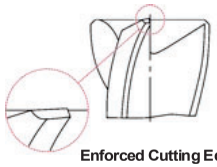
	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎	-	-	SHRINK FIT HOLDER	D47 - 72
○	-	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 116 D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	h10	h5				
G9A42060	6.0	6	16	57	3.00	0.60
G9A42080	8.0	8	16	63	3.00	0.60
G9A42100	10.0	10	22	72	4.00	0.60
G9A42120	12.0	12	26	83	4.00	0.74
G9A42140	14.0	14	26	83	4.00	0.94
G9A42160	16.0	16	32	92	4.00	0.94
G9A42180	18.0	18	32	92	4.00	0.94
G9A42200	20.0	20	38	104	4.00	0.94
G9A42250	25.0	25	45	121	5.00	0.94

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm				
	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h5	0 - 4	0 - 5	0 - 6	0 - 8	0 - 9



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○	○	○	○			○	○	○	○	○	○	○			○	

K-2 END MILLS

PLAIN SHANK **G9400** SERIES

CARBIDE, 2 FLUTE DRILL MILLS

VOLLHARTMETALL, 2 SCHNEIDEN BOHRNUTEN FRÄSER
Fraise foret carbure, 2 dents, multi-fonctions
2 TAGLIENTI, FRESA IN MD A 90°

CARBIDE | YG STD | 2 | 30° | DIN 6535HA | TiAlN

p.C580-582

Recommended Toolholder

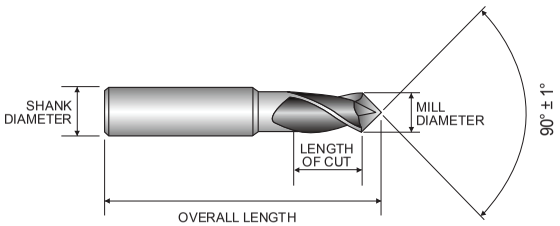
Flat Shank	Page	Plain Shank	Page
◎ END MILL HOLDER	D118 - 137	HYDRAULIC CHUCK POWER MILLING CHUCK	D15 - 46 D161 - 176
◎ -	-	SHRINK FIT HOLDER	D47 - 72
○ -	-	ER COLLET CHUCK SK SLIM CHUCK	D73 - 118 D183 - 201

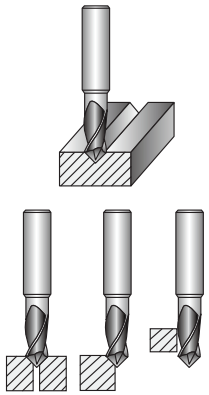
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9400030	3.0	4	6	50
G9400040	4.0	5	8	50
G9400050	5.0	6	10	50
G9400060	6.0	8	12	60
G9400080	8.0	10	16	70
G9400100	10.0	12	18	70
G9400120	12.0	12	20	70
G9400140	14.0	14	24	80
G9400160	16.0	16	26	80
G9400200	20.0	20	32	100

▶TiN, TiCN and TiAlN Coatings are available on your request.

- Performs many drilling and milling operations that are not presently done with the standard end mill.
- Among the many vertical milling machine operations, applications for the Drill Mill are: Drilling, Slotting, NC Milling, Drilling & Slotting, Profile Milling and Chamfering.





Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
Ø3 ~ Ø10=h9 Ø12 ~ Ø20=d9	h5

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

K-2 END MILLS

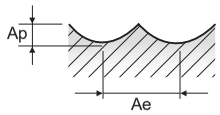
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9624, G9A70, G9437, G9438, G9454, G9455 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Ae	Parameter	Mill Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	1-4	Non-alloy steel	0.2D	Vc	80	105	110	125	135	155	170	190	200	205	215	225
				fz	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201
				RPM	12732	11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	662	557	613	716	859	1098	1320	1512	1501	1468	1430	1440
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	5		0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	403	390	444	484	700	796	859	955	931	898	890	880
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	6-7	Low alloy steel	0.2D	Vc	80	105	110	125	135	155	170	190	200	205	215	225
				fz	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201
				RPM	12732	11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	662	557	613	716	859	1098	1320	1512	1501	1468	1430	1440
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	8-9		0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	403	390	444	484	700	796	859	955	931	898	890	880
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	10	High alloyed steel, and tool steel	0.2D	Vc	80	105	110	125	135	155	170	190	200	205	215	225
				fz	0.026	0.025	0.035	0.045	0.06	0.089	0.122	0.15	0.165	0.18	0.188	0.201
				RPM	12732	11141	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	662	557	613	716	859	1098	1320	1512	1501	1468	1430	1440
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	11.1 - 11.2		0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	403	390	444	484	700	796	859	955	931	898	890	880
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	Vc	65	65	65	65	65	65	65	65	60	65	60	65
				fz	0.01	0.016	0.028	0.04	0.053	0.092	0.112	0.131	0.164	0.177	0.209	0.2
				RPM	10345	6897	5173	4138	3448	2586	2069	1724	1364	1293	1061	1035
				FEED	207	221	290	331	366	476	463	452	447	458	444	414
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
N	21~22	Aluminum-wrought alloy	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185
				fz	0.006	0.01	0.013	0.019	0.023	0.034	0.044	0.061	0.073	0.07	0.079	0.092
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944
				FEED	372	414	403	460	476	541	546	631	631	543	531	542
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	23~25	Aluminum-cast, alloyed	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185
				fz	0.006	0.01	0.013	0.019	0.023	0.034	0.044	0.061	0.073	0.07	0.079	0.092
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944
				FEED	372	414	403	460	476	541	546	631	631	543	531	542
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
H	38.1	Hardened steel	0.2D	Vc	25	35	45	50	50	50	55	55	55	60	60	60
				fz	0.016	0.016	0.021	0.024	0.03	0.046	0.054	0.07	0.081	0.091	0.1	0.111
				RPM	3979	3714	3581	3183	2653	1989	1751	1459	1251	1194	1061	955
				FEED	127	119	150	153	159	183	189	204	203	217	212	212
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.2D	Vc	55	80	90	95	110	125	135	150	160	160	170	175
				fz	0.023	0.023	0.031	0.04	0.06	0.08	0.1	0.12	0.128	0.141	0.148	0.158
				RPM	8754	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	403	390	444	484	700	796	859	955	931	898	890	880
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3

※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

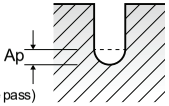
G9B81 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø) 0.4	0.5	0.6	0.8	1.0
P	1-4	Non-alloy steel	Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
			RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000
			FEED	150~415	150~415	190~535	190~535	210~595
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	5		Vc	24~30	30~38	36~46	48~61	55~69
			fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007
			RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100
			FEED	75~230	75~230	95~300	95~300	105~330
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	6-7	Low alloy steel	Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
			RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000
			FEED	150~415	150~415	190~535	190~535	210~595
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	8-9		Vc	24~30	30~38	36~46	48~61	55~69
			fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007
			RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100
			FEED	75~230	75~230	95~300	95~300	105~330
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	10	High alloyed steel, and tool steel	Vc	33~43	41~53	50~64	66~85	77~97
			fz	0.003~0.006	0.003~0.006	0.004~0.008	0.004~0.008	0.004~0.010
			RPM	26350~34000	26350~34000	26350~34000	26350~34000	24650~31000
			FEED	150~415	150~415	190~535	190~535	210~595
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090
	11.1 - 11.2		Vc	24~30	30~38	36~46	48~61	55~69
			fz	0.002~0.005	0.002~0.005	0.002~0.006	0.002~0.006	0.003~0.007
			RPM	19100~24200	19100~24200	19100~24200	19100~24200	17400~22100
			FEED	75~230	75~230	95~300	95~300	105~330
			Ap	0.018~0.036	0.023~0.045	0.027~0.054	0.036~0.072	0.045~0.090

※ The FEED, in long & extra long types, should be reduced by around 50%

▶ NEXT PAGE



(Depth of cut per one pass)

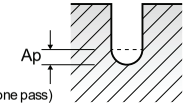
K-2 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9B81 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

VDI 3323	Parameter	Mill Diameter (Ø) 1.2	1.4	1.5	1.6	1.8	2.0	3.0	4.0
1-4	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
	fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
	RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
	FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
5	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
	fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
	RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
	FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
6-7	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
	fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
	RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
	FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
8-9	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
	fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
	RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
	FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
10	Vc	77~98	79~97	75~97	78~101	82~103	82~101	85~104	90~117
	fz	0.005~0.013	0.006~0.015	0.007~0.016	0.007~0.017	0.007~0.018	0.008~0.021	0.012~0.030	0.015~0.036
	RPM	20500~26000	18000~22000	16000~20500	15500~20000	14500~18200	13000~16000	9000~11000	7200~9350
	FEED	210~665	210~665	210~665	210~665	210~665	210~665	210~665	210~665
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360
11.1 - 11.2	Vc	55~69	56~67	54~70	56~70	58~72	59~72	57~108	63~83
	fz	0.004~0.009	0.004~0.011	0.005~0.011	0.005~0.012	0.005~0.013	0.006~0.014	0.009~0.014	0.011~0.025
	RPM	14500~18300	12800~15300	11500~14900	11200~14000	10200~12800	9400~11500	6000~11500	5000~6600
	FEED	105~330	105~330	105~330	105~330	105~330	105~330	105~330	105~330
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.135~0.270	0.180~0.360

※ The FEED, in long & extra long types, should be reduced by around 50%



(Depth of cut per one pass)

K-2 END MILLS

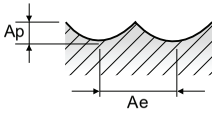
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9634 SERIES — 4 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Parameter	Mill Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	1-4	Non-alloy steel	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225
				fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15
				RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	5		0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175
				fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119
				RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	6-7	Low alloy steel	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225
				fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15
				RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	8-9		0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175
				fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119
				RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	10	High alloyed steel, and tool steel	0.2D	Vc	85	110	110	125	135	155	170	190	200	205	215	225
				fz	0.013	0.019	0.027	0.033	0.046	0.068	0.089	0.112	0.124	0.136	0.14	0.15
				RPM	13528	11671	8754	7958	7162	6167	5411	5040	4547	4078	3802	3581
				FEED	703	887	945	1050	1318	1677	1926	2258	2255	2219	2129	2149
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	11.1 - 11.2		0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175
				fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119
				RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	Vc	65	65	65	65	65	65	65	65	60	65	60	65
				fz	0.008	0.012	0.021	0.03	0.04	0.068	0.083	0.097	0.125	0.135	0.159	0.15
				RPM	10345	6897	5173	4138	3448	2586	2069	1724	1364	1293	1061	1035
				FEED	331	331	434	497	552	703	687	669	682	698	675	621
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
N	21~22	Aluminum-wrought alloy	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185
				fz	0.005	0.007	0.01	0.015	0.017	0.026	0.033	0.046	0.055	0.053	0.06	0.069
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944
				FEED	621	579	621	726	703	828	819	952	950	822	806	813
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	23~25	Aluminum-cast, alloyed	0.7D	Vc	195	195	195	190	195	200	195	195	190	195	190	185
				fz	0.005	0.007	0.01	0.015	0.017	0.026	0.033	0.046	0.055	0.053	0.06	0.069
				RPM	31035	20690	15518	12096	10345	7958	6207	5173	4320	3879	3360	2944
				FEED	621	579	621	726	703	828	819	952	950	822	806	813
				Ap	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
H	38.1	Hardened steel	0.2D	Vc	25	35	45	50	50	55	55	55	55	55	60	60
				fz	0.008	0.012	0.016	0.019	0.022	0.034	0.041	0.053	0.062	0.073	0.076	0.084
				RPM	3979	3714	3581	3183	2653	2188	1751	1459	1251	1094	1061	955
				FEED	127	178	229	242	233	298	287	309	310	320	323	321
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	40	Chilled Cast Iron	0.2D	Vc	65	80	90	95	110	125	135	150	160	160	170	175
				fz	0.01	0.017	0.024	0.03	0.046	0.06	0.076	0.089	0.099	0.108	0.111	0.119
				RPM	10345	8488	7162	6048	5836	4974	4297	3979	3638	3183	3006	2785
				FEED	414	577	688	726	1074	1194	1306	1416	1441	1375	1335	1326
				Ap	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3

※ The FEED, in long & extra long types, should be reduced by around 50%



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

K-2 END MILLS

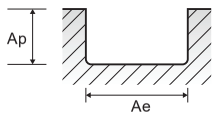
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9B82, G9B83 SERIES — 2 FLUTE CORNER RADIUS - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70
					fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065
					RPM	7958	5836	5173	4456	3714	2785	2228	1857
					FEED	159	175	259	276	290	318	285	241
	5		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45
					fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048
					RPM	4775	3714	3183	2546	2387	1790	1273	1194
					FEED	95	119	159	158	196	179	127	115
	6-7	Low alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70
					fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065
					RPM	7958	5836	5173	4456	3714	2785	2228	1857
					FEED	159	175	259	276	290	318	285	241
	8-9		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45
					fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048
					RPM	4775	3714	3183	2546	2387	1790	1273	1194
					FEED	95	119	159	158	196	179	127	115
	10	High alloyed steel, and tool steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	50	55	65	70	70	70	70	70
					fz	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065
					RPM	7958	5836	5173	4456	3714	2785	2228	1857
					FEED	159	175	259	276	290	318	285	241
	11.1 - 11.2		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	30	35	40	40	45	45	40	45
					fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048
					RPM	4775	3714	3183	2546	2387	1790	1273	1194
					FEED	95	119	159	158	196	179	127	115
M	14.1	Stainless steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	30	35	35	35	35	35	35
					fz	0.009	0.016	0.025	0.031	0.04	0.053	0.059	0.058
					RPM	3979	3183	2785	2228	1857	1393	1114	928
					FEED	72	102	139	138	149	148	131	108
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	Vc	60	55	60	55	55	55	60	55
					fz	0.012	0.018	0.024	0.03	0.043	0.063	0.077	0.102
					RPM	9549	5836	4775	3501	2918	2188	1910	1459
					FEED	229	210	229	210	251	276	294	298
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	140	145	140	145	145	145	145	140
					fz	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065
					RPM	22282	15385	11141	9231	7692	5769	4615	3714
					FEED	446	462	468	462	492	496	489	483
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	140	145	140	145	145	145	145	140
					fz	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065
					RPM	22282	15385	11141	9231	7692	5769	4615	3714
					FEED	446	462	468	462	492	496	489	483
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	105	105	110	105	105	110	105	105
					fz	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066
					RPM	16711	11141	8754	6685	5570	4377	3342	2785
					FEED	334	334	333	334	368	376	368	368
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	105	105	110	105	105	110	105	105
					fz	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066
					RPM	16711	11141	8754	6685	5570	4377	3342	2785
					FEED	334	334	333	334	368	376	368	368
H	40	Chilled Cast Iron	1.0D	1.0D	Vc	30	35	40	40	45	45	40	45
					fz	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048
					RPM	4775	3714	3183	2546	2387	1790	1273	1194
					FEED	95	119	159	158	196	179	127	115

※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS

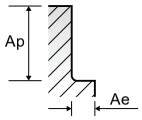
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9B84, G9B85 SERIES — 4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387
					FEED	140	233	229	267	484	519	554	616	509	449
	5		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459
					FEED	76	119	153	172	302	306	362	333	266	216
	6-7	Low alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387
					FEED	140	233	229	267	484	519	554	616	509	449
	8-9		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459
					FEED	76	119	153	172	302	306	362	333	266	216
	10	High alloyed steel, and tool steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387
					FEED	140	233	229	267	484	519	554	616	509	449
	11.1 - 11.2		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459
					FEED	76	119	153	172	302	306	362	333	266	216
M	14.1	Stainless steel	0.1D	1.0D	Vc	25	35	35	35	40	40	45	45	45	45
					fz	0.002	0.004	0.006	0.009	0.018	0.024	0.029	0.042	0.044	0.045
					RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194
					FEED	64	119	134	134	229	244	277	301	252	215
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	60	55	60	55	60	55	55	55	60	55
					fz	0.008	0.013	0.017	0.026	0.035	0.044	0.065	0.093	0.116	0.155
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459
					FEED	611	607	649	607	668	616	759	814	886	905
N	21~22	Aluminum-wrought alloy	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411
	23~25	Aluminum-cast, alloyed	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785
					FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070
	29.1	Non Metallic Materials	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785
					FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070
H	40	Chilled Cast Iron	0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459
					FEED	76	119	153	172	302	306	362	333	266	216

※ The FEED, in long & extra long types, should be reduced by around 50%



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

K-2 END MILLS

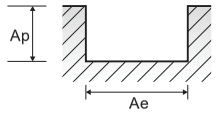
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9424, G9G44, G9A68, G9444, G9527, G9445, G9G45, G9452 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	45	50	55	65	70	70	70	70	70	75	75	70
					fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063
					RPM	14324	9549	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114
					FEED	115	153	159	175	259	276	290	318	285	241	215	185	140
	5		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72
	6-7	Low alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	45	50	55	65	70	70	70	70	70	75	75	70
					fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063
					RPM	14324	9549	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114
					FEED	115	153	159	175	259	276	290	318	285	241	215	185	140
	8-9		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72
	10	High alloyed steel, and tool steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	45	50	55	65	70	70	70	70	70	75	75	70
					fz	0.004	0.008	0.01	0.015	0.025	0.031	0.039	0.057	0.064	0.065	0.063	0.062	0.063
					RPM	14324	9549	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114
					FEED	115	153	159	175	259	276	290	318	285	241	215	185	140
	11.1 - 11.2		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72
M	14.1	Stainless steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	20	25	25	30	35	35	35	35	35	35	35	35	35
					fz	0.003	0.007	0.009	0.016	0.025	0.031	0.04	0.053	0.059	0.058	0.059	0.068	0.064
					RPM	6366	5305	3979	3183	2785	2228	1857	1393	1114	928	796	696	557
					FEED	38	74	72	102	139	138	149	148	131	108	94	95	71
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	Vc	60	55	60	55	60	55	55	55	60	55	55	55	55
					fz	0.005	0.008	0.012	0.018	0.024	0.03	0.043	0.063	0.077	0.102	0.119	0.145	0.189
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875
					FEED	191	187	229	210	229	210	251	276	294	298	298	317	331
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	357	386	446	462	468	462	492	496	489	483	481	490	490
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.004	0.007	0.01	0.015	0.021	0.025	0.032	0.043	0.053	0.065	0.073	0.085	0.11
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	357	386	446	462	468	462	492	496	489	483	481	490	490
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.004	0.007	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066	0.078	0.085	0.11
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	204	282	334	334	333	334	368	376	368	368	372	372	368
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.004	0.007	0.01	0.015	0.019	0.025	0.033	0.043	0.055	0.066	0.078	0.085	0.11
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	204	282	334	334	333	334	368	376	368	368	372	372	368
H	40	Chilled Cast Iron	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.004	0.008	0.01	0.016	0.025	0.031	0.041	0.05	0.05	0.048	0.048	0.05	0.05
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	64	85	95	119	159	158	196	179	127	115	98	99	72

※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

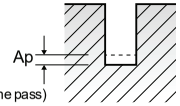
G9B80 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø) 0.4	0.5	0.6	0.7	0.8	0.9	1.0
P	1-4	Non-alloy steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75
			fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014
			RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000
			FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
	5		Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53
			fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015
			RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000
			FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
	6-7	Low alloy steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75
			fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014
			RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000
			FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
	8-9		Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53
			fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015
			RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000
			FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
	10	High alloyed steel, and tool steel	Vc	33~43	42~53	50~64	58~75	58~75	61~76	60~75
			fz	0.003~0.005	0.003~0.005	0.004~0.007	0.004~0.007	0.005~0.009	0.006~0.011	0.006~0.014
			RPM	26500~34000	26500~34000	26500~34000	26500~34000	23000~30000	21500~27000	19000~24000
			FEED	170~370	170~370	210~485	210~485	240~535	240~610	240~690
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090
	11.1 - 11.2		Vc	24~30	30~38	36~45	42~53	41~53	42~54	42~53
			fz	0.002~0.006	0.002~0.006	0.003~0.008	0.003~0.008	0.003~0.010	0.005~0.012	0.006~0.015
			RPM	19000~24000	19000~24000	19000~24000	19000~24000	16500~21000	15000~19000	13500~17000
			FEED	72~290	72~290	95~365	95~365	100~410	135~460	160~510
			Ap	0.007~0.018	0.009~0.022	0.011~0.026	0.012~0.031	0.014~0.035	0.030~0.060	0.045~0.090

※ The FEED, in long & extra long types, should be reduced by around 50%

▶ NEXT PAGE



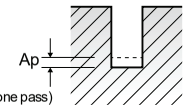
(Depth of cut per one pass)

K-2 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9B80 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
Ap = mm

VDI 3323	Parameter	Mill Diameter (Ø) 1.2	1.4	1.5	1.6	1.8	2.0	2.5	3.0	4.0
1-4	Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
	fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
	RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
	FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
5	Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
	fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
	RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
	FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
6-7	Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
	fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
	RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
	FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
8-9	Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
	fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
	RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
	FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
10	Vc	58~72	60~75	59~73	60~75	62~79	63~79	63~79	64~80	64~82
	fz	0.008~0.020	0.009~0.023	0.010~0.025	0.010~0.026	0.011~0.027	0.012~0.031	0.015~0.038	0.018~0.045	0.024~0.059
	RPM	15500~19000	13600~17000	12500~15500	12000~15000	11000~14000	10000~12500	8000~10000	6800~8500	5100~6500
	FEED	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765	240~765
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360
11.1 - 11.2	Vc	41~53	43~53	42~54	44~55	44~55	44~56	45~57	44~57	44~57
	fz	0.007~0.018	0.008~0.021	0.009~0.022	0.009~0.023	0.010~0.026	0.011~0.028	0.014~0.035	0.017~0.043	0.023~0.057
	RPM	11000~14000	9800~12000	8950~11500	8700~10900	7800~9800	7000~8950	5700~7200	4700~6000	3500~4500
	FEED	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510	160~510
	Ap	0.055~0.100	0.062~0.125	0.070~0.135	0.075~0.145	0.080~0.160	0.090~0.180	0.112~0.235	0.135~0.270	0.180~0.360



(Depth of cut per one pass)

K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

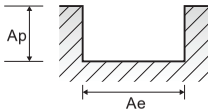
G9553, G9G46, G9410, G9425, G9G47, G9439 G9528, G9433, G9G48, G9447, G9G49 SERIES

3 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-4	Non-alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	60	50	55	65	70	70	70	70	70	75	75	70
					fz	0.002	0.003	0.005	0.007	0.012	0.015	0.018	0.027	0.03	0.031	0.029	0.029	0.029
					RPM	14324	12732	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114
					FEED	86	115	119	123	186	201	201	226	201	173	148	130	97
	5		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52
	6-7	Low alloy steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	60	50	55	65	70	70	70	70	70	75	75	70
					fz	0.002	0.003	0.005	0.007	0.012	0.015	0.018	0.027	0.03	0.031	0.029	0.029	0.029
					RPM	14324	12732	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114
					FEED	86	115	119	123	186	201	201	226	201	173	148	130	97
	8-9		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52
	10	High alloyed steel, and tool steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	45	60	50	55	65	70	70	70	70	70	75	75	70
					fz	0.002	0.003	0.005	0.007	0.012	0.015	0.018	0.027	0.03	0.031	0.029	0.029	0.029
					RPM	14324	12732	7958	5836	5173	4456	3714	2785	2228	1857	1705	1492	1114
					FEED	86	115	119	123	186	201	201	226	201	173	148	130	97
	11.1 - 11.2		1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52
M	14.1	Stainless steel	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	20	25	25	30	35	35	35	35	35	35	35	35	35
					fz	0.002	0.003	0.004	0.007	0.011	0.015	0.019	0.025	0.028	0.026	0.027	0.031	0.03
					RPM	6366	5305	3979	3183	2785	2228	1857	1393	1114	928	796	696	557
					FEED	38	48	48	67	92	100	106	104	94	72	64	65	50
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	Vc	60	55	60	55	60	55	55	55	60	55	55	55	55
					fz	0.003	0.005	0.007	0.011	0.013	0.018	0.026	0.036	0.046	0.063	0.073	0.086	0.115
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875
					FEED	172	175	201	193	186	189	228	236	264	276	274	282	302
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.002	0.004	0.006	0.009	0.013	0.015	0.019	0.026	0.032	0.038	0.043	0.05	0.065
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	267	331	401	415	434	415	438	450	443	423	425	433	434
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.002	0.004	0.006	0.009	0.013	0.015	0.019	0.026	0.032	0.038	0.043	0.05	0.065
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	267	331	401	415	434	415	438	450	443	423	425	433	434
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.002	0.004	0.006	0.009	0.012	0.015	0.02	0.025	0.032	0.039	0.046	0.05	0.065
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	153	242	301	301	315	301	334	328	321	326	329	328	326
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.002	0.004	0.006	0.009	0.012	0.015	0.02	0.025	0.032	0.039	0.046	0.05	0.065
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	153	242	301	301	315	301	334	328	321	326	329	328	326
H	40	Chilled Cast Iron	1.0D	0.5D (Up to Ø3 : 0.2D)	Vc	25	25	30	35	40	40	45	45	40	45	45	50	45
					fz	0.002	0.004	0.005	0.007	0.012	0.014	0.02	0.024	0.023	0.022	0.022	0.023	0.024
					RPM	7958	5305	4775	3714	3183	2546	2387	1790	1273	1194	1023	995	716
					FEED	48	64	72	78	115	107	143	129	88	79	68	69	52

※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

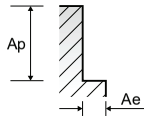
G9553, G9G46, G9410, G9425, G9G47, G9439 G9528, G9433, G9G48, G9447, G9G49 SERIES

3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432
					FEED	105	175	172	201	363	390	430	451	381	337	289	272	202
	5		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	57	89	115	129	227	229	271	249	200	162	139	136	97
	6-7	Low alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432
					FEED	105	175	172	201	363	390	430	451	381	337	289	272	202
	8-9		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	57	89	115	129	227	229	271	249	200	162	139	136	97
	10	High alloyed steel, and tool steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.03	0.042	0.047	0.047	0.047	0.048	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432
					FEED	105	175	172	201	363	390	430	451	381	337	289	272	202
	11.1 - 11.2		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	57	89	115	129	227	229	271	249	200	162	139	136	97
M	14.1	Stainless steel	0.1D	1.0D	Vc	25	35	35	35	40	40	45	45	45	45	45	45	45
					fz	0.002	0.004	0.006	0.009	0.018	0.024	0.03	0.042	0.045	0.045	0.044	0.048	0.048
					RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194	1023	895	716
					FEED	48	89	100	100	172	183	215	226	193	161	135	129	103
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	60	55	60	55	60	55	55	55	60	55	55	55	55
					fz	0.008	0.013	0.017	0.026	0.035	0.044	0.064	0.093	0.115	0.154	0.181	0.22	0.285
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875
					FEED	458	455	487	455	501	462	560	611	659	674	679	722	748
N	21~22	Aluminum-wrought alloy	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.006	0.01	0.016	0.021	0.031	0.037	0.048	0.064	0.08	0.098	0.111	0.129	0.167
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	802	828	1070	969	1036	1025	1108	1108	1108	1092	1098	1116	1116
	23~25	Aluminum-cast, alloyed	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.006	0.01	0.016	0.021	0.031	0.037	0.048	0.064	0.08	0.098	0.111	0.129	0.167
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	802	828	1070	969	1036	1025	1108	1108	1108	1092	1098	1116	1116
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.006	0.011	0.016	0.023	0.029	0.037	0.048	0.063	0.081	0.096	0.115	0.125	0.162
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	458	665	802	769	762	742	802	827	812	802	824	821	812
	29.1	Non Metallic Materials	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.006	0.011	0.016	0.023	0.029	0.037	0.048	0.063	0.081	0.096	0.115	0.125	0.162
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	458	665	802	769	762	742	802	827	812	802	824	821	812
H	40	Chilled Cast Iron	0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.037	0.038	0.037
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	57	89	115	129	227	229	271	249	200	162	139	136	97

※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS

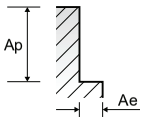
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9432, G9G50, G9A69, G9448, G9540, G9449, G9G51, G9453 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0
P	1-4	Non-alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432
					FEED	140	233	229	267	484	519	554	616	509	449	385	355	269
	5		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133
	6-7	Low alloy steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432
					FEED	140	233	229	267	484	519	554	616	509	449	385	355	269
	8-9		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133
	10	High alloyed steel, and tool steel	0.1D	1.0D	Vc	55	55	60	70	80	85	90	90	85	90	90	95	90
					fz	0.002	0.005	0.006	0.009	0.019	0.024	0.029	0.043	0.047	0.047	0.047	0.047	0.047
					RPM	17507	11671	9549	7427	6366	5411	4775	3581	2706	2387	2046	1890	1432
					FEED	140	233	229	267	484	519	554	616	509	449	385	355	269
	11.1 - 11.2		0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133
M	14.1	Stainless steel	0.1D	1.0D	Vc	25	35	35	35	40	40	45	45	45	45	45	50	45
					fz	0.002	0.004	0.006	0.009	0.018	0.024	0.029	0.042	0.044	0.045	0.045	0.045	0.046
					RPM	7958	7427	5570	3714	3183	2546	2387	1790	1432	1194	1023	995	716
					FEED	64	119	134	134	229	244	277	301	252	215	184	179	132
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	60	55	60	55	60	55	55	55	60	55	55	55	55
					fz	0.008	0.013	0.017	0.026	0.035	0.044	0.065	0.093	0.116	0.155	0.182	0.22	0.288
					RPM	19099	11671	9549	5836	4775	3501	2918	2188	1910	1459	1251	1094	875
					FEED	611	607	649	607	668	616	759	814	886	905	910	963	1008
N	21~22	Aluminum-wrought alloy	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095	0.108	0.125	0.163
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411	1424	1442	1453
	23~25	Aluminum-cast, alloyed	0.1D	1.5D	Vc	140	130	140	145	140	145	145	145	145	140	145	145	140
					fz	0.006	0.011	0.015	0.021	0.03	0.036	0.047	0.063	0.078	0.095	0.108	0.125	0.163
					RPM	44563	27587	22282	15385	11141	9231	7692	5769	4615	3714	3297	2885	2228
					FEED	1070	1214	1337	1292	1337	1329	1446	1454	1440	1411	1424	1442	1453
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083
	29.1	Non Metallic Materials	0.1D	1.5D	Vc	80	95	105	105	110	105	105	110	105	105	105	110	105
					fz	0.006	0.011	0.016	0.024	0.029	0.038	0.048	0.063	0.081	0.096	0.115	0.125	0.162
					RPM	25465	20160	16711	11141	8754	6685	5570	4377	3342	2785	2387	2188	1671
					FEED	611	887	1070	1070	1015	1016	1070	1103	1083	1070	1098	1094	1083
H	40	Chilled Cast Iron	0.1D	1.0D	Vc	30	35	40	45	50	50	55	55	55	55	55	60	55
					fz	0.002	0.004	0.006	0.009	0.019	0.024	0.031	0.038	0.038	0.037	0.038	0.037	0.038
					RPM	9549	7427	6366	4775	3979	3183	2918	2188	1751	1459	1251	1194	875
					FEED	76	119	153	172	302	306	362	333	266	216	190	177	133

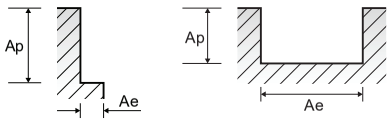
※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9H73, G9H74, G9H75, G9H76 SERIES — 4 FLUTE MULTIFUL HELIX

ISO	VDI 3323	Material Description	SIDE CUTTING Ae	SIDE CUTTING Ap	SLOTTING Ae	SLOTTING Ap	Parameter	Mill Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-4	Non-alloy steel	0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	106	106	106	106	106	118	118	118	118
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.053	0.065
							RPM	11291	8470	6776	5642	4235	3745	3122	2338	1869
							FEED	228	270	298	361	459	571	588	497	487
	5		0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	75	75	75	75	75	82	82	82	82
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.053	0.065
							RPM	7945	5957	4767	3976	2982	2604	2170	1631	1302
							FEED	158	189	210	256	322	396	410	347	340
	6-7	Low alloy steel	0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	106	106	106	106	106	118	118	118	118
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.053	0.065
							RPM	11291	8470	6776	5642	4235	3745	3122	2338	1869
							FEED	228	270	298	361	459	571	588	497	487
	8-9		0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	75	75	75	75	75	82	82	82	82
							fz	0.005	0.008	0.011	0.016	0.027	0.038	0.047	0.053	0.065
							RPM	7945	5957	4767	3976	2982	2604	2170	1631	1302
							FEED	158	189	210	256	322	396	410	347	340
	10 - 11.1	High alloyed steel, and tool steel	0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	45	45	45	45	45	49	49	49	49
							fz	0.003	0.006	0.008	0.011	0.019	0.027	0.032	0.037	0.045
							RPM	4753	3563	2849	2380	1785	1561	1302	973	777
							FEED	56	84	91	105	137	168	168	144	140
M	12-13	Stainless steel	0.1D	1.5D (1.2D)	0.1D	1.5D (1.2D)	Vc	104	104	104	104	104	104	104	104	104
							fz	0.004	0.006	0.009	0.013	0.022	0.034	0.039	0.045	0.055
							RPM	10990	8246	6594	5495	4123	3297	2751	2058	1652
							FEED	175	200	238	287	364	448	427	371	364
	14.1		0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	74	74	74	74	74	74	74	74	74
							fz	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.062	0.077
							RPM	7875	5908	4725	3934	2954	2359	1967	1477	1183
							FEED	158	189	245	284	329	455	434	368	364
	14.2		0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	67	67	67	67	67	67	67	67	67
							fz	0.005	0.008	0.013	0.018	0.028	0.048	0.055	0.062	0.076
							RPM	7056	5292	4235	3528	2646	2114	1764	1323	1057
							FEED	140	168	221	256	298	406	389	329	322
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.3D	1.5D (1.2D)	0.3D	1.5D (1.2D)	Vc	78	78	78	78	78	86	86	86	86
							fz	0.006	0.01	0.014	0.02	0.034	0.048	0.058	0.065	0.081
							RPM	8316	6237	4991	4158	3122	2744	2282	1715	1372
							FEED	200	249	280	333	424	525	529	445	445



K-2 END MILLS

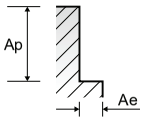
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9F45, G9F46 SERIES — 4&6 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
P	1-4	Non-alloy steel	0.05D	1.5D	Vc	82	83	98	98	97	97	99	98	98	97	97
					fz	0.024	0.033	0.025	0.03	0.045	0.045	0.053	0.058	0.062	0.065	0.069
					RPM	8700	6605	6239	5199	3860	3088	2626	2228	1950	1715	1544
					FEED	835	872	936	936	1042	834	835	775	725	669	639
	5		0.03D	1.5D	Vc	54	55	65	65	65	64	66	66	65	65	64
					fz	0.024	0.033	0.027	0.03	0.038	0.045	0.053	0.057	0.062	0.066	0.07
					RPM	5730	4377	4138	3448	2586	2037	1751	1501	1293	1149	1019
					FEED	550	578	670	621	590	550	557	513	481	455	428
	6-7	Low alloy steel	0.05D	1.5D	Vc	82	83	98	98	97	97	99	98	98	97	97
					fz	0.024	0.033	0.025	0.03	0.045	0.045	0.053	0.058	0.062	0.065	0.069
					RPM	8700	6605	6239	5199	3860	3088	2626	2228	1950	1715	1544
					FEED	835	872	936	936	1042	834	835	775	725	669	639
	8-9		0.03D	1.5D	Vc	54	55	65	65	65	64	66	66	65	65	64
					fz	0.024	0.033	0.027	0.03	0.038	0.045	0.053	0.057	0.062	0.066	0.07
					RPM	5730	4377	4138	3448	2586	2037	1751	1501	1293	1149	1019
					FEED	550	578	670	621	590	550	557	513	481	455	428
	10	High alloyed steel, and tool steel	0.05D	1.5D	Vc	82	83	98	98	97	97	99	98	98	97	97
					fz	0.024	0.033	0.025	0.03	0.045	0.045	0.053	0.058	0.062	0.065	0.069
					RPM	8700	6605	6239	5199	3860	3088	2626	2228	1950	1715	1544
					FEED	835	872	936	936	1042	834	835	775	725	669	639
	11.1 - 11.2		0.03D	1.5D	Vc	54	55	65	65	65	64	66	66	65	65	64
					fz	0.024	0.033	0.027	0.03	0.038	0.045	0.053	0.057	0.062	0.066	0.07
					RPM	5730	4377	4138	3448	2586	2037	1751	1501	1293	1149	1019
					FEED	550	578	670	621	590	550	557	513	481	455	428
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.5D	Vc	82	83	98	98	97	97	99	98	98	97	97
					fz	0.024	0.033	0.025	0.03	0.045	0.045	0.053	0.058	0.062	0.065	0.069
					RPM	8700	6605	6239	5199	3860	3088	2626	2228	1950	1715	1544
					FEED	835	872	936	936	1042	834	835	775	725	669	639
H	38.1	Hardened steel	0.03D	1.5D	Vc	54	55	65	65	65	64	66	66	65	65	64
					fz	0.024	0.033	0.027	0.03	0.038	0.045	0.053	0.057	0.062	0.066	0.07
					RPM	5730	4377	4138	3448	2586	2037	1751	1501	1293	1149	1019
					FEED	550	578	670	621	590	550	557	513	481	455	428
	38.2 - 39.1		0.03D	1.5D	Vc	45	45	50	50	50	50	50	50	50	50	50
					fz	0.018	0.025	0.02	0.023	0.029	0.033	0.029	0.041	0.046	0.05	0.052
					RPM	4775	3581	3183	2653	1989	1592	1326	1137	995	884	796
					FEED	344	358	382	366	346	315	231	280	275	265	248
	39.2		0.02D	1D	Vc	35	35	40	40	40	40	40	40	40	40	41
					fz	0.014	0.02	0.016	0.018	0.023	0.027	0.031	0.034	0.037	0.039	0.042
					RPM	3714	2785	2546	2122	1592	1273	1061	909	796	707	653
					FEED	208	223	244	229	220	206	197	186	177	166	164
	40	Chilled Cast Iron	0.03D	1.5D	Vc	54	55	65	65	65	64	66	66	65	65	64
					fz	0.024	0.033	0.027	0.03	0.038	0.045	0.053	0.057	0.062	0.066	0.07
					RPM	5730	4377	4138	3448	2586	2037	1751	1501	1293	1149	1019
					FEED	550	578	670	621	590	550	557	513	481	455	428
	41	Hardened Cast Iron	0.03D	1.5D	Vc	45	45	50	50	50	50	50	50	50	50	50
					fz	0.018	0.025	0.02	0.023	0.029	0.033	0.029	0.041	0.046	0.05	0.052
					RPM	4775	3581	3183	2653	1989	1592	1326	1137	995	884	796
					FEED	344	358	382	366	346	315	231	280	275	265	248

※ The FEED, in long & extra long types, should be reduced by around 50%



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

K-2 END MILLS

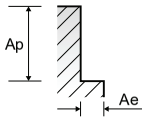
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9A42 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-4	Non-alloy steel	0.3D	1.5D	Vc	250	250	245	255	255	255	250	260	285
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.112	0.1
					RPM	13263	9947	7799	6764	5798	5073	4421	4138	3629
					FEED	1989	1999	1965	2029	2041	2029	1981	1854	1814
	5		0.3D	1.5D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	10610	7759	6525	5040	4434	4078	3714	3024	2674
					FEED	700	535	731	665	709	653	609	472	521
	6-7	Low alloy steel	0.3D	1.5D	Vc	250	250	245	255	255	255	250	260	285
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.112	0.1
					RPM	13263	9947	7799	6764	5798	5073	4421	4138	3629
					FEED	1989	1999	1965	2029	2041	2029	1981	1854	1814
	8-9		0.3D	1.5D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	10610	7759	6525	5040	4434	4078	3714	3024	2674
					FEED	700	535	731	665	709	653	609	472	521
	10	High alloyed steel, and tool steel	0.3D	1.5D	Vc	250	250	245	255	255	255	250	260	285
					fz	0.05	0.067	0.063	0.075	0.088	0.1	0.112	0.112	0.1
					RPM	13263	9947	7799	6764	5798	5073	4421	4138	3629
					FEED	1989	1999	1965	2029	2041	2029	1981	1854	1814
	11.1 - 11.2		0.3D	1.5D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	10610	7759	6525	5040	4434	4078	3714	3024	2674
					FEED	700	535	731	665	709	653	609	472	521
M	14.1	Stainless steel	0.05D	1.0D	Vc	135	135	135	135	135	140	130	130	145
					fz	0.022	0.022	0.028	0.034	0.039	0.038	0.039	0.038	0.038
					RPM	7162	5371	4297	3581	3069	2785	2299	2069	1846
					FEED	473	355	481	487	479	423	359	314	351
S	31-35	Heat Resistant Super Alloys	0.05D	1.0D	Vc	40	40	35	40	35	35	35	35	40
					fz	0.026	0.024	0.036	0.04	0.037	0.032	0.038	0.041	0.06
					RPM	2122	1592	1114	1061	796	696	619	557	509
					FEED	166	115	160	170	118	89	94	91	153
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	200	195	205	190	195	205	210	190	210
					fz	0.022	0.023	0.028	0.033	0.04	0.04	0.041	0.039	0.039
					RPM	10610	7759	6525	5040	4434	4078	3714	3024	2674
					FEED	700	535	731	665	709	653	609	472	521

※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS

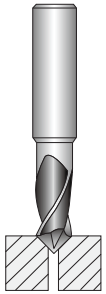
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9400 SERIES — 2 FLUTE DRILL MILLS - CHAMFERING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-2	Non-alloy steel	Vc	60	65	65	60	60	65	70	70	85
			fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137
			RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353
			FEED	318	321	331	331	339	343	371	348	371
	3-4		Vc	45	55	55	55	55	55	60	65	65
			fz	0.023	0.027	0.036	0.043	0.058	0.073	0.091	0.105	0.14
			RPM	4775	4377	3501	2918	2188	1751	1592	1293	1035
			FEED	220	236	252	251	254	256	290	272	290
	5		Vc	40	45	45	40	40	50	50	50	55
			fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134
			RPM	4244	3581	2865	2122	1592	1592	1326	995	875
			FEED	195	201	201	187	191	210	220	229	235
	6	Low alloy steel	Vc	60	65	65	60	60	65	70	70	85
			fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137
			RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353
			FEED	318	321	331	331	339	343	371	348	371
	7		Vc	45	55	55	55	55	55	60	65	65
			fz	0.023	0.027	0.036	0.043	0.058	0.073	0.091	0.105	0.14
			RPM	4775	4377	3501	2918	2188	1751	1592	1293	1035
			FEED	220	236	252	251	254	256	290	272	290
	8-9		Vc	40	45	45	40	40	50	50	50	55
			fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134
			RPM	4244	3581	2865	2122	1592	1592	1326	995	875
			FEED	195	201	201	187	191	210	220	229	235
	10	High alloyed steel, and tool steel	Vc	60	65	65	60	60	65	70	70	85
			fz	0.025	0.031	0.04	0.052	0.071	0.083	0.1	0.125	0.137
			RPM	6366	5173	4138	3183	2387	2069	1857	1393	1353
			FEED	318	321	331	331	339	343	371	348	371
	11.1		Vc	40	45	45	40	40	50	50	50	55
			fz	0.023	0.028	0.035	0.044	0.06	0.066	0.083	0.115	0.134
			RPM	4244	3581	2865	2122	1592	1592	1326	995	875
			FEED	195	201	201	187	191	210	220	229	235
M	14.1	Stainless steel	Vc	30	35	40	35	35	40	40	40	45
			fz	0.021	0.025	0.029	0.037	0.055	0.064	0.078	0.11	0.122
			RPM	3183	2785	2546	1857	1393	1273	1061	796	716
			FEED	134	139	148	137	153	163	166	175	175
N	21~22	Aluminum-wrought alloy	Vc	145	160	150	150	155	175	185	195	195
			fz	0.025	0.032	0.045	0.057	0.075	0.085	0.1	0.134	0.175
			RPM	15385	12732	9549	7958	6167	5570	4907	3879	3104
			FEED	769	815	859	907	925	947	981	1040	1086
	23~25	Aluminum-cast, alloyed	Vc	145	160	150	150	155	175	185	195	195
			fz	0.025	0.032	0.045	0.057	0.075	0.085	0.1	0.134	0.175
			RPM	15385	12732	9549	7958	6167	5570	4907	3879	3104
			FEED	769	815	859	907	925	947	981	1040	1086

※ The FEED, in long & extra long types, should be reduced by around 50%



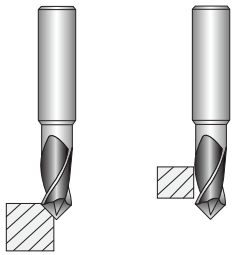
K-2 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9400 SERIES — 2 FLUTE DRILL MILLS - CHAMFERING & SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-2	Non-alloy steel	Vc	80	85	85	80	80	90	95	90	95
			fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063
			RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512
			FEED	136	135	141	153	159	172	186	193	191
	3-4		Vc	50	55	55	55	55	55	60	65	60
			fz	0.008	0.01	0.013	0.018	0.024	0.03	0.041	0.05	0.064
			RPM	5305	4377	3501	2918	2188	1751	1592	1293	955
			FEED	85	88	91	105	105	105	131	129	122
	5		Vc	45	50	50	50	45	55	55	55	55
			fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06
			RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
			FEED	76	72	76	90	90	95	105	101	105
	6	Low alloy steel	Vc	80	85	85	80	80	90	95	90	95
			fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063
			RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512
			FEED	136	135	141	153	159	172	186	193	191
	7		Vc	50	55	55	55	55	55	60	65	60
			fz	0.008	0.01	0.013	0.018	0.024	0.03	0.041	0.05	0.064
			RPM	5305	4377	3501	2918	2188	1751	1592	1293	955
			FEED	85	88	91	105	105	105	131	129	122
	8-9		Vc	45	50	50	50	45	55	55	55	55
			fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06
			RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
			FEED	76	72	76	90	90	95	105	101	105
	10	High alloyed steel, and tool steel	Vc	80	85	85	80	80	90	95	90	95
			fz	0.008	0.01	0.013	0.018	0.025	0.03	0.037	0.054	0.063
			RPM	8488	6764	5411	4244	3183	2865	2520	1790	1512
			FEED	136	135	141	153	159	172	186	193	191
	11.1		Vc	45	50	50	50	45	55	55	55	55
			fz	0.008	0.009	0.012	0.017	0.025	0.027	0.036	0.046	0.06
			RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
			FEED	76	72	76	90	90	95	105	101	105
M	14.1	Stainless steel	Vc	30	35	40	35	40	45	45	45	40
			fz	0.008	0.01	0.013	0.018	0.024	0.027	0.036	0.046	0.069
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637
			FEED	51	56	66	67	76	77	86	82	88
N	21~22	Aluminum-wrought alloy	Vc	185	210	210	205	205	225	230	230	230
			fz	0.008	0.01	0.013	0.019	0.03	0.037	0.045	0.05	0.064
			RPM	19629	16711	13369	10876	8157	7162	6101	4576	3661
			FEED	314	334	348	413	489	530	549	458	469
	23~25	Aluminum-cast, alloyed	Vc	185	210	210	205	205	225	230	230	230
			fz	0.008	0.01	0.013	0.019	0.03	0.037	0.045	0.05	0.064
			RPM	19629	16711	13369	10876	8157	7162	6101	4576	3661
			FEED	314	334	348	413	489	530	549	458	469
S	36-37	Titanium Alloys	Vc	30	35	40	35	40	45	45	45	40
			fz	0.008	0.01	0.013	0.018	0.024	0.027	0.036	0.046	0.069
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637
			FEED	51	56	66	67	76	77	86	82	88

※ The FEED, in long & extra long types, should be reduced by around 50%



K-2 END MILLS

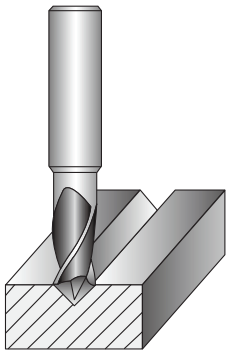
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

G9400 SERIES — 2 FLUTE DRILL MILLS - V-GROOVING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Mill Diameter (Ø) 3.0	4.0	5.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1-2	Non-alloy steel	Vc	80	85	85	80	80	90	95	100	95
			fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029
			RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512
			FEED	85	81	87	85	89	92	91	92	88
	3-4		Vc	55	60	55	55	55	55	55	65	60
			fz	0.004	0.004	0.006	0.007	0.012	0.014	0.02	0.022	0.028
			RPM	5836	4775	3501	2918	2188	1751	1459	1293	955
			FEED	47	38	42	41	53	49	58	57	53
	5		Vc	45	50	50	50	45	55	55	55	55
			fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03
			RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
			FEED	38	32	38	42	50	53	53	50	53
	6	Low alloy steel	Vc	80	85	85	80	80	90	95	100	95
			fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029
			RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512
			FEED	85	81	87	85	89	92	91	92	88
	7		Vc	55	60	55	55	55	55	55	65	60
			fz	0.004	0.004	0.006	0.007	0.012	0.014	0.02	0.022	0.028
			RPM	5836	4775	3501	2918	2188	1751	1459	1293	955
			FEED	47	38	42	41	53	49	58	57	53
	8-9		Vc	45	50	50	50	45	55	55	55	55
			fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03
			RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
			FEED	38	32	38	42	50	53	53	50	53
	10	High alloyed steel, and tool steel	Vc	80	85	85	80	80	90	95	100	95
			fz	0.005	0.006	0.008	0.01	0.014	0.016	0.018	0.023	0.029
			RPM	8488	6764	5411	4244	3183	2865	2520	1989	1512
			FEED	85	81	87	85	89	92	91	92	88
	11.1		Vc	45	50	50	50	45	55	55	55	55
			fz	0.004	0.004	0.006	0.008	0.014	0.015	0.018	0.023	0.03
			RPM	4775	3979	3183	2653	1790	1751	1459	1094	875
			FEED	38	32	38	42	50	53	53	50	53
M	14.1	Stainless steel	Vc	30	35	40	35	40	45	45	45	40
			fz	0.004	0.005	0.006	0.008	0.01	0.011	0.013	0.019	0.028
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637
			FEED	25	28	31	30	32	32	31	34	36
N	21~22	Aluminum-wrought alloy	Vc	185	210	210	205	205	220	230	230	230
			fz	0.008	0.01	0.013	0.016	0.022	0.026	0.03	0.041	0.052
			RPM	19629	16711	13369	10876	8157	7003	6101	4576	3661
			FEED	314	334	348	348	359	364	366	375	381
	23~25	Aluminum-cast, alloyed	Vc	185	210	210	205	205	220	230	230	230
			fz	0.008	0.01	0.013	0.016	0.022	0.026	0.03	0.041	0.052
			RPM	19629	16711	13369	10876	8157	7003	6101	4576	3661
			FEED	314	334	348	348	359	364	366	375	381
S	36-37	Titanium Alloys	Vc	30	35	40	35	40	45	45	45	40
			fz	0.004	0.005	0.006	0.008	0.01	0.011	0.013	0.019	0.028
			RPM	3183	2785	2546	1857	1592	1432	1194	895	637
			FEED	25	28	31	30	32	32	31	34	36

※ The FEED, in long & extra long types, should be reduced by around 50%



Leading Through Innovation

HSS PM60

ONLY ONE COATED PM60 END MILLS

Only One, beschichtete Pulvermetall PM60 Schaftfräser

- **Perfect Solution of Carbide Chipping under Vibrations**
- **Perfekte Lösung bei Zerspanung unter Vibrationen**

SELECTION GUIDE

YG MILLING TOOLS

COATED PM60
ONLY ONE END MILLS

Perfect solution to protect Carbide chipping problems under vibrations

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C596

SERIES	GYG77 GYF97	GYG72 GYF99	GYG01
FLUTE	2	2	3
HELIX ANGLE	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	SQUARE	SQUARE
SIZE MIN	R0.5	D1.0	D1.0
SIZE MAX	R12.5	D25.0	D25.0
PAGE	C586	C587	C588
	SHORT LENGTH	SHORT LENGTH	SHORT LENGTH (Center Cut)
	Y-Coating	Y-Coating	Y-Coating

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	GYG77 GYF97	GYG72 GYF99	GYG01
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎
	9			Quenched & Tempered	350	38	○	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎
	11			Quenched & Tempered	325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎
	13		Martensitic	Quenched & Tempered	240	23	◎	◎	◎
	14		Austenitic		180	10	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎
	16		Pearlitic (Martensitic)		260	26	◎	◎	◎
	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎
	18		Pearlitic		250	25	◎	◎	◎
	19	Malleable cast iron	Ferritic		130		◎	◎	◎
	20		Pearlitic		230	21	◎	◎	◎
N	21	Aluminum-wrought alloy	Not Curable		60				
	22		Curable	Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○
	27		CuZn, CuSnZn (Brass)		90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42	○	○	○
	41	Hardened Cast Iron		Hardened	550	55			

SERIES	GYG74 GYF96	GYG52	GYG76 GYG02	GYF95	GYF94	GYF98	GYG03
FLUTE	4	4	4	Multi Flute	Multi Flute	Multi Flute	Multi Flute
HELIX ANGLE	30°	35°/37°	30°	4F : 44°/45° 5F : 44°/44.5°/45°	30°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	CORNER RADIUS ROUGHING	ROUGHING	ROUGHING	ROUGHING
SIZE MIN	D1.0	D3.0	D2.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
PAGE	C589	C590	C591	C592	C593	C594	C595
	SHORT LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	LONG LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	SHORT LENGTH (Center Cut)	LONG LENGTH (Center Cut)	SHORT LENGTH (Center Cut)
	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating

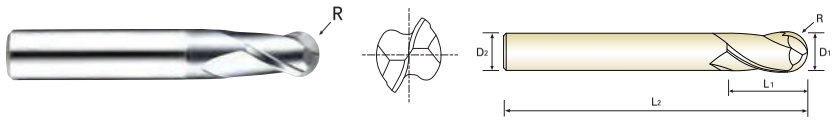
ISO	VDI 3323	GYG74 GYF96	GYG52	GYG76 GYG02	GYF95	GYF94	GYF98	GYG03
P	1	◎	◎	◎	◎	◎	◎	◎
	2	◎	◎	◎	◎	◎	◎	◎
	3	◎	◎	◎	◎	◎	◎	◎
	4	◎	◎	◎	◎	◎	◎	◎
	5	◎	◎	◎	◎	◎	◎	◎
	6	◎	◎	◎	◎	◎	◎	◎
	7	◎	◎	◎	◎	◎	◎	◎
	8	◎	◎	◎	◎	◎	◎	◎
	9	○	○	○	○	○	○	○
	10	◎	◎	◎	◎	◎	◎	◎
	11	○	○	○	○	○	○	○
M	12	◎	◎	◎	◎	◎	◎	◎
	13	◎	◎	◎	◎	◎	◎	◎
	14	◎	◎	◎	◎	◎	◎	◎
K	15	◎	◎	◎	◎	◎	◎	◎
	16	◎	◎	◎	◎	◎	◎	◎
	17	◎	◎	◎	◎	◎	◎	◎
	18	◎	◎	◎	◎	◎	◎	◎
	19	◎	◎	◎	◎	◎	◎	◎
	20	◎	◎	◎	◎	◎	◎	◎
N	21							
	22							
	23							
	24							
	25							
	26	○	○	○	○	○	○	○
	27	○	○	○	○	○	○	○
	28	○	○	○	○	○	○	○
	29							
	30							
S	31							
	32							
	33							
	34							
	35							
	36							
	37							
H	38							
	39							
	40	○	○	○	○	○	○	○
	41							

ONLY ONE COATED PM60 END MILLS

PLAIN SHANK **GYG77** SERIES
FLAT SHANK **GYF97** SERIES

PM60, 2 FLUTE BALL NOSE SHORT LENGTH

- PM60, 2 Schneiden, Stirnradius kurz
- Revêtue YG-AlCrN - PM60, 2 dents, série courte, hémisphérique
- Rivestita PM60, 2 TAGLIENTE SERIE CORTA SEMISFERICA



PM 60 | 2 | 30° | R ±0.02 | PLAIN | FLAT | Y Coating | p.C596

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R(±0.02)	D_1	D_2	L_1	L_2
GYG77010	GYF97010	R0.5	1.0	6	2.5	47
GYG77020	GYF97020	R1.0	2.0	6	4	48
GYG77030	GYF97030	R1.5	3.0	6	5	49
GYG77040	GYF97040	R2.0	4.0	6	7	51
GYG77050	GYF97050	R2.5	5.0	6	8	52
GYG77060	GYF97060	R3.0	6.0	6	8	52
GYG77070	GYF97070	R3.5	7.0	8	10	60
GYG77080	GYF97080	R4.0	8.0	8	11	61
GYG77090	GYF97090	R4.5	9.0	10	11	61
GYG77100	GYF97100	R5.0	10.0	10	13	63
GYG77120	GYF97120	R6.0	12.0	12	16	73
GYG77140	GYF97140	R7.0	14.0	12	16	73
GYG77160	GYF97160	R8.0	16.0	16	19	79
GYG77180	GYF97180	R9.0	18.0	16	19	79
GYG77200	GYF97200	R10.0	20.0	20	22	88
GYG77250	GYF97250	R12.5	25.0	25	26	102

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

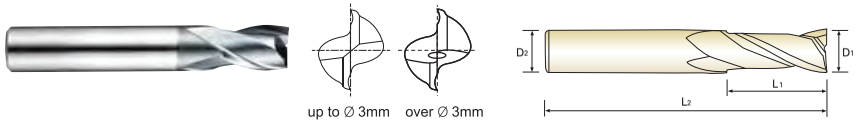
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

ONLY ONE COATED PM60 END MILLS

PLAIN SHANK **GYG72** SERIES
FLAT SHANK **GYF99** SERIES

PM60, 2 FLUTE SHORT LENGTH

- PM60, 2 Schneiden, kurz, Zentrumschnitt
- Revêtue YG-AlCrN - PM60, 2 dents, série courte (Coupe au centre)
- Rivestita PM60, 2 TAGLIENTI SERIE CORTA (Tagliente al centro)



PM 60 | 2 | 30° | PLAIN | FLAT | Y Coating | p.C597

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
GYG72010	GYF99010	1.0	6	2.5	47
GYG72020	GYF99020	2.0	6	4	48
GYG72030	GYF99030	3.0	6	5	49
GYG72040	GYF99040	4.0	6	7	51
GYG72050	GYF99050	5.0	6	8	52
GYG72060	GYF99060	6.0	6	8	52
GYG72070	GYF99070	7.0	8	10	60
GYG72080	GYF99080	8.0	8	11	61
GYG72090	GYF99090	9.0	10	11	61
GYG72100	GYF99100	10.0	10	13	63
GYG72120	GYF99120	12.0	12	16	73
GYG72140	GYF99140	14.0	12	16	73
GYG72160	GYF99160	16.0	16	19	79
GYG72180	GYF99180	18.0	16	19	79
GYG72200	GYF99200	20.0	20	22	88
GYG72220	GYF99220	22.0	20	22	88
GYG72250	GYF99250	25.0	25	26	102

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

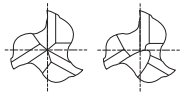
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

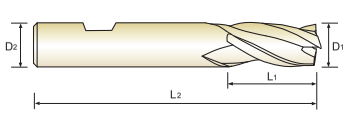
ONLY ONE COATED PM60 END MILLS

FLAT SHANK **GYG01 SERIES**

PM60, 3 FLUTE SHORT LENGTH (Center Cut)

PM60, 3 Schneiden, kurz, Zentrumschnitt
Revêtue YG-AlCrN - PM60, 3 dents, série courte (Coupe au centre)
Rivestita PM60, 3 TAGLIENTI SERIE CORTA (Tagliente al centro)





PM 60 | 3 | 30° | FLAT | Y Coating | p.C598-599

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
GYG01010	1.0	6	3	47
GYG01020	2.0	6	7	51
GYG01030	3.0	6	8	52
GYG01040	4.0	6	11	55
GYG01050	5.0	6	13	57
GYG01060	6.0	6	13	57
GYG01070	7.0	8	16	66
GYG01080	8.0	8	19	69
GYG01090	9.0	10	19	69
GYG01100	10.0	10	22	72
GYG01120	12.0	12	26	83
GYG01140	14.0	12	26	83
GYG01160	16.0	16	32	92
GYG01180	18.0	16	32	92
GYG01200	20.0	20	38	104
GYG01220	22.0	20	38	104
GYG01250	25.0	25	45	121

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

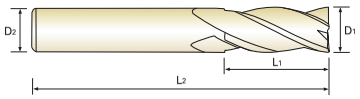
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

ONLY ONE COATED PM60 END MILLS

PLAIN SHANK **GYG74 SERIES**
FLAT SHANK **GYF96 SERIES**

PM60, 4 FLUTE SHORT LENGTH (Center Cut)

PM60, 4 Schneiden, kurz, Zentrumschnitt
Revêtue YG-AlCrN - PM60, 4 dents, série courte (Coupe au centre)
Rivestita PM60, 4 TAGLIENTI SERIE CORTA (Tagliente al centro)



PM 60 | 4 | 30° | PLAIN | FLAT | Y Coating | p.C600

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
GYG74010	GYF96010	1.0	6	3	49
GYG74020	GYF96020	2.0	6	7	51
GYG74030	GYF96030	3.0	6	8	52
GYG74040	GYF96040	4.0	6	11	55
GYG74050	GYF96050	5.0	6	13	57
GYG74060	GYF96060	6.0	6	13	57
GYG74070	GYF96070	7.0	8	16	66
GYG74080	GYF96080	8.0	8	19	69
GYG74090	GYF96090	9.0	10	19	69
GYG74100	GYF96100	10.0	10	22	72
GYG74120	GYF96120	12.0	12	26	83
GYG74140	GYF96140	14.0	12	26	83
GYG74160	GYF96160	16.0	16	32	92
GYG74180	GYF96180	18.0	16	32	92
GYG74200	GYF96200	20.0	20	38	104
GYG74220	GYF96220	22.0	20	38	104
GYG74250	GYF96250	25.0	25	45	121

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

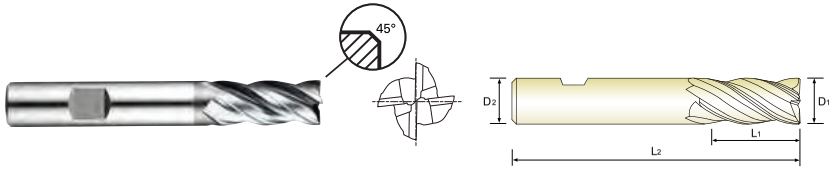
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

ONLY ONE COATED PM60 END MILLS

FLAT SHANK **GYG52 SERIES**

PM60, 4 FLUTE MULTIPLE HELIX SHORT LENGTH (Center Cut)

- PM60, 4 Schneiden, mit ungleichem Drall, kurz, Zentrumschnitt
- Revêtue YG-AlCrN - PM60, 4 dents, hélice multiple, série courte (Coupe au centre)
- Rivestita PM60, 4 TAGLIENTI elica variabile SERIE CORTA (Tagliente al centro)



PM 60 | 4 | 35°/37° | FLAT | C x 45° | Y Coating | p.C601

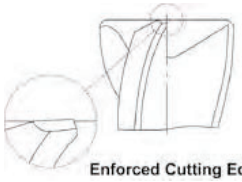
Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
	D_1	D_2	L_1	L_2	
GYG52030	3.0	6	8	52	0.1
GYG52040	4.0	6	11	55	0.1
GYG52050	5.0	6	13	57	0.1
GYG52060	6.0	6	13	57	0.1
GYG52070	7.0	8	16	66	0.1
GYG52080	8.0	8	19	69	0.1
GYG52090	9.0	10	19	69	0.1
GYG52100	10.0	10	22	72	0.1
GYG52120	12.0	12	26	83	0.1
GYG52140	14.0	12	26	83	0.2
GYG52160	16.0	16	32	92	0.2
GYG52180	18.0	16	32	92	0.2
GYG52200	20.0	20	38	104	0.2
GYG52220	22.0	20	38	104	0.2
GYG52250	25.0	25	45	121	0.2

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

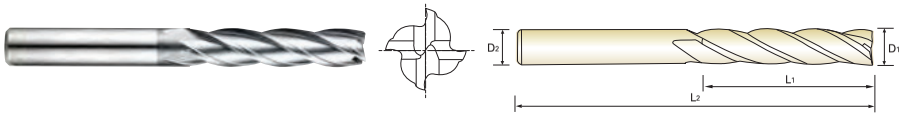
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

ONLY ONE COATED PM60 END MILLS

PLAIN SHANK **GYG76 SERIES**
FLAT SHANK **GYG02 SERIES**

PM60, 4 FLUTE LONG LENGTH (Center Cut)

- PM60, 4 Schneiden, lang, Zentrumschnitt
- Revêtue YG-AlCrN - PM60, 4 dents, série longue (Coupe au centre)
- Rivestita PM60, 4 TAGLIENTI SERIE LUNGA (Tagliente al centro)



PM 60 | 4 | 30° | PLAIN | FLAT | Y Coating | p.C600

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D_1	D_2	L_1	L_2
GYG76020	GYG02020	2.0	6	10	54
GYG76030	GYG02030	3.0	6	12	56
GYG76040	GYG02040	4.0	6	19	63
GYG76050	GYG02050	5.0	6	24	68
GYG76060	GYG02060	6.0	6	24	68
GYG76070	GYG02070	7.0	8	30	80
GYG76080	GYG02080	8.0	8	38	88
GYG76090	GYG02090	9.0	10	38	88
GYG76100	GYG02100	10.0	10	45	95
GYG76120	GYG02120	12.0	12	53	110
GYG76140	GYG02140	14.0	12	53	110
GYG76160	GYG02160	16.0	16	63	123
GYG76180	GYG02180	18.0	16	63	123
GYG76200	GYG02200	20.0	20	75	141
GYG76220	GYG02220	22.0	20	75	141
GYG76250	GYG02250	25.0	25	90	166

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

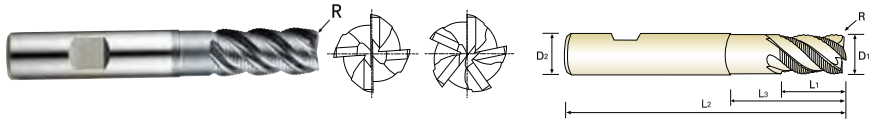
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

ONLY ONE COATED PM60 END MILLS

FLAT SHANK **GYF95 SERIES**

PM60, MULTI FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS ROUGHING - FINE (Center Cut)

PM60, Mehrschneiden, mit ungleichem Drall, kurz, Eckenradius, Feinkordel-Schruppfräser, Zentrumschnitt
Revêtue YG-AlCrN - PM60, multi-dents, hélice multiple, série courte, rayonnée, ravageuse, pas fins (Coupe au centre)
Rivestita PM60, MULTI TAGLIENTE ELICA VARIABILE SERIE CORTA TORICA PER SGROSSATURA - BOMBATO FINE (Tagliente al centro)



PM 60 | 4-5 | 44°/44.5°/45° | HR | FLAT | Y Coating | p.C602

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank iameter	Length of Cut	Length Below Shank	Overall ength	No. of Flute
	R	D1(js12)	D2(h6)	L1	L3	L2	
GYF95060	R0.5	6.0	6	13	-	57	4
GYF95070	R0.5	7.0	10	16	-	66	4
GYF95080	R0.5	8.0	10	19	-	69	4
GYF95090	R0.5	9.0	10	19	-	69	4
GYF95100	R0.5	10.0	10	22	31	72	4
GYF95120	R0.5	12.0	12	26	37	83	4
GYF95140	R1.0	14.0	12	26	-	83	5
GYF95160	R1.0	16.0	16	32	44	92	5
GYF95180	R1.0	18.0	16	32	-	92	5
GYF95200	R1.0	20.0	20	38	54	104	5
GYF95250	R1.0	25.0	25	45	63	121	5

Tolerances according to DIN 7160 & 7161

Tolerance range in μm			
Nominal-Diameter in mm			
	over 6 to 10	over 10 to 18	over 18 to 30
js12	±75	±90	±105
h6	0 / - 9	0 / - 11	0 / - 13

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

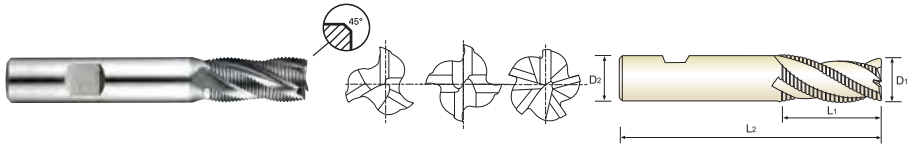
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

ONLY ONE COATED PM60 END MILLS

FLAT SHANK **GYF94 SERIES**

PM60, MULTI FLUTE SHORT LENGTH ROUGHING - FINE (Center Cut)

PM60, Mehrschneiden, kurz, Feinkordel-Schuppfräser, Zentrumschnitt
Revêtue YG-AlCrN - PM60, multi-dents, série courte, ravageuse, pas fins (Coupe au centre)
Rivestita PM60, MULTI TAGLIENTE SERIE CORTA PER SGROSSATURA - BOMBATO FINE (Tagliente al centro)



PM 60 | 3-5 | 30° | HR | FLAT | C x 45° | Y Coating | p.C603

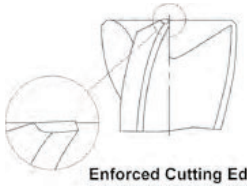
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D1(js12)	D2(h6)	L1	L2		
GYF94060	6.0	6	13	57	3	0.18
GYF94070	7.0	10	16	66	3	0.18
GYF94080	8.0	10	19	69	3	0.18
GYF94090	9.0	10	19	69	3	0.18
GYF94100	10.0	10	22	72	4	0.18
GYF94120	12.0	12	26	83	4	0.18
GYF94140	14.0	12	26	83	4	0.25
GYF94160	16.0	16	32	92	4	0.25
GYF94180	18.0	16	32	92	4	0.25
GYF94200	20.0	20	38	104	4	0.25
GYF94250	25.0	25	45	121	5	0.36

Tolerances according to DIN 7160 & 7161

Tolerance range in μm			
Nominal-Diameter in mm			
	over 6 to 10	over 10 to 18	over 18 to 30
js12	±75	±90	±105
h6	0 / - 9	0 / - 11	0 / - 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

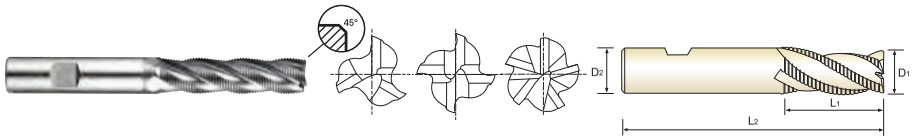
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

ONLY ONE COATED PM60 END MILLS

FLAT SHANK **GYF98** SERIES

PM60, MULTI FLUTE LONG LENGTH ROUGHING - FINE (Center Cut)

- PM60, Mehrschneiden, lang, Feinkordel-Schruppfräser, Zentrumschnitt
- Revêtue YG-AlCrN - PM60, multi-dents, série longue, ravageuse, pas fins (Coupe au centre)
- Rivestita PM60, MULTI TAGLIENTE SERIE LUNGA PER SGROSSATURA - BOMBATO FINE (Tagliente al centro)



PM 60 | 3-5 | 30° | HR | FLAT | C x 45° | Y Coating | p.C603

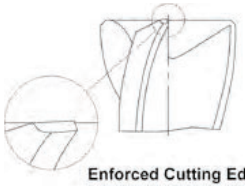
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D1(js12)	Shank Diameter D2(h6)	Length of Cut L1	Overall Length L2	No. of Flute	Chamfer
GYF98060	6.0	6	24	68	3	0.18
GYF98070	7.0	10	30	80	3	0.18
GYF98080	8.0	10	38	88	3	0.18
GYF98090	9.0	10	38	88	3	0.18
GYF98100	10.0	10	45	95	4	0.18
GYF98120	12.0	12	53	110	4	0.18
GYF98140	14.0	12	53	110	4	0.25
GYF98160	16.0	16	63	123	4	0.25
GYF98180	18.0	16	63	123	4	0.25
GYF98200	20.0	20	75	141	4	0.25
GYF98250	25.0	25	90	166	5	0.36

Tolerances according to DIN 7160 & 7161

Tolerance range in μm			
Nominal-Diameter in mm			
	over 6 to 10	over 10 to 18	over 18 to 30
js12	±75	±90	±105
h6	0 / - 9	0 / - 11	0 / - 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

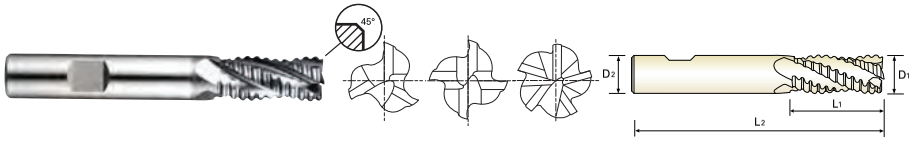
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

ONLY ONE COATED PM60 END MILLS

FLAT SHANK **GYG03** SERIES

PM60, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE(Center Cut)

- PM60, Mehrschneiden, kurz, Schruppfräser, Zentrumschnitt
- Revêtue YG-AlCrN - PM60, multi-dents, série courte, ravageuse, pas grossiers (Coupe au centre)
- Rivestita PM60, MULTI TAGLIENTE SERIE CORTA PER SGROSSATURA - BOMBATO GROSSO (Tagliente al centro)



PM 60 | 3-5 | 30° | NR | FLAT | C x 45° | Y Coating | p.C603

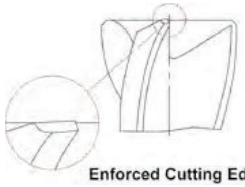
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter D1(js12)	Shank Diameter D2(h6)	Length of Cut L1	Overall Length L2	No. of Flute	Chamfer
GYG03060	6.0	6	13	57	3	0.25
GYG03070	7.0	10	16	66	3	0.25
GYG03080	8.0	10	19	69	3	0.25
GYG03090	9.0	10	19	69	3	0.36
GYG03100	10.0	10	22	72	4	0.36
GYG03120	12.0	12	26	83	4	0.56
GYG03140	14.0	12	26	83	4	0.6
GYG03160	16.0	16	32	92	4	0.6
GYG03180	18.0	16	32	92	4	0.6
GYG03200	20.0	20	38	104	4	0.6
GYG03250	25.0	25	45	121	5	0.6

Tolerances according to DIN 7160 & 7161

Tolerance range in μm			
Nominal-Diameter in mm			
	over 6 to 10	over 10 to 18	over 18 to 30
js12	±75	±90	±105
h6	0 / - 9	0 / - 11	0 / - 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○												○	

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

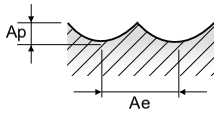
ONLY ONE COATED PM60 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG77 , GYF97 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.5D	0.2D	Vc	83	90	100	101	104	104	103	102	90
					fz	0.023	0.036	0.054	0.079	0.109	0.115	0.141	0.156	0.162
					RPM	8807	7162	5305	4019	3310	2759	2049	1623	1146
					FEED	405	516	573	635	722	634	578	506	371
	2		0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70
					fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140
					RPM	7003	5570	4191	3104	2515	2149	1552	1194	891
					FEED	280	357	386	416	478	417	382	334	250
	3-4		0.5D	0.2D	Vc	44	45	52	54	53	54	54	52	44
					fz	0.016	0.026	0.039	0.056	0.082	0.083	0.1	0.11	0.125
					RPM	4669	3581	2759	2149	1687	1432	1074	828	560
					FEED	149	186	215	241	277	238	215	182	140
	5		0.5D	0.2D	Vc	23	24	27	27	26	26	27	27	24
					fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100
					RPM	2440	1910	1432	1074	828	690	537	430	306
					FEED	68	88	100	101	121	98	97	85	61
	6	Low alloy steel	0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70
					fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140
					RPM	7003	5570	4191	3104	2515	2149	1552	1194	891
					FEED	280	357	386	416	478	417	382	334	250
	7		0.5D	0.2D	Vc	44	45	52	54	53	54	54	52	44
					fz	0.016	0.026	0.039	0.056	0.082	0.083	0.1	0.11	0.125
					RPM	4669	3581	2759	2149	1687	1432	1074	828	560
					FEED	149	186	215	241	277	238	215	182	140
	8-9		0.5D	0.2D	Vc	23	24	27	27	26	26	27	27	24
					fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100
					RPM	2440	1910	1432	1074	828	690	537	430	306
					FEED	68	88	100	101	121	98	97	85	61
	10	High alloyed steel, and tool steel	0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70
					fz	0.020	0.032	0.046	0.067	0.095	0.097	0.123	0.140	0.140
					RPM	7003	5570	4191	3104	2515	2149	1552	1194	891
					FEED	280	357	386	416	478	417	382	334	250
	11.1		0.5D	0.2D	Vc	23	24	27	27	26	26	27	27	24
					fz	0.014	0.023	0.035	0.047	0.073	0.071	0.090	0.099	0.100
					RPM	2440	1910	1432	1074	828	690	537	430	306
					FEED	68	88	100	101	121	98	97	85	61
	11.2		0.3D	0.2D	Vc	16	17	19	19	18	18	19	19	16
					fz	0.013	0.024	0.035	0.047	0.075	0.071	0.088	0.1	0.095
					RPM	1698	1353	1008	756	573	477	378	302	204
					FEED	44	65	71	71	86	68	67	60	39
M	14.1	Stainless steel	0.5D	0.2D	Vc	25	27	30	30	28	29	30	30	26
					fz	0.013	0.023	0.036	0.049	0.072	0.075	0.093	0.099	0.098
					RPM	2653	2149	1592	1194	891	769	597	477	331
					FEED	69	99	115	117	128	115	111	95	65
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.2D	Vc	66	70	79	78	79	81	78	75	70
					fz	0.02	0.032	0.046	0.067	0.095	0.097	0.123	0.14	0.14
					RPM	7003	5570	4191	3104	2515	2149	1552	1194	891
					FEED	280	357	386	416	478	417	382	334	250
H	40	Chilled Cast Iron	0.3D	0.2D	Vc	16	17	19	19	18	18	19	19	16
					fz	0.013	0.024	0.035	0.047	0.075	0.071	0.088	0.1	0.095
					RPM	1698	1353	1008	756	573	477	378	302	204
					FEED	44	65	71	71	86	68	67	60	39

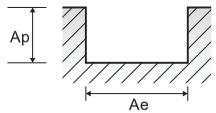


ONLY ONE COATED PM60 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG72 , GYF99 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	53	57	65	74	79	78	79	81	84	81	78	72	70	71
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.099	0.105	0.116	0.109	0.103
					RPM	8435	6048	5173	4711	4191	3104	2515	2149	1910	1611	1379	1146	1013	904
					FEED	135	194	279	311	319	329	357	327	317	319	290	266	221	186
	2		1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
	3-4		1.0D	0.5D	Vc	37	38	48	49	52	54	55	52	53	54	54	53	50	46
					fz	0.008	0.017	0.025	0.035	0.042	0.056	0.079	0.091	0.098	0.1	0.1	0.107	0.104	0.119
					RPM	5889	4032	3820	3119	2759	2149	1751	1379	1205	1074	955	844	723	586
					FEED	94	137	191	218	232	241	277	251	236	215	191	181	150	139
	5		1.0D	0.5D	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34
					fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105
					RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433
					FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91
	6	Low alloy steel	1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
	7		1.0D	0.5D	Vc	37	38	48	49	52	54	55	52	53	54	54	53	50	46
					fz	0.008	0.017	0.025	0.035	0.042	0.056	0.079	0.091	0.098	0.1	0.1	0.107	0.104	0.119
					RPM	5889	4032	3820	3119	2759	2149	1751	1379	1205	1074	955	844	723	586
					FEED	94	137	191	218	232	241	277	251	236	215	191	181	150	139
	8		1.0D	0.5D	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34
					fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105
					RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433
					FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91
	9		1.0D	0.3D	Vc	15	20	24	25	26	27	26	26	26	27	27	27	26	24
					fz	0.01	0.017	0.023	0.028	0.036	0.047	0.071	0.071	0.079	0.09	0.094	0.099	0.086	0.1
					RPM	2387	2122	1910	1592	1379	1074	828	690	591	537	477	430	376	306
					FEED	48	72	88	89	99	101	118	98	93	97	90	85	65	61
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
	11.1		1.0D	0.5D	Vc	24	26	30	32	33	35	34	34	33	34	34	33	33	34
					fz	0.011	0.017	0.023	0.029	0.037	0.051	0.069	0.079	0.086	0.09	0.1	0.104	0.099	0.105
					RPM	3820	2759	2387	2037	1751	1393	1082	902	750	676	601	525	477	433
					FEED	84	94	110	118	130	142	149	142	129	122	120	109	95	91
	11.2		1.0D	0.3D	Vc	11	14	17	18	18	19	19	18	18	19	19	19	19	16
					fz	0.01	0.018	0.024	0.029	0.036	0.047	0.072	0.071	0.077	0.088	0.096	0.1	0.083	0.095
					RPM	1751	1485	1353	1146	955	756	605	477	409	378	336	302	275	204
					FEED	35	53	65	66	69	71	87	68	63	67	65	60	46	39
M	14.1	Stainless steel	1.0D	0.5D	Vc	17	22	27	28	29	30	29	29	29	29	30	30	29	26
					fz	0.01	0.018	0.024	0.028	0.036	0.047	0.071	0.071	0.08	0.091	0.094	0.101	0.083	0.098
					RPM	2706	2334	2149	1783	1538	1194	923	769	659	577	531	477	420	331
					FEED	54	84	103	100	111	112	131	109	105	105	100	96	70	65
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	44	46	54	61	66	66	68	66	66	69	64	59	59	60
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.083	0.085	0.103	0.106	0.106	0.112
					RPM	7003	4881	4297	3883	3501	2626	2165	1751	1501	1373	1132	939	854	764
					FEED	112	156	206	241	252	289	320	291	249	233	233	199	181	171
H	40	Chilled Cast Iron	1.0D	0.3D	Vc	11	14	17	18	18	19	19	18	18	19	19	19	19	16
					fz	0.01	0.018	0.024	0.029	0.036	0.047	0.072	0.071	0.077	0.088	0.096	0.1	0.083	0.095
					RPM	1751	1485	1353	1146	955	756	605	477	409	378	336	302	275	204
					FEED	35	53	65	66	69	71	87	68	63	67	65	60	46	39



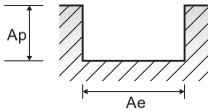
ONLY ONE COATED PM60 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG01 SERIES — 3 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	49	52	65	72	76	78	79	81	84	81	78	72	70	71
					fz	0.004	0.007	0.011	0.014	0.023	0.031	0.04	0.051	0.052	0.06	0.07	0.08	0.091	0.107
					RPM	7799	5517	5173	4584	4032	3104	2515	2149	1910	1611	1379	1146	1013	904
					FEED	94	116	171	193	278	289	302	329	298	290	290	275	276	290
	2		1.0D	0.5D	Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11
					RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252
	3-4		1.0D	0.5D	Vc	36	38	45	49	52	54	53	54	53	54	54	53	50	46
					fz	0.003	0.005	0.009	0.012	0.021	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.107
					RPM	5730	4032	3581	3119	2759	2149	1687	1432	1205	1074	955	844	723	586
					FEED	52	60	97	112	174	180	192	202	192	180	180	170	180	188
	5		1.0D	0.5D	Vc	23	25	29	32	33	35	34	34	35	34	34	33	33	34
					fz	0.004	0.007	0.009	0.012	0.021	0.029	0.044	0.052	0.055	0.06	0.064	0.069	0.08	0.093
					RPM	3661	2653	2308	2037	1751	1393	1082	902	796	676	601	525	477	433
					FEED	44	56	62	73	110	121	143	141	131	122	115	109	115	121
	6	Low alloy steel	1.0D	0.5D	Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11
					RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252
	7		1.0D	0.5D	Vc	36	38	45	49	52	54	53	54	53	54	54	53	50	46
					fz	0.003	0.005	0.009	0.012	0.021	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.107
					RPM	5730	4032	3581	3119	2759	2149	1687	1432	1205	1074	955	844	723	586
					FEED	52	60	97	112	174	180	192	202	192	180	180	170	180	188
	8		1.0D	0.5D	Vc	23	25	29	32	33	35	34	34	35	34	34	33	33	34
					fz	0.004	0.007	0.009	0.012	0.021	0.029	0.044	0.052	0.055	0.06	0.064	0.069	0.08	0.093
					RPM	3661	2653	2308	2037	1751	1393	1082	902	796	676	601	525	477	433
					FEED	44	56	62	73	110	121	143	141	131	122	115	109	115	121
	9		1.0D	0.3D	Vc	14	20	23	25	25	27	26	26	26	27	27	27	26	24
					fz	0.005	0.008	0.012	0.014	0.023	0.031	0.045	0.052	0.056	0.063	0.066	0.074	0.088	0.111
					RPM	2228	2122	1830	1592	1326	1074	828	690	591	537	477	430	376	306
					FEED	33	51	66	67	92	100	112	108	99	102	95	95	99	102
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11
					RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252
	11.1		1.0D	0.5D	Vc	23	25	29	32	33	35	34	34	35	34	34	33	33	34
					fz	0.004	0.007	0.009	0.012	0.021	0.029	0.044	0.052	0.055	0.06	0.064	0.069	0.08	0.093
					RPM	3661	2653	2308	2037	1751	1393	1082	902	796	676	601	525	477	433
					FEED	44	56	62	73	110	121	143	141	131	122	115	109	115	121
	11.2		1.0D	0.3D	Vc	10	14	16	17	17	19	18	18	18	19	19	19	19	16
					fz	0.005	0.009	0.012	0.014	0.024	0.031	0.044	0.051	0.056	0.063	0.064	0.072	0.086	0.111
					RPM	1592	1485	1273	1082	902	756	573	477	409	378	336	302	275	204
					FEED	24	40	46	45	65	70	76	73	69	71	65	65	71	68
M	14.1	Stainless steel	1.0D	0.5D	Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11
					RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	41	44	54	60	63	66	68	66	71	69	61	60	61	60
					fz	0.003	0.007	0.011	0.013	0.023	0.032	0.039	0.053	0.055	0.06	0.072	0.081	0.089	0.11
					RPM	6525	4669	4297	3820	3342	2626	2165	1751	1614	1373	1079	955	883	764
					FEED	59	98	142	149	231	252	253	278	266	247	233	232	236	252
H	40	Chilled Cast Iron	1.0D	0.3D	Vc	10	14	16	17	17	19	18	18	18	19	19	19	19	16
					fz	0.005	0.009	0.012	0.014	0.024	0.031	0.044	0.051	0.056	0.063	0.064	0.072	0.086	0.111
					RPM	1592	1485	1273	1082	902	756	573	477	409	378	336	302	275	204
					FEED	24	40	46	45	65	70	76	73	69	71	65	65	71	68

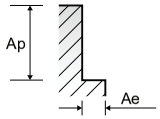


ONLY ONE COATED PM60 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG01 SERIES — 3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	62	66	78	89	95	97	94	95	95	97	92	94	95	94
					fz	0.004	0.008	0.012	0.015	0.024	0.034	0.047	0.056	0.065	0.069	0.076	0.08	0.089	0.11
					RPM	9868	7003	6207	5666	5040	3860	2992	2520	2160	1930	1627	1496	1375	1197
					FEED	118	168	223	255	363	394	422	423	421	399	371	359	367	395
	2		0.1D	1.5D	Vc	51	54	66	75	81	78	79	81	79	78	78	79	79	79
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.094	0.109
					RPM	8117	5730	5252	4775	4297	3104	2515	2149	1796	1552	1379	1257	1143	1006
					FEED	97	138	189	215	297	326	347	361	339	331	319	306	322	329
	3-4		0.1D	1.5D	Vc	41	43	53	55	59	60	60	63	61	60	61	59	62	60
					fz	0.004	0.007	0.01	0.014	0.025	0.033	0.043	0.055	0.06	0.067	0.073	0.082	0.088	0.11
					RPM	6525	4562	4218	3501	3130	2387	1910	1671	1387	1194	1079	939	897	764
					FEED	78	96	127	147	235	236	246	276	250	240	236	231	237	252
	5		0.1D	1.5D	Vc	29	31	35	38	41	39	38	41	41	40	40	39	39	39
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.072	0.074	0.081	0.092	0.107
					RPM	4615	3289	2785	2419	2175	1552	1210	1088	932	796	707	621	564	497
					FEED	55	79	92	102	150	168	181	183	168	172	157	151	156	159
	6	Low alloy steel	0.1D	1.5D	Vc	51	54	66	75	81	78	79	81	79	78	78	79	79	79
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.094	0.109
					RPM	8117	5730	5252	4775	4297	3104	2515	2149	1796	1552	1379	1257	1143	1006
					FEED	97	138	189	215	297	326	347	361	339	331	319	306	322	329
	7		0.1D	1.5D	Vc	41	43	53	55	59	60	60	63	61	60	61	59	62	60
					fz	0.004	0.007	0.01	0.014	0.025	0.033	0.043	0.055	0.06	0.067	0.073	0.082	0.088	0.11
					RPM	6525	4562	4218	3501	3130	2387	1910	1671	1387	1194	1079	939	897	764
					FEED	78	96	127	147	235	236	246	276	250	240	236	231	237	252
	8		0.1D	1.5D	Vc	29	31	35	38	41	39	38	41	41	40	40	39	39	39
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.072	0.074	0.081	0.092	0.107
					RPM	4615	3289	2785	2419	2175	1552	1210	1088	932	796	707	621	564	497
					FEED	55	79	92	102	150	168	181	183	168	172	157	151	156	159
	9		0.05D	1.5D	Vc	18	25	29	32	34	33	34	34	33	33	34	33	33	34
					fz	0.006	0.01	0.013	0.015	0.022	0.035	0.047	0.056	0.064	0.071	0.072	0.082	0.09	0.112
					RPM	2865	2653	2308	2037	1804	1313	1082	902	750	657	601	525	477	433
					FEED	52	80	90	92	119	138	153	152	144	140	130	129	129	145
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	51	54	66	75	81	78	79	81	79	78	78	79	79	79
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.094	0.109
					RPM	8117	5730	5252	4775	4297	3104	2515	2149	1796	1552	1379	1257	1143	1006
					FEED	97	138	189	215	297	326	347	361	339	331	319	306	322	329
	11.1		0.1D	1.5D	Vc	29	31	35	38	41	39	38	41	41	40	40	39	39	39
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.072	0.074	0.081	0.092	0.107
					RPM	4615	3289	2785	2419	2175	1552	1210	1088	932	796	707	621	564	497
					FEED	55	79	92	102	150	168	181	183	168	172	157	151	156	159
	11.2		0.05D	1.5D	Vc	13	17	20	22	24	23	24	23	23	23	24	23	23	24
					fz	0.006	0.01	0.014	0.015	0.022	0.036	0.047	0.056	0.063	0.072	0.071	0.081	0.088	0.111
					RPM	2069	1804	1592	1401	1273	915	764	610	523	458	424	366	333	306
					FEED	37	54	67	63	84	99	108	102	99	99	90	89	88	102
M	14.1	Stainless steel	0.1D	1.5D	Vc	20	27	32	35	37	36	37	37	37	37	37	36	37	37
					fz	0.006	0.01	0.013	0.015	0.022	0.036	0.047	0.056	0.063	0.071	0.073	0.083	0.091	0.113
					RPM	3183	2865	2546	2228	1963	1432	1178	981	841	736	654	573	535	471
					FEED	57	86	99	100	130	155	166	165	159	157	143	143	146	160
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	51	54	66	75	81	78	79	81	79	78	78	79	79	79
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.094	0.109
					RPM	8117	5730	5252	4775	4297	3104	2515	2149	1796	1552	1379	1257	1143	1006
					FEED	97	138	189	215	297	326	347	361	339	331	319	306	322	329
H	40	Chilled Cast Iron	0.05D	1.5D	Vc	13	17	20	22	24	23	24	23	23	23	24	23	23	24
					fz	0.006	0.01	0.014	0.015	0.022	0.036	0.047	0.056	0.063	0.072	0.071	0.081	0.088	0.111
					RPM	2069	1804	1592	1401	1273	915	764	610	523	458	424	366	333	306
					FEED	37	54	67	63	84	99	108	102	99	99	90	89	88	102



ONLY ONE COATED PM60 END MILLS

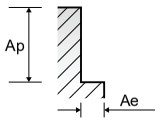
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG74 , GYF96 , GYG76 , GYG02 SERIES

4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	69	75	80	83	88	93	87	90	95	97	102	94	87	94
					fz	0.008	0.015	0.023	0.029	0.035	0.046	0.068	0.071	0.076	0.079	0.076	0.088	0.097	0.093
					RPM	10982	7958	6366	5284	4669	3700	2769	2387	2160	1930	1804	1496	1259	1197
					FEED	351	477	586	613	654	681	753	678	657	610	548	527	488	445
	2		0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09
					RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006
					FEED	281	433	475	497	533	571	634	576	550	515	481	443	384	362
	3-4		0.1D	1.5D	Vc	46	50	54	55	59	60	60	63	58	60	61	59	57	60
					fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.086	0.088	0.093	0.09
					RPM	7321	5305	4297	3501	3130	2387	1910	1671	1319	1194	1079	939	825	764
					FEED	205	297	361	392	401	439	451	441	422	406	371	331	307	275
	5		0.1D	1.5D	Vc	31	31	35	38	41	42	38	40	42	41	43	40	39	39
					fz	0.008	0.017	0.022	0.028	0.032	0.043	0.067	0.068	0.072	0.081	0.077	0.082	0.085	0.09
					RPM	4934	3289	2785	2419	2175	1671	1210	1061	955	816	760	637	564	497
					FEED	158	224	245	271	278	287	324	289	275	264	234	209	192	179
	6	Low alloy steel	0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09
					RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006
					FEED	281	433	475	497	533	571	634	576	550	515	481	443	384	362
	7		0.1D	1.5D	Vc	46	50	54	55	59	60	60	63	58	60	61	59	57	60
					fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.086	0.088	0.093	0.09
					RPM	7321	5305	4297	3501	3130	2387	1910	1671	1319	1194	1079	939	825	764
					FEED	205	297	361	392	401	439	451	441	422	406	371	331	307	275
	8		0.1D	1.5D	Vc	31	31	35	38	41	42	38	40	42	41	43	40	39	39
					fz	0.008	0.017	0.022	0.028	0.032	0.043	0.067	0.068	0.072	0.081	0.077	0.082	0.085	0.09
					RPM	4934	3289	2785	2419	2175	1671	1210	1061	955	816	760	637	564	497
					FEED	158	224	245	271	278	287	324	289	275	264	234	209	192	179
	9		0.05D	1.5D	Vc	25	27	30	32	33	35	34	32	33	33	34	33	33	34
					fz	0.006	0.013	0.019	0.023	0.031	0.04	0.056	0.064	0.067	0.076	0.075	0.08	0.081	0.087
					RPM	3979	2865	2387	2037	1751	1393	1082	849	750	657	601	525	477	433
					FEED	95	149	181	187	217	223	242	217	201	200	180	168	155	151
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09
					RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006
					FEED	281	433	475	497	533	571	634	576	550	515	481	443	384	362
	11.1		0.1D	1.5D	Vc	31	31	35	38	41	42	38	40	42	41	43	40	39	39
					fz	0.008	0.017	0.022	0.028	0.032	0.043	0.067	0.068	0.072	0.081	0.077	0.082	0.085	0.09
					RPM	4934	3289	2785	2419	2175	1671	1210	1061	955	816	760	637	564	497
					FEED	158	224	245	271	278	287	324	289	275	264	234	209	192	179
	11.2		0.05D	1.5D	Vc	17	19	21	22	23	24	24	23	23	23	24	23	23	24
					fz	0.006	0.013	0.019	0.024	0.031	0.04	0.057	0.065	0.068	0.076	0.074	0.081	0.081	0.088
					RPM	2706	2016	1671	1401	1220	955	764	610	523	458	424	366	333	306
					FEED	65	105	127	134	151	153	174	159	142	139	126	119	108	108
M	14.1	Stainless steel	0.1D	1.5D	Vc	27	30	33	35	36	38	37	36	37	37	37	36	37	37
					fz	0.006	0.013	0.019	0.023	0.031	0.039	0.056	0.063	0.067	0.075	0.076	0.08	0.08	0.088
					RPM	4297	3183	2626	2228	1910	1512	1178	955	841	736	654	573	535	471
					FEED	103	166	200	205	237	236	264	241	225	221	199	183	171	166
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	63	68	71	75	81	78	79	81	84	84	85	79	79	79
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.09
					RPM	10027	7215	5650	4775	4297	3104	2515	2149	1910	1671	1503	1257	1143	1006
					FEED	281	433	475	497	533	571	634	576	550	515	481	443	384	362
H	40	Chilled Cast Iron	0.05D	1.5D	Vc	17	19	21	22	23	24	24	23	23	23	24	23	23	24
					fz	0.006	0.013	0.019	0.024	0.031	0.04	0.057	0.065	0.068	0.076	0.074	0.081	0.081	0.088
					RPM	2706	2016	1671	1401	1220	955	764	610	523	458	424	366	333	306
					FEED	65	105	127	134	151	153	174	159	142	139	126	119	108	108



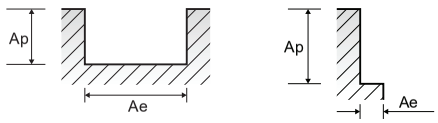
ONLY ONE COATED PM60 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYG52 SERIES

4 FLUTE - SLOTTING, SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Slotting Ae	Slotting Ap	Side Cutting Ae	Side Cutting Ap	Parameter	Diameter (Ø)											
								3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1-2	Non-alloy steel	1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77
							fz	0.005	0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063
							RPM	7427	5570	4456	3714	2785	2451	2042	1751	1532	1362	1225	980
							FEED	149	178	214	238	312	382	384	343	325	321	319	247
	3-4		1.0D	0.5D	0.3D	1.5D	Vc	64	63	63	64	64	70	70	70	70	70	70	70
							fz	0.005	0.008	0.011	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063
							RPM	6791	5013	4011	3395	2546	2228	1857	1592	1393	1238	1114	891
							FEED	136	160	176	217	285	348	349	312	295	292	290	225
	5		1.0D	0.5D	0.3D	1.5D	Vc	44	44	44	44	44	49	49	49	49	49	49	49
							fz	0.005	0.008	0.011	0.016	0.028	0.038	0.047	0.05	0.052	0.059	0.066	0.065
							RPM	4669	3501	2801	2334	1751	1560	1300	1114	975	867	780	624
							FEED	93	112	123	149	196	237	244	223	203	204	206	162
	6	Low alloy steel	1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77
							fz	0.005	0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063
							RPM	7427	5570	4456	3714	2785	2451	2042	1751	1532	1362	1225	980
							FEED	149	178	214	238	312	382	384	343	325	321	319	247
	7		1.0D	0.5D	0.3D	1.5D	Vc	64	63	63	64	64	70	70	70	70	70	70	70
							fz	0.005	0.008	0.011	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063
							RPM	6791	5013	4011	3395	2546	2228	1857	1592	1393	1238	1114	891
							FEED	136	160	176	217	285	348	349	312	295	292	290	225
	8		1.0D	0.5D	0.3D	1.5D	Vc	44	44	44	44	44	49	49	49	49	49	49	49
							fz	0.005	0.008	0.011	0.016	0.028	0.038	0.047	0.05	0.052	0.059	0.066	0.065
							RPM	4669	3501	2801	2334	1751	1560	1300	1114	975	867	780	624
							FEED	93	112	123	149	196	237	244	223	203	204	206	162
	9		1.0D	0.3D	0.15D	1.5D	Vc	27	27	27	27	27	30	29	29	30	29	30	29
							fz	0.004	0.007	0.01	0.014	0.024	0.032	0.04	0.041	0.044	0.05	0.056	0.054
							RPM	2865	2149	1719	1432	1074	955	769	659	597	513	477	369
							FEED	46	60	69	80	103	122	123	108	105	103	107	80
	10	High alloyed steel, and tool steel	1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77
							fz	0.005	0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063
							RPM	7427	5570	4456	3714	2785	2451	2042	1751	1532	1362	1225	980
							FEED	149	178	214	238	312	382	384	343	325	321	319	247
	11.1		1.0D	0.5D	0.3D	1.5D	Vc	44	44	44	44	44	49	49	49	49	49	49	49
							fz	0.005	0.008	0.011	0.016	0.028	0.038	0.047	0.05	0.052	0.059	0.066	0.065
							RPM	4669	3501	2801	2334	1751	1560	1300	1114	975	867	780	624
							FEED	93	112	123	149	196	237	244	223	203	204	206	162
	11.2		1.0D	0.3D	0.15D	1.5D	Vc	27	27	27	27	27	30	29	29	30	29	30	29
							fz	0.004	0.007	0.01	0.014	0.024	0.032	0.04	0.041	0.044	0.05	0.056	0.054
							RPM	2865	2149	1719	1432	1074	955	769	659	597	513	477	369
							FEED	46	60	69	80	103	122	123	108	105	103	107	80
M	14.1	Stainless steel	1.0D	0.5D	0.3D	1.5D	Vc	48	48	48	48	48	48	48	48	48	48	48	48
							fz	0.005	0.008	0.013	0.018	0.029	0.048	0.056	0.06	0.063	0.071	0.077	0.078
							RPM	5093	3820	3056	2546	1910	1528	1273	1091	955	849	764	611
							FEED	102	122	159	183	222	293	285	262	241	241	235	191
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	0.3D	1.5D	Vc	70	70	70	70	70	77	77	77	77	77	77	77
							fz	0.005	0.008	0.012	0.016	0.028	0.039	0.047	0.049	0.053	0.059	0.065	0.063
							RPM	7427	5570	4456	3714	2785	2451	2042	1751	1532	1362	1225	980
							FEED	149	178	214	238	312	382	384	343	325	321	319	247
H	40	Chilled Cast Iron	1.0D	0.3D	0.15D	1.5D	Vc	27	27	27	27	27	30	29	29	30	29	30	29
							fz	0.004	0.007	0.01	0.014	0.024	0.032	0.04	0.041	0.044	0.05	0.056	0.054
							RPM	2865	2149	1719	1432	1074	955	769	659	597	513	477	369
							FEED	46	60	69	80	103	122	123	108	105	103	107	80



CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
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D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

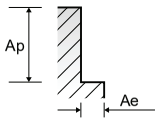
ONLY ONE COATED PM60 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYF95 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	76	87	86	87	89	87	85	87	90
					fz	0.02	0.03	0.055	0.065	0.059	0.069	0.079	0.088	0.105
					RPM	4032	3462	2737	2308	2024	1731	1503	1385	1146
					FEED	323	415	602	600	597	597	594	609	602
	2		0.5D	1.5D	Vc	60	69	68	65	66	69	72	68	68
					fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106
					RPM	3183	2745	2165	1724	1501	1373	1273	1082	866
					FEED	267	329	459	476	473	474	471	471	459
	3		0.5D	1.5D	Vc	43	51	47	49	48	48	50	48	47
					fz	0.018	0.028	0.046	0.063	0.061	0.069	0.075	0.086	0.107
					RPM	2281	2029	1496	1300	1091	955	884	764	598
					FEED	164	227	275	328	333	329	332	328	320
	4		0.5D	1.5D	Vc	43	51	47	49	48	48	50	48	47
					fz	0.018	0.028	0.046	0.063	0.061	0.069	0.075	0.086	0.107
					RPM	2281	2029	1496	1300	1091	955	884	764	598
					FEED	164	227	275	328	266	264	265	263	256
	5		0.5D	1.5D	Vc	35	38	40	40	40	40	40	40	41
					fz	0.02	0.03	0.045	0.061	0.057	0.066	0.073	0.081	0.1
					RPM	1857	1512	1273	1061	909	796	707	637	522
					FEED	149	181	229	259	259	263	258	258	261
	6	Low alloy steel	0.5D	1.5D	Vc	60	69	68	65	66	69	72	68	68
					fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106
					RPM	3183	2745	2165	1724	1501	1373	1273	1082	866
					FEED	267	329	459	476	473	474	471	471	459
	7		0.5D	1.5D	Vc	43	51	47	49	48	48	50	48	47
					fz	0.018	0.028	0.046	0.063	0.061	0.069	0.075	0.086	0.107
					RPM	2281	2029	1496	1300	1091	955	884	764	598
					FEED	164	227	275	328	333	329	332	328	320
	8-9		0.5D	1.5D	Vc	35	38	40	40	40	40	40	40	41
					fz	0.02	0.03	0.045	0.061	0.057	0.066	0.073	0.081	0.1
					RPM	1857	1512	1273	1061	909	796	707	637	522
					FEED	149	181	229	259	259	263	258	258	261
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	60	69	68	65	66	69	72	68	68
					fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106
					RPM	3183	2745	2165	1724	1501	1373	1273	1082	866
					FEED	267	329	459	476	473	474	471	471	459
	11.1		0.5D	1.5D	Vc	35	38	40	40	40	40	40	40	41
					fz	0.02	0.03	0.045	0.061	0.057	0.066	0.073	0.081	0.1
					RPM	1857	1512	1273	1061	909	796	707	637	522
					FEED	149	181	229	259	259	263	258	258	261
	11.2		0.3D	1.5D	Vc	25	27	28	28	28	28	28	28	28
					fz	0.02	0.029	0.044	0.06	0.056	0.065	0.072	0.08	0.1
					RPM	1326	1074	891	743	637	557	495	446	357
					FEED	106	125	157	178	178	181	178	178	178
M	14.1	Stainless steel	0.5D	1.5D	Vc	39	43	43	43	44	43	45	44	44
					fz	0.019	0.03	0.045	0.064	0.059	0.069	0.075	0.084	0.104
					RPM	2069	1711	1369	1141	1000	855	796	700	560
					FEED	157	205	246	292	295	295	298	294	291
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	60	69	68	65	66	69	72	68	68
					fz	0.021	0.03	0.053	0.069	0.063	0.069	0.074	0.087	0.106
					RPM	3183	2745	2165	1724	1501	1373	1273	1082	866
					FEED	267	329	459	476	473	474	471	471	459
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	25	27	28	28	28	28	28	28	28
					fz	0.02	0.029	0.044	0.06	0.056	0.065	0.072	0.08	0.1
					RPM	1326	1074	891	743	637	557	495	446	357
					FEED	106	125	157	178	178	181	178	178	178

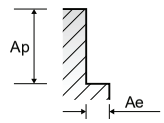


ONLY ONE COATED PM60 END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GYF94, GYF98, GYG03 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	63	72	72	72	74	72	71	72	75
					fz	0.027	0.041	0.055	0.065	0.074	0.087	0.099	0.111	0.105
					RPM	3342	2865	2292	1910	1682	1432	1256	1146	955
					FEED	271	352	504	497	498	498	497	509	501
	2		0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57
					fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106
					RPM	2653	2268	1814	1432	1251	1134	1079	907	726
					FEED	215	272	385	395	390	395	397	396	385
	3-4		0.5D	1.5D	Vc	36	42	40	41	40	40	41	40	39
					fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106
					RPM	1910	1671	1273	1088	909	796	725	637	497
					FEED	138	191	239	278	276	277	273	272	263
	5		0.5D	1.5D	Vc	29	32	34	34	33	33	33	33	34
					fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1
					RPM	1538	1273	1082	902	750	657	584	525	433
					FEED	125	153	190	216	213	213	212	212	216
	6	Low alloy steel	0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57
					fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106
					RPM	2653	2268	1814	1432	1251	1134	1079	907	726
					FEED	215	272	385	395	390	395	397	396	385
	7		0.5D	1.5D	Vc	36	42	40	41	40	40	41	40	39
					fz	0.024	0.038	0.047	0.064	0.076	0.087	0.094	0.107	0.106
					RPM	1910	1671	1273	1088	909	796	725	637	497
					FEED	138	191	239	278	276	277	273	272	263
	8-9		0.5D	1.5D	Vc	29	32	34	34	33	33	33	33	34
					fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1
					RPM	1538	1273	1082	902	750	657	584	525	433
					FEED	125	153	190	216	213	213	212	212	216
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57
					fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106
					RPM	2653	2268	1814	1432	1251	1134	1079	907	726
					FEED	215	272	385	395	390	395	397	396	385
	11.1		0.5D	1.5D	Vc	29	32	34	34	33	33	33	33	34
					fz	0.027	0.04	0.044	0.06	0.071	0.081	0.091	0.101	0.1
					RPM	1538	1273	1082	902	750	657	584	525	433
					FEED	125	153	190	216	213	213	212	212	216
	11.2		0.3D	1.5D	Vc	21	22	24	23	23	23	23	23	24
					fz	0.028	0.04	0.045	0.06	0.071	0.082	0.091	0.101	0.1
					RPM	1114	875	764	610	523	458	407	366	306
					FEED	94	105	138	146	149	150	148	148	153
M	14.1	Stainless steel	0.5D	1.5D	Vc	33	36	36	36	37	36	37	36	37
					fz	0.025	0.039	0.045	0.064	0.074	0.085	0.093	0.106	0.102
					RPM	1751	1432	1146	955	841	716	654	573	471
					FEED	131	168	206	244	249	244	243	243	240
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	50	57	57	54	55	57	61	57	57
					fz	0.027	0.04	0.053	0.069	0.078	0.087	0.092	0.109	0.106
					RPM	2653	2268	1814	1432	1251	1134	1079	907	726
					FEED	215	272	385	395	390	395	397	396	385
H	40	Chilled Cast Iron	0.3D	1.5D	Vc	21	22	24	23	23	23	23	23	24
					fz	0.028	0.04	0.045	0.06	0.071	0.082	0.091	0.101	0.1
					RPM	1114	875	764	610	523	458	407	366	306
					FEED	94	105	138	146	149	150	148	148	153



CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
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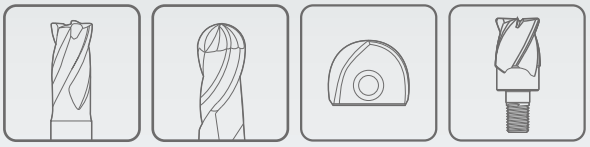
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

HSS-PM

TANK-POWER END MILLS

TANK - POWER HSS-PM - Fräser

- High Toughness for Stainless Steels, Carbon steels and Alloy Steels
- Hohe Zähigkeit, für rostfreie Stähle, Kohlenstoffstähle und legierte Stähle

SELECTION GUIDE

YG MILLING TOOLS

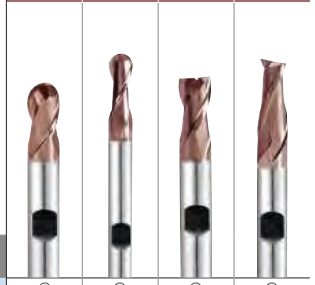
HSS-PM
TANK-POWER END MILLS

High Toughness, for Stainless Steels, Carbon steels, Alloy Steels
For General Application, Rough & Finish

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C622



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	E9940 GA940	E9A32 GAA32	E9936 GA936	E9A29 GAA29
			SERIES				E9940 GA940	E9A32 GAA32	E9936 GA936	E9A29 GAA29
			FLUTE				2	2	2	2
			HELIX ANGLE				30°	30°	30°	30°
			CUTTING EDGE SHAPE				BALL NOSE	BALL NOSE	SQUARE	SQUARE
			SIZE MIN				R0.5	R1.0	D1.0	D1.0
			SIZE MAX				R12.5	R12.5	D25.0	D25.0
			PAGE				C608	C609	C610	C611
							SHORT LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH
							TiAlN	TiAlN	TiAlN	TiAlN
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎
P	2	Non-alloy steel	About 0.45% C	Annealed	190	13	◎	◎	◎	◎
P	3	Non-alloy steel	About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎
P	4	Non-alloy steel	About 0.75% C	Annealed	270	28	◎	◎	◎	◎
P	5	Non-alloy steel	About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎	◎
P	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎
P	7	Low alloy steel		Quenched & Tempered	275	29	◎	◎	◎	◎
P	8	Low alloy steel		Quenched & Tempered	300	32	◎	◎	◎	◎
P	9	Low alloy steel		Quenched & Tempered	350	38	○	○	○	○
P	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎
P	11	High alloyed steel, and tool steel		Quenched & Tempered	325	35	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	◎	◎	◎
M	13	Stainless steel	Martensitic	Quenched & Tempered	240	23	◎	◎	◎	◎
M	14	Stainless steel	Austenitic		180	10	◎	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	◎	◎
K	16	Grey cast iron	Pearlitic (Martensitic)		260	26	◎	◎	◎	◎
K	17	Nodular cast iron	Ferritic		160	3	◎	◎	◎	◎
K	18	Nodular cast iron	Pearlitic		250	25	◎	◎	◎	◎
K	19	Malleable cast iron	Ferritic		130		◎	◎	◎	◎
K	20	Malleable cast iron	Pearlitic		230	21	◎	◎	◎	◎
N	21	Aluminum-wrought alloy	Not Curable		60					
N	22	Aluminum-wrought alloy	Curable	Hardened	100					
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	Hardened	90					
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable		130					
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90		○	○	○	○
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper		100		○	○	○	○
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
N	30	Non Metallic Materials	Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
S	32	Heat Resistant Super Alloys	Fe Based	Cured	280	30				
S	33	Heat Resistant Super Alloys	Ni or Co Based	Annealed	250	25				
S	34	Heat Resistant Super Alloys	Ni or Co Based	Cured	350	38				
S	35	Heat Resistant Super Alloys	Ni or Co Based	Cast	320	34				
S	36	Titanium Alloys	Pure Titanium		400 Rm					
S	37	Titanium Alloys	Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55				
H	39	Hardened steel		Hardened	630	60				
H	40	Chilled Cast Iron		Cast	400	42				
H	41	Hardened Cast Iron		Hardened	550	55				

E9942 GA942	E9A30 GAA30	E9938 GA938	E9A31 GAA31	E9941 GA941	E9A35 GAA35	E9A26 GAA26	E9A33 GAA33	E9A34 GAA34	E9E43 GAE43
3	3	4	4	Multi Flute	Multi Flute	Multi Flute	Multi Flute	Multi Flute	Multi Flute
30°	30°	30°	30°	30°	30°	45°	30°	30°	30°
SQUARE	SQUARE	SQUARE	SQUARE	ROUGHING	ROUGHING	ROUGHING	ROUGHING	ROUGHING	ROUGHING
D1.0	D1.0	D1.0	D2.0	D6.0	D6.0	D4.0	D6.0	D6.0	D10.0
D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0	D25.0
C612	C613	C614	C615	C616	C617	C618	C619	C620	C621
STUB LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH	WITH NECK
TiAlN	TiAlN	TiAlN	TiAlN	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
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○	○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○	○

TANK-POWER HSS-PM END MILLS

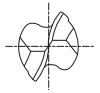
UNCOATED **E9940** SERIES
TiAlN COATED **GA940** SERIES

HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE

HSS-PM, 2 SCHNEIDEN KURZ STIRNRADIUS
FRAISES HSS-PM, 2 DENTS À BOUT HÉMISPHÉRIQUE, SÉRIE COURTE
2 TAGLIENTI, SERIE CORTA, HSS-PM, SEMISFERICA

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Designed for milling of radius bottom slots, fillets and special contours.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM | DIN 327 | 2 | 30° | R ±0.02 | DIN 1835B | UNCOATED | TiAlN

p.C622-623

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Radius of Ball Nose R(±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9940010	GA940010	R0.5	1.0	6	2.5	47
E9940020	GA940020	R1.0	2.0	6	4	48
E9940030	GA940030	R1.5	3.0	6	5	49
E9940040	GA940040	R2.0	4.0	6	7	51
E9940050	GA940050	R2.5	5.0	6	8	52
E9940060	GA940060	R3.0	6.0	6	8	52
E9940070	GA940070	R3.5	7.0	10	10	60
E9940080	GA940080	R4.0	8.0	10	11	61
E9940090	GA940090	R4.5	9.0	10	11	61
E9940100	GA940100	R5.0	10.0	10	13	63
E9940120	GA940120	R6.0	12.0	12	16	73
E9940140	GA940140	R7.0	14.0	12	16	73
E9940160	GA940160	R8.0	16.0	16	19	79
E9940180	GA940180	R9.0	18.0	16	19	79
E9940200	GA940200	R10.0	20.0	20	22	88
E9940220	GA940220	R11.0	22.0	20	22	88
E9940250	GA940250	R12.5	25.0	25	26	102

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

UNCOATED **E9A32** SERIES
TiAlN COATED **GAA32** SERIES

HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE

HSS-PM, 2 SCHNEIDEN LANG STIRNRADIUS
FRAISES HSS-PM, 2 DENTS À BOUT HÉMISPHÉRIQUE, SÉRIE LONGUE
2 TAGLIENTI, SERIE LUNGA, HSS-PM, SEMISFERICA

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Designed for milling of radius bottom slots, fillets and special contours.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.

HSS PM | DIN 1889 | 2 | 30° | R ±0.02 | DIN 1835B | UNCOATED | TiAlN

p.C622-623

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
○	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Radius of Ball Nose R(±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9A32020	GAA32020	R1.0	2.0	6	7	54
E9A32030	GAA32030	R1.5	3.0	6	8	56
E9A32040	GAA32040	R2.0	4.0	6	11	63
E9A32050	GAA32050	R2.5	5.0	6	13	68
E9A32060	GAA32060	R3.0	6.0	6	13	68
E9A32070	GAA32070	R3.5	7.0	10	16	80
E9A32080	GAA32080	R4.0	8.0	10	19	88
E9A32090	GAA32090	R4.5	9.0	10	19	88
E9A32100	GAA32100	R5.0	10.0	10	22	95
E9A32120	GAA32120	R6.0	12.0	12	26	110
E9A32140	GAA32140	R7.0	14.0	12	26	110
E9A32160	GAA32160	R8.0	16.0	16	32	123
E9A32180	GAA32180	R9.0	18.0	16	32	123
E9A32200	GAA32200	R10.0	20.0	20	38	141
E9A32220	GAA32220	R11.0	22.0	20	38	141
E9A32250	GAA32250	R12.5	25.0	25	45	166

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

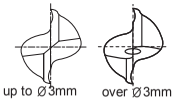
UNCOATED **E9936** SERIES
TiAlN COATED **GA936** SERIES

HSS-PM, 2 FLUTE SHORT LENGTH

HSS-PM, 2 SCHNEIDEN KURZ
FRAISES HSS-PM, 2 DENTS, SÉRIE COURTE
2 TAGLIENTI, SERIE CORTA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- 2 Flute design for slotting.
- Suitable for high speed cutting of difficult-to-cut materials.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- 2 Schneiden, Geeignet für Nutenfräsen.
- Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM | DIN 327 | 2 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C624-625

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E9936010	GA936010	1.0	6	2.5	47
E9936020	GA936020	2.0	6	4	48
E9936030	GA936030	3.0	6	5	49
E9936040	GA936040	4.0	6	7	51
E9936050	GA936050	5.0	6	8	52
E9936060	GA936060	6.0	6	8	52
E9936070	GA936070	7.0	10	10	60
E9936080	GA936080	8.0	10	11	61
E9936090	GA936090	9.0	10	11	61
E9936100	GA936100	10.0	10	13	63
E9936120	GA936120	12.0	12	16	73
E9936140	GA936140	14.0	12	16	73
E9936160	GA936160	16.0	16	19	79
E9936180	GA936180	18.0	16	19	79
E9936200	GA936200	20.0	20	22	88
E9936220	GA936220	22.0	20	22	88
E9936250	GA936250	25.0	25	26	102

Tolerances according to DIN 7160 & 7161

Tolerance range in μm	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

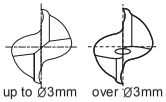
UNCOATED **E9A29** SERIES
TiAlN COATED **GAA29** SERIES

HSS-PM, 2 FLUTE LONG LENGTH

HSS-PM, 2 SCHNEIDEN LANG
FRAISES HSS-PM, 2 DENTS, SÉRIE LONGUE
2 TAGLIENTI, SERIE LUNGA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- 2 Flute design for slotting.
- Suitable for high speed cutting of difficult-to-cut materials.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- 2 Schneiden, Geeignet für Nutenfräsen.
- Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM | DIN 844 | 2 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C624-625

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E9A29010	GAA29010	1.0	6	3	47
E9A29020	GAA29020	2.0	6	7	51
E9A29030	GAA29030	3.0	6	8	52
E9A29040	GAA29040	4.0	6	11	55
E9A29050	GAA29050	5.0	6	13	57
E9A29060	GAA29060	6.0	6	13	57
E9A29070	GAA29070	7.0	10	16	66
E9A29080	GAA29080	8.0	10	19	69
E9A29090	GAA29090	9.0	10	19	69
E9A29100	GAA29100	10.0	10	22	72
E9A29120	GAA29120	12.0	12	26	83
E9A29140	GAA29140	14.0	12	26	83
E9A29160	GAA29160	16.0	16	32	92
E9A29180	GAA29180	18.0	16	32	92
E9A29200	GAA29200	20.0	20	38	104
E9A29220	GAA29220	22.0	20	38	104
E9A29250	GAA29250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161

Tolerance range in μm	Nominal-Diameter in mm				
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100			15	30	25	38	34			55	60	42	55
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

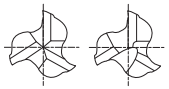
UNCOATED **E9942** SERIES
TiAlN COATED **GA942** SERIES

HSS-PM, 3 FLUTE STUB LENGTH

HSS-PM, 3 SCHNEIDEN EXTRA KURZ
FRAISES HSS-PM, 3 DENTS, SÉRIE EXTRA-COURTE
3 TAGLIENTI, SERIE EXTRA CORTA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Well balanced web design to minimize deflection and chattering.
- 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Verstärkter Kern zur Erhöhung der Stabilität.
- 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm

HSS PM | DIN 327 | 3 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C626-629

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E9942010	GA942010	1.0	6	2.5	47
E9942020	GA942020	2.0	6	4	48
E9942030	GA942030	3.0	6	5	49
E9942040	GA942040	4.0	6	7	51
E9942050	GA942050	5.0	6	8	52
E9942060	GA942060	6.0	6	8	52
E9942070	GA942070	7.0	10	10	60
E9942080	GA942080	8.0	10	11	61
E9942090	GA942090	9.0	10	11	61
E9942100	GA942100	10.0	10	13	63
E9942120	GA942120	12.0	12	16	73
E9942140	GA942140	14.0	12	16	73
E9942160	GA942160	16.0	16	19	79
E9942180	GA942180	18.0	16	19	79
E9942200	GA942200	20.0	20	22	88
E9942220	GA942220	22.0	20	22	88
E9942250	GA942250	25.0	25	26	102

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛					
Nominal-Diameter in ㎜	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

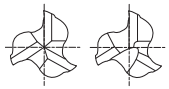
UNCOATED **E9A30** SERIES
TiAlN COATED **GAA30** SERIES

HSS-PM, 3 FLUTE SHORT LENGTH

HSS-PM, 3 SCHNEIDEN KURZ
FRAISES HSS-PM, 3 DENTS, SÉRIE COURTE
3 TAGLIENTI, SERIE CORTA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Well balanced web design to minimize deflection and chattering.
- 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Verstärkter Kern zur Erhöhung der Stabilität.
- 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm

HSS PM | DIN 844 | 3 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C626-629

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E9A30010	GAA30010	1.0	6	3	47
E9A30020	GAA30020	2.0	6	7	51
E9A30030	GAA30030	3.0	6	8	52
E9A30040	GAA30040	4.0	6	11	55
E9A30050	GAA30050	5.0	6	13	57
E9A30060	GAA30060	6.0	6	13	57
E9A30070	GAA30070	7.0	10	16	66
E9A30080	GAA30080	8.0	10	19	69
E9A30090	GAA30090	9.0	10	19	69
E9A30100	GAA30100	10.0	10	22	72
E9A30120	GAA30120	12.0	12	26	83
E9A30140	GAA30140	14.0	12	26	83
E9A30160	GAA30160	16.0	16	32	92
E9A30180	GAA30180	18.0	16	32	92
E9A30200	GAA30200	20.0	20	38	104
E9A30220	GAA30220	22.0	20	38	104
E9A30250	GAA30250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛					
Nominal-Diameter in ㎜	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

UNCOATED **E9938** SERIES
TiAlN COATED **GA938** SERIES

HSS-PM, 4 FLUTE SHORT LENGTH

HSS-PM, 4 SCHNEIDEN KURZ
FRAISES HSS-PM, 4 DENTS, SÉRIE COURTE
4 TAGLIENTI, SERIE CORTA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Recommended for pocketing, cam milling, die sinking and slotting.
- ▶ Designed for high speed cutting of difficult-to-cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.

HSS PM | DIN 844 | 4 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C630-631

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9938010	GA938010	1.0	6	3	49
E9938020	GA938020	2.0	6	7	51
E9938030	GA938030	3.0	6	8	52
E9938040	GA938040	4.0	6	11	55
E9938050	GA938050	5.0	6	13	57
E9938060	GA938060	6.0	6	13	57
E9938070	GA938070	7.0	10	16	66
E9938080	GA938080	8.0	10	19	69
E9938090	GA938090	9.0	10	19	69
E9938100	GA938100	10.0	10	22	72
E9938120	GA938120	12.0	12	26	83
E9938140	GA938140	14.0	12	26	83
E9938160	GA938160	16.0	16	32	92
E9938180	GA938180	18.0	16	32	92
E9938200	GA938200	20.0	20	38	104
E9938220	GA938220	22.0	20	38	104
E9938250	GA938250	25.0	25	45	121

▶Mill Diameter 1mm: Center match end teeth

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

UNCOATED **E9A31** SERIES
TiAlN COATED **GAA31** SERIES

HSS-PM, 4 FLUTE LONG LENGTH

HSS-PM, 4 SCHNEIDEN LANG
FRAISES HSS-PM, 4 DENTS, SÉRIE LONGUE
4 TAGLIENTI, SERIE LUNGA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Recommended for pocketing, cam milling, die sinking and slotting.
- ▶ Designed for high speed cutting of difficult-to-cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.

HSS PM | DIN 844 | 4 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C630-631

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9A31020	GAA31020	2.0	6	10	54
E9A31030	GAA31030	3.0	6	12	56
E9A31040	GAA31040	4.0	6	19	63
E9A31050	GAA31050	5.0	6	24	68
E9A31060	GAA31060	6.0	6	24	68
E9A31070	GAA31070	7.0	10	30	80
E9A31080	GAA31080	8.0	10	38	88
E9A31090	GAA31090	9.0	10	38	88
E9A31100	GAA31100	10.0	10	45	95
E9A31120	GAA31120	12.0	12	53	110
E9A31140	GAA31140	14.0	12	53	110
E9A31160	GAA31160	16.0	16	63	123
E9A31180	GAA31180	18.0	16	63	123
E9A31200	GAA31200	20.0	20	75	141
E9A31220	GAA31220	22.0	20	75	141
E9A31250	GAA31250	25.0	25	90	166

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

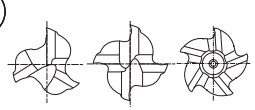
UNCOATED **E9941** SERIES
X-COATING **GA941** SERIES

HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS FINS, SÉRIE COURTE
MULTI TAGL., PER SGROSSATURA, SERIE CORTA, BOMBATO FINE - HSS PM

- Suitable for high-feed roughing milling.
- Designed to machine carbon steels, alloyed steels, stainless steels.
- Providing excellent finished surfaces in many cases.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- up to Ø20 : center cut, over Ø20 : non center cut

- Geeignet zum HSC - Schrupp - Fräsen.
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Liefert in vielen Fällen exzellent bearbeitete Oberflächen.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



up to Ø9 Ø10 ~ Ø20 over Ø20

HSS PM | DIN 844 | HR | 3-5 | 30° | DIN 1835B
~Ø20 | Ø22~ | C x 45° | UNCOATED | X Coating

p.C632-633

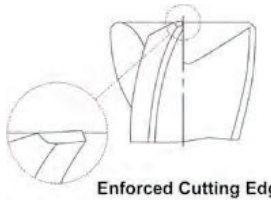
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. X-COATING	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E9941060	GA941060	6.0	6	13	57	3	0.18
E9941070	GA941070	7.0	10	16	66	3	0.18
E9941080	GA941080	8.0	10	19	69	3	0.18
E9941090	GA941090	9.0	10	19	69	3	0.18
E9941100	GA941100	10.0	10	22	72	4	0.18
E9941120	GA941120	12.0	12	26	83	4	0.18
E9941140	GA941140	14.0	12	26	83	4	0.25
E9941160	GA941160	16.0	16	32	92	4	0.25
E9941180	GA941180	18.0	16	32	92	4	0.25
E9941200	GA941200	20.0	20	38	104	4	0.25
E9941220	GA941220	22.0	20	38	104	5	0.36
E9941250	GA941250	25.0	25	45	121	5	0.36

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

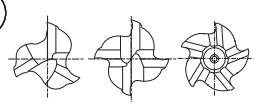
UNCOATED **E9A35** SERIES
X-COATING **GAA35** SERIES

HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE

HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - FEIN
FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS FINS, SÉRIE LONGUE
MULTI TAGL., PER SGROSSATURA, SERIE LUNGA, BOMBATO FINE - HSS PM

- Suitable for high-feed roughing milling.
- Designed to machine carbon steels, alloyed steels, stainless steels.
- Providing excellent finished surfaces in many cases.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- up to Ø20 : center cut, over Ø20 : non center cut

- Geeignet zum HSC - Schrupp - Fräsen.
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Liefert in vielen Fällen exzellent bearbeitete Oberflächen.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



up to Ø9 Ø10 ~ Ø20 over Ø20

HSS PM | DIN 844 | HR | 3-5 | 30° | DIN 1835B
~Ø20 | Ø22~ | C x 45° | UNCOATED | X Coating

p.C632-633

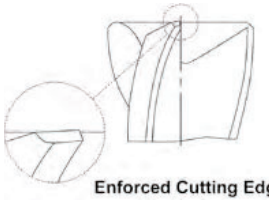
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. X-COATING	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E9A35060	GAA35060	6.0	6	24	68	3	0.18
E9A35070	GAA35070	7.0	10	30	80	3	0.18
E9A35080	GAA35080	8.0	10	38	88	3	0.18
E9A35090	GAA35090	9.0	10	38	88	3	0.18
E9A35100	GAA35100	10.0	10	45	95	4	0.18
E9A35120	GAA35120	12.0	12	53	110	4	0.18
E9A35140	GAA35140	14.0	12	53	110	4	0.25
E9A35160	GAA35160	16.0	16	63	123	4	0.25
E9A35180	GAA35180	18.0	16	63	123	4	0.25
E9A35200	GAA35200	20.0	20	75	141	4	0.25
E9A35220	GAA35220	22.0	20	75	141	5	0.36
E9A35250	GAA35250	25.0	25	90	166	5	0.36

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

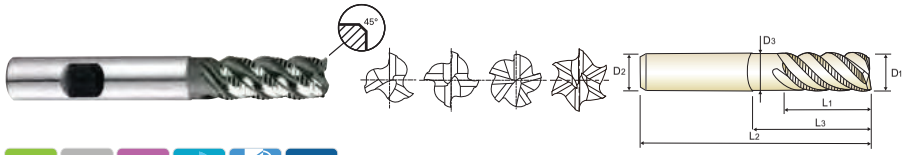
UNCOATED **E9A26** SERIES
X-COATING **GAA26** SERIES

HSS-PM, MULTI FLUTE 45°HELIX SHORT LENGTH ROUGHING - FINE

HSS-PM, MULTI SCHNEIDEN 45°RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN
FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE HÉLICE À 45° - PAS FINS, SÉRIE COURTE
MULTI TAGL., ELICA 45°, PER SGROS., SERIE CORTA, BOMBATO FINE - HSS PM

- High chip removal and minimizing breakages of cutting edges.
- Designed to machine carbon steels, alloyed steels, stainless steels
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting

- Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM | DIN 844 | HR | 3-6 | 45° | DIN 1835B | C x 45° | UNCOATED | X Coating

p.C634-635

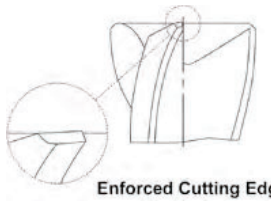
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. X-COATING	Mill Diameter D1(js12)	Shank Diameter D2(h6)	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3	No. of Flute	Chamfer
E9A26040	GAA26040	4.0	6	11	-	57	-	3	0.1
E9A26050	GAA26050	5.0	6	13	-	57	-	4	0.13
E9A26060	GAA26060	6.0	6	13	-	57	-	4	0.15
E9A26070	GAA26070	7.0	10	16	-	66	-	4	0.15
E9A26080	GAA26080	8.0	10	19	-	69	-	4	0.18
E9A26090	GAA26090	9.0	10	19	-	69	-	4	0.18
E9A26100	GAA26100	10.0	10	22	31	72	9.5	4	0.20
E9A26120	GAA26120	12.0	12	26	37	83	11.5	4	0.20
E9A26140	GAA26140	14.0	12	26	-	83	-	5	0.20
E9A26160	GAA26160	16.0	16	32	44	92	15	5	0.20
E9A26180	GAA26180	18.0	16	32	-	92	-	6	0.20
E9A26200	GAA26200	20.0	20	38	54	104	19	6	0.20
E9A26250	GAA26250	25.0	25	45	63	121	24	6	0.20

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛	Nominal-Diameter in ㎜					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

UNCOATED **E9A33** SERIES
X-COATING **GAA33** SERIES

HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE

HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB
FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS GROSSIERS, SÉRIE COURTE
MULTI TAGL., PER SGROS., SERIE CORTA, BOMBATO GROSSO - HSS PM

- Suitable for high-feed roughing milling.
- Designed to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- up to Ø20 : center cut, over Ø20 : non center cut

- Geeignet zum HSC - Schrupp - Fräsen.
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- Bis D<=20mm : mit Zentrumschnitt, über D<=20mm : Ohne Zentrumschnitt.

up to Ø9 Ø10 ~ Ø20 over Ø20

HSS PM | DIN 844 | NR | 3-5 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° | UNCOATED | X Coating

p.C632-633

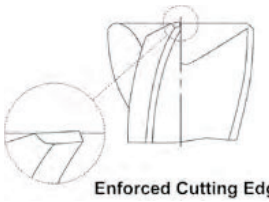
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. X-COATING	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E9A33060	GAA33060	6.0	6	13	57	3	0.25
E9A33070	GAA33070	7.0	10	16	66	3	0.25
E9A33080	GAA33080	8.0	10	19	69	3	0.25
E9A33090	GAA33090	9.0	10	19	69	3	0.36
E9A33100	GAA33100	10.0	10	22	72	4	0.36
E9A33120	GAA33120	12.0	12	26	83	4	0.5
E9A33140	GAA33140	14.0	12	26	83	4	0.55
E9A33160	GAA33160	16.0	16	32	92	4	0.55
E9A33180	GAA33180	18.0	16	32	92	4	0.55
E9A33200	GAA33200	20.0	20	38	104	4	0.55
E9A33220	GAA33220	22.0	20	38	104	5	0.55
E9A33250	GAA33250	25.0	25	45	121	5	0.55

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛	Nominal-Diameter in ㎜					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

UNCOATED **E9A34** SERIES
X-COATING **GAA34** SERIES

HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE

HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB
FRAISES HSS-PM, MULTI-DENTS RAVAGEUSE - PAS GROSSIERS, SÉRIE LONGUE
MULTI TAGL., PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSS PM

- Suitable for high-feed roughing milling.
- Designed to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- up to Ø20 : center cut, over Ø20 : non center cut

- Geeignet zum HSC - Schrupp - Fräsen.
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- Bis D<=20mm : mit Zentrumschnitt, über D<=20mm : Ohne Zentrumschnitt.

up to Ø9 Ø10 ~ Ø20 over Ø20

HSS PM | DIN 844 | NR | 3-5 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° | UNCOATED | X Coating

p.C632-633

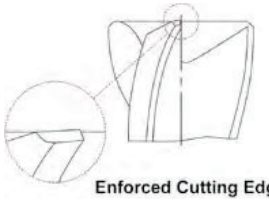
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	X-COATING	js12	h6				
E9A34060	GAA34060	6.0	6	24	68	3	0.25
E9A34070	GAA34070	7.0	10	30	80	3	0.25
E9A34080	GAA34080	8.0	10	38	88	3	0.25
E9A34090	GAA34090	9.0	10	38	88	3	0.36
E9A34100	GAA34100	10.0	10	45	95	4	0.36
E9A34120	GAA34120	12.0	12	53	110	4	0.5
E9A34140	GAA34140	14.0	12	53	110	4	0.55
E9A34160	GAA34160	16.0	16	63	123	4	0.55
E9A34180	GAA34180	18.0	16	63	123	4	0.55
E9A34200	GAA34200	20.0	20	75	141	4	0.55
E9A34220	GAA34220	22.0	20	75	141	5	0.55
E9A34250	GAA34250	25.0	25	90	166	5	0.55

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

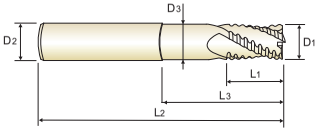
UNCOATED **E9E43** SERIES
X-COATING **GAE43** SERIES

HSS-PM, 4&5 FLUTE ROUGHING WITH NECK - COARSE

HSS-PM, 4&5 SCHNEIDEN SCHRUPFRÄSER mit ABGESETZTEM SCHAFTTETL - GROB
FRAISES HSS-PM, 4&5-DENTS RAVAGEUSE AVEC DÉGAGEMENT - PAS GROSSIERS
4&5 TAGL., PER SGROSSATURA, SCARICATA - HSS PM

- High chip removal and minimizing breakages of cutting edges.
- Design to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



HSS PM | NR | 4&5 | 30° | DIN 1835B | C x 45° | UNCOATED | X Coating

p.C636-637

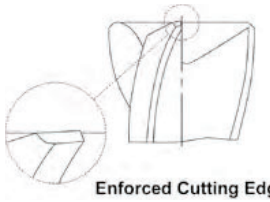
Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute	Chamfer
UNCOATED	X-COATING	D_1(js12)	D_2(h6)	L_1	L_3	L_2	D_3		
E9E43100	GAE43100	10.0	10	22	69	110	8.5	4	0.34
E9E43120	GAE43120	12.0	12	26	78	125	10.5	4	0.50
E9E43160	GAE43160	16.0	16	32	87	138	14	4	0.55
E9E43200	GAE43200	20.0	20	38	108	160	18	5	0.55
E9E43250	GAE43250	25.0	25	45	155	216	23	5	0.55

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	N									S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

TANK-POWER HSS-PM END MILLS

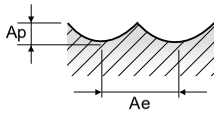
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GA940 , GAA32 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.5D	0.2D	Vc	70	75	85	85	85	85	85	85	75
					fz	0.023	0.036	0.055	0.079	0.109	0.115	0.141	0.156	0.163
					RPM	7427	5968	4509	3382	2706	2255	1691	1353	955
					FEED	342	430	496	534	590	519	477	422	311
	2		0.5D	0.2D	Vc	55	60	65	65	65	70	65	65	60
					fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142
					RPM	5836	4775	3448	2586	2069	1857	1293	1035	764
					FEED	233	296	317	347	393	360	318	290	217
	3-4		0.5D	0.2D	Vc	35	40	45	45	45	45	45	45	35
					fz	0.016	0.027	0.039	0.056	0.082	0.083	0.101	0.11	0.122
					RPM	3714	3183	2387	1790	1432	1194	895	716	446
					FEED	119	172	186	201	235	198	181	158	109
	5		0.5D	0.2D	Vc	20	20	25	20	20	20	20	25	20
					fz	0.014	0.023	0.035	0.048	0.075	0.073	0.091	0.097	0.104
					RPM	2122	1592	1326	796	637	531	398	398	255
					FEED	59	73	93	76	95	77	72	77	53
	6	Low alloy steel	0.5D	0.2D	Vc	55	60	65	65	65	70	65	65	60
					fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142
					RPM	5836	4775	3448	2586	2069	1857	1293	1035	764
					FEED	233	296	317	347	393	360	318	290	217
	7		0.5D	0.2D	Vc	35	40	45	45	45	45	45	45	35
					fz	0.016	0.027	0.039	0.056	0.082	0.083	0.101	0.11	0.122
					RPM	3714	3183	2387	1790	1432	1194	895	716	446
					FEED	119	172	186	201	235	198	181	158	109
	8-9		0.5D	0.2D	Vc	20	20	25	20	20	20	20	25	20
					fz	0.014	0.023	0.035	0.048	0.075	0.073	0.091	0.097	0.104
					RPM	2122	1592	1326	796	637	531	398	398	255
					FEED	59	73	93	76	95	77	72	77	53
	10	High alloyed steel, and tool steel	0.5D	0.2D	Vc	55	60	65	65	65	70	65	65	60
					fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142
					RPM	5836	4775	3448	2586	2069	1857	1293	1035	764
					FEED	233	296	317	347	393	360	318	290	217
	11.1		0.5D	0.2D	Vc	20	20	25	20	20	20	20	25	20
					fz	0.014	0.023	0.035	0.048	0.075	0.073	0.091	0.097	0.104
					RPM	2122	1592	1326	796	637	531	398	398	255
					FEED	59	73	93	76	95	77	72	77	53
M	14.1	Stainless steel	0.5D	0.2D	Vc	20	20	25	25	25	25	25	25	20
					fz	0.014	0.023	0.036	0.048	0.073	0.074	0.092	0.1	0.1
					RPM	2122	1592	1326	995	796	663	497	398	255
					FEED	59	73	95	95	116	98	92	80	51
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.2D	Vc	55	60	65	65	65	70	65	65	60
					fz	0.02	0.031	0.046	0.067	0.095	0.097	0.123	0.14	0.142
					RPM	5836	4775	3448	2586	2069	1857	1293	1035	764
					FEED	233	296	317	347	393	360	318	290	217

※ The FEED, in long & extra long types, should be reduced by around 50%



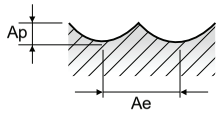
TANK-POWER HSS-PM END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9940 , E9A32 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.5D	0.2D	Vc	45	50	55	60	55	55	55	60	50
					fz	0.021	0.033	0.05	0.072	0.103	0.11	0.136	0.14	0.148
					RPM	4775	3979	2918	2387	1751	1459	1094	955	637
					FEED	201	263	292	344	361	321	298	267	188
	2		0.5D	0.2D	Vc	35	40	45	45	45	45	45	45	40
					fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13
					RPM	3714	3183	2387	1790	1432	1194	895	716	509
					FEED	134	185	205	218	255	220	199	172	132
	3-4		0.5D	0.2D	Vc	25	25	30	30	30	30	30	30	25
					fz	0.015	0.024	0.034	0.052	0.07	0.076	0.092	0.099	0.103
					RPM	2653	1989	1592	1194	955	796	597	477	318
					FEED	80	95	108	124	134	121	110	95	66
	5		0.5D	0.2D	Vc	10	15	15	15	15	15	15	15	15
					fz	0.013	0.023	0.034	0.046	0.068	0.069	0.083	0.094	0.086
					RPM	1061	1194	796	597	477	398	298	239	191
					FEED	28	55	54	55	65	55	50	45	33
	6	Low alloy steel	0.5D	0.2D	Vc	35	40	45	45	45	45	45	45	40
					fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13
					RPM	3714	3183	2387	1790	1432	1194	895	716	509
					FEED	134	185	205	218	255	220	199	172	132
	7		0.5D	0.2D	Vc	25	25	30	30	30	30	30	30	25
					fz	0.015	0.024	0.034	0.052	0.07	0.076	0.092	0.099	0.103
					RPM	2653	1989	1592	1194	955	796	597	477	318
					FEED	80	95	108	124	134	121	110	95	66
	8-9		0.5D	0.2D	Vc	10	15	15	15	15	15	15	15	15
					fz	0.013	0.023	0.034	0.046	0.068	0.069	0.083	0.094	0.086
					RPM	1061	1194	796	597	477	398	298	239	191
					FEED	28	55	54	55	65	55	50	45	33
	10	High alloyed steel, and tool steel	0.5D	0.2D	Vc	35	40	45	45	45	45	45	45	40
					fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13
					RPM	3714	3183	2387	1790	1432	1194	895	716	509
					FEED	134	185	205	218	255	220	199	172	132
	11.1		0.5D	0.2D	Vc	10	15	15	15	15	15	15	15	15
					fz	0.013	0.023	0.034	0.046	0.068	0.069	0.083	0.094	0.086
					RPM	1061	1194	796	597	477	398	298	239	191
					FEED	28	55	54	55	65	55	50	45	33
M	14.1	Stainless steel	0.5D	0.2D	Vc	15	15	15	15	15	15	15	15	15
					fz	0.014	0.025	0.036	0.049	0.075	0.074	0.091	0.104	0.09
					RPM	1592	1194	796	597	477	398	298	239	191
					FEED	45	60	57	58	72	59	54	50	34
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.2D	Vc	35	40	45	45	45	45	45	45	40
					fz	0.018	0.029	0.043	0.061	0.089	0.092	0.111	0.12	0.13
					RPM	3714	3183	2387	1790	1432	1194	895	716	509
					FEED	134	185	205	218	255	220	199	172	132

※ The FEED, in long & extra long types, should be reduced by around 50%



TANK-POWER HSS-PM END MILLS

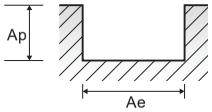
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GA936 , GAA29 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103
					RPM	7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764
					FEED	115	153	236	252	262	274	294	282	264	273	239	222	191	157
	2		1.0D	0.5D	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111
					RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637
					FEED	89	136	172	197	210	241	259	242	210	203	200	169	153	141
	3-4		1.0D	0.5D	Vc	30	30	40	40	45	45	45	45	45	45	45	45	40	40
					fz	0.008	0.017	0.025	0.036	0.041	0.056	0.079	0.091	0.098	0.101	0.101	0.107	0.104	0.117
					RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509
					FEED	76	108	159	183	196	201	226	217	201	181	161	153	120	119
	5		1.0D	0.5D	Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103
					RPM	7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764
					FEED	115	153	236	252	262	274	294	282	264	273	239	222	191	157
	6	Low alloy steel	1.0D	0.5D	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111
					RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637
					FEED	89	136	172	197	210	241	259	242	210	203	200	169	153	141
	7		1.0D	0.5D	Vc	30	30	40	40	45	45	45	45	45	45	45	45	40	40
					fz	0.008	0.017	0.025	0.036	0.041	0.056	0.079	0.091	0.098	0.101	0.101	0.107	0.104	0.117
					RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509
					FEED	76	108	159	183	196	201	226	217	201	181	161	153	120	119
	8		1.0D	0.5D	Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103
					RPM	7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764
					FEED	115	153	236	252	262	274	294	282	264	273	239	222	191	157
	9		1.0D	0.5D	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111
					RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637
					FEED	89	136	172	197	210	241	259	242	210	203	200	169	153	141
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111
					RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637
					FEED	89	136	172	197	210	241	259	242	210	203	200	169	153	141
	11.1		1.0D	0.5D	Vc	45	45	55	60	65	65	65	70	70	70	65	60	60	60
					fz	0.008	0.016	0.027	0.033	0.038	0.053	0.071	0.076	0.083	0.098	0.104	0.116	0.11	0.103
					RPM	7162	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764
					FEED	115	153	236	252	262	274	294	282	264	273	239	222	191	157
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	35	40	45	50	55	55	55	55	55	60	55	50	50	50
					fz	0.008	0.016	0.024	0.031	0.036	0.055	0.074	0.083	0.084	0.085	0.103	0.106	0.106	0.111
					RPM	5570	4244	3581	3183	2918	2188	1751	1459	1251	1194	973	796	723	637
					FEED	89	136	172	197	210	241	259	242	210	203	200	169	153	141

※ The FEED, in long & extra long types, should be reduced by around 50%



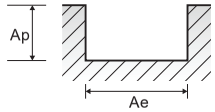
TANK-POWER HSS-PM END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9936 , E9A29 SERIES — 2 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	30	30	35	40	45	45	45	45	50	45	45	40	40	40
					fz	0.007	0.015	0.024	0.031	0.035	0.047	0.064	0.071	0.073	0.089	0.094	0.102	0.096	0.093
					RPM	4775	3183	2785	2546	2387	1790	1432	1194	1137	895	796	637	579	509
					FEED	67	95	134	158	167	168	183	170	166	159	150	130	111	95
	2		1.0D	0.5D	Vc	25	25	30	35	40	40	40	40	35	40	35	35	35	35
					fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099
					RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	796	619	557	506	446
					FEED	56	80	110	125	144	159	176	159	131	143	116	104	95	88
	3-4		1.0D	0.5D	Vc	20	20	25	30	30	30	30	30	30	30	30	30	30	25
					fz	0.008	0.017	0.024	0.032	0.038	0.052	0.07	0.081	0.088	0.092	0.094	0.099	0.094	0.103
					RPM	3183	2122	1989	1910	1592	1194	955	796	682	597	531	477	434	318
					FEED	51	72	95	122	121	124	134	129	120	110	100	95	82	66
	5		1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20
					fz	0.01	0.016	0.023	0.03	0.033	0.047	0.067	0.07	0.076	0.086	0.081	0.092	0.093	0.094
					RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255
					FEED	48	51	55	57	70	75	85	74	69	68	57	59	54	48
	6	Low alloy steel	1.0D	0.5D	Vc	25	25	30	35	40	40	40	40	35	40	35	35	35	35
					fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099
					RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	796	619	557	506	446
					FEED	56	80	110	125	144	159	176	159	131	143	116	104	95	88
	7		1.0D	0.5D	Vc	20	20	25	30	30	30	30	30	30	30	30	30	30	25
					fz	0.008	0.017	0.024	0.032	0.038	0.052	0.07	0.081	0.088	0.092	0.094	0.099	0.094	0.103
					RPM	3183	2122	1989	1910	1592	1194	955	796	682	597	531	477	434	318
					FEED	51	72	95	122	121	124	134	129	120	110	100	95	82	66
	8		1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20
					fz	0.01	0.016	0.023	0.03	0.033	0.047	0.067	0.07	0.076	0.086	0.081	0.092	0.093	0.094
					RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255
					FEED	48	51	55	57	70	75	85	74	69	68	57	59	54	48
	9		1.0D	0.5D	Vc	10	10	15	15	15	15	15	15	15	15	15	15	15	15
					fz	0.01	0.017	0.021	0.025	0.037	0.046	0.068	0.069	0.074	0.083	0.083	0.083	0.083	0.086
					RPM	1592	1061	1194	955	796	597	477	398	341	298	265	239	217	191
					FEED	32	36	50	48	59	55	65	55	50	50	44	40	36	33
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	25	25	30	35	40	40	40	40	35	40	35	35	35	35
					fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099
					RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	796	619	557	506	446
					FEED	56	80	110	125	144	159	176	159	131	143	116	104	95	88
	11.1		1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20
					fz	0.01	0.016	0.023	0.03	0.033	0.047	0.067	0.07	0.076	0.086	0.081	0.092	0.093	0.094
					RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255
					FEED	48	51	55	57	70	75	85	74	69	68	57	59	54	48
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	25	25	30	35	40	40	40	40	35	40	35	35	35	35
					fz	0.007	0.015	0.023	0.028	0.034	0.05	0.069	0.075	0.082	0.09	0.094	0.093	0.094	0.099
					RPM	3979	2653	2387	2228	2122	1592	1273	1061	796	796	619	557	506	446
					FEED	56	80	110	125	144	159	176	159	131	143	116	104	95	88

※ The FEED, in long & extra long types, should be reduced by around 50%



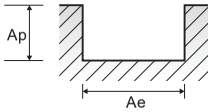
TANK-POWER HSS-PM END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GA942 , GAA30 SERIES — 3 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	40	45	55	60	65	65	65	70	70	70	65	60	60	60
					fz	0.004	0.007	0.011	0.014	0.023	0.031	0.033	0.051	0.052	0.059	0.07	0.081	0.091	0.107
					RPM	6366	4775	4377	3820	3448	2586	2069	1857	1592	1393	1149	955	868	764
					FEED	76	100	144	160	238	241	205	284	248	246	241	232	237	245
	2		1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50	50
					fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111
					RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637
					FEED	50	78	118	134	201	210	205	232	221	218	188	191	193	212
	3-4		1.0D	0.5D	Vc	30	30	40	40	45	45	45	45	45	45	45	45	40	40
					fz	0.003	0.005	0.009	0.012	0.02	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.109
					RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509
					FEED	43	48	86	92	143	150	163	168	163	150	150	144	144	167
	5		1.0D	0.5D	Vc	20	20	25	25	25	30	30	30	30	30	30	30	30	30
					fz	0.004	0.007	0.009	0.012	0.021	0.03	0.043	0.052	0.056	0.061	0.063	0.07	0.079	0.094
					RPM	3183	2122	1989	1592	1326	1194	955	796	682	597	531	477	434	382
					FEED	38	45	54	57	84	107	123	124	115	109	100	100	103	108
	6	Low alloy steel	1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50	50
					fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111
					RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637
					FEED	50	78	118	134	201	210	205	232	221	218	188	191	193	212
	7		1.0D	0.5D	Vc	30	30	40	40	45	45	45	45	45	45	45	45	40	40
					fz	0.003	0.005	0.009	0.012	0.02	0.028	0.038	0.047	0.053	0.056	0.063	0.067	0.083	0.109
					RPM	4775	3183	3183	2546	2387	1790	1432	1194	1023	895	796	716	579	509
					FEED	43	48	86	92	143	150	163	168	163	150	150	144	144	167
	8		1.0D	0.5D	Vc	20	20	25	25	25	30	30	30	30	30	30	30	30	30
					fz	0.004	0.007	0.009	0.012	0.021	0.03	0.043	0.052	0.056	0.061	0.063	0.07	0.079	0.094
					RPM	3183	2122	1989	1592	1326	1194	955	796	682	597	531	477	434	382
					FEED	38	45	54	57	84	107	123	124	115	109	100	100	103	108
	9		1.0D	0.5D	Vc	10	15	20	20	20	20	20	20	20	20	25	25	20	20
					fz	0.005	0.008	0.012	0.014	0.023	0.032	0.045	0.053	0.057	0.064	0.067	0.074	0.09	0.113
					RPM	1592	1592	1592	1273	1061	796	637	531	455	398	442	398	289	255
					FEED	24	38	57	53	73	76	86	84	78	76	89	88	78	86
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50	50
					fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111
					RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637
					FEED	50	78	118	134	201	210	205	232	221	218	188	191	193	212
	11.1		1.0D	0.5D	Vc	20	20	25	25	25	30	30	30	30	30	30	30	30	30
					fz	0.004	0.007	0.009	0.012	0.021	0.03	0.043	0.052	0.056	0.061	0.063	0.07	0.079	0.094
					RPM	3183	2122	1989	1592	1326	1194	955	796	682	597	531	477	434	382
					FEED	38	45	54	57	84	107	123	124	115	109	100	100	103	108
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	35	35	45	50	55	55	55	55	60	60	50	50	50	50
					fz	0.003	0.007	0.011	0.014	0.023	0.032	0.039	0.053	0.054	0.061	0.071	0.08	0.089	0.111
					RPM	5570	3714	3581	3183	2918	2188	1751	1459	1364	1194	884	796	723	637
					FEED	50	78	118	134	201	210	205	232	221	218	188	191	193	212

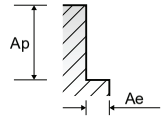


TANK-POWER HSS-PM END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GA942 , GAA30 SERIES — 3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	55	65	75	80	80	80	80	80	80	75	80	80	80
					fz	0.004	0.008	0.012	0.015	0.024	0.034	0.047	0.056	0.065	0.069	0.077	0.08	0.09	0.11
					RPM	7958	5836	5173	4775	4244	3183	2546	2122	1819	1592	1326	1273	1157	1019
					FEED	95	140	186	215	306	325	359	357	355	329	306	306	313	336
	2		0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271
	3-4		0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50	50
					fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111
					RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637
					FEED	67	78	107	120	191	197	210	241	208	200	194	193	191	212
	5		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	48	64	79	80	128	150	143	156	143	148	139	134	120	143
	6	Low alloy steel	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271
	7		0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50	50
					fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111
					RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637
					FEED	67	78	107	120	191	197	210	241	208	200	194	193	191	212
	8		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	48	64	79	80	128	150	143	156	143	148	139	134	120	143
	9		0.1D	1.5D	Vc	15	20	25	25	30	30	30	30	30	30	30	30	30	30
					fz	0.006	0.01	0.013	0.015	0.022	0.035	0.047	0.056	0.063	0.07	0.073	0.083	0.092	0.111
					RPM	2387	2122	1989	1592	1592	1194	955	796	682	597	531	477	434	382
					FEED	43	64	78	72	105	125	135	134	129	125	116	119	120	127
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271
	11.1		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	48	64	79	80	128	150	143	156	143	148	139	134	120	143
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271



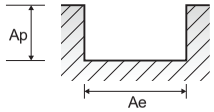
TANK-POWER HSS-PM END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9942 , E9A30 SERIES — 3 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	30	30	35	40	45	45	45	45	45	45	40	40	40	40
					fz	0.003	0.007	0.01	0.013	0.021	0.028	0.037	0.047	0.048	0.054	0.064	0.076	0.085	0.096
					RPM	4775	3183	2785	2546	2387	1790	1432	1194	1023	895	796	637	579	509
					FEED	43	67	84	99	150	150	159	168	147	145	153	145	148	147
	2		1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35
					fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101
					RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446
					FEED	36	56	72	80	117	138	138	153	131	134	123	125	122	135
	3-4		1.0D	0.5D	Vc	20	30	25	30	30	30	30	30	30	30	30	30	30	25
					fz	0.003	0.003	0.008	0.01	0.018	0.026	0.035	0.043	0.049	0.052	0.06	0.059	0.077	0.098
					RPM	3183	3183	1989	1910	1592	1194	955	796	682	597	531	477	434	318
					FEED	29	29	48	57	86	93	100	103	100	93	95	85	100	94
	5		1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20
					fz	0.003	0.007	0.009	0.012	0.018	0.028	0.038	0.047	0.048	0.057	0.057	0.061	0.074	0.09
					RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255
					FEED	21	33	32	34	57	67	73	75	65	68	60	58	64	69
	6	Low alloy steel	1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35
					fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101
					RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446
					FEED	36	56	72	80	117	138	138	153	131	134	123	125	122	135
	7		1.0D	0.5D	Vc	20	30	25	30	30	30	30	30	30	30	30	30	30	25
					fz	0.003	0.003	0.008	0.01	0.018	0.026	0.035	0.043	0.049	0.052	0.06	0.059	0.077	0.098
					RPM	3183	3183	1989	1910	1592	1194	955	796	682	597	531	477	434	318
					FEED	29	29	48	57	86	93	100	103	100	93	95	85	100	94
	8		1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20
					fz	0.003	0.007	0.009	0.012	0.018	0.028	0.038	0.047	0.048	0.057	0.057	0.061	0.074	0.09
					RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255
					FEED	21	33	32	34	57	67	73	75	65	68	60	58	64	69
	9		1.0D	0.5D	Vc	10	10	15	15	15	15	15	15	15	15	15	15	15	15
					fz	0.005	0.008	0.012	0.013	0.02	0.03	0.042	0.049	0.053	0.061	0.062	0.068	0.085	0.108
					RPM	1592	1061	1194	955	796	597	477	398	341	298	265	239	217	191
					FEED	24	25	43	37	48	54	60	58	54	55	49	49	55	62
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35
					fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101
					RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446
					FEED	36	56	72	80	117	138	138	153	131	134	123	125	122	135
	11.1		1.0D	0.5D	Vc	15	15	15	15	20	20	20	20	20	20	20	20	20	20
					fz	0.003	0.007	0.009	0.012	0.018	0.028	0.038	0.047	0.048	0.057	0.057	0.061	0.074	0.09
					RPM	2387	1592	1194	955	1061	796	637	531	455	398	354	318	289	255
					FEED	21	33	32	34	57	67	73	75	65	68	60	58	64	69
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	Vc	25	25	30	35	35	40	40	40	40	40	35	35	35	35
					fz	0.003	0.007	0.01	0.012	0.021	0.029	0.036	0.048	0.048	0.056	0.066	0.075	0.08	0.101
					RPM	3979	2653	2387	2228	1857	1592	1273	1061	909	796	619	557	506	446
					FEED	36	56	72	80	117	138	138	153	131	134	123	125	122	135

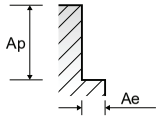


TANK-POWER HSS-PM END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9942 , E9A30 SERIES — 3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	55	65	75	80	80	80	80	80	80	75	80	80	80
					fz	0.004	0.008	0.012	0.015	0.024	0.034	0.047	0.056	0.065	0.069	0.077	0.08	0.09	0.11
					RPM	7958	5836	5173	4775	4244	3183	2546	2122	1819	1592	1326	1273	1157	1019
					FEED	95	140	186	215	306	325	359	357	355	329	306	306	313	336
	2		0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271
	3-4		0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50	50
					fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111
					RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637
					FEED	67	78	107	120	191	197	210	241	208	200	194	193	191	212
	5		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	48	64	79	80	128	150	143	156	143	148	139	134	120	143
	6	Low alloy steel	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271
	7		0.1D	1.5D	Vc	35	35	45	45	50	50	50	55	50	50	50	50	50	50
					fz	0.004	0.007	0.01	0.014	0.024	0.033	0.044	0.055	0.061	0.067	0.073	0.081	0.088	0.111
					RPM	5570	3714	3581	2865	2653	1989	1592	1459	1137	995	884	796	723	637
					FEED	67	78	107	120	191	197	210	241	208	200	194	193	191	212
	8		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	48	64	79	80	128	150	143	156	143	148	139	134	120	143
	9		0.1D	1.5D	Vc	15	20	25	25	30	30	30	30	30	30	30	30	30	30
					fz	0.006	0.01	0.013	0.015	0.022	0.035	0.047	0.056	0.063	0.07	0.073	0.083	0.092	0.111
					RPM	2387	2122	1989	1592	1592	1194	955	796	682	597	531	477	434	382
					FEED	43	64	78	72	105	125	135	134	129	125	116	119	120	127
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271
	11.1		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.004	0.008	0.011	0.014	0.023	0.036	0.05	0.056	0.06	0.071	0.075	0.08	0.092	0.107
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	48	64	79	80	128	150	143	156	143	148	139	134	120	143
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	45	45	55	65	70	65	65	70	65	65	65	65	65	65
					fz	0.004	0.008	0.012	0.015	0.023	0.035	0.046	0.056	0.063	0.071	0.077	0.081	0.093	0.109
					RPM	7162	4775	4377	4138	3714	2586	2069	1857	1478	1293	1149	1035	940	828
					FEED	86	115	158	186	256	272	286	312	279	275	266	251	262	271



TANK-POWER HSS-PM END MILLS

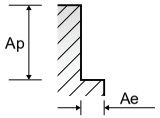
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GA938 , GAA31 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	60	60	65	70	75	80	70	75	80	80	85	80	75	80
					fz	0.008	0.016	0.023	0.029	0.035	0.046	0.068	0.071	0.076	0.08	0.077	0.088	0.098	0.093
					RPM	9549	6366	5173	4456	3979	3183	2228	1989	1819	1592	1503	1273	1085	1019
					FEED	306	407	476	517	557	586	606	565	553	509	463	448	425	379
	2		0.1D	1.5D	Vc	55	55	60	65	70	65	65	70	70	70	70	65	65	65
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091
					RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828
					FEED	245	350	401	430	460	476	521	498	458	429	396	364	316	301
	3-4		0.1D	1.5D	Vc	40	40	45	45	50	50	50	55	50	50	50	50	45	50
					fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.087	0.088	0.094	0.091
					RPM	6366	4244	3581	2865	2653	1989	1592	1459	1137	995	884	796	651	637
					FEED	178	238	301	321	340	366	376	385	364	338	308	280	245	232
	5		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.008	0.017	0.022	0.028	0.032	0.043	0.066	0.067	0.073	0.081	0.077	0.083	0.085	0.089
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	127	180	210	214	238	240	252	249	232	226	191	185	148	159
	6	Low alloy steel	0.1D	1.5D	Vc	55	55	60	65	70	65	65	70	70	70	70	65	65	65
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091
					RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828
					FEED	245	350	401	430	460	476	521	498	458	429	396	364	316	301
	7		0.1D	1.5D	Vc	40	40	45	45	50	50	50	55	50	50	50	50	45	50
					fz	0.007	0.014	0.021	0.028	0.032	0.046	0.059	0.066	0.08	0.085	0.087	0.088	0.094	0.091
					RPM	6366	4244	3581	2865	2653	1989	1592	1459	1137	995	884	796	651	637
					FEED	178	238	301	321	340	366	376	385	364	338	308	280	245	232
	8		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.008	0.017	0.022	0.028	0.032	0.043	0.066	0.067	0.073	0.081	0.077	0.083	0.085	0.089
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	127	180	210	214	238	240	252	249	232	226	191	185	148	159
	9		0.1D	1.5D	Vc	20	25	25	25	25	30	30	25	30	30	30	30	30	30
					fz	0.006	0.013	0.019	0.024	0.031	0.04	0.056	0.064	0.067	0.075	0.075	0.08	0.081	0.087
					RPM	3183	2653	1989	1592	1326	1194	955	663	682	597	531	477	434	382
					FEED	76	138	151	153	164	191	214	170	183	179	159	153	141	133
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	55	55	60	65	70	65	65	70	70	70	70	65	65	65
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091
					RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828
					FEED	245	350	401	430	460	476	521	498	458	429	396	364	316	301
	11.1		0.1D	1.5D	Vc	25	25	30	30	35	35	30	35	35	35	35	35	30	35
					fz	0.008	0.017	0.022	0.028	0.032	0.043	0.066	0.067	0.073	0.081	0.077	0.083	0.085	0.089
					RPM	3979	2653	2387	1910	1857	1393	955	928	796	696	619	557	434	446
					FEED	127	180	210	214	238	240	252	249	232	226	191	185	148	159
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	55	55	60	65	70	65	65	70	70	70	70	65	65	65
					fz	0.007	0.015	0.021	0.026	0.031	0.046	0.063	0.067	0.072	0.077	0.08	0.088	0.084	0.091
					RPM	8754	5836	4775	4138	3714	2586	2069	1857	1592	1393	1238	1035	940	828
					FEED	245	350	401	430	460	476	521	498	458	429	396	364	316	301

※ The FEED, in long & extra long types, should be reduced by around 50%



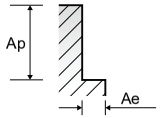
TANK-POWER HSS-PM END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9938 , E9A31 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	40	40	45	45	50	55	50	50	55	55	55	55	50	55
					fz	0.007	0.014	0.021	0.026	0.032	0.043	0.061	0.069	0.071	0.07	0.07	0.079	0.092	0.085
					RPM	6366	4244	3581	2865	2653	2188	1592	1326	1251	1094	973	875	723	700
					FEED	178	238	301	298	340	376	388	366	355	306	272	277	266	238
	2		0.1D	1.5D	Vc	35	40	40	40	45	45	45	45	50	45	50	45	45	45
					fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083
					RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573
					FEED	156	221	255	255	277	301	338	301	296	265	262	232	203	190
	3-4		0.1D	1.5D	Vc	25	30	30	30	35	35	35	35	35	35	35	35	30	35
					fz	0.007	0.013	0.02	0.024	0.028	0.041	0.053	0.064	0.069	0.075	0.079	0.081	0.087	0.081
					RPM	3979	3183	2387	1910	1857	1393	1114	928	796	696	619	557	434	446
					FEED	111	166	191	183	208	228	236	238	220	209	196	180	151	144
	5		0.1D	1.5D	Vc	20	20	20	20	25	25	20	25	25	25	25	25	20	20
					fz	0.007	0.014	0.02	0.024	0.029	0.042	0.058	0.063	0.066	0.075	0.07	0.076	0.078	0.085
					RPM	3183	2122	1592	1273	1326	995	637	663	568	497	442	398	289	255
					FEED	89	119	127	122	154	167	148	167	150	149	124	121	90	87
	6	Low alloy steel	0.1D	1.5D	Vc	35	40	40	40	45	45	45	45	50	45	50	45	45	45
					fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083
					RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573
					FEED	156	221	255	255	277	301	338	301	296	265	262	232	203	190
	7		0.1D	1.5D	Vc	25	30	30	30	35	35	35	35	35	35	35	35	30	35
					fz	0.007	0.013	0.02	0.024	0.028	0.041	0.053	0.064	0.069	0.075	0.079	0.081	0.087	0.081
					RPM	3979	3183	2387	1910	1857	1393	1114	928	796	696	619	557	434	446
					FEED	111	166	191	183	208	228	236	238	220	209	196	180	151	144
	8		0.1D	1.5D	Vc	20	20	20	20	25	25	20	25	25	25	25	25	20	20
					fz	0.007	0.014	0.02	0.024	0.029	0.042	0.058	0.063	0.066	0.075	0.07	0.076	0.078	0.085
					RPM	3183	2122	1592	1273	1326	995	637	663	568	497	442	398	289	255
					FEED	89	119	127	122	154	167	148	167	150	149	124	121	90	87
	9		0.1D	1.5D	Vc	15	15	15	20	20	20	20	20	20	20	20	20	20	20
					fz	0.006	0.012	0.018	0.022	0.028	0.038	0.052	0.058	0.061	0.067	0.07	0.071	0.074	0.083
					RPM	2387	1592	1194	1273	1061	796	637	531	455	398	354	318	289	255
					FEED	57	76	86	112	119	121	132	123	111	107	99	90	86	85
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	35	40	40	40	45	45	45	45	50	45	50	45	45	45
					fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083
					RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573
					FEED	156	221	255	255	277	301	338	301	296	265	262	232	203	190
	11.1		0.1D	1.5D	Vc	20	20	20	20	25	25	20	25	25	25	25	25	20	20
					fz	0.007	0.014	0.02	0.024	0.029	0.042	0.058	0.063	0.066	0.075	0.07	0.076	0.078	0.085
					RPM	3183	2122	1592	1273	1326	995	637	663	568	497	442	398	289	255
					FEED	89	119	127	122	154	167	148	167	150	149	124	121	90	87
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	Vc	35	40	40	40	45	45	45	45	50	45	50	45	45	45
					fz	0.007	0.013	0.02	0.025	0.029	0.042	0.059	0.063	0.065	0.074	0.074	0.081	0.078	0.083
					RPM	5570	4244	3183	2546	2387	1790	1432	1194	1137	895	884	716	651	573
					FEED	156	221	255	255	277	301	338	301	296	265	262	232	203	190

※ The FEED, in long & extra long types, should be reduced by around 50%



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TANK-POWER HSS-PM END MILLS

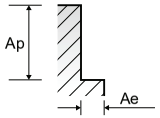
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GA941 , GAA35 , GAA33 , GAA34 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	22.0	25.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	55	60	60	60	60	60	60	60	60	60
					fz	0.027	0.04	0.055	0.065	0.074	0.086	0.099	0.111	0.096	0.105
					RPM	2918	2387	1910	1592	1364	1194	1061	955	868	764
					FEED	236	286	420	414	404	411	420	424	417	401
	2		0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	172	239	304	329	323	346	329	347	332	301
	3-4		0.5D	1.5D	Vc	30	35	35	35	35	35	35	35	30	35
					fz	0.024	0.038	0.046	0.064	0.076	0.087	0.094	0.108	0.098	0.105
					RPM	1592	1393	1114	928	796	696	619	557	434	446
					FEED	115	159	205	238	242	242	233	241	213	234
	5		0.5D	1.5D	Vc	25	25	30	30	30	30	30	30	30	30
					fz	0.027	0.04	0.045	0.061	0.071	0.082	0.092	0.102	0.09	0.1
					RPM	1326	995	955	796	682	597	531	477	434	382
					FEED	107	119	172	194	194	196	195	195	195	191
	6	Low alloy steel	0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	172	239	304	329	323	346	329	347	332	301
	7		0.5D	1.5D	Vc	30	35	35	35	35	35	35	35	30	35
					fz	0.024	0.038	0.046	0.064	0.076	0.087	0.094	0.108	0.098	0.105
					RPM	1592	1393	1114	928	796	696	619	557	434	446
					FEED	115	159	205	238	242	242	233	241	213	234
	8-9		0.5D	1.5D	Vc	25	25	30	30	30	30	30	30	30	30
					fz	0.027	0.04	0.045	0.061	0.071	0.082	0.092	0.102	0.09	0.1
					RPM	1326	995	955	796	682	597	531	477	434	382
					FEED	107	119	172	194	194	196	195	195	195	191
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	172	239	304	329	323	346	329	347	332	301
	11.1		0.5D	1.5D	Vc	25	25	30	30	30	30	30	30	30	30
					fz	0.027	0.04	0.045	0.061	0.071	0.082	0.092	0.102	0.09	0.1
					RPM	1326	995	955	796	682	597	531	477	434	382
					FEED	107	119	172	194	194	196	195	195	195	191
M	14.1	Stainless steel	0.5D	1.5D	Vc	25	30	30	30	30	30	30	30	30	30
					fz	0.025	0.039	0.045	0.064	0.074	0.085	0.093	0.107	0.095	0.103
					RPM	1326	1194	955	796	682	597	531	477	434	382
					FEED	99	140	172	204	202	203	197	204	206	197
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.027	0.04	0.053	0.069	0.079	0.087	0.093	0.109	0.102	0.105
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	172	239	304	329	323	346	329	347	332	301

※ The FEED, in long & extra long types, should be reduced by around 50%



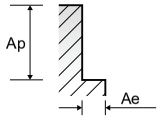
TANK-POWER HSS-PM END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9941 , E9A35 , E9A33 , E9A34 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	22.0	25.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	40	40	40	40	40	40	40	40	40
					fz	0.018	0.028	0.05	0.059	0.056	0.063	0.061	0.067	0.072	0.08
					RPM	1857	1592	1273	1061	909	796	707	637	579	509
					FEED	100	134	255	250	204	201	173	171	208	204
	2		0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	86	113	187	201	158	153	139	128	169	155
	3-4		0.5D	1.5D	Vc	20	25	20	25	20	25	25	25	20	20
					fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08
					RPM	1061	995	637	663	455	497	442	398	289	255
					FEED	54	84	112	154	100	123	101	103	106	102
	5		0.5D	1.5D	Vc	15	20	20	20	20	20	20	20	20	20
					fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076
					RPM	796	796	637	531	455	398	354	318	289	255
					FEED	43	64	107	117	93	94	79	78	98	97
	6	Low alloy steel	0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	86	113	187	201	158	153	139	128	169	155
	7		0.5D	1.5D	Vc	20	25	20	25	20	25	25	25	20	20
					fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08
					RPM	1061	995	637	663	455	497	442	398	289	255
					FEED	54	84	112	154	100	123	101	103	106	102
	8-9		0.5D	1.5D	Vc	15	20	20	20	20	20	20	20	20	20
					fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076
					RPM	796	796	637	531	455	398	354	318	289	255
					FEED	43	64	107	117	93	94	79	78	98	97
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	86	113	187	201	158	153	139	128	169	155
	11.1		0.5D	1.5D	Vc	15	20	20	20	20	20	20	20	20	20
					fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076
					RPM	796	796	637	531	455	398	354	318	289	255
					FEED	43	64	107	117	93	94	79	78	98	97
M	14.1	Stainless steel	0.5D	1.5D	Vc	20	20	20	20	20	20	20	20	20	20
					fz	0.02	0.03	0.045	0.065	0.06	0.069	0.064	0.073	0.081	0.086
					RPM	1061	796	637	531	455	398	354	318	289	255
					FEED	64	72	115	138	109	110	91	93	117	109
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	86	113	187	201	158	153	139	128	169	155

※ The FEED, in long & extra long types, should be reduced by around 50%



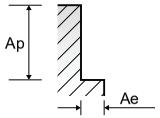
TANK-POWER HSS-PM END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GAA26 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	55	60	60	60	60	60	60	60	60	60
					fz	0.021	0.03	0.055	0.065	0.059	0.069	0.066	0.074	0.08	0.088
					RPM	2918	2387	1910	1592	1364	1194	1061	955	868	764
					FEED	245	286	420	414	402	412	420	424	417	403
	2		0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	170	239	304	329	322	343	329	344	332	303
	3-4		0.5D	1.5D	Vc	30	35	35	35	35	35	35	35	30	35
					fz	0.018	0.029	0.046	0.064	0.061	0.07	0.063	0.072	0.082	0.087
					RPM	1592	1393	1114	928	796	696	619	557	434	446
					FEED	115	162	205	238	243	244	234	241	214	233
	5		0.5D	1.5D	Vc	25	25	30	30	30	30	30	30	30	30
					fz	0.02	0.03	0.045	0.061	0.057	0.065	0.061	0.068	0.075	0.083
					RPM	1326	995	955	796	682	597	531	477	434	382
					FEED	106	119	172	194	194	194	194	195	195	190
	6	Low alloy steel	0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	170	239	304	329	322	343	329	344	332	303
	7		0.5D	1.5D	Vc	30	35	35	35	35	35	35	35	30	35
					fz	0.018	0.029	0.046	0.064	0.061	0.07	0.063	0.072	0.082	0.087
					RPM	1592	1393	1114	928	796	696	619	557	434	446
					FEED	115	162	205	238	243	244	234	241	214	233
	8-9		0.5D	1.5D	Vc	25	25	30	30	30	30	30	30	30	30
					fz	0.02	0.03	0.045	0.061	0.057	0.065	0.061	0.068	0.075	0.083
					RPM	1326	995	955	796	682	597	531	477	434	382
					FEED	106	119	172	194	194	194	194	195	195	190
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	170	239	304	329	322	343	329	344	332	303
	11.1		0.5D	1.5D	Vc	25	25	30	30	30	30	30	30	30	30
					fz	0.02	0.03	0.045	0.061	0.057	0.065	0.061	0.068	0.075	0.083
					RPM	1326	995	955	796	682	597	531	477	434	382
					FEED	106	119	172	194	194	194	194	195	195	190
M	14.1	Stainless steel	0.5D	1.5D	Vc	25	30	30	30	30	30	30	30	30	30
					fz	0.019	0.029	0.045	0.064	0.059	0.068	0.062	0.071	0.079	0.085
					RPM	1326	1194	955	796	682	597	531	477	434	382
					FEED	101	138	172	204	201	203	197	203	206	195
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	40	50	45	45	45	50	50	50	45	45
					fz	0.02	0.03	0.053	0.069	0.063	0.069	0.062	0.072	0.085	0.088
					RPM	2122	1989	1432	1194	1023	995	884	796	651	573
					FEED	170	239	304	329	322	343	329	344	332	303

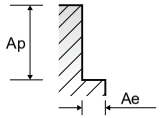


TANK-POWER HSS-PM END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9A26 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	40	40	40	40	40	40	40	40	40
					fz	0.018	0.028	0.05	0.059	0.056	0.063	0.061	0.067	0.072	0.08
					RPM	1857	1592	1273	1061	909	796	707	637	579	509
					FEED	134	178	255	250	255	251	259	256	250	244
	2		0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	115	150	187	201	198	191	208	192	203	186
	3-4		0.5D	1.5D	Vc	20	25	20	25	20	25	25	25	20	20
					fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08
					RPM	1061	995	637	663	455	497	442	398	289	255
					FEED	72	111	112	154	125	154	151	155	127	122
	5		0.5D	1.5D	Vc	15	20	20	20	20	20	20	20	20	20
					fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076
					RPM	796	796	637	531	455	398	354	318	289	255
					FEED	57	86	107	117	116	117	119	117	118	116
	6	Low alloy steel	0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	115	150	187	201	198	191	208	192	203	186
	7		0.5D	1.5D	Vc	20	25	20	25	20	25	25	25	20	20
					fz	0.017	0.028	0.044	0.058	0.055	0.062	0.057	0.065	0.073	0.08
					RPM	1061	995	637	663	455	497	442	398	289	255
					FEED	72	111	112	154	125	154	151	155	127	122
	8-9		0.5D	1.5D	Vc	15	20	20	20	20	20	20	20	20	20
					fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076
					RPM	796	796	637	531	455	398	354	318	289	255
					FEED	57	86	107	117	116	117	119	117	118	116
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	115	150	187	201	198	191	208	192	203	186
	11.1		0.5D	1.5D	Vc	15	20	20	20	20	20	20	20	20	20
					fz	0.018	0.027	0.042	0.055	0.051	0.059	0.056	0.061	0.068	0.076
					RPM	796	796	637	531	455	398	354	318	289	255
					FEED	57	86	107	117	116	117	119	117	118	116
M	14.1	Stainless steel	0.5D	1.5D	Vc	20	20	20	20	20	20	20	20	20	20
					fz	0.02	0.03	0.045	0.065	0.06	0.069	0.064	0.073	0.081	0.086
					RPM	1061	796	637	531	455	398	354	318	289	255
					FEED	85	95	115	138	136	137	136	139	141	131
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	30	35	30	30	30	30	35	30	30	30
					fz	0.018	0.027	0.049	0.063	0.058	0.064	0.056	0.067	0.078	0.081
					RPM	1592	1393	955	796	682	597	619	477	434	382
					FEED	115	150	187	201	198	191	208	192	203	186



CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

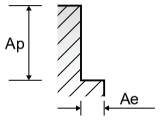
TANK-POWER HSS-PM END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E9E43 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	41	41	41	41	41
					fz	0.042	0.05	0.067	0.085	0.081
					RPM	1305	1088	816	653	522
					FEED	219	218	219	222	211
	2		0.5D	1.5D	Vc	32	32	32	32	32
					fz	0.041	0.053	0.068	0.086	0.083
					RPM	1019	849	637	509	407
					FEED	167	180	173	175	169
	3-4		0.5D	1.5D	Vc	23	23	23	23	23
					fz	0.037	0.05	0.067	0.083	0.082
					RPM	732	610	458	366	293
					FEED	108	122	123	122	120
	5		0.5D	1.5D	Vc	19	19	19	19	19
					fz	0.035	0.048	0.064	0.079	0.079
					RPM	605	504	378	302	242
					FEED	85	97	97	96	96
	6	Low alloy steel	0.5D	1.5D	Vc	32	32	32	32	32
					fz	0.041	0.053	0.068	0.086	0.083
					RPM	1019	849	637	509	407
					FEED	167	180	173	175	169
	7		0.5D	1.5D	Vc	23	23	23	23	23
					fz	0.037	0.05	0.067	0.083	0.082
					RPM	732	610	458	366	293
					FEED	108	122	123	122	120
	8		0.5D	1.5D	Vc	19	19	19	19	19
					fz	0.035	0.048	0.064	0.079	0.079
					RPM	605	504	378	302	242
					FEED	85	97	97	96	96
	9		0.5D	1.5D	Vc	19	19	19	19	19
					fz	0.035	0.048	0.064	0.079	0.079
					RPM	605	504	378	302	242
					FEED	64	97	97	119	96
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	32	32	32	32	32
					fz	0.041	0.053	0.068	0.086	0.083
					RPM	1019	849	637	509	407
					FEED	167	180	173	175	169
	11.1		0.5D	1.5D	Vc	19	19	19	19	19
					fz	0.035	0.048	0.064	0.079	0.079
					RPM	605	504	378	302	242
					FEED	85	97	97	96	96
M	14.1	Stainless steel	0.5D	1.5D	Vc	21	21	21	21	21
					fz	0.038	0.058	0.074	0.095	0.089
					RPM	668	557	418	334	267
					FEED	102	129	124	127	119
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	32	32	32	32	32
					fz	0.041	0.053	0.068	0.086	0.083
					RPM	1019	849	637	509	407
					FEED	167	180	173	175	169



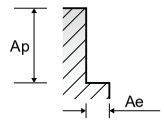
TANK-POWER HSS-PM END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

GAE43 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

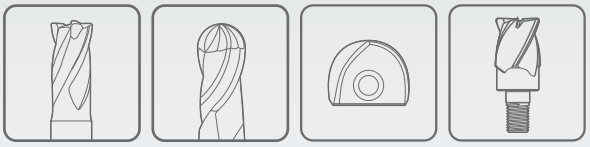
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	60	60	60	60	60
					fz	0.047	0.055	0.074	0.094	0.09
					RPM	1910	1592	1194	955	764
					FEED	359	350	353	359	344
	2		0.5D	1.5D	Vc	47	47	47	47	47
					fz	0.045	0.058	0.074	0.092	0.09
					RPM	1496	1247	935	748	598
					FEED	269	289	277	275	269
	3-4		0.5D	1.5D	Vc	33	33	33	33	33
					fz	0.039	0.054	0.074	0.092	0.088
					RPM	1050	875	657	525	420
					FEED	164	189	194	193	185
	5		0.5D	1.5D	Vc	28	28	28	28	28
					fz	0.038	0.052	0.07	0.088	0.086
					RPM	891	743	557	446	357
					FEED	135	154	156	157	153
	6	Low alloy steel	0.5D	1.5D	Vc	47	47	47	47	47
					fz	0.045	0.058	0.074	0.092	0.09
					RPM	1496	1247	935	748	598
					FEED	269	289	277	275	269
	7		0.5D	1.5D	Vc	33	33	33	33	33
					fz	0.039	0.054	0.074	0.092	0.088
					RPM	1050	875	657	525	420
					FEED	164	189	194	193	185
	8-9		0.5D	1.5D	Vc	28	28	28	28	28
					fz	0.038	0.052	0.07	0.088	0.086
					RPM	891	743	557	446	357
					FEED	135	154	156	157	153
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	47	47	47	47	47
					fz	0.045	0.058	0.074	0.092	0.09
					RPM	1496	1247	935	748	598
					FEED	269	289	277	275	269
	11.1		0.5D	1.5D	Vc	28	28	28	28	28
					fz	0.038	0.052	0.07	0.088	0.086
					RPM	891	743	557	446	357
					FEED	135	154	156	157	153
M	14.1	Stainless steel	0.5D	1.5D	Vc	30	30	30	30	30
					fz	0.038	0.055	0.073	0.091	0.087
					RPM	955	796	597	477	382
					FEED	145	175	174	174	166
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	Vc	47	47	47	47	47
					fz	0.045	0.058	0.074	0.092	0.09
					RPM	1496	1247	935	748	598
					FEED	269	289	277	275	269



CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

HSS

GENERAL HSS
END MILLS
HSS SCHAFTFRÄSER

- General Purpose / Coating Available
- Allgemeine Anwendung / Beschichtung verfügbar

SELECTION GUIDE

YG MILLING TOOLS

HSS GENERAL HSS END MILLS

General Purpose, Non-coated, Any Coating Available

Please visit globalyg1.com/mat for material search

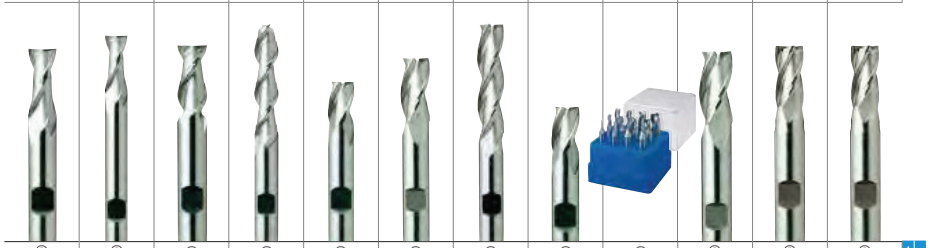
◎ : Excellent ○ : Good

Recommended cutting conditions : p. C673

SERIES	E2535	E2492	EL612	E2570
FLUTE	2	2	1	2
HELIX ANGLE	30°	30°	≈ 30°	≈ 30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	SQUARE	SQUARE
SIZE MIN	R1.0	R1.0	D3.0	D1.0
SIZE MAX	R16.0	R15.0	D10.0	D40.0
PAGE	C643	C644	C645	C646
	SHORT LENGTH	LONG LENGTH	-	SHORT LENGTH
	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated / TiAlN
	HSS Co8	HSS Co8	HSS-E	HSS Co8

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	E2535	E2492	EL612	E2570
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	○	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	○	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎		◎
	4		About 0.75% C	Annealed	270	28	◎	◎		◎
	5		About 0.75% C	Quenched & Tempered	300	32	○	○		○
	6	Low alloy steel		Annealed	180	10	◎	◎	○	◎
	7			Quenched & Tempered	275	29	◎	◎		◎
	8			Quenched & Tempered	300	32	○	○		○
	9			Quenched & Tempered	350	38	○	○		○
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	○	◎
	11			Quenched & Tempered	325	35	○	○		○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10				
	16		Pearlitic (Martensitic)		260	26				
	17	Nodular cast iron	Ferritic		160	3				
	18		Pearlitic		250	25				
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	◎	○
	22		Curable	Hardened	100		○	○	◎	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	◎	○
	24		≤ 12% Si, Curable	Hardened	90		○	○	◎	○
	25		> 12% Si, Not Curable		130		○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55				
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

SERIES	E2571	E2510	E2464	E2509	E2572	E2573	E2516	E2553	E2SET553	E2554	E2574	E2595
FLUTE	2	2	2	2	3	3	3	3	3	3	4	4
HELIX ANGLE	≈ 30°	30°	42°	42°	≈ 30°	≈ 30°	30°	30°	30°	30°	≈ 30°	≈ 30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D1.5	D2.5	D1.0	D2.0	D1.5	D1.0	D2.0	D1.0	D2.0	D1.5	D2.0	D2.0
SIZE MAX	D40.0	D40.0	D32.0	D20.0	D32.0	D40.0	D40.0	D20.0	D10.0	D10.0	D20.0	D25.0
PAGE	C649	C651	C653	C654	C655	C656	C658	C660	C661	C662	C663	C664
	LONG LENGTH	EXTRA LONG LENGTH	SHORT LENGTH	LONG LENGTH	STUB LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH THROW AWAY	THROW AWAY SET	LONG LENGTH THROW AWAY	SHORT LENGTH	SHORT LENGTH CENTER CUTTING
	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN
	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8



ISO	VDI 3323	E2571	E2510	E2464	E2509	E2572	E2573	E2516	E2553	E2SET553	E2554	E2574	E2595
P	1	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎
	2	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎
	3	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎
	4	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎
	5	○	○			◎	◎	◎	◎	◎	◎	◎	◎
	6	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎
	7	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎
	8	○	○			◎	◎	◎	◎	◎	◎	◎	◎
	9	○	○			○	○	○	○	○	○	○	○
	10	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎	◎
	11	○	○			○	○	○	○	○	○	○	○
M	12												
	13												
	14												
K	15												
	16												
	17												
	18												
	19												
	20												
N	21	○	○	◎	◎	○	○	○	○	○	○	○	○
	22	○	○	◎	◎	○	○	○	○	○	○	○	○
	23	○	○	◎	◎	○	○	○	○	○	○	○	○
	24	○	○	◎	◎	○	○	○	○	○	○	○	○
	25	○	○	○	○	○	○	○	○	○	○	○	○
	26												
	27												
	28												
	29												
	30												
S	31												
	32												
	33												
	34												
	35												
	36												
	37												
H	38												
	39												
	40												
	41												

SELECTION GUIDE

YG MILLING TOOLS

SERIES	E2597	E2753	E2762	E2755	E2751	E2752
FLUTE	4	Multi Flute	Multi Flute	3	Multi Flute	Multi Flute
HELIX ANGLE	45°	30°	30°	37°	30°	30°
	SQUARE	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING	SQUARE ROUGHING
SIZE MIN	D2.0	D6.0	D6.0	D6.0	D6.0	D6.0
SIZE MAX	D20.0	D40.0	D40.0	D30.0	D50.0	D40.0
PAGE	C665	C666	C667	C668	C669	C671
	LONG LENGTH CENTER CUTTING	SHORT LENGTH	LONG LENGTH	SHORT LENGTH	SHORT LENGTH	LONG LENGTH
	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated / TiAlN	Uncoated	Uncoated / TiAlN	Uncoated / TiAlN
	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8

HSS GENERAL HSS END MILLS

General Purpose, Non-coated, Any Coating Available

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C673

Please visit globalyg1.com/mat for material search

ISO	VDI 3323	Material Description	HB	HRc	E2597	E2753	E2762	E2755	E2751	E2752
P	1	Non-alloy steel	125		◎	◎	◎	◎	◎	◎
	2		190	13	◎	◎	◎	◎	◎	◎
	3		250	25	◎	◎	◎	○	◎	◎
	4		270	28	◎	◎	◎	○	◎	◎
	5		300	32	◎	◎	◎	○	◎	◎
	6	Low alloy steel	180	10	◎	◎	◎	◎	◎	◎
	7		275	29	◎	◎	◎	○	◎	◎
	8		300	32	◎	◎	◎	○	◎	◎
	9		350	38	○	○	○		○	○
	10	High alloyed steel, and tool steel	200	15	◎	◎	◎	◎	◎	◎
	11		325	35	○	○	○		○	○
M	12	Stainless steel	200	15						
	13		240	23						
	14		180	10						
K	15	Grey cast iron	180	10						
	16		260	26						
	17	Nodular cast iron	160	3						
	18		250	25						
	19	Malleable cast iron	130							
	20		230	21						
N	21	Aluminum-wrought alloy	60		○	○	○	◎	○	○
	22		100		○	○	○	◎	○	○
	23	Aluminum-cast, alloyed	75		○	○	○	◎	○	○
	24		90		○	○	○	◎	○	○
	25		130		○	○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	110							
	27		90							
	28		100							
	29	Non Metallic Materials								
	30									
S	31	Heat Resistant Super Alloys	200	15						
	32		280	30						
	33		250	25						
	34		350	38						
	35		320	34						
	36	Titanium Alloys	400 Rm							
	37		1050 Rm							
H	38	Hardened steel	550	55						
	39		630	60						
	40	Chilled Cast Iron	400	42						
	41	Hardened Cast Iron	550	55						

HSS END MILLS

FLAT SHANK E2535 SERIES
FLAT SHANK EQ535 SERIES

HSSCo8, 2 FLUTE SHORT LENGTH BALL NOSE

HSSCo8, 2 SCHNEIDEN KURZ STIRNRADIUS
Fraise HSSCo8, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | 2 | 30° | R ±0.02 | DIN 1835B | UNCOATED | TiAlN

p.C673-674

Recommended ToolHolder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
E2535020	EQ535020	R1.0	2.0	6	4	48
E2535025	EQ535025	R1.25	2.5	6	5	49
E2535030	EQ535030	R1.5	3.0	6	5	49
E2535035	EQ535035	R1.75	3.5	6	6	50
E2535040	EQ535040	R2.0	4.0	6	7	51
E2535045	EQ535045	R2.25	4.5	6	7	51
E2535050	EQ535050	R2.5	5.0	6	8	52
E2535055	EQ535055	R2.75	5.5	6	8	52
E2535060	EQ535060	R3.0	6.0	6	8	52
E2535070	EQ535070	R3.5	7.0	10	10	60
E2535080	EQ535080	R4.0	8.0	10	11	61
E2535090	EQ535090	R4.5	9.0	10	11	61
E2535100	EQ535100	R5.0	10.0	10	13	63
E2535110	EQ535110	R5.5	11.0	12	13	70
E2535120	EQ535120	R6.0	12.0	12	16	73
E2535130	EQ535130	R6.5	13.0	12	16	73
E2535140	EQ535140	R7.0	14.0	12	16	73
E2535150	EQ535150	R7.5	15.0	12	16	73
E2535160	EQ535160	R8.0	16.0	16	19	79
E2535170	EQ535170	R8.5	17.0	16	19	79
E2535180	EQ535180	R9.0	18.0	16	19	79
E2535190	EQ535190	R9.5	19.0	16	19	79
E2535923	EQ535923	R10.0	20.0	16	22	82
E2535200	EQ535200	R10.0	20.0	20	22	88
E2535220	EQ535220	R11.0	22.0	20	22	88
E2535922	EQ535922	R11.0	22.0	25	22	98
E2535240	EQ535240	R12.0	24.0	25	26	102
E2535250	EQ535250	R12.5	25.0	25	26	102
E2535260	EQ535260	R13.0	26.0	25	26	102
E2535280	EQ535280	R14.0	28.0	25	26	102
E2535300	EQ535300	R15.0	30.0	25	26	102
E2535320	EQ535320	R16.0	32.0	32	32	112

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

FLAT SHANK **E2492** SERIES
FLAT SHANK **EQ492** SERIES

HSSCo8, 2 FLUTE LONG LENGTH BALL NOSE

- HSSCo8, 2 SCHNEIDEN LANG STIRNRADIUS
- Fraise HSSCo8, 2 dents, hémisphérique, longue
- 2 TAGLIENTI, SEMISFERICA, SERIE LUNGA - HSSCo8

HSS Co8 | DIN 1889 | 2 | 30° | R ±0.02 | DIN 1835B | UNCOATED | TiAlN

p.C673-674

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	R (±0.02)		h6		
E2492020	EQ492020	R1.0	2.0	6	7	54
E2492030	EQ492030	R1.5	3.0	6	8	56
E2492040	EQ492040	R2.0	4.0	6	11	63
E2492050	EQ492050	R2.5	5.0	6	13	68
E2492060	EQ492060	R3.0	6.0	6	13	68
E2492070	EQ492070	R3.5	7.0	10	16	80
E2492080	EQ492080	R4.0	8.0	10	19	88
E2492090	EQ492090	R4.5	9.0	10	19	88
E2492100	EQ492100	R5.0	10.0	10	22	95
E2492110	EQ492110	R5.5	11.0	12	22	102
E2492120	EQ492120	R6.0	12.0	12	26	110
E2492130	EQ492130	R6.5	13.0	12	26	110
E2492140	EQ492140	R7.0	14.0	12	26	110
E2492150	EQ492150	R7.5	15.0	12	26	110
E2492160	EQ492160	R8.0	16.0	16	32	123
E2492170	EQ492170	R8.5	17.0	16	32	123
E2492180	EQ492180	R9.0	18.0	16	32	123
E2492190	EQ492190	R9.5	19.0	16	32	123
E2492200	EQ492200	R10.0	20.0	20	38	141
E2492220	EQ492220	R11.0	22.0	20	38	141
E2492240	EQ492240	R12.0	24.0	25	45	166
E2492250	EQ492250	R12.5	25.0	25	45	166
E2492260	EQ492260	R13.0	26.0	25	45	166
E2492280	EQ492280	R14.0	28.0	25	45	166
E2492300	EQ492300	R15.0	30.0	25	45	166

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

PLAIN SHANK **EL612** SERIES

HSS-E, 1 FLUTE for ALUMINUM

- HSS-E, 1 SCHNEIDEN für ALUMINIUM
- Fraise HSS-E, 1 dent pour aluminium
- 1 TAGLIENTE - HSS-E

for ALUMINUM
für ALUMINIUM

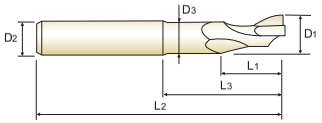
HSS-E | YG STD | 1 | 30° | DIN 1835A | UNCOATED

p.C675

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	js14	h6		
EL612030	3.0	8	12	60
EL612040	4.0	8	12	60
EL612050	5.0	8	12	60
EL612060	6.0	8	14	60
EL612070	7.0	8	14	60
EL612080	8.0	8	14	80
EL612090	9.0	8	14	80
EL612100	10.0	8	14	80



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
UNCOATED	D1(js14)	D2(h6)	L_1	L_3	L_2	L_2
EL612904	5.0	8	18	35	80	4.8
EL612909	5.0	8	40	-	100	-
EL612932	8.0	8	14	68	120	7.5

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js14	±125	±150	±180	±215	±260	±310
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○					○				○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

HSS END MILLS

FLAT SHANK **E2570** SERIES
FLAT SHANK **EQ570** SERIES

HSSCo8, 2 FLUTE SHORT LENGTH

- HSSCo8, 2 SCHNEIDEN KURZ
- Fraise HSSCo8, 2 dents, courte
- 2 TAGLIENTI, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | 2 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C676-679

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2570010	EQ570010	1.0	6	2.5	47
E2570015	EQ570015	1.5	6	3	47
E2570020	EQ570020	2.0	6	4	48
E2570025	EQ570025	2.5	6	5	49
E2570028	EQ570028	2.8	6	5	49
E2570030	EQ570030	3.0	6	5	49
E2570035	EQ570035	3.5	6	6	50
E2570038	EQ570038	3.8	6	7	51
E2570040	EQ570040	4.0	6	7	51
E2570045	EQ570045	4.5	6	7	51
E2570048	EQ570048	4.8	6	8	52
E2570050	EQ570050	5.0	6	8	52
E2570055	EQ570055	5.5	6	8	52
E2570957	EQ570957	5.8	6	8	52
E2570060	EQ570060	6.0	6	8	52
E2570065	EQ570065	6.5	10	10	60
E2570967	EQ570967	6.8	10	10	60
E2570070	EQ570070	7.0	10	10	60
E2570075	EQ570075	7.5	10	10	60
E2570977	EQ570977	7.8	10	11	61
E2570080	EQ570080	8.0	10	11	61
E2570085	EQ570085	8.5	10	11	61
E2570087	EQ570087	8.7	10	11	61
E2570090	EQ570090	9.0	10	11	61

Tolerances according to DIN 7160 & 7161

Tolerance range in μm						
Nominal-Diameter in mm						
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS
FLAT SHANK E2570 SERIES
FLAT SHANK EQ570 SERIES
HSSCo8, 2 FLUTE SHORT LENGTH
HSSCo8, 2 SCHNEIDEN KURZ
Fraise HSSCo8, 2 dents, courte
2 TAGLIENTI, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | 2 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C676-679

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2570095	EQ570095	9.5	10	11	61
E2570097	EQ570097	9.7	10	13	63
E2570100	EQ570100	10.0	10	13	63
E2570105	EQ570105	10.5	12	13	70
E2570107	EQ570107	10.7	12	13	70
E2570110	EQ570110	11.0	12	13	70
E2570115	EQ570115	11.5	12	13	70
E2570117	EQ570117	11.7	12	16	73
E2570120	EQ570120	12.0	12	16	73
E2570125	EQ570125	12.5	12	16	73
E2570127	EQ570127	12.7	12	16	73
E2570130	EQ570130	13.0	12	16	73
E2570135	EQ570135	13.5	12	16	73
E2570137	EQ570137	13.7	12	16	73
E2570140	EQ570140	14.0	12	16	73
E2570147	EQ570147	14.7	12	16	73
E2570150	EQ570150	15.0	12	16	73
E2570157	EQ570157	15.7	16	19	79
E2570160	EQ570160	16.0	16	19	79
E2570167	EQ570167	16.7	16	19	79
E2570170	EQ570170	17.0	16	19	79
E2570177	EQ570177	17.7	16	19	79
E2570180	EQ570180	18.0	16	19	79
E2570190	EQ570190	19.0	16	19	79

Tolerances according to DIN 7160 & 7161

Tolerance range in μm						
Nominal-Diameter in mm						
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2570** SERIES
FLAT SHANK **EQ570** SERIES

HSSCo8, 2 FLUTE SHORT LENGTH

HSSCo8, 2 SCHNEIDEN KURZ
Fraise HSSCo8, 2 dents, courte
2 TAGLIENTI, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | 2 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C676-679

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2570197	EQ570197	19.7	20	22	88
E2570920	EQ570920	20.0	16	22	82
E2570200	EQ570200	20.0	20	22	88
E2570210	EQ570210	21.0	20	22	88
E2570220	EQ570220	22.0	20	22	88
E2570922	EQ570922	22.0	25	22	98
E2570240	EQ570240	24.0	25	26	102
E2570250	EQ570250	25.0	25	26	102
E2570260	EQ570260	26.0	25	26	102
E2570270	EQ570270	27.0	25	26	102
E2570280	EQ570280	28.0	25	26	102
E2570290	EQ570290	29.0	25	26	102
E2570300	EQ570300	30.0	25	26	102
E2570320	EQ570320	32.0	32	32	112
E2570340	EQ570340	34.0	32	32	112
E2570350	EQ570350	35.0	32	32	112
E2570360	EQ570360	36.0	32	32	112
E2570380	EQ570380	38.0	32	38	118
E2570938	EQ570938	38.0	40	38	130
E2570400	EQ570400	40.0	32	38	118
E2570903	EQ570903	40.0	40	38	130

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in μm	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2571** SERIES
FLAT SHANK **EQ571** SERIES

HSSCo8, 2 FLUTE LONG LENGTH

HSSCo8, 2 SCHNEIDEN LANG
Fraise HSSCo8, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA - HSSCo8

HSS Co8 | DIN 844 | 2 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C676-679

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2571015	EQ571015	1.5	6	7	51
E2571020	EQ571020	2.0	6	7	51
E2571025	EQ571025	2.5	6	8	52
E2571030	EQ571030	3.0	6	8	52
E2571035	EQ571035	3.5	6	10	54
E2571040	EQ571040	4.0	6	11	55
E2571045	EQ571045	4.5	6	11	55
E2571050	EQ571050	5.0	6	13	57
E2571055	EQ571055	5.5	6	13	57
E2571060	EQ571060	6.0	6	13	57
E2571065	EQ571065	6.5	10	16	66
E2571070	EQ571070	7.0	10	16	66
E2571075	EQ571075	7.5	10	16	66
E2571080	EQ571080	8.0	10	19	69
E2571085	EQ571085	8.5	10	19	69
E2571090	EQ571090	9.0	10	19	69
E2571095	EQ571095	9.5	10	19	69
E2571100	EQ571100	10.0	10	22	72
E2571110	EQ571110	11.0	12	22	79
E2571120	EQ571120	12.0	12	26	83
E2571130	EQ571130	13.0	12	26	83
E2571140	EQ571140	14.0	12	26	83
E2571150	EQ571150	15.0	12	26	83
E2571160	EQ571160	16.0	16	32	92

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Tolerance range in μm	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2571** SERIES
FLAT SHANK **EQ571** SERIES

HSSCo8, 2 FLUTE LONG LENGTH

HSSCo8, 2 SCHNEIDEN LANG
Fraise HSSCo8, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA - HSSCo8

HSS Co8 | DIN 844 | 2 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C676-679

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2571180	EQ571180	18.0	16	32	92
E2571200	EQ571200	20.0	20	38	104
E2571220	EQ571220	22.0	20	38	104
E2571240	EQ571240	24.0	25	45	121
E2571250	EQ571250	25.0	25	45	121
E2571260	EQ571260	26.0	25	45	121
E2571270	EQ571270	27.0	25	45	121
E2571280	EQ571280	28.0	25	45	121
E2571300	EQ571300	30.0	25	45	121
E2571320	EQ571320	32.0	32	53	133
E2571400	EQ571400	40.0	40	63	155

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm / Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2510** SERIES
FLAT SHANK **EQ510** SERIES

HSSCo8, 2 FLUTE EXTRA LONG LENGTH

HSSCo8, 2 SCHNEIDEN EXTRA LANG
Fraise HSSCo8, 2 dents, extra-longue
2 TAGLIENTI, SERIE EXTRA LUNGA - HSSCo8

HSS Co8 | DIN 844 | 2 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C676-679

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2510025	EQ510025	2.5	6	8	56
E2510030	EQ510030	3.0	6	8	56
E2510035	EQ510035	3.5	6	10	59
E2510040	EQ510040	4.0	6	11	63
E2510045	EQ510045	4.5	6	11	63
E2510050	EQ510050	5.0	6	13	68
E2510055	EQ510055	5.5	6	13	68
E2510060	EQ510060	6.0	6	13	68
E2510065	EQ510065	6.5	10	16	80
E2510070	EQ510070	7.0	10	16	80
E2510080	EQ510080	8.0	10	19	88
E2510085	EQ510085	8.5	10	19	88
E2510090	EQ510090	9.0	10	19	88
E2510100	EQ510100	10.0	10	22	95
E2510120	EQ510120	12.0	12	26	110
E2510140	EQ510140	14.0	12	26	110
E2510160	EQ510160	16.0	16	32	123
E2510180	EQ510180	18.0	16	32	123
E2510200	EQ510200	20.0	20	38	141
E2510220	EQ510220	22.0	20	38	141
E2510240	EQ510240	24.0	25	45	166
E2510250	EQ510250	25.0	25	45	166
E2510260	EQ510260	26.0	25	45	166
E2510280	EQ510280	28.0	25	45	166
E2510300	EQ510300	30.0	25	45	166
E2510320	EQ510320	32.0	32	53	186
E2510360	EQ510360	36.0	32	53	186
E2510400	EQ510400	40.0	32	63	207
E2510940	EQ510940	40.0	40	63	217

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm / Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2464** SERIES

HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH for ALUMINUM

HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM
Fraise HSSCo8, 2 dents, hélice 42°, pour aluminium, courte
2 TAGLIENTI, ELICA 42°, SERIE CORTA - HSSCo8

for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | 2 | 42° | DIN 1835B | UNCOATED | p.C675

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	e8	h6		
E2464010	1.0	6	3	49
E2464015	1.5	6	5	49
E2464020	2.0	6	7	51
E2464025	2.5	6	8	52
E2464030	3.0	6	8	52
E2464035	3.5	6	10	54
E2464040	4.0	6	11	55
E2464045	4.5	6	11	55
E2464050	5.0	6	13	57
E2464055	5.5	6	13	57
E2464060	6.0	6	13	57
E2464065	6.5	10	16	66
E2464070	7.0	10	16	66
E2464075	7.5	10	16	66
E2464080	8.0	10	19	69
E2464085	8.5	10	19	69
E2464090	9.0	10	19	69
E2464100	10.0	10	22	72
E2464110	11.0	12	22	79
E2464120	12.0	12	26	83
E2464130	13.0	12	26	83
E2464140	14.0	12	26	83
E2464150	15.0	12	26	83

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Tolerance range in μm						
Nominal-Diameter in mm						
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○				○				○										

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

HSS END MILLS
FLAT SHANK E2464 SERIES
HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH for ALUMINUM
HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM
Fraise HSSCo8, 2 dents, hélice 42°, pour aluminium, courte
2 TAGLIENTI, ELICA 42°, SERIE CORTA - HSSCo8
for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | 2 | 42° | DIN 1835B | UNCOATED | p.C675

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	e8	h6		
E2464160	16.0	16	32	92
E2464170	17.0	16	32	92
E2464180	18.0	16	32	92
E2464190	19.0	16	32	92
E2464200	20.0	20	38	104
E2464210	21.0	20	38	104
E2464220	22.0	20	38	104
E2464230	23.0	20	38	104
E2464240	24.0	25	45	121
E2464250	25.0	25	45	121
E2464260	26.0	25	45	121
E2464280	28.0	25	45	121
E2464300	30.0	25	45	121
E2464320	32.0	32	53	133

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in μm						
Nominal-Diameter in mm						
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○				○				○										

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

HSS END MILLS

FLAT SHANK **E2509** SERIES

HSSCo8, 2 FLUTE 42° HELIX LONG LENGTH for ALUMINUM

HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM
Fraise HSSCo8, 2 dents, hélice 42°, pour aluminium, longue
2 TAGLIENTI, ELICA 42°, SERIE LUNGA - HSSCo8

for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | 2 | 42° | DIN 1835B | UNCOATED | p.C675

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED		e8	h6		
E2509020		2.0	6	10	54
E2509030		3.0	6	12	56
E2509040		4.0	6	19	63
E2509050		5.0	6	24	68
E2509060		6.0	6	24	68
E2509070		7.0	10	30	80
E2509080		8.0	10	38	88
E2509090		9.0	10	38	88
E2509100		10.0	10	45	95
E2509110		11.0	12	45	102
E2509120		12.0	12	53	110
E2509130		13.0	12	53	110
E2509140		14.0	12	53	110
E2509150		15.0	12	53	110
E2509160		16.0	16	63	123
E2509180		18.0	16	63	123
E2509200		20.0	20	75	141

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛						
Nominal-Diameter in ㎜						
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	○	○				○				○										

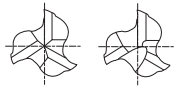
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

HSS END MILLS

FLAT SHANK **E2572** SERIES
FLAT SHANK **EQ572** SERIES

HSSCo8, 3 FLUTE STUB LENGTH

HSSCo8, 3 SCHNEIDEN EXTRA KURZ
Fraise HSSCo8, 3 dents, extra-courte
3 TAGLIENTI. SERIE EXTRA CORTA - HSSCo8



Under Ø3mm Ø3mm or above

HSS Co8 | DIN 327 | 3 | ≈30° | DIN 1835B | UNCOATED | TiAlN | p.C680-687

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2572015	EQ572015	1.5	6	3	47
E2572020	EQ572020	2.0	6	4	48
E2572025	EQ572025	2.5	6	5	49
E2572030	EQ572030	3.0	6	5	49
E2572035	EQ572035	3.5	6	6	50
E2572040	EQ572040	4.0	6	7	51
E2572045	EQ572045	4.5	6	7	51
E2572050	EQ572050	5.0	6	8	52
E2572055	EQ572055	5.5	6	8	52
E2572060	EQ572060	6.0	6	8	52
E2572065	EQ572065	6.5	10	10	60
E2572070	EQ572070	7.0	10	10	60
E2572075	EQ572075	7.5	10	10	60
E2572080	EQ572080	8.0	10	11	61
E2572085	EQ572085	8.5	10	11	61
E2572100	EQ572100	10.0	10	13	63
E2572120	EQ572120	12.0	12	16	73
E2572140	EQ572140	14.0	12	16	73
E2572150	EQ572150	15.0	12	16	73
E2572160	EQ572160	16.0	16	19	79
E2572180	EQ572180	18.0	16	19	79
E2572200	EQ572200	20.0	20	22	88
E2572220	EQ572220	22.0	20	22	88
E2572240	EQ572240	24.0	25	26	102
E2572250	EQ572250	25.0	25	26	102
E2572260	EQ572260	26.0	25	26	102
E2572280	EQ572280	28.0	25	26	102
E2572300	EQ572300	30.0	25	26	102
E2572320	EQ572320	32.0	32	32	112

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛						
Nominal-Diameter in ㎜						
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎									

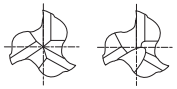
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2573** SERIES
FLAT SHANK **EQ573** SERIES

HSSCo8, 3 FLUTE SHORT LENGTH

HSSCo8, 3 SCHNEIDEN KURZ
Fraise HSSCo8, 3 dents, courte
3 TAGLIENTI, SERIE CORTA - HSSCo8



Under Ø3mm Ø3mm or above

HSS Co8 | DIN 844 | 3 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C680-687

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2573010	EQ573010	1.0	6	3	47
E2573015	EQ573015	1.5	6	7	51
E2573020	EQ573020	2.0	6	7	51
E2573025	EQ573025	2.5	6	8	52
E2573030	EQ573030	3.0	6	8	52
E2573035	EQ573035	3.5	6	10	54
E2573040	EQ573040	4.0	6	11	55
E2573045	EQ573045	4.5	6	11	55
E2573050	EQ573050	5.0	6	13	57
E2573055	EQ573055	5.5	6	13	57
E2573060	EQ573060	6.0	6	13	57
E2573065	EQ573065	6.5	10	16	66
E2573070	EQ573070	7.0	10	16	66
E2573075	EQ573075	7.5	10	16	66
E2573080	EQ573080	8.0	10	19	69
E2573085	EQ573085	8.5	10	19	69
E2573090	EQ573090	9.0	10	19	69
E2573095	EQ573095	9.5	10	19	69
E2573100	EQ573100	10.0	10	22	72
E2573120	EQ573120	12.0	12	26	83
E2573140	EQ573140	14.0	12	26	83
E2573150	EQ573150	15.0	12	26	83
E2573160	EQ573160	16.0	16	32	92
E2573180	EQ573180	18.0	16	32	92

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

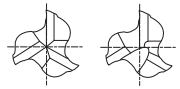
Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS
FLAT SHANK E2573 SERIES
FLAT SHANK EQ573 SERIES
HSSCo8, 3 FLUTE SHORT LENGTH
HSSCo8, 3 SCHNEIDEN KURZ
Fraise HSSCo8, 3 dents, courte
3 TAGLIENTI, SERIE CORTA - HSSCo8



Under Ø3mm Ø3mm or above

HSS Co8 | DIN 844 | 3 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C680-687

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2573200	EQ573200	20.0	20	38	104
E2573220	EQ573220	22.0	20	38	104
E2573240	EQ573240	24.0	25	45	121
E2573250	EQ573250	25.0	25	45	121
E2573260	EQ573260	26.0	25	45	121
E2573280	EQ573280	28.0	25	45	121
E2573300	EQ573300	30.0	25	45	121
E2573320	EQ573320	32.0	32	53	133
E2573400	EQ573400	40.0	40	63	155

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

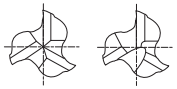
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2516** SERIES
FLAT SHANK **EQ516** SERIES

HSSCo8, 3 FLUTE LONG LENGTH

HSSCo8, 3 SCHNEIDEN LANG
Fraise HSSCo8, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8 | DIN 844 | 3 | 30° | DIN 1835B | UNCOATED | TiAlN

p.C680-687

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2516020	EQ516020	2.0	6	10	54
E2516025	EQ516025	2.5	6	12	56
E2516030	EQ516030	3.0	6	12	56
E2516035	EQ516035	3.5	6	15	59
E2516040	EQ516040	4.0	6	19	63
E2516045	EQ516045	4.5	6	19	63
E2516050	EQ516050	5.0	6	24	68
E2516055	EQ516055	5.5	6	24	68
E2516060	EQ516060	6.0	6	24	68
E2516070	EQ516070	7.0	10	30	80
E2516075	EQ516075	7.5	10	30	80
E2516080	EQ516080	8.0	10	38	88
E2516090	EQ516090	9.0	10	38	88
E2516100	EQ516100	10.0	10	45	95
E2516110	EQ516110	11.0	12	45	102
E2516120	EQ516120	12.0	12	53	110
E2516130	EQ516130	13.0	12	53	110
E2516140	EQ516140	14.0	12	53	110
E2516150	EQ516150	15.0	12	53	110
E2516160	EQ516160	16.0	16	63	123
E2516170	EQ516170	17.0	16	63	123
E2516180	EQ516180	18.0	16	63	123
E2516190	EQ516190	19.0	16	63	123
E2516901	EQ516901	20.0	16	75	135

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

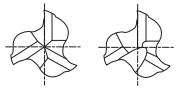
	Tolerance range in μm / Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS
FLAT SHANK E2516 SERIES
FLAT SHANK EQ516 SERIES
HSSCo8, 3 FLUTE LONG LENGTH
HSSCo8, 3 SCHNEIDEN LANG
Fraise HSSCo8, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8 | DIN 844 | 3 | 30° | FLAT | UNCOATED | TiAlN

p.C680-687

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2516200	EQ516200	20.0	20	75	141
E2516220	EQ516220	22.0	20	75	141
E2516240	EQ516240	24.0	25	90	166
E2516250	EQ516250	25.0	25	90	166
E2516260	EQ516260	26.0	25	90	166
E2516280	EQ516280	28.0	25	90	166
E2516300	EQ516300	30.0	25	90	166
E2516320	EQ516320	32.0	32	106	186
E2516350	EQ516350	35.0	32	106	186
E2516360	EQ516360	36.0	32	106	186
E2516400	EQ516400	40.0	40	125	217

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm / Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

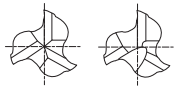
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2553** SERIES
FLAT SHANK **EQ553** SERIES

HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY

HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER
Fraise HSSCo8, 3 dents à jeter, courte
3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8



HSS Co8 | YG STD | 3 | 30° | FLAT | UNCOATED | TiAlN

p.C680-687

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2553010	EQ553010	1.0	6	2	34
E2553013	EQ553013	1.3	6	3	34
E2553015	EQ553015	1.5	6	3	34
E2553018	EQ553018	1.8	6	3	34
E2553020	EQ553020	2.0	6	4	35
E2553023	EQ553023	2.3	6	4	35
E2553025	EQ553025	2.5	6	5	36
E2553028	EQ553028	2.8	6	5	36
E2553030	EQ553030	3.0	6	5	36
E2553033	EQ553033	3.3	6	6	37
E2553035	EQ553035	3.5	6	6	37
E2553038	EQ553038	3.8	6	7	38
E2553040	EQ553040	4.0	6	7	38
E2553043	EQ553043	4.3	6	7	38
E2553045	EQ553045	4.5	6	7	38
E2553048	EQ553048	4.8	6	8	39
E2553050	EQ553050	5.0	6	8	39
E2553053	EQ553053	5.3	6	8	39
E2553055	EQ553055	5.5	6	8	39
E2553957	EQ553957	5.8	6	8	39
E2553060	EQ553060	6.0	6	8	39
E2553065	EQ553065	6.5	8	10	42
E2553070	EQ553070	7.0	8	10	42
E2553075	EQ553075	7.5	8	10	42

▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

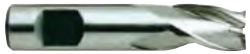
Tolerance range in μm	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

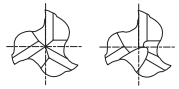
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS
FLAT SHANK E2553 SERIES
FLAT SHANK EQ553 SERIES
HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY
HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER
Fraise HSSCo8, 3 dents à jeter, courte
3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8





HSS Co8 | YG STD | 3 | 30° | FLAT | UNCOATED | TiAlN

p.C680-687

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2553080	EQ553080	8.0	8	11	43
E2553085	EQ553085	8.5	10	11	48
E2553090	EQ553090	9.0	10	11	48
E2553095	EQ553095	9.5	10	11	48
E2553100	EQ553100	10.0	10	13	50
E2553120	EQ553120	12.0	12	16	58
E2553160	EQ553160	16.0	16	19	64
E2553200	EQ553200	20.0	20	22	78

▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

Tolerance range in μm	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

SET ORDERING No.: E2SET553

* 12PCS. SET
  SHORT LENGTH
  - 2PCS. OF EACH SIZE
    2, 3, 4, 5, 6mm (C3FSC)
  - 1PC. OF EACH SIZE
    8, 10mm (C3FSC)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2554** SERIES
FLAT SHANK **EQ554** SERIES

HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY

HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER
Fraise HSSCo8, 3 dents à jeter, longue
3 TAGLIENTI, SERIE LUNGA, NON RIAFFILABILE - HSSCo8

HSS Co8 | YG STD | 3 | 30° | FLAT | UNCOATED | TiAlN

p.C680-687

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2554015	EQ554015	1.5	6	4	35
E2554020	EQ554020	2.0	6	7	38
E2554025	EQ554025	2.5	6	8	39
E2554030	EQ554030	3.0	6	8	39
E2554035	EQ554035	3.5	6	10	41
E2554040	EQ554040	4.0	6	11	42
E2554045	EQ554045	4.5	6	11	42
E2554050	EQ554050	5.0	6	13	44
E2554055	EQ554055	5.5	6	13	44
E2554060	EQ554060	6.0	6	13	44
E2554065	EQ554065	6.5	8	16	48
E2554070	EQ554070	7.0	8	16	48
E2554075	EQ554075	7.5	8	16	48
E2554080	EQ554080	8.0	8	19	51
E2554085	EQ554085	8.5	10	19	56
E2554090	EQ554090	9.0	10	19	56
E2554095	EQ554095	9.5	10	19	56
E2554100	EQ554100	10.0	10	22	59

▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm / Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2574** SERIES
FLAT SHANK **EQ574** SERIES

HSSCo8, 4 FLUTE SHORT LENGTH

HSSCo8, 4&6 SCHNEIDEN KURZ
Fraise HSSCo8, 4&6 dents, courte
HSSCo8, 4&6 TAGLIENTI, SERIE CORTA

Under Ø 3mm : Center cut type

HSS Co8 | DIN 844 | 4 | ≈ 30° | DIN 1835B | UNCOATED | TiAlN

p.C688-691

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
E2574020	EQ574020	2.0	6	7	51	4
E2574025	EQ574025	2.5	6	8	52	4
E2574030	EQ574030	3.0	6	8	52	4
E2574035	EQ574035	3.5	6	10	54	4
E2574040	EQ574040	4.0	6	11	55	4
E2574050	EQ574050	5.0	6	13	57	4
E2574060	EQ574060	6.0	6	13	57	4
E2574070	EQ574070	7.0	10	16	66	4
E2574080	EQ574080	8.0	10	19	69	4
E2574090	EQ574090	9.0	10	19	69	4
E2574100	EQ574100	10.0	10	22	72	4
E2574110	EQ574110	11.0	12	22	79	4
E2574120	EQ574120	12.0	12	26	83	4
E2574130	EQ574130	13.0	12	26	83	4
E2574140	EQ574140	14.0	12	26	83	4
E2574150	EQ574150	15.0	12	26	83	4
E2574160	EQ574160	16.0	16	32	92	4
E2574170	EQ574170	17.0	16	32	92	4
E2574180	EQ574180	18.0	16	32	92	4
E2574190	EQ574190	19.0	16	32	92	4
E2574200	EQ574200	20.0	20	38	104	4

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ + 0.04	h6

▶ Other shank design on your reguest.
▶ TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2595** SERIES
FLAT SHANK **EQ595** SERIES

HSSCo8, 4 FLUTE SHORT LENGTH - CENTER CUTTING

HSSCo8, 4&6 SCHNEIDEN KURZ
Fraise HSSCo8, 4&6 dents, coupe au centre, courte
4 - 6 TAGLIENTI, SERIE CORTA, TAGLIENTE AL CENTRO - HSSCo8

HSS Co8 | DIN 844 | 4 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C696-699

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E2595020	EQ595020	2.0	6	7	51
E2595030	EQ595030	3.0	6	8	52
E2595040	EQ595040	4.0	6	11	55
E2595050	EQ595050	5.0	6	13	57
E2595060	EQ595060	6.0	6	13	57
E2595070	EQ595070	7.0	10	16	66
E2595080	EQ595080	8.0	10	19	69
E2595090	EQ595090	9.0	10	19	69
E2595100	EQ595100	10.0	10	22	72
E2595110	EQ595110	11.0	12	22	79
E2595120	EQ595120	12.0	12	26	83
E2595130	EQ595130	13.0	12	26	83
E2595140	EQ595140	14.0	12	26	83
E2595150	EQ595150	15.0	12	26	83
E2595160	EQ595160	16.0	16	32	92
E2595170	EQ595170	17.0	16	32	92
E2595180	EQ595180	18.0	16	32	92
E2595190	EQ595190	19.0	16	32	92
E2595920	EQ595920	20.0	16	38	98
E2595200	EQ595200	20.0	20	38	104
E2595220	EQ595220	22.0	20	38	104
E2595250	EQ595250	25.0	25	45	121

▶ Other shank design on your reguest.
▶ TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ + 0.04	h6

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2597** SERIES
FLAT SHANK **EQ597** SERIES

HSSCo8, 4 FLUTE LONG LENGTH - CENTER CUTTING

HSSCo8, 4&6 SCHNEIDEN LANG
Fraise HSSCo8, 4&6 dents, coupe au centre, longue
4&6 TAGLIENTI, SERIE LUNGA, TAGLIENTE AL CENTRO - HSSCo8

HSS Co8 | DIN 844 | 4 | ≈30° | DIN 1835B | UNCOATED | TiAlN

p.C688-691

Recommended ToolHolder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E2597020	EQ597020	2.0	6	10	54
E2597025	EQ597025	2.5	6	12	56
E2597030	EQ597030	3.0	6	12	56
E2597035	EQ597035	3.5	6	15	59
E2597040	EQ597040	4.0	6	19	63
E2597045	EQ597045	4.5	6	19	63
E2597050	EQ597050	5.0	6	24	68
E2597055	EQ597055	5.5	6	24	68
E2597060	EQ597060	6.0	6	24	68
E2597070	EQ597070	7.0	10	30	80
E2597080	EQ597080	8.0	10	38	88
E2597090	EQ597090	9.0	10	38	88
E2597100	EQ597100	10.0	10	45	95
E2597110	EQ597110	11.0	12	45	102
E2597120	EQ597120	12.0	12	53	110
E2597130	EQ597130	13.0	12	53	110
E2597140	EQ597140	14.0	12	53	110
E2597150	EQ597150	15.0	12	53	110
E2597160	EQ597160	16.0	16	63	123
E2597170	EQ597170	17.0	16	63	123
E2597180	EQ597180	18.0	16	63	123
E2597190	EQ597190	19.0	16	63	123
E2597200	EQ597200	20.0	20	75	141

▶ Other shank design on your reguest.
▶ TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)		Shank Dia. Tolerance
up to Ø6	0 ~ + 0.04	h6
over Ø6	0 ~ + 0.05	

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

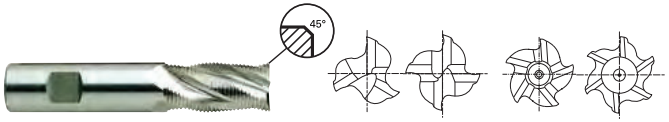
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2753** SERIES
FLAT SHANK **EQ753** SERIES

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
Fraise HSSCo8, multi-dents ébauche, pas fin, courte
MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO FINE - HSSCo8



HSS Co8 | DIN 844 | HR | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø25~ | C x 45° | UNCOATED | TiAlN

p.C692-695

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

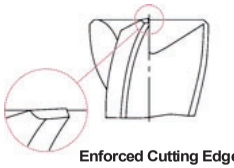
Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E2753060	EQ753060	6.0	6	13	57	3	0.18
E2753070	EQ753070	7.0	10	16	66	3	0.18
E2753080	EQ753080	8.0	10	19	69	3	0.18
E2753090	EQ753090	9.0	10	19	69	3	0.18
E2753100	EQ753100	10.0	10	22	72	4	0.18
E2753110	EQ753110	11.0	12	22	79	4	0.18
E2753120	EQ753120	12.0	12	26	83	4	0.18
E2753130	EQ753130	13.0	12	26	83	4	0.18
E2753140	EQ753140	14.0	12	26	83	4	0.25
E2753150	EQ753150	15.0	12	26	83	4	0.25
E2753160	EQ753160	16.0	16	32	92	4	0.25
E2753180	EQ753180	18.0	16	32	92	4	0.25
E2753200	EQ753200	20.0	20	38	104	4	0.25
E2753250	EQ753250	25.0	25	45	121	5	0.36
E2753280	EQ753280	28.0	25	45	121	6	0.36
E2753300	EQ753300	30.0	25	45	121	6	0.36
E2753320	EQ753320	32.0	32	53	133	6	0.51
E2753350	EQ753350	35.0	32	53	133	6	0.51
E2753400	EQ753400	40.0	32	63	155	6	0.56

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

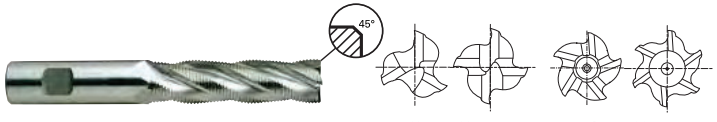
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2762** SERIES
FLAT SHANK **EQ762** SERIES

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - FINE

HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN
Fraise HSSCo8, multi-dents ébauche, pas fin, longue
MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO FINE - HSSCo8



HSS Co8 | DIN 844 | HR | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° | UNCOATED | TiAlN

p.C692-695

Recommended Tool Holder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

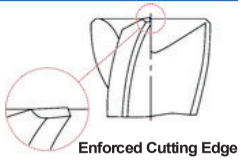
Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E2762060	EQ762060	6.0	6	24	68	3	0.18
E2762070	EQ762070	7.0	10	30	80	3	0.18
E2762080	EQ762080	8.0	10	38	88	3	0.18
E2762090	EQ762090	9.0	10	38	88	3	0.18
E2762100	EQ762100	10.0	10	45	95	4	0.18
E2762110	EQ762110	11.0	12	45	102	4	0.18
E2762120	EQ762120	12.0	12	53	110	4	0.18
E2762130	EQ762130	13.0	12	53	110	4	0.18
E2762140	EQ762140	14.0	12	53	110	4	0.25
E2762150	EQ762150	15.0	12	53	110	4	0.25
E2762160	EQ762160	16.0	16	63	123	4	0.25
E2762170	EQ762170	17.0	16	63	123	4	0.25
E2762180	EQ762180	18.0	16	63	123	4	0.25
E2762190	EQ762190	19.0	16	63	123	4	0.25
E2762200	EQ762200	20.0	20	75	141	4	0.25
E2762220	EQ762220	22.0	20	75	141	5	0.36
E2762240	EQ762240	24.0	25	90	166	5	0.36
E2762250	EQ762250	25.0	25	90	166	5	0.36
E2762260	EQ762260	26.0	25	90	166	6	0.36
E2762280	EQ762280	28.0	25	90	166	6	0.36
E2762300	EQ762300	30.0	25	90	166	6	0.36
E2762320	EQ762320	32.0	32	106	186	6	0.51
E2762350	EQ762350	35.0	32	106	186	6	0.51
E2762360	EQ762360	36.0	32	106	186	6	0.56
E2762380	EQ762380	38.0	32	125	217	6	0.56
E2762400	EQ762400	40.0	32	125	217	6	0.56
E2762940	EQ762940	40.0	40	125	217	6	0.56

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2755** SERIES

HSSCo8, 3 FLUTE 37° HELIX SHORT LENGTH ROUGHING for ALUMINUM

HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE KURZ SCHRUPPFRÄSER für ALUMINIUM
Fraise HSSCo8, 3 dents, ébauche pour aluminium, hélice 37°, courte
3 TAGLIENTI, ELICA 37°, PER SGROSSATURA, SERIE CORTA - HSSCo8

for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | WR | 3 | 37° | DIN 1835B | C x 45° | UNCOATED | TiAlN

p.C700-701

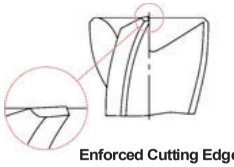
Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
UNCOATED		js12	h6			
E2755060		6.0	6	13	57	0.51
E2755080		8.0	10	19	69	0.51
E2755100		10.0	10	22	72	0.60
E2755120		12.0	12	26	83	0.74
E2755140		14.0	12	26	83	0.94
E2755160		16.0	16	32	92	0.94
E2755180		18.0	16	32	92	0.94
E2755200		20.0	20	38	104	0.94
E2755220		22.0	20	38	104	0.94
E2755250		25.0	25	45	121	0.94
E2755300		30.0	25	45	121	1.23

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.



Enforced Cutting Edge

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	○	○	○	◎	○	○		◎										

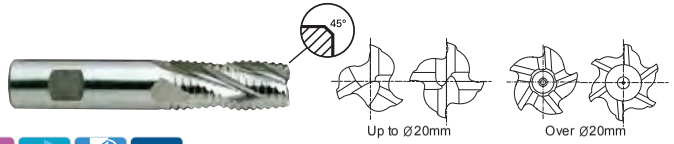
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	○																

HSS END MILLS

FLAT SHANK **E2751** SERIES
FLAT SHANK **EQ751** SERIES

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB
Fraise HSSCo8, multi-dents ébauche, pas grossier, courte
MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO GROSSO - HSSCo8



HSS Co8 | DIN 844 | NR | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° | UNCOATED | TiAlN

p.C692-695

Recommended Tool Holder

	Flat Shank	Page	Plain Shank	Page
◎	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
◎	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

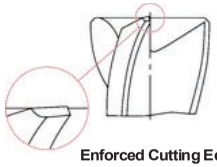
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TiAlN	js12	h6				
E2751060	EQ751060	6.0	6	13	57	3	0.25
E2751070	EQ751070	7.0	10	16	66	3	0.25
E2751080	EQ751080	8.0	10	19	69	3	0.25
E2751090	EQ751090	9.0	10	19	69	3	0.34
E2751095	EQ751095	9.5	10	19	69	3	0.34
E2751100	EQ751100	10.0	10	22	72	4	0.34
E2751110	EQ751110	11.0	12	22	79	4	0.50
E2751120	EQ751120	12.0	12	26	83	4	0.50
E2751125	EQ751125	12.5	12	26	83	4	0.50
E2751130	EQ751130	13.0	12	26	83	4	0.50
E2751140	EQ751140	14.0	12	26	83	4	0.55
E2751145	EQ751145	14.5	12	26	83	4	0.55
E2751150	EQ751150	15.0	12	26	83	4	0.55
E2751160	EQ751160	16.0	16	32	92	4	0.55
E2751170	EQ751170	17.0	16	32	92	4	0.55
E2751180	EQ751180	18.0	16	32	92	4	0.55
E2751190	EQ751190	19.0	16	32	92	4	0.55
E2751200	EQ751200	20.0	20	38	104	4	0.55
E2751901	EQ751901	20.0	16	38	98	4	0.55
E2751220	EQ751220	22.0	20	38	104	5	0.55

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

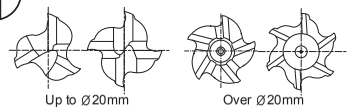
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2751** SERIES
FLAT SHANK **EQ751** SERIES

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE

- HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB
- Fraise HSSCo8, multi-dents ébauche, pas grossier, courte
- MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO GROSSO - HSSCo8



HSS Co8 | DIN 844 | NR | 3-6 | 30° | DIN 1835B
~Ø20 | Ø22~ | C x 45° | UNCOATED | TiAlN

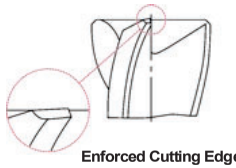
p.C692-695

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E2751240	EQ751240	24.0	25	45	121	5	0.55
E2751250	EQ751250	25.0	25	45	121	5	0.55
E2751260	EQ751260	26.0	25	45	121	6	0.55
E2751280	EQ751280	28.0	25	45	121	6	0.70
E2751300	EQ751300	30.0	25	45	121	6	0.70
E2751320	EQ751320	32.0	32	53	133	6	0.70
E2751340	EQ751340	34.0	32	53	133	6	0.70
E2751350	EQ751350	35.0	32	53	133	6	0.70
E2751360	EQ751360	36.0	32	53	133	6	0.70
E2751380	EQ751380	38.0	32	63	155	6	0.70
E2751938	EQ751938	38.0	40	63	155	6	0.70
E2751400	EQ751400	40.0	32	63	155	6	0.88
E2751940	EQ751940	40.0	40	63	155	6	0.88
E2751450	EQ751450	45.0	32	63	143	6	0.88
E2751500	EQ751500	50.0	50	75	177	6	0.88

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.



Enforced Cutting Edge

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

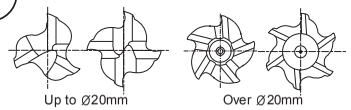
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

FLAT SHANK **E2752** SERIES
FLAT SHANK **EQ752** SERIES

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE

- HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - GROB
- Fraise HSSCo8, multi-dents ébauche, pas grossier, longue
- MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSSCo8



HSS Co8 | DIN 844 | NR | 3-6 | 30° | DIN 1835B
~Ø20 | Ø22~ | C x 45° | UNCOATED | TiAlN

p.C692-695

Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
	END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
	-	-	ER COLLET CHUCK	D73 - 116
			SK SLIM CHUCK	D183 - 201

Unit : mm

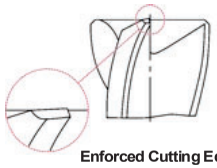
EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E2752060	EQ752060	6.0	6	24	68	3	0.25
E2752070	EQ752070	7.0	10	30	80	3	0.25
E2752080	EQ752080	8.0	10	38	88	3	0.25
E2752090	EQ752090	9.0	10	38	88	3	0.34
E2752100	EQ752100	10.0	10	45	95	4	0.34
E2752110	EQ752110	11.0	12	45	102	4	0.50
E2752120	EQ752120	12.0	12	53	110	4	0.50
E2752130	EQ752130	13.0	12	53	110	4	0.50
E2752140	EQ752140	14.0	12	53	110	4	0.55
E2752150	EQ752150	15.0	12	53	110	4	0.55
E2752160	EQ752160	16.0	16	63	123	4	0.55
E2752170	EQ752170	17.0	16	63	123	4	0.55
E2752180	EQ752180	18.0	16	63	123	4	0.55
E2752190	EQ752190	19.0	16	63	123	4	0.55
E2752200	EQ752200	20.0	20	75	141	4	0.55
E2752901	EQ752901	20.0	16	75	135	4	0.55
E2752220	EQ752220	22.0	20	75	141	5	0.55
E2752902	EQ752902	22.0	25	75	151	5	0.55

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Tolerance range in μm / Nominal-Diameter in mm	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

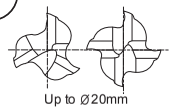
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

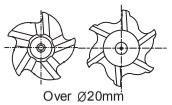
HSS END MILLS

FLAT SHANK **E2752** SERIES
FLAT SHANK **EQ752** SERIES

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE

- HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - GROB
- Fraise HSSCo8, multi-dents ébauche, pas grossier, longue
- MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSSCo8


Up to Ø20mm


Over Ø20mm

HSS Co8 | DIN 844 | NR | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° | UNCOATED | TiAlN

p.C692-695

Recommended Tool Holder

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D118 - 137	POWER MILLING CHUCK	D161 - 176
-	-	ER COLLET CHUCK	D73 - 116
		SK SLIM CHUCK	D183 - 201

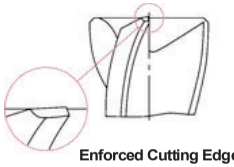
Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
E2752240	EQ752240	24.0	25	90	166	5	0.55
E2752250	EQ752250	25.0	25	90	166	5	0.55
E2752260	EQ752260	26.0	25	90	166	6	0.55
E2752280	EQ752280	28.0	25	90	166	6	0.70
E2752300	EQ752300	30.0	25	90	166	6	0.70
E2752320	EQ752320	32.0	32	106	186	6	0.70
E2752350	EQ752350	35.0	32	106	186	6	0.70
E2752360	EQ752360	36.0	32	106	186	6	0.70
E2752380	EQ752380	38.0	32	125	217	6	0.70
E2752938	EQ752938	38.0	40	125	217	6	0.70
E2752400	EQ752400	40.0	32	125	217	6	0.88
E2752940	EQ752940	40.0	40	125	217	6	0.88

▶ Other shank design on your request.
▶ TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161

	Tolerance range in μm — Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
js12	±50	±60	±75	±90	±105	±125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16


Enforced Cutting Edge

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

HSS END MILLS

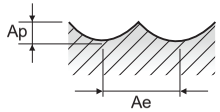
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2535, E2492 SERIES — 2 FLUTE BALL NOSE

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.7D	0.3D	Vc	40	40	40	40	40	40	40	40	40
					fz	0.011	0.018	0.031	0.05	0.069	0.085	0.094	0.117	0.13
					RPM	4244	3183	2122	1592	1273	1061	796	637	509
					FEED	93	115	132	159	176	180	150	149	132
	2		0.7D	0.3D	Vc	30	30	30	30	30	30	30	30	30
					fz	0.01	0.017	0.026	0.044	0.06	0.066	0.083	0.085	0.088
					RPM	3183	2387	1592	1194	955	796	597	477	382
					FEED	64	81	83	105	115	105	99	81	67
	3-4		0.7D	0.3D	Vc	20	20	20	20	20	15	20	20	15
					fz	0.008	0.013	0.023	0.036	0.054	0.061	0.079	0.083	0.091
					RPM	2122	1592	1061	796	637	398	398	318	191
					FEED	34	41	49	57	69	49	63	53	35
	5		0.7D	0.3D	Vc	15	15	15	15	15	10	15	15	15
					fz	0.007	0.013	0.018	0.03	0.044	0.055	0.07	0.088	0.094
					RPM	1592	1194	796	597	477	265	298	239	191
					FEED	22	31	29	36	42	29	42	42	36
	6	Low alloy steel	0.7D	0.3D	Vc	30	30	30	30	30	30	30	30	30
					fz	0.01	0.017	0.026	0.044	0.06	0.066	0.083	0.085	0.088
					RPM	3183	2387	1592	1194	955	796	597	477	382
					FEED	64	81	83	105	115	105	99	81	67
	7		0.7D	0.3D	Vc	20	20	20	20	20	15	20	20	15
					fz	0.008	0.013	0.023	0.036	0.054	0.061	0.079	0.083	0.091
					RPM	2122	1592	1061	796	637	398	398	318	191
					FEED	34	41	49	57	69	49	63	53	35
	8-9		0.7D	0.3D	Vc	15	15	15	15	15	10	15	15	15
					fz	0.007	0.013	0.018	0.03	0.044	0.055	0.07	0.088	0.094
					RPM	1592	1194	796	597	477	265	298	239	191
					FEED	22	31	29	36	42	29	42	42	36
	10	High alloyed steel, and tool steel	0.7D	0.3D	Vc	30	30	30	30	30	30	30	30	30
					fz	0.01	0.017	0.026	0.044	0.06	0.066	0.083	0.085	0.088
					RPM	3183	2387	1592	1194	955	796	597	477	382
					FEED	64	81	83	105	115	105	99	81	67
	11,1		0.7D	0.3D	Vc	15	15	15	15	15	10	15	15	15
					fz	0.007	0.013	0.018	0.03	0.044	0.055	0.07	0.088	0.094
					RPM	1592	1194	796	597	477	265	298	239	191
					FEED	22	31	29	36	42	29	42	42	36
N	21-22	Aluminum-wrought alloy	0.7D	0.3D	Vc	105	100	105	100	100	95	100	100	100
					fz	0.01	0.016	0.025	0.044	0.056	0.068	0.075	0.088	0.096
					RPM	11141	7958	5570	3979	3183	2520	1989	1592	1273
					FEED	223	255	279	350	357	343	298	280	244
	23-24	Aluminum-cast, alloyed	0.7D	0.3D	Vc	68	65	68	65	65	62	65	65	65
					fz	0.01	0.016	0.025	0.044	0.056	0.068	0.075	0.088	0.096
					RPM	7215	5173	3608	2586	2069	1645	1293	1035	828
					FEED	144	166	180	228	232	224	194	182	159

※The FEED, in long & extra long types, should be reduced by around 50%



HSS END MILLS

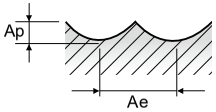
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ535, EQ492 SERIES — 2 FLUTE BALL NOSE TiAlN COATED

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
P	1	Non-alloy steel	0.7D	0.3D	Vc	60	55	60	55	55	55	55	55	55
					fz	0.011	0.018	0.031	0.05	0.069	0.086	0.095	0.115	0.129
					RPM	6366	4377	3183	2188	1751	1459	1094	875	700
					FEED	140	158	197	219	242	251	208	201	181
	2		0.7D	0.3D	Vc	45	40	45	45	45	40	45	45	45
					fz	0.011	0.016	0.026	0.043	0.061	0.066	0.082	0.086	0.091
					RPM	4775	3183	2387	1790	1432	1061	895	716	573
					FEED	105	102	124	154	175	140	147	123	104
	3-4		0.7D	0.3D	Vc	25	25	25	25	25	25	25	25	25
					fz	0.007	0.013	0.023	0.035	0.053	0.058	0.075	0.088	0.092
					RPM	2653	1989	1326	995	796	663	497	398	318
					FEED	37	52	61	70	84	77	75	70	59
	5		0.7D	0.3D	Vc	20	20	20	20	15	15	20	20	15
					fz	0.008	0.013	0.018	0.029	0.045	0.056	0.071	0.083	0.1
					RPM	2122	1592	1061	796	477	398	398	318	191
					FEED	34	41	38	46	43	45	57	53	38
	6	Low alloy steel	0.7D	0.3D	Vc	45	40	45	45	45	40	45	45	45
					fz	0.011	0.016	0.026	0.043	0.061	0.066	0.082	0.086	0.091
					RPM	4775	3183	2387	1790	1432	1061	895	716	573
					FEED	105	102	124	154	175	140	147	123	104
	7		0.7D	0.3D	Vc	25	25	25	25	25	25	25	25	25
					fz	0.007	0.013	0.023	0.035	0.053	0.058	0.075	0.088	0.092
					RPM	2653	1989	1326	995	796	663	497	398	318
					FEED	37	52	61	70	84	77	75	70	59
	8-9		0.7D	0.3D	Vc	20	20	20	20	15	15	20	20	15
					fz	0.008	0.013	0.018	0.029	0.045	0.056	0.071	0.083	0.1
					RPM	2122	1592	1061	796	477	398	398	318	191
					FEED	34	41	38	46	43	45	57	53	38
	10	High alloyed steel, and tool steel	0.7D	0.3D	Vc	45	40	45	45	45	40	45	45	45
					fz	0.011	0.016	0.026	0.043	0.061	0.066	0.082	0.086	0.091
					RPM	4775	3183	2387	1790	1432	1061	895	716	573
					FEED	105	102	124	154	175	140	147	123	104
	11.1		0.7D	0.3D	Vc	20	20	20	20	15	15	20	20	15
					fz	0.008	0.013	0.018	0.029	0.045	0.056	0.071	0.083	0.1
					RPM	2122	1592	1061	796	477	398	398	318	191
					FEED	34	41	38	46	43	45	57	53	38
N	21-22	Aluminum-wrought alloy	0.7D	0.3D	Vc	145	140	150	140	140	130	140	140	140
					fz	0.01	0.016	0.025	0.044	0.056	0.068	0.075	0.087	0.097
					RPM	15385	11141	7958	5570	4456	3448	2785	2228	1783
					FEED	308	357	398	490	499	469	418	388	346
	23-24	Aluminum-cast, alloyed	0.7D	0.3D	Vc	94	91	98	91	91	85	91	91	91
					fz	0.01	0.016	0.025	0.044	0.056	0.068	0.075	0.087	0.097
					RPM	9974	7242	5199	3621	2897	2255	1810	1448	1159
					FEED	199	232	260	319	324	307	272	252	225

※The FEED, in long & extra long types, should be reduced by around 50%

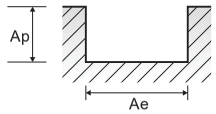


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EL612 SERIES — 1 FLUTE - SLOTTING

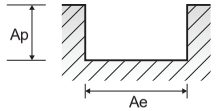
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	4.0	5.0	6.0	7.0	8.0	10.0
N	21-22	Aluminum-wrought alloy	1.0D	0.5D (~Ø3:0.2D)	Vc	188	226	220	207	220	214	220
					fz	0.055	0.053	0.054	0.055	0.055	0.053	0.054
					RPM	19947	17985	14006	10982	10004	8515	7003
					FEED	1097	953	756	604	550	451	378
	23-24	Aluminum-cast, alloyed	1.0D	0.5D (~Ø3:0.2D)	Vc	122	147	143	135	143	139	143
					fz	0.055	0.053	0.054	0.055	0.055	0.053	0.054
					RPM	12945	11698	9104	7162	6503	5531	4552
					FEED	712	620	492	394	358	293	246



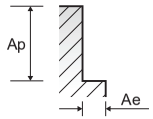
E2464, E2509 SERIES — 2 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	75	130	150	155	190	155	175	130	145
					fz	0.035	0.05	0.071	0.12	0.12	0.177	0.177	0.283	0.283
					RPM	7958	6897	5968	4934	5040	3524	3482	2299	2308
					FEED	557	690	848	1184	1210	1248	1232	1301	1306
	23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	49	85	98	101	124	101	114	85	94
					fz	0.035	0.05	0.071	0.12	0.12	0.177	0.177	0.283	0.283
					RPM	5199	4509	3899	3215	3289	2296	2268	1503	1496
					FEED	364	451	554	772	789	813	803	851	847



E2464, E2509 SERIES — 2 FLUTE - SITE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21-22	Aluminum-wrought alloy	Ø3~Ø10-0.25D Ø12~Ø20-0.5D	1.0D	Vc	75	130	150	155	190	155	175	130	145
					fz	0.046	0.064	0.092	0.15	0.15	0.229	0.229	0.37	0.37
					RPM	7958	6897	5968	4934	5040	3524	3482	2299	2308
					FEED	732	883	1098	1480	1512	1614	1595	1701	1708
	23-24	Aluminum-cast, alloyed	Ø3~Ø10-0.25D Ø12~Ø20-0.5D	1.0D	Vc	49	85	98	101	124	101	114	85	94
					fz	0.046	0.064	0.092	0.15	0.15	0.229	0.229	0.37	0.37
					RPM	5199	4509	3899	3215	3289	2296	2268	1503	1496
					FEED	478	577	717	964	987	1052	1039	1112	1107



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2570, E2571, E2510 SERIES 2 FLUTE - SLOTTING

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	35	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.061
					RPM	5570	3714	2785	2228	1857	1393	1114	928
					FEED	45	59	72	89	93	100	100	113
	2		1.0D	0.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.003	0.007	0.013	0.019	0.025	0.041	0.05	0.063
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	29	45	62	73	80	98	95	100
	3-4		1.0D	0.5D	Vc	25	25	25	25	25	25	25	25
					fz	0.004	0.008	0.013	0.019	0.025	0.039	0.05	0.063
					RPM	3979	2653	1989	1592	1326	995	796	663
					FEED	32	42	52	60	66	78	80	84
	5		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.003	0.006	0.014	0.019	0.025	0.04	0.05	0.063
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	19	33	36	40	48	48	50
	6	Low alloy steel	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.003	0.007	0.013	0.019	0.025	0.041	0.05	0.063
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	29	45	62	73	80	98	95	100
	7		1.0D	0.5D	Vc	25	25	25	25	25	25	25	25
					fz	0.004	0.008	0.013	0.019	0.025	0.039	0.05	0.063
					RPM	3979	2653	1989	1592	1326	995	796	663
					FEED	32	42	52	60	66	78	80	84
	8-9		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.003	0.006	0.014	0.019	0.025	0.04	0.05	0.063
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	19	33	36	40	48	48	50
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.003	0.007	0.013	0.019	0.025	0.041	0.05	0.063
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	29	45	62	73	80	98	95	100
	11.1		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.003	0.006	0.014	0.019	0.025	0.04	0.05	0.063
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	19	33	36	40	48	48	50
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	75	105	100	100	105	100	95	95
					fz	0.007	0.011	0.018	0.025	0.028	0.049	0.065	0.076
					RPM	11937	11141	7958	6366	5570	3979	3024	2520
					FEED	167	245	286	318	312	390	393	383
	23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	49	68	65	65	68	65	62	62
					fz	0.007	0.011	0.018	0.025	0.028	0.049	0.065	0.076
					RPM	7799	7215	5173	4138	3608	2586	1974	1645
					FEED	109	159	186	207	202	253	257	250

※The FEED, in long & extra long types, should be reduced by around 50%

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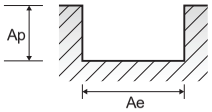
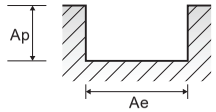


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2570, E2571, E2510 SERIES 2 FLUTE - SLOTTING

Vc = m/min.
Fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35
	fz	0.069	0.079	0.079	0.089	0.1	0.1	0.1	0.1	0.1	0.097	0.107
	RPM	796	696	619	557	506	446	398	371	348	309	279
	FEED	110	110	98	99	101	89	80	74	70	60	60
2	Vc	30	30	30	30	30	30	30	30	30	30	30
	fz	0.064	0.08	0.09	0.1	0.1	0.1	0.1	0.097	0.098	0.1	0.114
	RPM	682	597	531	477	434	382	341	318	298	265	239
	FEED	87	95	95	95	87	76	68	62	58	53	54
3-4	Vc	25	25	25	25	25	25	25	25	20	25	25
	fz	0.071	0.078	0.088	0.088	0.1	0.097	0.098	0.1	0.102	0.1	0.111
	RPM	568	497	442	398	362	318	284	265	199	221	199
	FEED	81	78	78	70	72	62	56	53	41	44	44
5	Vc	15	15	15	15	15	15	15	15	15	15	15
	fz	0.071	0.08	0.09	0.102	0.102	0.097	0.094	0.094	0.107	0.104	0.114
	RPM	341	298	265	239	217	191	171	159	149	133	119
	FEED	48	48	48	49	44	37	32	30	32	28	27
6	Vc	30	30	30	30	30	30	30	30	30	30	30
	fz	0.064	0.08	0.09	0.1	0.1	0.1	0.1	0.097	0.098	0.1	0.114
	RPM	682	597	531	477	434	382	341	318	298	265	239
	FEED	87	95	95	95	87	76	68	62	58	53	54
7	Vc	25	25	25	25	25	25	25	25	20	25	25
	fz	0.071	0.078	0.088	0.088	0.1	0.097	0.098	0.1	0.102	0.1	0.111
	RPM	568	497	442	398	362	318	284	265	199	221	199
	FEED	81	78	78	70	72	62	56	53	41	44	44
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15
	fz	0.071	0.08	0.09	0.102	0.102	0.097	0.094	0.094	0.107	0.104	0.114
	RPM	341	298	265	239	217	191	171	159	149	133	119
	FEED	48	48	48	49	44	37	32	30	32	28	27
10	Vc	30	30	30	30	30	30	30	30	30	30	30
	fz	0.064	0.08	0.09	0.1	0.1	0.1	0.1	0.097	0.098	0.1	0.114
	RPM	682	597	531	477	434	382	341	318	298	265	239
	FEED	87	95	95	95	87	76	68	62	58	53	54
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15
	fz	0.071	0.08	0.09	0.102	0.102	0.097	0.094	0.094	0.107	0.104	0.114
	RPM	341	298	265	239	217	191	171	159	149	133	119
	FEED	48	48	48	49	44	37	32	30	32	28	27
21 - 22	Vc	95	100	100	100	95	95	95	105	100	100	100
	fz	0.08	0.088	0.097	0.1	0.107	0.117	0.123	0.123	0.12	0.122	0.125
	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	884	796
	FEED	346	350	343	318	294	283	266	274	239	216	199
23 - 24	Vc	62	65	65	65	62	62	62	68	65	65	65
	fz	0.08	0.088	0.097	0.1	0.107	0.117	0.123	0.123	0.12	0.122	0.125
	RPM	1410	1293	1149	1035	897	789	705	722	647	575	517
	FEED	226	228	223	207	192	185	173	177	155	140	129



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ570, EQ571, EQ510 SERIES — 2 FLUTE TiALN COATED - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	50	45	50	50	45	50	50	45
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.062
					RPM	7958	4775	3979	3183	2387	1989	1592	1194
					FEED	64	76	103	127	119	143	143	148
	2		1.0D	0.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.007	0.012	0.02	0.024	0.04	0.05	0.064
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	38	59	76	102	102	127	127	136
	3-4		1.0D	0.5D	Vc	35	35	30	35	30	30	35	35
					fz	0.004	0.008	0.013	0.019	0.025	0.04	0.05	0.061
					RPM	5570	3714	2387	2228	1592	1194	1114	928
					FEED	45	59	62	85	80	95	111	113
	5		1.0D	0.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.003	0.007	0.013	0.02	0.025	0.041	0.05	0.064
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	30	41	51	53	65	64	68
	6	Low alloy steel	1.0D	0.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.007	0.012	0.02	0.024	0.04	0.05	0.064
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	38	59	76	102	102	127	127	136
	7		1.0D	0.5D	Vc	35	35	30	35	30	30	35	35
					fz	0.004	0.008	0.013	0.019	0.025	0.04	0.05	0.061
					RPM	5570	3714	2387	2228	1592	1194	1114	928
					FEED	45	59	62	85	80	95	111	113
	8-9		1.0D	0.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.003	0.007	0.013	0.02	0.025	0.041	0.05	0.064
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	30	41	51	53	65	64	68
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.007	0.012	0.02	0.024	0.04	0.05	0.064
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	38	59	76	102	102	127	127	136
	11.1		1.0D	0.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.003	0.007	0.013	0.02	0.025	0.041	0.05	0.064
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	30	41	51	53	65	64	68
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	105	145	140	140	150	140	135	130
					fz	0.007	0.011	0.018	0.025	0.028	0.049	0.064	0.076
					RPM	16711	15385	11141	8913	7958	5570	4297	3448
					FEED	234	338	401	446	446	546	550	524
	23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	68	94	91	91	98	91	88	85
					fz	0.007	0.011	0.018	0.025	0.028	0.049	0.064	0.076
					RPM	10823	9974	7242	5793	5199	3621	2801	2255
					FEED	152	219	261	290	291	355	359	343

※The FEED, in long & extra long types, should be reduced by around 50%

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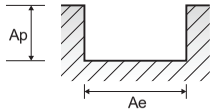
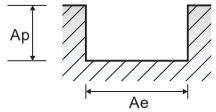


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ570, EQ571, EQ510 SERIES — 2 FLUTE TiALN COATED - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50
	fz	0.07	0.078	0.078	0.088	0.1	0.096	0.1	0.1	0.1	0.094	0.106
	RPM	1137	995	884	796	723	637	568	477	497	442	398
	FEED	159	155	138	140	145	122	114	95	99	83	84
2	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.063	0.078	0.089	0.096	0.096	0.1	0.1	0.094	0.094	0.1	0.117
	RPM	1023	796	707	637	651	573	512	424	398	354	318
	FEED	129	124	126	122	125	115	102	80	75	71	74
3-4	Vc	35	35	30	35	35	35	35	35	30	35	30
	fz	0.069	0.077	0.091	0.091	0.1	0.094	0.094	0.1	0.108	0.092	0.11
	RPM	796	696	531	557	506	446	398	371	298	309	239
	FEED	110	107	97	101	101	84	75	74	64	57	53
5	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.07	0.081	0.093	0.108	0.108	0.1	0.1	0.1	0.1	0.117	0.117
	RPM	455	398	354	318	289	255	227	212	199	133	159
	FEED	64	64	66	69	63	51	45	42	40	31	37
6	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.063	0.078	0.089	0.096	0.096	0.1	0.1	0.094	0.094	0.1	0.117
	RPM	1023	796	707	637	651	573	512	424	398	354	318
	FEED	129	124	126	122	125	115	102	80	75	71	74
7	Vc	35	35	30	35	35	35	35	35	30	35	30
	fz	0.069	0.077	0.091	0.091	0.1	0.094	0.094	0.1	0.108	0.092	0.11
	RPM	796	696	531	557	506	446	398	371	298	309	239
	FEED	110	107	97	101	101	84	75	74	64	57	53
8-9	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.07	0.081	0.093	0.108	0.108	0.1	0.1	0.1	0.1	0.117	0.117
	RPM	455	398	354	318	289	255	227	212	199	133	159
	FEED	64	64	66	69	63	51	45	42	40	31	37
10	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.063	0.078	0.089	0.096	0.096	0.1	0.1	0.094	0.094	0.1	0.117
	RPM	1023	796	707	637	651	573	512	424	398	354	318
	FEED	129	124	126	122	125	115	102	80	75	71	74
11.1	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.07	0.081	0.093	0.108	0.108	0.1	0.1	0.1	0.1	0.117	0.117
	RPM	455	398	354	318	289	255	227	212	199	133	159
	FEED	64	64	66	69	63	51	45	42	40	31	37
21 - 22	Vc	135	140	140	140	135	135	135	145	140	140	140
	fz	0.079	0.088	0.098	0.1	0.108	0.115	0.123	0.123	0.12	0.124	0.127
	RPM	3069	2785	2476	2228	1953	1719	1535	1538	1393	1238	1114
	FEED	485	490	485	446	422	395	378	378	334	307	283
23 - 24	Vc	88	91	91	91	88	88	88	94	91	91	91
	fz	0.079	0.088	0.098	0.1	0.108	0.115	0.123	0.123	0.12	0.124	0.127
	RPM	2001	1810	1609	1448	1273	1120	1000	997	905	805	724
	FEED	316	319	315	290	275	258	246	245	217	200	184



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2572, E2573, E2516, E2553, E2554 SERIES — 3 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	35	35	35	35	35	35	35	35
					fz	0.002	0.005	0.007	0.012	0.015	0.021	0.027	0.037
					RPM	5570	3714	2785	2228	1857	1393	1114	928
					FEED	33	56	58	80	84	88	90	103
	2		1.0D	0.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	29	38	50	57	67	75	74	79
	3-4		1.0D	0.5D	Vc	25	25	25	25	25	25	25	25
					fz	0.002	0.003	0.006	0.008	0.011	0.019	0.023	0.029
					RPM	3979	2653	1989	1592	1326	995	796	663
					FEED	24	24	36	38	44	57	55	58
	5		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	14	21	20	24	32	32	35
	6	Low alloy steel	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	29	38	50	57	67	75	74	79
	7		1.0D	0.5D	Vc	25	25	25	25	25	25	25	25
					fz	0.002	0.003	0.006	0.008	0.011	0.019	0.023	0.029
					RPM	3979	2653	1989	1592	1326	995	796	663
					FEED	24	24	36	38	44	57	55	58
	8-9		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	14	21	20	24	32	32	35
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	29	38	50	57	67	75	74	79
	11.1		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	14	21	20	24	32	32	35
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	75	105	100	100	105	100	95	95
					fz	0.003	0.005	0.008	0.011	0.013	0.022	0.029	0.035
					RPM	11937	11141	7958	6366	5570	3979	3024	2520
					FEED	107	167	191	210	217	263	263	265
	23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	49	68	65	65	68	65	62	62
					fz	0.003	0.005	0.008	0.011	0.013	0.022	0.029	0.035
					RPM	7799	7215	5173	4138	3608	2586	1974	1645
					FEED	70	108	124	137	141	171	172	173

※The FEED, in long & extra long types, should be reduced by around 50%

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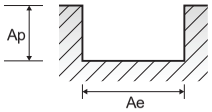
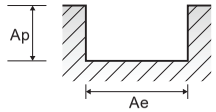


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2572, E2573, E2516, E2553, E2554 SERIES — 3 FLUTE - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.042	0.048	0.048	0.054	0.06	0.059	0.058	0.057	0.057	0.057	0.059	0.065
	RPM	796	696	619	557	506	446	398	371	348	318	309	279
	FEED	100	100	89	90	91	79	69	64	60	54	55	54
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	68	75	75	74	68	62	53	52	48	42	42	44
3-4	Vc	25	25	25	25	25	25	25	25	20	25	25	25
	fz	0.033	0.037	0.042	0.042	0.048	0.043	0.042	0.04	0.045	0.04	0.042	0.046
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	56	55	56	50	52	41	36	32	27	27	28	27
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
	FEED	34	32	32	32	29	21	21	20	21	16	17	16
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	68	75	75	74	68	62	53	52	48	42	42	44
7	Vc	25	25	25	25	25	25	25	25	20	25	25	25
	fz	0.033	0.037	0.042	0.042	0.048	0.043	0.042	0.04	0.045	0.04	0.042	0.046
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	56	55	56	50	52	41	36	32	27	27	28	27
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
	FEED	34	32	32	32	29	21	21	20	21	16	17	16
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	68	75	75	74	68	62	53	52	48	42	42	44
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
	FEED	34	32	32	32	29	21	21	20	21	16	17	16
21 - 22	Vc	95	100	100	100	95	95	95	105	100	105	100	100
	fz	0.036	0.04	0.044	0.046	0.048	0.053	0.055	0.055	0.053	0.053	0.056	0.054
	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	955	884	796
	FEED	233	239	233	220	198	192	178	184	158	152	149	129
23 - 24	Vc	62	65	65	65	62	62	62	68	65	68	65	65
	fz	0.036	0.04	0.044	0.046	0.048	0.053	0.055	0.055	0.053	0.053	0.056	0.054
	RPM	1410	1293	1149	1035	897	789	705	722	647	618	575	517
	FEED	152	155	152	143	129	126	116	119	103	98	97	84



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2572, E2573, E2516, E2553, E2554 SERIES — 3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	35	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.061
					RPM	5570	3714	2785	2228	1857	1393	1114	928
					FEED	67	89	109	134	139	150	150	170
	2		0.1D	1.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	43	57	79	103	110	129	126	134
	3-4		0.1D	1.5D	Vc	25	25	25	25	25	25	25	25
					fz	0.003	0.006	0.009	0.014	0.018	0.03	0.038	0.048
					RPM	3979	2653	1989	1592	1326	995	796	663
					FEED	36	48	54	67	72	90	91	95
	5		0.1D	1.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	19	32	37	45	54	53	55
	6	Low alloy steel	0.1D	1.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	43	57	79	103	110	129	126	134
	7		0.1D	1.5D	Vc	25	25	25	25	25	25	25	25
					fz	0.003	0.006	0.009	0.014	0.018	0.03	0.038	0.048
					RPM	3979	2653	1989	1592	1326	995	796	663
					FEED	36	48	54	67	72	90	91	95
	8-9		0.1D	1.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	19	32	37	45	54	53	55
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	30	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056
					RPM	4775	3183	2387	1910	1592	1194	955	796
					FEED	43	57	79	103	110	129	126	134
	11.1		0.1D	1.5D	Vc	15	15	15	15	15	15	15	15
					fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046
					RPM	2387	1592	1194	955	796	597	477	398
					FEED	14	19	32	37	45	54	53	55
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	75	105	100	100	105	100	95	95
					fz	0.005	0.008	0.014	0.019	0.021	0.037	0.048	0.057
					RPM	11937	11141	7958	6366	5570	3979	3024	2520
					FEED	179	267	334	363	351	442	435	431
	23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	49	68	65	65	68	65	62	62
					fz	0.005	0.008	0.014	0.019	0.021	0.037	0.048	0.057
					RPM	7799	7215	5173	4138	3608	2586	1974	1645
					FEED	117	173	217	236	227	287	284	281

※The FEED, in long & extra long types, should be reduced by around 50%

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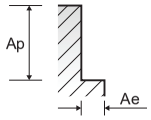
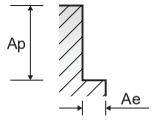


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2572, E2573, E2516, E2553, E2554 SERIES — 3 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.069	0.079	0.079	0.089	0.1	0.1	0.1	0.1	0.1	0.099	0.097	0.107
	RPM	796	696	619	557	506	446	398	371	348	318	309	279
	FEED	165	165	147	149	152	134	119	111	104	95	90	89
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	117	127	127	127	116	105	92	82	80	68	69	70
3-4	Vc	25	25	25	25	25	25	25	25	20	25	25	25
	fz	0.054	0.059	0.067	0.067	0.076	0.07	0.071	0.073	0.076	0.071	0.075	0.083
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	92	88	89	80	82	67	61	58	45	48	50	50
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
	FEED	53	54	53	54	49	37	32	30	32	26	27	27
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	117	127	127	127	116	105	92	82	80	68	69	70
7	Vc	25	25	25	25	25	25	25	25	20	25	25	25
	fz	0.054	0.059	0.067	0.067	0.076	0.07	0.071	0.073	0.076	0.071	0.075	0.083
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	92	88	89	80	82	67	61	58	45	48	50	50
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
	FEED	53	54	53	54	49	37	32	30	32	26	27	27
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	117	127	127	127	116	105	92	82	80	68	69	70
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
	FEED	53	54	53	54	49	37	32	30	32	26	27	27
21 - 22	Vc	95	100	100	100	95	95	95	105	100	105	100	100
	fz	0.061	0.067	0.074	0.075	0.081	0.089	0.091	0.091	0.09	0.091	0.093	0.092
	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	955	884	796
	FEED	395	400	393	358	334	323	295	304	269	261	247	220
23 - 24	Vc	62	65	65	65	62	62	62	68	65	68	65	65
	fz	0.061	0.067	0.074	0.075	0.081	0.089	0.091	0.091	0.09	0.091	0.093	0.092
	RPM	1410	1293	1149	1035	897	789	705	722	647	618	575	517
	FEED	258	260	255	233	218	211	192	197	175	169	160	143



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ572, EQ573, EQ516, EQ553, EQ554 SERIES

3 FLUTE TiAlN COATED - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	1.0D	0.5D	Vc	50	45	50	50	45	50	45	50
					fz	0.002	0.005	0.007	0.012	0.015	0.021	0.028	0.036
					RPM	7958	4775	3979	3183	2387	1989	1432	1326
					FEED	48	72	84	115	107	125	120	143
	2		1.0D	0.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.002	0.004	0.006	0.01	0.014	0.022	0.028	0.033
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	38	51	57	76	89	105	107	105
	3-4		1.0D	0.5D	Vc	35	35	30	35	30	35	35	35
					fz	0.002	0.003	0.005	0.008	0.011	0.018	0.023	0.028
					RPM	5570	3714	2387	2228	1592	1393	1114	928
					FEED	33	33	36	53	53	75	77	78
	5		1.0D	0.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.003	0.007	0.008	0.011	0.017	0.021	0.03
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	19	33	31	35	41	40	48
	6	Low alloy steel	1.0D	0.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.002	0.004	0.006	0.01	0.014	0.022	0.028	0.033
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	38	51	57	76	89	105	107	105
	7		1.0D	0.5D	Vc	35	35	30	35	30	35	35	35
					fz	0.002	0.003	0.005	0.008	0.011	0.018	0.023	0.028
					RPM	5570	3714	2387	2228	1592	1393	1114	928
					FEED	33	33	36	53	53	75	77	78
	8-9		1.0D	0.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.003	0.007	0.008	0.011	0.017	0.021	0.03
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	19	33	31	35	41	40	48
	10	High alloyed steel, and tool steel	1.0D	0.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.002	0.004	0.006	0.01	0.014	0.022	0.028	0.033
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	38	51	57	76	89	105	107	105
	11.1		1.0D	0.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.003	0.007	0.008	0.011	0.017	0.021	0.03
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	19	33	31	35	41	40	48
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	105	145	140	140	145	140	135	130
					fz	0.003	0.005	0.008	0.011	0.012	0.021	0.029	0.034
					RPM	16711	15385	11141	8913	7692	5570	4297	3448
					FEED	150	231	267	294	277	351	374	352
	23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	68	94	91	91	94	91	88	85
					fz	0.003	0.005	0.008	0.011	0.012	0.021	0.029	0.034
					RPM	10823	9974	7242	5793	4987	3621	2801	2255
					FEED	97	150	174	191	180	228	244	230

※The FEED, in long & extra long types, should be reduced by around 50%

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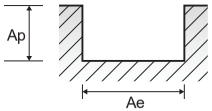


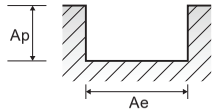
HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ572, EQ573, EQ516, EQ553, EQ554 SERIES

3 FLUTE TiAlN COATED - SLOTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50	50
	fz	0.042	0.048	0.047	0.053	0.06	0.058	0.06	0.058	0.058	0.059	0.058	0.064
	RPM	1137	995	884	796	723	637	568	477	497	455	442	398
	FEED	143	143	125	127	130	111	102	83	87	80	77	76
2	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.034	0.043	0.048	0.053	0.053	0.054	0.051	0.054	0.056	0.056	0.052	0.059
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	104	103	102	101	104	93	78	69	67	61	55	56
3-4	Vc	35	30	30	35	35	35	35	35	30	30	30	30
	fz	0.032	0.037	0.042	0.042	0.048	0.043	0.043	0.038	0.043	0.04	0.042	0.047
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
	FEED	76	66	67	70	73	57	51	42	38	33	33	34
5	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.034	0.034	0.038	0.043	0.043	0.04	0.045	0.045	0.05	0.046	0.039	0.044
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	46	41	40	41	37	31	31	29	30	25	21	21
6	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.034	0.043	0.048	0.053	0.053	0.054	0.051	0.054	0.056	0.056	0.052	0.059
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	104	103	102	101	104	93	78	69	67	61	55	56
7	Vc	35	30	30	35	35	35	35	35	30	30	30	30
	fz	0.032	0.037	0.042	0.042	0.048	0.043	0.043	0.038	0.043	0.04	0.042	0.047
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
	FEED	76	66	67	70	73	57	51	42	38	33	33	34
8-9	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.034	0.034	0.038	0.043	0.043	0.04	0.045	0.045	0.05	0.046	0.039	0.044
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	46	41	40	41	37	31	31	29	30	25	21	21
10	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.034	0.043	0.048	0.053	0.053	0.054	0.051	0.054	0.056	0.056	0.052	0.059
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	104	103	102	101	104	93	78	69	67	61	55	56
11.1	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.034	0.034	0.038	0.043	0.043	0.04	0.045	0.045	0.05	0.046	0.039	0.044
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	46	41	40	41	37	31	31	29	30	25	21	21
21 - 22	Vc	135	140	140	140	135	135	130	140	140	145	140	140
	fz	0.037	0.04	0.045	0.047	0.048	0.053	0.056	0.056	0.054	0.055	0.056	0.055
	RPM	3069	2785	2476	2228	1953	1719	1478	1485	1393	1319	1238	1114
	FEED	341	334	334	314	281	273	248	250	226	218	208	184
23 - 24	Vc	88	91	91	91	88	88	85	91	91	94	91	91
	fz	0.037	0.04	0.045	0.047	0.048	0.053	0.056	0.056	0.054	0.055	0.056	0.055
	RPM	2001	1810	1609	1448	1273	1120	966	966	905	855	805	724
	FEED	222	217	217	204	183	178	162	162	147	141	135	119



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ572, EQ573, EQ516, EQ553, EQ554 SERIES

3 FLUTE TiAlN COATED - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	45	50	50	45	50	45	50
					fz	0.004	0.007	0.012	0.02	0.025	0.035	0.047	0.059
					RPM	7958	4775	3979	3183	2387	1989	1432	1326
					FEED	95	100	143	191	179	209	202	235
	2		0.1D	1.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.017	0.023	0.038	0.044	0.058
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	57	76	105	130	146	181	168	185
	3-4		0.1D	1.5D	Vc	35	35	30	35	30	35	35	35
					fz	0.003	0.006	0.009	0.014	0.018	0.028	0.038	0.047
					RPM	5570	3714	2387	2228	1592	1393	1114	928
					FEED	50	67	64	94	86	117	127	131
	5		0.1D	1.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.005	0.009	0.013	0.018	0.03	0.037	0.045
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	32	43	50	57	72	71	72
	6	Low alloy steel	0.1D	1.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.017	0.023	0.038	0.044	0.058
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	57	76	105	130	146	181	168	185
	7		0.1D	1.5D	Vc	35	35	30	35	30	35	35	35
					fz	0.003	0.006	0.009	0.014	0.018	0.028	0.038	0.047
					RPM	5570	3714	2387	2228	1592	1393	1114	928
					FEED	50	67	64	94	86	117	127	131
	8-9		0.1D	1.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.005	0.009	0.013	0.018	0.03	0.037	0.045
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	32	43	50	57	72	71	72
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.017	0.023	0.038	0.044	0.058
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	57	76	105	130	146	181	168	185
	11.1		0.1D	1.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.005	0.009	0.013	0.018	0.03	0.037	0.045
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	19	32	43	50	57	72	71	72
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	105	145	140	140	145	140	135	130
					fz	0.005	0.008	0.014	0.019	0.021	0.037	0.049	0.057
					RPM	16711	15385	11141	8913	7692	5570	4297	3448
					FEED	251	369	468	508	485	618	632	590
	23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	68	94	91	91	94	91	88	85
					fz	0.005	0.008	0.014	0.019	0.021	0.037	0.049	0.057
					RPM	10823	9974	7242	5793	4987	3621	2801	2255
					FEED	162	239	304	330	314	402	412	386

※The FEED, in long & extra long types, should be reduced by around 50%

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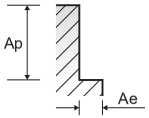
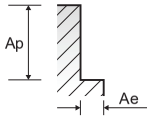


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
EQ572, EQ573, EQ516, EQ553, EQ554 SERIES
3 FLUTE TiAlN COATED - SIDE CUTTING
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50	50
	fz	0.07	0.078	0.08	0.09	0.1	0.101	0.101	0.099	0.099	0.096	0.097	0.107
	RPM	1137	995	884	796	723	637	568	477	497	455	442	398
	FEED	239	233	212	215	217	193	172	142	148	131	129	128
2	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.058	0.073	0.081	0.09	0.09	0.092	0.088	0.085	0.09	0.088	0.086	0.097
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	178	174	172	172	176	158	135	108	107	96	91	93
3-4	Vc	35	30	30	35	35	35	35	35	30	30	30	30
	fz	0.053	0.058	0.065	0.065	0.075	0.07	0.073	0.071	0.075	0.075	0.077	0.087
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
	FEED	127	104	103	109	114	94	87	79	67	61	61	62
5	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.051	0.06	0.067	0.075	0.075	0.067	0.061	0.061	0.067	0.065	0.069	0.078
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	70	72	71	72	65	51	42	39	40	35	37	37
6	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.058	0.073	0.081	0.09	0.09	0.092	0.088	0.085	0.09	0.088	0.086	0.097
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	178	174	172	172	176	158	135	108	107	96	91	93
7	Vc	35	30	30	35	35	35	35	35	30	30	30	30
	fz	0.053	0.058	0.065	0.065	0.075	0.07	0.073	0.071	0.075	0.075	0.077	0.087
	RPM	796	597	531	557	506	446	398	371	298	273	265	239
	FEED	127	104	103	109	114	94	87	79	67	61	61	62
8-9	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.051	0.06	0.067	0.075	0.075	0.067	0.061	0.061	0.067	0.065	0.069	0.078
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	70	72	71	72	65	51	42	39	40	35	37	37
10	Vc	45	40	40	40	45	45	45	40	40	40	40	40
	fz	0.058	0.073	0.081	0.09	0.09	0.092	0.088	0.085	0.09	0.088	0.086	0.097
	RPM	1023	796	707	637	651	573	512	424	398	364	354	318
	FEED	178	174	172	172	176	158	135	108	107	96	91	93
11.1	Vc	20	20	20	20	20	20	20	20	20	20	20	20
	fz	0.051	0.06	0.067	0.075	0.075	0.067	0.061	0.061	0.067	0.065	0.069	0.078
	RPM	455	398	354	318	289	255	227	212	199	182	177	159
	FEED	70	72	71	72	65	51	42	39	40	35	37	37
21 - 22	Vc	135	140	140	140	135	135	130	140	140	145	140	140
	fz	0.06	0.067	0.075	0.076	0.082	0.088	0.093	0.093	0.09	0.092	0.093	0.094
	RPM	3069	2785	2476	2228	1953	1719	1478	1485	1393	1319	1238	1114
	FEED	552	560	557	508	481	454	412	414	376	364	345	314
23 - 24	Vc	88	91	91	91	88	88	85	91	91	94	91	91
	fz	0.06	0.067	0.075	0.076	0.082	0.088	0.093	0.093	0.09	0.092	0.093	0.094
	RPM	2001	1810	1609	1448	1273	1120	966	966	905	855	805	724
	FEED	360	364	362	330	313	296	270	269	244	236	224	204



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2574, E2597 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045
					RPM	5570	3714	2785	2228	1857	1393	1114
					FEED	89	119	145	178	186	201	201
	2		0.1D	1.5D	Vc	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044
					RPM	4775	3183	2387	1910	1592	1194	955
					FEED	57	76	105	130	146	172	168
	3-4		0.1D	1.5D	Vc	25	25	25	25	25	25	25
					fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038
					RPM	3979	2653	1989	1592	1326	995	796
					FEED	48	64	72	89	101	115	121
	5		0.1D	1.5D	Vc	15	15	15	15	15	15	15
					fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036
					RPM	2387	1592	1194	955	796	597	477
					FEED	19	32	48	53	60	69	69
	6	Low alloy steel	0.1D	1.5D	Vc	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044
					RPM	4775	3183	2387	1910	1592	1194	955
					FEED	57	76	105	130	146	172	168
	7		0.1D	1.5D	Vc	25	25	25	25	25	25	25
					fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038
					RPM	3979	2653	1989	1592	1326	995	796
					FEED	48	64	72	89	101	115	121
	8-9		0.1D	1.5D	Vc	15	15	15	15	15	15	15
					fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036
					RPM	2387	1592	1194	955	796	597	477
					FEED	19	32	48	53	60	69	69
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044
					RPM	4775	3183	2387	1910	1592	1194	955
					FEED	57	76	105	130	146	172	168
	11.1		0.1D	1.5D	Vc	15	15	15	15	15	15	15
					fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036
					RPM	2387	1592	1194	955	796	597	477
					FEED	19	32	48	53	60	69	69
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	75	105	100	100	105	100	95
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	11937	11141	7958	6366	5570	3979	3024
					FEED	239	401	446	484	468	573	581
	23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	49	68	65	65	68	65	62
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	7799	7215	5173	4138	3608	2586	1974
					FEED	156	260	290	314	303	372	379

※The FEED, in long & extra long types, should be reduced by around 50%

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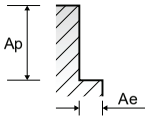
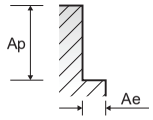


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2574, E2597 SERIES — 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 12.0	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.061	0.069	0.079	0.079	0.089	0.067	0.067	0.067	0.067	0.067	0.065	0.071
	RPM	928	796	696	619	557	506	446	398	371	348	309	279
	FEED	227	220	220	196	198	204	179	160	149	140	121	119
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.056	0.057	0.071	0.08	0.089	0.059	0.06	0.06	0.059	0.06	0.06	0.068
	RPM	796	682	597	531	477	434	382	341	318	298	265	239
	FEED	178	156	170	170	170	154	138	123	113	107	95	97
3-4	Vc	25	25	25	25	25	25	25	25	25	20	25	25
	fz	0.048	0.054	0.058	0.066	0.066	0.05	0.048	0.048	0.05	0.049	0.05	0.056
	RPM	663	568	497	442	398	362	318	284	265	199	221	199
	FEED	127	123	115	117	105	109	92	82	80	58	66	67
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.047	0.054	0.058	0.065	0.074	0.049	0.046	0.047	0.047	0.054	0.049	0.053
	RPM	398	341	298	265	239	217	191	171	159	149	133	119
	FEED	75	74	69	69	71	64	53	48	45	48	39	38
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.056	0.057	0.071	0.08	0.089	0.059	0.06	0.06	0.059	0.06	0.06	0.068
	RPM	796	682	597	531	477	434	382	341	318	298	265	239
	FEED	178	156	170	170	170	154	138	123	113	107	95	97
7	Vc	25	25	25	25	25	25	25	25	25	20	25	25
	fz	0.048	0.054	0.058	0.066	0.066	0.05	0.048	0.048	0.05	0.049	0.05	0.056
	RPM	663	568	497	442	398	362	318	284	265	199	221	199
	FEED	127	123	115	117	105	109	92	82	80	58	66	67
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.047	0.054	0.058	0.065	0.074	0.049	0.046	0.047	0.047	0.054	0.049	0.053
	RPM	398	341	298	265	239	217	191	171	159	149	133	119
	FEED	75	74	69	69	71	64	53	48	45	48	39	38
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.056	0.057	0.071	0.08	0.089	0.059	0.06	0.06	0.059	0.06	0.06	0.068
	RPM	796	682	597	531	477	434	382	341	318	298	265	239
	FEED	178	156	170	170	170	154	138	123	113	107	95	97
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.047	0.054	0.058	0.065	0.074	0.049	0.046	0.047	0.047	0.054	0.049	0.053
	RPM	398	341	298	265	239	217	191	171	159	149	133	119
	FEED	75	74	69	69	71	64	53	48	45	48	39	38
21 - 22	Vc	95	95	100	100	100	95	95	95	105	100	100	100
	fz	0.057	0.06	0.066	0.074	0.075	0.054	0.058	0.061	0.061	0.06	0.061	0.063
	RPM	2520	2160	1989	1768	1592	1375	1210	1080	1114	995	884	796
	FEED	575	518	525	523	477	445	421	395	408	358	324	301
23 - 24	Vc	62	62	65	65	65	62	62	62	68	65	65	65
	fz	0.057	0.06	0.066	0.074	0.075	0.054	0.058	0.061	0.061	0.06	0.061	0.063
	RPM	1645	1410	1293	1149	1035	897	789	705	722	647	575	517
	FEED	375	338	341	340	310	291	275	258	264	233	210	196



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ574, EQ597 SERIES — 4 FLUTE TiAlN COATED - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	45	50	50	45	50	50	45
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.062
					RPM	7958	4775	3979	3183	2387	1989	1592	1194
					FEED	127	153	207	255	239	286	286	296
	2		0.1D	1.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045	0.057
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	76	102	140	183	195	229	229	242
	3-4		0.1D	1.5D	Vc	35	35	30	35	30	30	35	35
					fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039	0.047
					RPM	5570	3714	2387	2228	1592	1194	1114	928
					FEED	67	89	86	125	115	138	174	175
	5		0.1D	1.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035	0.048
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	25	34	64	71	81	89	89	102
	6	Low alloy steel	0.1D	1.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045	0.057
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	76	102	140	183	195	229	229	242
	7		0.1D	1.5D	Vc	35	35	30	35	30	30	35	35
					fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039	0.047
					RPM	5570	3714	2387	2228	1592	1194	1114	928
					FEED	67	89	86	125	115	138	174	175
	8-9		0.1D	1.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035	0.048
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	25	34	64	71	81	89	89	102
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	40	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045	0.057
					RPM	6366	4244	3183	2546	2122	1592	1273	1061
					FEED	76	102	140	183	195	229	229	242
	11.1		0.1D	1.5D	Vc	20	20	20	20	20	20	20	20
					fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035	0.048
					RPM	3183	2122	1592	1273	1061	796	637	531
					FEED	25	34	64	71	81	89	89	102
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	105	145	140	140	150	140	135	130
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048	0.057
					RPM	16711	15385	11141	8913	7958	5570	4297	3448
					FEED	334	554	624	677	668	802	825	786
	23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	68	94	91	91	98	91	88	85
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048	0.057
					RPM	10823	9974	7242	5793	5199	3621	2801	2255
					FEED	216	359	406	440	437	521	538	514

※ The FEED, in long & extra long types, should be reduced by around 50%

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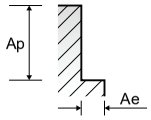
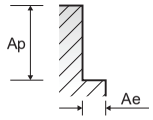


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ574, EQ597 SERIES — 4 FLUTE TiAlN COATED - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	50	50	50	50	50	50	50	45	50	50	50
	fz	0.07	0.078	0.078	0.088	0.067	0.064	0.068	0.065	0.065	0.063	0.071
	RPM	1137	995	884	796	723	637	568	477	497	442	398
	FEED	318	310	276	280	291	244	232	186	194	167	170
2	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.056	0.07	0.08	0.087	0.058	0.062	0.058	0.057	0.058	0.06	0.069
	RPM	1023	796	707	637	651	573	512	424	398	354	318
	FEED	229	223	226	222	227	213	178	145	138	127	132
3-4	Vc	35	35	30	35	35	35	35	35	30	35	30
	fz	0.053	0.056	0.066	0.066	0.048	0.046	0.046	0.05	0.05	0.047	0.057
	RPM	796	696	531	557	506	446	398	371	298	309	239
	FEED	169	156	140	147	146	123	110	111	90	87	82
5	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.053	0.056	0.064	0.075	0.05	0.047	0.054	0.054	0.054	0.056	0.056
	RPM	455	398	354	318	289	255	227	212	199	133	159
	FEED	96	89	91	95	87	72	74	69	64	45	53
6	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.056	0.07	0.08	0.087	0.058	0.062	0.058	0.057	0.058	0.06	0.069
	RPM	1023	796	707	637	651	573	512	424	398	354	318
	FEED	229	223	226	222	227	213	178	145	138	127	132
7	Vc	35	35	30	35	35	35	35	35	30	35	30
	fz	0.053	0.056	0.066	0.066	0.048	0.046	0.046	0.05	0.05	0.047	0.057
	RPM	796	696	531	557	506	446	398	371	298	309	239
	FEED	169	156	140	147	146	123	110	111	90	87	82
8-9	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.053	0.056	0.064	0.075	0.05	0.047	0.054	0.054	0.054	0.056	0.056
	RPM	455	398	354	318	289	255	227	212	199	133	159
	FEED	96	89	91	95	87	72	74	69	64	45	53
10	Vc	45	40	40	40	45	45	45	40	40	40	40
	fz	0.056	0.07	0.08	0.087	0.058	0.062	0.058	0.057	0.058	0.06	0.069
	RPM	1023	796	707	637	651	573	512	424	398	354	318
	FEED	229	223	226	222	227	213	178	145	138	127	132
11.1	Vc	20	20	20	20	20	20	20	20	20	15	20
	fz	0.053	0.056	0.064	0.075	0.05	0.047	0.054	0.054	0.054	0.056	0.056
	RPM	455	398	354	318	289	255	227	212	199	133	159
	FEED	96	89	91	95	87	72	74	69	64	45	53
21 - 22	Vc	135	140	140	140	135	135	135	145	140	140	140
	fz	0.06	0.066	0.074	0.074	0.054	0.058	0.06	0.06	0.06	0.061	0.064
	RPM	3069	2785	2476	2228	1953	1719	1535	1538	1393	1238	1114
	FEED	737	735	733	660	633	598	552	554	501	453	428
23 - 24	Vc	88	91	91	91	88	88	88	94	91	91	91
	fz	0.06	0.066	0.074	0.074	0.054	0.058	0.06	0.06	0.06	0.061	0.064
	RPM	2001	1810	1609	1448	1273	1120	1000	997	905	805	724
	FEED	480	478	476	429	413	390	360	359	326	294	278



CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2753, E2762, E2751, E2752 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	35	35	35	35	35
					fz	0.015	0.025	0.034	0.05	0.056	0.064
					RPM	1857	1393	1114	928	796	696
					FEED	84	104	152	186	178	178
	2		0.5D	1.5D	Vc	30	30	30	30	30	30
					fz	0.013	0.023	0.033	0.044	0.05	0.063
					RPM	1592	1194	955	796	682	597
					FEED	62	82	126	140	136	150
	3-4		0.5D	1.5D	Vc	25	25	25	25	25	25
					fz	0.015	0.024	0.034	0.044	0.049	0.061
					RPM	1326	995	796	663	568	497
					FEED	60	72	108	117	111	121
	5		0.5D	1.5D	Vc	15	15	15	15	15	15
					fz	0.013	0.021	0.033	0.044	0.05	0.063
					RPM	796	597	477	398	341	298
					FEED	31	38	63	70	68	75
	6	Low alloy steel	0.5D	1.5D	Vc	30	30	30	30	30	30
					fz	0.013	0.023	0.033	0.044	0.05	0.063
					RPM	1592	1194	955	796	682	597
					FEED	62	82	126	140	136	150
	7		0.5D	1.5D	Vc	25	25	25	25	25	25
					fz	0.015	0.024	0.034	0.044	0.049	0.061
					RPM	1326	995	796	663	568	497
					FEED	60	72	108	117	111	121
	8-9		0.5D	1.5D	Vc	15	15	15	15	15	15
					fz	0.013	0.021	0.033	0.044	0.05	0.063
					RPM	796	597	477	398	341	298
					FEED	31	38	63	70	68	75
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	30	30	30	30	30	30
					fz	0.013	0.023	0.033	0.044	0.05	0.063
					RPM	1592	1194	955	796	682	597
					FEED	62	82	126	140	136	150
	11.1		0.5D	1.5D	Vc	15	15	15	15	15	15
					fz	0.013	0.021	0.033	0.044	0.05	0.063
					RPM	796	597	477	398	341	298
					FEED	31	38	63	70	68	75
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	Vc	85	80	80	75	80	80
					fz	0.015	0.025	0.035	0.05	0.058	0.07
					RPM	4509	3183	2546	1989	1819	1592
					FEED	203	239	357	398	422	446
	23-24	Aluminum-cast, alloyed	0.5D	1.5D	Vc	55	52	52	49	52	52
					fz	0.015	0.025	0.035	0.05	0.058	0.07
					RPM	2918	2069	1655	1300	1182	1035
					FEED	131	155	232	260	274	290

※ The FEED, in long & extra long types, should be reduced by around 50%

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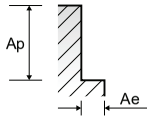
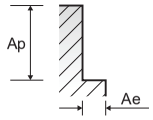


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2753, E2762, E2751, E2752 SERIES — MULTI FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0	50.0
1	Vc	35	35	35	35	35	35	35	35	35	35
	fz	0.071	0.08	0.088	0.098	0.088	0.1	0.1	0.113	0.119	0.152
	RPM	619	557	506	446	398	371	348	309	279	223
	FEED	176	178	223	218	210	223	209	210	199	203
2	Vc	30	30	30	30	30	30	30	30	30	30
	fz	0.07	0.078	0.076	0.085	0.076	0.086	0.095	0.107	0.114	0.157
	RPM	531	477	434	382	341	318	298	265	239	191
	FEED	149	149	165	162	156	164	170	170	163	180
3-4	Vc	25	25	25	25	25	25	20	25	25	25
	fz	0.069	0.069	0.08	0.09	0.077	0.087	0.098	0.108	0.111	0.146
	RPM	442	398	362	318	284	265	199	221	199	159
	FEED	122	110	145	143	131	138	117	143	132	139
5	Vc	15	15	15	15	15	15	15	15	15	15
	fz	0.07	0.08	0.077	0.094	0.089	0.089	0.101	0.118	0.121	0.148
	RPM	265	239	217	191	171	159	149	133	119	95
	FEED	74	76	84	90	91	85	90	94	87	85
6	Vc	30	30	30	30	30	30	30	30	30	30
	fz	0.07	0.078	0.076	0.085	0.076	0.086	0.095	0.107	0.114	0.157
	RPM	531	477	434	382	341	318	298	265	239	191
	FEED	149	149	165	162	156	164	170	170	163	180
7	Vc	25	25	25	25	25	25	20	25	25	25
	fz	0.069	0.069	0.08	0.09	0.077	0.087	0.098	0.108	0.111	0.146
	RPM	442	398	362	318	284	265	199	221	199	159
	FEED	122	110	145	143	131	138	117	143	132	139
8-9	Vc	15	15	15	15	15	15	15	15	15	15
	fz	0.07	0.08	0.077	0.094	0.089	0.089	0.101	0.118	0.121	0.148
	RPM	265	239	217	191	171	159	149	133	119	95
	FEED	74	76	84	90	91	85	90	94	87	85
10	Vc	30	30	30	30	30	30	30	30	30	30
	fz	0.07	0.078	0.076	0.085	0.076	0.086	0.095	0.107	0.114	0.157
	RPM	531	477	434	382	341	318	298	265	239	191
	FEED	149	149	165	162	156	164	170	170	163	180
11.1	Vc	15	15	15	15	15	15	15	15	15	15
	fz	0.07	0.08	0.077	0.094	0.089	0.089	0.101	0.118	0.121	0.148
	RPM	265	239	217	191	171	159	149	133	119	95
	FEED	74	76	84	90	91	85	90	94	87	85
21 - 22	Vc	80	75	75	80	80	85	80	80	80	80
	fz	0.084	0.104	0.085	0.09	0.094	0.098	0.104	0.112	0.119	0.123
	RPM	1415	1194	1085	1019	909	902	796	707	637	509
	FEED	475	497	461	458	513	530	497	475	455	376
23 - 24	Vc	52	49	49	52	52	55	52	52	52	52
	fz	0.084	0.104	0.085	0.09	0.094	0.098	0.104	0.112	0.119	0.123
	RPM	920	780	709	662	591	584	517	460	414	331
	FEED	309	324	301	298	333	343	323	309	295	244



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ753, EQ762, EQ751, EQ752 SERIES

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0	14.0	16.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	45	50	50	45	50	50
					fz	0.015	0.025	0.034	0.05	0.057	0.063
					RPM	2387	1989	1592	1194	1137	995
					FEED	107	149	216	239	259	251
	2		0.5D	1.5D	Vc	40	40	40	40	45	40
					fz	0.013	0.023	0.034	0.044	0.049	0.061
					RPM	2122	1592	1273	1061	1023	796
					FEED	83	110	173	187	201	194
	3-4		0.5D	1.5D	Vc	30	30	35	35	35	35
					fz	0.015	0.024	0.035	0.043	0.048	0.06
					RPM	1592	1194	1114	928	796	696
					FEED	72	86	156	160	153	167
	5		0.5D	1.5D	Vc	20	20	20	20	20	20
					fz	0.012	0.021	0.033	0.045	0.05	0.063
					RPM	1061	796	637	531	455	398
					FEED	38	50	84	95	91	100
	6	Low alloy steel	0.5D	1.5D	Vc	40	40	40	40	45	40
					fz	0.013	0.023	0.034	0.044	0.049	0.061
					RPM	2122	1592	1273	1061	1023	796
					FEED	83	110	173	187	201	194
	7		0.5D	1.5D	Vc	30	30	35	35	35	35
					fz	0.015	0.024	0.035	0.043	0.048	0.06
					RPM	1592	1194	1114	928	796	696
					FEED	72	86	156	160	153	167
	8-9		0.5D	1.5D	Vc	20	20	20	20	20	20
					fz	0.012	0.021	0.033	0.045	0.05	0.063
					RPM	1061	796	637	531	455	398
					FEED	38	50	84	95	91	100
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	40	40	40	40	45	40
					fz	0.013	0.023	0.034	0.044	0.049	0.061
					RPM	2122	1592	1273	1061	1023	796
					FEED	83	110	173	187	201	194
	11.1		0.5D	1.5D	Vc	20	20	20	20	20	20
					fz	0.012	0.021	0.033	0.045	0.05	0.063
					RPM	1061	796	637	531	455	398
					FEED	38	50	84	95	91	100
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	Vc	120	110	110	105	110	115
					fz	0.015	0.025	0.035	0.05	0.059	0.07
					RPM	6366	4377	3501	2785	2501	2288
					FEED	286	328	490	557	590	641
	23-24	Aluminum-cast, alloyed	0.5D	1.5D	Vc	78	72	72	68	72	75
					fz	0.015	0.025	0.035	0.05	0.059	0.07
					RPM	4138	2865	2292	1804	1637	1492
					FEED	186	215	321	361	386	418

※ The FEED, in long & extra long types, should be reduced by around 50%

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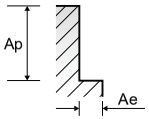
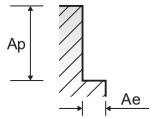


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER
EQ753, EQ762, EQ751, EQ752 SERIES
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.
MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING

VDI 3323	Parameter	Diameter (Ø) 18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0	50.0
1	Vc	50	50	50	50	50	45	50	50	50	45
	fz	0.069	0.078	0.089	0.095	0.089	0.098	0.098	0.109	0.117	0.156
	RPM	884	796	723	637	568	477	497	442	398	286
	FEED	244	248	322	302	304	281	292	289	279	268
2	Vc	40	40	45	45	45	40	40	40	40	40
	fz	0.07	0.075	0.074	0.087	0.075	0.083	0.094	0.107	0.117	0.16
	RPM	707	637	651	573	512	424	398	354	318	255
	FEED	198	191	241	249	230	211	224	227	223	244
3-4	Vc	30	35	35	35	35	35	30	35	30	35
	fz	0.07	0.07	0.078	0.087	0.075	0.086	0.1	0.1	0.113	0.148
	RPM	531	557	506	446	398	371	298	309	239	223
	FEED	149	156	197	194	179	192	179	186	162	198
5	Vc	20	20	20	20	20	20	20	20	15	20
	fz	0.071	0.083	0.08	0.096	0.091	0.091	0.1	0.118	0.141	0.153
	RPM	354	318	289	255	227	212	199	177	119	127
	FEED	100	106	116	122	124	116	119	125	101	117
6	Vc	40	40	45	45	45	40	40	40	40	40
	fz	0.07	0.075	0.074	0.087	0.075	0.083	0.094	0.107	0.117	0.16
	RPM	707	637	651	573	512	424	398	354	318	255
	FEED	198	191	241	249	230	211	224	227	223	244
7	Vc	30	35	35	35	35	35	30	35	30	35
	fz	0.07	0.07	0.078	0.087	0.075	0.086	0.1	0.1	0.113	0.148
	RPM	531	557	506	446	398	371	298	309	239	223
	FEED	149	156	197	194	179	192	179	186	162	198
8-9	Vc	20	20	20	20	20	20	20	20	15	20
	fz	0.071	0.083	0.08	0.096	0.091	0.091	0.1	0.118	0.141	0.153
	RPM	354	318	289	255	227	212	199	177	119	127
	FEED	100	106	116	122	124	116	119	125	101	117
10	Vc	40	40	45	45	45	40	40	40	40	40
	fz	0.07	0.075	0.074	0.087	0.075	0.083	0.094	0.107	0.117	0.16
	RPM	707	637	651	573	512	424	398	354	318	255
	FEED	198	191	241	249	230	211	224	227	223	244
11.1	Vc	20	20	20	20	20	20	20	20	15	20
	fz	0.071	0.083	0.08	0.096	0.091	0.091	0.1	0.118	0.141	0.153
	RPM	354	318	289	255	227	212	199	177	119	127
	FEED	100	106	116	122	124	116	119	125	101	117
21-22	Vc	110	105	105	110	110	120	110	115	115	110
	fz	0.085	0.103	0.085	0.09	0.095	0.099	0.106	0.11	0.117	0.124
	RPM	1945	1671	1519	1401	1251	1273	1094	1017	915	700
	FEED	661	689	646	630	713	756	696	671	642	521
23-24	Vc	72	68	68	72	72	78	72	75	75	72
	fz	0.085	0.103	0.085	0.09	0.095	0.099	0.106	0.11	0.117	0.124
	RPM	1273	1082	984	917	819	828	716	663	597	458
	FEED	433	446	418	413	467	492	456	438	419	341



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2595 SERIES 4FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045
					RPM	5570	3714	2785	2228	1857	1393	1114
					FEED	89	119	145	178	186	201	201
	2		0.1D	1.5D	Vc	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044
					RPM	4775	3183	2387	1910	1592	1194	955
					FEED	57	76	105	130	146	172	168
	3-4		0.1D	1.5D	Vc	25	25	25	25	25	25	25
					fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038
					RPM	3979	2653	1989	1592	1326	995	796
					FEED	48	64	72	89	101	115	121
	5		0.1D	1.5D	Vc	15	15	15	15	15	15	15
					fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036
					RPM	2387	1592	1194	955	796	597	477
					FEED	19	32	48	53	60	69	69
	6	Low alloy steel	0.1D	1.5D	Vc	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044
					RPM	4775	3183	2387	1910	1592	1194	955
					FEED	57	76	105	130	146	172	168
	7		0.1D	1.5D	Vc	25	25	25	25	25	25	25
					fz	0.003	0.006	0.009	0.014	0.019	0.029	0.038
					RPM	3979	2653	1989	1592	1326	995	796
					FEED	48	64	72	89	101	115	121
	8-9		0.1D	1.5D	Vc	15	15	15	15	15	15	15
					fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036
					RPM	2387	1592	1194	955	796	597	477
					FEED	19	32	48	53	60	69	69
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	30	30	30	30	30	30	30
					fz	0.003	0.006	0.011	0.017	0.023	0.036	0.044
					RPM	4775	3183	2387	1910	1592	1194	955
					FEED	57	76	105	130	146	172	168
	11.1		0.1D	1.5D	Vc	15	15	15	15	15	15	15
					fz	0.002	0.005	0.01	0.014	0.019	0.029	0.036
					RPM	2387	1592	1194	955	796	597	477
					FEED	19	32	48	53	60	69	69
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	75	105	100	100	105	100	95
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	11937	11141	7958	6366	5570	3979	3024
					FEED	239	401	446	484	468	573	581
	23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	49	68	65	65	68	65	62
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	7799	7215	5173	4138	3608	2586	1974
					FEED	156	260	290	314	303	372	379

※ The FEED, in long & extra long types, should be reduced by around 50%

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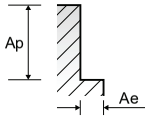
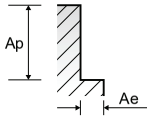


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2595 SERIES 4 FLUTE - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 12.0	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.061	0.069	0.079	0.079	0.089	0.1	0.1	0.067	0.067	0.067	0.065	0.071
	RPM	928	796	696	619	557	506	446	398	371	348	309	279
	FEED	227	220	220	196	198	203	178	160	149	140	121	119
2	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.056	0.057	0.071	0.08	0.089	0.089	0.091	0.06	0.059	0.06	0.06	0.068
	RPM	796	682	597	531	477	434	382	341	318	298	265	239
	FEED	178	156	170	170	170	155	139	123	113	107	95	97
3-4	Vc	25	25	25	25	25	25	25	25	25	20	25	25
	fz	0.048	0.054	0.058	0.066	0.066	0.075	0.073	0.048	0.05	0.049	0.05	0.056
	RPM	663	568	497	442	398	362	318	284	265	199	221	199
	FEED	127	123	115	117	105	109	93	82	80	58	66	67
5	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.047	0.054	0.058	0.065	0.074	0.074	0.069	0.047	0.047	0.054	0.049	0.053
	RPM	398	341	298	265	239	217	191	171	159	149	133	119
	FEED	75	74	69	69	71	64	53	48	45	48	39	38
6	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.056	0.057	0.071	0.08	0.089	0.089	0.091	0.06	0.059	0.06	0.06	0.068
	RPM	796	682	597	531	477	434	382	341	318	298	265	239
	FEED	178	156	170	170	170	155	139	123	113	107	95	97
7	Vc	25	25	25	25	25	25	25	25	25	20	25	25
	fz	0.048	0.054	0.058	0.066	0.066	0.075	0.073	0.048	0.05	0.049	0.05	0.056
	RPM	663	568	497	442	398	362	318	284	265	199	221	199
	FEED	127	123	115	117	105	109	93	82	80	58	66	67
8-9	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.047	0.054	0.058	0.065	0.074	0.074	0.069	0.047	0.047	0.054	0.049	0.053
	RPM	398	341	298	265	239	217	191	171	159	149	133	119
	FEED	75	74	69	69	71	64	53	48	45	48	39	38
10	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.056	0.057	0.071	0.08	0.089	0.089	0.091	0.06	0.059	0.06	0.06	0.068
	RPM	796	682	597	531	477	434	382	341	318	298	265	239
	FEED	178	156	170	170	170	155	139	123	113	107	95	97
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.047	0.054	0.058	0.065	0.074	0.074	0.069	0.047	0.047	0.054	0.049	0.053
	RPM	398	341	298	265	239	217	191	171	159	149	133	119
	FEED	75	74	69	69	71	64	53	48	45	48	39	38
21 - 22	Vc	95	95	100	100	100	95	95	95	105	100	100	100
	fz	0.057	0.06	0.066	0.074	0.075	0.08	0.088	0.061	0.061	0.06	0.061	0.06
	RPM	2520	2160	1989	1768	1592	1375	1210	1080	1114	995	884	796
	FEED	575	518	525	523	477	440	426	395	408	358	324	286
23 - 24	Vc	62	62	65	65	65	62	62	62	68	65	65	65
	fz	0.057	0.06	0.066	0.074	0.075	0.08	0.088	0.061	0.061	0.06	0.061	0.06
	RPM	1645	1410	1293	1149	1035	897	789	705	722	647	575	517
	FEED	375	338	341	340	310	287	278	258	264	233	210	186



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ595 SERIES — 4 FLUTE TiAlN COATED - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 2.0	3.0	4.0	5.0	6.0	8.0	10.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	50	45	50	50	45	50	50
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045
					RPM	7958	4775	3979	3183	2387	1989	1592
					FEED	127	153	207	255	239	286	286
	2		0.1D	1.5D	Vc	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045
					RPM	6366	4244	3183	2546	2122	1592	1273
					FEED	76	102	140	183	195	229	229
	3-4		0.1D	1.5D	Vc	35	35	30	35	30	30	35
					fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039
					RPM	5570	3714	2387	2228	1592	1194	1114
					FEED	67	89	86	125	115	138	174
	5		0.1D	1.5D	Vc	20	20	20	20	20	20	20
					fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035
					RPM	3183	2122	1592	1273	1061	796	637
					FEED	25	34	64	71	81	89	89
	6	Low alloy steel	0.1D	1.5D	Vc	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045
					RPM	6366	4244	3183	2546	2122	1592	1273
					FEED	76	102	140	183	195	229	229
	7		0.1D	1.5D	Vc	35	35	30	35	30	30	35
					fz	0.003	0.006	0.009	0.014	0.018	0.029	0.039
					RPM	5570	3714	2387	2228	1592	1194	1114
					FEED	67	89	86	125	115	138	174
	8-9		0.1D	1.5D	Vc	20	20	20	20	20	20	20
					fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035
					RPM	3183	2122	1592	1273	1061	796	637
					FEED	25	34	64	71	81	89	89
	10	High alloyed steel, and tool steel	0.1D	1.5D	Vc	40	40	40	40	40	40	40
					fz	0.003	0.006	0.011	0.018	0.023	0.036	0.045
					RPM	6366	4244	3183	2546	2122	1592	1273
					FEED	76	102	140	183	195	229	229
	11.1		0.1D	1.5D	Vc	20	20	20	20	20	20	20
					fz	0.002	0.004	0.01	0.014	0.019	0.028	0.035
					RPM	3183	2122	1592	1273	1061	796	637
					FEED	25	34	64	71	81	89	89
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	105	145	140	140	150	140	135
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	16711	15385	11141	8913	7958	5570	4297
					FEED	334	554	624	677	668	802	825
	23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	68	94	91	91	98	91	88
					fz	0.005	0.009	0.014	0.019	0.021	0.036	0.048
					RPM	10823	9974	7242	5793	5199	3621	2801
					FEED	216	359	406	440	437	521	538

※ The FEED, in long & extra long types, should be reduced by around 50%

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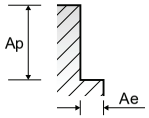
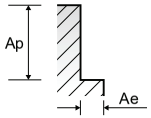


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

EQ595 SERIES — 4 FLUTE TiAlN COATED - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 12.0	14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	36.0	40.0
1	Vc	45	50	50	50	50	50	50	50	45	50	50	50
	fz	0.062	0.07	0.078	0.078	0.088	0.1	0.096	0.068	0.065	0.065	0.063	0.071
	RPM	1194	1137	995	884	796	723	637	568	477	497	442	398
	FEED	296	318	310	276	280	289	244	232	186	194	167	170
2	Vc	40	45	40	40	40	45	45	45	40	40	40	40
	fz	0.057	0.056	0.07	0.08	0.087	0.087	0.093	0.058	0.057	0.058	0.06	0.069
	RPM	1061	1023	796	707	637	651	573	512	424	398	354	318
	FEED	242	229	223	226	222	227	213	178	145	138	127	132
3-4	Vc	35	35	35	30	35	35	35	35	35	30	35	30
	fz	0.047	0.053	0.056	0.066	0.066	0.073	0.069	0.046	0.05	0.05	0.047	0.057
	RPM	928	796	696	531	557	506	446	398	371	298	309	239
	FEED	175	169	156	140	147	148	123	110	111	90	87	82
5	Vc	20	20	20	20	20	20	20	20	20	20	15	20
	fz	0.048	0.053	0.056	0.064	0.075	0.075	0.07	0.054	0.054	0.054	0.056	0.056
	RPM	531	455	398	354	318	289	255	227	212	199	133	159
	FEED	102	96	89	91	95	87	71	74	69	64	45	53
6	Vc	40	45	40	40	40	45	45	45	40	40	40	40
	fz	0.057	0.056	0.07	0.08	0.087	0.087	0.093	0.058	0.057	0.058	0.06	0.069
	RPM	1061	1023	796	707	637	651	573	512	424	398	354	318
	FEED	242	229	223	226	222	227	213	178	145	138	127	132
7	Vc	35	35	35	30	35	35	35	35	35	30	35	30
	fz	0.047	0.053	0.056	0.066	0.066	0.073	0.069	0.046	0.05	0.05	0.047	0.057
	RPM	928	796	696	531	557	506	446	398	371	298	309	239
	FEED	175	169	156	140	147	148	123	110	111	90	87	82
8-9	Vc	20	20	20	20	20	20	20	20	20	20	15	20
	fz	0.048	0.053	0.056	0.064	0.075	0.075	0.07	0.054	0.054	0.054	0.056	0.056
	RPM	531	455	398	354	318	289	255	227	212	199	133	159
	FEED	102	96	89	91	95	87	71	74	69	64	45	53
10	Vc	40	45	40	40	40	45	45	45	40	40	40	40
	fz	0.057	0.056	0.07	0.08	0.087	0.087	0.093	0.058	0.057	0.058	0.06	0.069
	RPM	1061	1023	796	707	637	651	573	512	424	398	354	318
	FEED	242	229	223	226	222	227	213	178	145	138	127	132
11.1	Vc	20	20	20	20	20	20	20	20	20	20	15	20
	fz	0.048	0.053	0.056	0.064	0.075	0.075	0.07	0.054	0.054	0.054	0.056	0.056
	RPM	531	455	398	354	318	289	255	227	212	199	133	159
	FEED	102	96	89	91	95	87	71	74	69	64	45	53
21 - 22	Vc	130	135	140	140	140	135	135	135	145	140	140	140
	fz	0.057	0.06	0.066	0.074	0.074	0.081	0.087	0.06	0.06	0.06	0.061	0.064
	RPM	3448	3069	2785	2476	2228	1953	1719	1535	1538	1393	1238	1114
	FEED	786	737	735	733	660	633	598	552	554	501	453	428
23 - 24	Vc	85	88	91	91	91	88	88	88	94	91	91	91
	fz	0.057	0.06	0.066	0.074	0.074	0.081	0.087	0.06	0.06	0.06	0.061	0.064
	RPM	2255	2001	1810	1609	1448	1273	1120	1000	997	905	805	724
	FEED	514	480	478	476	429	413	390	360	359	326	294	278



HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2755 SERIES — 3 FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.5D	1.5D	Vc	35	35	35	35
					fz	0.015	0.025	0.045	0.067
					RPM	1857	1393	1114	928
					FEED	84	104	150	187
	2		0.5D	1.5D	Vc	30	30	30	30
					fz	0.013	0.023	0.044	0.058
					RPM	1592	1194	955	796
					FEED	62	82	126	138
	3-4		0.5D	1.5D	Vc	25	25	25	25
					fz	0.015	0.024	0.046	0.058
					RPM	1326	995	796	663
					FEED	60	72	110	115
	5		0.5D	1.5D	Vc	15	15	15	15
					fz	0.013	0.021	0.044	0.058
					RPM	796	597	477	398
					FEED	31	38	63	69
	6	Low alloy steel	0.5D	1.5D	Vc	30	30	30	30
					fz	0.013	0.023	0.044	0.058
					RPM	1592	1194	955	796
					FEED	62	82	126	138
	7		0.5D	1.5D	Vc	25	25	25	25
					fz	0.015	0.024	0.046	0.058
					RPM	1326	995	796	663
					FEED	60	72	110	115
	8-9		0.5D	1.5D	Vc	15	15	15	15
					fz	0.013	0.021	0.044	0.058
					RPM	796	597	477	398
					FEED	31	38	63	69
	10	High alloyed steel, and tool steel	0.5D	1.5D	Vc	30	30	30	30
					fz	0.013	0.023	0.044	0.058
					RPM	1592	1194	955	796
					FEED	62	82	126	138
	11.1		0.5D	1.5D	Vc	15	15	15	15
					fz	0.013	0.021	0.044	0.058
					RPM	796	597	477	398
					FEED	31	38	63	69
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	Vc	85	80	80	75
					fz	0.015	0.025	0.047	0.067
					RPM	4509	3183	2546	1989
					FEED	203	239	359	400
	23-24	Aluminum-cast, alloyed	0.5D	1.5D	Vc	55	52	52	49
					fz	0.015	0.025	0.047	0.067
					RPM	2918	2069	1655	1300
					FEED	131	155	233	261

※ The FEED, in long & extra long types, should be reduced by around 50%

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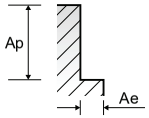
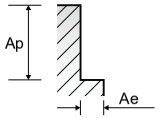


HSS END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

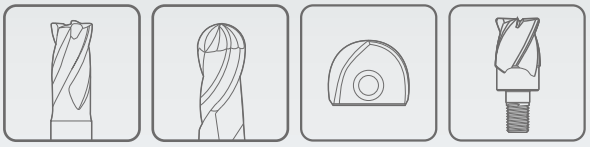
E2755 SERIES — 3 FLUTE ROUGHING - SIDE CUTTING

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

VDI 3323	Parameter	Diameter (Ø) 14.0	16.0	18.0	20.0	22.0	25.0	30.0
1	Vc	35	35	35	35	35	35	35
	fz	0.075	0.086	0.095	0.107	0.147	0.163	0.2
	RPM	796	696	619	557	506	446	371
	FEED	179	180	176	179	223	218	223
2	Vc	30	30	30	30	30	30	30
	fz	0.067	0.083	0.093	0.104	0.126	0.142	0.172
	RPM	682	597	531	477	434	382	318
	FEED	137	149	148	149	164	163	164
3-4	Vc	25	25	25	25	25	25	25
	fz	0.065	0.081	0.092	0.092	0.133	0.151	0.173
	RPM	568	497	442	398	362	318	265
	FEED	111	121	122	110	144	144	138
5	Vc	15	15	15	15	15	15	15
	fz	0.067	0.083	0.093	0.106	0.129	0.157	0.177
	RPM	341	298	265	239	217	191	159
	FEED	69	74	74	76	84	90	85
6	Vc	30	30	30	30	30	30	30
	fz	0.067	0.083	0.093	0.104	0.126	0.142	0.172
	RPM	682	597	531	477	434	382	318
	FEED	137	149	148	149	164	163	164
7	Vc	25	25	25	25	25	25	25
	fz	0.065	0.081	0.092	0.092	0.133	0.151	0.173
	RPM	568	497	442	398	362	318	265
	FEED	111	121	122	110	144	144	138
8-9	Vc	15	15	15	15	15	15	15
	fz	0.067	0.083	0.093	0.106	0.129	0.157	0.177
	RPM	341	298	265	239	217	191	159
	FEED	69	74	74	76	84	90	85
10	Vc	30	30	30	30	30	30	30
	fz	0.067	0.083	0.093	0.104	0.126	0.142	0.172
	RPM	682	597	531	477	434	382	318
	FEED	137	149	148	149	164	163	164
11.1	Vc	15	15	15	15	15	15	15
	fz	0.067	0.083	0.093	0.106	0.129	0.157	0.177
	RPM	341	298	265	239	217	191	159
	FEED	69	74	74	76	84	90	85
21 - 22	Vc	80	80	80	75	75	80	85
	fz	0.078	0.094	0.112	0.139	0.142	0.15	0.196
	RPM	1819	1592	1415	1194	1085	1019	902
	FEED	426	449	475	498	462	458	530
23 - 24	Vc	52	52	52	49	49	52	55
	fz	0.078	0.094	0.112	0.139	0.142	0.15	0.196
	RPM	1182	1035	920	780	709	662	584
	FEED	277	292	309	325	302	298	343



Global Cutting Tool Leader **YG-1**



MILLING

Leading Through Innovation

HSS

MILLING CUTTERS

HSS Fräser

- General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% cobalt) Corner Rounding, Shell End Mills

- Allgemeine Arbeiten. Verfügbare Schwalbenschwanz, Passfedernut, T-Nut, Scheibenfräser, Scheibenfräser und HSS (8% Kobalt) Eckenverrundung, Walzenstirnfräser

SELECTION GUIDE

YG MILLING TOOLS

HSS MILLING CUTTERS

General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% cobalt) Corner Rounding, Shell End Mills

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C726

SERIES	ML012, ML022 ML112, ML122	ML032, ML042 ML132, ML142	ML062 ML162
	DOVETAIL CUTTERS	DOVETAIL CUTTERS	WOODRUFF KEYSEAT CUTTERS
FLUTE	-	-	-
HELIX ANGLE	0°	0°	10°-20°
SIZE MIN	D16.0	D16.0	D10.5
SIZE MAX	D50.0	D38.0	D45.5
PAGE	C706	C707	C708
	Type A, C, E	Type B, D, F	Type B, D, F
	Uncoated	Uncoated	Uncoated
	HSS-E	HSS-E	HSS-E

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc			
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel		Annealed	180	10	◎	◎	◎
	7			Quenched & Tempered	275	29	◎	◎	◎
	8			Quenched & Tempered	300	32	◎	◎	◎
	9			Quenched & Tempered	350	38	○	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎
	11			Quenched & Tempered	325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15			
	13		Martensitic	Quenched & Tempered	240	23			
	14		Austenitic		180	10			
K	15	Grey cast iron	Pearlitic / ferritic		180	10			
	16		Pearlitic (Martensitic)		260	26			
	17	Nodular cast iron	Ferritic		160	3			
	18		Pearlitic		250	25			
	19	Malleable cast iron	Ferritic		130				
	20		Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○
	22		Curable	Hardened	100		○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○	○
	25		> 12% Si, Not Curable		130		○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				
	27		CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
	37		Alpha + Beta Alloys	Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

SERIES	ML072 ML172	ML092	ML102	E2675	E2676	E2677	E2678	E2679	E2498
	T-SLOT CUTTERS	SIDE AND FACE MILLING CUTTERS	SIDE AND FACE MILLING CUTTERS	SHELL END MILL	SHELL END MILL	ROUGHING SHELL END MILL	ROUGHING SHELL END MILL	ROUGHING & FINISHING SHELL END MILL	CORNER ROUNDING CUTTERS
FLUTE	-	-	-	Multi Flute	Multi Flute	Multi Flute	Multi Flute	Multi Flute	4
HELIX ANGLE	10°-20°	10°	-	30°	42°	30°	30°	30°	0°
SIZE MIN	D12.5	D50.0	D50.0	D30.0	D30.0	D40.0	D40.0	D40.0	D8.0
SIZE MAX	D40.0	D125.0	D200.0	D160.0	D100.0	D160.0	D160.0	D160.0	D56.0
PAGE	C709	C711	C713	C719	C720	C721	C722	C723	C724
	Type AA, AB, AD	with STRAIGHT TEETH	with STAGGERED TEETH	-	for ALUMINUM	-	-	-	-
	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated
	HSS-E	HSS-E	HSS-E	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8

ISO	VDI 3323	ML072 ML172	ML092	ML102	E2675	E2676	E2677	E2678	E2679	E2498
P	1	◎	◎	◎	◎	○	◎	◎	◎	◎
	2	◎	◎	◎	◎	○	◎	◎	◎	◎
	3	◎	◎	◎	◎	○	◎	◎	◎	◎
	4	◎	◎	◎	◎	○	◎	◎	◎	◎
	5	◎	◎	◎	◎		○	○	○	○
	6	◎	◎	◎	◎	○	◎	◎	◎	◎
	7	◎	◎	◎	◎	○	◎	◎	◎	◎
	8	◎	◎	◎	◎		○	○	○	○
	9		○	○	○		○	○	○	○
	10	◎	◎	◎	◎	○	◎	◎	◎	◎
	11		○	○	○		○	○	○	○
M	12									
	13									
	14									
K	15									
	16									
	17									
	18									
	19									
	20									
N	21	○	○	○		◎	○	○	○	○
	22	○	○	○		◎	○	○	○	○
	23	○	○	○		◎	○	○	○	○
	24	○	○	○		◎	○	○	○	○
	25	○	○	○		◎	○	○	○	○
	26									
	27									
	28									
	29									
	30									
S	31									
	32									
	33									
	34									
	35									
	36									
	37									
H	38									
	39									
	40									
	41									

MILLING CUTTERS

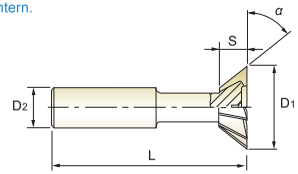
PLAIN SHANK **ML012, ML022** SERIES
FLAT SHANK **ML112, ML122** SERIES

HSS-E, DOVETAIL CUTTERS TYPE “A”, “C”, “E”

HSS-E, WINKELFRÄSER FORM “A”, “C”, “E”
Fraise HSS-E pour queue d'aronde Type "A", "C", "E"
FRESE AD ANGOLO DIVERGENTE TIPO “A”, “C”, “E”

▶ Recommanded for use in place of arbor and threaded hole type cutters to reduce set time and facilitate handling.

▶ Empfohlen zur Nutzung anstelle von Arbor und threaded hole type Cutters um Montierzeit zu verkürzen und Handhabung zu erleichtern.



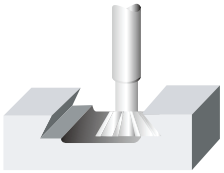
HSS-E | DIN 1833 | N | 0° | DIN 1835A | DIN 1835B | UNCOATED p.C726

Unit : mm

EDP No.		Cutter Diameter	Width of Face	Divergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D1(js16)	S(js14)	α(± 15´)	D2(h6)	L(js18)	Z
ML01201601	ML11201601	16.0	4	45°	12	60	6
ML01202001	ML11202001	20.0	5	45°	12	63	6
ML01202201	ML11202201	22.0	6	45°	12	67	6
ML01202501	ML11202501	25.0	6.3	45°	16	67	8
ML01202801	ML11202801	28.0	7.5	45°	16	67	8
ML01203201	ML11203201	32.0	8	45°	16	71	10
ML01203801	ML11203801	38.0	10	45°	16	80	12
ML02201601	ML12201601	16.0	6.3	60°	12	60	6
ML02202001	ML12202001	20.0	8	60°	12	63	6
ML02202201	ML12202201	22.0	9	60°	12	67	6
ML02202501	ML12202501	25.0	10	60°	16	67	8
ML02202801	ML12202801	28.0	11	60°	16	67	8
ML02203201	ML12203201	32.0	12.5	60°	16	71	10
ML02203801	ML12203801	38.0	16	60°	16	80	12
ML02204001	ML12204001	40.0	13	60°	25	85	12
ML02205001	ML12205001	50.0	16	60°	25	100	16

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm							
Tolerance range in mm							
js16							
js14							
js18							
Tolerance range in μm							
h6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16	0 / - 19	0 / - 22



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

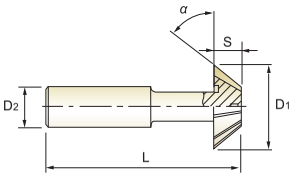
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

PLAIN SHANK **ML032, ML042** SERIES
FLAT SHANK **ML132, ML142** SERIES

HSS-E, DOVETAIL CUTTERS TYPE “B”, “D”, “F”

HSS-E, WINKELFRÄSER FORM “B”, “D”, “F”
Fraise HSS-E pour queue d'arronde Type "B", "D", "F"
FRESE AD ANGOLO CONVERGENTE TIPO “B”, “D”, “F”



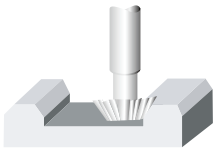
HSS-E | DIN 1833 | N | 0° | DIN 1835A | DIN 1835B | UNCOATED p.C727

Unit : mm

EDP No.		Cutter Diameter	Width of Face	Divergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D1(js16)	S(js14)	α(± 15´)	D2(h6)	L(js18)	Z
ML03201601	ML13201601	16.0	4	45°	12	60	6
ML03202001	ML13202001	20.0	5	45°	12	63	6
ML03202201	ML13202201	22.0	6	45°	12	67	6
ML03202501	ML13202501	25.0	6.3	45°	16	67	8
ML03202801	ML13202801	28.0	7.5	45°	16	67	8
ML03203201	ML13203201	32.0	8	45°	16	71	10
ML03203801	ML13203801	38.0	10	45°	16	80	12
ML04201601	ML14201601	16.0	6.3	60°	12	60	6
ML04202001	ML14202001	20.0	8	60°	12	63	6
ML04202201	ML14202201	22.0	9	60°	12	67	6
ML04202501	ML14202501	25.0	10	60°	16	67	8
ML04202801	ML14202801	28.0	11	60°	16	67	8
ML04203201	ML14203201	32.0	12.5	60°	16	71	10
ML04203801	ML14203801	38.0	16	60°	16	80	12

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm							
Tolerance range in mm							
js16							
js14							
js18							
Tolerance range in μm							
h6	0 / - 8	0 / - 9	0 / - 11	0 / - 13	0 / - 16	0 / - 19	0 / - 22



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

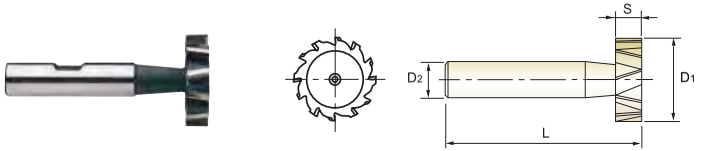
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

MILLING CUTTERS

PLAIN SHANK **ML062** SERIES
FLAT SHANK **ML162** SERIES

HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE “B”, “D”, “F”

- HSS-E, SCHLITZFRÄSER FORM “B”, “D”, “F”
- Fraise HSS-E WOODRUFF Type "B", "D", "F"
- FRESE PER CHIAVETTE WOODRUFF TIPO “B”, “D”, “F”



HSS-E | DIN 850 | N | 10~12° | DIN 1835A | DIN 1835B | UNCOATED p.C728

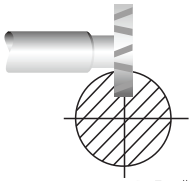
Unit : mm

EDP No.		Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D1(h11)	S(e8)	D2(h6)	L(js18)	Z
ML06210E01	ML16210E01	10.5	2	6	50	8
ML06210E02	ML16210E02	10.5	2.5	6	50	8
ML06210E03	ML16210E03	10.5	3	6	50	8
ML06213E01	ML16213E01	13.5	2	10	56	8
ML06213E02	ML16213E02	13.5	2.5	10	56	8
ML06213E03	ML16213E03	13.5	3	10	56	8
ML06213E04	ML16213E04	13.5	4	10	56	8
ML06216E01	ML16216E01	16.5	2.5	10	56	8
ML06216E02	ML16216E02	16.5	3	10	56	8
ML06216E03	ML16216E03	16.5	4	10	56	8
ML06216E04	ML16216E04	16.5	5	10	56	8
ML06219E01	ML16219E01	19.5	3	10	56	8
ML06219E02	ML16219E02	19.5	4	10	63	8
ML06219E03	ML16219E03	19.5	5	10	63	8
ML06219E04	ML16219E04	19.5	6	10	63	8
ML06222E01	ML16222E01	22.5	4	10	63	10
ML06222E02	ML16222E02	22.5	5	10	63	10
ML06222E03	ML16222E03	22.5	6	10	63	10
ML06222E04	ML16222E04	22.5	8	10	63	10
ML06225E01	ML16225E01	25.5	5	10	63	10

Tolerances according to DIN 7160 & 7161

▶ NEXT PAGE

Nominal-Diameter in mm							
m							
Tolerance range in mm							
js18							
Tolerance range in μm							
h11							
e8							
h6							

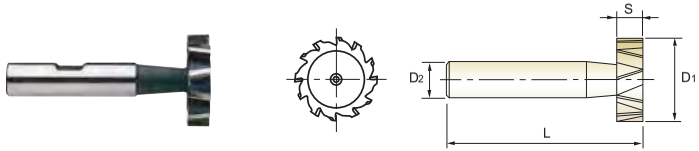


◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS
PLAIN SHANK ML062 SERIES
FLAT SHANK ML162 SERIES
HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE “B”, “D”, “F”
HSS-E, SCHLITZFRÄSER FORM “B”, “D”, “F”
Fraise HSS-E WOODRUFF Type "B", "D", "F"
FRESE PER CHIAVETTE WOODRUFF TIPO “B”, “D”, “F”



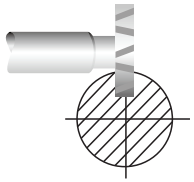
HSS-E | DIN 850 | N | 10~12° | DIN 1835A | DIN 1835B | UNCOATED p.C728

Unit : mm

EDP No.		Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D1(h11)	S(e8)	D2(h6)	L(js18)	Z
ML06225E02	ML16225E02	25.5	6	10	63	10
ML06225E03	ML16225E03	25.5	7	10	63	10
ML06225E04	ML16225E04	25.5	8	10	63	10
ML06228E01	ML16228E01	28.5	5	10	63	10
ML06228E02	ML16228E02	28.5	6	10	63	10
ML06228E03	ML16228E03	28.5	7	10	63	10
ML06228E04	ML16228E04	28.5	8	10	63	10
ML06228E05	ML16228E05	28.5	10	12	71	10
ML06232E01	ML16232E01	32.5	5	12	71	12
ML06232E02	ML16232E02	32.5	6	12	71	12
ML06232E03	ML16232E03	32.5	7	12	71	12
ML06232E04	ML16232E04	32.5	8	12	71	12
ML06232E05	ML16232E05	32.5	10	12	71	12
ML06238E01	ML16238E01	38.5	7	12	71	12
ML06238E02	ML16238E02	38.5	8	12	71	12
ML06238E03	ML16238E03	38.5	9	12	71	12
ML06238E04	ML16238E04	38.5	10	12	71	12
ML06245E01	ML16245E01	45.5	10	12	71	14

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm							
m							
Tolerance range in mm							
js18							
Tolerance range in μm							
h11							
e8							
h6							



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

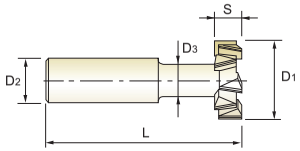
YG-1 CO., LTD. phone:+82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

MILLING CUTTERS

PLAIN SHANK **ML072** SERIES
FLAT SHANK **ML172** SERIES

HSS-E, T-SLOT CUTTERS TYPE "AA", "AB", "AD"

HSS-E, SCHAFTERFRÄSER FÜR T-NUTEN FORM "AA", "AB", "AD"
Fraise HSS-E pour rainure en "T" Type "AA", "AB", "AD"
FRESE PER SCANALATURE A T - DENTI ALTERNATI



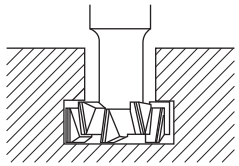
HSS-E | DIN 851 | N | 10° | DIN 1835A | DIN 1835B | UNCOATED p.C729

Unit : mm

EDP No.		Cutter Diameter	Width of Face	Shank Diameter	Neck Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	D_1(d11)	S(d11)	D_2(h6)	D_3(h12)	L(js18)	Z
ML07212E01	ML17212E01	12.5	6	10	5	57	6
ML07201601	ML17201601	16.0	8	10	6.5	62	6
ML07201801	ML17201801	18.0	8	12	8	70	6
ML07201901	ML17201901	19.0	9	12	8	71	6
ML07202101	ML17202101	21.0	9	12	10	74	6
ML07202201	ML17202201	22.0	10	12	10	75	6
ML07202501	ML17202501	25.0	11	16	12	82	6
ML07202801	ML17202801	28.0	12	16	13	83	6
ML07203201	ML17203201	32.0	14	16	15	90	8
ML07203601	ML17203601	36.0	16	25	17	103	8
ML07204001	ML17204001	40.0	18	25	19	108	8

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm							
Tolerance range in mm							
h12							
js18							
Tolerance range in μm							
d11							
h6							



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎		◎										

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

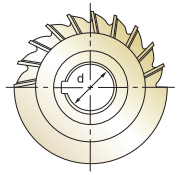
STRAIGHT TEETH **ML092** SERIES

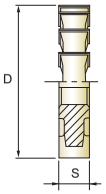
HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH

HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT
Fraise HSS-E 3 Tailles, denture droite
FRESE A DISCO A TRE TAGLI - DENTI DRITTI

▶ The tools are used for general purpose side and straddle milling where deep cut is not required.

▶ Diese Werkzeuge werden bei allgemeinen Seiten-und Breitfräsen eingesetzt, wo Tiefschnitte nicht vorkommen.





HSS-E | DIN 885-B | H | UNCOATED p.C730

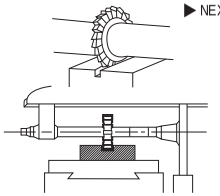
Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D_1(js14)	S(k11)	d(H7)	Z
ML09205001	50.0	4	16	18
ML09205002	50.0	5	16	18
ML09205003	50.0	6	16	18
ML09205004	50.0	8	16	16
ML09205005	50.0	10	16	16
ML09206301	63.0	5	22	22
ML09206302	63.0	6	22	22
ML09206303	63.0	8	22	20
ML09206304	63.0	10	22	20
ML09206305	63.0	12	22	20
ML09208001	80.0	6	22	24
ML09208002	80.0	8	22	24
ML09208003	80.0	10	22	24
ML09208004	80.0	12	22	20
ML09208005	80.0	6	27	24
ML09208006	80.0	8	27	24
ML09208007	80.0	10	27	24
ML09208008	80.0	12	27	20
ML09210001	100.0	6	27	26
ML09210002	100.0	8	27	26

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm							
Tolerance range in mm							
js14							
Tolerance range in μm							
k11							
H7							



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

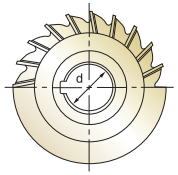
STRAIGHT TEETH **ML092** SERIES

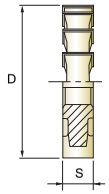
HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH

HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT
Fraise HSS-E 3 Tailles, denture droite
FRESE A DISCO A TRE TAGLI - DENTI DRITTI

▶ The tools are used for general purpose side and straddle milling where deep cut is not required.

▶ Diese Werkzeuge werden bei allgemeinen Seiten-und Breitfräsen eingesetzt, wo Tiefschnitte nicht vorkommen.





HSS-E | DIN 885-B | H | UNCOATED

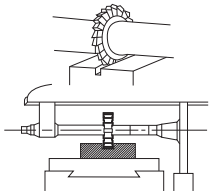
p.C730

Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D_1(js14)	S(k11)	d(H7)	Z
ML09210003	100.0	10	27	22
ML09210004	100.0	6	32	26
ML09210005	100.0	8	32	26
ML09210006	100.0	10	32	22
ML09210007	100.0	12	32	22
ML09212501	125.0	8	32	30
ML09212502	125.0	10	32	30
ML09212503	125.0	12	32	24

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm									
Tolerance range in mm									
js14									
Tolerance range in μm									
k11									
H7									



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

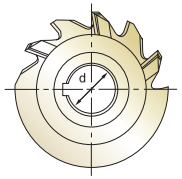
STAGGERED TEETH **ML102** SERIES

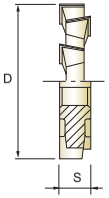
HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.





HSS-E | DIN 885-A | H | UNCOATED

p.C731

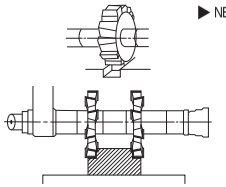
Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10205001	50.0	3	16	14
ML10205002	50.0	4	16	14
ML10205003	50.0	5	16	14
ML10205004	50.0	6	16	14
ML10205005	50.0	7	16	14
ML10205006	50.0	8	16	14
ML10205007	50.0	9	16	14
ML10205008	50.0	10	16	14
ML10206301	63.0	3	22	16
ML10206302	63.0	4	22	16
ML10206303	63.0	5	22	16
ML10206304	63.0	6	22	16
ML10206305	63.0	7	22	16
ML10206306	63.0	8	22	16
ML10206307	63.0	9	22	16
ML10206308	63.0	10	22	16
ML10206309	63.0	12	22	16
ML10206310	63.0	14	22	16
ML10206311	63.0	16	22	16
ML10206312	63.0	18	22	16

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm									
Tolerance range in mm									
js14									
Tolerance range in μm									
k11									
H7									



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

MILLING CUTTERS

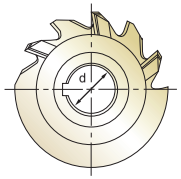
STAGGERED TEETH **ML102** SERIES

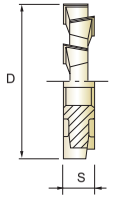
HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.





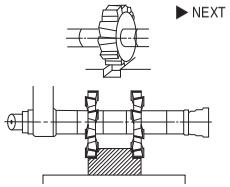
HSS-E | DIN 885-A | H | UNCOATED

p.C731

Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10208001	80.0	3	22	18
ML10208002	80.0	4	22	18
ML10208003	80.0	5	22	18
ML10208004	80.0	6	22	18
ML10208005	80.0	7	22	18
ML10208006	80.0	8	22	18
ML10208007	80.0	9	22	18
ML10208008	80.0	10	22	18
ML10208009	80.0	12	22	18
ML10208010	80.0	14	22	18
ML10208011	80.0	16	22	18
ML10208012	80.0	18	22	18
ML10208013	80.0	20	22	18
ML10208014	80.0	4	27	18
ML10208015	80.0	5	27	18
ML10208016	80.0	6	27	18
ML10208017	80.0	7	27	18
ML10208018	80.0	8	27	18
ML10208019	80.0	9	27	18
ML10208020	80.0	10	27	18

▶ NEXT PAGE



Tolerances according to DIN 7160 & 7161

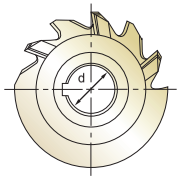
Nominal-Diameter in mm									
Tolerance range in mm									
js14									
Tolerance range in μm									
k11									
H7									

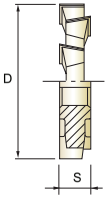
◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS
STAGGERED TEETH ML102 SERIES
HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH
HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI
▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.
▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.





HSS-E | DIN 885-A | H | UNCOATED

p.C731

Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10208021	80.0	12	27	18
ML10208022	80.0	14	27	18
ML10208023	80.0	16	27	18
ML10208024	80.0	18	27	18
ML10208025	80.0	20	27	18
ML10210001	100.0	3	27	20
ML10210002	100.0	4	27	20
ML10210003	100.0	5	27	20
ML10210004	100.0	6	27	20
ML10210005	100.0	7	27	20
ML10210006	100.0	8	27	20
ML10210007	100.0	9	27	20
ML10210008	100.0	10	27	20
ML10210009	100.0	12	27	20
ML10210010	100.0	14	27	20
ML10210011	100.0	15	27	20
ML10210012	100.0	16	27	20
ML10210013	100.0	18	27	20
ML10210014	100.0	20	27	20
ML10210015	100.0	4	32	20

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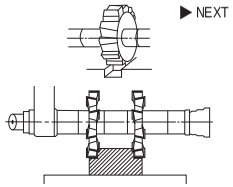


Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm									
Tolerance range in mm									
js14									
Tolerance range in μm									
k11									
H7									

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

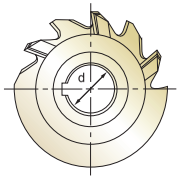
STAGGERED TEETH **ML102** SERIES

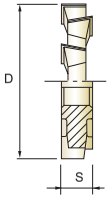
HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.





HSS-E | DIN 885-A | H | UNCOATED

p.C731

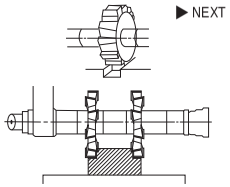
Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10210016	100.0	5	32	20
ML10210017	100.0	6	32	20
ML10210018	100.0	7	32	20
ML10210019	100.0	8	32	20
ML10210020	100.0	9	32	20
ML10210021	100.0	10	32	20
ML10210022	100.0	12	32	20
ML10210023	100.0	14	32	20
ML10210024	100.0	15	32	20
ML10210025	100.0	16	32	20
ML10210026	100.0	18	32	20
ML10210027	100.0	20	32	20
ML10212501	125.0	5	32	22
ML10212502	125.0	6	32	22
ML10212503	125.0	8	32	22
ML10212504	125.0	10	32	22
ML10212505	125.0	12	32	22
ML10212506	125.0	14	32	22
ML10212507	125.0	16	32	22
ML10212508	125.0	18	32	22

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm									
Tolerance range in mm									
js14									
Tolerance range in μm									
k11									
H7									



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

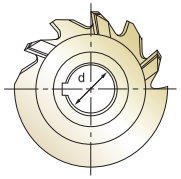
STAGGERED TEETH **ML102** SERIES

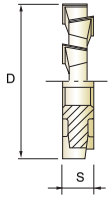
HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.





HSS-E | DIN 885-A | H | UNCOATED

p.C731

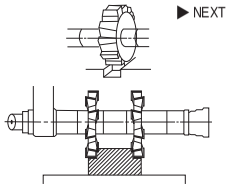
Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10212509	125.0	20	32	22
ML10216001	160.0	6	32	26
ML10216002	160.0	8	32	26
ML10216003	160.0	10	32	26
ML10216004	160.0	12	32	26
ML10216005	160.0	14	32	26
ML10216006	160.0	16	32	26
ML10216007	160.0	18	32	26
ML10216008	160.0	20	32	26
ML10216009	160.0	6	40	26
ML10216010	160.0	8	40	26
ML10216011	160.0	10	40	26
ML10216012	160.0	12	40	26
ML10216013	160.0	14	40	26
ML10216014	160.0	16	40	26
ML10216015	160.0	18	40	26
ML10216016	160.0	20	40	26
ML10220001	200.0	10	40	30
ML10220002	200.0	12	40	30
ML10220003	200.0	14	40	30

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm									
Tolerance range in mm									
js14									
Tolerance range in μm									
k11									
H7									



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

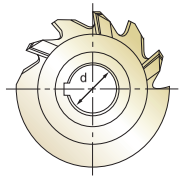
STAGGERED TEETH **ML102** SERIES

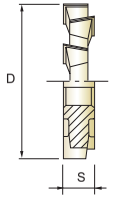
HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.





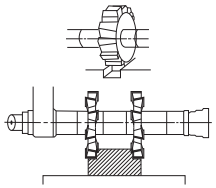
HSS-E | DIN 885-A | H | UNCOATED p.C731

Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10220004	200.0	16	40	30
ML10220005	200.0	18	40	30
ML10220006	200.0	20	40	30
ML10220007	200.0	22	40	30
ML10220008	200.0	25	40	30

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in ㎜									
Tolerance range in ㎜									
js14									
Tolerance range in ㎛									
k11									
H7									



◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

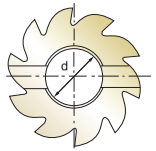
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

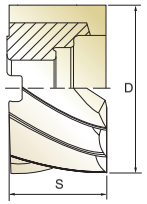
MILLING CUTTERS

E2675 SERIES

HSSCo8, MULTI FLUTE SHELL END MILL

HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER
Fraise HSSCo8, multi-dents trou lisse
FRESA CILINDRICA FRONTALE, MULTI TAGLIENTE





HSS Co8 | DIN 841 | N | 6-10 | 30° | UNCOATED p.C732

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	Z
E2675300	30.0	30	● 13	6
E2675350	35.0	35	● 16	6
E2675400	40.0	20	● 16	8
E2675402	40.0	40	● 16	8
E2675500	50.0	25	22	8
E2675502	50.0	50	22	8
E2675600	60.0	30	27	8
E2675601	60.0	60	27	8
E2675750	75.0	35	27	10
E2675751	75.0	75	27	10
E2675900	90.0	35	27	10
E2675902	110.0	35	32	10

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | N | 8-14 | 30° p.C732

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	Z
E2675401	40.0	32	● 16	8
E2675501	50.0	36	22	8
E2675630	63.0	40	27	8
E2675800	80.0	45	27	10
E2675901	100.0	50	32	10
E2675903	125.0	56	40	12
E2675904	160.0	63	50	14

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	○									

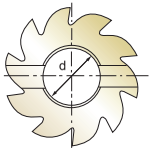
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																				○	

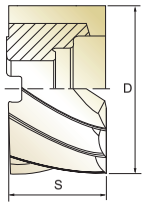
MILLING CUTTERS

E2676 SERIES

HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINUM

HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM
Fraise HSSCo8, multi-dents trou lisse pour aluminium
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER ALLUMINIO





HSS Co8 | DIN 841 | W | 4&6 | 42° | UNCOATED p.C732

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2676300	30.0	30	● 13	4
E2676400	40.0	20	● 16	4
E2676402	40.0	40	● 16	4
E2676500	50.0	25	22	6
E2676502	50.0	50	22	6
E2676600	60.0	30	27	6
E2676601	60.0	60	27	6
E2676750	75.0	75	27	6

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | W | 4&6 | 42° | UNCOATED p.C732

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2676401	40.0	32	● 16	4
E2676501	50.0	36	22	6
E2676630	63.0	40	27	6
E2676800	80.0	45	27	6
E2676901	100.0	50	32	6

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○		○	○			○										

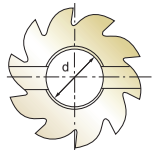
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎																

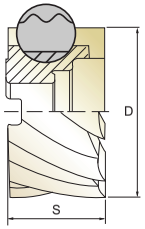
MILLING CUTTERS

E2677 SERIES

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - COARSE

HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - GROBES
Fraise HSSCo8, multi-dents trou lisse, ébauche, pas grossier
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER SGROSSATURA





HSS Co8 | DIN 841 | NR | 6-12 | 30° | UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2677401	40.0	40	● 16	6
E2677501	50.0	50	22	8
E2677600	60.0	30	27	8
E2677601	60.0	60	27	8
E2677750	75.0	35	27	10
E2677751	75.0	75	27	10
E2677900	90.0	35	27	10
E2677902	110.0	35	32	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | NR | 6-12 | 30° | UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2677400	40.0	32	● 16	6
E2677500	50.0	36	22	8
E2677630	63.0	40	27	8
E2677800	80.0	45	27	10
E2677901	100.0	50	32	10
E2677903	125.0	56	40	12
E2677904	160.0	63	50	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

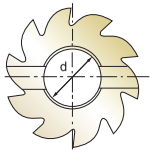
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

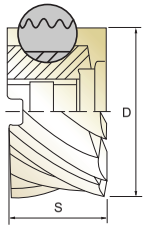
MILLING CUTTERS

E2678 SERIES

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - FINE

HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - FEINES
Fraise HSSCo8, multi-dents trou lisse, ébauche, pas fin
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER SGROSSATURA





HSS Co8 | DIN 841 | HR | 6-12 | 30° | UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2678401	40.0	40	● 16	6
E2678501	50.0	50	22	8
E2678600	60.0	30	27	8
E2678601	60.0	60	27	8
E2678750	75.0	35	27	10
E2678751	75.0	75	27	10
E2678900	90.0	35	27	10
E2678902	110.0	35	32	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | HR | 6-12 | 30° | UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2678400	40.0	32	● 16	6
E2678500	50.0	36	22	8
E2678630	63.0	40	27	8
E2678800	80.0	45	27	10
E2678901	100.0	50	32	10
E2678903	125.0	56	40	12
E2678904	160.0	63	50	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

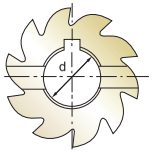
ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

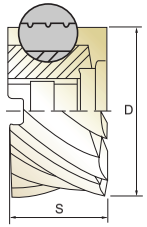
MILLING CUTTERS

E2679 SERIES

HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL

HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER
Fraise HSSCo8, multi-dents trou lisse, ébauche et finition
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, SEMI FINITURA





HSS Co8 | DIN 841 | NF | 6-12 | 30° | UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2679401	40.0	40	● 16	6
E2679501	50.0	50	22	8
E2679600	60.0	30	27	8
E2679601	60.0	60	27	8
E2679750	75.0	35	27	10
E2679751	75.0	75	27	10
E2679900	90.0	35	27	10
E2679902	110.0	35	32	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | NF | 6-12 | 30° | UNCOATED p.C733

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2679400	40.0	32	● 16	6
E2679500	50.0	36	22	8
E2679630	63.0	40	27	8
E2679800	80.0	45	27	10
E2679901	100.0	50	32	10
E2679903	125.0	56	40	12
E2679904	160.0	63	50	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

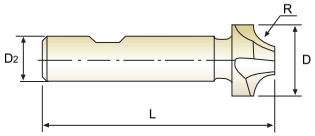
FLAT SHANK **E2498** SERIES

HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS

HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER
Fraise HSSCo8, 1/4 de cercle, 4 dents
4 TAGLIENTI PER RAGGIATURA DI SPIGOLI

▶ These tools can be adapted for many screw machine applications as end formming tools to form a specific radius.

▶ Dieses Werkzeug kann an vielen Scrow maschine als Finishingtool für spezielle Radien montiert werden.



HSS Co8 | DIN 6518 | N | 4 | 0° | DIN 1835B | UNCOATED p.C734

Unit : mm

EDP No.	Radius	Outside Diameter	Shank Diameter	Overall Length
	R(H11)	D	D2(h6)	L
E2498010	R1.0	8.0	10	60
E2498015	R1.5	9.0	10	60
E2498020	R2.0	10.0	10	60
E2498025	R2.5	11.0	10	60
E2498030	R3.0	12.0	12	60
E2498035	R3.5	13.0	12	60
E2498040	R4.0	14.0	12	60
E2498045	R4.5	15.0	12	60
E2498050	R5.0	16.0	12	60
E2498055	R5.5	19.0	16	67
E2498060	R6.0	20.0	16	67
E2498065	R6.5	21.0	16	71
E2498070	R7.0	22.0	16	71
E2498075	R7.5	23.0	16	71
E2498080	R8.0	24.0	16	71
E2498085	R8.5	25.0	25	85
E2498090	R9.0	26.0	25	85
E2498095	R9.5	27.0	25	85

▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

▶ NEXT PAGE

Tolerances according to DIN 7160 & 7161

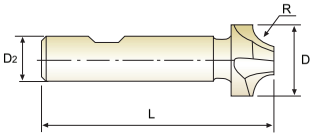
Nominal-Diameter in mm						
	m					
Tolerance range in μm						
H11						
h6						

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS
FLAT SHANK E2498 SERIES
HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS
HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER
Fraise HSSCo8, 1/4 de cercle, 4 dents
4 TAGLIENTI PER RAGGIATURA DI SPIGOLI
▶ These tools can be adapted for many screw machine applications as end formming tools to form a specific radius.
▶ Dieses Werkzeug kann an vielen Scrow maschine als Finishingtool für spezielle Radien montiert werden.



HSS Co8 | DIN 6518 | N | 4 | 0° | DIN 1835B | UNCOATED p.C734

Unit : mm

EDP No.	Radius	Outside Diameter	Shank Diameter	Overall Length
	R(H11)	D	D2(h6)	L
E2498100	R10.0	28.0	25	85
E2498105	R10.5	31.0	25	90
E2498110	R11.0	32.0	25	90
E2498120	R12.0	34.0	25	90
E2498125	R12.5	41.0	25	100
E2498130	R13.0	42.0	25	100
E2498140	R14.0	44.0	25	100
E2498150	R15.0	46.0	25	100
E2498160	R16.0	48.0	25	100
E2498180	R18.0	52.0	32	112
E2498200	R20.0	56.0	32	112

▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Tolerances according to DIN 7160 & 7161

Nominal-Diameter in mm						
	m					
Tolerance range in μm						
H11						
h6						

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	○	◎	◎	○	○	◎	○									

ISO	N									S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	○	○	○																

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

ML012, ML112, ML022, ML122 SERIES

MULTI FLUTE DOVETAIL CUTTERS TYPE 'A', 'C', 'E'

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 16.0	20.0	25.0	32.0	40.0	50.0	63.0
P	1	Non-alloy steel	Vc	30	30	30	30	30	30	30
			fz	0.03	0.037	0.026	0.042	0.043	0.03	0.031
			RPM	597	477	382	298	239	191	152
			FEED	107	106	79	125	123	92	75
	2		Vc	15	15	15	15	15	15	15
			fz	0.031	0.036	0.031	0.041	0.043	0.026	0.031
			RPM	298	239	191	149	119	95	76
			FEED	56	52	47	61	62	40	38
	3-4		Vc	10	10	10	10	10	10	10
			fz	0.031	0.035	0.028	0.04	0.042	0.03	0.033
			RPM	199	159	127	99	80	64	51
			FEED	37	33	29	40	40	31	27
	5		Vc	10	10	10	10	10	10	10
			fz	0.021	0.02	0.02	0.02	0.022	0.02	0.023
			RPM	199	159	127	99	80	64	51
			FEED	25	19	20	20	21	20	19
	6	Low alloy steel	Vc	15	15	15	15	15	15	15
			fz	0.031	0.036	0.031	0.041	0.043	0.026	0.031
			RPM	298	239	191	149	119	95	76
			FEED	56	52	47	61	62	40	38
	7		Vc	10	10	10	10	10	10	10
			fz	0.031	0.035	0.028	0.04	0.042	0.03	0.033
			RPM	199	159	127	99	80	64	51
			FEED	37	33	29	40	40	31	27
	8-9		Vc	10	10	10	10	10	10	10
			fz	0.021	0.02	0.02	0.02	0.022	0.02	0.023
			RPM	199	159	127	99	80	64	51
			FEED	25	19	20	20	21	20	19
	10	High alloyed steel, and tool steel	Vc	15	15	15	15	15	15	15
			fz	0.031	0.036	0.031	0.041	0.043	0.026	0.031
			RPM	298	239	191	149	119	95	76
			FEED	56	52	47	61	62	40	38
	11.1		Vc	10	10	10	10	10	10	10
			fz	0.021	0.02	0.02	0.02	0.022	0.02	0.023
			RPM	199	159	127	99	80	64	51
			FEED	25	19	20	20	21	20	19
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	95	85	90	90	95	85	90
			fz	0.03	0.04	0.029	0.041	0.042	0.03	0.033
			RPM	1890	1353	1146	895	756	541	455
			FEED	340	325	266	367	381	260	240

MILLING CUTTERS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

ML032, ML132, ML042, ML142 SERIES

MULTI FLUTE DOVETAIL CUTTERS TYPE 'B', 'D', 'F'

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 16.0	20.0	25.0	32.0
P	1	Non-alloy steel	Vc	30	30	30	30
			fz	0.03	0.037	0.026	0.042
			RPM	597	477	382	298
			FEED	107	106	79	125
	2		Vc	15	15	15	15
			fz	0.031	0.036	0.031	0.041
			RPM	298	239	191	149
			FEED	56	52	47	61
	3-4		Vc	10	10	10	10
			fz	0.031	0.035	0.028	0.04
			RPM	199	159	127	99
			FEED	37	33	29	40
	5		Vc	10	10	10	10
			fz	0.021	0.02	0.02	0.02
			RPM	199	159	127	99
			FEED	25	19	20	20
	6	Low alloy steel	Vc	15	15	15	15
			fz	0.031	0.036	0.031	0.041
			RPM	298	239	191	149
			FEED	56	52	47	61
	7		Vc	10	10	10	10
			fz	0.031	0.035	0.028	0.04
			RPM	199	159	127	99
			FEED	37	33	29	40
	8-9		Vc	10	10	10	10
			fz	0.021	0.02	0.02	0.02
			RPM	199	159	127	99
			FEED	25	19	20	20
	10	High alloyed steel, and tool steel	Vc	15	15	15	15
			fz	0.031	0.036	0.031	0.041
			RPM	298	239	191	149
			FEED	56	52	47	61
	11.1		Vc	10	10	10	10
			fz	0.021	0.02	0.02	0.02
			RPM	199	159	127	99
			FEED	25	19	20	20
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	95	85	90	90
			fz	0.03	0.04	0.029	0.041
			RPM	1890	1353	1146	895
			FEED	340	325	266	367

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

ML062, ML162 SERIES

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

MULTI FLUTES WOODRUFF KEYSEAT CUTTERS TYPE 'B', 'D', 'F'

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)							
				10.5	13.5	16.5	19.5	22.5	28.5	32.5	45.5
P	1	Non-alloy steel	Vc	30	30	30	30	30	30	30	30
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	909	707	579	490	424	335	294	210
			FEED	73	57	116	137	170	168	212	206
	2		Vc	20	20	20	20	20	20	20	20
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	606	472	386	326	283	223	196	140
			FEED	49	38	77	91	113	112	141	137
	3-4		Vc	15	15	15	15	15	15	15	15
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	455	354	289	245	212	168	147	105
			FEED	36	28	58	69	85	84	106	103
	5		Vc	10	10	10	10	10	10	10	10
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	303	236	193	163	141	112	98	70
			FEED	24	19	39	46	57	56	71	69
	6	Low alloy steel	Vc	20	20	20	20	20	20	20	20
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	606	472	386	326	283	223	196	140
			FEED	49	38	77	91	113	112	141	137
	7		Vc	15	15	15	15	15	15	15	15
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	455	354	289	245	212	168	147	105
			FEED	36	28	58	69	85	84	106	103
	8-9		Vc	10	10	10	10	10	10	10	10
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	303	236	193	163	141	112	98	70
			FEED	24	19	39	46	57	56	71	69
	10	High alloyed steel, and tool steel	Vc	20	20	20	20	20	20	20	20
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	606	472	386	326	283	223	196	140
			FEED	49	38	77	91	113	112	141	137
	11.1		Vc	10	10	10	10	10	10	10	10
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	303	236	193	163	141	112	98	70
			FEED	24	19	39	46	57	56	71	69
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	100	100	100	100	100	100	90	100
			fz	0.01	0.01	0.025	0.035	0.04	0.05	0.06	0.07
			RPM	3032	2358	1929	1632	1415	1117	881	700
			FEED	243	189	386	457	566	558	635	686

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

ML072, ML172 SERIES

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

MULTI FLUTE T-SLOT CUTTERS TYPE 'AA', 'AB', 'AD'

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)										
				12.5	16.0	18.0	19.0	21.0	22.0	25.0	28.0	32.0	50.0	63.0
P	1	Non-alloy steel	Vc	30	30	30	30	30	30	30	30	30	40	50
			fz	0.008	0.013	0.014	0.017	0.018	0.021	0.028	0.036	0.036	0.037	0.036
			RPM	764	597	531	503	455	434	382	341	298	255	253
			FEED	37	47	45	51	49	55	64	74	86	75	73
	2		Vc	15	15	15	15	15	15	15	15	15	20	25
			fz	0.007	0.011	0.012	0.013	0.016	0.019	0.026	0.037	0.035	0.037	0.04
			RPM	382	298	265	251	227	217	191	171	149	127	126
			FEED	16	20	19	20	22	25	30	38	42	38	40
	3-4		Vc	10	10	10	10	10	10	10	10	10	15	15
			fz	0.005	0.007	0.01	0.014	0.017	0.019	0.022	0.028	0.025	0.028	0.029
			RPM	255	199	177	168	152	145	127	114	99	95	76
			FEED	8	8	11	14	15	16	17	19	20	21	18
	6	Low alloy steel	Vc	15	15	15	15	15	15	15	15	15	20	25
			fz	0.007	0.011	0.012	0.013	0.016	0.019	0.026	0.037	0.035	0.037	0.04
			RPM	382	298	265	251	227	217	191	171	149	127	126
			FEED	16	20	19	20	22	25	30	38	42	38	40
	7		Vc	10	10	10	10	10	10	10	10	10	15	15
			fz	0.005	0.007	0.01	0.014	0.017	0.019	0.022	0.028	0.025	0.028	0.029
			RPM	255	199	177	168	152	145	127	114	99	95	76
			FEED	8	8	11	14	15	16	17	19	20	21	18
	10	High alloyed steel, and tool steel	Vc	15	15	15	15	15	15	15	15	15	20	25
			fz	0.007	0.011	0.012	0.013	0.016	0.019	0.026	0.037	0.035	0.037	0.04
			RPM	382	298	265	251	227	217	191	171	149	127	126
			FEED	16	20	19	20	22	25	30	38	42	38	40
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	90	90	95	90	95	90	90	90	90	125	145
			fz	0.008	0.013	0.015	0.017	0.019	0.021	0.026	0.034	0.034	0.036	0.036
			RPM	2292	1790	1680	1508	1440	1302	1146	1023	895	796	733
			FEED	110	140	151	154	164	164	179	209	244	229	211

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

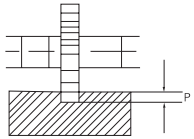
MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

ML092 SERIES — MULTI FLUTES SIDE AND FACE MILLING CUTTERS WITH STRAIGHT TEETH

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 50.0	63.0	80.0	100.0	125.0
P	1	Non-alloy steel	Vc	25	25	25	25	25
			fz	0.045	0.058	0.06	0.063	0.066
			RPM	159	126	99	80	64
			FEED	129	161	143	130	126
	2		Vc	20	20	20	20	20
			fz	0.04	0.036	0.041	0.038	0.05
			RPM	127	101	80	64	51
			FEED	92	80	78	63	76
	3-4		Vc	15	15	15	15	15
			fz	0.034	0.031	0.033	0.034	0.042
			RPM	95	76	60	48	38
			FEED	58	52	47	42	48
	5		Vc	10	10	10	10	10
			fz	0.031	0.029	0.03	0.03	0.036
			RPM	64	51	40	32	25
			FEED	36	32	29	25	28
	6	Low alloy steel	Vc	20	20	20	20	20
			fz	0.04	0.036	0.041	0.038	0.05
			RPM	127	101	80	64	51
			FEED	92	80	78	63	76
	7		Vc	15	15	15	15	15
			fz	0.034	0.031	0.033	0.034	0.042
			RPM	95	76	60	48	38
			FEED	58	52	47	42	48
	8-9		Vc	10	10	10	10	10
			fz	0.031	0.029	0.03	0.03	0.036
			RPM	64	51	40	32	25
			FEED	36	32	29	25	28
	10	High alloyed steel, and tool steel	Vc	20	20	20	20	20
			fz	0.04	0.036	0.041	0.038	0.05
			RPM	127	101	80	64	51
			FEED	92	80	78	63	76
	11.1		Vc	10	10	10	10	10
			fz	0.031	0.029	0.03	0.03	0.036
			RPM	64	51	40	32	25
			FEED	36	32	29	25	28
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	100	100	100	100	100
			fz	0.018	0.023	0.026	0.024	0.033
			RPM	637	505	398	318	255
			FEED	206	256	248	199	252



MILLING DEPTH P = WIDTH OF FACES

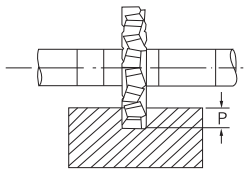
MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

ML102 SERIES — MULTI FLUTE SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 50.0	63.0	80.0	100.0	125.0	160.0	200.0
P	1	Non-alloy steel	Vc	25	25	25	25	25	25	25
			fz	0.058	0.08	0.081	0.081	0.072	0.081	0.079
			RPM	159	126	99	80	64	50	40
			FEED	129	162	145	129	101	105	94
	2		Vc	20	20	20	20	20	20	20
			fz	0.053	0.052	0.055	0.05	0.055	0.05	0.048
			RPM	127	101	80	64	51	40	32
			FEED	94	84	79	64	62	52	46
	3-4		Vc	15	15	15	15	15	15	15
			fz	0.044	0.043	0.044	0.044	0.045	0.044	0.041
			RPM	95	76	60	48	38	30	24
			FEED	59	52	47	42	38	34	29
	5		Vc	10	10	10	10	10	10	10
			fz	0.039	0.04	0.04	0.039	0.039	0.04	0.039
			RPM	64	51	40	32	25	20	16
			FEED	35	32	29	25	22	21	19
	6	Low alloy steel	Vc	20	20	20	20	20	20	20
			fz	0.053	0.052	0.055	0.05	0.055	0.05	0.048
			RPM	127	101	80	64	51	40	32
			FEED	94	84	79	64	62	52	46
	7		Vc	15	15	15	15	15	15	15
			fz	0.044	0.043	0.044	0.044	0.045	0.044	0.041
			RPM	95	76	60	48	38	30	24
			FEED	59	52	47	42	38	34	29
	8-9		Vc	10	10	10	10	10	10	10
			fz	0.039	0.04	0.04	0.039	0.039	0.04	0.039
			RPM	64	51	40	32	25	20	16
			FEED	35	32	29	25	22	21	19
	10	High alloyed steel, and tool steel	Vc	20	20	20	20	20	20	20
			fz	0.053	0.052	0.055	0.05	0.055	0.05	0.048
			RPM	127	101	80	64	51	40	32
			FEED	94	84	79	64	62	52	46
	11.1		Vc	10	10	10	10	10	10	10
			fz	0.039	0.04	0.04	0.039	0.039	0.04	0.039
			RPM	64	51	40	32	25	20	16
			FEED	35	32	29	25	22	21	19
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	100	100	100	100	100	100	100
			fz	0.023	0.031	0.035	0.031	0.036	0.029	0.031
			RPM	637	505	398	318	255	199	159
			FEED	205	251	251	197	202	150	148



MILLING DEPTH P = WIDTH OF FACES

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

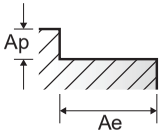
MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2675 SERIES — MULTI FLUTE SHELL END MILL

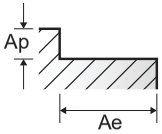
Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 40.0	50.0	63.0	80.0	100.0	125.0	160.0
P	1-2	Non-alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.07	0.078	0.092	0.1	0.115	0.12	0.131
					RPM	239	191	152	119	95	76	60
					FEED	134	119	112	119	110	110	109
	3-4		0.75D	0.25D	Vc	25	25	25	25	25	25	30
					fz	0.075	0.077	0.091	0.1	0.119	0.113	0.119
					RPM	199	159	126	99	80	64	60
					FEED	119	98	92	99	95	86	99
	5		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.116
					RPM	159	127	101	80	64	51	40
					FEED	90	79	73	75	74	66	65
	6	Low alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.07	0.078	0.092	0.1	0.115	0.12	0.131
					RPM	239	191	152	119	95	76	60
					FEED	134	119	112	119	110	110	109
	7		0.75D	0.25D	Vc	25	25	25	25	25	25	30
					fz	0.075	0.077	0.091	0.1	0.119	0.113	0.119
					RPM	199	159	126	99	80	64	60
					FEED	119	98	92	99	95	86	99
	8		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.116
					RPM	159	127	101	80	64	51	40
					FEED	90	79	73	75	74	66	65
	9		0.75D	0.25D	Vc	10	10	10	10	10	10	10
					fz	0.078	0.08	0.1	0.1	0.117	0.146	0.125
					RPM	80	64	51	40	32	25	20
					FEED	50	41	40	40	37	45	35
	10	High alloyed steel, and tool steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.07	0.078	0.092	0.1	0.115	0.12	0.131
					RPM	239	191	152	119	95	76	60
					FEED	134	119	112	119	110	110	109
	11.1		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.116
					RPM	159	127	101	80	64	51	40
					FEED	90	79	73	75	74	66	65



E2676 SERIES — MULTI FLUTE SHELL END MILL for ALUMINUM

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 30.0	40.0	50.0	60.0	63.0	75.0	80.0	100.0
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.75D	0.25D	Vc	100	105	95	95	95	105	100	100
					fz	0.05	0.06	0.069	0.1	0.115	0.13	0.128	0.151
					RPM	1061	836	605	504	480	446	398	318
					FEED	212	201	250	302	331	348	306	288

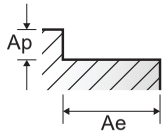


MILLING CUTTERS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2677, E2678 SERIES — MULTI FLUTE ROUGHING SHELL END MILL

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 40.0	50.0	63.0	80.0	100.0	125.0	160.0
P	1-2	Non-alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
					FEED	99	119	112	119	110	110	110
	3-4		0.75D	0.25D	Vc	25	25	25	25	25	25	30
					fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139
					RPM	199	159	126	99	80	64	60
					FEED	85	98	92	99	95	86	100
	5		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135
					RPM	159	127	101	80	64	51	40
					FEED	68	79	73	75	74	66	64
	6	Low alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
					FEED	99	119	112	119	110	110	110
	7		0.75D	0.25D	Vc	25	25	25	25	25	25	30
					fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139
					RPM	199	159	126	99	80	64	60
					FEED	85	98	92	99	95	86	100
	8		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135
					RPM	159	127	101	80	64	51	40
					FEED	68	79	73	75	74	66	64
	9		0.75D	0.25D	Vc	10	10	10	10	10	10	10
					fz	0.073	0.08	0.1	0.1	0.117	0.146	0.146
					RPM	80	64	51	40	32	25	20
					FEED	35	41	40	40	37	45	35
	10	High alloyed steel, and tool steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
					FEED	99	119	112	119	110	110	110
	11.1		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135
					RPM	159	127	101	80	64	51	40
					FEED	68	79	73	75	74	66	64



E2679 SERIES — MULTI FLUTE ROUGHING & FINISHING SHELL END MILL

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 40.0	50.0	63.0	80.0	100.0	125.0	160.0
P	1-2	Non-alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
					FEED	99	119	112	119	110	110	110
	3-4		0.75D	0.25D	Vc	25	25	25	25	25	25	30
					fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139
					RPM	199	159	126	99	80	64	60
					FEED	85	98	92	99	95	86	100
	5		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135
					RPM	159	127	101	80	64	51	40
					FEED	68	79	73	75	74	66	64
	6	Low alloy steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
					FEED	99	119	112	119	110	110	110
	7		0.75D	0.25D	Vc	25	25	25	25	25	25	30
					fz	0.071	0.077	0.091	0.1	0.119	0.113	0.139
					RPM	199	159	126	99	80	64	60
					FEED	85	98	92	99	95	86	100
	8		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135
					RPM	159	127	101	80	64	51	40
					FEED	68	79	73	75	74	66	64
	9		0.75D	0.25D	Vc	10	10	10	10	10	10	10
					fz	0.073	0.08	0.1	0.1	0.117	0.146	0.146
					RPM	80	64	51	40	32	25	20
					FEED	35	41	40	40	37	45	35
	10	High alloyed steel, and tool steel	0.75D	0.25D	Vc	30	30	30	30	30	30	30
					fz	0.069	0.078	0.092	0.1	0.115	0.12	0.153
					RPM	239	191	152	119	95	76	60
					FEED	99	119	112	119	110	110	110
	11.1		0.75D	0.25D	Vc	20	20	20	20	20	20	20
					fz	0.071	0.078	0.09	0.094	0.117	0.108	0.135
					RPM	159	127	101	80	64	51	40
					FEED	68	79	73	75	74	66	64

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E2498 SERIES — 4 FLUTE CORNER ROUNDING CUTTERS

Vc = m/min.
fz = mm/tooth
RPM = rev./min.
FEED = mm/min.

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 8.0	9.0	10.0	11.0	12.0	14.0	16.0	20.0	24.0	28.0	34.0	48.0
P	1	Non-alloy steel	Vc	20	20	20	20	20	20	20	20	20	20	20	20
			fz	0.017	0.022	0.02	0.021	0.021	0.025	0.029	0.032	0.038	0.042	0.049	0.058
			RPM	796	707	637	579	531	455	398	318	265	227	187	133
			FEED	54	62	51	49	45	45	46	41	40	38	37	31
	2		Vc	15	15	15	15	15	15	15	15	15	15	15	15
			fz	0.015	0.016	0.016	0.019	0.019	0.023	0.029	0.033	0.039	0.04	0.048	0.053
			RPM	597	531	477	434	398	341	298	239	199	171	140	99
			FEED	36	34	31	33	30	31	35	32	31	27	27	21
	3-4		Vc	10	10	10	10	10	10	10	10	10	10	10	10
			fz	0.018	0.023	0.02	0.024	0.024	0.023	0.03	0.034	0.04	0.05	0.048	0.05
			RPM	398	354	318	289	265	227	199	159	133	114	94	66
			FEED	29	33	25	28	25	21	24	22	21	23	18	13
	6	Low alloy steel	Vc	15	15	15	15	15	15	15	15	15	15	15	15
			fz	0.015	0.016	0.016	0.019	0.019	0.023	0.029	0.033	0.039	0.04	0.048	0.053
			RPM	597	531	477	434	398	341	298	239	199	171	140	99
			FEED	36	34	31	33	30	31	35	32	31	27	27	21
	7-8		Vc	10	10	10	10	10	10	10	10	10	10	10	10
			fz	0.018	0.023	0.02	0.024	0.024	0.023	0.03	0.034	0.04	0.05	0.048	0.05
			RPM	398	354	318	289	265	227	199	159	133	114	94	66
			FEED	29	33	25	28	25	21	24	22	21	23	18	13
	10	High alloyed steel, and tool steel	Vc	15	15	15	15	15	15	15	15	15	15	15	15
			fz	0.015	0.016	0.016	0.019	0.019	0.023	0.029	0.033	0.039	0.04	0.048	0.053
			RPM	597	531	477	434	398	341	298	239	199	171	140	99
			FEED	36	34	31	33	30	31	35	32	31	27	27	21
	11.1		Vc	10	10	10	10	10	10	10	10	10	10	10	10
			fz	0.018	0.023	0.02	0.024	0.024	0.023	0.03	0.034	0.04	0.05	0.048	0.05
			RPM	398	354	318	289	265	227	199	159	133	114	94	66
			FEED	29	33	25	28	25	21	24	22	21	23	18	13
N	21~25	Aluminum-wrought alloy, Aluminum-cast, alloyed	Vc	90	80	90	85	90	90	80	90	90	85	85	90
			fz	0.018	0.021	0.02	0.023	0.022	0.025	0.031	0.034	0.038	0.045	0.05	0.058
			RPM	3581	2829	2865	2460	2387	2046	1592	1432	1194	966	796	597
			FEED	258	238	229	226	210	205	197	195	181	174	159	138

CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

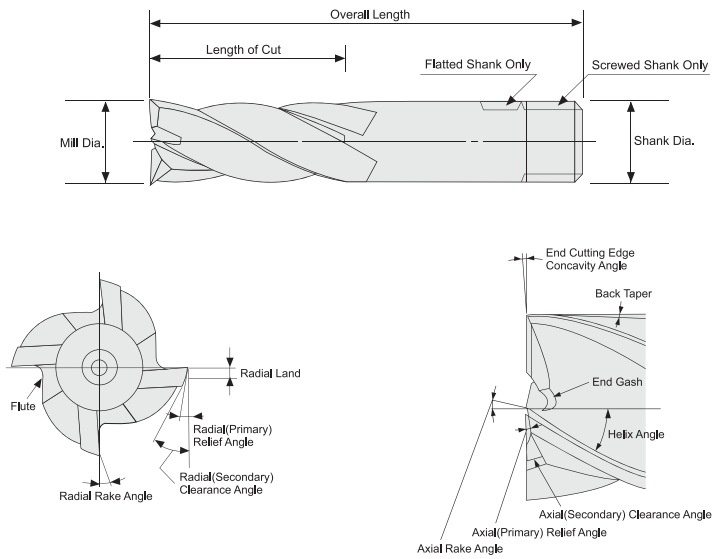
Leading Through Innovation

TECHNICAL DATA

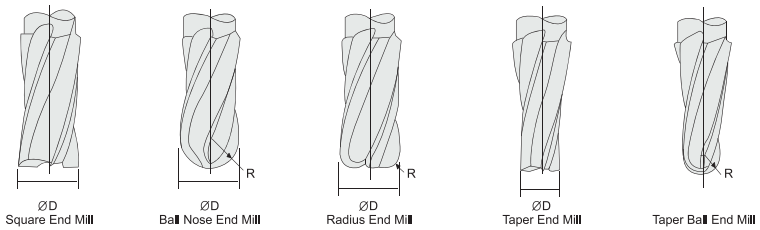
TECHNISCHE DATEN

TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

1 NAMES OF END MILL PARTS
ERLÄUTERUNG DER FRÄSERTEILE



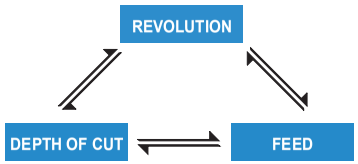
2 TYPES OF END MILL
FRÄSERTYPEN



TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

Speed, feed and depth of cut are the most important factors to consider for best results in milling. Improper feeds and speeds often cause low production, poor work quality and unnecessary damage to the cutter.
This section covers the basic principles of speed and feed selection for milling cutters and end mills. It will serve as a guide in setting-up new milling jobs.

Geschwindigkeit, Vorschub und Schnitttiefe sind die wichtigsten Faktoren, um das beste Fräsergebnis zu erzielen. Ungeeignete Vorschübe und Geschwindigkeiten verursachen oft niedriege Produktivität, schlechte Bearbeitungsqualität und unnötige Beschädigung des Fräsers.
Dieser Abschnitt beinhaltet die Basisprinzipien von Geschwindigkeit- und Vorschubauswahl für Fräser und Scheibenfräser. Dieser Abschnitt sollte als ein Setting up-Führer neuer Fräsaufgaben dienen.



INTERRELATIONSHIP OF THREE FACTORS

3 SPEEDS
GESCHWINDIGKEIT

In milling, SPEED is measured in peripheral feet per minute.(revolution per minute times cutter circumference in feet) This is frequently referred to as "peripheral speed" "cutting speed" or "surface speed".
Beim Fräsen, Geschwindigkeit ist gemessen in Bogenlänge pro Minute. Dies wird oft als 'peripheral speed', 'cutting speed' oder 'surface speed' bezeichnet.

Revolutions per Minute
Umdrehung pro Minute

$$N = \frac{1000V}{\pi D}$$

V : Cutting Speed(m/min) / Schneidgeschwindigkeit
D : Diameter of Tool(mm) / Werkzeugdurchmesser
N : Revolution per minute(rev/min) / Umdrehung pro Minute
π: 3.1416

They will have to be tempered to suit the conditons ON THE JOB. For example:
Dies muß der jeweiligen Aufgabe angepaßt werden. Zum Beispiel:

Use Lower Speed Ranges for Niedrig Geschwindigkeitsbereiche für	Use Higher Speed Ranges for Hohe Geschwindigkeitsbereiche für
Hard materials / Hartes Material	Softer materials / Weiches Material
Tough materials / Rauhes Material	Better finishes / Bessere Oberflächengüte
Abrasive materials / Abrasives Material	Smaller diameter cutters / Kleinere Fräserdurchmesser
Heavy cuts / Heavy cut	Light cuts / Light cut
Minimum tool wear / Minimale Werkzeugabnutzung	Frail work pieces or set-ups / Zerbrechliche Stücke oder Set-up
Maximum cutter life / Maximale Standzeit	Hand feed operations / Handarbeit
	Maximum production rates / Maximale Produktivität
	Non-metallics / Nichtmetallische Werkstoffe

4 FEEDS
VORSCHUB

Feed is usually measured in milimeters per minute. It is the product of feed per tooth times revolution per minute times the number of teeth in the cutter. Due to variations in cutter sizes, numbers of teeth and revolutions per minute, all feed rates should be calculated from feed per tooth. Feed per tooth is the basis of all feed rates per minute, whether the cutters are large or small, fine or coarse tooth, and are run at high or low peripheral speed. Because feed per tooth affects chip thickness. It is a very important factor in cutter life.
Highest possible feed per tooth will usually give longer cutter life between grinds and greater production per grind. Excessive feeds may over load the cutter teeth and cause breakage or chipping of the cutting edges. The following factors should be kept in mind when using the recommended starting feed per tooth.

Vorschub wird meist in Milimeter pro Minute gemessen. Er ist das Produkt von Vorschub pro Zahn, Umdrehung pro Minute oder der Anzahl der Zähne am Werkzeug. Aufgrund der Variationen in Fräsergrößen, Anzahl der Zähne und Umdrehungen pro Minute, Vorschübe sollten mit Vorschub pro Zahn gerechnet werden. Vorschub pro Zahn ist die Basis für alle Vorschubraten pro Minute unabhängig davon, ob die Fräser groß, klein, mit Fein- oder Grobgewinde und mit hoher- oder niedriger Bogengeschwindigkeit arbeiten. Vorschub pro Zahn beeinflußt Spandicke, was für ein Werkzeug ein sehr wichtiger Faktor ist. Höchstmöglicher Vorschub pro Zahn verursacht meist längeres Werkzeugleben zwischen Abnutzung und Produktivität pro Abnutzung. Exzessiver Vorschub dagegen wird den Werkzeugzahn überbelasten und Beschädigungen oder Abbrökelungen von Schneidkanten verursachen.
Bei der Nutzung von empfohlenen Vorschüben pro Zahn sollten folgende Faktoren berücksichtigt werden.

TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

Feed in milimeters per Minute / Vorschub in Milimeter pro Minute

$$F.M = F.R. \times R.P.M$$

F.R. : Feed per Revolutions in milimeters / Vorschub pro Umdrehungen pro Minute
R.P.M .: Revolutions per Minutes / Umdrehungen pro Minute

The following factors should be kept in mind when using the recommended stating feed per tooth.
Die folgenden Faktoren sind beim Einsatz der Vorschübe pro Zahn zu berücksichtigen.

Use Higher Feeds For Höherer Vorschub für	Use Lower Feeds For Niedrigerer Vorschub für
Heavy, roughing cuts / Heavy cut, Schruppfräsen	Light, and finishing cuts / Light cut, Finishing cut
Rigid set-ups / Robustes Werkstück	Frail set-ups / Zerbrechliches Material
Easy-to-machine work materials / Leicht fräsbares Material	Hard to machine work materials / Schwer fräsbares Material
Rugged cutters / Robuster Fräser	Frail and small cutters / Dünne, kleine Fräser
Slab milling cuts / Scheibenfräsen	Deep slots / Tiefnuten
Low tensile strength materials / Material von niedriger Zugfestigkeit	High tensile strength materials / Material von hoher Zugfestigkeit
Coarse tooth cutters / Grobgewinde-Fräser	Fine tooth cutters / Feingewinde-Fräser

SPEED AND FEED CALCULATIONS FOR MILLING CUTTERS AND OTHER ROTATING TOOLS

TO FIND	HAVING		FORMULA
Surface(or Periphery) Speed in meter per Minute=S.P.M.	Diameter of Tool in milimeters Revolutions per Minute	=D =R.P.M.	$V = \frac{D \times 3.1416 \times R.P.M.}{1000}$
Revolutions per Minute=R.P.M.	Surface Speed in meter per Minute Diameter of Tool in milimeters	=S.P.M =D	$R.P.M. = \frac{V \times 1000}{D \times 3.1416}$
Feed per Revolution in milimeters-F.R.	Feed in milimeters per Minute Revolution per Minute	=F.M. =R.P.M.	$F.R. = \frac{F.M.}{R.P.M.}$
Feed in milimeters per Minute-F.M.	Feed per Revolution in milimeters Revolution per Minute	=F.R. =R.P.M.	$F.M. = F.R. \times R.P.M.$
Number of Cutting Teeth per Minute=T.M.	Number of Teeth in Tool Revolution per Minute	=T =R.P.M.	$T.M = T \times R.P.M.$
Feed per tooth=F.T.	Number of Teeth in Tool Feed per Revolution in milimeters	=T =R.P.M.	$F.T. = \frac{F.R.}{T}$
Feed per Tooth=F.T.	Number of Teeth in Tool Feed in milimeters per Minute Speed in Revolution per Minute	=T =F.M. =R.P.M.	$F.T. = \frac{F.M.}{T \times R.P.M.}$

TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

5 CASE OF RESHARPENING
NACHSCHLEIFFÄLLE

When the product finish become worse, the cutting edge must get dulled, chips become smaller and the cutting sound gets louder. In such cases, a end mill must be resharpened. The following are the damages of end mills when the resharpening is required.

Wenn die Schneidkante abstumpft, verschlechtert sich die Bearbeitungsqualität, Span wird kürzer und das Fräsgeräusch wird lauter. In solchen Fällen muß der Fräser nachgeschliffen werden. Folgend sind Beschädigungen an Fräser, die das Nachschleifen nötig machen.

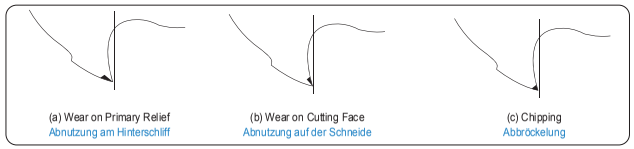


Fig. 1. Damages of Cutting Edge

6 SHARPEN AT PREDETERMINED WEAR LAND
SCHLEIFEN BEI VORBESTIMMTEN ABNUTZUNGSFLÄCHEN

Cutters should be sharpened as soons as the wear land(Fig. 2.) reaches a predetermined width. This width should permit sharpening without excessive loss of tool life. it may vary from a few hunderts to some tenth of a millimeter, depending on the type of cutter and the finish required on the product. This method is used on production runs where uneven amounts of stock is removed or where the material varies in machinability. It is also used on small quantity product lots.

Fräser sollten nachgeschliffen werden, so bald die Abnutzungsfläche die vorbestimmte Breite erreicht. Diese Breite sollte ein Schleifen ohne exzessive Verlust der Werkzeuglebensdauer ermöglichen. Sie variiert, in Abhängigkeit von Werkzeugtypen und benötigtem Finish, von Hunderstel bis einigen Zehntel Millimeter. Diese Methode wird in Prozeßen angewandt, in denen variierende Mengen von Werkstoffen abgefräst oder Materialien verschiedener Fräsbarkeiten bearbeitet werden. Ebenso in Produktionen kleiner Losgrößen.

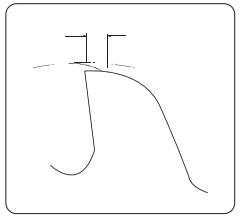


Fig. 2. Wear Land

7 RESHARPENING PERIPHERAL CUTTING EDGE
NACHSCHLEIFEN VON PERIPHER-SCHNEIDKANTEN

1 RESHARPENING PERIPHERAL CUTTING EDGE
Nachschleifen von Primärschneide

The geometry of relief angle in an end mill consist of three methods as shown in Fig.3 concave, flat, and eccentric. Recently, most end mills have the eccentric relief(eccenrtic sharpening). In this method, since the relief is formed an eccentric are surface in cylindrical grinding method, the roughness of the finished surface of the relief improves and the strength of cutting edge increase at the same time.(Fig.4) As a result, the tool life is improved.

Die Geometrie von Hinterschliffwinkel in einem Fräser hat, wie in Fig. 3 gezeigt, 3 verschiedene Variationen : Konkav, Flach und Exzentrisch. In letzter Zeit, die meisten Fräser haben die exzentrische Form. In dieser Methode verbessem sich Oberflächengüte der bearbeiteten Fläche und die Stärke der Schneidkanten gleichzeitig, was eine Verlängerung der Werkzeuglebensdauer zur Folge hat.

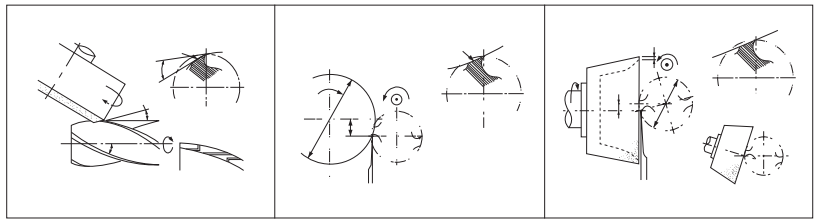
Eccentric	Concave	Flat
		

Fig. 3. Three Types of Primary Relief

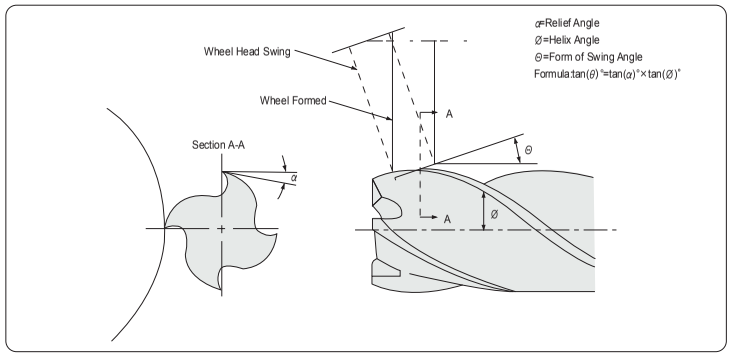


Fig. 4. Toothing of Eccentric Relief Angle

2 ANGLE OF WHEEL INCLINATION
Winkel der Radneigung.

Eccentric relief is produced with a plain wheel positioned with its axis parallel or at a slight angle with the cutter axis. The degree of relief is varied by changing the angle of wheel inclination.

Exzentrischer Hinterschliff wird mit einer, mit der eigenen Achse zur Fräsachse parallelen oder nur geringfügig geneigten Schleifscheibe produziert. Das Grad des Hinterschliffs variiert mit dem Einstellwinkel der Schleifscheiben Einstellung.

Table 1. RECOMMENDED RELIEF ON END MILLS

Mill Diameter (mm)	Eccentric relief indicator drop for relief Angles shown		Checking Distance	Wheel Angles(Deg.)Ø			Radial Relief Angles(α1)	Clearance Angles(α2)
				15° Helix	30° Helix	60° Helix		
-	Min	Max.	-	*Angle	*Angle	*Angle	*Angle	*Angle
3.0	0.100	0.130	0.40	4° 24´	9° 25´	26° 28´	16° 02´	25°
6.0	0.090	0.125	0.50	3° 18´	7° 05´	20° 25´	12° 08´	25°
12.0	0.100	0.135	0.65	2° 46´	5° 46´	17° 23´	10° 15´	25°
25.0	0.095	0.140	0.80	2° 15´	4° 15´	14° 16´	8° 21´	25°
40.0	0.085	0.125	0.80	2° 01´	4° 33´	12° 48´	7° 29´	25°
50.0	0.085	0.125	0.80	2° 01´	4° 33´	12° 48´	7° 29´	25°

The actual at the radial relief angle is normally kept within the range shown but may be varied to suit the cutter material, the work material and the operating conditions.
Die Freiwinkel sind normalerweise in den angegebenen Maßen, sie schwanken je nach Werkzeug, Werkstück†und den Einsatzbedingungen
* Angle is calculated from the basic mean at the radical angle.
Der Winkel wird von der Hauptschneide zum Radialwinkel gemessen.

TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

8 RESHARPENING END TEETH
NACHSCHLEIFEN DES ENDZAHNS

The three necessary operations and one option feature, along with setup suggestions are shown in Fig.5 A to D in each drawing, the shaded area indicates the surface being ground.

Die drei nötigen Operationen und eine Option werden, zusammen mit einem Rüstvorschlag, in Bild 5 A bis D gezeigt. Die dunklen Flächen zeigen Bereiche an, die nachgeschliffen werden.

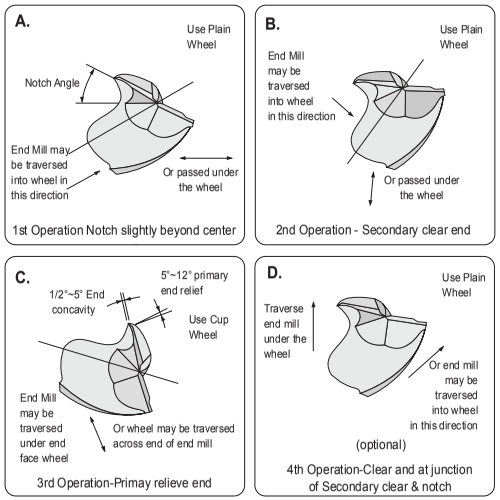


Fig 5. PROCEDURE FOR SHARPENING END OF 2 FLUTE SQUARE END MILLS

9 INSPECTION
INSPEKTION

The inspection is caculated by using the formula shown in Table1.
Procedure To Check Radial Relief Angles With Indicators.

1. Mount the cutter to rotate freely with no end movement.
2. Adjust the sharp pointed indicator to bear at the very tip of the cutting edge, pointing in a radial line, shown in Fig.6
3. Roll the outter the tabuleted amount gives under "checking distance" using the second indicator as control.
4. Consult chart for amount of drop for the particular diameter and relief angle.

Die Inspektion wird aufgrund der Formel aus der Tabelle 1 durchgeführt.
Prozedur, um mit Indikator radialen Hinterschliffwinkel zu messen.

1. Fräser so montieren, daß er frei rotiert ohne sich seitlich zu bewegen.
2. Indikator so justieren, daß der Stab, in radiale Richting zeigend, am äußersten Rand der Schneidkante angelegt ist (Bild 6).
3. Den Fräser um tabellierte 'Checking distance' rollen. Einen zweiten Indikator zur Kontrolle einsetzen.
4. Um den 'Drop' für den gemessenen Durchmesser und Hinterschliffwinkel zu erhalten, Chart konsultieren.

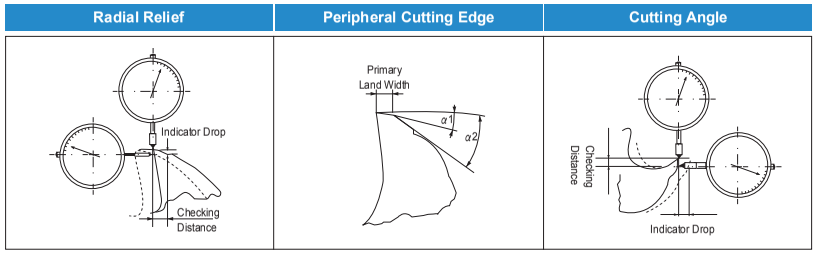


Fig. 6. Indicator Set-Up for Checking

10 TROUBLE SHOOTING IN MILLING
PROBLEMLÖSUNG BEI FRÄSEN

Trouble Problem	Occurrences of trouble Auftreten des Problems	Countermeasures Gegenmaßnahmen
Breaking of tool Werkzeugbruch	·At time of engaging with work material Beim Eintritt in das Werkstück ·When ending cut Beim Austritt aus dem Werkstück	1. Decrease feed rate. / Vermindern von Vorschub 2. Decrease projection amount / Schnitttiefe verringern 3. Shorten cutting edge length to required minimum limit Eingriffslänge reduzieren
	·During normal cutting Während des Fräsens	1. Decrease feed rate / Vorschub mindem 2. Control wear → replace tool early Abnutzung kontrollieren - Werkzeug frühzeitig ersetzen 3. Replace chuck or collet / Chuck oder Collet ersetzen 4. Decrease projection amount / Schnitttiefe verringer 5. Carry out honing / Nachschleifen 6. If 4 flute, reduce to 2 flute(clogging of chipping) Wenn 4 Schneiden, zu 2 Schneiden verkleinern 7. If dry cutting change to wet cutting utilize cutting fluid. In case of wet cutting flow oil supplied from the front, change to from rear angle of side top. Use ample with rate. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlflüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten
	·When changing direction of feed Wenn Vorschubrichtung geändert wird	1. Utilize circular interpolation(in case of NC machine) or temporarily stop feed(Dowelling) Circular interpolation benutzen(bei NC-Maschinen) oder Vorschub vorübergehend stoppen. 2. Reduce feed rate before and after change of directions Vor und nach dem Richtungswechsel den Vorschub mindern 3. Replace chuck or collect / Chuck oder Collet ersetzen,
Fracture of cutting edge Beschädigung der Schneidkante	·Fracture of corners Eckenbruch	1. Carry out chamfering or nose with hand lapper. Mit Handlapper eine Abschrägung durchführen. 2. Down cut → Up cut / Down cut → Up cut
	·Fracture at boundary of depth of cut Beschädigung an der Schneidtiefengrenze	1. Down cut → Up cut / Down cut → Up cut 2. Reduce cutting speed / Schneidgeschwindigkeit mindern
	·Chipping at center part or overall Abbröckelung an der Hauptschneide oder überall	1. Carry out honing. Or enlarge. / Nachschleifen oder erweitern 2. Change number of rotation(in case machine vibrates) Drehzahl ändern(wenn Maschine vibriert). 3. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 4. In ease of squeaking noise during cutting, increase feed. Wenn quitschendes Fräsgeräusch zu vernehmen, Vorschub erhöhen. 5. It dry cutting use cutting fluid or blow air. Wenn Trockenfräsen, Kühlflüssigkeit oder Luft zuführen 6. Replace chuck or collet / Chuck oder Collet auswechseln. 7. Reduce cutting speed / Fräsgeschwindigkeit reduzieren.
	·Large fracturing of cutting edge Größere Beschädigung an Schneidkanten	1. Decrease feed rate / Vorschub mindem. 2. If 4 flute reduce to 2 flute Wenn 4 Schneiden, zu 2 Schneiden wechseln. 3. Carry out honing. Or enlarge / Nachschleifen oder erweitern. 4. Replace chuck or collet / Chuck oder Collet auswechseln. 5. Reduce cutting speed / Fräsgeschwindigkeit mindern. 6. If dry cutting, change to wet cutting. In case oil supply in wet cutting is from the front, change to rear at an angle or from side top. Use ample supply. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlflüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reihlich gestalten.

TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

Trouble Problem	Occurrences of trouble Auftreten des Problems	Countermeasures Gegenmaßnahmen
Rapid tool wear Zu schnelle Werkzeugabnutzung		1. Reduce cutting speed / Fräsgeschwindigkeit mindern 2. Up cut → Down cut / Up cut - Down cut 3. Increase feed / Vorschub erhöhen 4. Utilize wet cutting or air / Naßfräsen oder Kühlluft zuführen. 5. If reground tool, improve surface roughness of flank. Beim Nachschleifen, die Oberflächenrauhheit der Hauptfreiflächen verbessern.
Inferior finished surface Ungenügende Bearbeitungsoberfläche	·Surface is good but rough Oberfläche ist gut aber rauh	1. Decrease feed / Vorschub mindern 2. In case using 2 flute, increse to 4 flute Wenn 2 Schneiden, zu 4 Schneiden wechseln
	·Small chip welding Kleine Partikelverschweißung	1. Increase cutting speed / Fräsgeschwindigkeit erhöhen 2. Utilize wet cutting air blow(ample supply) Naßfräsen und Luftzufuhr (reichlich) 3. Carry out fine honing / Feinschliff durchführen 4. Up cut → Down cut / Up cut → Down cut 5. Increase feed or enlarge finish allowance Vorschub erhöhen oder Bearbeitungstoleranz erhöhen
	·With transverse streaks Mit Querstreifen	1. Carry out fine honing / Feinschliff durchführen 2. Use water insoluble cutting fluid Wasserunlösliche Kühlflüssigkeit benutzen. 3. Down cut → Up cut / Down cut → Up cut
	·Signs of excessive cutting Zeichen exzessiven Fräsens	1. Reduce finishing depth of cut / Frästiefe reduzieren. 2. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 3. Reduce feed / Vorschub mindern
Poor machining accuracy Geringe Genauigkeit der Maschine	·Finish dimensions are on minus side Bearbeitungsmaße auf der Minusseite	1. Up cut → Down cut / Up cut→ Down cut 2. Reduce finishing depth of cut / Schlichttiefe verringem reduzieren. 3. Replace chuck or collet / Chuck oder Collet auswechseln. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Increase cutting speed / Fräsgeschwindigkeit reduzieren.
	·Poor perpendicufarity Ungenauer Winkel	1. Reduce finishing depth of cut / Finishing-tiefe reduzieren. 2. Replace chuck or collet / Chuck oder Collet auswechseln. 3. Reduce projection amont / ProjektionsgröBe mindern 4. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 5. 2Flute → 4 Flute / 2 Schneiden → 4 Schneiden 6. Reduce feed / Vorschub mindern. 7. Check wear rate → Replace tool Verschleiß überprüfen → Werkzeug austauschen.
Chattering Rattern		1. Increase feed rate(in case over 0.05 mm/Zahn, try reducing) Vorschub erhöhen(wenn über 0.05mm/Tooth Vorschub reduzieren). 2. Change cutting speed / Fräsgeschwindigkeit ändern. 3. Replace chuck or collet / Chuck oder Collet auswechseln. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Use 2 flute cutter for rough cutting and 4 flute for finishing 2 Schneiden Fräser zum Schruppen und 4 für Finishing einsetzen. 6. Down cut → Up cut / Down cut → Up cut

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER PRO END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
ALU-POWER HPC END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TECHNICAL DATA

SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

COMPARISON CHART SCALE FOR HARDNESS
VERGLEICHSTABELLE FÜR HÄRTESKALEN

Rockwell Hardness C Scale 150kg Brale (HRc)	Diamond Pyramid Hardness Number. Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm^2
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
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E2573	C656	EHE54	C387	G9540	C556
E2574	C663	EHE55	C387	G9553	C541
E2595	C664	EI450	C483	G9624	C514
E2597	C665	EI451	C482	G9634	C522
E2675	C719	EI880	C481	G9A42	C563
E2676	C720	EI881	C485	G9A68	C531
E2677	C721	EI996	C486	G9A69	C554
E2678	C722	EI997	C478	G9A70	C515
E2679	C723	EIA13	C489	G9B80	C538
E2751	C669	EIA14	C490	G9B81	C520
E2752	C671	EIB04	C492	G9B82	C523
E2753	C666	EIB86	C488	G9B83	C525
E2755	C668	EIB87	C484	G9B84	C526
E2762	C667	EIB88	C491	G9B85	C528
E2SET553	C661	EIB93	C480	G9D67	C257
E5521	C465	EL612	C645	G9D68	C258
E5522	C465	EMB72	C435	G9D69	C259
E5711	C468	EMB73	C435	G9D75	C257
E5742	C468	ESB94	C35	G9D76	C258
E5908	C459	ESD02	C36	G9D77	C259
E5909	C460	G8A01	C119	G9F45	C562
E5910	C458	G8A02	C120	G9F46	C562
E5930	C461	G8A28	C96	G9G44	C530
E5E39	C469	G8A36	C107	G9G45	C535
E5E40	C469	G8A37	C112	G9G46	C543
E5E47	C463	G8A38	C98	G9G47	C545
E5E48	C464	G8A39	C114	G9G48	C549
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E5E51	C462	G8A47	C111	G9G51	C558
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E9941	C616	G8B54	C90	GA941	C616
E9942	C612	G8B59	C89	GA942	C612
E9A26	C618	G8D62	C101	GAA26	C618
E9A29	C611	G8D63	C121	GAA29	C611
E9A30	C613	G8D64	C122	GAA30	C613
E9A31	C615	G9400	C564	GAA31	C615
E9A32	C609	G9410	C541	GAA32	C609
E9A33	C619	G9424	C529	GAA33	C619
E9A34	C620	G9425	C544	GAA34	C620
E9A35	C617	G9432	C552	GAA35	C617
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GMG31	C383
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GMG41	C380
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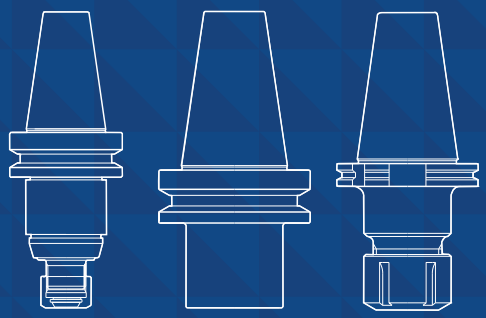
CUTTING TOOLS



TOOLING SYSTEM

YG-1 CO., LTD.

HYDRAULIC CHUCK

- HYDRAULIK SPANNFUTTER
- MANDRIN HYDRAULIQUE
- MANDRINI IDRAULICI
- PORTAHERRAMIENTAS HIDRAULICO

Standard of Tools	DIN 69871-SK	DIN 69871-SK	DIN 69871-SK
Description	TOOL PRESETTING TYPE	POWER E HYDRO	SLIM
Page	D19	D20	D21
		NEW	

DIN 69871-SK	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK
ULTRA SHORT	MOLD & DIE	TOOL PRESETTING TYPE	POWER E HYDRO	SLIM
D22	D23	D24	D25	D26 - 28
			NEW	

DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT
MOLD & DIE	TOOL PRESETTING TYPE	SLIM	POWER E HYDRO	MOLD & DIE
D29	D30, D35	D31 - 32 / D37 - 38	D33, D36	D34, D40
			NEW	

JIS B6339/MAS 403-BT	DIN 69871-SK& DIN 228-MTB	HYDRAULIC CHUCK SET	TEST PIECE	COLLET
ULTRA SHORT	For GRINDER			REDUCTION SLEEVE
D39	D41	D42	D42	D43 - 46
		NEW	NEW	

※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

Guide Line to Icons

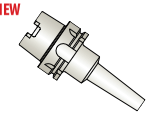
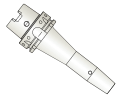
Standard of Tools	Taper Accuracy	G Value	RPM	Run-Out	Coolant System
DIN 69871-SK, DIN 69893-HSK, IS 6339 T, CBT	AT3	2.5G, 6.3G	15,000 RPM, 20,000 RPM, 25,000 RPM, 30,000 RPM	(at 3D) ≤3μm	AD, AD/B, AD, AD/C

Collet	Bolt	Spanner	TapAdapter	ER Nut	ER Spanner	Parts

SHRINK FIT HOLDER

- SCHRUMPFFUTTER
- MANDRIN DE FRETTAGE
- MADRINI PER CALLETAMENTO A CALDO
- PORTAHERRAMIENTAS DE COMPRESION POR CALOR

Standard of Tools	DIN 69871-SK	DIN 69871-SK	DIN 69871-SK
Description	EXTRA SLIM		COOLANT CHANNEL
Page	D50	D51 - 52	D53
	NEW		NEW

DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO 12164-1-HSK	DIN 69893/ ISO12164-1-HSK
REINFORCED	EXTRA SLIM		COOLANT CHANNEL	REINFORCED
D54	D55	D56 - 58	D59	D60
NEW	NEW 		NEW	

JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	JIS B6339/MAS403-BT	ISO 25
	COOLANT CHANNEL	EXTRA SLIM	REINFORCED	
D61 - 62 / D65 - 66	D63, D67	D64	D68	D69
	NEW	NEW	NEW	

EXTENSION	SHRINK FIT HEATING MACHINE
D70 - 71	D72

※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

ER COLLET CHUCK

- FRÄSERSPANNFUTTER - ER
- MANDRIN À PINCES - ER
- MANDRINO PORTA PINZE - ER
- PORTAPINZAS - ER

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description			
Page	D75 - 78	D79 - 85	D86 - 93

ISO 20/25	DIN 228-MTA	DIN 228-MTB	STRAIGHT-K	NC
SLIM				CNC LATHE
D94	D95	D96	D97 - 100	D101

BRIDGEPORT-R8	GOST 25827-93	ER COLLET	SEALED ER COLLET	TAP ER COLLET	ER NUT, SEALING DISC&SPANNER
D101	D102	D103 - 105	D106 - 107	D108- 109	D110 -115

END MILL HOLDER & SIDE LOCK ARBOR

- FRÄERFUTTER UND FLÄHENSPANNFUTTER
- MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
- MANDRINI PORTA FRESA TIPO WELDON
- PORTAFRESAS Y EJES DE SUJECCION LATERAL

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description	EMH	EMH	EMH & SLA
Page	D118 - 122	D123 -126	D127 -131

DIN 69871-SK	JIS B6339/ MAS 403-BT	GOST 25827-93	JIS B6339/ MAS 403-BT&CBT	JIS B6339/MAS 403-BT	PARTS
EMH	EMH	EMH	SLA	SLB	EMH & SLA
D132	D132	D133	D134 - 135	D136	D137

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SHELL MILL ARBOR

- AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
- MANDRIN PORTE-FRAISES
- MANDRINO CON TRASCINAMENTO FISSO
- PORTA FRESAS

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description	SMA	SMA	SMA
Page	D140 - 142	D143 - 145	D146 - 151

GOST 25827-93	PARTS	DIN 69871-SK	DIN69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
SMA		CMA	CMA	CMA
D152	D153 -154	D155	D156	D157 - 158

DIN 2080-ISO	PARTS
CMA	
D159	D160

POWER MILLING CHUCK

- FRÄSERSPANNFUTTER
- MANDRIN PORTE FRAISE
- MANDRINI PORTA FRESA
- PORTAHERRAMIENTAS PARA FRESADO

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description			
Page	D164 - 165	D166 - 167	D168 - 171

DIN 228-MTA/MTB	BRIDGEPORT-R8	STANDARD SET	Q.C SET	COLLET&SPANNER
D172	D173	D174	D175	D176

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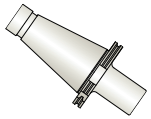
MORSE TAPER ARBOR

- EINSATZHÜLSEN FÜR MORSEKEGEL
- DOUILLES DE RÉDUCTION CÔNE MORSE
- MANDRINO RIDUZIONE CONO MORSE
- REDUCTORES A MORSE

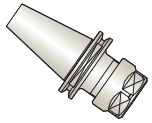
Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT
Description			MTA & MTB
Page	D178	D178	D179 -180

ANSI B5.18-NT	GOST 25827-93
	MTA
D180	D181
	

SK SLIM CHUCK

- SK SCHLANKE FUTTER
- MANDRIN TYPE SK MINCE
- SK MANDRINI SOTTILI
- PORTAHERRAMIENTAS SK EJE REDUCIDO

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT&CBT
Description			
Page	D184 - 187	D188 -190	D191 - 196

ISO 20/25	STRAIGHT-K	COLLET&NUT
D197	D198	D199 - 201
		

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SYNCHRO TAPPING CHUCK

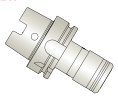
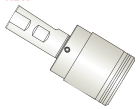
- SYNCHRO GEWINDESCHNEIDFUTTER
- SYNCHRO TARAUDER
- SINCRO MANDRINI PER MASCHIATURA
- SINCRO PORTAMACHOS

Standard of Tools	DIN 69871-SK	DIN 69893/I SO 12164-1-HSK	JIS B6339/ MAS403-BT
Description	SYTER	SYTER	SYTER
Page	D204	D205	D206

STRAIGHT-K	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	STRAIGHT-K
SYTER	SYTC	SYTC	SYTC
D207	D208	D209	D210

ONE STEP TAPPING CHUCK

- GEWINDE-SCHNELLWECHSELFUTTER
- MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE
- PORTAMASCHI A CAMBIO RAPIDO
- MANDRINO DE CAMBIO RÁPIDO CON ROSCA

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/ MAS 403-BT	STRAIGHT-K
Description				
Page	D212	D212	D213	D213
	NEW	NEW 	NEW	NEW 

TAPPING ER CHUCK

- ER - GEWINDESCHNEIDFUTTER
- MANDRIN DE TARAUDAGE PINCE ER
- MANDRINI PORTAPINZA ER PER MASCHIATURA
- PORTAPINZAS ER PARA MACHOS

Standard of Tools	DIN 69871-SK	DIN 69893/ISO 12164-1-HSK	JIS B6339/MAS 403-BT&CBT
Description			
Page	D217	D218	D219 - 220

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TAPPING CHUCK

- GEWINDESCHNEID - SCHNELLWECHSELFUTTER
- TARAUDER À CHANGEMENT RAPIDE
- MANDRINO PER MASCHIARE
- PORTAMACHOS DE CAMBIO RAPIDO

Standard of Tools	DIN 69871-SK	DIN 69893/ISO 12164-1-HSK	JIS B6339/MAS 403-BT
Description			
Page	D222	D223	D224

STRAIGHT-K	DIN 228-MTA	TAP ADAPTER
D225	D226	D227 - 228

FACE MILL ARBOR

- AUFNAHMEDORN FÜR MESSERKÖPFE
- MANDRIN PORTE FRAISE À ALÉSAGE
- SISTEMA PORTA FRESE FRONTALE
- SISTEMA PARA PLATOS DE PLACAS

Standard of Tools	JIS B6339/ MAS 403-BT&CBT	DIN 69893/ ISO 12164-1-HSK	ANSI B5.18-NT
Description	FMA	FMA	FMA
Page	D230 - 231	D232	D233

DIN 228-MTA	JIS B6339/ MAS 403-BT&CBT	JIS B6339/ MAS 403-BT&CBT	DIN 69893/ ISO 12164-1-HSK	PARTS
FMA	FMB	FMC	FMC	
D233	D234 - 235	D236 - 237	D238	D239

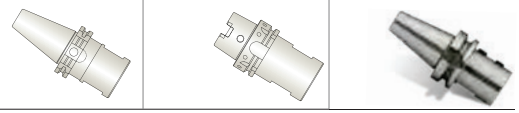
※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

- WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE
- MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE
- MANDRINO PER FRESE MODULARI FILETTATE
- PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA & WERKZEUGHALTER FÜR VOLLBOHRER
- MANDRIN POUR FORETS À PLAQUETTES
- MANDRINO PER PUNTE A INSERTI
- SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-HSK	JIS B6339/MAS 403-BT
Description			
Page	D242	D243	D244
	NEW	NEW	NEW

DIN 69871-SK	DIN 69893/ ISO 12164-HSK	JIS B6339/MAS 403-BT
D245	D245	D246
NEW	NEW	NEW



NC DRILL CHUCK & OTHER TOOL HOLDERS

- NC - BOHRFUTTER UND ANDERE WERKZEUGHALTER
- MANDRIN DE PERÇAGE NC ET D'AUTRES PORTE-OUTIL
- NC MANDRINI PORTA PUNTE E ALTRI PORTAUTENSILI
- PORTABROCAS PARA BROCAS NC Y OTRA PORTAHERRAMIENTAS

Standard of Tools	DIN69871-SK	JIS B6339/ MAS 403-BT&CBT	DIN 69893/ ISO 12164-1-HSK
Description	NPU	NPU	NPU
Page	D249	D250 - 251	D252
	NEW		

STRAIGHT-K	JIS B6339/MAS 403-BT	JIS B6339/MAS 403-BT	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK
	SCA	JTA	BLANK BAR	BLANK BAR
D252	D253	D254	D255	D 255

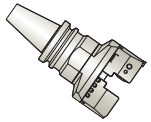
JIS B6339/MAS 403-BT	DIN 69871-SK	DIN 69893/ ISO 12164-1-HSK	JIS B6339/MAS 403-BT
BLANK BAR	TEST BAR	TEST BAR	TEST BAR
D255	D256	D256	D256
	NEW	NEW	NEW

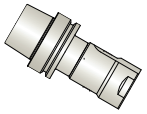
※ Product design and technical data in the contents are subject to change for improving quality or performance of products without prior notice.

BORING SYSTEM

- AUSBOHRSYSTEM
- SYSTÈME D'ALÉSAGE
- SISTEMA DI BARENATURA
- SISTEMAS DE MANDRINADO

Standard of Tools	DIN 69871-SK	DIN 69893/ ISO 12164-HSK	JIS B6339/ MAS 403-BT
Description	FINE SMALL : BAH	FINE SMALL : BAH	FINE SMALL : BAH
Page	D261	D262	D263

FINE BORING HEAD	JIS B6339/ MAS 403-BT	DIN 69871-SK	EXTENSION & REDUCTION	JIS B6339/ MAS 403-BT
SMALL BORE	SMALL BORE : SAS	SMALL BORE : SAS	SMALL BORE	FINE BIG : FBH & PARTS
D264	D265	D266	D267 - 268	D269 - 270
				

DIN 69871-SK	DIN 69893/ ISO 12164-HSK	JIS B6339/ MAS 403-BT	TWIN HEAD & INSERT HOLDER	STRAIGHT-ST	DIN 69871-SK
TWIN SMALL : TBH	TWIN SMALL : TBH	TWIN SMALL : TBH	SMALL BORE	TWIN TBH	TWIN BIG : TBH
D271	D272	D273	D274	D275	D276
					

JIS B6339/ MAS 403-BT	JIS B6339-BT / DIN 69871-SK	JIS B6339/MAS 403-BT	STRAIGHT-ST	JIS B6339/ MAS 403-BT	SQUARE BITE
TWIN BIG : TBH	TWIN SAS & PARTS	MICRO BCA	MICRO BCA & PARTS	SQUARE BSA & BSB	
D277	D278 - 279	D280 - 281	D282 - 285	D286 - 287	D288

ACCESSORY & OTHERS

PULL STUD BOLT & SPANNER	TOOL CLAMP	HEIGHT PRESETTER	COOLANT TUBE & SPANNER
D290 - 291	D292	D292	D293

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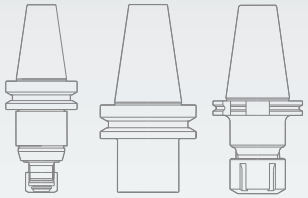
Global Cutting Tool Leader **YG-1**



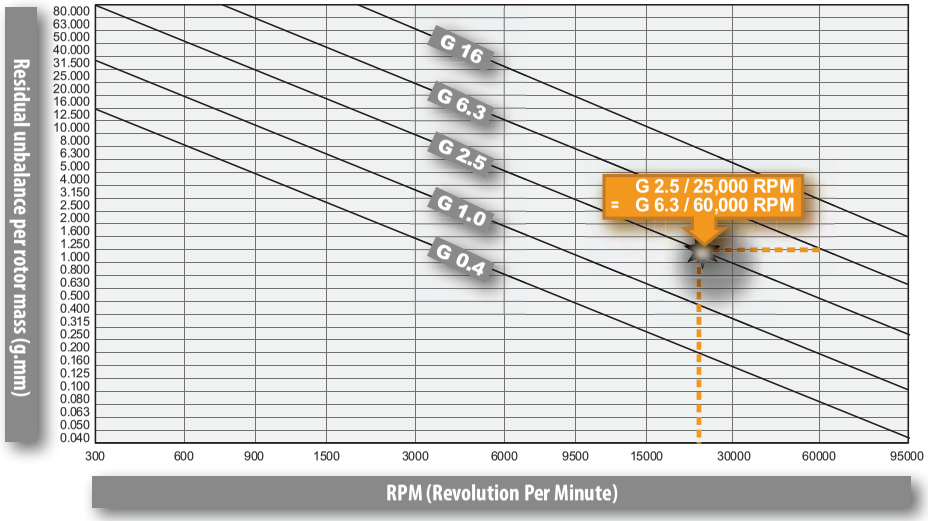
TOOLING SYSTEM

Definition of Balancing and Unbalancing

If the rotor(tool holder) is rotated around the axis, centrifugal forces generate in all parts. If these centrifugal forces are distributed symmetrically against the rotation axis, the centrifugal forces generating in the opposite direction are offset by one another, resulting in no forces to the rotation axis eventually. Therefore bearings are not vibrated. In this case tool holder is in the balanced state. On the contrary, if centrifugal forces are distributed asymmetrically against the rotation axis, or if the force of one part is greater than that of the opposite part, the forces equivalent to differences are added to the rotation axis, causing the rotor(tool holder) to vibrate.
The imbalance of distribution of rotor mass is called "Unbalance". In other words, "Unbalance" is mass existing unevenly in the rotor(tool holder).

Balancing Grade Quality According To ISO 1940

(DIN ISO 1940)



Calculation of G $\frac{G \times m}{RPM} \times 9549 = U$

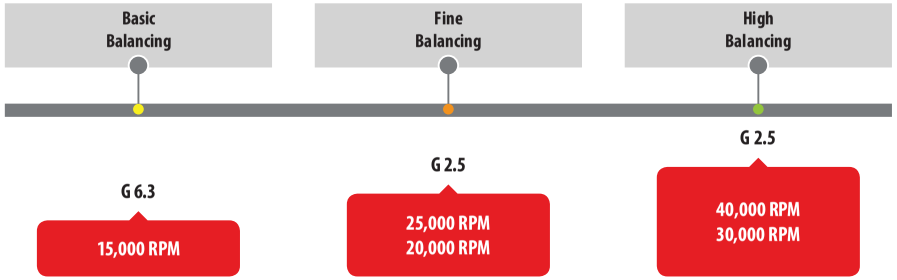
G : Balancing grade or circumference speed
m : Rotor(Holder) weight ⇒ Unit : kg
9549 : Conversion constant
U : Degree of unbalance (Permissable unbalance) ⇒ Unit : g.mm
RPM : Revolutions Per Minute

BALANCING & UNBALANCING

Merits of Balanced Machining

Recently, rotating machines are more sophisticated and operated at High-Speed with the technical advance. Also, they require more efficiency and more stable functions which are stricter conditions than ever before. In High-Speed machining, one of the largest factors which degrade performance of machines is chattering. It causes workers to suffer displeasure, noise, and fatigue which are main problems affecting productivity. Balancing of the rotor(tool holder) is the essential and effective factor in order to prevent vibration of the machine. It is widely recognized as the indispensable process in manufacturing rotation machinery.
YG-1 manufactures tool holders with various balancing grades meeting the needs of users.

YG-1 Balancing Grade Standard



YG-1 Balancing Specification (for Balancing Design Products)

PRODUCT	SHANK	GRADE	RPM
HYDRAULIC CHUCK	BT/CBT 30/40/50 SK 30/40/50 HSK 32/40/50/63/80/100	G 2.5	25,000
SHRINK FIT HOLDER	BT/CBT 30/40/50 SK 30/40/50 HSK 25/32/40/50/63/80/100 ISO 25	G 2.5	25,000
OTHER CHUCKS & TOOL HOLDERS	BT/CBT 30/40/50 SK 30/40/50 HSK 25/32/40/50/63/80/100 ISO 20/25	G 6.3 G 2.5	15,000 25,000

*HIGHER BALANCING GRADE PRODUCT COULD BE SUPPLIED UPON CUSTOMER'S REQUEST.

Model Numbering System

BT	40	AD/B	ER	16	70
Shank type	Shank size	Coolant Supplying System	Product name	Tool Holder I.D = Tool Shank O.D	"Gauge Line" Length and Other Spec.

Surface Finish

Shot Peened

Black Oxidized

Bright Finish

Anti Rust Treated

YG-1 TOOLING SYSTEM

HYDRAULIC CHUCK

- HYDRAULIK SPANNFUTTER
- MANDRIN HYDRAULIQUE
- MANDRINI IDRAULICI
- PORTAHERRAMIENTAS HIDRAULICO

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

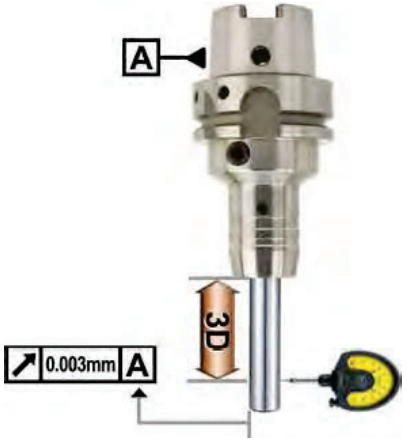
JIS B6339/MAS 403-BT

HYDRAULIC CHUCK (FOR GRINDER)

HYDRAULIC CHUCK SET

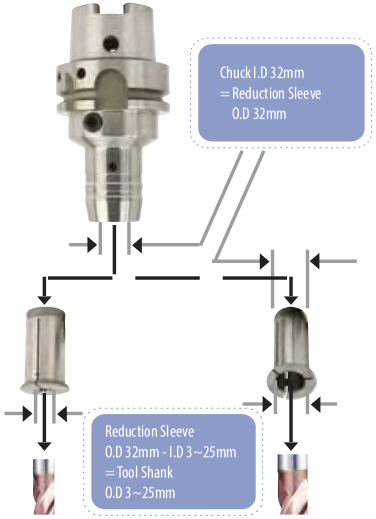
ACCESSORY

High precision T.I.R : ≤ 0.003mm (Without Reduction Sleeve)

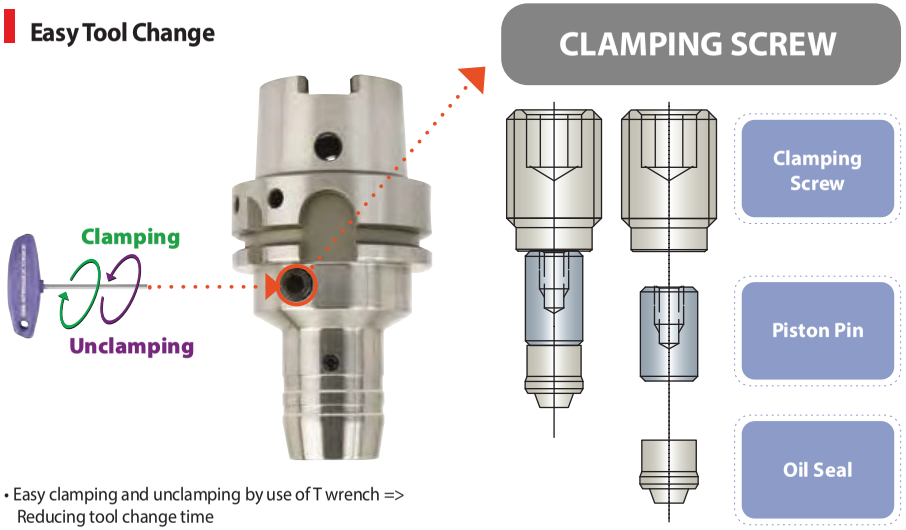


• Less than 0.003mm T.I.R =>
Suitable for High-Speed precision machining

Flexible use of cutting tools by using of reduction sleeves



Easy Tool Change



• Easy clamping and unclamping by use of T wrench =>
Reducing tool change time

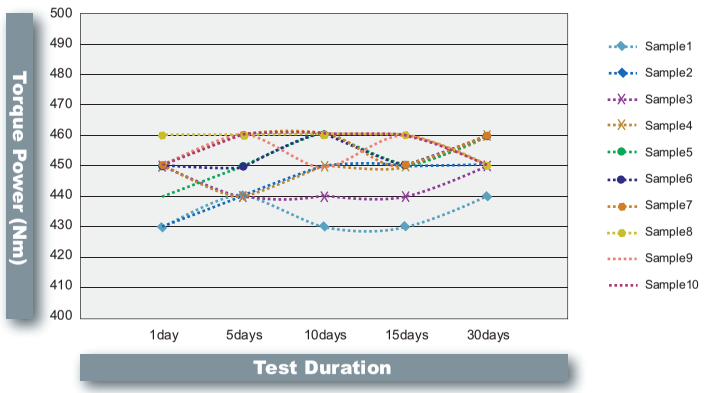
TECHNICAL INFORMATION
HYDRAULIC CHUCK

Strong Torque Power

Hydraulic Chuck I.D(mm)	Tool Shank O.D(mm)	Applicable RPM	Minimum Clamping Depth (mm)		Min. Torque Power (Nm)	
			Slim	Power E Hydro	Slim	Power E Hydro
6	6	40,000	27		16	
8	8	40,000	27		23	
10	10	40,000	32		45	
12	12	40,000	37	41	90	110
14	14	40,000	37		110	
16	16	40,000	42		185	
18	18	40,000	42		240	
20	20	40,000	42	48	330	520
25	25	25,000	48		400	
32	32	25,000	55	57	650	900

• Tool Holder I.D Tolerance : H6 • Operating Temperature : 20~25℃ • Maximum pressure of coolant oil : 80bar

Test of Torque Power and Hydraulic Oil Leakage

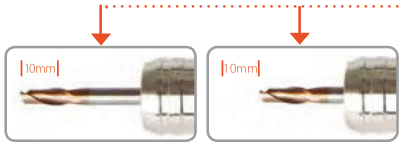


• Test Model : BT40AD/B-HC20-90
• No oil leakage for long period ⇒ Maintaining stable torque power

HYDRAULIC CHUCK

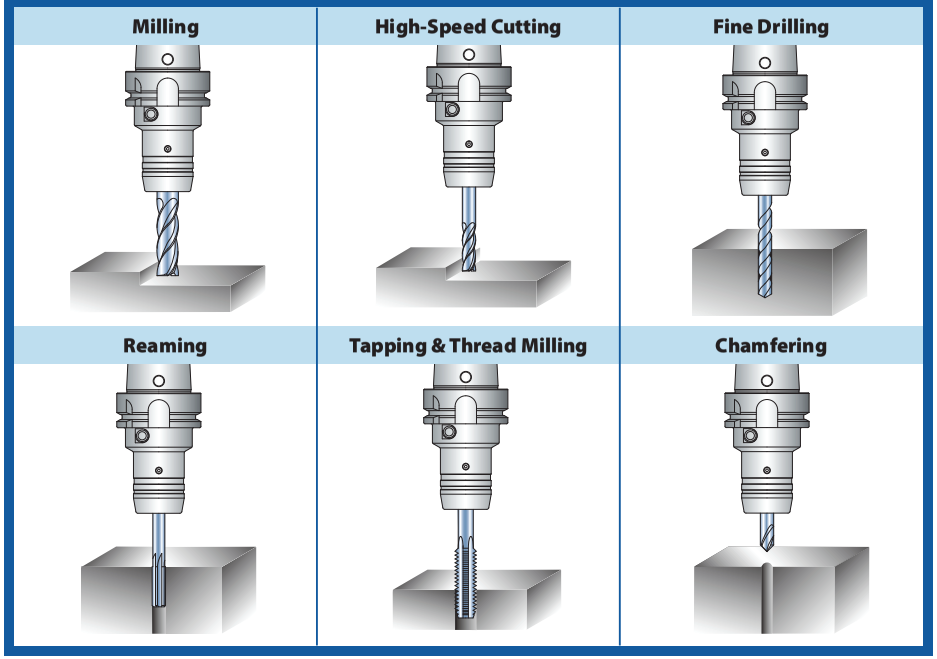
Radial tool length pre-setting type

- Easy to adjust pre-setting length of cutting tool (Saving time to pre-set cutting tool to one fifth compared with conventional Hydraulic Chuck)
- Precise adjustment of cutting tool length
- Designed to separate tool length adjustment screw from clamping screw



Adjustable range of cutting tool length : 0~10mm

APPLICATION

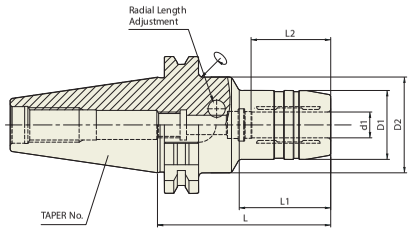

Milling
High-Speed Cutting
Fine Drilling
Reaming
Tapping & Thread Milling
Chamfering

HYDRAULIC CHUCK

HCR

HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type) DIN 69871-SK

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)
MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)
MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)
PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	SK30AD/B-HCR12-85	P2770001	12	32	44.5	85	40	37	0.90
	SK30AD/B-HCR20-85	P2770003	20	44	-	85	-	42	1.00
40	SK40AD/B-HCR12-80.5	P2554018	12	32	49.5	80.5	31.5	37	1.50
	SK40AD/B-HCR20-80.5	P2554019	20	42	49.5	80.5	34	42	1.60
	SK40AD/B-HCR32-110	P2770004	32	63	80	110	50	55	2.20
50	SK50AD/B-HCR12-80.5	P2770005	12	32	49.5	80.5	35	37	3.90
	SK50AD/B-HCR20-80.5	P2770006	20	42	44.5	80.5	44	42	4.00
	SK50AD/B-HCR32-100	P2770002	32	60	-	100	-	55	4.70

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

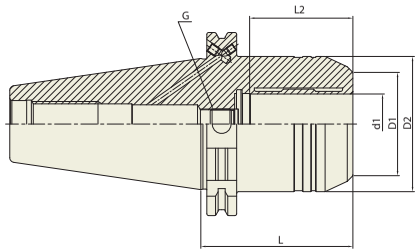
HYDRAULIC CHUCK

HCP

HYDRAULIC CHUCK (Power E Hydro)

DIN 69871-SK

HYDRAULIK SPANNFUTTER (POWER E HYDRO)
MANDRIN HYDRAULIQUE (POWER E HYDRO)
MANDRINI IDRAULICI (POWER E HYDRO)
PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
40	SK40AD/B-HC12P-50	P2776651P	12	32	42	50	41	M8x1.0	1.00
	SK40AD/B-HC20P-64.5	P2534001P	20	38	49.5	64.5	48	M8x1.0	1.20
50	SK50AD/B-HC20P-64.5	P2756010P	20	38	49.5	64.5	48	M8x1.0	2.80
	SK50AD/B-HC32P-81	P2534002P	32	58.5	72	81	57	M8x1.0	3.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.

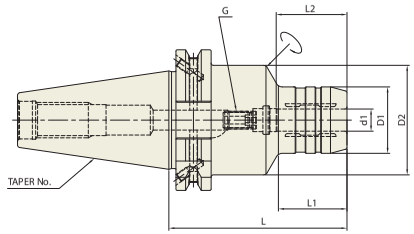
HYDRAULIC CHUCK

HC

HYDRAULIC CHUCK (SLIM)

DIN 69871-SK

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
30	SK30AD/B-HC6-70	P2770101	6	26	45	70	20	27	M5x0.8	0.65
	SK30AD/B-HC8-70	P2770110	8	28	45	70	20	27	M6x1.0	0.65
	SK30AD/B-HC10-75	P2770102	10	30	45	75	21	32	M8x1.0	0.73
	SK30AD/B-HC12-85	P2770111	12	32	45	85	40	37	M10x1.0	0.80
	SK30AD/B-HC14-85	P2770112	14	34	45	85	22	37	M10x1.0	0.80
	SK30AD/B-HC16-90	P2770113	16	38	45	90	50	42	M6x1.0	0.90
	SK30AD/B-HC18-90	P2770114	18	40	45	90	50	42	M10x1.0	0.90
	SK30AD/B-HC20-90	P2770115	20	42	45	90	50	42	M6x1.0	0.90
40	SK40AD/B-HC6-80.5	P2554017	6	26	49.5	80.5	30	27	M5x0.8	1.31
	SK40AD/B-HC6-110	P2554016	6	26	49.5	110	29.5	27	M5x0.8	1.76
	SK40AD/B-HC8-80.5	P2554025	8	28	49.5	80.5	30	27	M6x1.0	1.34
	SK40AD/B-HC8-110	P2770117	8	28	49.5	110	30	27	M6x1.0	1.76
	SK40AD/B-HC10-80.5	P2554004	10	30	49.5	80.5	31	32	M8x1.0	1.34
	SK40AD/B-HC10-110	P2554009	10	30	49.5	110	31	32	M8x1.0	1.76
	SK40AD/B-HC12-80.5	P2554011	12	32	49.5	80.5	31.5	37	M10x1.0	1.34
	SK40AD/B-HC12-110	P2554010	12	32	49.5	110	31.5	37	M10x1.0	1.76
	SK40AD/B-HC16-80.5	P2554013	16	38	49.5	80.5	33	42	M12x1.0	1.34
	SK40AD/B-HC16-110	P2554012	16	38	49.5	110	33	42	M12x1.0	1.76
	SK40AD/B-HC20-80.5	P2554015	20	42	49.5	80.5	34	42	M16x1.0	1.35
	SK40AD/B-HC20-110	P2554014	20	42	49.5	110	34	42	M16x1.0	1.78
	SK40AD/B-HC25-80.5	P2770103	25	55	66	80.5	22	48	M16x1.0	1.75
	SK40AD/B-HC32-110	P2770126	32	63	80	80.5	25.5	55	M16x1.0	2.60
50	SK50AD/B-HC6-80.5	P2770104	6	26	49.5	80.5	30	27	M5x0.8	3.00
	SK50AD/B-HC8-80.5	P2770116	8	28	49.5	80.5	30	27	M6x1.0	3.00
	SK50AD/B-HC10-80.5	P2770106	10	30	49.5	80.5	32	32	M8x1.0	3.00
	SK50AD/B-HC12-80.5	P2770118	12	32	49.5	80.5	35	37	M10x1.0	3.05
	SK50AD/B-HC16-80.5	P2770108	16	38	49.5	80.5	40	42	M12x1.0	3.10
	SK50AD/B-HC20-80.5	P2770119	20	42	49.5	80.5	40	42	M16x1.0	3.15

▶ CAT(ANSI B5.50) taper and Inch type products are available.

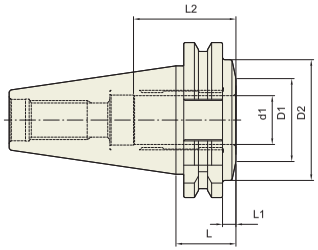
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK (ULTRA SHORT)

DIN 69871-SK

HYDRAULIK SPANNFUTTER (KURZ)
MANDRIN HYDRAULIQUE (COURT)
MANDRINI IDRAULICI (CORTO)
PORTAHERRAMIENTAS HIDRAULICO (CORTO)



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

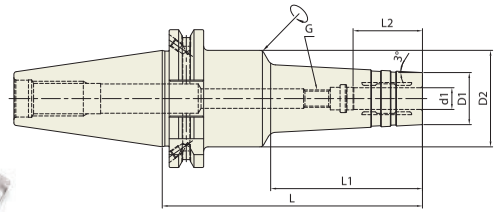
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	SK40-HC20-24.6	P2770120	20	34	49.5	24.6	5.5	42	-	0.81
50	SK50-HC32-30.9	P2770121	32	44.5	70.5	30.9	11.85	55	-	2.63

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK (For MOLD and DIE)

DIN 69871-SK

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU
MANDRIN HYDRAULIQUE POUR MOULISTE
MANDRINI IDRAULICI PER STAMPAGGIO
PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	SK40AD/B-HMC6-120	P2770701	6	20	49.5	120	70	27	M5×0.8	1.40
	SK40AD/B-HMC6-150	P2770702	6	20	49.5	150	100	27	M5×0.8	1.65
	SK40AD/B-HMC8-120	P2770703	8	22	49.5	120	70	27	M6×1.0	1.40
	SK40AD/B-HMC8-150	P2770704	8	22	49.5	150	100	27	M6×1.0	1.65
	SK40AD/B-HMC10-120	P2770705	10	24	44.5	120	70	32	M8×1.0	1.40
	SK40AD/B-HMC10-150	P2770706	10	24	44.5	150	100	32	M8×1.0	1.65
	SK40AD/B-HMC12-120	P2770707	12	25	44.5	120	70	37	M10×1.0	1.40
	SK40AD/B-HMC12-150	P2770708	12	25	44.5	150	100	37	M10×1.0	1.65
	SK40AD/B-HMC16-120	P2770709	16	32	49.5	120	70	42	M12×1.0	1.45
	SK40AD/B-HMC16-150	P2770710	16	32	49.5	150	100	42	M12×1.0	1.70
	SK40AD/B-HMC20-120	P2770711	20	34	49.5	120	70	42	M16×1.0	1.50
	SK40AD/B-HMC20-150	P2770712	20	34	49.5	150	100	42	M16×1.0	1.70
50	SK50AD/B-HMC6-150	P2770713	6	20	44.5	150	100	27	M5×0.8	4.50
	SK50AD/B-HMC8-150	P2770714	8	22	44.5	150	100	27	M6×1.0	4.50
	SK50AD/B-HMC10-150	P2770715	10	24	44.5	150	100	32	M8×1.0	4.50
	SK50AD/B-HMC12-150	P2770716	12	25	44.5	150	100	37	M10×1.0	4.50
	SK50AD/B-HMC16-150	P2770717	16	32	44.5	150	100	42	M12×1.0	4.70
	SK50AD/B-HMC20-150	P2770718	20	34	44.5	150	100	42	M16×1.0	5.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

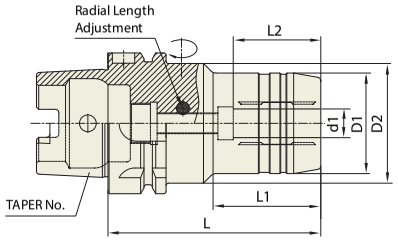
HYDRAULIC CHUCK

HCR

HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type)

DIN 69893/
ISO 12164-1-HSK FORM A

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)
MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)
MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)
PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
40A	HSK40A-HCR6-80	P2770210	6	26	34	80	36	27	0.55
	HSK40A-HCR8-80	P2770211	8	28	34	80	36	27	0.55
	HSK40A-HCR10-85	P2770212	10	30	34	85	43	32	0.65
	HSK40A-HCR12-90	P2770213	12	32	34	90	48	37	0.70
50A	HSK50A-HCR6-80	P2770214	6	26	40	80	35	27	0.70
	HSK50A-HCR8-80	P2770215	8	28	40	80	36	27	0.70
	HSK50A-HCR10-85	P2770216	10	30	40	85	38	32	0.73
	HSK50A-HCR12-90	P2770217	12	32	40	90	40	37	0.80
	HSK50A-HCR14-90	P2770218	14	34	40	90	40	37	0.80
	HSK50A-HCR16-95	P2770219	16	38	53	95	36.5	42	1.00
	HSK50A-HCR18-95	P2770220	18	40	57	95	36.5	42	1.00
	HSK50A-HCR20-100	P2770221	20	42	60	100	39	42	1.10
63A	HSK63A-HCR6-80	P2770205	6	26	50	80	33	27	0.96
	HSK63A-HCR8-80	P2770206	8	28	50	80	33	27	0.98
	HSK63A-HCR10-85	P2770207	10	30	50	85	38	32	1.04
	HSK63A-HCR12-90	P2567011	12	32	50	90	40	37	1.06
	HSK63A-HCR14-90	P2770202	14	34	50	90	46	37	1.08
	HSK63A-HCR16-95	P2770209	16	38	50	95	51	42	1.18
	HSK63A-HCR18-95	P2770203	18	40	50	95	52	42	1.20
	HSK63A-HCR20-100	P2567012	20	42	50	100	51	42	1.22
	HSK63A-HCR25-120	P2770204	25	57	63	120	54.5	48	2.20
	HSK63A-HCR32-125	P2770201	32	64	75	125	57.5	55	2.60
100A	HSK100A-HCR6-85	P2770222	6	26	63	85	33	27	3.60
	HSK100A-HCR8-85	P2770223	8	28	63	85	33	27	3.60
	HSK100A-HCR10-90	P2770224	10	30	63	90	36	32	3.80
	HSK100A-HCR12-95	P2770225	12	32	63	95	40	37	3.80
	HSK100A-HCR14-95	P2770226	14	34	63	95	41	37	3.80
	HSK100A-HCR16-100	P2770227	16	38	63	100	46	42	3.90
	HSK100A-HCR18-100	P2770228	18	40	63	100	46	42	3.90
	HSK100A-HCR20-105	P2770229	20	42	75	105	51	42	4.20
	HSK100A-HCR25-115	P2770230	25	57	75	115	55.5	48	4.40
	HSK100A-HCR32-120	P2770231	32	64	75	120	63.5	55	4.60

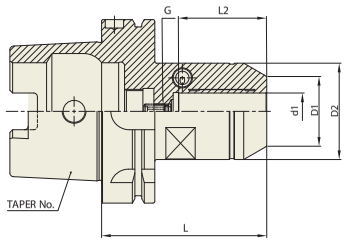
HYDRAULIC CHUCK

HCP

HYDRAULIC CHUCK (POWER E HYDRO)

DIN 69893/
ISO 12164-1-HSK FORM A

HYDRAULIK SPANNFUTTER (POWER E HYDRO)
MANDRIN HYDRAULIQUE (POWER E HYDRO)
MANDRINI IDRAULICI (POWER E HYDRO)
PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
63A	HSK63A-HC12P-80	P2770302P	12	32	42	80	41	M8x1.0	1.20
	HSK63A-HC20P-80	P2770301P	20	38	52.5	80	48	M8x1.0	1.30
100A	HSK100A-HC20P-90	P2770303P	20	38	52.5	90	48	M8x1.0	2.80
	HSK100A-HC32P-100	P2770304P	32	58.5	72	100	57	M8x1.0	3.70

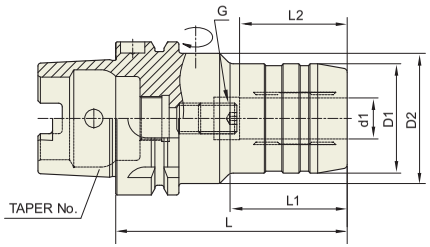
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK (SLIM)

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

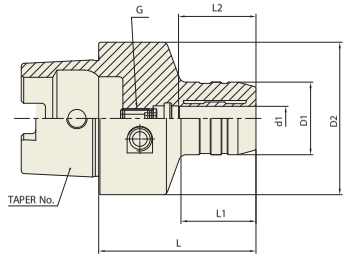
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
32A	HSK32A-HC6-80	P2770413	6	26	40	80	29	27	M5×0.8	0.30
	HSK32A-HC8-80	P2770414	8	28	40	80	29	27	M6×1.0	0.30
	HSK32A-HC10-85	P2770415	10	30	40	85	35	32	M6×1.0	0.30
	HSK32A-HC12-90	P2770416	12	32	40	90	40	37	M6×1.0	0.30
40A	HSK40A-HC6-70	P2770401	6	26	34	70	36	27	M5×0.8	0.50
	HSK40A-HC8-70	P2770402	8	28	34	70	36	27	M6×1.0	0.50
	HSK40A-HC10-75	P2770403	10	30	34	75	42	32	M6×1.0	0.60
	HSK40A-HC12-80	P2770417	12	32	34	80	48	37	M6×1.0	0.65
50A	HSK50A-HC6-70	P2770404	6	26	40	70	28	27	M5×0.8	0.65
	HSK50A-HC8-70	P2770405	8	28	40	70	28	27	M6×1.0	0.65
	HSK50A-HC10-75	P2770406	10	30	40	75	34	32	M8×1.0	0.70
	HSK50A-HC12-85	P2770407	12	32	40	85	44	37	M10×1.0	0.75
	HSK50A-HC14-85	P2770408	14	34	40	85	43	37	M10×1.0	0.75
	HSK50A-HC16-90	P2770409	16	38	53	90	30	42	M12×1.0	0.90
	HSK50A-HC18-90	P2770418	18	40	57	90	30	42	M12×1.0	0.90
	HSK50A-HC20-90	P2770419	20	42	60	90	29	42	M16×1.0	1.00
63A	HSK63A-HC6-70	P2567001	6	26	50	70	24	27	M5×0.8	0.53
	HSK63A-HC8-70	P2567002	8	28	50	70	25	27	M6×1.0	0.55
	HSK63A-HC10-80	P2567003	10	30	50	80	35	32	M8×1.0	1.00
	HSK63A-HC12-85	P2567004	12	32	50	85	40	37	M10×1.0	1.03
	HSK63A-HC14-85	P2567005	14	34	50	85	40	37	M10×1.0	1.05
	HSK63A-HC16-90	P2567006	16	38	50	90	46	42	M12×1.0	1.15
	HSK63A-HC18-90	P2567007	18	40	50	90	47	42	M12×1.0	1.15
	HSK63A-HC20-90	P2567008	20	42	50	90	48	42	M16×1.0	1.20
	HSK63A-HC25-120	P2567009	25	57	63	120	59	48	M16×1.0	2.20
	HSK63A-HC32-125	P2567010	32	64	75	125	63	55	M16×1.0	2.40
80A	HSK80A-HC12-85	P2770462	12	32	50	85	40	37	M10x1.0	1.60
	HSK80A-HC20-95	P2770463	20	42	50	95	52	42	M16x1.0	1.80
	HSK80A-HC32-125	P2770464	32	64	75	125	63	55	M16x1.0	3.30
100A	HSK100A-HC6-75	P2770420	6	26	50	75	26	27	M5×0.8	3.20
	HSK100A-HC8-75	P2770421	8	28	50	75	26	27	M6×1.0	3.20
	HSK100A-HC10-90	P2770422	10	30	50	90	42	32	M8×1.0	3.40
	HSK100A-HC12-95	P2770410	12	32	50	95	47	37	M10×1.0	3.40
	HSK100A-HC14-95	P2770423	14	34	50	95	47	37	M10×1.0	3.40
	HSK100A-HC16-100	P2770411	16	38	50	100	53	42	M12×1.0	3.50
	HSK100A-HC18-100	P2770424	18	40	50	100	53	42	M12×1.0	3.60
	HSK100A-HC20-105	P2757010	20	42	50	105	59	42	M16×1.0	4.00
	HSK100A-HC25-110	P2770412	25	57	63	110	62	48	M16×1.0	4.20
	HSK100A-HC32-110	P2757020	32	64	75	110	62	55	M16×1.0	4.30

HYDRAULIC CHUCK (SLIM)

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

DIN 69893/ ISO 12164-1-HSK FORM C



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
32C	HSK32C-HC6-65	P2770425	6	26	32	65	30	27	M5x0.8	0.30
	HSK32C-HC8-70	P2770426	8	28	32	70	34	27	M6x1.0	0.30
	HSK32C-HC10-75	P2770427	10	30	32	75	39	32	M6x1.0	0.30
	HSK32C-HC12-80	P2770428	12	32	32	80	-	37	M6x1.0	0.30
40C	HSK40C-HC6-60	P2770429	6	26	40	60	36	27	M5x0.8	0.55
	HSK40C-HC8-60	P2770430	8	28	40	60	36	27	M6x1.0	0.55
	HSK40C-HC10-65	P2770431	10	30	40	65	41	32	M6x1.0	0.65
	HSK40C-HC12-70	P2770432	12	32	40	70	47	37	M6x1.0	0.70
50C	HSK50C-HC6-60	P2770433	6	26	50	60	30	27	M5x0.8	0.65
	HSK50C-HC8-60	P2770434	8	28	50	60	30	27	M6x1.0	0.65
	HSK50C-HC10-65	P2770435	10	30	50	65	35	32	M8x1.0	0.70
	HSK50C-HC12-75	P2770436	12	32	50	75	44	37	M10x1.0	0.75
	HSK50C-HC14-75	P2770437	14	34	50	75	46	37	M10x1.0	0.75
	HSK50C-HC16-80	P2770438	16	38	50	80	51	42	M12x1.0	0.90
	HSK50C-HC18-80	P2770439	18	40	50	80	51	42	M12x1.0	0.90
	HSK50C-HC20-80	P2770440	20	42	50	80	48	42	M16x1.0	1.00
63C	HSK63C-HC6-60	P2770441	6	26	63	60	25	27	M5x0.8	0.96
	HSK63C-HC8-60	P2770442	8	28	63	60	25	27	M6x1.0	0.98
	HSK63C-HC10-65	P2770443	10	30	63	65	31	32	M8x1.0	1.04
	HSK63C-HC12-75	P2770444	12	32	63	75	41	37	M10x1.0	1.06
	HSK63C-HC14-75	P2770445	14	34	63	75	40	37	M10x1.0	1.08
	HSK63C-HC16-80	P2770446	16	38	63	80	48	42	M12x1.0	1.18
	HSK63C-HC18-80	P2770447	18	40	63	80	47	42	M12x1.0	1.20
	HSK63C-HC20-80	P2770448	20	42	63	80	49	42	M16x1.0	1.22
	HSK63C-HC25-95	P2770449	25	57	63	95	63	48	M16x1.0	2.20
	HSK63C-HC32-100	P2770450	32	63	63	100	-	55	M16x1.0	2.60

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

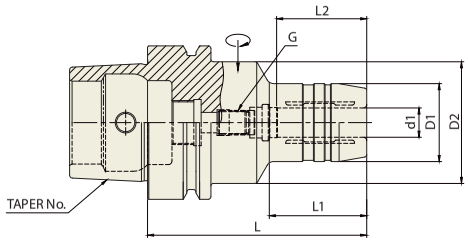
HYDRAULIC CHUCK

HC

HYDRAULIC CHUCK (SLIM)

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)

DIN 69893/
ISO 12164-1-HSK FORM E & F



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40E	HSK40E-HC6-70	P2770451	6	26	34	70	36	27	M5x0.8	0.55
	HSK40E-HC8-70	P2770452	8	28	34	70	36	27	M6x1.0	0.55
	HSK40E-HC10-75	P2770453	10	30	34	75	42	32	M6x1.0	0.65
	HSK40E-HC12-80	P2770454	12	32	34	80	48	37	M6x1.0	0.70
50E	HSK50E-HC6-70	P2770455	6	26	40	70	28	27	M5x0.8	0.65
	HSK50E-HC8-70	P2770456	8	28	40	70	28	27	M6x1.0	0.65
	HSK50E-HC10-75	P2770457	10	30	40	75	34	32	M8x1.0	0.70
	HSK50E-HC12-85	P2770458	12	32	40	85	44	37	M10x1.0	0.75
	HSK50E-HC16-90	P2770459	16	38	53	90	30	42	M12x1.0	0.90
	HSK50E-HC20-90	P2770460	20	42	60	90	29	42	M16x1.0	1.00
63F	HSK63F-HC20-85	P2770461	20	42	50	85	46	42	M12x1.0	1.20

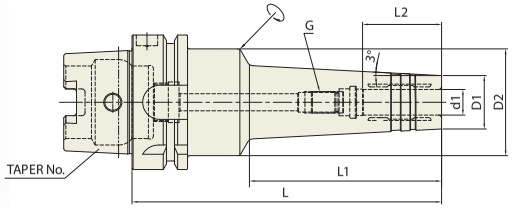
HYDRAULIC CHUCK

HMC

HYDRAULIC CHUCK (For MOLD and DIE)

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU
MANDRIN HYDRAULIQUE POUR MOULISTE
MANDRINI IDRAULICI PER STAMPAGGIO
PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES

DIN 69893/
ISO 12164-1-HSK FORM A



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
63A	HSK63A-HMC6-145	P2770801	6	20	50	145	90	27	M5×0.8	1.40
	HSK63A-HMC8-145	P2770802	8	22	50	145	90	27	M6×1.0	1.40
	HSK63A-HMC10-145	P2770803	10	24	50	145	90	32	M8×1.0	1.40
	HSK63A-HMC12-145	P2770804	12	25	50	145	90	37	M10×1.0	1.40
	HSK63A-HMC16-145	P2770805	16	32	50	145	90	42	M12×1.0	1.45
	HSK63A-HMC20-145	P2770806	20	34	50	145	90	42	M16×1.0	1.50
100A	HSK100A-HMC6-150	P2770812	6	20	50	150	90	27	M5×0.8	4.50
	HSK100A-HMC8-150	P2770807	8	22	50	150	90	27	M6×1.0	4.50
	HSK100A-HMC10-150	P2770808	10	24	50	150	90	32	M8×1.0	4.50
	HSK100A-HMC12-150	P2770809	12	25	50	150	90	37	M10×1.0	4.50
	HSK100A-HMC16-150	P2770810	16	32	50	150	90	42	M12×1.0	4.70
	HSK100A-HMC20-150	P2770811	20	34	50	150	90	42	M16×1.0	5.00

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

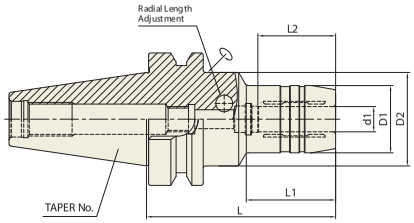
HYDRAULIC CHUCK

HCR

HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type)

CBT
(BT DUAL CONTACT)

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)
MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)
MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)
PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)



CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	CBT30-HCR12-85	P2770551	12	32	44.5	85	40	37	0.90
	CBT30-HCR20-85	P2770552	20	44	44	85	-	42	1.00
40	CBT40-HCR12-90	P2770553	12	32	44.5	90	42.5	37	1.50
	CBT40-HCR20-90	P2770554	20	42	44.5	90	47.5	42	1.60
	CBT40-HCR32-105	P2770555	32	60	60	105	-	55	2.20
50	CBT50-HCR12-95	P2770556	12	32	44.5	95	34	37	3.90
	CBT50-HCR20-100	P2770557	20	42	44.5	100	44	42	4.00
	CBT50-HCR32-115	P2770558	32	60	60	115	-	55	4.10

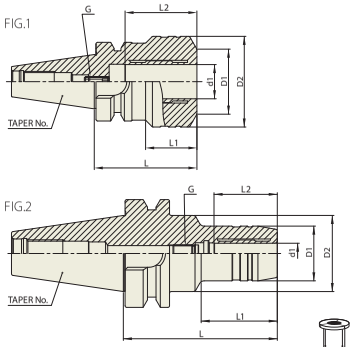
HYDRAULIC CHUCK

HC

HYDRAULIC CHUCK (SLIM)

CBT
(BT DUAL CONTACT)

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)



CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	FIG.	WEIGHT (kg)
30	CBT30-HC6-45	P2770559	6	46	46	45	-	27	M5x0.8	1	1.50
	CBT30-HC8-45	P2770560	8	46	46	45	-	27	M6x1.0	1	1.50
	CBT30-HC10-45	P2770561	10	46	46	45	-	32	M8x1.0	1	1.50
	CBT30-HC12-45	P2770562	12	46	46	45	-	37	M10x1.0	1	1.50
	CBT30-HC16-45	P2770563	16	46	46	45	-	42	M10x1.0	1	1.50
	CBT30-HC20-60	P2770564	20	53	53	60	-	42	M10x1.0	1	2.10
	CBT30-HC6-70	P2770503	6	26	44.5	70	29.5	27	M5x0.8	2	0.65
	CBT30-HC8-70	P2770504	8	28	44.5	70	30	27	M6x1.0	2	0.65
	CBT30-HC10-75	P2770505	10	30	44.5	75	31	32	M8x1.0	2	0.73
	CBT30-HC12-85	P2770506	12	32	45	85	45	37	M10x1.0	2	0.80
	CBT30-HC14-85	P2770507	14	34	45	85	45	37	M10x1.0	2	0.80
	CBT30-HC16-90	P2770508	16	38	45	90	50	42	M10x1.0	2	0.90
	CBT30-HC18-90	P2770509	18	40	45	90	50	42	M10x1.0	2	0.90
	CBT30-HC20-90	P2770510	20	42	45	90	50	42	M6x1.0	2	0.90
40	CBT40-HC6-90	P2770511	6	26	44.5	90	43	27	M5x0.8	2	1.30
	CBT40-HC8-90	P2770512	8	28	44.5	90	44.5	27	M6x1.0	2	1.30
	CBT40-HC10-90	P2770513	10	30	44.5	90	44.5	32	M8x1.0	2	1.35
	CBT40-HC12-90	P2770501	12	32	44.5	90	44.5	37	M10x1.0	2	1.35
	CBT40-HC14-90	P2770514	14	34	44.5	90	44.5	37	M10x1.0	2	1.35
	CBT40-HC16-90	P2770515	16	38	44.5	90	47.5	42	M12x1.0	2	1.40
	CBT40-HC18-90	P2770516	18	40	44.5	90	47.5	42	M12x1.0	2	1.45
	CBT40-HC20-90	P2770502	20	42	44.5	90	47.5	42	M16x1.0	2	1.50
	CBT40-HC25-100	P2770517	25	50	60	100	47.5	48	M16x1.0	2	1.70
	CBT40-HC32-105	P2770518	32	60	60	105	-	55	M16x1.0	2	2.10

▶ NEXT PAGE

TOOLING SYSTEM

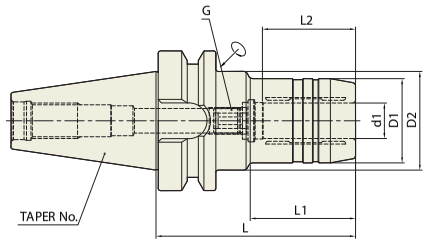
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK (SLIM)

CBT (BT DUAL CONTACT)

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)



CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

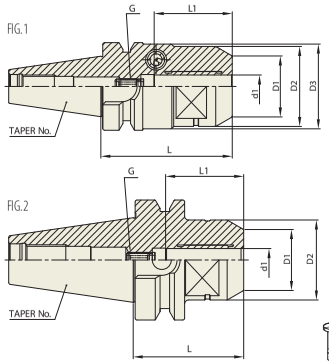
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
50	CBT50-HC6-90	P2770519	6	26	44.5	90	34	27	M5×0.8	3.75
	CBT50-HC6-120	P2770520	6	26	44.5	120	34	27	M5×0.8	4.10
	CBT50-HC6-150	P2770521	6	26	44.5	150	34	27	M5×0.8	4.70
	CBT50-HC8-90	P2770522	8	28	44.5	90	34	27	M6×1.0	3.75
	CBT50-HC8-120	P2770523	8	28	44.5	120	34	27	M6×1.0	4.10
	CBT50-HC8-150	P2770524	8	28	44.5	150	34	27	M6×1.0	4.10
	CBT50-HC10-90	P2770525	10	30	44.5	90	34	32	M8×1.0	3.90
	CBT50-HC10-120	P2770526	10	30	44.5	120	34	32	M8×1.0	4.30
	CBT50-HC10-150	P2770527	10	30	44.5	150	34	32	M8×1.0	4.90
	CBT50-HC12-90	P2770528	12	32	44.5	90	34	37	M10×1.0	3.90
	CBT50-HC12-120	P2770529	12	32	44.5	120	34	37	M10×1.0	4.30
	CBT50-HC12-150	P2770530	12	32	44.5	150	34	37	M10×1.0	4.90
	CBT50-HC14-90	P2770531	14	34	44.5	90	34	37	M10×1.0	3.90
	CBT50-HC14-120	P2770532	14	34	44.5	120	34	37	M10×1.0	4.30
	CBT50-HC14-150	P2770533	14	34	44.5	150	34	37	M10×1.0	4.90
	CBT50-HC16-90	P2770534	16	38	44.5	90	34	42	M12×1.0	4.00
	CBT50-HC16-120	P2770535	16	38	44.5	120	34	42	M12×1.0	4.40
	CBT50-HC16-150	P2770536	16	38	44.5	150	34	42	M12×1.0	5.00
	CBT50-HC18-90	P2770537	18	40	44.5	90	34	42	M12×1.0	4.00
	CBT50-HC18-120	P2770538	18	40	44.5	120	34	42	M12×1.0	4.40
	CBT50-HC18-150	P2770539	18	40	44.5	150	34	42	M12×1.0	5.00
	CBT50-HC20-90	P2770540	20	42	44.5	90	34	42	M16×1.0	4.00
	CBT50-HC20-120	P2770541	20	42	44.5	120	34	42	M16×1.0	4.40
	CBT50-HC20-150	P2770542	20	42	44.5	150	34	42	M16×1.0	5.00
	CBT50-HC25-105	P2770543	25	57	63	105	52	48	M16×1.0	4.40
	CBT50-HC25-150	P2770544	25	57	63	150	97	48	M16×1.0	5.60
	CBT50-HC32-115	P2770545	32	64	75	115	62	55	M16×1.0	4.70
	CBT50-HC32-150	P2770546	32	64	75	150	97	55	M16×1.0	6.00

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK (Power E Hydro)

CBT (BT DUAL CONTACT)

HYDRAULIK SPANNFUTTER (POWER E HYDRO)
MANDRIN HYDRAULIQUE (POWER E HYDRO)
MANDRINI IDRAULICI (POWER E HYDRO)
PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)



CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

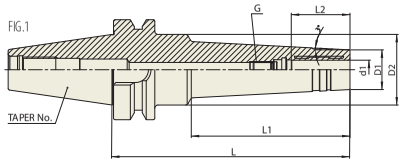
Unit : mm

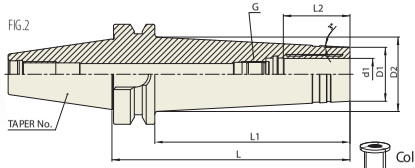
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	FIG.	WEIGHT (kg)
30	CBT30-HC12P-69	P2776606P	12	32	42	44.5	69	41	M8x1.0	1	0.80
	CBT30-HC20P-90	P2776607P	20	38	42	44.5	90	48	M8x1.0	1	0.90
40	CBT40-HC12P-58	P2776608P	12	32	42	-	58	41	M8x1.0	2	1.10
	CBT40-HC20P-72.5	P2776609P	20	38	49.25	-	72.5	48	M8x1.0	2	1.40

HYDRAULIC CHUCK (For MOLD and DIE)

CBT
(BT DUAL CONTACT)

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU
MANDRIN HYDRAULIQUE POUR MOULISTE
MANDRINI IDRAULICI PER STAMPAGGIO
PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES





CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

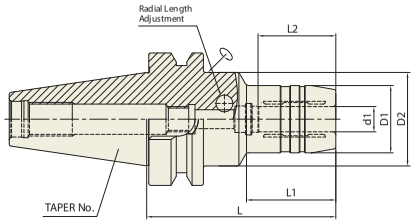
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	FIG.	WEIGHT (kg)
40	CBT40-HMC6-120	P2770921	6	20	44.5	120	70	27	M5×0.8	1	1.40
	CBT40-HMC6-150	P2770922	6	20	44.5	150	100	27	M5×0.8	1	1.65
	CBT40-HMC8-120	P2770923	8	22	44.5	120	70	27	M6×1.0	1	1.40
	CBT40-HMC8-150	P2770924	8	22	44.5	150	100	27	M6×1.0	1	1.65
	CBT40-HMC10-120	P2770925	10	24	44.5	120	70	32	M8×1.0	1	1.40
	CBT40-HMC10-150	P2770926	10	24	44.5	150	100	32	M8×1.0	1	1.65
	CBT40-HMC12-120	P2770927	12	25	44.5	120	70	37	M10×1.0	1	1.40
	CBT40-HMC12-150	P2770928	12	25	44.5	150	100	37	M10×1.0	1	1.65
	CBT40-HMC16-120	P2770929	16	32	44.5	120	70	42	M12×1.0	1	1.45
	CBT40-HMC16-150	P2770930	16	32	44.5	150	100	42	M12×1.0	1	1.70
	CBT40-HMC20-120	P2770931	20	34	43.8	120	93	42	M16×1.0	2	1.50
	CBT40-HMC20-150	P2770932	20	34	46.9	150	123	42	M16×1.0	2	1.80
50	CBT50-HMC6-150	P2770933	6	20	50	150	90	27	M5×0.8	1	4.70
	CBT50-HMC8-150	P2770934	8	22	50	150	90	27	M6×1.0	1	4.70
	CBT50-HMC10-150	P2770935	10	24	50	150	90	32	M8×1.0	1	4.70
	CBT50-HMC12-150	P2770936	12	25	50	150	90	37	M10×1.0	1	4.70
	CBT50-HMC16-150	P2770937	16	32	50	150	90	42	M12×1.0	1	4.90
	CBT50-HMC20-150	P2770938	20	34	50	150	90	42	M16×1.0	1	5.00

HYDRAULIC CHUCK (Radial Tool Length Pre-Setting Type)

JIS B6339/
MAS 403-BT

HYDRAULIK SPANNFUTTER (RADIALE WERKZEUGLÄGEN VOREINSTELLUNG)
MANDRIN HYDRAULIQUE (BANC DE PRÉ-RÉGLAGE RADIAL)
MANDRINI IDRAULICI (UTENSILI RADIALI PER AZZERAMENTO)
PORTAHERRAMIENTAS HIDRAULICO (AJUSTE DE LONGITUD TIPO PRE-SETTING)



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	BT30AD/B-HCR12-85	P2777102	12	32	44.5	85	40	37	0.90
	BT30AD/B-HCR20-85	P2777103	20	44	44	85	-	42	1.00
40	BT40AD/B-HCR12-90	P2777104	12	32	44.5	90	42.5	37	1.50
	BT40AD/B-HCR20-90	P2554008	20	42	44.5	90	47.5	42	1.60
	BT40AD/B-HCR32-105	P2777105	32	60	60	105	-	55	2.20
50	BT50AD/B-HCR12-95	P2777106A	12	32	44.5	95	34	37	3.90
	BT50AD/B-HCR20-100	P2777101	20	42	44.5	100	44	42	4.00
	BT50AD/B-HCR32-115	P2777107	32	60	60	115	-	55	4.10

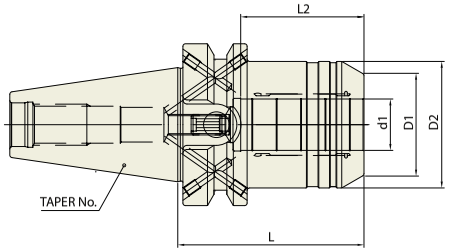
▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK (Power E Hydro)

JIS B6339/ MAS 403-BT

HYDRAULIK SPANNFUTTER (POWER E HYDRO)
MANDRIN HYDRAULIQUE (POWER E HYDRO)
MANDRINI IDRAULICI (POWER E HYDRO)
PORTAHERRAMIENTAS HIDRAULICO (POWER E HYDRO)



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Collet
Refer to page 43-46

Unit : mm

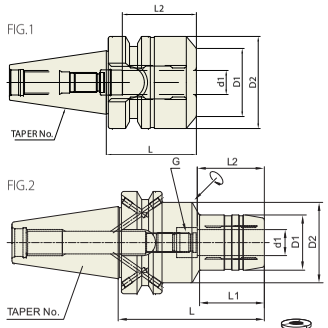
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
30	BT30AD/B-HC12P-69	P2776610P	12	32	42	69	41	M8x1.0	0.80
	BT30AD/B-HC20P-90	P2776611P	20	38	42	90	48	M8x1.0	0.90
40	BT40AD/B-HC12P-58	P2776601P	12	32	42	58	41	M8x1.0	1.10
	BT40AD/B-HC20P-72.5	P2554001P	20	38	49.25	72.5	48	M8x1.0	1.40
50	BT50AD/B-HC20P-83.5	P2755010P	20	38	49.25	83.5	48	M8x1.0	3.90
	BT50AD/B-HC32P-90	P2558001P	32	58.5	72	90	57	M8x1.0	4.60

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK (SLIM)

JIS B6339/ MAS 403-BT

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	FIG.	WEIGHT (kg)
30	BT30-HC6-45	P2770643A	6	46	46	45	-	27	M5x0.8	1	1.50
	BT30-HC8-45	P2770644A	8	46	46	45	-	27	M6x1.0	1	1.50
	BT30-HC10-45	P2770645A	10	46	46	45	-	32	M8x1.0	1	1.50
	BT30-HC12-45	P2770646A	12	46	46	45	-	37	M10x1.0	1	1.50
	BT30-HC16-45	P2770647A	16	46	46	45	-	42	M10x1.0	1	1.50
	BT30-HC20-60	P2770648A	20	53	53	60	-	42	M10x1.0	1	2.10
	BT30-HC6-70	P2770604A	6	26	44.5	70	29.5	27	M5x0.8	2	0.65
	BT30-HC8-70	P2770605A	8	28	44.5	70	30	27	M6x1.0	2	0.65
	BT30-HC10-75	P2770606A	10	30	44.5	75	31	32	M8x1.0	2	0.73
	BT30-HC12-85	P2770607A	12	32	45	85	45	37	M10x1.0	2	0.80
	BT30-HC14-85	P2770608A	14	34	45	85	45	37	M10x1.0	2	0.80
	BT30-HC16-90	P2770601A	16	38	45	90	50	42	M10x1.0	2	0.90
	BT30-HC18-90	P2770609A	18	40	45	90	50	42	M10x1.0	2	0.90
	BT30-HC20-90	P2770602A	20	42	45	90	50	42	M6x1.0	2	0.90
40	BT40AD/B-HC6-90	P2554003	6	26	44.5	90	43	27	M5x0.8	2	1.30
	BT40AD/B-HC8-90	P2554021	8	28	44.5	90	44.5	27	M6x1.0	2	1.30
	BT40AD/B-HC10-90	P2554005	10	30	44.5	90	44.5	32	M8x1.0	2	1.35
	BT40AD/B-HC12-90	P2554002	12	32	44.5	90	44.5	37	M10x1.0	2	1.35
	BT40AD/B-HC14-90	P2770610	14	34	44.5	90	44.5	37	M10x1.0	2	1.35
	BT40AD/B-HC16-90	P2554006	16	38	44.5	90	47.5	42	M12x1.0	2	1.40
	BT40AD/B-HC18-90	P2770611	18	40	44.5	90	47.5	42	M12x1.0	2	1.45
	BT40AD/B-HC20-90	P2554007	20	42	44.5	90	47.5	42	M16x1.0	2	1.50
	BT40AD/B-HC25-100	P2770641	25	50	60	100	47.5	48	M16x1.0	2	1.70
	BT40AD/B-HC32-105	P2770612	32	60	-	105	-	55	M16x1.0	2	2.10

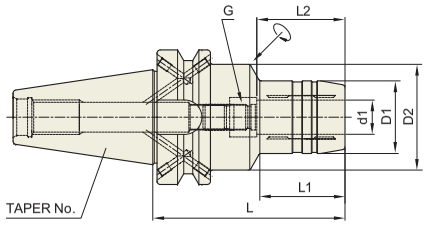
▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK (SLIM)

JIS B6339/
MAS 403-BT

HYDRAULIK SPANNFUTTER (SCHLANK)
MANDRIN HYDRAULIQUE (MINCE)
MANDRINI IDRAULICI (SOTTILE)
PORTAHERRAMIENTAS HIDRAULICO (DELGADO)



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Collet
Refer to page 43-46

Unit : mm

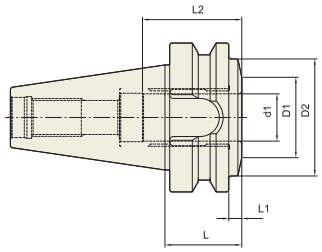
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
50	BT50AD/B-HC6-90	P2770613	6	26	44.5	90	34	27	M5×0.8	3.75
	BT50AD/B-HC6-120	P2770614	6	26	44.5	120	34	27	M5×0.8	4.10
	BT50AD/B-HC6-150	P2770615	6	26	44.5	150	34	27	M5×0.8	4.70
	BT50AD/B-HC8-90	P2770616	8	28	44.5	90	34	27	M6×1.0	3.75
	BT50AD/B-HC8-120	P2770617	8	28	44.5	120	34	27	M6×1.0	4.10
	BT50AD/B-HC8-150	P2770618	8	28	44.5	150	34	27	M6×1.0	4.10
	BT50AD/B-HC10-90	P2770619	10	30	44.5	90	34	32	M8×1.0	3.90
	BT50AD/B-HC10-120	P2770620	10	30	44.5	120	34	32	M8×1.0	4.30
	BT50AD/B-HC10-150	P2770621	10	30	44.5	150	34	32	M8×1.0	4.90
	BT50AD/B-HC12-90	P2770622	12	32	44.5	90	34	37	M10×1.0	3.90
	BT50AD/B-HC12-120	P2770623	12	32	44.5	120	34	37	M10×1.0	4.30
	BT50AD/B-HC12-150	P2770624	12	32	44.5	150	34	37	M10×1.0	4.90
	BT50AD/B-HC14-90	P2770625	14	34	44.5	90	34	37	M10×1.0	3.90
	BT50AD/B-HC14-120	P2770626	14	34	44.5	120	34	37	M10×1.0	4.30
	BT50AD/B-HC14-150	P2770627	14	34	44.5	150	34	37	M10×1.0	4.90
	BT50AD/B-HC16-90	P2770628	16	38	44.5	90	34	42	M12×1.0	4.00
	BT50AD/B-HC16-120	P2770629	16	38	44.5	120	34	42	M12×1.0	4.40
	BT50AD/B-HC16-150	P2770630	16	38	44.5	150	34	42	M12×1.0	5.00
	BT50AD/B-HC18-90	P2770631	18	40	44.5	90	34	42	M12×1.0	4.00
	BT50AD/B-HC18-120	P2770632	18	40	44.5	120	34	42	M12×1.0	4.40
	BT50AD/B-HC18-150	P2770633	18	40	44.5	150	34	42	M12×1.0	5.00
	BT50AD/B-HC20-90	P2770634	20	42	44.5	90	34	42	M16×1.0	4.00
	BT50AD/B-HC20-120	P2770635	20	42	44.5	120	34	42	M16×1.0	4.40
	BT50AD/B-HC20-150	P2770636	20	42	44.5	150	34	42	M16×1.0	5.00
	BT50AD/B-HC25-105	P2770637	25	57	63	105	52	48	M16×1.0	4.40
	BT50AD/B-HC25-150	P2770638	25	57	63	150	97	48	M16×1.0	5.60
	BT50AD/B-HC32-115	P2770639	32	64	75	115	62	55	M16×1.0	4.70
	BT50AD/B-HC32-150	P2770640	32	64	75	150	97	55	M16×1.0	6.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK (ULTRA SHORT)

JIS B6339/
MAS 403-BT

HYDRAULIK SPANNFUTTER (KURZ)
MANDRIN HYDRAULIQUE (COURT)
MANDRINI IDRAULICI (CORTO)
PORTAHERRAMIENTAS HIDRAULICO (CORTO)



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	BT40-HC20-32.5	P2770642	20	34	49.5	32.5	5.5	42	-	0.99
50	BT50-HC32-50	P2770650	32	49	70.5	50	12	55	-	3.73

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

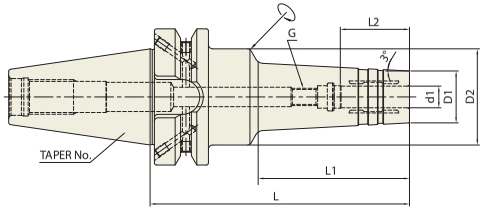
HYDRAULIC CHUCK

HMC

HYDRAULIC CHUCK (For MOLD and DIE)

JIS B6339/ MAS 403-BT

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU
MANDRIN HYDRAULIQUE POUR MOULISTE
MANDRINI IDRAULICI PER STAMPAGGIO
PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES



JIS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Collet
Refer to page 43-46

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
40	BT40AD/B-HMC6-120	P2770903	6	20	44.5	120	70	27	M5×0.8	1.40
	BT40AD/B-HMC6-150	P2770904	6	20	44.5	150	100	27	M5×0.8	1.65
	BT40AD/B-HMC8-120	P2770905	8	22	44.5	120	70	27	M6×1.0	1.40
	BT40AD/B-HMC8-150	P2770906	8	22	44.5	150	100	27	M6×1.0	1.65
	BT40AD/B-HMC10-120	P2770907	10	24	44.5	120	70	32	M8×1.0	1.40
	BT40AD/B-HMC10-150	P2770908	10	24	44.5	150	100	32	M8×1.0	1.65
	BT40AD/B-HMC12-120	P2770901	12	25	44.5	120	70	37	M10×1.0	1.40
	BT40AD/B-HMC12-150	P2770909	12	25	44.5	150	100	37	M10×1.0	1.65
	BT40AD/B-HMC16-120	P2770910	16	32	44.5	120	70	42	M12×1.0	1.45
	BT40AD/B-HMC16-150	P2770911	16	32	44.5	150	100	42	M12×1.0	1.70
	BT40AD/B-HMC20-120	P2770902	20	34	43.8	120	93	42	M16×1.0	1.50
	BT40AD/B-HMC20-150	P2770912	20	34	46.9	150	123	42	M16×1.0	1.80
50	BT50AD/B-HMC6-150	P2770913	6	20	50	150	90	27	M5×0.8	4.70
	BT50AD/B-HMC8-150	P2770914	8	22	50	150	90	27	M6×1.0	4.70
	BT50AD/B-HMC10-150	P2770915	10	24	50	150	90	32	M8×1.0	4.70
	BT50AD/B-HMC12-150	P2770916	12	25	50	150	90	37	M10×1.0	4.70
	BT50AD/B-HMC16-150	P2770917	16	32	50	150	90	42	M12×1.0	4.90
	BT50AD/B-HMC20-150	P2770918	20	34	50	150	90	42	M16×1.0	5.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

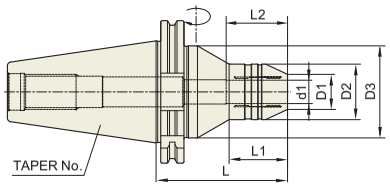
HYDRAULIC CHUCK

HC

HYDRAULIC CHUCK (For GRINDER)

DIN 69871-SK

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU
MANDRIN HYDRAULIQUE POUR MOULISTE
MANDRINI IDRAULICI PER STAMPAGGIO
PORTAHERRAMIENTAS HIDRAULICO PARA MOLDES

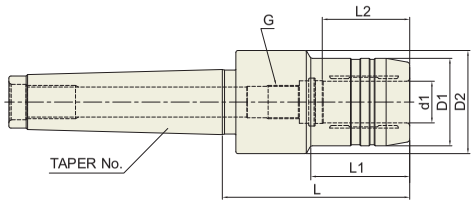


DIN 69871-SK | AT3 | (at 3D) ≤3μm | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L1	L2	WEIGHT (kg)
50	SK50-HC6G-90	P2770951	6	14	30	63	90	30	27	3.00
	SK50-HC8G-90	P2770952	8	16	30	63	90	30	27	3.00
	SK50-HC10G-90	P2770953	10	18	30	63	90	30	32	3.00
	SK50-HC12G-90	P2770954	12	21	33	63	90	35	37	3.05
	SK50-HC14G-90	P2770955	14	22	35	63	90	35	37	3.10
	SK50-HC16G-90	P2770956	16	24	38	63	90	40	42	3.10
	SK50-HC18G-90	P2770957	18	26	40	63	90	40	42	3.10
	SK50-HC20G-110	P2770958	20	29	42	63	110	40	42	3.30
	SK50-HC25G-110	P2770959	25	34	50	70	110	45	48	3.60
	SK50-HC32G-110	P2770960	32	42	56	80	110	50	55	4.20

DIN 228-MTB



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	G	WEIGHT (kg)
4	MTB4-HC20-90	P2770961	20	42	49.5	90	47.5	42	M16×1.0	1.30
	MTB4-HC32-90	P2770962	32	72	72	90	-	55	-	1.40
5	MTB5-HC20-90	P2770963	20	42	49.5	90	47.5	42	M16×1.0	2.20
	MTB5-HC32-90	P2770964	32	72	72	90	-	55	-	2.40

TOOLING SYSTEM
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK

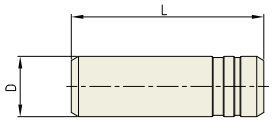
HCS

HYDRAULIC CHUCK SET

TAPER No.	MODEL No.	EDP No.	REDUCTION SLEEVE	WRENCH
HCSS40-20	SK40AD/B-HC20P-64.5	P2770971	HK20-6.8.10.12.16 (5pcs)	ϕ5mm
HCSB40-20	BT40AD/B-HC20P-72.5	P2770972	HK20-6.8.10.12.16 (5pcs)	ϕ5mm
HCSH40-20	HSK63A-HC20P-80	P2770973	HK20-6.8.10.12.16 (5pcs)	ϕ5mm

TP

TEST PIECE



· TECHNICAL DATA

Unit : mm

DESCRIPTIONS	EDP No.	D	L
TP6	P2801201	6	70
TP8	P2801202	8	70
TP10	P2801203	10	80
TP12	P2801204	12	80
TP14	P2801205	14	80
TP16	P2801206	16	90
TP18	P2801207	18	90
TP20	P2801208	20	100
TP25	P2801209	25	100
TP32	P2801210	32	100

· POWER E HYDRO

Unit : mm

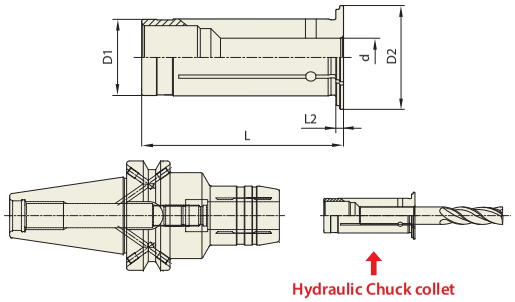
DESCRIPTIONS	EDP No.	D	L
TP12P	P2801211	12	80
TP20P	P2801212	20	100
TP32P	P2801213	32	100

HYDRAULIC CHUCK

HK

HYDRAULIC CHUCK COLLET (Reduction Sleeve : Open Type)

HYDRAULIK SPANNFUTTER SPANNZANGE
MANDRIN HYDRAULIQUE PINCE DE SERRAGE
MANDRINI IDRAULICI PINZA DI SERRAGGIO
PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



Unit : mm

MODEL No.		EDP No.	d	D1	D2	L	L2
HK12	3	P2569022	3	12	19	47	2
	4	P2569023	4	12	19	47	2
	5	P2569024	5	12	19	47	2
	6	P2569025	6	12	19	47	2
	7	P2771001	7	12	19	47	2
	8	P2569026	8	12	19	47	2
HK20	3	P2569001	3	20	27	52.5	2
	4	P2569002	4	20	27	52.5	2
	5	P2569003	5	20	27	52.5	2
	6	P2569004	6	20	27	52.5	2
	7	P2771002	7	20	27	52.5	2
	8	P2569005	8	20	27	52.5	2
	9	P2771003	9	20	27	52.5	2
	10	P2569006	10	20	27	52.5	2
	11	P2771004	11	20	27	52.5	2
	12	P2569007	12	20	27	52.5	2
	13	P2771005	13	20	27	52.5	2
	14	P2569008	14	20	27	52.5	2
	15	P2771006	15	20	27	52.5	2
	16	P2569009	16	20	27	52.5	2
HK32	6	P2569010	6	32	39	63.5	3
	8	P2569011	8	32	39	63.5	3
	10	P2569012	10	32	39	63.5	3
	12	P2569013	12	32	39	63.5	3
	14	P2569014	14	32	39	63.5	3
	16	P2569015	16	32	39	63.5	3
	18	P2569016	18	32	39	63.5	3
	20	P2569017	20	32	39	63.5	3
	25	P2569018	25	32	39	63.5	3

▶ Inch type products are available.
▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

Feature HK Hydraulic Chuck collet (reduction sleeve) is cut into trisection by high precision cutting to guarantee precise I.D and strong clamping power.

Chucking Method Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

TOOLING SYSTEM

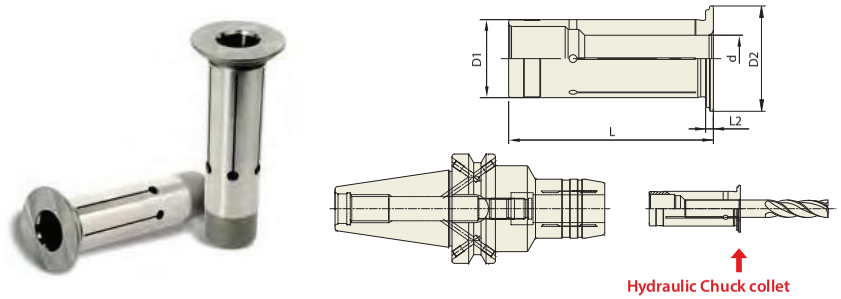
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK

HS

HYDRAULIC CHUCK COLLET (Reduction Sleeve : Closed Type)

HYDRAULIK SPANNFUTTER SPANNZANGE
MANDRIN HYDRAULIQUE PINCE DE SERRAGE
MANDRINI IDRAULICI PINZA DI SERRAGGIO
PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



Unit : mm

MODEL No.		EDP No.	d	D1	D2	L	L2
HS12	3	P2771101	3	12	19	47	2
	4	P2771102	4	12	19	47	2
	5	P2771103	5	12	19	47	2
	6	P2771104	6	12	19	47	2
	7	P2771105	7	12	19	47	2
	8	P2771106	8	12	19	47	2
HS20	3	P2771107	3	20	27	52.5	2
	4	P2771108	4	20	27	52.5	2
	5	P2771109	5	20	27	52.5	2
	6	P2771110	6	20	27	52.5	2
	7	P2771111	7	20	27	52.5	2
	8	P2771112	8	20	27	52.5	2
	9	P2771113	9	20	27	52.5	2
	10	P2771114	10	20	27	52.5	2
	11	P2771115	11	20	27	52.5	2
	12	P2771116	12	20	27	52.5	2
	13	P2771117	13	20	27	52.5	2
	14	P2771118	14	20	27	52.5	2
	15	P2771119	15	20	27	52.5	2
	16	P2771120	16	20	27	52.5	2
	17	P2771130	17	20	27	52.5	2
HS32	6	P2771121	6	32	39	63.5	3
	8	P2771122	8	32	39	63.5	3
	10	P2771123	10	32	39	63.5	3
	12	P2771124	12	32	39	63.5	3
	14	P2771125	14	32	39	63.5	3
	16	P2771126	16	32	39	63.5	3
	18	P2771127	18	32	39	63.5	3
	20	P2771128	20	32	39	63.5	3
	25	P2771129	25	32	39	63.5	3

▶ Inch type products are available.
▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

Feature HS Hydraulic Chuck collet (reduction sleeve) is cut by high precision wire-cutting to guarantee precise I.D and strong clamping power.

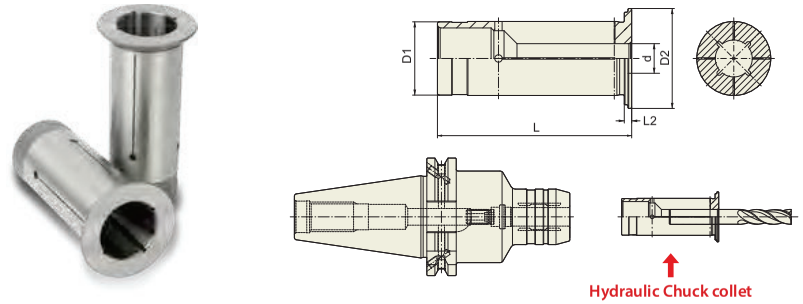
Chucking Method Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

HYDRAULIC CHUCK

HF

HYDRAULIC CHUCK COLLET (Reduction Sleeve : Coolant Flush Type)

HYDRAULIK SPANNFUTTER SPANNZANGE
MANDRIN HYDRAULIQUE PINCE DE SERRAGE
MANDRINI IDRAULICI PINZA DI SERRAGGIO
PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



Unit : mm

MODEL No.		EDP No.	d	D1	D2	L	L2
HF12	3	P2771201	3	12	19	47	2
	4	P2771202	4	12	19	47	2
	5	P2771203	5	12	19	47	2
	6	P2771204	6	12	19	47	2
	7	P2771205	7	12	19	47	2
	8	P2771206	8	12	19	47	2
HF20	3	P2771207	3	20	27	52.5	2
	4	P2771208	4	20	27	52.5	2
	5	P2771209	5	20	27	52.5	2
	6	P2771210	6	20	27	52.5	2
	7	P2771211	7	20	27	52.5	2
	8	P2771212	8	20	27	52.5	2
	9	P2771213	9	20	27	52.5	2
	10	P2771214	10	20	27	52.5	2
	11	P2771215	11	20	27	52.5	2
	12	P2771216	12	20	27	52.5	2
	13	P2771217	13	20	27	52.5	2
	14	P2771218	14	20	27	52.5	2
	15	P2771219	15	20	27	52.5	2
	16	P2771220	16	20	27	52.5	2
HF32	6	P2771221	6	32	39	63.5	3
	8	P2771222	8	32	39	63.5	3
	10	P2771223	10	32	39	63.5	3
	12	P2771224	12	32	39	63.5	3
	14	P2771225	14	32	39	63.5	3
	16	P2771226	16	32	39	63.5	3
	18	P2771227	18	32	39	63.5	3
	20	P2771228	20	32	39	63.5	3
	25	P2771229	25	32	39	63.5	3

▶ Inch type products are available.
▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

Feature HF Hydraulic Chuck collet (reduction sleeve) is for internal coolant flush.

Chucking Method Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

TOOLING SYSTEM

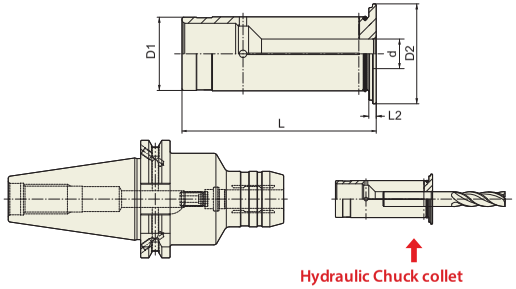
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK

HR

HYDRAULIC CHUCK COLLET (Reduction Sleeve : for High Pressure Coolant)

HYDRAULIK SPANNFUTTER SPANNZANGE
MANDRIN HYDRAULIQUE PINCE DE SERRAGE
MANDRINI IDRAULICI PINZA DI SERRAGGIO
PORTAHERRAMIENTAS HIDRAULICO PINZA PORTAPIEZAS



Unit : mm

MODEL No.		EDP No.	d	D1	D2	L	L2
HR12	3	P2777601	3	12	19	47	2
	4	P2777602	4	12	19	47	2
	5	P2777603	5	12	19	47	2
	6	P2777604	6	12	19	47	2
	7	P2777605	7	12	19	47	2
	8	P2777606	8	12	19	47	2
HR20	3	P2777607	3	20	27	52.5	2
	4	P2777608	4	20	27	52.5	2
	5	P2777609	5	20	27	52.5	2
	6	P2777610	6	20	27	52.5	2
	7	P2777611	7	20	27	52.5	2
	8	P2777612	8	20	27	52.5	2
	9	P2777613	9	20	27	52.5	2
	10	P2777614	10	20	27	52.5	2
	11	P2777615	11	20	27	52.5	2
	12	P2777616	12	20	27	52.5	2
	13	P2777617	13	20	27	52.5	2
	14	P2777618	14	20	27	52.5	2
	15	P2777619	15	20	27	52.5	2
	16	P2777620	16	20	27	52.5	2
HR32	6	P2777621	6	32	39	63.5	3
	8	P2777622	8	32	39	63.5	3
	10	P2777623	10	32	39	63.5	3
	12	P2777624	12	32	39	63.5	3
	14	P2777625	14	32	39	63.5	3
	16	P2777626	16	32	39	63.5	3
	18	P2777627	18	32	39	63.5	3
	20	P2777628	20	32	39	63.5	3
	25	P2777629	25	32	39	63.5	3

▶ Inch type products are available.
▶ Other special sizes of Hydraulic Chuck collets could be produced and supplied.

Feature HR Hydraulic Chuck collet (reduction sleeve) is for high pressure coolant supply.

Chucking Method Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

YG-1 TOOLING SYSTEM

SHRINK FIT HOLDER

- SCHRUMPFFUTTER
- MANDRIN DE FRETTAGE
- MADRINI PER CALLETAMENTO A CALDO
- PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

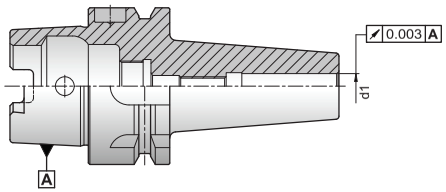
JIS B6339/MAS 403-BT

ISO 25

STRAIGHT (EXTENSION)

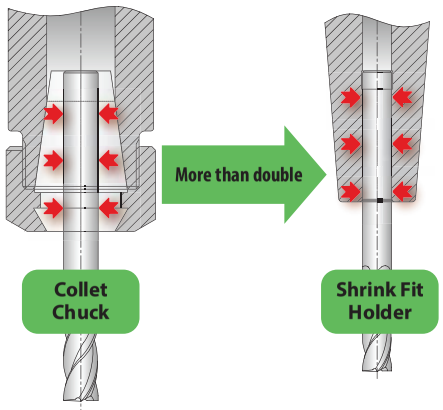
SHRINK FIT HEATING MACHINE

High Precision I.D Run-out : ≤ 0.003mm



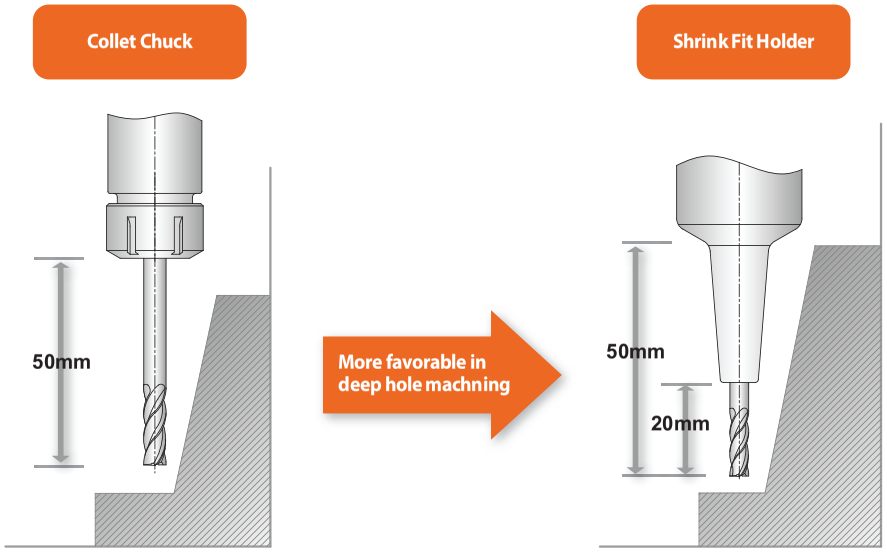
• Less than 0.003mm of Tool Holder accuracy at I.D

Strong and Consistent Torque Power



• Achieving strong torque power by integration of chuck and tool

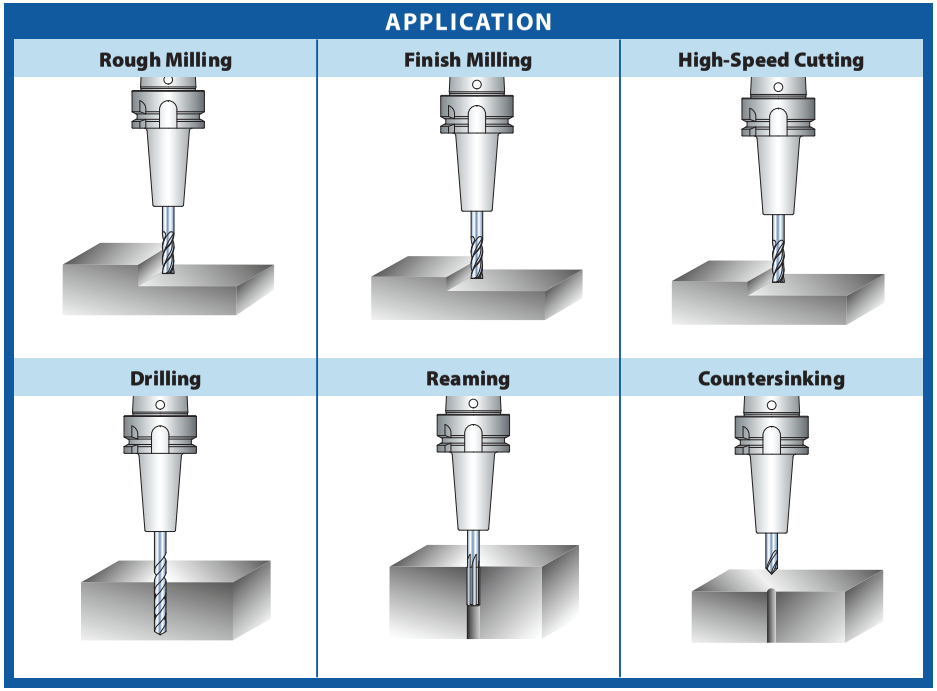
Deep hole Machining



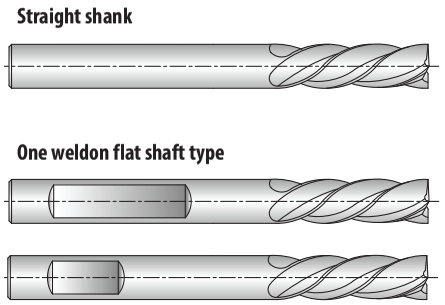
• Suitable for High-Speed precision deep hole machining

TECHNICAL INFORMATION
SHRINK FIT HOLDER

APPLICATION

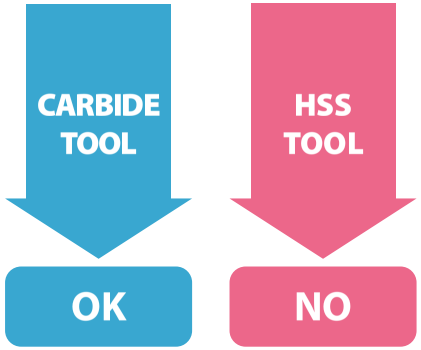


Shank Type of Cutting Tool



• One Weldon flat shaft type tool is usable, but there is a possibility that the I.D of shrink fit holder may be deformed.

Material of Cutting Tool



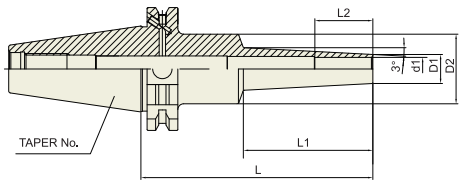
SHRINK FIT HOLDER

SFHS

SHRINK FIT HOLDER (EXTRA SLIM)

DIN 69871-SK

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	SK30-SFHS3-60	P2771332S	3	6	20	60	22	9	-
	SK30-SFHS3-80	P2771333S	3	6	20	80	42	9	-
	SK30-SFHS4-60	P2771334S	4	7	20	60	22	12	-
	SK30-SFHS4-80	P2771335S	4	7	20	80	42	12	-
	SK30-SFHS6-60	P2771336S	6	9	20	60	22	18	-
	SK30-SFHS6-80	P2771337S	6	9	20	80	42	18	-
40	SK40AD/B-SFHS3-95	P2771338S	3	6	26	95	42	9	0.89
	SK40AD/B-SFHS3-120	P2771339S	3	6	26	120	67	9	0.91
	SK40AD/B-SFHS4-95	P2771340S	4	7	26	95	42	12	0.90
	SK40AD/B-SFHS4-120	P2771341S	4	7	26	120	67	12	0.92
	SK40AD/B-SFHS6-95	P2771342S	6	9	26	95	42	18	0.90
	SK40AD/B-SFHS6-120	P2771343S	6	9	26	120	67	18	0.93
	SK40AD/B-SFHS8-95	P2771344S	8	11	36	95	42	24	0.90
	SK40AD/B-SFHS8-120	P2771345S	8	11	36	120	67	24	1.01
	SK40AD/B-SFHS10-95	P2771346S	10	13	36	95	42	30	0.91
	SK40AD/B-SFHS10-120	P2771347S	10	13	36	120	67	30	1.02
	SK40AD/B-SFHS12-95	P2771348S	12	15	36	95	42	30	0.99
	SK40AD/B-SFHS12-120	P2771349S	12	15	36	120	67	30	1.02
50	SK50AD/B-SFHS3-110	P2771350S	3	6	26	110	42	9	2.77
	SK50AD/B-SFHS3-160	P2771351S	3	6	26	160	97	9	2.79
	SK50AD/B-SFHS4-110	P2771352S	4	7	26	110	42	12	2.75
	SK50AD/B-SFHS4-160	P2771353S	4	7	26	160	97	12	2.80
	SK50AD/B-SFHS6-110	P2771354S	6	9	26	110	42	18	2.74
	SK50AD/B-SFHS6-160	P2771355S	6	9	26	160	97	18	2.85
	SK50AD/B-SFHS8-110	P2771356S	8	11	36	110	42	24	2.84
	SK50AD/B-SFHS8-160	P2771357S	8	11	36	160	97	24	2.92
	SK50AD/B-SFHS10-110	P2771358S	10	13	36	110	42	30	2.85
	SK50AD/B-SFHS10-160	P2771359S	10	13	36	160	97	30	2.93
	SK50AD/B-SFHS12-110	P2771360S	12	15	36	110	42	30	2.85
	SK50AD/B-SFHS12-160	P2771361S	12	15	36	160	97	30	2.96

▶ CAT(ANSI B5.50) taper and Inch type products are available.

SHRINK FIT HOLDER

SFH

SHRINK FIT HOLDER

DIN 69871-SK

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

FIG.1

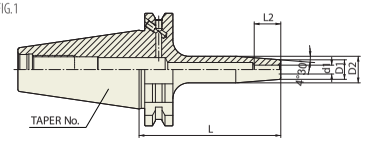
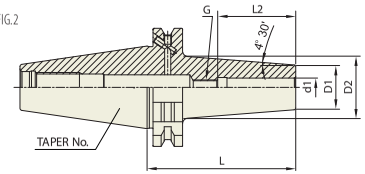


FIG.2



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
30	SK30AD/B-SFH3-60	P2771308	3	11	15	60	10	-	1	0.40
	SK30AD/B-SFH4-60	P2771309	4	11	15	60	12	-	1	0.40
	SK30AD/B-SFH5-60	P2771310	5	11	15	60	15	-	1	0.40
	SK30AD/B-SFH6-60	P2771311	6	21	27	60	36	M5×0.8	2	0.40
	SK30AD/B-SFH8-60	P2771312	8	21	27	60	36	M6×1.0	2	0.40
	SK30AD/B-SFH10-80	P2771313	10	24	32	80	42	M8×1.0	2	0.40
	SK30AD/B-SFH12-80	P2771314	12	24	32	80	47	M10×1.0	2	0.42
	SK30AD/B-SFH14-80	P2771315	14	27	34	80	47	M10×1.0	2	-
	SK30AD/B-SFH16-80	P2771316	16	27	34	80	50	M12×1.0	2	0.42
	SK30AD/B-SFH18-80	P2771317	18	33	42	80	50	M12×1.0	2	-
	SK30AD/B-SFH20-90	P2771318	20	33	42	90	52	M16×1.0	2	0.44
40	SK40AD/B-SFH3-80	P2771301	3	11	15	80	10	-	1	1.00
	SK40AD/B-SFH4-80	P2771302	4	11	15	80	12	-	1	1.00
	SK40AD/B-SFH5-80	P2771303	5	11	15	80	15	-	1	1.00
	SK40AD/B-SFH6-80	P2554058	6	21	27	80	36	M5×0.8	2	1.10
	SK40AD/B-SFH6-160	P2771304	6	21	27	160	36	M5×0.8	2	1.15
	SK40AD/B-SFH8-80	P2600009	8	21	27	80	36	M6×1.0	2	1.11
	SK40AD/B-SFH8-160	P2771305	8	21	27	160	36	M6×1.0	2	1.15
	SK40AD/B-SFH10-80	P2554052	10	24	32	80	42	M8×1.0	2	1.10
	SK40AD/B-SFH10-160	P2771306	10	24	32	160	42	M8×1.0	2	1.15
	SK40AD/B-SFH12-80	P2600008	12	24	32	80	47	M10×1.0	2	1.10
	SK40AD/B-SFH12-160	P2771307	12	24	32	160	47	M10×1.0	2	1.15
	SK40AD/B-SFH14-80	P2771319	14	27	34	80	47	M10×1.0	2	1.20
	SK40AD/B-SFH14-160	P2771320	14	27	34	160	47	M10×1.0	2	1.50
	SK40AD/B-SFH16-80	P2554054	16	27	34	80	50	M12×1.0	2	1.20
	SK40AD/B-SFH16-160	P2554053	16	27	34	160	50	M12×1.0	2	1.50
	SK40AD/B-SFH18-80	P2771321	18	33	42	80	50	M12×1.0	2	1.30
	SK40AD/B-SFH18-160	P2771322	18	33	42	160	50	M12×1.0	2	1.60
	SK40AD/B-SFH20-80	P2554056	20	33	42	80	52	M16×1.0	2	1.40
	SK40AD/B-SFH20-160	P2554055	20	33	42	160	52	M16×1.0	2	1.70
	SK40AD/B-SFH25-90	P2771323	25	44	53	90	58	M16×1.0	2	1.70
	SK40AD/B-SFH25-160	P2771324	25	44	53	160	58	M16×1.0	2	2.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.

▶ NEXT PAGE

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHRINK FIT HOLDER

DIN 69871-SK

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

FIG.1

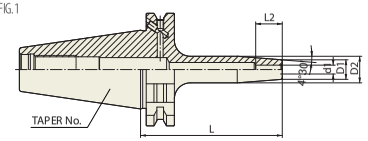
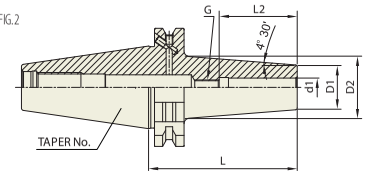


FIG.2



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
50	SK50AD/B-SFH3-80	P2771325	3	11	15	100	10	-	1	1.50
	SK50AD/B-SFH4-80	P2771326	4	11	15	100	12	-	1	1.50
	SK50AD/B-SFH5-80	P2771327	5	11	15	100	15	-	1	1.50
	SK50AD/B-SFH6-80	P2771328	6	21	27	80	36	M5×0.8	2	1.50
	SK50AD/B-SFH6-160	P2771329	6	21	27	160	36	M5×0.8	2	2.00
	SK50AD/B-SFH8-80	P2760010	8	21	27	80	36	M6×1.0	2	1.50
	SK50AD/B-SFH8-160	P2760015	8	21	27	160	36	M6×1.0	2	2.00
	SK50AD/B-SFH10-80	P2761010	10	24	32	80	42	M8×1.0	2	1.50
	SK50AD/B-SFH10-160	P2761015	10	24	32	160	42	M8×1.0	2	2.00
	SK50AD/B-SFH12-80	P2762010	12	24	32	80	47	M10×1.0	2	1.50
	SK50AD/B-SFH12-160	P2762015	12	24	32	160	47	M10×1.0	2	2.00
	SK50AD/B-SFH14-80	P2763010	14	27	34	80	47	M10×1.0	2	1.60
	SK50AD/B-SFH14-160	P2763015	14	27	34	160	47	M10×1.0	2	2.10
	SK50AD/B-SFH16-80	P2764010	16	27	34	80	50	M12×1.0	2	1.60
	SK50AD/B-SFH16-160	P2764015	16	27	34	160	50	M12×1.0	2	2.10
	SK50AD/B-SFH18-80	P2765010	18	33	42	80	50	M12×1.0	2	1.60
	SK50AD/B-SFH18-160	P2765015	18	33	42	160	50	M12×1.0	2	2.00
	SK50AD/B-SFH20-80	P2766010	20	33	42	80	52	M16×1.0	2	1.80
	SK50AD/B-SFH20-160	P2766015	20	33	42	160	52	M16×1.0	2	2.20
	SK50AD/B-SFH25-90	P2771330	25	44	53	90	58	M16×1.0	2	2.00
	SK50AD/B-SFH25-160	P2771331	25	44	53	160	58	M16×1.0	2	2.40

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.

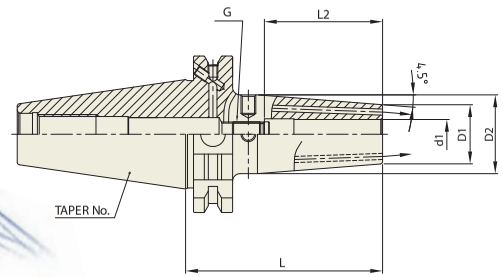
SHRINK FIT HOLDER

SFH

SHRINK FIT HOLDER (COOLANT CHANNEL)

DIN 69871-SK

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
40	SK40AD/B-SFH6C-80	P2801301C	6	21	27	80	36	M5x0.8	1.10
	SK40AD/B-SFH6C-160	P2801302C	6	21	27	160	36	M5x0.8	1.15
	SK40AD/B-SFH8C-80	P2801303C	8	21	27	80	36	M6x1.0	1.11
	SK40AD/B-SFH8C-160	P2801304C	8	21	27	160	36	M6x1.0	1.15
	SK40AD/B-SFH10C-80	P2801305C	10	24	32	80	42	M8x1.0	1.10
	SK40AD/B-SFH10C-160	P2801306C	10	24	32	160	42	M8x1.0	1.15
	SK40AD/B-SFH12C-80	P2801307C	12	24	32	80	47	M10x1.0	1.10
	SK40AD/B-SFH12C-160	P2801308C	12	24	32	160	47	M10x1.0	1.15
	SK40AD/B-SFH14C-80	P2801309C	14	27	34	80	47	M10x1.0	1.20
	SK40AD/B-SFH14C-160	P2801310C	14	27	34	160	47	M10x1.0	1.50
	SK40AD/B-SFH16C-80	P2801311C	16	27	34	80	50	M12x1.0	1.20
	SK40AD/B-SFH16C-160	P2801312C	16	27	34	160	50	M12x1.0	1.50
	SK40AD/B-SFH18C-80	P2801313C	18	33	42	80	50	M12x1.0	1.30
	SK40AD/B-SFH18C-160	P2801314C	18	33	42	160	50	M12x1.0	1.60
	SK40AD/B-SFH20C-80	P2801315C	20	33	42	80	52	M16x1.0	1.40
	SK40AD/B-SFH20C-160	P2801316C	20	33	42	160	52	M16x1.0	1.70
	SK40AD/B-SFH25C-90	P2801317C	25	44	53	90	58	M16x1.0	1.70
	SK40AD/B-SFH25C-160	P2801318C	25	44	53	160	58	M16x1.0	2.00
50	SK50AD/B-SFH6C-80	P2801319C	6	21	27	80	36	M5x0.8	1.50
	SK50AD/B-SFH6C-160	P2801320C	6	21	27	160	36	M5x0.8	2.00
	SK50AD/B-SFH8C-80	P2801321C	8	21	27	80	36	M6x1.0	1.50
	SK50AD/B-SFH8C-160	P2801322C	8	21	27	160	36	M6x1.0	2.00
	SK50AD/B-SFH10C-80	P2801323C	10	24	32	80	42	M8x1.0	1.50
	SK50AD/B-SFH10C-160	P2801324C	10	24	32	160	42	M8x1.0	2.00
	SK50AD/B-SFH12C-80	P2801325C	12	24	32	80	47	M10x1.0	1.60
	SK50AD/B-SFH12C-160	P2801326C	12	24	32	160	47	M10x1.0	2.10
	SK50AD/B-SFH14C-80	P2801327C	14	27	34	80	47	M10x1.0	1.60
	SK50AD/B-SFH14C-160	P2801328C	14	27	34	160	47	M10x1.0	2.10
	SK50AD/B-SFH16C-80	P2801329C	16	27	34	80	50	M12x1.0	1.60
	SK50AD/B-SFH16C-160	P2801330C	16	27	34	160	50	M12x1.0	2.10
	SK50AD/B-SFH18C-80	P2801331C	18	33	42	80	50	M12x1.0	1.60
	SK50AD/B-SFH18C-160	P2801332C	18	33	42	160	50	M12x1.0	2.00
	SK50AD/B-SFH20C-80	P2801333C	20	33	42	80	52	M16x1.0	1.80
	SK50AD/B-SFH20C-160	P2801334C	20	33	42	160	52	M16x1.0	2.20
	SK50AD/B-SFH25C-90	P2801335C	25	44	53	90	58	M16x1.0	2.00
	SK50AD/B-SFH25C-160	P2801336C	25	44	53	160	58	M16x1.0	2.40

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.
▶ Resealable Coolant Channel type is available upon request.

TOOLING SYSTEM
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

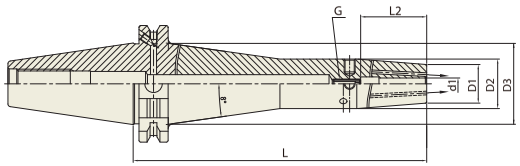
SHRINK FIT HOLDER

SFH

SHRINK FIT HOLDER (REINFORCED)

DIN 69871-SK

SCHRUMPFFUTTER (VERSTÄRKT)
MANDRIN DE FRETTAGE (RENFORCÉ)
MADRINI PER CALLETAMENTO A CALDO (RINFORZATO)
PORTAHERRAMIENTAS DE COMPRESION POR CALOR (REFORZADO)



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	WEIGHT (kg)
40	SK40AD/B-SFH6CTW-160	P2801401TW	6	21	27	44.1	160	36	M5x0.8	1.56
	SK40AD/B-SFH8CTW-160	P2801402TW	8	21	27	44.1	160	36	M6x1.0	1.56
	SK40AD/B-SFH10CTW-160	P2801403TW	10	24	32	49.1	160	42	M8x1.0	1.78
	SK40AD/B-SFH12CTW-160	P2801404TW	12	24	32	49.1	160	47	M10x1.0	1.77
	SK40AD/B-SFH14CTW-160	P2801405TW	14	27	34	51.1	160	47	M10x1.0	1.74
	SK40AD/B-SFH16CTW-160	P2801406TW	16	27	34	51.1	160	50	M12x1.0	1.72
50	SK50AD/B-SFH6CTW-160	P2801407TW	6	21	27	44.1	160	36	M5x0.8	3.32
	SK50AD/B-SFH8CTW-160	P2801408TW	8	21	27	44.1	160	36	M6x1.0	3.32
	SK50AD/B-SFH10CTW-160	P2801409TW	10	24	32	49.1	160	42	M8x1.0	3.54
	SK50AD/B-SFH12CTW-160	P2801410TW	12	24	32	49.1	160	47	M10x1.0	3.54
	SK50AD/B-SFH14CTW-160	P2801411TW	14	27	34	51.1	160	47	M10x1.0	3.50
	SK50AD/B-SFH16CTW-160	P2801412TW	16	27	34	51.1	160	50	M12x1.0	3.48
	SK50AD/B-SFH20CTW-160	P2801413TW	20	33	42	59.1	160	52	M16x1.0	3.88

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.

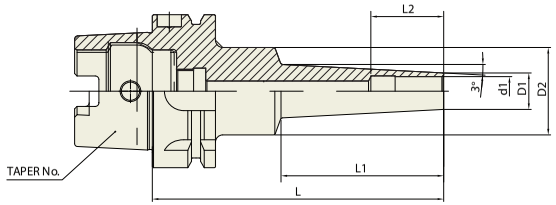
SHRINK FIT HOLDER

SFHS

SHRINK FIT HOLDER (EXTRA SLIM)

DIN 69893/ ISO 12164-1-HSK FORM A

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
40A	HSK40A-SFHS3-60	P2779801S	3	6	20	60	22	9	-
	HSK40A-SFHS3-90	P2779802S	3	6	20	80	42	9	-
	HSK40A-SFHS4-60	P2779803S	4	7	20	60	22	12	-
	HSK40A-SFHS4-90	P2779804S	4	7	20	80	42	12	-
	HSK40A-SFHS6-60	P2779805S	6	9	20	60	22	18	-
	HSK40A-SFHS6-90	P2779806S	6	9	20	80	42	18	-
50A	HSK50A-SFHS3-95	P2779807S	3	6	26	95	42	9	-
	HSK50A-SFHS3-120	P2779808S	3	6	26	120	67	9	-
	HSK50A-SFHS4-95	P2779809S	4	7	26	95	42	12	-
	HSK50A-SFHS4-120	P2779810S	4	7	26	120	67	12	-
	HSK50A-SFHS6-95	P2779811S	6	9	26	95	42	18	-
	HSK50A-SFHS6-120	P2779812S	6	9	26	120	67	18	-
	HSK50A-SFHS8-95	P2779813S	8	11	36	95	42	24	-
	HSK50A-SFHS8-120	P2779814S	8	11	36	120	67	24	-
	HSK50A-SFHS10-95	P2779815S	10	13	36	95	42	30	-
	HSK50A-SFHS10-120	P2779816S	10	13	36	120	67	30	-
63A	HSK63A-SFHS3-95	P2779817S	3	6	26	95	42	9	0.75
	HSK63A-SFHS3-120	P2779818S	3	6	26	120	67	9	0.77
	HSK63A-SFHS4-95	P2779819S	4	7	26	95	42	12	0.75
	HSK63A-SFHS4-120	P2779820S	4	7	26	120	67	12	0.78
	HSK63A-SFHS6-95	P2779821S	6	9	26	95	42	18	0.76
	HSK63A-SFHS6-120	P2779822S	6	9	26	120	97	18	0.78
	HSK63A-SFHS8-95	P2779823S	8	11	36	95	42	24	0.75
	HSK63A-SFHS8-160	P2779824S	8	11	36	160	97	24	0.97
	HSK63A-SFHS10-95	P2779825S	10	13	36	95	42	30	0.76
	HSK63A-SFHS10-160	P2779826S	10	13	36	160	97	30	1.00
	HSK63A-SFHS12-95	P2779827S	12	15	36	95	42	30	0.83
	HSK63A-SFHS12-160	P2779828S	12	15	36	160	97	30	1.04
100A	HSK100A-SFHS3-95	P2779829S	3	6	26	95	42	9	2.12
	HSK100A-SFHS3-120	P2779830S	3	6	26	120	67	9	2.14
	HSK100A-SFHS4-95	P2779831S	4	7	26	95	42	12	2.12
	HSK100A-SFHS4-120	P2779832S	4	7	26	120	67	12	2.14
	HSK100A-SFHS6-95	P2779833S	6	9	26	95	42	18	2.12
	HSK100A-SFHS6-120	P2779834S	6	9	26	120	67	18	2.15
	HSK100A-SFHS8-95	P2779835S	8	11	36	95	42	24	2.18
	HSK100A-SFHS8-160	P2779836S	8	11	36	160	97	24	2.33
	HSK100A-SFHS10-95	P2779837S	10	13	36	95	42	30	2.19
	HSK100A-SFHS10-160	P2779838S	10	13	36	160	97	30	2.34
	HSK100A-SFHS12-95	P2779839S	12	15	36	95	42	30	2.20
	HSK100A-SFHS12-160	P2779840S	12	15	36	160	97	30	2.38

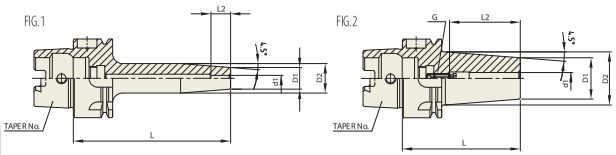
▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHRINK FIT HOLDER

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/ ISO 12164-1-HSK FORM A



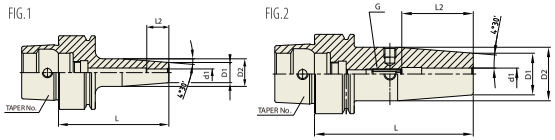
DIN 69893-HSK | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
40A	HSK40A-SFH3-60	P2771408	3	11	15	60	10	-	1	0.30
	HSK40A-SFH3-80	P2771409	3	11	15	80	10	-	1	0.40
	HSK40A-SFH4-60	P2771410	4	11	15	60	12	-	1	0.30
	HSK40A-SFH4-80	P2771411	4	11	15	80	12	-	1	0.40
	HSK40A-SFH5-60	P2771412	5	11	15	60	15	-	1	0.30
	HSK40A-SFH5-80	P2771413	5	11	15	80	15	-	1	0.40
	HSK40A-SFH6-60	P2771414	6	21	27	60	36	M5×0.8	2	0.40
	HSK40A-SFH6-80	P2771415	6	21	27	80	36	M5×0.8	2	0.50
	HSK40A-SFH8-70	P2771416	8	21	27	70	36	M6×1.0	2	0.40
	HSK40A-SFH8-90	P2771417	8	21	27	90	36	M6×1.0	2	0.50
	HSK40A-SFH10-70	P2771418	10	24	32	70	42	M8×1.0	2	0.50
	HSK40A-SFH10-90	P2771419	10	24	32	90	42	M8×1.0	2	0.60

▶ Without balancing screw.

DIN 69893/ ISO 12164-1-HSK FORM E



DIN 69893-HSK | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
25E	HSK25E-SFH3-45	P2771420	3	11	15	45	10	-	1	-
	HSK25E-SFH4-45	P2771421	4	11	15	45	12	-	1	-
	HSK25E-SFH5-45	P2771422	5	11	15	45	15	-	1	-
	HSK25E-SFH6-45	P2771423	6	12	17	45	18	-	1	-
	HSK25E-SFH8-45	P2771424	8	14	18	45	30	-	1	-
	HSK25E-SFH10-50	P2771425	10	16	20	50	37	-	1	-
32E	HSK32E-SFH3-60	P2771426	3	11	15	60	10	-	1	-
	HSK32E-SFH4-60	P2771427	4	11	15	60	12	-	1	-
	HSK32E-SFH5-60	P2771428	5	11	15	60	15	-	1	-
	HSK32E-SFH6-70	P2771429	6	12	17	70	18	-	1	-
	HSK32E-SFH8-70	P2771430	8	14	18	70	30	-	1	-
	HSK32E-SFH10-80	P2771431	10	16	20	80	37	-	1	-
40E	HSK40E-SFH3-60	P2771432	3	11	15	60	10	-	1	0.30
	HSK40E-SFH3-80	P2771433	3	11	15	80	10	-	1	0.40
	HSK40E-SFH4-60	P2771434	4	11	15	60	12	-	1	0.30
	HSK40E-SFH4-80	P2771435	4	11	15	80	12	-	1	0.40
	HSK40E-SFH5-60	P2771436	5	11	15	60	15	-	1	0.30
	HSK40E-SFH5-80	P2771437	5	11	15	80	15	-	1	0.40
	HSK40E-SFH6-60	P2771438	6	21	27	60	36	M5×0.8	2	0.40
	HSK40E-SFH6-80	P2771439	6	21	27	80	36	M5×0.8	2	0.50
	HSK40E-SFH8-70	P2771440	8	21	27	70	36	M6×1.0	2	0.40
	HSK40E-SFH8-90	P2771441	8	21	27	90	36	M6×1.0	2	0.50
	HSK40E-SFH10-70	P2771442	10	24	32	70	42	M8×1.0	2	0.50
	HSK40E-SFH10-90	P2771443	10	24	32	90	42	M8×1.0	2	0.60

▶ Without balancing screw.

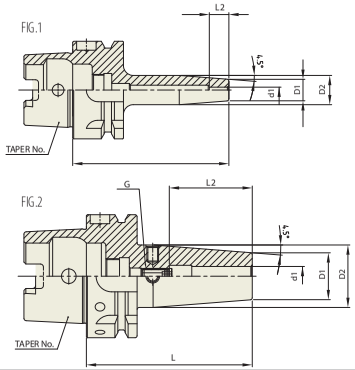
SHRINK FIT HOLDER

SFH

SHRINK FIT HOLDER

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
50A	HSK50A-SFH3-80	P2771444	3	11	15	80	10	-	1	0.54
	HSK50A-SFH4-80	P2771445	4	11	15	80	12	-	1	0.55
	HSK50A-SFH5-80	P2771446	5	11	15	80	15	-	1	0.56
	HSK50A-SFH6-80	P2776901	6	21	27	80	36	M5×0.8	2	0.57
	HSK50A-SFH8-80	P2771447	8	21	27	80	36	M6×1.0	2	0.58
	HSK50A-SFH10-85	P2771448	10	24	32	85	42	M8×1.0	2	0.65
	HSK50A-SFH12-90	P2771449	12	24	32	90	47	M10×1.0	2	0.67
	HSK50A-SFH14-90	P2771450	14	27	34	90	47	M10×1.0	2	0.72
	HSK50A-SFH16-95	P2771451	16	27	34	95	50	M12×1.0	2	0.73
	HSK50A-SFH18-95	P2771452	18	33	42	95	50	M12×1.0	2	0.90
	HSK50A-SFH20-100	P2771453	20	33	42	100	52	M16×1.0	2	0.92
63A	HSK63A-SFH3-80	P2771401	3	11	15	80	10	-	1	0.70
	HSK63A-SFH4-80	P2771402	4	11	15	80	12	-	1	0.70
	HSK63A-SFH5-80	P2771403	5	11	15	80	15	-	1	0.70
	HSK63A-SFH6-80	P2565057	6	21	27	80	36	M5×0.8	2	0.83
	HSK63A-SFH6-160	P2771404	6	21	27	160	36	M5×0.8	2	1.00
	HSK63A-SFH8-80	P2600007	8	21	27	80	36	M6×1.0	2	0.83
	HSK63A-SFH8-160	P2771405	8	21	27	160	36	M6×1.0	2	1.00
	HSK63A-SFH10-85	P2565052	10	24	32	85	42	M8×1.0	2	0.83
	HSK63A-SFH10-160	P2771406	10	24	32	160	42	M8×1.0	2	1.00
	HSK63A-SFH12-90	P2600003	12	24	32	90	47	M10×1.0	2	0.83
	HSK63A-SFH12-160	P2771407	12	24	32	160	47	M10×1.0	2	1.00
	HSK63A-SFH14-90	P2771454	14	27	34	90	47	M10×1.0	2	0.91
	HSK63A-SFH14-160	P2771455	14	27	34	160	47	M10×1.0	2	1.30
	HSK63A-SFH16-95	P2565054	16	27	34	95	50	M12×1.0	2	0.98
	HSK63A-SFH16-160	P2565053	16	27	34	160	50	M12×1.0	2	1.40
	HSK63A-SFH18-95	P2771456	18	33	42	95	50	M12×1.0	2	0.98
	HSK63A-SFH18-160	P2771457	18	33	42	160	50	M12×1.0	2	1.40
	HSK63A-SFH20-100	P2600005	20	33	42	100	52	M16×1.0	2	1.00
	HSK63A-SFH20-160	P2565055	20	33	42	160	52	M16×1.0	2	1.40
	HSK63A-SFH25-115	P2771458	25	44	53	115	58	M16×1.0	2	1.40
	HSK63A-SFH25-160	P2771459	25	44	53	160	58	M16×1.0	2	1.80

▶ Without balancing screw.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHRINK FIT HOLDER

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/
ISO 12164-1-HSK FORM A

FIG.1

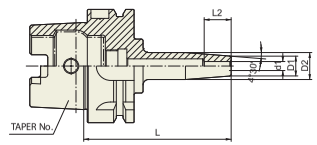
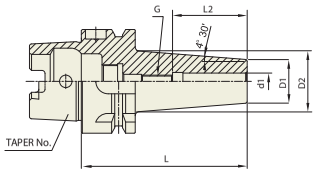


FIG.2



DIN 69893-HSK | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

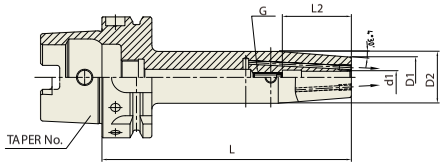
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
80A	HSK80A-SFH6-85	P2771460	6	21	27	85	36	M5x0.8	1	
	HSK80A-SFH8-85	P2771461	8	21	27	85	36	M6x1.0	1	
	HSK80A-SFH10-90	P2771462	10	24	32	90	41	M8x1.0	2	
	HSK80A-SFH12-95	P2771463	12	24	32	95	46	M10x1.0	2	
	HSK80A-SFH14-95	P2771464	14	27	34	95	46	M10x1.0	2	
	HSK80A-SFH16-100	P2771465	16	27	34	100	49	M12x1.0	2	
	HSK80A-SFH18-100	P2771466	18	33	42	100	49	M12x1.0	2	
	HSK80A-SFH20-105	P2771467	20	33	42	105	51	M16x1.0	2	
	HSK80A-SFH25-115	P2771468	25	44	53	115	57	M16x1.0	2	
100A	HSK100A-SFH3-85	P2771469	3	11	15	85	10	-	1	1.30
	HSK100A-SFH4-85	P2771470	4	11	15	85	12	-	1	1.30
	HSK100A-SFH5-85	P2771471	5	11	15	85	15	-	1	1.30
	HSK100A-SFH6-85	P2777301	6	21	27	85	36	M5×0.8	1	1.30
	HSK100A-SFH6-160	P2771472	6	21	27	160	36	M5×0.8	1	1.80
	HSK100A-SFH8-85	P2777302	8	21	27	85	36	M6×1.0	1	1.30
	HSK100A-SFH8-160	P2771473	8	21	27	160	36	M6×1.0	1	1.80
	HSK100A-SFH10-90	P2777303	10	24	32	90	42	M8×1.0	1	1.30
	HSK100A-SFH10-160	P2771474	10	24	32	160	42	M8×1.0	1	1.80
	HSK100A-SFH12-95	P2777304	12	24	32	95	47	M10×1.0	1	1.30
	HSK100A-SFH12-160	P2771475	12	24	32	160	47	M10×1.0	1	1.80
	HSK100A-SFH14-95	P2771476	14	27	34	95	47	M10×1.0	1	1.40
	HSK100A-SFH14-160	P2771477	14	27	34	160	47	M10×1.0	1	1.90
	HSK100A-SFH16-100	P2771478	16	27	34	100	50	M12×1.0	1	1.40
	HSK100A-SFH16-160	P2771479	16	27	34	160	50	M12×1.0	1	1.90
	HSK100A-SFH18-100	P2771480	18	33	42	100	50	M12×1.0	2	1.50
	HSK100A-SFH18-160	P2771481	18	33	42	160	50	M12×1.0	2	2.00
	HSK100A-SFH20-100	P2771482	20	33	42	100	52	M16×1.0	2	1.50
	HSK100A-SFH20-160	P2771483	20	33	42	160	52	M16×1.0	2	2.00
	HSK100A-SFH25-115	P2771484	25	44	53	115	58	M16×1.0	2	1.80
	HSK100A-SFH25-160	P2771485	25	44	53	160	58	M16×1.0	2	2.30

▶ Without balancing screw.

SHRINK FIT HOLDER (COOLANT CHANNEL)

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

DIN 69893/
ISO 12164-1-HSK FORM A



DIN 69893-HSK | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD+C

Unit : mm

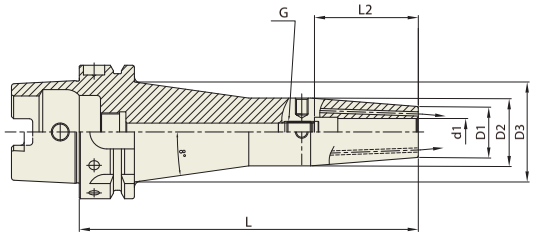
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
63A	HSK63A-SFH6C-80	P2862013C	6	21	27	80	36	M5x0.8	0.83
	HSK63A-SFH6C-160	P2862014C	6	21	27	160	36	M5x0.8	1.00
	HSK63A-SFH8C-80	P2862015C	8	21	27	80	36	M6x1.0	0.83
	HSK63A-SFH8C-160	P2862016C	8	21	27	160	36	M6x1.0	1.00
	HSK63A-SFH10C-85	P2862017C	10	24	32	85	42	M8x1.0	0.83
	HSK63A-SFH10C-160	P2862018C	10	24	32	160	42	M8x1.0	1.00
	HSK63A-SFH12C-90	P2862019C	12	24	32	90	47	M10x1.0	0.83
	HSK63A-SFH12C-160	P2862020C	12	24	32	160	47	M10x1.0	1.00
	HSK63A-SFH14C-90	P2862021C	14	27	34	90	47	M10x1.0	0.91
	HSK63A-SFH14C-160	P2862022C	14	27	34	160	47	M10x1.0	1.30
	HSK63A-SFH16C-95	P2862023C	16	27	34	95	50	M12x1.0	0.98
	HSK63A-SFH16C-160	P2862024C	16	27	34	160	50	M12x1.0	1.40
	HSK63A-SFH18C-95	P2862025C	18	33	42	95	50	M12x1.0	0.98
	HSK63A-SFH18C-160	P2862026C	18	33	42	160	50	M12x1.0	1.40
	HSK63A-SFH20C-100	P2862027C	20	33	42	100	52	M16x1.0	1.00
	HSK63A-SFH20C-160	P2862028C	20	33	42	160	52	M16x1.0	1.40
	HSK63A-SFH25C-115	P2862029C	25	44	53	115	58	M16x1.0	1.40
	HSK63A-SFH25C-160	P2862030C	25	44	53	160	58	M16x1.0	1.80
100A	HSK100A-SFH6C-85	P2862031C	6	21	27	85	36	M5x0.8	1.30
	HSK100A-SFH6C-160	P2862032C	6	21	27	160	36	M5x0.8	1.80
	HSK100A-SFH8C-85	P2862033C	8	21	27	85	36	M6x1.0	1.30
	HSK100A-SFH8C-160	P2862034C	8	21	27	160	36	M6x1.0	1.80
	HSK100A-SFH10C-90	P2862035C	10	24	32	90	42	M8x1.0	1.30
	HSK100A-SFH10C-160	P2862036C	10	24	32	160	42	M8x1.0	1.80
	HSK100A-SFH12C-95	P2862037C	12	24	32	95	47	M10x1.0	1.30
	HSK100A-SFH12C-160	P2862038C	12	24	32	160	47	M10x1.0	1.80
	HSK100A-SFH14C-95	P2862039C	14	27	34	95	47	M10x1.0	1.40
	HSK100A-SFH14C-160	P2862040C	14	27	34	160	47	M10x1.0	1.90
	HSK100A-SFH16C-100	P2862041C	16	27	34	100	50	M12x1.0	1.40
	HSK100A-SFH16C-160	P2862042C	16	27	34	160	50	M12x1.0	1.90
	HSK100A-SFH18C-100	P2862043C	18	33	42	100	50	M12x1.0	1.50
	HSK100A-SFH18C-160	P2862044C	18	33	42	160	50	M12x1.0	2.00
	HSK100A-SFH20C-100	P2862045C	20	33	42	100	52	M16x1.0	1.50
	HSK100A-SFH20C-160	P2862046C	20	33	42	160	52	M16x1.0	2.00
	HSK100A-SFH25C-115	P2862047C	25	44	53	115	58	M16x1.0	1.80
	HSK100A-SFH25C-160	P2862048C	25	44	53	160	58	M16x1.0	2.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.
▶ Resealable Coolant Channel type is available upon request.

SHRINK FIT HOLDER (REINFORCED)

SCHRUMPFFUTTER (VERSTÄRKT)
MANDRIN DE FRETTAGE (RENFORCÉ)
MADRINI PER CALLETAMENTO A CALDO (RINFORZATO)
PORTAHERRAMIENTAS DE COMPRESION POR CALOR (REFORZADO)

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	WEIGHT (kg)
63A	HSK63A-SFH6CTW-160	P2801501TW	6	21	27	42.2	160	36	M5x0.8	1.36
	HSK63A-SFH8CTW-160	P2801502TW	8	21	27	42.2	160	36	M6x1.0	1.35
	HSK63A-SFH10CTW-160	P2801503TW	10	24	32	47.2	160	42	M8x1.0	1.56
	HSK63A-SFH12CTW-160	P2801504TW	12	24	32	47.2	160	47	M10x1.0	1.55
	HSK63A-SFH14CTW-160	P2801505TW	14	27	34	49.2	160	47	M10x1.0	1.52
	HSK63A-SFH16CTW-160	P2801506TW	16	27	34	49.2	160	50	M12x1.0	1.64
100A	HSK100A-SFH6CTW-160	P2801507TW	6	21	27	41.3	160	36	M5x0.8	2.73
	HSK100A-SFH8CTW-160	P2801508TW	8	21	27	41.3	160	36	M6x1.0	2.72
	HSK100A-SFH10CTW-160	P2801509TW	10	24	32	46.3	160	42	M8x1.0	2.92
	HSK100A-SFH12CTW-160	P2801510TW	12	24	32	46.3	160	47	M10x1.0	2.90
	HSK100A-SFH14CTW-160	P2801511TW	14	27	34	48.3	160	47	M10x1.0	3.05
	HSK100A-SFH16CTW-160	P2801512TW	16	27	34	48.3	160	50	M12x1.0	3.03
	HSK100A-SFH18CTW-160	P2801513TW	18	33	42	56.3	160	50	M12x1.0	3.39
	HSK100A-SFH20CTW-160	P2801514TW	20	33	42	56.3	160	52	M16x1.0	3.36

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.

SHRINK FIT HOLDER

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

CBT (BT DUAL CONTACT)

FIG.1

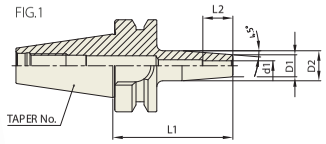
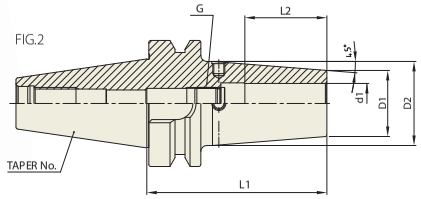


FIG.2



CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
30	CBT30-SFH3-60	P2771505	3	11	15	60	10	-	1	0.40
	CBT30-SFH4-60	P2771506	4	11	15	60	12	-	1	0.40
	CBT30-SFH5-60	P2771507	5	11	15	60	15	-	1	0.40
	CBT30-SFH6-60	P2771508	6	21	27	60	36	M5×0.8	2	0.40
	CBT30-SFH8-60	P2771509	8	21	27	60	36	M6×1.0	2	0.40
	CBT30-SFH10-80	P2771510	10	24	32	80	41	M8×1.0	2	0.40
	CBT30-SFH12-80	P2771511	12	24	32	80	48	M10×1.0	2	0.42
	CBT30-SFH14-80	P2771512	14	27	34	80	48	M10×1.0	2	
	CBT30-SFH16-80	P2771513	16	27	34	80	51	M12×1.0	2	0.42
	CBT30-SFH18-80	P2771514	18	27	34	80	51	M12×1.0	2	
	CBT30-SFH20-90	P2771515	20	33	42	90	53	M16×1.0	2	0.44
40	CBT40-SFH3-90	P2771516	3	11	15	90	10	-	1	1.00
	CBT40-SFH4-90	P2771517	4	11	15	90	12	-	1	1.00
	CBT40-SFH5-90	P2771518	5	11	15	90	23	-	1	1.00
	CBT40-SFH6-90	P2771519	6	21	27	90	36	M5×0.8	2	1.10
	CBT40-SFH6-160	P2771520	6	21	27	160	36	M5×0.8	2	1.15
	CBT40-SFH8-90	P2771501	8	21	27	90	36	M6×1.0	2	1.11
	CBT40-SFH8-160	P2771521	8	21	27	160	36	M6×1.0	2	1.15
	CBT40-SFH10-90	P2771502	10	24	32	90	41	M8×1.0	2	1.10
	CBT40-SFH10-160	P2771522	10	24	32	160	41	M8×1.0	2	1.15
	CBT40-SFH12-90	P2771503	12	24	32	90	47	M10×1.0	2	1.10
	CBT40-SFH12-160	P2771523	12	24	32	160	47	M10×1.0	2	1.15
	CBT40-SFH14-90	P2771524	14	27	34	90	47	M10×1.0	2	1.20
	CBT40-SFH14-160	P2771525	14	27	34	160	47	M10×1.0	2	1.50
	CBT40-SFH16-90	P2771526	16	27	34	90	50	M12×1.0	2	1.20
	CBT40-SFH16-160	P2771527	16	27	34	160	50	M12×1.0	2	1.50
	CBT40-SFH18-90	P2771528	18	33	42	90	50	M12×1.0	2	1.30
	CBT40-SFH18-160	P2771529	18	33	42	160	50	M12×1.0	2	1.60
	CBT40-SFH20-90	P2771504	20	33	42	90	52	M16×1.0	2	1.40
	CBT40-SFH20-160	P2771530	20	33	42	160	52	M16×1.0	2	1.70
	CBT40-SFH25-100	P2771531	25	44	53	100	58	M16×1.0	2	1.70
	CBT40-SFH25-160	P2771532	25	44	53	160	58	M16×1.0	2	2.00

▶ Without balancing screw.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHRINK FIT HOLDER

CBT
(BT DUAL CONTACT)

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

FIG.1

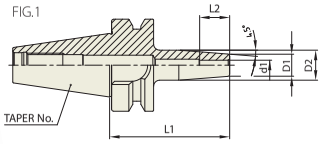
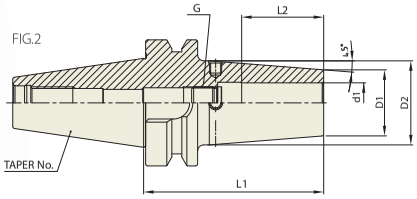


FIG.2



CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

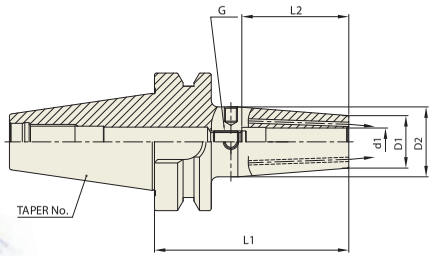
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
50	CBT50-SFH3-100	P2771533	3	11	15	100	10	-	1	1.50
	CBT50-SFH4-100	P2771534	4	11	15	100	12	-	1	1.50
	CBT50-SFH5-100	P2771535	5	11	15	100	15	-	1	1.50
	CBT50-SFH6-100	P2771536	6	21	27	100	36	M5×0.8	2	1.50
	CBT50-SFH6-160	P2771537	6	21	27	160	36	M5×0.8	2	2.00
	CBT50-SFH8-100	P2771538	8	21	27	100	36	M6×1.0	2	1.50
	CBT50-SFH8-160	P2771539	8	21	27	160	36	M6×1.0	2	2.00
	CBT50-SFH10-100	P2771540	10	24	32	100	42	M8×1.0	2	1.50
	CBT50-SFH10-160	P2771541	10	24	32	160	42	M8×1.0	2	2.00
	CBT50-SFH12-100	P2771542	12	24	32	100	47	M10×1.0	2	1.50
	CBT50-SFH12-160	P2771543	12	24	32	160	47	M10×1.0	2	2.00
	CBT50-SFH14-100	P2771544	14	27	34	100	47	M10×1.0	2	1.60
	CBT50-SFH14-160	P2771545	14	27	34	160	47	M10×1.0	2	2.10
	CBT50-SFH16-100	P2771546	16	27	34	100	50	M12×1.0	2	1.60
	CBT50-SFH16-160	P2771547	16	27	34	160	50	M12×1.0	2	2.10
	CBT50-SFH18-100	P2771548	18	33	42	100	50	M12×1.0	2	1.60
	CBT50-SFH18-160	P2771549	18	33	42	160	50	M12×1.0	2	2.00
	CBT50-SFH20-100	P2771550	20	33	42	100	52	M16×1.0	2	1.80
	CBT50-SFH20-160	P2771551	20	33	42	160	52	M16×1.0	2	2.20
	CBT50-SFH25-100	P2771552	25	44	53	100	58	M16×1.0	2	2.00
	CBT50-SFH25-160	P2771553	25	44	53	160	58	M16×1.0	2	2.40

▶ Without balancing screw.

SHRINK FIT HOLDER (COOLANT CHANNEL)

CBT
(BT DUAL CONTACT)

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



CBT | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
40	CBT40-SFH6C-90	P2862049C	6	21	27	90	36	M5x0.8	1.10
	CBT40-SFH6C-160	P2862050C	6	21	27	160	36	M5x0.8	1.15
	CBT40-SFH8C-90	P2862051C	8	21	27	90	36	M6x1.0	1.11
	CBT40-SFH8C-160	P2862052C	8	21	27	160	36	M6x1.0	1.15
	CBT40-SFH10C-90	P2862053C	10	24	32	90	41	M8x1.0	1.10
	CBT40-SFH10C-160	P2862054C	10	24	32	160	41	M8x1.0	1.15
	CBT40-SFH12C-90	P2862055C	12	24	32	90	47	M10x1.0	1.10
	CBT40-SFH12C-160	P2862056C	12	24	32	160	47	M10x1.0	1.15
	CBT40-SFH14C-90	P2862057C	14	27	34	90	47	M10x1.0	1.20
	CBT40-SFH14C-160	P2862058C	14	27	34	160	47	M10x1.0	1.50
	CBT40-SFH16C-90	P2862059C	16	27	34	90	50	M12x1.0	1.20
	CBT40-SFH16C-160	P2862060C	16	27	34	160	50	M12x1.0	1.50
	CBT40-SFH18C-90	P2862061C	18	33	42	90	50	M12x1.0	1.30
	CBT40-SFH18C-160	P2862062C	18	33	42	160	50	M12x1.0	1.60
	CBT40-SFH20C-90	P2862063C	20	33	42	90	52	M16x1.0	1.40
	CBT40-SFH20C-160	P2862064C	20	33	42	160	52	M16x1.0	1.70
	CBT40-SFH25C-100	P2862065C	25	44	53	100	58	M16x1.0	1.70
	CBT40-SFH25C-160	P2862066C	25	44	53	160	58	M16x1.0	2.00
50	CBT50-SFH6C-100	P2862067C	6	21	27	100	36	M5x0.8	1.50
	CBT50-SFH6C-160	P2862068C	6	21	27	160	36	M5x0.8	2.00
	CBT50-SFH8C-100	P2862069C	8	21	27	100	36	M6x1.0	1.50
	CBT50-SFH8C-160	P2862070C	8	21	27	160	36	M6x1.0	2.00
	CBT50-SFH10C-100	P2862071C	10	24	32	100	42	M8x1.0	1.10
	CBT50-SFH10C-160	P2862072C	10	24	32	160	42	M8x1.0	1.15
	CBT50-SFH12C-100	P2862073C	12	24	32	100	47	M10x1.0	1.60
	CBT50-SFH12C-160	P2862074C	12	24	32	160	47	M10x1.0	2.10
	CBT50-SFH14C-100	P2862075C	14	27	34	100	47	M10x1.0	1.60
	CBT50-SFH14C-160	P2862076C	14	27	34	160	47	M10x1.0	2.10
	CBT50-SFH16C-100	P2862077C	16	27	34	100	50	M12x1.0	1.60
	CBT50-SFH16C-160	P2862078C	16	27	34	160	50	M12x1.0	2.10
	CBT50-SFH18C-100	P2862079C	18	33	42	100	50	M12x1.0	1.60
	CBT50-SFH18C-160	P2862080C	18	33	42	160	50	M12x1.0	2.00
	CBT50-SFH20C-100	P2862081C	20	33	42	100	52	M16x1.0	1.80
	CBT50-SFH20C-160	P2862082C	20	33	42	160	52	M16x1.0	2.20
	CBT50-SFH25C-100	P2862083C	25	44	53	100	58	M16x1.0	2.00
	CBT50-SFH25C-160	P2862084C	25	44	53	160	58	M16x1.0	2.40

▶ Without balancing screw.
▶ Two Coolant Bores are a standard design for Coolant Channel type.
▶ Resealable Coolant Channel type is available upon request.

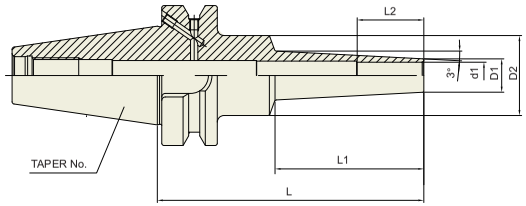
SHRINK FIT HOLDER

SFHS

SHRINK FIT HOLDER (EXTRA SLIM)

JIS B6339/ MAS 403-BT

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



DIN 69893-HSK | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD or AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L1	L2	WEIGHT (kg)
30	BT30-SFHS3-60	P2779851S	3	6	20	60	22	9	
	BT30-SFHS3-80	P2779852S	3	6	20	80	42	9	
	BT30-SFHS3-120	P2779853S	3	6	20	120	67	9	
	BT30-SFHS4-60	P2779854S	4	7	20	60	22	12	
	BT30-SFHS4-80	P2779855S	4	7	20	80	42	12	
	BT30-SFHS4-120	P2779856S	4	7	20	120	67	12	
	BT30-SFHS6-60	P2779857S	6	9	20	60	22	18	
	BT30-SFHS6-80	P2779858S	6	9	20	80	42	18	
	BT30-SFHS6-120	P2779859S	6	9	20	120	67	18	
40	BT40AD/B-SFHS3-95	P2779860S	3	6	26	95	42	9	
	BT40AD/B-SFHS3-120	P2779861S	3	6	26	120	67	9	
	BT40AD/B-SFHS3-160	P2779862S	3	6	26	160	97	9	
	BT40AD/B-SFHS4-95	P2779863S	4	7	26	95	42	12	
	BT40AD/B-SFHS4-120	P2779864S	4	7	26	120	67	12	
	BT40AD/B-SFHS4-160	P2779865S	4	7	26	160	97	12	
	BT40AD/B-SFHS6-95	P2779866S	6	9	26	95	42	18	
	BT40AD/B-SFHS6-120	P2779867S	6	9	26	120	67	18	
	BT40AD/B-SFHS6-160	P2779868S	6	9	26	160	97	18	
	BT40AD/B-SFHS8-95	P2779869S	8	11	36	95	42	24	
	BT40AD/B-SFHS8-120	P2779870S	8	11	36	120	67	24	
	BT40AD/B-SFHS8-160	P2779871S	8	11	36	160	97	24	
	BT40AD/B-SFHS10-95	P2779872S	10	13	36	95	42	30	
	BT40AD/B-SFHS10-120	P2779873S	10	13	36	120	67	30	
	BT40AD/B-SFHS10-160	P2779874S	10	13	36	160	97	30	
	BT40AD/B-SFHS12-95	P2779875S	12	15	36	95	42	30	
	BT40AD/B-SFHS12-120	P2779876S	12	15	36	120	67	30	
	BT40AD/B-SFHS12-160	P2779877S	12	15	36	160	97	30	
50	BT50AD/B-SFHS3-110	P2779878S	3	6	26	110	42	9	
	BT50AD/B-SFHS3-160	P2779879S	3	6	26	160	97	9	
	BT50AD/B-SFHS4-110	P2779880S	4	7	26	110	42	12	
	BT50AD/B-SFHS4-160	P2779881S	4	7	26	160	97	12	
	BT50AD/B-SFHS6-110	P2779882S	6	9	26	110	42	18	
	BT50AD/B-SFHS6-160	P2779883S	6	9	26	160	97	18	
	BT50AD/B-SFHS8-110	P2779884S	8	11	36	110	42	24	
	BT50AD/B-SFHS8-160	P2779885S	8	11	36	160	97	24	
	BT50AD/B-SFHS10-110	P2779886S	10	13	36	110	42	30	
	BT50AD/B-SFHS10-160	P2779887S	10	13	36	160	97	30	
	BT50AD/B-SFHS12-110	P2779888S	12	15	36	110	42	30	
	BT50AD/B-SFHS12-160	P2779889S	12	15	36	160	97	30	

▶ CBT(BT DUAL CONTACT) Holder available.
▶ CAT(ANSI B5.50) taper and Inch type products are available.

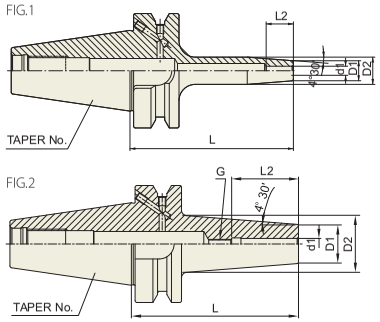
SHRINK FIT HOLDER

SFH

SHRINK FIT HOLDER

JIS B6339/ MAS 403-BT

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
30	BT30AD/B-SFH3-60	P2776703	3	11	15	60	10	-	1	0.40
	BT30AD/B-SFH4-60	P2776702	4	11	15	60	12	-	1	0.40
	BT30AD/B-SFH5-60	P2776704	5	11	15	60	15	-	1	0.40
	BT30AD/B-SFH6-60	P2776701	6	21	27	60	36	M5×0.8	2	0.40
	BT30AD/B-SFH8-60	P2776705	8	21	27	60	36	M6×1.0	2	0.40
	BT30AD/B-SFH10-80	P2776706	10	24	32	80	42	M8×1.0	2	0.40
	BT30AD/B-SFH12-80	P2776707	12	24	32	80	47	M10×1.0	2	0.42
	BT30AD/B-SFH14-80	P2776708	14	27	34	80	47	M10×1.0	2	
	BT30AD/B-SFH16-80	P2776709	16	27	34	80	50	M12×1.0	2	0.42
	BT30AD/B-SFH18-80	P2776710	18	33	42	80	50	M12×1.0	2	
	BT30AD/B-SFH20-90	P2776711	20	33	42	90	52	M16×1.0	2	0.44
40	BT40AD/B-SFH3-90	P2776712	3	11	15	90	10	-	1	1.00
	BT40AD/B-SFH4-90	P2776713	4	11	15	90	12	-	1	1.00
	BT40AD/B-SFH5-90	P2776714	5	11	15	90	15	-	1	1.00
	BT40AD/B-SFH6-90	P2771601	6	21	27	90	36	M5×0.8	2	1.10
	BT40AD/B-SFH6-160	P2771602	6	21	27	160	36	M5×0.8	2	1.15
	BT40AD/B-SFH8-90	P2771603	8	21	27	90	36	M6×1.0	2	1.11
	BT40AD/B-SFH8-160	P2771604	8	21	27	160	36	M6×1.0	2	1.15
	BT40AD/B-SFH10-90	P2771605	10	24	32	90	42	M8×1.0	2	1.10
	BT40AD/B-SFH10-160	P2771606	10	24	32	160	42	M8×1.0	2	1.15
	BT40AD/B-SFH12-90	P2771607	12	24	32	90	47	M10×1.0	2	1.10
	BT40AD/B-SFH12-160	P2771608	12	24	32	160	47	M10×1.0	2	1.15
	BT40AD/B-SFH14-90	P2771611	14	27	34	90	47	M10×1.0	2	1.20
	BT40AD/B-SFH14-160	P2771612	14	27	34	160	47	M10×1.0	2	1.50
	BT40AD/B-SFH16-90	P2771609	16	27	34	90	50	M12×1.0	2	1.20
	BT40AD/B-SFH16-160	P2771610	16	27	34	160	50	M12×1.0	2	1.50
	BT40AD/B-SFH18-90	P2771613	18	33	42	90	50	M12×1.0	2	1.30
	BT40AD/B-SFH18-160	P2771614	18	33	42	160	50	M12×1.0	2	1.60
	BT40AD/B-SFH20-90	P2771615	20	33	42	90	52	M16×1.0	2	1.40
	BT40AD/B-SFH20-160	P2771616	20	33	42	160	52	M16×1.0	2	1.70
	BT40AD/B-SFH25-100	P2771617	25	44	53	100	58	M16×1.0	2	1.70
	BT40AD/B-SFH25-160	P2771618	25	44	53	160	58	M16×1.0	2	2.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.

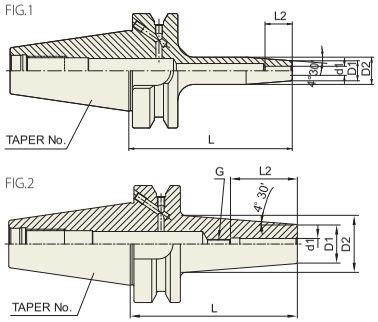
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHRINK FIT HOLDER

JIS B6339/ MAS 403-BT

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Unit : mm

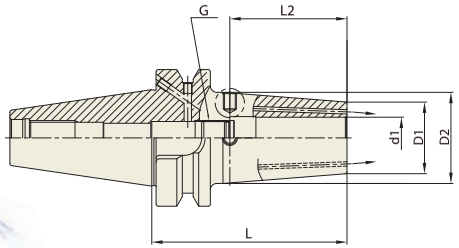
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	FIG.	WEIGHT (kg)
50	BT50AD/B-SFH3-100	P2771619	3	11	15	100	10	-	1	1.50
	BT50AD/B-SFH4-100	P2771620	4	11	15	100	12	-	1	1.50
	BT50AD/B-SFH5-100	P2771621	5	11	15	100	15	-	1	1.50
	BT50AD/B-SFH6-100	P2771622	6	21	27	100	36	M5×0.8	2	1.50
	BT50AD/B-SFH6-160	P2771623	6	21	27	160	36	M5×0.8	2	2.00
	BT50AD/B-SFH8-100	P2771624	8	21	27	100	36	M6×1.0	2	1.50
	BT50AD/B-SFH8-160	P2771625	8	21	27	160	36	M6×1.0	2	2.00
	BT50AD/B-SFH10-100	P2771626	10	24	32	100	42	M8×1.0	2	1.50
	BT50AD/B-SFH10-160	P2771627	10	24	32	160	42	M8×1.0	2	2.00
	BT50AD/B-SFH12-100	P2771628	12	24	32	100	47	M10×1.0	2	1.50
	BT50AD/B-SFH12-160	P2771629	12	24	32	160	47	M10×1.0	2	2.00
	BT50AD/B-SFH14-100	P2771630	14	27	34	100	47	M10×1.0	2	1.60
	BT50AD/B-SFH14-160	P2771631	14	27	34	160	47	M10×1.0	2	2.10
	BT50AD/B-SFH16-100	P2771632	16	27	34	100	50	M12×1.0	2	1.60
	BT50AD/B-SFH16-160	P2771633	16	27	34	160	50	M12×1.0	2	2.10
	BT50AD/B-SFH18-100	P2771634	18	33	42	100	50	M12×1.0	2	1.60
	BT50AD/B-SFH18-160	P2771635	18	33	42	160	50	M12×1.0	2	2.00
	BT50AD/B-SFH20-100	P2771636	20	33	42	100	52	M16×1.0	2	1.80
	BT50AD/B-SFH20-160	P2771637	20	33	42	160	52	M16×1.0	2	2.20
	BT50AD/B-SFH25-100	P2771638	25	44	53	100	58	M16×1.0	2	2.00
	BT50AD/B-SFH25-160	P2771639	25	44	53	160	58	M16×1.0	2	2.40

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.

SHRINK FIT HOLDER (COOLANT CHANNEL)

JIS B6339/ MAS 403-BT

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B+C

Unit : mm

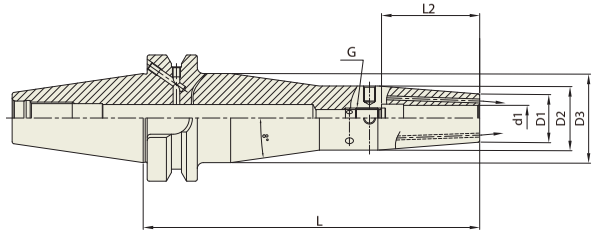
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	G	WEIGHT (kg)
40	BT40AD/B-SFH6C-90	P2862085C	6	21	27	90	36	M5x0.8	1.10
	BT40AD/B-SFH6C-160	P2862086C	6	21	27	160	36	M5x0.8	1.15
	BT40AD/B-SFH8C-90	P2862087C	8	21	27	90	36	M6x1.0	1.11
	BT40AD/B-SFH8C-160	P2862088C	8	21	27	160	36	M6x1.0	1.15
	BT40AD/B-SFH10C-90	P2862089C	10	24	32	90	41	M8x1.0	1.10
	BT40AD/B-SFH10C-160	P2862090C	10	24	32	160	41	M8x1.0	1.15
	BT40AD/B-SFH12C-90	P2862091C	12	24	32	90	47	M10x1.0	1.10
	BT40AD/B-SFH12C-160	P2862092C	12	24	32	160	47	M10x1.0	1.15
	BT40AD/B-SFH14C-90	P2862093C	14	27	34	90	47	M10x1.0	1.20
	BT40AD/B-SFH14C-160	P2862094C	14	27	34	160	47	M10x1.0	1.50
	BT40AD/B-SFH16C-90	P2862095C	16	27	34	90	50	M12x1.0	1.20
	BT40AD/B-SFH16C-160	P2862096C	16	27	34	160	50	M12x1.0	1.50
	BT40AD/B-SFH18C-90	P2862097C	18	33	42	90	50	M12x1.0	1.30
	BT40AD/B-SFH18C-160	P2862098C	18	33	42	160	50	M12x1.0	1.60
	BT40AD/B-SFH20C-90	P2862099C	20	33	42	90	52	M16x1.0	1.40
	BT40AD/B-SFH20C-160	P2862100C	20	33	42	160	52	M16x1.0	1.70
	BT40AD/B-SFH25C-100	P2862101C	25	44	53	100	58	M16x1.0	1.70
	BT40AD/B-SFH25C-160	P2862102C	25	44	53	160	58	M16x1.0	2.00
50	BT50AD/B-SFH6C-100	P2862103C	6	21	27	100	36	M5x0.8	1.50
	BT50AD/B-SFH6C-160	P2862104C	6	21	27	160	36	M5x0.8	2.00
	BT50AD/B-SFH8C-100	P2862105C	8	21	27	100	36	M6x1.0	1.50
	BT50AD/B-SFH8C-160	P2862106C	8	21	27	160	36	M6x1.0	2.00
	BT50AD/B-SFH10C-100	P2862107C	10	24	32	100	42	M8x1.0	1.10
	BT50AD/B-SFH10C-160	P2862108C	10	24	32	160	42	M8x1.0	1.15
	BT50AD/B-SFH12C-100	P2862109C	12	24	32	100	47	M10x1.0	1.60
	BT50AD/B-SFH12C-160	P2862110C	12	24	32	160	47	M10x1.0	2.10
	BT50AD/B-SFH14C-100	P2862111C	14	27	34	100	47	M10x1.0	1.60
	BT50AD/B-SFH14C-160	P2862112C	14	27	34	160	47	M10x1.0	2.10
	BT50AD/B-SFH16C-100	P2862113C	16	27	34	100	50	M12x1.0	1.60
	BT50AD/B-SFH16C-160	P2862114C	16	27	34	160	50	M12x1.0	2.10
	BT50AD/B-SFH18C-100	P2862115C	18	33	42	100	50	M12x1.0	1.60
	BT50AD/B-SFH18C-160	P2862116C	18	33	42	160	50	M12x1.0	2.00
	BT50AD/B-SFH20C-100	P2862117C	20	33	42	100	52	M16x1.0	1.80
	BT50AD/B-SFH20C-160	P2862118C	20	33	42	160	52	M16x1.0	2.20
	BT50AD/B-SFH25C-100	P2862119C	25	44	53	100	58	M16x1.0	2.00
	BT50AD/B-SFH25C-160	P2862120C	25	44	53	160	58	M16x1.0	2.40

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.
▶ Resealable Coolant Channel type is available upon request.

SHRINK FIT HOLDER (REINFORCED)

JIS B6339/ MAS 403-BT

SCHRUMPFFUTTER (VERSTÄRKT)
MANDRIN DE FRETTAGE (RENFORCÉ)
MADRINI PER CALLETAMENTO A CALDO (RINFORZATO)
PORTAHERRAMIENTAS DE COMPRESION POR CALOR (REFORZADO)



IS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	D2	D3	L	L2	G	WEIGHT (kg)
40	BT40AD/B-SFH6C TW-160	P2801601TW	6	21	27	41.9	160	36	M5x0.8	1.64
	BT40AD/B-SFH8C TW-160	P2801602TW	8	21	27	41.9	160	36	M6x1.0	1.63
	BT40AD/B-SFH10C TW-160	P2801603TW	10	24	32	46.9	160	42	M8x1.0	1.84
	BT40AD/B-SFH12C TW-160	P2801604TW	12	24	32	46.9	160	47	M10x1.0	1.83
	BT40AD/B-SFH14C TW-160	P2801605TW	14	27	34	48.9	160	47	M10x1.0	1.80
	BT40AD/B-SFH16C TW-160	P2801606TW	16	27	34	48.9	160	50	M12x1.0	1.92
50	BT50AD/B-SFH6C TW-160	P2801607TW	6	21	27	38.8	160	36	M5x0.8	4.12
	BT50AD/B-SFH8C TW-160	P2801608TW	8	21	27	38.8	160	36	M6x1.0	4.57
	BT50AD/B-SFH10C TW-160	P2801609TW	10	24	32	43.8	160	42	M8x1.0	4.76
	BT50AD/B-SFH12C TW-160	P2801610TW	12	24	32	43.8	160	47	M10x1.0	4.74
	BT50AD/B-SFH14C TW-160	P2801611TW	14	27	34	45.8	160	47	M10x1.0	4.70
	BT50AD/B-SFH16C TW-160	P2801612TW	16	27	34	45.8	160	50	M12x1.0	4.69
	BT50AD/B-SFH20C TW-160	P2801613TW	20	33	42	53.8	160	52	M16x1.0	5.17

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Without balancing screw.

SHRINK FIT HOLDER

ISO 25

SCHRUMPFFUTTER
MANDRIN DE FRETTAGE
MADRINI PER CALLETAMENTO A CALDO
PORTAHERRAMIENTAS DE COMPRESION POR CALOR

FIG.1

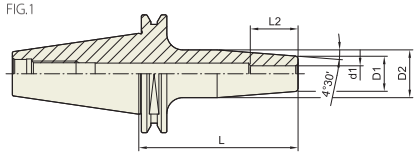
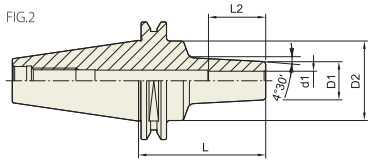


FIG.2



ISO 25 | AT3 | 2.5G | 30,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

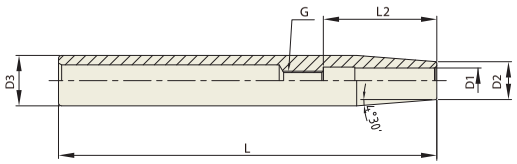
TAPER No.	MODEL No.	EDP No.	d1	D1	D2	L	L2	FIG.	WEIGHT (kg)
25	ISO25-SFH3-50	P2771651	3	11	15	50	10	1	
	ISO25-SFH4-50	P2771652	4	11	15	50	12	1	
	ISO25-SFH5-50	P2771653	5	11	15	50	15	1	
	ISO25-SFH6-40	P2771654	6	12	17	40	18	2	
	ISO25-SFH8-50	P2771655	8	14	18	50	30	2	
	ISO25-SFH10-50	P2771656	10	16	20	50	37	2	

▶ Higher balancing grade is available upon request.
▶ To be supplied with assembling of pull stud bolt.

SHRINK FIT HOLDER (EXTENSION)

STRAIGHT

SCHRUMPFFUTTER (VERLÄGERUNG)
MANDRIN DE FRETTAGE (EXTENSION)
MADRINI PER CALLETAMENTO A CALDO (PROLUNGHE)
PORTAHERRAMIENTAS DE COMPRESION POR CALOR (EXTENSION)



Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	D3	L	L1	G	WEIGHT (kg)
12	ST12-SFH3-120	P2767010	3	8	12	120	10	-	0.05
	ST12-SFH4-120	P2767015	4	8	12	120	12	-	0.05
	ST12-SFH5-120	P2771701	5	10	12	120	15	-	0.08
	ST12-SFH6-120	P2771709	6	10	12	120	36	M5×0.8	0.07
16	ST16-SFH3-120	P2767110	3	10	16	120	10	-	0.14
	ST16-SFH4-120	P2767115	4	10	16	120	12	-	0.14
	ST16-SFH5-120	P2771702	5	10	16	120	15	-	0.14
	ST16-SFH6-120	P2771710	6	10	16	120	36	M5×0.8	0.14
	ST16-SFH8-120	P2771711	8	12	16	120	36	M6×1.0	0.12
20	ST20-SFH3-120	P2771703	3	10	20	120	10	-	0.21
	ST20-SFH4-120	P2771704	4	10	20	120	12	-	0.21
	ST20-SFH5-120	P2771705	5	10	20	120	15	-	0.20
	ST20-SFH6-120	P2771712	6	10	20	120	36	M5×0.8	0.20
	ST20-SFH8-120	P2771713	8	12	20	120	36	M6×1.0	0.19
	ST20-SFH10-120	P2771714	10	14	20	120	43	M8×1.0	0.20
	ST20-SFH12-120	P2771715	12	16	20	120	48	M10×1.0	0.18

▶ Inch type products are available.

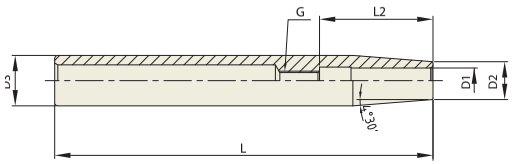
SHRINK FIT HOLDER

SFH

SHRINK FIT HOLDER (EXTENSION)

STRAIGHT

SCHRUMPFFUTTER (VERLÄGERUNG)
MANDRIN DE FRETTAGE (EXTENSION)
MADRINI PER CALLETAMENTO A CALDO (PROLUNGHE)
PORTAHERRAMIENTAS DE COMPRESION POR CALOR (EXTENSION)



Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	D3	L	L1	G	WEIGHT (kg)
12	ST12-SFH3-160	P2767020	3	8	12	160	10	-	0.07
	ST12-SFH4-160	P2767025	4	8	12	160	12	-	0.07
	ST12-SFH5-160	P2771706	5	10	12	160	15	-	0.10
	ST12-SFH6-160	P2767030	6	10	12	160	36	M5×0.8	0.13
16	ST16-SFH3-160	P2767120	3	10	16	160	10	-	0.20
	ST16-SFH4-160	P2767125	4	10	16	160	12	-	0.20
	ST16-SFH5-160	P2771707	5	10	16	160	15	-	0.20
	ST16-SFH6-160	P2767130	6	10	16	160	36	M5×0.8	0.19
	ST16-SFH8-160	P2767135	8	12	16	160	36	M6×1.0	0.16
20	ST20-SFH3-160	P2767210	3	10	20	160	10	-	0.30
	ST20-SFH4-160	P2767215	4	10	20	160	12	-	0.30
	ST20-SFH5-160	P2771708	5	10	20	160	15	-	0.29
	ST20-SFH6-160	P2767220	6	10	20	160	36	M5×0.8	0.29
	ST20-SFH8-160	P2767225	8	12	20	160	36	M6×1.0	0.27
	ST20-SFH10-160	P2767230	10	14	20	160	43	M8×1.0	0.27
	ST20-SFH12-160	P2767235	12	16	20	160	48	M10×1.0	0.23
25	ST25-SFH3-160	P2771716	3	10	25	160	10	-	0.41
	ST25-SFH4-160	P2771717	4	10	25	160	12	-	0.39
	ST25-SFH5-160	P2771718	5	15	25	160	15	-	0.50
	ST25-SFH6-160	P2771719	6	20	25	160	36	M5×0.8	0.55
	ST25-SFH8-160	P2771720	8	20	25	160	36	M6×1.0	0.51
	ST25-SFH10-160	P2771721	10	20	25	160	43	M8×1.0	0.50
	ST25-SFH12-160	P2771722	12	20	25	160	48	M10×1.0	0.44
	ST25-SFH14-160	P2771723	14	20	25	160	48	M10×1.0	0.40
	ST25-SFH16-160	P2771724	16	22	25	160	51	M12×1.0	0.39
32	ST32-SFH6-160	P2771725	6	20	32	160	36	M5×0.8	0.92
	ST32-SFH8-160	P2771726	8	20	32	160	36	M6×1.0	0.88
	ST32-SFH10-160	P2771727	10	24	32	160	43	M8×1.0	0.83
	ST32-SFH12-160	P2771728	12	24	32	160	48	M10×1.0	0.78
	ST32-SFH14-160	P2771729	14	27	32	160	48	M10×1.0	0.78
	ST32-SFH16-160	P2771730	16	27	32	160	51	M12×1.0	0.76
	ST32-SFH18-160	P2771731	18	27	32	160	51	M12×1.0	0.63
	ST32-SFH20-160	P2771732	20	27	32	160	53	M16×1.0	0.60

▶ Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHRINK FIT HOLDER

SFH

SHRINK FIT HEATING MACHINE

TECHINCAL INFORMATION

FEATURE

- Electromagnetic induction heating system
- Automatic voltage adjustment : AC 100V~240V
- Small size and light weight
- Easy to operate

SPECIFICATION

CHARACTERISTICS	SPECFICATION
MODEL No.	SF-3300
EDP No.	P2781003
Power	100V~240V AC, 50/60Hz, Max. 3.6KW
Dimension	380(W) x 350(D) x 720(H)mm
Weight	22Kg
Holder Support	SK, HSK, BT

YG-1 TOOLING SYSTEM

ER COLLET CHUCK

- FRÄSERSPANNFUTTER - ER
- MANDRIN À PINCES - ER
- MANDRINO PORTA PINZE - ER
- PORTAPINZAS - ER

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

JIS B6339/MAS 403-BT

ISO 20/25

DIN 228-MTA/MTB

STRAIGHT-K

NC AND BRIDGEPORT-R8

GOST 25827-93

ACCESSORY & PART

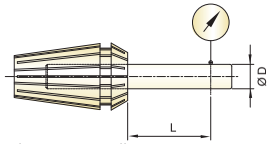
ER COLLET / TAP ER COLLET / ER NUT & SEALING DISK / SPANNER

ER COLLET CHUCK

FEATURE

- Powerful chucking, high precision and easy operation
- Precise machining is stably maintained without chattering in High-Speed rotation.
- Due to nut designed with small bore, interference with work piece can be minimized and it enables speedy operation.
- Various nuts can be selected and used according to usage.
- Unlike single taper, double taper has long chucking part providing excellent torque power.

HIGH PRECISION

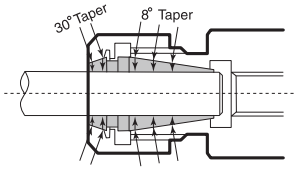


- By using high precision collet, excellent T.I.R can be achievable.
- With fine cutting of 16 sections, it has excellent contractile force, which makes higher precision can be achieved.

D	L	Max.T.I.R(STD.)
Ø1 ~ Ø1.6	6	0.015
Ø1.6 ~ Ø3	10	0.015
Ø3 ~ Ø6	16	0.015
Ø6 ~ Ø10	25	0.015
Ø10 ~ Ø18	40	0.020
Ø18 ~ Ø26	50	0.020
Ø26 ~ Ø34	60	0.020

STRONG TORQUE POWER

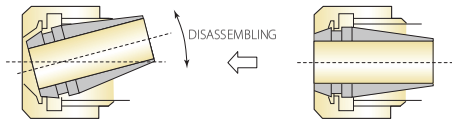
- Longer clamping part of double taper collet provides stronger torque power.
- Stronger torque power can be achieved if ball bearing nut is used.



EASY ASSEMBLING AND DISASSEMBLING

- For assembling or disassembling of collet, first gently insert groove part of collet into eccentrical portion inside nut, and fasten it to same direction as screw or loosen it reversely.

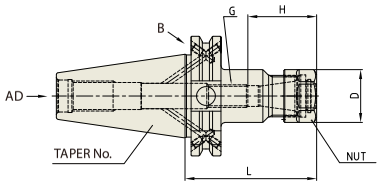
- Notice :
  In case of Ø12.2mm tool, don't use Ø12~11mm collet.
  But use collet with Ø12.5~11.5mm.
  (In case of general cutting process,
  Ø13~12mm collet is usable)



ER COLLET CHUCK

DIN 69871-SK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | AD/B

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

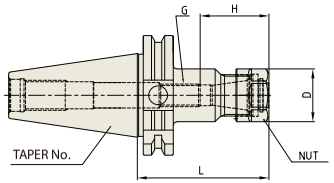
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
40	SK40AD/B-ER11-70	P2774812	0.5 - 7.0	70	19	M6	45	ER11	0.90
	SK40AD/B-ER11-100	P2774826	0.5 - 7.0	100	19	M6	45	ER11	0.95
	SK40AD/B-ER16-70	P2774801	0.5 - 10.0	70	28	M12	36	ER16	0.44
	SK40AD/B-ER16-100	P2774804	0.5 - 10.0	100	28	M12	36	ER16	0.56
	SK40AD/B-ER16-130	P2774827	0.5 - 10.0	130	28	M12	36	ER16	0.69
	SK40AD/B-ER16-160	P2774828	0.5 - 10.0	160	28	M12	36	ER16	0.81
	SK40AD/B-ER20-70	P2774813	0.5 - 13.0	70	34	M12	44.5	ER20	0.47
	SK40AD/B-ER20-100	P2774820	0.5 - 13.0	100	34	M12	44.5	ER20	0.64
	SK40AD/B-ER20-130	P2774829	0.5 - 13.0	130	34	M12	44.5	ER20	0.80
	SK40AD/B-ER20-160	P2774830	0.5 - 13.0	160	34	M12	44.5	ER20	1.00
	SK40AD/B-ER25-70	P2774802	1.0 - 16.0	70	42	M12	52	ER25	0.56
	SK40AD/B-ER25-100	P2774805	1.0 - 16.0	100	42	M12	52	ER25	0.84
	SK40AD/B-ER25-130	P2774831	1.0 - 16.0	130	42	M12	52	ER25	1.14
	SK40AD/B-ER25-160	P2774832	1.0 - 16.0	160	42	M12	52	ER25	1.44
	SK40AD/B-ER32-70	P2774803	1.0 - 20.0	70	50	M12	60	ER32	0.51
	SK40AD/B-ER32-100	P2774806	1.0 - 20.0	100	50	M12	60	ER32	0.88
	SK40AD/B-ER32-130	P2774833	1.0 - 20.0	130	50	M12	60	ER32	1.21
	SK40AD/B-ER32-160	P2774834	1.0 - 20.0	160	50	M12	60	ER32	1.54
	SK40AD/B-ER40-80	P2774814	2.0 - 30.0	80	63	M12	53	ER40	0.65
	SK40AD/B-ER40-100	P2774835	2.0 - 30.0	100	63	M12	75	ER40	0.90
	SK40AD/B-ER40-130	P2774836	2.0 - 30.0	130	63	M12	75	ER40	1.34
	SK40AD/B-ER40-160	P2774837	2.0 - 30.0	160	63	M12	75	ER40	1.77
50	SK50AD/B-ER16-70	P2774815	0.5 - 10.0	70	28	M12	36	ER16	2.71
	SK50AD/B-ER16-100	P2774821	0.5 - 10.0	100	28	M12	45	ER16	2.82
	SK50AD/B-ER16-130	P2774838	0.5 - 10.0	130	28	M12	36	ER16	2.92
	SK50AD/B-ER16-160	P2774839	0.5 - 10.0	160	28	M12	36	ER16	3.01
	SK50AD/B-ER20-70	P2774816	0.5 - 13.0	70	34	M12	44.5	ER20	2.78
	SK50AD/B-ER20-100	P2774822	0.5 - 13.0	100	34	M12	50	ER20	2.88
	SK50AD/B-ER20-130	P2774840	0.5 - 13.0	130	34	M12	50	ER20	3.02
	SK50AD/B-ER20-160	P2774841	0.5 - 13.0	160	34	M12	50	ER20	3.16
	SK50AD/B-ER25-70	P2774817	1.0 - 16.0	70	42	M12	65	ER25	2.75
	SK50AD/B-ER25-100	P2774823	1.0 - 16.0	100	42	M12	52	ER25	3.06
	SK50AD/B-ER25-130	P2774842	1.0 - 16.0	130	42	M12	42	ER25	3.32
	SK50AD/B-ER25-160	P2774843	1.0 - 16.0	160	42	M12	42	ER25	3.57
	SK50AD/B-ER32-70	P2774818	1.0 - 20.0	70	50	M12	60	ER32	2.84
	SK50AD/B-ER32-100	P2774824	1.0 - 20.0	100	50	M12	60	ER32	3.29
	SK50AD/B-ER32-130	P2774844	1.0 - 20.0	130	50	M12	73	ER32	3.67
	SK50AD/B-ER32-160	P2774845	1.0 - 20.0	160	50	M12	73	ER32	4.06
	SK50AD/B-ER40-80	P2774819	2.0 - 30.0	80	63	M12	69	ER40	3.10
	SK50AD/B-ER40-100	P2774825	2.0 - 30.0	100	63	M12	75	ER40	3.56
	SK50AD/B-ER40-130	P2774846	2.0 - 30.0	130	63	M12	75	ER40	4.22
	SK50AD/B-ER40-160	P2774847	2.0 - 30.0	160	63	M12	75	ER40	4.88

▶ CAT(ANSI B5.50) taper and Inch type products are available.

ER COLLET CHUCK

DIN 69871-SK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	SK30-ER11-55	P2527001	0.5 - 7.0	55	19	M6	45	ER11	0.43
	SK30-ER16-55	P2527002	0.5 - 10.0	55	28	M12	45	ER16	0.44
	SK30-ER20-55	P2527003	0.5 - 13.0	55	34	M12	50	ER20	0.44
	SK30-ER25-55	P2527004	1.0 - 16.0	55	42	M12	65	ER25	0.42
	SK30-ER32-60	P2527005	1.0 - 20.0	60	50	M12	65	ER32	0.46
40	SK40-ER11-70	P2527006	0.5 - 7.0	70	19	M6	45	ER11	0.90
	SK40-ER11-100	P2527027	0.5 - 7.0	100	19	M6	45	ER11	0.95
	SK40-ER16-70	P2776417	0.5 - 10.0	70	28	M12	45	ER16	0.44
	SK40-ER16-100	P2527018	0.5 - 10.0	100	28	M12	45	ER16	0.56
	SK40-ER16-130	P2527028	0.5 - 10.0	130	28	M12	45	ER16	0.69
	SK40-ER16-160	P2527029	0.5 - 10.0	160	28	M12	45	ER16	0.81
	SK40-ER20-70	P2776418	0.5 - 13.0	70	34	M12	50	ER20	0.47
	SK40-ER20-100	P2527019	0.5 - 13.0	100	34	M12	50	ER20	0.64
	SK40-ER20-130	P2527030	0.5 - 13.0	130	34	M12	50	ER20	0.80
	SK40-ER20-160	P2527031	0.5 - 13.0	160	34	M12	50	ER20	1.00
	SK40-ER25-70	P2776419	1.0 - 16.0	70	42	M12	65	ER25	0.56
	SK40-ER25-100	P2776429	1.0 - 16.0	100	42	M12	65	ER25	0.84
	SK40-ER25-130	P2527032	1.0 - 16.0	130	42	M12	65	ER25	1.14
	SK40-ER25-160	P2527033	1.0 - 16.0	160	42	M12	65	ER25	1.44
	SK40-ER32-70	P2776420	1.0 - 20.0	70	50	M12	65	ER32	0.51
	SK40-ER32-100	P2776430	1.0 - 20.0	100	50	M12	65	ER32	0.88
	SK40-ER32-130	P2527034	1.0 - 20.0	130	50	M12	65	ER32	1.21
	SK40-ER32-160	P2527035	1.0 - 20.0	160	50	M12	65	ER32	1.54
	SK40-ER40-80	P2527011	2.0 - 30.0	80	63	M12	69	ER40	0.65
	SK40-ER40-100	P2527036	2.0 - 30.0	100	63	M12	69	ER40	0.90
	SK40-ER40-130	P2527037	2.0 - 30.0	130	63	M12	69	ER40	1.34
	SK40-ER40-160	P2527038	2.0 - 30.0	160	63	M12	69	ER40	1.77

▶ CAT(ANSI B5.50) taper and Inch type products are available.

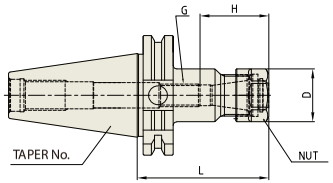
ER COLLET CHUCK

ER

ER COLLET CHUCK

DIN 69871-SK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	SK50-ER16-70	P2527012	0.5 - 10.0	70	28	M12	45	ER16	2.71
	SK50-ER16-100	P2527022	0.5 - 10.0	100	28	M12	45	ER16	2.82
	SK50-ER16-130	P2527039	0.5 - 10.0	130	28	M12	45	ER16	2.92
	SK50-ER16-160	P2527040	0.5 - 10.0	160	28	M12	45	ER16	3.01
	SK50-ER20-70	P2776423	0.5 - 13.0	70	34	M12	50	ER20	2.78
	SK50-ER20-100	P2527023	0.5 - 13.0	100	34	M12	40.5	ER20	2.88
	SK50-ER20-130	P2527041	0.5 - 13.0	130	34	M12	50	ER20	3.02
	SK50-ER20-160	P2527042	0.5 - 13.0	160	34	M12	50	ER20	3.16
	SK50-ER25-70	P2776424	1.0 - 16.0	70	42	M12	65	ER25	2.75
	SK50-ER25-100	P2527024	1.0 - 16.0	100	42	M12	65	ER25	3.06
	SK50-ER25-130	P2527043	1.0 - 16.0	130	42	M12	65	ER25	3.32
	SK50-ER25-160	P2527044	1.0 - 16.0	160	42	M12	65	ER25	3.57
	SK50-ER32-70	P2776425	1.0 - 20.0	70	50	M12	65	ER32	2.84
	SK50-ER32-100	P2527025	1.0 - 20.0	100	50	M12	65	ER32	3.29
	SK50-ER32-130	P2527045	1.0 - 20.0	130	50	M12	65	ER32	3.67
	SK50-ER32-160	P2527046	1.0 - 20.0	160	50	M12	65	ER32	4.06
	SK50-ER40-80	P2527016	2.0 - 30.0	80	63	M12	75	ER40	3.10
	SK50-ER40-100	P2527026	2.0 - 30.0	100	63	M12	75	ER40	3.56
	SK50-ER40-130	P2527047	2.0 - 30.0	130	63	M12	75	ER40	4.22
	SK50-ER40-160	P2527048	2.0 - 30.0	160	63	M12	75	ER40	4.88

▶ CAT(ANSI B5.50) taper and Inch type products are available.

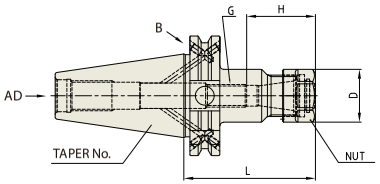
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

DIN 69871-SK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD/B

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

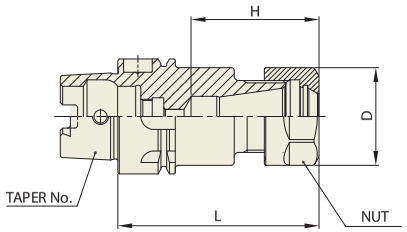
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
40	SK40AD/B-ER11-70	P2537006	0.5 - 7.0	70	19	M6	45	ER11	0.90
	SK40AD/B-ER11-100	P2771802	0.5 - 7.0	100	19	M6	45	ER11	0.95
	SK40AD/B-ER16-70	P2537033	0.5 - 10.0	70	28	M12	36	ER16	0.44
	SK40AD/B-ER16-100	P2537017	0.5 - 10.0	100	28	M12	36	ER16	0.56
	SK40AD/B-ER16-130	P2771803	0.5 - 10.0	130	28	M12	36	ER16	0.69
	SK40AD/B-ER16-160	P2771804	0.5 - 10.0	160	28	M12	36	ER16	0.81
	SK40AD/B-ER20-70	P2537034	0.5 - 13.0	70	34	M12	44.5	ER20	0.47
	SK40AD/B-ER20-100	P2537018	0.5 - 13.0	100	34	M12	44.5	ER20	0.64
	SK40AD/B-ER20-130	P2771805	0.5 - 13.0	130	34	M12	44.5	ER20	0.80
	SK40AD/B-ER20-160	P2771806	0.5 - 13.0	160	34	M12	44.5	ER20	1.00
	SK40AD/B-ER25-70	P2537009	1.0 - 16.0	70	42	M12	52	ER25	0.56
	SK40AD/B-ER25-100	P2537019	1.0 - 16.0	100	42	M12	52	ER25	0.84
	SK40AD/B-ER25-130	P2771807	1.0 - 16.0	130	42	M12	52	ER25	1.14
	SK40AD/B-ER25-160	P2771808	1.0 - 16.0	160	42	M12	52	ER25	1.44
	SK40AD/B-ER32-70	P2537032	1.0 - 20.0	70	50	M12	60	ER32	0.51
	SK40AD/B-ER32-100	P2537020	1.0 - 20.0	100	50	M12	60	ER32	0.88
	SK40AD/B-ER32-130	P2771809	1.0 - 20.0	130	50	M12	60	ER32	1.21
	SK40AD/B-ER32-160	P2771810	1.0 - 20.0	160	50	M12	60	ER32	1.54
	SK40AD/B-ER40-80	P2537011	2.0 - 30.0	80	63	M12	53	ER40	0.65
	SK40AD/B-ER40-100	P2771811	2.0 - 30.0	100	63	M12	75	ER40	0.90
	SK40AD/B-ER40-130	P2771812	2.0 - 30.0	130	63	M12	75	ER40	1.34
	SK40AD/B-ER40-160	P2771813	2.0 - 30.0	160	63	M12	75	ER40	1.77
50	SK50AD/B-ER16-70	P2537012	0.5 - 10.0	70	28	M12	36	ER16	2.71
	SK50AD/B-ER16-100	P2537021	0.5 - 10.0	100	28	M12	45	ER16	2.82
	SK50AD/B-ER16-130	P2771814	0.5 - 10.0	130	28	M12	36	ER16	2.92
	SK50AD/B-ER16-160	P2771815	0.5 - 10.0	160	28	M12	36	ER16	3.01
	SK50AD/B-ER20-70	P2771801	0.5 - 13.0	70	34	M12	44.5	ER20	2.78
	SK50AD/B-ER20-100	P2537022	0.5 - 13.0	100	34	M12	50	ER20	2.88
	SK50AD/B-ER20-130	P2771816	0.5 - 13.0	130	34	M12	50	ER20	3.02
	SK50AD/B-ER20-160	P2771817	0.5 - 13.0	160	34	M12	50	ER20	3.16
	SK50AD/B-ER25-70	P2600030	1.0 - 16.0	70	42	M12	65	ER25	2.75
	SK50AD/B-ER25-100	P2537023	1.0 - 16.0	100	42	M12	52	ER25	3.06
	SK50AD/B-ER25-130	P2771818	1.0 - 16.0	130	42	M12	42	ER25	3.32
	SK50AD/B-ER25-160	P2771819	1.0 - 16.0	160	42	M12	42	ER25	3.57
	SK50AD/B-ER32-70	P2537035	1.0 - 20.0	70	50	M12	60	ER32	2.84
	SK50AD/B-ER32-100	P2537024	1.0 - 20.0	100	50	M12	60	ER32	3.29
	SK50AD/B-ER32-130	P2771820	1.0 - 20.0	130	50	M12	73	ER32	3.67
	SK50AD/B-ER32-160	P2771821	1.0 - 20.0	160	50	M12	73	ER32	4.06
	SK50AD/B-ER40-80	P2537016	2.0 - 30.0	80	63	M12	69	ER40	3.10
	SK50AD/B-ER40-100	P2537025	2.0 - 30.0	100	63	M12	75	ER40	3.56
	SK50AD/B-ER40-130	P2771822	2.0 - 30.0	130	63	M12	75	ER40	4.22
	SK50AD/B-ER40-160	P2771823	2.0 - 30.0	160	63	M12	75	ER40	4.88

▶ CAT(ANSI B5.50) taper and Inch type products are available.

ER COLLET CHUCK

DIN 69893/
ISO 12164-1-HSK FORM A

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



DIN 69893-HSK | 2.5G | 25,000 RPM | AD

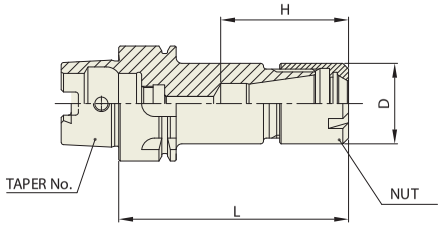
ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

◆ Standard Type

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER11-50	P2774908	0.5 - 7.0	50	19	28.6	ER11	0.18
	HSK32A-ER16-60	P2774909	0.5 -10.0	60	28	36.6	ER16	0.21
40A	HSK40A-ER11-60	P2774910	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40A-ER16-60	P2774911	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40A-ER20-70	P2774912	0.5 - 13.0	70	34	44.5	ER20	0.80



◆ Slim Type

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER8M-40	P2774913	0.5 - 5.0	40	12	21	ER8M/ER8	0.18
	HSK32A-ER11M-40	P2774914	0.5 - 7.0	40	16	23	ER11M/ER11	0.18
	HSK32A-ER16M-60	P2774915	0.5 - 10.0	60	22	38	ER16M/ER16	0.21
	HSK32A-ER20M-60	P2774916	0.5 - 13.0	60	28	39.5	ER20M/ER20	0.21
40A	HSK40A-ER11M-75	P2774917	0.5 - 7.0	75	16	29.5	ER11M/ER11	0.40
	HSK40A-ER16M-80	P2774918	0.5 - 10.0	80	22	38	ER16M/ER16	0.50
	HSK40A-ER20M-80	P2774919	0.5 - 13.0	80	28	44.5	ER20M/ER20	0.70
	HSK40A-ER25M-80	P2774920	1.0 - 16.0	80	35	52	ER25M/ER25	0.80

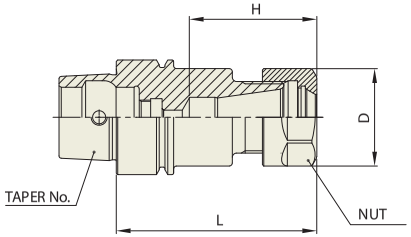
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER

DIN 69893/ ISO 12164-1-HSK FORM E



DIN 69893-HSK | 2.5G | 25,000 RPM | AD

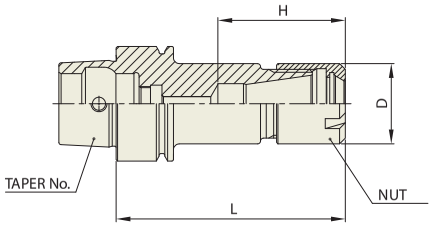
ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

◆ Standard Type

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	-40	P2774921	0.5 - 7.0	40	19	23.5	ER11	0.15
	HSK25E-ER16-50	P2774922	0.5 - 10.0	50	28	32.5	ER16	0.18
32E	HSK32E-ER11-50	P2774923	0.5 - 7.0	50	19	28.6	ER11	0.18
	HSK32E-ER16-60	P2774924	0.5 - 10.0	60	28	36.6	ER16	0.21
40E	HSK40E-ER11-60	P2774925	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40E-ER16-60	P2774926	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40E-ER20-70	P2774927	0.5 - 13.0	70	34	44.5	ER20	0.80



◆ Slim Type

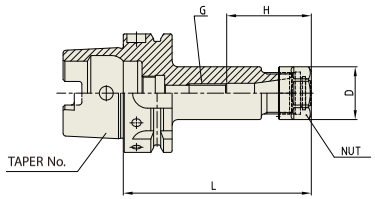
Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	HSK25E-ER8M-35	P2774928	0.5 - 5.0	35	12	21	ER8M / ER8	0.15
	HSK25E-ER11M-40	P2774929	0.5 - 7.0	40	16	24.5	ER11M / ER11	0.18
32E	HSK32E-ER8M-40	P2774930	0.5 - 5.0	40	12	21	ER8M / ER8	0.15
	HSK32E-ER11M-40	P2774931	0.5 - 7.0	40	16	23	ER11M / ER11	0.18
	HSK32E-ER16M-60	P2774932	0.5 - 10.0	60	22	38	ER16M / ER16	0.21
	HSK32E-ER20M-60	P2774933	0.5 - 13.0	60	28	39.5	ER20M / ER20	0.21
40E	HSK40E-ER11M-75	P2774934	0.5 - 7.0	75	16	29.5	ER11M / ER11	0.40
	HSK40E-ER16M-80	P2774935	0.5 - 10.0	80	22	38	ER16M / ER16	0.50
	HSK40E-ER20M-80	P2774936	0.5 - 13.0	80	28	44.5	ER20M / ER20	0.70
	HSK40E-ER25M-80	P2774937	1.0 - 16.0	80	35	52	ER25M / ER25	0.80

ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | 2.5G | 25,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

◆ Standard Type

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50A	HSK50A-ER16-100	P2774938	0.5 - 10.0	100	28	M12	45	ER16	0.70
	HSK50A-ER20-100	P2774939	0.5 - 13.0	100	35	M12	50	ER20	0.90
	HSK50A-ER25-100	P2774940	1.0 - 16.0	100	42	M12	50	ER25	1.20
	HSK50A-ER32-100	P2774941	1.0 - 20.0	100	50	M12	47	ER32	1.50
63A	HSK63A-ER16-100	P2774901	0.5 - 10.0	100	28	M12	45	ER16	1.20
	HSK63A-ER20-100	P2774942	0.5 - 13.0	100	35	M12	50	ER20	1.50
	HSK63A-ER25-100	P2774902	1.0 - 16.0	100	42	M12	57	ER25	1.80
	HSK63A-ER32-100	P2774903	1.0 - 20.0	100	50	M12	47	ER32	2.00
	HSK63A-ER40-120	P2774904	2.0 - 30.0	120	63	M12	69	ER40	2.30
80A	HSK80A-ER16-100	P2774943	0.5 - 10.0	100	28	M12	45	ER16	1.77
	HSK80A-ER25-100	P2774944	1.0 - 16.0	100	42	M12	47	ER20	1.79
	HSK80A-ER32-100	P2774945	1.0 - 20.0	100	50	M12	53	ER25	1.95
100A	HSK100A-ER16-100	P2774905	0.5 - 10.0	100	28	M12	45	ER16	2.60
	HSK100A-ER20-100	P2774946	0.5 - 13.0	100	35	M12	50	ER20	2.70
	HSK100A-ER25-100	P2774906	1.0 - 16.0	100	42	M12	57	ER25	2.90
	HSK100A-ER32-100	P2774907	1.0 - 20.0	100	50	M12	56.5	ER32	3.10
	HSK100A-ER40-120	P2774947	2.0 - 30.0	120	63	M12	69	ER40	3.30

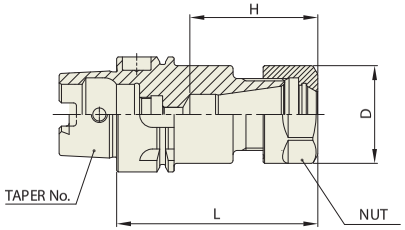
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER

DIN 69893/ ISO 12164-1-HSK FORM A



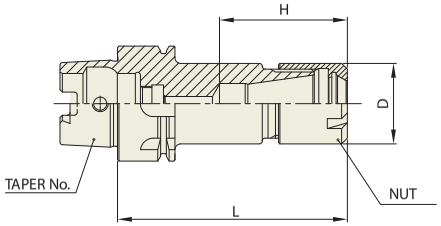
DIN 69893-HSK | 6.3G | 15,000 RPM | AD

ER Collet Refer to page 103-109
ER nut, Sealing disk and Spanner Refer to page 110-115

◆ Standard Type

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER11-50	P2771908	0.5 - 7.0	50	19	28.6	ER11	0.81
	HSK32A-ER16-60	P2771909	0.5 - 10.0	60	28	36.6	ER16	0.21
40A	HSK40A-ER11-60	P2771901	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40A-ER16-60	P2771902	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40A-ER20-70	P2771903	0.5 - 13.0	70	34	44.5	ER20	0.80



◆ Slim Type

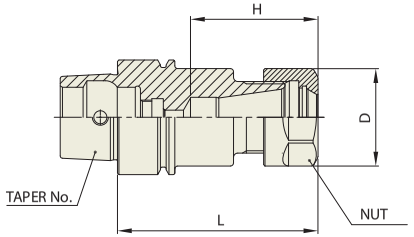
Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
32A	HSK32A-ER8M-40	P2771910	0.5 - 5.0	40	12	21	ER8M/ER8	0.15
	HSK32A-ER11M-40	P2771911	0.5 - 7.0	40	16	23	ER11M/ER11	0.15
	HSK32A-ER16M-60	P2771912	0.5 - 10.0	60	22	38	ER16M/ER16	0.21
	HSK32A-ER20M-60	P2771913	0.5 - 13.0	60	28	39.5	ER20M/ER20	0.20
40A	HSK40A-ER11M-75	P2771914	0.5 - 7.0	75	16	29.5	ER11M/ER11	0.40
	HSK40A-ER16M-80	P2771915	0.5 - 10.0	80	22	38	ER16M/ER16	0.50
	HSK40A-ER20M-80	P2771916	0.5 - 13.0	80	28	44.5	ER20M/ER20	0.70
	HSK40A-ER25M-80	P2771917	1.0 - 16.0	80	35	52	ER25M/ER25	0.80

ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER

DIN 69893/ ISO 12164-1-HSK FORM E



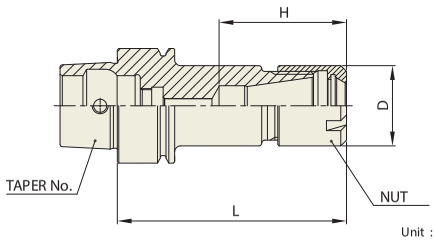
DIN 69893-HSK | 6.3G | 15,000 RPM | AD

ER Collet Refer to page 103-109
ER nut, Sealing disk and Spanner Refer to page 110-115

◆ Standard Type

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	HSK25E-ER11-40	P2771935	0.5 - 7.0	40	19	23.5	ER11	0.16
	HSK25E-ER16-50	P2771936	0.5 - 10.0	50	28	32.5	ER16	0.16
32E	HSK32E-ER11-50	P2771918	0.5 - 7.0	50	19	28.6	ER11	0.18
	HSK32E-ER16-60	P2771919	0.5 - 10.0	60	28	36.6	ER16	0.21
40E	HSK40E-ER11-60	P2771920	0.5 - 7.0	60	19	28.6	ER11	0.40
	HSK40E-ER16-60	P2771921	0.5 - 10.0	60	28	36.6	ER16	0.50
	HSK40E-ER20-70	P2771922	0.5 - 13.0	70	34	44.5	ER20	0.80



◆ Slim Type

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
25E	HSK25E-ER8M-35	P2771937	0.5 - 5.0	35	12	21	ER8M / ER8	0.10
	HSK25E-ER11M-40	P2771938	0.5 - 7.0	40	16	24.5	ER11M / ER11	0.10
32E	HSK32E-ER8M-40	P2774948	0.5 - 5.0	40	12	21	ER8M / ER8	0.15
	HSK32E-ER11M-40	P2774949	0.5 - 7.0	40	16	23	ER11M / ER11	0.15
	HSK32E-ER16M-60	P2774950	0.5 - 10.0	60	22	38	ER16M / ER16	0.21
	HSK32E-ER20M-60	P2774951	0.5 - 13.0	60	28	39.5	ER20M / ER20	0.20
40E	HSK40E-ER11M-75	P2771904	0.5 - 7.0	75	16	29.5	ER11M / ER11	0.40
	HSK40E-ER16M-80	P2771905	0.5 - 10.0	80	22	38	ER16M / ER16	0.50
	HSK40E-ER20M-80	P2771906	0.5 - 13.0	80	28	44.5	ER20M / ER20	0.70
	HSK40E-ER25M-80	P2771907	1.0 - 16.0	80	35	52	ER25M / ER25	0.80

TOOLING SYSTEM

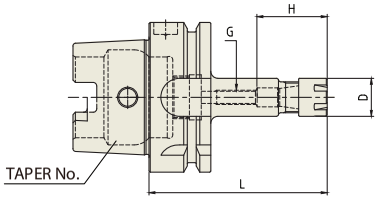
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK (SLIM)

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50A	HSK50A-ER11M-75	P2802501	0.5 - 7.0	75	16	M6	29.5	XSQ-R11M / ER11	0.30
	HSK50A-ER16M-85	P2802502	0.5 - 10.0	85	22	M10	38	XSQ-R16M / ER16	0.40
	HSK50A-ER20M-90	P2802503	0.5 - 13.0	90	28	M12	44.5	XSQ-R20M / ER20	0.80
	HSK50A-ER25M-105	P2802504	1.0 - 16.0	105	35	M12	52	XSQ-R25M / ER25	1.20
63A	HSK63A-ER11M-75	P2802505	0.5 - 7.0	75	16	M6	29.5	XSQ-R11M / ER11	0.80
	HSK63A-ER16M-85	P2802506	0.5 - 10.0	85	22	M10	38	XSQ-R16M / ER16	1.00
	HSK63A-ER20M-95	P2802507	0.5 - 13.0	95	28	M12	44.5	XSQ-R20M / ER20	1.20
	HSK63A-ER25M-105	P2802508	1.0 - 16.0	105	35	M12	52	XSQ-R25M / ER25	1.40
100A	HSK100A-ER11M-85	P2802509	0.5 - 7.0	85	16	M6	29.5	XSQ-R11M / ER11	2.40
	HSK100A-ER16M-95	P2802510	0.5 - 10.0	95	22	M10	38	XSQ-R16M / ER16	2.70
	HSK100A-ER20M-100	P2802511	0.5 - 13.0	100	28	M12	44.5	XSQ-R20M / ER20	3.00
	HSK100A-ER25M-120	P2802512	1.0 - 16.0	120	35	M12	52	XSQ-R25M / ER25	3.20

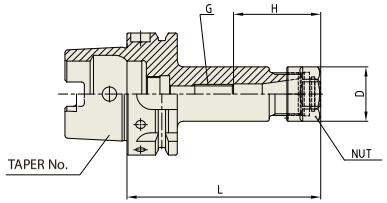
ER COLLET CHUCK

ER

ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | 6.3G | 15,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

◆ **Standard Type**

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50A	HSK50A-ER16-100	P2771927	0.5 - 10.0	100	28	M12	45	ER16	0.70
	HSK50A-ER20-100	P2771928	0.5 - 13.0	100	35	M12	50	ER20	0.90
	HSK50A-ER25-100	P2771929	1.0 - 16.0	100	42	M12	50	ER25	1.20
	HSK50A-ER32-100	P2771930	1.0 - 20.0	100	50	M12	47	ER32	1.50
63A	HSK63A-ER16-100	P2564001	0.5 - 10.0	100	28	M12	45	ER16	1.20
	HSK63A-ER20-100	P2564005	0.5 - 13.0	100	35	M12	50	ER20	1.50
	HSK63A-ER25-100	P2564002	1.0 - 16.0	100	42	M12	57	ER25	1.80
	HSK63A-ER32-100	P2564003	1.0 - 20.0	100	50	M12	47	ER32	2.00
	HSK63A-ER40-120	P2564004	2.0 - 30.0	120	63	M12	69	ER40	2.30
80A	HSK80A-ER16-100	P2771932	0.5 - 10.0	100	28	M12	45	ER16	1.77
	HSK80A-ER25-100	P2771933	1.0 - 16.0	100	42	M12	47	ER20	1.79
	HSK80A-ER32-100	P2771934	1.0 - 20.0	100	50	M12	53	ER25	1.95
100A	HSK100A-ER16-100	P2564011	0.5 - 10.0	100	28	M12	45	ER16	2.60
	HSK100A-ER20-100	P2564015	0.5 - 13.0	100	35	M12	50	ER20	2.70
	HSK100A-ER25-100	P2564012	1.0 - 16.0	100	42	M12	57	ER25	2.90
	HSK100A-ER32-100	P2564013	1.0 - 20.0	100	50	M12	56.5	ER32	3.10
	HSK100A-ER40-120	P2564014	2.0 - 30.0	120	63	M12	69	ER40	3.30

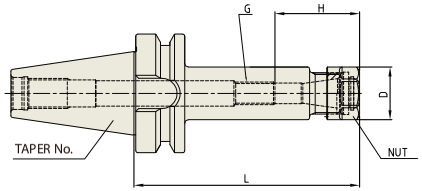
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER

CBT
(BT DUAL CONTACT)



CBT | AT3 | 2.5G | 25,000 RPM | AD

ER Collet
Refer to page 103-109

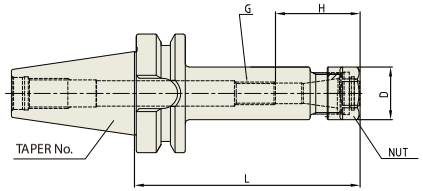
ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	CBT30-ER11-70	P2776802	0.5 - 7.0	70	19	M6	45	ER11	0.50
	CBT30-ER11-100	P2776803	0.5 - 7.0	100	19	M6	45	ER11	0.50
	CBT30-ER16-70	P2776804	0.5 - 10.0	70	28	M12	45	ER16	1.00
	CBT30-ER16-100	P2776805	0.5 - 10.0	100	28	M12	45	ER16	1.10
	CBT30-ER20-80	P2776806	0.5 - 13.0	80	34	M12	50	ER20	1.20
	CBT30-ER20-100	P2776807	0.5 - 13.0	100	34	M12	50	ER20	1.30
	CBT30-ER25-70	P2776808	1.0 - 16.0	70	42	M12	65	ER25	1.20
	CBT30-ER25-100	P2776809	1.0 - 16.0	100	42	M12	65	ER25	1.30
	CBT30-ER32-60	P2776801	1.0 - 20.0	60	50	M12	65	ER32	1.40
	CBT30-ER32-90	P2776810	1.0 - 20.0	90	50	M12	65	ER32	1.90
40	CBT40-ER11-75	P2772004	0.5 - 7.0	75	19	M6	45	ER11	1.00
	CBT40-ER11-100	P2772005	0.5 - 7.0	100	19	M6	45	ER11	1.10
	CBT40-ER16-75	P2772006	0.5 - 10.0	75	28	M12	45	ER16	1.10
	CBT40-ER16-100	P2772001	0.5 - 10.0	100	28	M12	45	ER16	1.20
	CBT40-ER16-120	P2772007	0.5 - 10.0	120	28	M12	45	ER16	1.40
	CBT40-ER20-75	P2772008	0.5 - 13.0	75	34	M12	50	ER20	1.40
	CBT40-ER20-100	P2772009	0.5 - 13.0	100	34	M12	50	ER20	1.80
	CBT40-ER20-135	P2772010	0.5 - 13.0	135	34	M12	50	ER20	2.20
	CBT40-ER25-75	P2772011	1.0 - 16.0	75	42	M12	65	ER25	1.40
	CBT40-ER25-100	P2772002	1.0 - 16.0	100	42	M12	65	ER25	1.80
	CBT40-ER25-135	P2772012	1.0 - 16.0	135	42	M12	65	ER25	2.20
	CBT40-ER25-150	P2772013	1.0 - 16.0	150	42	M12	65	ER25	2.40
	CBT40-ER32-60	P2772014	1.0 - 20.0	60	50	M12	65	ER32	1.80
	CBT40-ER32-100	P2772003	1.0 - 20.0	100	50	M12	65	ER32	2.20
	CBT40-ER32-120	P2772015	1.0 - 20.0	120	50	M12	65	ER32	2.40
	CBT40-ER32-150	P2772016	1.0 - 20.0	150	50	M12	65	ER32	2.60
	CBT40-ER40-80	P2772017	2.0 - 30.0	80	63	M12	75	ER40	1.50

▶ NEXT PAGE

ER COLLET CHUCK
FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER
CBT
(BT DUAL CONTACT)



CBT | AT3 | 2.5G | 25,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	CBT50-ER16-100	P2772018	0.5 - 10.0	100	28	M12	45	ER16	4.20
	CBT50-ER16-120	P2772019	0.5 - 10.0	120	28	M12	45	ER16	4.40
	CBT50-ER16-165	P2772020	0.5 - 10.0	165	28	M12	45	ER16	4.60
	CBT50-ER20-100	P2772021	0.5 - 13.0	100	34	M12	50	ER20	4.60
	CBT50-ER20-135	P2772022	0.5 - 13.0	135	34	M12	50	ER20	4.80
	CBT50-ER20-165	P2772023	0.5 - 13.0	165	34	M12	50	ER20	5.00
	CBT50-ER25-100	P2772024	1.0 - 16.0	100	42	M12	65	ER25	4.70
	CBT50-ER25-135	P2772025	1.0 - 16.0	135	42	M12	65	ER25	4.80
	CBT50-ER25-165	P2772026	1.0 - 16.0	165	42	M12	65	ER25	5.00
	CBT50-ER32-100	P2772027	1.0 - 20.0	100	50	M12	65	ER32	5.20
	CBT50-ER32-135	P2772028	1.0 - 20.0	135	50	M12	65	ER32	5.70
	CBT50-ER32-165	P2772029	1.0 - 20.0	165	50	M12	65	ER32	5.80
	CBT50-ER40-100	P2772030	2.0 - 30.0	100	63	M12	75	ER40	5.60
	CBT50-ER40-150	P2772031	2.0 - 30.0	150	63	M12	75	ER40	6.10
	CBT50-ER50-100	P2772032	4.0 - 34.0	100	78	M16	85	ER50	5.80
	CBT50-ER50-150	P2772033	4.0 - 34.0	150	78	M16	85	ER50	6.30

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

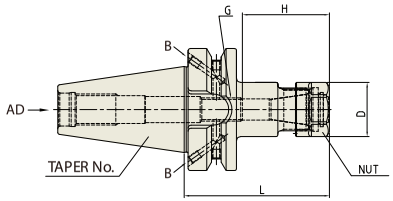
ER COLLET CHUCK

ER

ER COLLET CHUCK

JIS B6339/
MAS 403-BT

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



IS 6339 T | AT3 | 2.5G | 25,000 RPM | AD or AD/B

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	BT30-ER11-70	P2776501A	0.5 - 7.0	70	19	M6	45	ER11	0.50
	BT30-ER11-100	P2776502A	0.5 - 7.0	100	19	M6	45	ER11	0.50
	BT30-ER16-70	P2776503A	0.5 - 10.0	70	28	M12	45	ER16	1.00
	BT30-ER16-100	P2776506A	0.5 - 10.0	100	28	M12	45	ER16	1.10
	BT30-ER20-80	P2776507A	0.5 - 13.0	80	34	M12	50	ER20	1.20
	BT30-ER20-100	P2776508A	0.5 - 13.0	100	34	M12	50	ER20	1.30
	BT30-ER25-70	P2776509A	1.0 - 16.0	70	42	M12	65	ER25	1.20
	BT30-ER25-100	P2776510A	1.0 - 16.0	100	42	M12	65	ER25	1.30
	BT30-ER32-60	P2776511A	1.0 - 20.0	60	50	M12	65	ER32	1.40
	BT30-ER32-90	P2776512A	1.0 - 20.0	90	50	M12	65	ER32	1.90
40	BT40AD/B-ER11-75	P2776513	0.5 - 7.0	75	19	M6	45	ER11	1.00
	BT40AD/B-ER11-100	P2776514	0.5 - 7.0	100	19	M6	45	ER11	1.10
	BT40AD/B-ER16-75	P2776504	0.5 - 10.0	75	28	M12	45	ER16	1.10
	BT40AD/B-ER16-100	P2553021	0.5 - 10.0	100	28	M12	45	ER16	1.20
	BT40AD/B-ER16-120	P2776515	0.5 - 10.0	120	28	M12	45	ER16	1.40
	BT40AD/B-ER20-75	P2776516	0.5 - 13.0	75	34	M12	50	ER20	1.40
	BT40AD/B-ER20-100	P2553017	0.5 - 13.0	100	34	M12	50	ER20	1.80
	BT40AD/B-ER20-135	P2776517	0.5 - 13.0	135	34	M12	50	ER20	2.20
	BT40AD/B-ER25-75	P2600012	1.0 - 16.0	75	42	M12	65	ER25	1.40
	BT40AD/B-ER25-100	P2553018	1.0 - 16.0	100	42	M12	65	ER25	1.80
	BT40AD/B-ER25-135	P2776518	1.0 - 16.0	135	42	M12	65	ER25	2.20
	BT40AD/B-ER25-150	P2776519	1.0 - 16.0	150	42	M12	65	ER25	2.40
	BT40AD/B-ER32-60	P2553501	1.0 - 20.0	60	50	M12	65	ER32	1.80
	BT40AD/B-ER32-100	P2776505	1.0 - 20.0	100	50	M12	65	ER32	2.20

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE

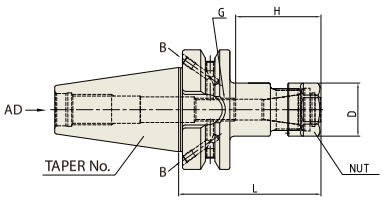
ER COLLET CHUCK

ER

ER COLLET CHUCK

JIS B6339/
MAS 403-BT

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



IS 6339 T | AT3 | 2.5G | 25,000 RPM | AD/B

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	BT50AD/B-ER16-100	P2776522	0.5 - 10.0	100	28	M12	45	ER16	4.20
	BT50AD/B-ER16-120	P2776523	0.5 - 10.0	120	28	M12	45	ER16	4.40
	BT50AD/B-ER16-165	P2776524	0.5 - 10.0	165	28	M12	45	ER16	4.60
	BT50AD/B-ER20-100	P2776525	0.5 - 13.0	100	34	M12	50	ER20	4.60
	BT50AD/B-ER20-135	P2776526	0.5 - 13.0	135	34	M12	50	ER20	4.80
	BT50AD/B-ER20-165	P2776527	0.5 - 13.0	165	34	M12	50	ER20	5.00
	BT50AD/B-ER25-100	P2776528	1.0 - 16.0	100	42	M12	65	ER25	4.70
	BT50AD/B-ER25-135	P2776529	1.0 - 16.0	135	42	M12	65	ER25	4.80
	BT50AD/B-ER25-165	P2776530	1.0 - 16.0	165	42	M12	65	ER25	5.00
	BT50AD/B-ER32-100	P2600026	1.0 - 20.0	100	50	M12	65	ER32	5.20
	BT50AD/B-ER32-135	P2776531	1.0 - 20.0	135	50	M12	65	ER32	5.70
	BT50AD/B-ER32-165	P2776532	1.0 - 20.0	165	50	M12	65	ER32	5.80
	BT50AD/B-ER40-100	P2600027	2.0 - 30.0	100	63	M12	75	ER40	5.60
	BT50AD/B-ER40-150	P2776533	2.0 - 30.0	150	63	M12	75	ER40	6.10
	BT50AD/B-ER50-100	P2776534	4.0 - 34.0	100	78	M16	85	ER50	5.80
	BT50AD/B-ER50-150	P2776535	4.0 - 34.0	150	78	M16	85	ER50	6.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

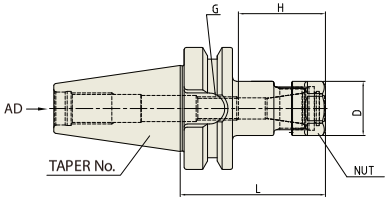
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

JIS B6339/
MAS 403-BT

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	BT30-ER11-70	P2772107	0.5 - 7.0	70	19	M6	45	ER11	0.50
	BT30-ER11-100	P2772108	0.5 - 7.0	100	19	M6	45	ER11	0.50
	BT30-ER16-70	P2772109	0.5 - 10.0	70	28	M12	45	ER16	1.00
	BT30-ER16-100	P2772110	0.5 - 10.0	100	28	M12	45	ER16	1.10
	BT30-ER20-80	P2772111	0.5 - 13.0	80	34	M12	50	ER20	1.20
	BT30-ER20-100	P2772112	0.5 - 13.0	100	34	M12	50	ER20	1.30
	BT30-ER25-70	P2772106	1.0 - 16.0	70	42	M12	65	ER25	1.20
	BT30-ER25-100	P2772113	1.0 - 16.0	100	42	M12	65	ER25	1.30
	BT30-ER32-60	P2772144	1.0 - 20.0	60	50	M12	65	ER32	1.40
	BT30-ER32-90	P2772115	1.0 - 20.0	90	50	M12	65	ER32	1.90
40	BT40-ER11-75	P2772116	0.5 - 7.0	75	19	M6	45	ER11	1.00
	BT40-ER11-100	P2772117	0.5 - 7.0	100	19	M6	45	ER11	1.10
	BT40-ER16-75	P2772101	0.5 - 10.0	75	28	M12	45	ER16	1.10
	BT40-ER16-100	P2772118	0.5 - 10.0	100	28	M12	45	ER16	1.20
	BT40-ER16-120	P2772119	0.5 - 10.0	120	28	M12	45	ER16	1.40
	BT40-ER20-75	P2772102	0.5 - 13.0	75	34	M12	50	ER20	1.40
	BT40-ER20-100	P2772120	0.5 - 13.0	100	34	M12	50	ER20	1.80
	BT40-ER20-135	P2772121	0.5 - 13.0	135	34	M12	50	ER20	2.20
	BT40-ER25-75	P2772103	1.0 - 16.0	75	42	M12	65	ER25	1.40
	BT40-ER25-100	P2772122	1.0 - 16.0	100	42	M12	65	ER25	1.80
	BT40-ER25-135	P2772123	1.0 - 16.0	135	42	M12	65	ER25	2.20
	BT40-ER25-150	P2772124	1.0 - 16.0	150	42	M12	65	ER25	2.40
	BT40-ER32-60	P2772104	1.0 - 20.0	60	50	M12	65	ER32	1.80
	BT40-ER32-100	P2772125	1.0 - 20.0	100	50	M12	65	ER32	2.20
	BT40-ER32-120	P2772105	1.0 - 20.0	120	50	M12	65	ER32	2.40
	BT40-ER32-150	P2772126	1.0 - 20.0	150	50	M12	65	ER32	2.60
	BT40-ER40-80	P2772127	2.0 - 30.0	80	63	M12	75	ER40	1.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE

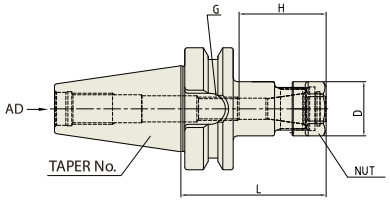
ER COLLET CHUCK

ER

ER COLLET CHUCK

JIS B6339/
MAS 403-BT

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
50	BT50-ER16-100	P2772128	0.5 - 10.0	100	28	M12	45	ER16	4.20
	BT50-ER16-120	P2772129	0.5 - 10.0	120	28	M12	45	ER16	4.40
	BT50-ER16-165	P2772130	0.5 - 10.0	165	28	M12	45	ER16	4.60
	BT50-ER20-100	P2772131	0.5 - 13.0	100	34	M12	50	ER20	4.60
	BT50-ER20-135	P2772132	0.5 - 13.0	135	34	M12	50	ER20	4.80
	BT50-ER20-165	P2772133	0.5 - 13.0	165	34	M12	50	ER20	5.00
	BT50-ER25-100	P2772134	1.0 - 16.0	100	42	M12	65	ER25	4.70
	BT50-ER25-135	P2772135	1.0 - 16.0	135	42	M12	65	ER25	4.80
	BT50-ER25-165	P2772136	1.0 - 16.0	165	42	M12	65	ER25	5.00
	BT50-ER32-100	P2772137	1.0 - 20.0	100	50	M12	65	ER32	5.20
	BT50-ER32-135	P2772138	1.0 - 20.0	135	50	M12	65	ER32	5.70
	BT50-ER32-165	P2772139	1.0 - 20.0	165	50	M12	65	ER32	5.80
	BT50-ER40-100	P2772140	2.0 - 30.0	100	63	M12	75	ER40	5.60
	BT50-ER40-150	P2772141	2.0 - 30.0	150	63	M12	75	ER40	6.10
	BT50-ER50-100	P2772142	4.0 - 34.0	100	78	M16	85	ER50	5.80
	BT50-ER50-150	P2772143	4.0 - 34.0	150	78	M16	85	ER50	6.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

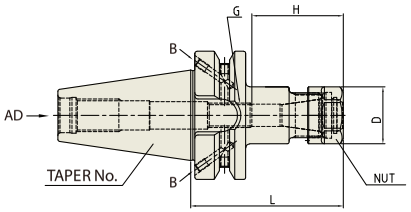
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

JIS B6339/
MAS 403-BT

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



JIS 6339 T | AT3 | 6.3G | 15,000 RPM | AD/B

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
40	BT40AD/B-ER11-75	P2776551	0.5 - 7.0	75	19	M6	45	ER11	1.00
	BT40AD/B-ER11-100	P2776552	0.5 - 7.0	100	19	M6	45	ER11	1.10
	BT40AD/B-ER16-75	P2776553	0.5 - 10.0	75	28	M12	45	ER16	1.10
	BT40AD/B-ER16-100	P2776554	0.5 - 10.0	100	28	M12	45	ER16	1.20
	BT40AD/B-ER16-120	P2776555	0.5 - 10.0	120	28	M12	45	ER16	1.40
	BT40AD/B-ER20-75	P2776556	0.5 - 13.0	75	34	M12	50	ER20	1.40
	BT40AD/B-ER20-100	P2776557	0.5 - 13.0	100	34	M12	50	ER20	1.80
	BT40AD/B-ER20-135	P2776558	0.5 - 13.0	135	34	M12	50	ER20	2.20
	BT40AD/B-ER25-75	P2776559	1.0 - 16.0	75	42	M12	65	ER25	1.40
	BT40AD/B-ER25-100	P2776560	1.0 - 16.0	100	42	M12	65	ER25	1.80
	BT40AD/B-ER25-135	P2776561	1.0 - 16.0	135	42	M12	65	ER25	2.20
	BT40AD/B-ER25-150	P2776562	1.0 - 16.0	150	42	M12	65	ER25	2.40
	BT40AD/B-ER32-60	P2776563	1.0 - 20.0	60	50	M12	65	ER32	1.80
	BT40AD/B-ER32-100	P2776564	1.0 - 20.0	100	50	M12	65	ER32	2.20
50	BT50AD/B-ER16-100	P2776565	0.5 - 10.0	100	28	M12	45	ER16	4.20
	BT50AD/B-ER16-120	P2776566	0.5 - 10.0	120	28	M12	45	ER16	4.40
	BT50AD/B-ER16-165	P2776567	0.5 - 10.0	165	28	M12	45	ER16	4.60
	BT50AD/B-ER20-100	P2776568	0.5 - 13.0	100	34	M12	50	ER20	4.60
	BT50AD/B-ER20-135	P2776569	0.5 - 13.0	135	34	M12	50	ER20	4.80
	BT50AD/B-ER20-165	P2776570	0.5 - 13.0	165	34	M12	50	ER20	5.00
	BT50AD/B-ER25-100	P2776571	1.0 - 16.0	100	42	M12	65	ER25	4.70
	BT50AD/B-ER25-135	P2776572	1.0 - 16.0	135	42	M12	65	ER25	4.80
	BT50AD/B-ER25-165	P2776573	1.0 - 16.0	165	42	M12	65	ER25	5.00
	BT50AD/B-ER32-100	P2776574	1.0 - 20.0	100	50	M12	65	ER32	5.20
	BT50AD/B-ER32-135	P2776575	1.0 - 20.0	135	50	M12	65	ER32	5.70
	BT50AD/B-ER32-165	P2776576	1.0 - 20.0	165	50	M12	65	ER32	5.80
	BT50AD/B-ER40-100	P2776577	2.0 - 30.0	100	63	M12	75	ER40	5.60
	BT50AD/B-ER40-150	P2776578	2.0 - 30.0	150	63	M12	75	ER40	6.10
	BT50AD/B-ER50-100	P2776579	4.0 - 34.0	100	78	M16	85	ER50	5.80
	BT50AD/B-ER50-150	P2776580	4.0 - 34.0	150	78	M16	85	ER50	6.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

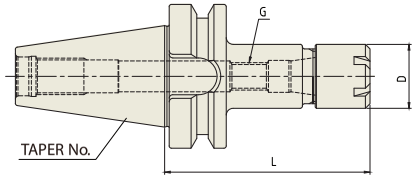
ER COLLET CHUCK

ER

ER COLLET CHUCK

JIS B6339/
MAS 403-BT

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



JIS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	G	H	NUT / COLLET	WEIGHT (kg)
30	BT30-ER11M-50	P2802601	0.5 - 7.0	50	16	M6	29.5	XSQ-R11M / ER11	0.50
	BT30-ER11M-75	P2802602	0.5 - 7.0	75	16	M6	29.5	XSQ-R11M / ER11	0.50
	BT30-ER11M-100	P2802603	0.5 - 7.0	100	16	M6	29.5	XSQ-R11M / ER11	0.60
	BT30-ER16M-50	P2802604	0.5 - 10.0	50	22	M10	38	XSQ-R16M / ER16	0.50
	BT30-ER16M-75	P2802605	0.5 - 10.0	75	22	M10	38	XSQ-R16M / ER16	0.50
	BT30-ER16M-100	P2802606	0.5 - 10.0	100	22	M10	38	XSQ-R16M / ER16	0.60
	BT30-ER20M-50	P2802607	0.5 - 13.0	50	28	M12	44.5	XSQ-R20M / ER20	0.50
	BT30-ER20M-75	P2802608	0.5 - 13.0	75	28	M12	44.5	XSQ-R20M / ER20	0.60
	BT30-ER20M-100	P2802609	0.5 - 13.0	100	28	M12	44.5	XSQ-R20M / ER20	0.70
	BT30-ER25M-50	P2802610	1.0 - 16.0	50	35	M12	52	XSQ-R25M / ER25	0.60
	BT30-ER25M-75	P2802611	1.0 - 16.0	75	35	M12	52	XSQ-R25M / ER25	0.70
	BT30-ER25M-100	P2802612	1.0 - 16.0	100	35	M12	52	XSQ-R25M / ER25	0.80
40	BT40-ER11M-60	P2802613	0.5 - 7.0	60	16	M6	29.5	XSQ-R11M / ER11	1.00
	BT40-ER11M-90	P2802614	0.5 - 7.0	90	16	M6	29.5	XSQ-R11M / ER11	1.10
	BT40-ER11M-135	P2802615	0.5 - 7.0	135	16	M6	29.5	XSQ-R11M / ER11	1.20
	BT40-ER16M-60	P2802616	0.5 - 10.0	60	22	M10	38	XSQ-R16M / ER16	1.10
	BT40-ER16M-90	P2802617	0.5 - 10.0	90	22	M10	38	XSQ-R16M / ER16	1.20
	BT40-ER16M-135	P2802618	0.5 - 10.0	135	22	M10	38	XSQ-R16M / ER16	1.40
	BT40-ER20M-60	P2802619	0.5 - 13.0	60	28	M12	44.5	XSQ-R20M / ER20	1.10
	BT40-ER20M-90	P2802620	0.5 - 13.0	90	28	M12	44.5	XSQ-R20M / ER20	1.50
	BT40-ER20M-150	P2802621	0.5 - 13.0	150	28	M12	44.5	XSQ-R20M / ER20	1.80
	BT40-ER25M-60	P2802622	1.0 - 16.0	60	35	M12	52	XSQ-R25M / ER25	1.20
	BT40-ER25M-90	P2802623	1.0 - 16.0	90	35	M12	52	XSQ-R25M / ER25	1.40
	BT40-ER25M-150	P2802624	1.0 - 16.0	150	35	M12	52	XSQ-R25M / ER25	1.80
50	BT50-ER11M-90	P2802625	0.5 - 7.0	90	16	M6	29.5	XSQ-R11M / ER11	3.80
	BT50-ER11M-120	P2802626	0.5 - 7.0	120	16	M6	29.5	XSQ-R11M / ER11	3.90
	BT50-ER11M-165	P2802627	0.5 - 7.0	165	16	M6	29.5	XSQ-R11M / ER11	4.00
	BT50-ER16M-90	P2802628	0.5 - 10.0	90	22	M10	38	XSQ-R16M / ER16	3.80
	BT50-ER16M-120	P2802629	0.5 - 10.0	120	22	M10	38	XSQ-R16M / ER16	4.00
	BT50-ER16M-165	P2802630	0.5 - 10.0	165	22	M10	38	XSQ-R16M / ER16	4.20
	BT50-ER20M-75	P2802631	0.5 - 13.0	75	28	M12	44.5	XSQ-R20M / ER20	3.80
	BT50-ER20M-105	P2802632	0.5 - 13.0	105	28	M12	44.5	XSQ-R20M / ER20	3.90
	BT50-ER20M-165	P2802633	0.5 - 13.0	165	28	M12	44.5	XSQ-R20M / ER20	4.50
	BT50-ER25M-75	P2802634	1.0 - 16.0	75	35	M12	52	XSQ-R25M / ER25	3.90
	BT50-ER25M-105	P2802635	1.0 - 16.0	105	35	M12	52	XSQ-R25M / ER25	4.10
	BT50-ER25M-165	P2802636	1.0 - 16.0	165	35	M12	52	XSQ-R25M / ER25	4.40

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

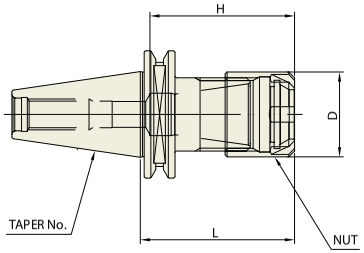
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

ISO 20/25 (SLIM TYPE)

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



ISO 20/25 | AT3 | 2.5G | 30,000 RPM | AD

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
20	ISO20-ER16M-35	P2776541	0.5 - 10.0	35	22	37.5	ER16M / ER16	-
25	ISO25-ER16M-35	P2776542	0.5 - 10.0	35	22	37.5	ER16M / ER16	-
	ISO25-ER20M-36	P2776543	0.5 - 13.0	36	28	-	ER20M / ER20	-

▶ Higher balancing grade is available upon request.
▶ To be supplied with assembling of pull stud bolt.

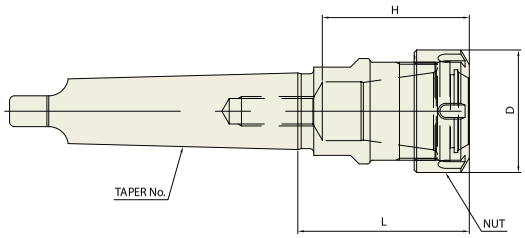
ER COLLET CHUCK

ER

ER COLLET CHUCK

DIN 228-MTA

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
1	MTA1-ER11	P2772241	0.5 - 7.0	42.1	19	28.6	ER11	0.30
	MTA1-ER16	P2772242	0.5 - 10.0	43.9	28	36.6	ER16	0.35
2	MTA2-ER20	P2772243	0.5 - 13.0	50	34	40.5	ER20	0.50
	MTA2-ER25	P2772244	1.0 - 16.0	50	42	41	ER25	0.60
3	MTA3-ER25	P2772245	1.0 - 16.0	60	42	52	ER25	0.60
	MTA3-ER32	P2772246	1.0 - 20.0	70	50	47	ER32	0.65
4	MTA4-ER20	P2772247	0.5 - 13.0	60	34	50	ER20	1.00
	MTA4-ER25	P2772248	1.0 - 16.0	60	42	52	ER25	1.10
	MTA4-ER32	P2772249	1.0 - 20.0	65	50	48	ER32	1.30
	MTA4-ER40	P2772250	2.0 - 30.0	80	63	69	ER40	1.50
5	MTA5-ER32	P2772251	1.0 - 20.0	70	50	60	ER32	2.20
	MTA5-ER40	P2772252	2.0 - 30.0	80	63	69	ER40	2.40
	MTA5-ER50	P2772253	4.0 - 34.0	80	78	69	ER50	2.80

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

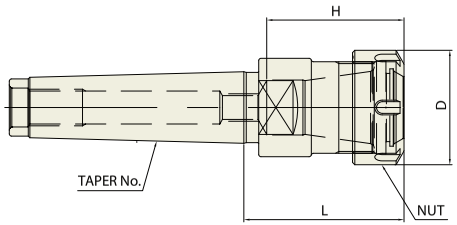
ER COLLET CHUCK

ER

ER COLLET CHUCK

DIN 228-MTB

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	H	NUT / COLLET	WEIGHT (kg)
1	**MTB1-ER16**	**P2772254**	0.5 - 10.0	43.9	28	36.6	ER16	0.35
2	**MTB2-ER20**	**P2772255**	0.5 - 13.0	50	34	40.5	ER20	0.50
	MTB2-ER25	**P2772256**	1.0 - 16.0	50	42	41	ER25	0.60
3	**MTB3-ER25**	**P2772257**	1.0 - 16.0	60	42	52	ER25	0.60
	MTB3-ER32	**P2772258**	1.0 - 20.0	70	50	47	ER32	0.65
4	**MTB4-ER32**	**P2772259**	1.0 - 20.0	65	50	48	ER32	1.10
	MTB4-ER40	**P2772260**	2.0 - 30.0	80	63	69	ER40	1.30
5	**MTB5-ER32**	**P2772261**	1.0 - 20.0	70	50	60	ER32	2.00
	MTB5-ER40	**P2772262**	2.0 - 30.0	80	63	69	ER40	2.20
	MTB5-ER50	**P2772263**	4.0 - 34.0	80	78	69	ER50	2.60

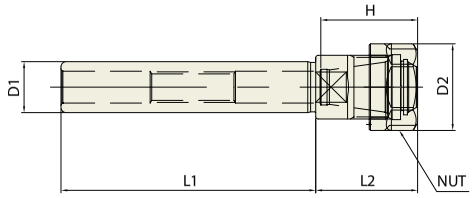
ER COLLET CHUCK

ER

ER COLLET CHUCK

STRAIGHT-K

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L1	L2	H	NUT / COLLET	WEIGHT (kg)
16	**K16-ER11-100**	**P2772201**	0.5 - 7.0	16	19	100	32	27	ER11	0.15
	K16-ER16-100	**P2772219**	0.5 - 10.0	16	28	100	36	32.6	ER16	0.18
20	**K20-ER16-100**	**P2772202**	0.5 - 10.0	20	28	100	36	35.6	ER16	0.25
	K20-ER20-100	**P2772203**	0.5 - 13.0	20	34	100	40	38	ER20	0.29
	K20-ER25-100	**P2772220**	1.0 - 16.0	20	42	100	50	44	ER25	0.35
25	**K25-ER20-100**	**P2772221**	0.5 - 13.0	25	34	100	40	71.6	ER20	0.40
	K25-ER25-100	**P2772204**	1.0 - 16.0	25	42	100	50	43.1	ER25	0.45
32	**K32-ER16-100**	**P2772222**	0.5 - 10.0	32	28	100	36	-	ER16	0.50
	K32-ER20-100	**P2772223**	0.5 - 13.0	32	34	100	40	71.6	ER20	0.66
	K32-ER25-100	**P2772224**	1.0 - 16.0	32	42	100	50	71.1	ER25	0.75
	K32-ER32-100	**P2772225**	1.0 - 20.0	32	50	100	58	78	ER32	1.00

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
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ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

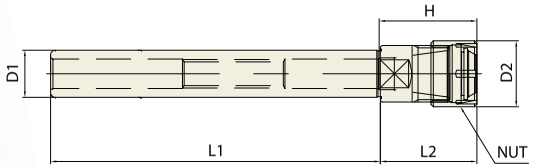
ER COLLET CHUCK

ER

EXTENSION ER COLLET CHUCK

STRAIGHT-K (SLIM TYPE)

VERLÄNGERUNG FRÄSERSPANNFUTTER - SCHLANKER TYP
EXTENSION MANDRIN Á PINCES - TYPE MINCE
PROLUNGHE MANDRINO PORTA PINZE - TIPO SOTTILE
EXTENSION PORTAPINZAS - TIPO DELGADO



ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L1	L2	H	NUT / COLLET	WEIGHT (kg)
12	K12-ER8M-70	P2772205	0.5 - 5.0	12	12	70	25	38	ER8M / ER8	0.10
	K12-ER8M-100	P2780001	0.5 - 5.0	12	12	100	25	38	ER8M / ER8	0.13
	K12-ER8M-150	P2780002	0.5 - 5.0	12	12	150	25	38	ER8M / ER8	0.17
	K12-ER8M-200	P2780003	0.5 - 5.0	12	12	200	25	38	ER8M / ER8	0.21
	K12-ER8M-250	P2780004	0.5 - 5.0	12	12	250	25	38	ER8M / ER8	0.26
	K12-ER8M-300	P2780005	0.5 - 5.0	12	12	300	25	38	ER8M / ER8	0.3
16	K16-ER11M-100	P2780006	0.5 - 7.0	16	16	100	32	29.5	ER11M / ER11	0.18
	K16-ER11M-140	P2772206	0.5 - 7.0	16	16	140	32	29.5	ER11M / ER11	0.23
	K16-ER11M-200	P2780007	0.5 - 7.0	16	16	200	32	29.5	ER11M / ER11	0.37
	K16-ER11M-250	P2780008	0.5 - 7.0	16	16	250	32	29.5	ER11M / ER11	0.45
	K16-ER11M-300	P2780009	0.5 - 7.0	16	16	300	32	29.5	ER11M / ER11	0.52
	K16-ER16M-100	P2780010	0.5 - 10.0	16	22	100	32	38	ER16M / ER16	0.18
	K16-ER16M-140	P2780011	0.5 - 10.0	16	22	140	32	38	ER16M / ER16	0.23
	K16-ER16M-200	P2780012	0.5 - 10.0	16	22	200	32	38	ER16M / ER16	0.37
	K16-ER16M-250	P2780013	0.5 - 10.0	16	22	250	32	38	ER16M / ER16	0.45
	K16-ER16M-300	P2780014	0.5 - 10.0	16	22	300	32	38	ER16M / ER16	0.52
20	K20-ER16M-100	P2780015	0.5 - 10.0	20	22	100	41	-	ER16M / ER16	0.22
	K20-ER16M-140	P2772207	0.5 - 10.0	20	22	140	41	-	ER16M / ER16	0.28
	K20-ER16M-200	P2780016	0.5 - 10.0	20	22	200	41	-	ER16M / ER16	0.54
	K20-ER16M-250	P2780017	0.5 - 10.0	20	22	250	41	-	ER16M / ER16	0.66
	K20-ER16M-300	P2780018	0.5 - 10.0	20	22	300	41	-	ER16M / ER16	0.78
	K20-ER20M-100	P2780019	0.5 - 13.0	20	28	100	41	41.5	ER20M / ER20	0.25
	K20-ER20M-140	P2772208	0.5 - 13.0	20	28	140	41	41.5	ER20M / ER20	0.32
	K20-ER20M-200	P2780020	0.5 - 13.0	20	28	200	41	41.5	ER20M / ER20	0.54
	K20-ER20M-250	P2780021	0.5 - 13.0	20	28	250	41	41.5	ER20M / ER20	0.66
	K20-ER20M-300	P2780022	0.5 - 13.0	20	28	300	41	41.5	ER20M / ER20	0.78

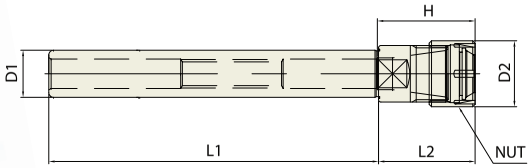
ER COLLET CHUCK

ER

EXTENSION ER COLLET CHUCK

STRAIGHT-K (SLIM TYPE)

VERLÄNGERUNG FRÄSERSPANNFUTTER - SCHLANKER TYP
EXTENSION MANDRIN Á PINCES - TYPE MINCE
PROLUNGHE MANDRINO PORTA PINZE - TIPO SOTTILE
EXTENSION PORTAPINZAS - TIPO DELGADO



ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L1	L2	H	NUT / COLLET	WEIGHT (kg)
25	K25-ER16M-100	P2780023	0.5 - 10.0	25	22	100	41	-	ER16M / ER16	0.38
	K25-ER16M-140	P2772209	0.5 - 10.0	25	22	140	41	-	ER16M / ER16	0.50
	K25-ER16M-200	P2780024	0.5 - 10.0	25	22	200	41	-	ER16M / ER16	0.80
	K25-ER16M-250	P2780025	0.5 - 10.0	25	22	250	41	-	ER16M / ER16	1.00
	K25-ER16M-300	P2780026	0.5 - 10.0	25	22	300	41	-	ER16M / ER16	1.19
	K25-ER20M-140	P2772210	0.5 - 13.0	25	28	140	41	79	ER20M / ER20	0.52
	K25-ER20M-200	P2780027	0.5 - 13.0	25	28	200	41	79	ER20M / ER20	0.84
	K25-ER20M-250	P2780028	0.5 - 13.0	25	28	250	41	79	ER20M / ER20	1.03
	K25-ER20M-300	P2780029	0.5 - 13.0	25	28	300	41	79	ER20M / ER20	1.23
	K25-ER25M-140	P2772211	1.0 - 16.0	25	35	140	45	82	ER25M / ER25	0.50
	K25-ER25M-200	P2780030	1.0 - 16.0	25	35	200	45	82	ER25M / ER25	0.84
	K25-ER25M-250	P2780031	1.0 - 16.0	25	35	250	45	82	ER25M / ER25	1.04
	K25-ER25M-300	P2780032	1.0 - 16.0	25	35	300	45	82	ER25M / ER25	1.23
32	K32-ER20M-150	P2780033	0.5 - 13.0	32	28	150	41	41.5	ER20M / ER25	0.84
	K32-ER20M-200	P2780034	0.5 - 13.0	32	28	200	41	41.5	ER20M / ER25	1.31
	K32-ER20M-250	P2780035	0.5 - 13.0	32	28	250	41	41.5	ER20M / ER25	1.62
	K32-ER20M-300	P2780036	0.5 - 13.0	32	28	300	41	41.5	ER20M / ER25	1.94
	K32-ER25M-150	P2780037	1.0 - 16.0	32	35	150	41	41.5	ER25M / ER25	1.01
	K32-ER25M-200	P2780038	1.0 - 16.0	32	35	200	41	41.5	ER25M / ER25	1.32
	K32-ER25M-250	P2780039	1.0 - 16.0	32	35	250	41	41.5	ER25M / ER25	1.64
	K32-ER25M-300	P2780040	1.0 - 16.0	32	35	300	41	41.5	ER25M / ER25	1.95
	K32-ER25M-350	P2780041	1.0 - 16.0	32	35	350	41	41.5	ER25M / ER25	2.27

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

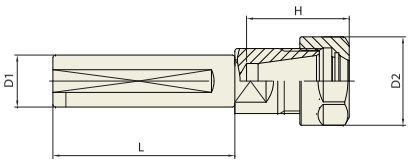
ER COLLET CHUCK

ERT

TENSION ER CHUCK (For TAPPING)

STRAIGHT-K

SPANNUNG FRÄSERSPANNFUTTER - ER - FÜR GEWINDESCHNEID
TENSION MANDRIN À PINCES - ER - POUR TARAUDER
TENSIONAMENTO MANDRINO PORTA PINZE - ER - PER MASCHIARE
TENSIÓN PORTAPINZAS - ER - PARA HILO



ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L	H	NUT / COLLET	WEIGHT (kg)
20	K20-ERT16-70	P2772212	0.5 - 10.0	20	28	70	31.7	ER16	0.40
25	K25-ERT16-80	P2772213	0.5 - 10.0	25	28	80	31.7	ER16	0.45
	K25-ERT20-80	P2772214	0.5 - 13.0	25	34	80	35.5	ER20	0.50
32	K32-ERT16-80	P2772215	0.5 - 10.0	32	28	80	31.7	ER16	0.70
	K32-ERT20-80	P2772216	0.5 - 13.0	32	34	80	35.5	ER20	0.80
	K32-ERT25-80	P2772217	1.0 - 16.0	32	42	80	42	ER25	1.00
	K32-ERT32-80	P2772218	1.0 - 20.0	32	50	80	48	ER32	1.20

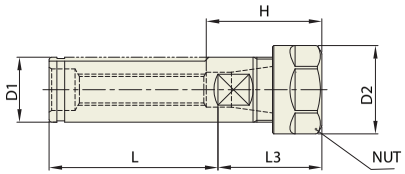
ER COLLET CHUCK

ER

ER COLLET CHUCK

NC- for CNC LATHE

FRÄSERSPANNFUTTER - ER - FÜR CNC DREHBANK
MANDRIN À PINCES - ER - POUR CNC TOUR
MANDRINO PORTA PINZE - ER - PER CNC TORNIO
PORTAPINZAS - ER - PARA CNC TORNO



ER Collet
Refer to page 103-109

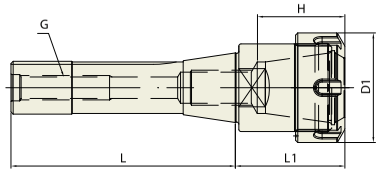
ER nut, Sealing disk and Spanner
Refer to page 110-115

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D1	D2	L	L1	H	NUT / COLLET	WEIGHT (kg)
25	NC25-ER11	P2772310	0.5 - 7.0	25	19	65	32	28.6	ER11	0.30
	NC25-ER16	P2772311	0.5 - 10.0	25	28	65	36	35.6	ER16	0.45
	NC25-ER20	P2772301	0.5 - 13.0	25	34	65	40	44.5	ER20	0.50
	NC25-ER25	P2772302	1.0 - 16.0	25	42	65	40	41	ER25	0.55
32	NC32-ER20	P2772303	0.5 - 13.0	32	34	60	39.5	44.5	ER20	0.60
	NC32-ER25	P2772304	1.0 - 16.0	32	42	70	40	41	ER25	0.70
	NC32-ER32	P2772305	1.0 - 20.0	32	50	70	45	47	ER32	0.75
40	NC40-ER32	P2772306	1.0 - 20.0	40	50	75	45	60	ER32	1.25
	NC40-ER40	P2772307	2.0 - 30.0	40	63	75	55	53	ER40	1.30

BRIDGEPORT-R8



ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	G	D1	L	L1	H	NUT / COLLET	WEIGHT (kg)
R8	R8-ER32	P2772308	1.0 - 20.0	U7/16	50	102.4	50	40	ER32	1.00
	R8-ER40	P2772309	2.0 - 30.0	U7/16	63	102.4	75	51	ER40	1.20

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

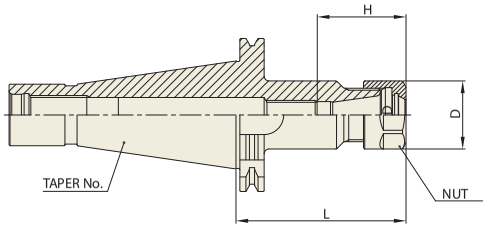
ER COLLET CHUCK

ER

ER COLLET CHUCK

GOST 25827-93

FRÄSERSPANNFUTTER - ER
MANDRIN À PINCES - ER
MANDRINO PORTA PINZE - ER
PORTAPINZAS - ER



GOST 25827-93 | AT3 | A

ER Collet
Refer to page 103-109

ER nut, Sealing disk and Spanner
Refer to page 110-115

Unit : mm

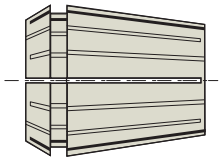
TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L	H	NUT / COLLET	WEIGHT (kg)
40	GOST40-ER16-70	P2780101	0.5 - 10.0	28	70	45	ER16	
	GOST40-ER16-100	P2780102	0.5 - 10.0	28	100	45	ER16	
	GOST40-ER25-70	P2780103	1.0 - 16.0	42	70	65	ER25	
	GOST40-ER25-100	P2780104	1.0 - 16.0	42	120	65	ER25	
	GOST40-ER32-70	P2780105	1.0 - 20.0	50	70	65	ER32	
	GOST40-ER32-100	P2780106	1.0 - 20.0	50	100	65	ER32	
50	GOST50-ER16-90	P2780107	0.5 - 10.0	28	90	45	ER16	
	GOST50-ER16-150	P2780108	0.5 - 10.0	28	150	45	ER16	
	GOST50-ER25-90	P2780109	1.0 - 16.0	42	90	65	ER25	
	GOST50-ER25-150	P2780110	1.0 - 16.0	42	150	65	ER25	
	GOST50-ER32-90	P2780111	1.0 - 20.0	50	90	65	ER32	
	GOST50-ER32-150	P2780112	1.0 - 20.0	50	15	65	ER32	
	GOST50-ER40-90	P2780113	2.0 - 30.0	63	90	65	ER40	

ER COLLET CHUCK

GER

ER COLLET - GER (High Presicion)

ER SPANNZANGE - GER
ER PINCE DE SERRAGE - GER
ER PINZA DI SERRAGGIO - GER
ER PINZA PORTAPIEZAS - GER



* T.I.R : ≤0.005mm at 3D

Unit : mm

GER 8		
CLAMPING RANGE	CODE No.	EDP No.
1.0 - 0.5	108010	P2772557
1.5 - 1.0	108015	P2772558
2.0 - 1.5	108020	P2772559
2.5 - 2.0	108025	P2772560
3.0 - 2.5	108030	P2772561
3.5 - 3.0	108035	P2772562
4.0 - 3.5	108040	P2772563
4.5 - 4.0	108045	P2772564
5.0 - 4.5	108050	P2772565

GER 11		
CLAMPING RANGE	CODE No.	EDP No.
1.0 - 0.5	111010	P2772401
1.5 - 1.0	111015	P2772402
2.0 - 1.5	111020	P2772403
2.5 - 2.0	111025	P2772404
3.0 - 2.5	111030	P2772405
3.5 - 3.0	111035	P2772406
4.0 - 3.5	111040	P2772407
4.5 - 4.0	111045	P2772408
5.0 - 4.5	111050	P2772409
5.5 - 5.0	111055	P2772410
6.0 - 5.5	111060	P2772411
6.5 - 6.0	111065	P2772412
7.0 - 6.5	111070	P2772413

GER 16		
CLAMPING RANGE	CODE No.	EDP No.
1.0 - 0.5	116010	P2772414
2.0 - 1.0	116020	P2772415
3.0 - 2.0	116030	P2772416
4.0 - 3.0	116040	P2772417
5.0 - 4.0	116050	P2772418
6.0 - 5.0	116060	P2772419
7.0 - 6.0	116070	P2772420
8.0 - 7.0	116080	P2772421
9.0 - 8.0	116090	P2772422
10.0 - 9.0	116100	P2772423
1.5 - 1.0	116015	P2772424
2.5 - 2.0	116025	P2772425

GER 20		
CLAMPING RANGE	CODE No.	EDP No.
2.0 - 1.0	120020	P2772426
3.0 - 2.0	120030	P2772427
4.0 - 3.0	120040	P2772428
5.0 - 4.0	120050	P2772429
6.0 - 5.0	120060	P2772430
7.0 - 6.0	120070	P2772431
8.0 - 7.0	120080	P2772432
9.0 - 8.0	120090	P2772433
10.0 - 9.0	120100	P2772434
11.0 - 10.0	120110	P2772435
12.0 - 11.0	120120	P2772436
13.0 - 12.0	120130	P2772437
1.0 - 0.5	120010	P2772438
1.5 - 1.0	120015	P2772439
2.5 - 2.0	120025	P2772440

GER 25		
CLAMPING RANGE	CODE No.	EDP No.
2.0 - 1.0	125020	P2772441
3.0 - 2.0	125030	P2772442
4.0 - 3.0	125040	P2772443
5.0 - 4.0	125050	P2772444
6.0 - 5.0	125060	P2772445
7.0 - 6.0	125070	P2772446
8.0 - 7.0	125080	P2772447
9.0 - 8.0	125090	P2772448
10.0 - 9.0	125100	P2772449
11.0 - 10.0	125110	P2772450
12.0 - 11.0	125120	P2772451
13.0 - 12.0	125130	P2772452
14.0 - 13.0	125140	P2772453
15.0 - 14.0	125150	P2772454
16.0 - 15.0	125160	P2772455
1.0 - 1.5	125010	P2772456
1.5 - 1.0	125015	P2772457
2.5 - 2.0	125025	P2772458

GER 32		
CLAMPING RANGE	CODE No.	EDP No.
3.0 - 2.0	132030	P2772459
4.0 - 3.0	132040	P2772460
5.0 - 4.0	132050	P2772461
6.0 - 5.0	132060	P2772462
7.0 - 6.0	132070	P2772463
8.0 - 7.0	132080	P2772464
9.0 - 8.0	132090	P2772465
10.0 - 9.0	132100	P2772466
11.0 - 10.0	132110	P2772467
12.0 - 11.0	132120	P2772468
13.0 - 12.0	132130	P2772469
14.0 - 13.0	132140	P2772470
15.0 - 14.0	132150	P2772471
16.0 - 15.0	132160	P2772472
17.0 - 16.0	132170	P2772473
18.0 - 17.0	132180	P2772474
19.0 - 18.0	132190	P2772475
20.0 - 19.0	132200	P2772476
2.0 - 1.0	132020	P2772477
2.5 - 2.0	132025	P2772478

GER 40		
CLAMPING RANGE	CODE No.	EDP No.
4.0 - 3.0	140040	P2772479
5.0 - 4.0	140050	P2772480
6.0 - 5.0	140060	P2772481
7.0 - 6.0	140070	P2772482
8.0 - 7.0	140080	P2772483
9.0 - 8.0	140090	P2772484
10.0 - 9.0	140100	P2772485
11.0 - 10.0	140110	P2772486
12.0 - 11.0	140120	P2772487
13.0 - 12.0	140130	P2772488
14.0 - 13.0	140140	P2772489
15.0 - 14.0	140150	P2772490
16.0 - 15.0	140160	P2772491
17.0 - 16.0	140170	P2772492
18.0 - 17.0	140180	P2772493
19.0 - 18.0	140190	P2772494
20.0 - 19.0	140200	P2772495
21.0 - 20.0	140210	P2772496
22.0 - 21.0	140220	P2772497
23.0 - 22.0	140230	P2772498
24.0 - 23.0	140240	P2772499
25.0 - 24.0	140250	P2772500
26.0 - 25.0	140260	P2772551
3.0 - 2.0	140030	P2772552
27.0 - 26.0	140270	P2772553
28.0 - 27.0	140280	P2772554
29.0 - 28.0	140290	P2772555
30.0 - 29.0	140300	P2772556

TOOLING SYSTEM

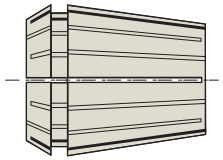
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

UF

ER COLLET - UF

ER SPANNZANGE - UF
ER PINCE DE SERRAGE - UF
ER PINZA DI SERRAGGIO - UF
ER PINZA PORTAPIEZAS - UF



Unit : mm

ER 8			ER 11			ER 16			ER 20		
CLAMPING RANGE	CODE No.	EDP No.	CLAMPING RANGE	CODE No.	EDP No.	CLAMPING RANGE	CODE No.	EDP No.	CLAMPING RANGE	CODE No.	EDP No.
1.0 - 0.5	208010	P2506292	1.0 - 0.5	211010	P2506311	1.0 - 0.5	216010	P2506201	2.0 - 1.0	220020	P2506332
1.5 - 1.0	208015	P2506293	1.5 - 1.0	211015	P2506312	2.0 - 1.0	216020	P2506202	3.0 - 2.0	220030	P2506333
2.0 - 1.5	208020	P2506294	2.0 - 1.5	211020	P2506313	3.0 - 2.0	216030	P2506203	4.0 - 3.0	220040	P2506334
2.5 - 2.0	208025	P2506295	2.5 - 2.0	211025	P2506314	4.0 - 3.0	216040	P2506204	5.0 - 4.0	220050	P2506335
3.0 - 2.5	208030	P2506296	3.0 - 2.5	211030	P2506315	5.0 - 4.0	216050	P2506205	6.0 - 5.0	220060	P2506336
3.5 - 3.0	208035	P2506297	3.5 - 3.0	211035	P2506316	6.0 - 5.0	216060	P2506206	7.0 - 6.0	220070	P2506337
4.0 - 3.5	208040	P2506298	4.0 - 3.5	211040	P2506317	7.0 - 6.0	216070	P2506207	8.0 - 7.0	220080	P2506338
4.5 - 4.0	208045	P2506299	4.5 - 4.0	211045	P2506318	8.0 - 7.0	216080	P2506208	9.0 - 8.0	220090	P2506339
5.0 - 4.5	208050	P2506300	5.0 - 4.5	211050	P2506319	9.0 - 8.0	216090	P2506209	10.0 - 9.0	220100	P2506340
			5.5 - 5.0	211055	P2506320	10.0 - 9.0	216100	P2506210	11.0 - 10.0	220120	P2506341
			6.0 - 5.5	211060	P2506321	1.5 - 1.0	216015	P2778506	12.0 - 11.0	220130	P2506342
			6.5 - 6.0	211065	P2506322	2.5 - 2.0	216025	P2778507	13.0 - 12.0	220140	P2506343
			7.0 - 6.5	211070	P2506323				1.0 - 0.5	220010	P2506344
									1.5 - 1.0	220015	P2506345
									2.5 - 2.0	220025	P2506346
STANDARD SET	208000	P2506301	STANDARD SET	211000	P2506302	STANDARD SET	216000	P2506303	STANDARD SET	220000	P2506304
Ø1.0 - 5.0mm			Ø1.0 - 7.0mm			Ø1.0 - 10.0mm			Ø2.0 - 13.0mm		
9pcs			13pcs			10pcs			12pcs		
WOODEN TRAY ZWT 8	108110		WOODEN TRAY ZWT 11	011110		WOODEN TRAY ZWT 16	016110		WOODEN TRAY ZWT 20	020110	

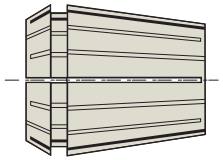
▶ Inch type collets available.

ER COLLET CHUCK

UF

ER COLLET - UF

ER SPANNZANGE - UF
ER PINCE DE SERRAGE - UF
ER PINZA DI SERRAGGIO - UF
ER PINZA PORTAPIEZAS - UF



Unit : mm

ER 25			ER 32			ER 40			ER 50		
CLAMPING RANGE	CODE No.	EDP No.	CLAMPING RANGE	CODE No.	EDP No.	CLAMPING RANGE	CODE No.	EDP No.	CLAMPING RANGE	CODE No.	EDP No.
2.0 - 1.0	225020	P2506212	3.0 - 2.0	232030	P2506233	4.0 - 3.0	240040	P2506264	12.0 - 10.0	250120	P2506352
3.0 - 2.0	225030	P2506213	4.0 - 3.0	232040	P2506234	5.0 - 4.0	240050	P2506265	14.0 - 12.0	250140	P2506354
4.0 - 3.0	225040	P2506214	5.0 - 4.0	232050	P2506235	6.0 - 5.0	240060	P2506266	16.0 - 14.0	250160	P2506356
5.0 - 4.0	225050	P2506215	6.0 - 5.0	232060	P2506236	7.0 - 6.0	240070	P2506267	18.0 - 16.0	250180	P2506358
6.0 - 5.0	225060	P2506216	7.0 - 6.0	232070	P2506237	8.0 - 7.0	240080	P2506268	20.0 - 18.0	250200	P2506360
7.0 - 6.0	225070	P2506217	8.0 - 7.0	232080	P2506238	9.0 - 8.0	240090	P2506269	22.0 - 20.0	250220	P2506362
8.0 - 7.0	225080	P2506218	9.0 - 8.0	232090	P2506239	10.0 - 9.0	240100	P2506270	24.0 - 22.0	250240	P2506364
9.0 - 8.0	225090	P2506219	10.0 - 9.0	232100	P2506240	11.0 - 10.0	240110	P2506271	26.0 - 24.0	250260	P2506366
10.0 - 9.0	225100	P2506220	11.0 - 10.0	232110	P2506241	12.0 - 11.0	240120	P2506272	28.0 - 26.0	250280	P2506368
11.0 - 10.0	225110	P2506221	12.0 - 11.0	232120	P2506242	13.0 - 12.0	240130	P2506273	30.0 - 28.0	250300	P2506370
12.0 - 11.0	225120	P2506222	13.0 - 12.0	232130	P2506243	14.0 - 13.0	240140	P2506274	32.0 - 30.0	250320	P2506372
13.0 - 12.0	225130	P2506223	14.0 - 13.0	232140	P2506244	15.0 - 14.0	240150	P2506275	34.0 - 32.0	250340	P2506374
14.0 - 13.0	225140	P2506224	15.0 - 14.0	232150	P2506245	16.0 - 15.0	240160	P2506276	6.0 - 4.0	250060	P2778515
15.0 - 14.0	225150	P2506225	16.0 - 15.0	232160	P2506246	17.0 - 16.0	240170	P2506277	8.0 - 6.0	250080	P2778516
16.0 - 15.0	225160	P2506226	17.0 - 16.0	232170	P2506247	18.0 - 17.0	240180	P2506278	10.0 - 8.0	250100	P2778517
1.0 - 0.5	225010	P2506227	18.0 - 17.0	232180	P2506248	19.0 - 18.0	240190	P2506279	25.0 - 23.0	250250	P2778518
1.5 - 1.0	225015	P2506228	19.0 - 18.0	232190	P2506249	20.0 - 19.0	240200	P2506280			
2.5 - 2.0	225025	P2506229	20.0 - 19.0	232200	P2506250	21.0 - 20.0	240210	P2506281			
			2.0 - 1.0	232020	P2506251	22.0 - 21.0	240220	P2506282			
			2.5 - 2.0	232025	P2506252	23.0 - 22.0	240230	P2506283			
						24.0 - 23.0	240240	P2506284			
						25.0 - 24.0	240250	P2506285			
						26.0 - 25.0	240260	P2506286			
						3.0 - 2.0	240030	P2506287			
						27.0 - 26.0	240270	P2506288			
						28.0 - 27.0	240280	P2506289			
						29.0 - 28.0	240290	P2506290			
						30.0 - 29.0	240300	P2506291			
STANDARD SET	225000	P2506305	STANDARD SET	232000	P2506306	STANDARD SET	240000	P2506307	STANDARD SET	250000	P2506308
Ø2.0 - 16.0mm			Ø3.0 - 20.0mm			Ø4.0 - 26.0mm			Ø12.0 - 34.0mm		
15pcs			18pcs			23pcs			12pcs		
WOODEN TRAY ZWT 25	025110		WOODEN TRAY ZWT 32	032110		WOODEN TRAY ZWT 40	040110		WOODEN TRAY ZWT 50	050110	

▶ Inch type collets available.

TOOLING SYSTEM

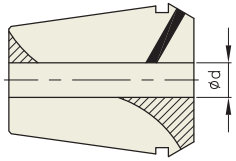
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER COLLET CHUCK

ERS

SEALED ER COLLET

VERSIEGELT ER SPANNZANGE
SCELLÉ ER PINCE DE SERRAGE
SIGILLATO ER PINZA DI SERRAGGIO
SELLADO ER PINZA PORTAPIEZAS



◇ Rubber Sealed

Unit : mm

ER 11S		ER 16S		ER 20S	
CLAMPING RANGE	EDP No.	CLAMPING RANGE	EDP No.	CLAMPING RANGE	EDP No.
3.0	P2506315S	3.0	P2506203S	3.0	P2506333S
3.5	P2506316S	4.0	P2506204S	4.0	P2506334S
4.0	P2506317S	5.0	P2506205S	5.0	P2506335S
4.5	P2506318S	6.0	P2506206S	6.0	P2506336S
5.0	P2506319S	7.0	P2506207S	7.0	P2506337S
5.5	P2506320S	8.0	P2506208S	8.0	P2506338S
6.0	P2506321S	9.0	P2506209S	9.0	P2506339S
6.5	P2506322S	10.0	P2506210S	10.0	P2506340S
7.0	P2506323S	-		11.0	P2506341S
-		-		12.0	P2506342S
-		-		13.0	P2506343S
-		-		-	
-		-		-	
STANDARD SET	P2506302S	STANDARD SET	P2506303S	STANDARD SET	P2506304S
Ø3.0 - 7.0mm		Ø3.0 - 10.0mm		Ø3.0 - 13.0mm	
9pcs		8pcs		11pcs	
WOODEN TRAY ZWT 11		WOODEN TRAY ZWT 16		WOODEN TRAY ZWT 20	

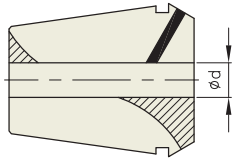
▶ Inch type collets available.

ER COLLET CHUCK

ERS

SEALED ER COLLET

VERSIEGELT ER SPANNZANGE
SCELLÉ ER PINCE DE SERRAGE
SIGILLATO ER PINZA DI SERRAGGIO
SELLADO ER PINZA PORTAPIEZAS



◇ Rubber Sealed

Unit : mm

ER 25S		ER 32S		ER 40S		ER 50S	
CLAMPING RANGE	EDP No.	CLAMPING RANGE	EDP No.	CLAMPING RANGE	EDP No.	CLAMPING RANGE	EDP No.
3.0	P2506213S	3.0	P2506233S	3.0	P2506287S	6.0	P2778515S
4.0	P2506214S	4.0	P2506234S	4.0	P2506264S	8.0	P2778516S
5.0	P2506215S	5.0	P2506235S	5.0	P2506265S	10.0	P2778517S
6.0	P2506216S	6.0	P2506236S	6.0	P2506266S	12.0	P2506352S
7.0	P2506217S	7.0	P2506237S	7.0	P2506267S	14.0	P2506354S
8.0	P2506218S	8.0	P2506238S	8.0	P2506268S	16.0	P2506356S
9.0	P2506219S	9.0	P2506239S	9.0	P2506269S	18.0	P2506358S
10.0	P2506220S	10.0	P2506240S	10.0	P2506270S	20.0	P2506360S
11.0	P2506221S	11.0	P2506241S	11.0	P2506271S	22.0	P2506362S
12.0	P2506222S	12.0	P2506242S	12.0	P2506272S	24.0	P2506364S
13.0	P2506223S	13.0	P2506243S	13.0	P2506273S	25.0	P2778518S
14.0	P2506224S	14.0	P2506244S	14.0	P2506274S	26.0	P2506366S
15.0	P2506225S	15.0	P2506245S	15.0	P2506275S	28.0	P2506368S
16.0	P2506226S	16.0	P2506246S	16.0	P2506276S	30.0	P2506370S
-		17.0	P2506247S	18.0	P2506277S	32.0	P2506372S
-		18.0	P2506248S	19.0	P2506278S	34.0	P2506374S
-		19.0	P2506249S	20.0	P2506279S	-	
-		20.0	P2506250S	21.0	P2506280S	-	
-		-		22.0	P2506281S	-	
-		-		23.0	P2506282S	-	
-		-		24.0	P2506283S	-	
-		-		17.0	P2506284S	-	
-		-		25.0	P2506285S	-	
-		-		26.0	P2506286S	-	
-		-		-		-	
STANDARD SET	P2506305S	STANDARD SET	P2506306S	STANDARD SET	P2506307S	STANDARD SET	P2506308S
Ø3.0 - 16.0mm		Ø3.0 - 20.0mm		Ø4.0 - 26.0mm		Ø12.0 - 34.0mm	
14pcs		18pcs		24pcs		16pcs	
WOODEN TRAY ZWT 25		WOODEN TRAY ZWT 32		WOODEN TRAY ZWT 40		WOODEN TRAY ZWT 50	

▶ Inch type collets available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

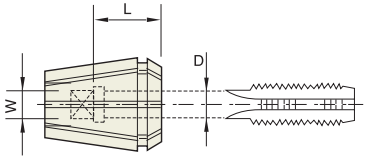
ER COLLET CHUCK

RDT

TAP ER COLLET (JIS)

ER SPANNZANGE - FÜR GEWINDESCHNEID
ER PINCE DE SERRAGE - POUR TARAUDER
ER PINZA DI SERRAGGIO - PER MASCHIARE
ER PINZA PORTAPIEZAS - PARA HILO

Below standard Tap ER Collet conforms to JIS



Unit : mm

	RDT 16				RDT 20				RDT 25				RDT 32				RDT 40			
TAP	D (Ø)	W (□)	L	EDP No.	D (Ø)	W (□)	L	EDP No.	D (Ø)	W (□)	L	EDP No.	D (Ø)	W (□)	L	EDP No.	D (Ø)	W (□)	L	EDP No.
M2	3.0	2.5	15	P2772501																
M3	4.0	3.2	15	P2772502	4.0	3.2	15	P2772507	4.0	3.2	15	P2772513								
M4	5.0	4.0	15	P2772503	5.0	4.0	15	P2772508	5.0	4.0	15	P2772514	5.0	4.0	15	P2772521				
M5	5.5	4.5	15	P2772504	5.5	4.5	15	P2772509	5.5	4.5	15	P2772515	5.5	4.5	15	P2772522				
M6	6.0	4.5	15	P2772505	6.0	4.5	15	P2772510	6.0	4.5	15	P2772516	6.0	4.5	15	P2772523				
M8	6.2	5.0	15	P2772506	6.2	5.0	20	P2772511	6.2	5.0	20	P2772517	6.2	5.0	20	P2772524	6.2	5.0	20	P2772530
M10					7.0	5.5	20	P2772512	7.0	5.5	20	P2772518	7.0	5.5	20	P2772525	7.0	5.5	20	P2772531
M12									8.5	6.5	20	P2772519	8.5	6.5	20	P2772526	8.5	6.5	25	P2772532
M14									10.5	8.0	20	P2772520	10.5	8.0	20	P2772527	10.5	8.0	25	P2772533
M16													12.5	10.0	20	P2772528	12.5	10.0	25	P2772534
M18													14.0	11.0	20	P2772529	14.0	11.0	25	P2772535
M20																	15.0	12.0	28	P2772536
M22																	17.0	13.0	28	P2772537
M24																	19.0	15.0	28	P2772538

▶ Inch type collets available.

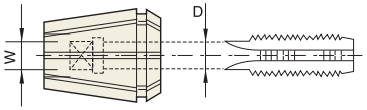
ER COLLET CHUCK

RDTC

TAP ER COLLET (DIN)

ER SPANNZANGE - FÜR GEWINDESCHNEID
ER PINCE DE SERRAGE - POUR TARAUDER
ER PINZA DI SERRAGGIO - PER MASCHIARE
ER PINZA PORTAPIEZAS - PARA HILO

Below standard Tap ER Collet conforms to DIN



Unit : mm

DIN STANDARD			RD 11TC			RD 16TC			RD 20TC			RD 25TC			RD 32TC			RD 40TC			RD 50TC		
DIN 374/376	DIN 352/2181	DIN 371	D (Ø)	W (□)	EDP No.	D (Ø)	W (□)	EDP No.	D (Ø)	W (□)	EDP No.	D (Ø)	W (□)	EDP No.	D (Ø)	W (□)	EDP No.	D (Ø)	W (□)	EDP No.	D (Ø)	W (□)	EDP No.
M5	M3	M3	3.5	2.7	P2772501D	3.5	2.7	P2772507D	3.5	2.7	P2772514D	3.5	2.7	P2772524D	3.5	2.7	P2772538D	3.5	2.7	P2772552D			
M5.5	M3.5	M3.5	4.0	3.0	P2772502D	4.0	3.0	P2772508D	4.0	3.0	P2772515D	4.0	3.0	P2772525D	4.0	3.0	P2772539D	4.0	3.0	P2772553D			
M6	M4	M4	4.5	3.4	P2772503D	4.5	3.4	P2772509D	4.5	3.4	P2772516D	4.5	3.4	P2772526D	4.5	3.4	P2772540D	4.5	3.4	P2772554D			
M5	-	-	5.0	4.0	P2772504D	5.0	4.0	P2772510D	5.0	4.0	P2772517D	5.0	4.0	P2772527D	5.0	4.0	P2772541D	5.0	4.0	P2772555D			
M7	-	-	5.5	4.3	P2772505D	5.5	4.3	P2772511D	5.5	4.3	P2772518D	5.5	4.3	P2772528D	5.5	4.3	P2772542D	5.5	4.3	P2772556D			
M8	M4.5-M8	M4.5-M8	6.0	4.9	P2772506D	6.0	4.9	P2772512D	6.0	4.9	P2772519D	6.0	4.9	P2772529D	6.0	4.9	P2772543D	6.0	4.9	P2772557D			
M9+M10	M9+M10	M7				7.0	5.5	P2772513D	7.0	5.5	P2772520D	7.0	5.5	P2772530D	7.0	5.5	P2772544D	7.0	5.5	P2772558D			
M11	M11	M8							8.0	6.2	P2772521D	8.0	6.2	P2772531D	8.0	6.2	P2772545D	8.0	6.2	P2772559D	8.0	6.2	P2772569D
M12	M12	M9							9.0	7.0	P2772522D	9.0	7.0	P2772532D	9.0	7.0	P2772546D	9.0	7.0	P2772560D	9.0	7.0	P2772570D
-	-	M10							10.0	8.0	P2772523D	10.0	8.0	P2772533D	10.0	8.0	P2772547D	10.0	8.0	P2772561D	10.0	8.0	P2772571D
M13+M14	M13+M14	-										11.0	9.0	P2772534D	11.0	9.0	P2772548D	11.0	9.0	P2772562D	11.0	9.0	P2772572D
M15-M17	M15-M17	-										12.0	9.0	P2772535D	12.0	9.0	P2772549D	12.0	9.0	P2772563D	12.0	9.0	P2772573D
M18+M19	M18+M19	-										14.0	11.0	P2772536D	14.0	11.0	P2772550D	14.0	11.0	P2772564D	14.0	11.0	P2772574D
M20+M21	M20+M21	-										16.0	12.0	P2772537D	16.0	12.0	P2772551D	16.0	12.0	P2772565D	16.0	12.0	P2772575D
M22-M26	M22-M26	-																18.0	14.5	P2772566D	18.0	14.5	P2772576D
M27+M28	M27+M28	-																20.0	16.0	P2772567D	20.0	16.0	P2772577D
M29-M32	M29-M32	-																22.0	18.0	P2772568D	22.0	18.0	P2772578D
M33	M33	-																			25.0	20.0	P2772579D
M34-M38	M34-M38	-																			28.0	22.0	P2772580D
M39-M42	M39-M42	-																			32.0	24.0	P2772581D

▶ Inch type collets available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
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NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
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POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

ER NUT

ER NUSS
ER ÉCROU
ER DADO
ER TUERCA

DIN 6499/ISO 15488

■ SQ-ER (Standard : Hex.)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
SQ-ER11	P2700006	M14×0.75	19.0	12.0
SQ-ER16	P2700001	M22×1.50	28.0	18.0
SQ-ER20	P2700002	M25×1.50	34.0	19.5

■ SQ-ER (Standard : Round)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
SQ-ER25	P2700003	M32×1.50	42.0	20.5
SQ-ER32	P2700004	M40×1.50	50.0	23.0
SQ-ER40	P2700005	M50×1.50	63.0	26.0
SQ-ER50	P2700007	M64×2.00	78.0	35.0

■ XSQ-R (Standard : Hex.)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ -R11	P2777002	M14×0.75	19.0	12.0
XSQ -R16	P2777003	M22×1.50	28.0	18.0
XSQ -R20	P2777004	M25×1.50	34.0	19.5

■ XSQ-RU (Standard : Round)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RU25	P2777005	M32×1.50	42.0	20.5
XSQ-RU32	P2777006	M40×1.50	50.0	23.0
XSQ-RU40	P2777007	M50×1.50	63.0	26.0
XSQ-RU50	P2777008	M64×2.00	78.0	35.0

ER COLLET CHUCK

PART

ER NUT

ER NUSS
ER ÉCROU
ER DADO
ER TUERCA

DIN 6499/ISO 15488

■ XSQ-RT (Sealing Disk Type: Hex.)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RT16	P2777009	M22×1.50	28.0	22.5
XSQ-RT20	P2777010	M25×1.50	34.0	24.0

■ XSQ-RUT (Sealing Disk Type: Round)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RUT16	P2777011	M22×1.50	32.0	22.5
XSQ-RUT20	P2777012	M25×1.50	35.0	24.0
XSQ-RUT25	P2777013	M32×1.50	42.0	25.0
XSQ-RUT32	P2777014	M40×1.50	50.0	27.5
XSQ-RUT40	P2777015	M50×1.50	63.0	30.5

■ XSQ-RSU (Sleeve Bearing Type)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RSU16	P2777016	M22×1.50	32.0	18.0
XSQ-RSU20	P2777017	M25×1.50	35.0	20.0
XSQ-RSU25	P2777018	M32×1.50	42.0	20.5
XSQ-RSU32	P2777019	M40×1.50	50.0	23.0
XSQ-RSU40	P2777020	M50×1.50	63.0	26.0

■ XSQ-RST (Sleeve Bearing / Sealing Disk Type: Hex.)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RST16	P2777021	M22×1.50	28.0	22.5
XSQ-RST20	P2777022	M25×1.50	34.0	24.5

■ XSQ-RSUT (Sleeve Bearing / Sealing Disk Type: Round)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RSUT16	P2777023	M22×1.50	32.0	22.5
XSQ-RSUT20	P2777024	M25×1.50	35.0	24.5
XSQ-RSUT25	P2777025	M32×1.50	42.0	25.0
XSQ-RSUT32	P2777026	M40×1.50	50.0	27.5
XSQ-RSUT40	P2777027	M50×1.50	63.0	30.5

HYDRAULIC CHUCK
SHRINK FIT HOLDER
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BORING SYSTEM
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■ XSQ-RKU (Ball Bearing Type)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RKU16	P2777028	M22×1.50	32.0	18.0
XSQ-RKU20	P2777029	M25×1.50	35.0	20.0
XSQ-RKU25	P2777030	M32×1.50	42.0	21.5
XSQ-RKU32	P2777031	M40×1.50	50.0	23.0
XSQ-RKU40	P2777032	M50×1.50	63.0	26.0

■ XSQ-RKUT (Ball Bearing / Sealing Disk Type)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RKUT16	P2777033	M22×1.50	32.0	22.5
XSQ-RKUT20	P2777034	M25×1.50	35.0	24.5
XSQ-RKUT25	P2777035	M32×1.50	42.0	25.0
XSQ-RKUT32	P2777036	M40×1.50	50.0	27.5
XSQ-RKUT40	P2777037	M50×1.50	63.0	30.5

■ XSQ-RM (Mini Nut : Standard Type)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-R08M	P2777038	M10×0.75	12.0	11.0
XSQ-R11M	P2777039	M13×0.75	16.0	12.0
XSQ-R16M	P2777040	M19×1.00	22.0	18.0
XSQ-R20M	P2777041	M24×1.00	28.0	19.5
XSQ-R25M	P2777042	M30×1.00	35.0	20.5

■ XSQ-RTM (Mini Nut : Sealing Disk Type)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RT16M	P2777043	M19×1.00	22.0	22.5
XSQ-RT20M	P2777044	M24×1.00	28.0	24.0
XSQ-RT25M	P2777045	M30×1.00	35.0	25.0

ER NUT & SEALING DISK SET

■ XSQ-RA (External Thread Type)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RA11	P2777046	M18×1.00	18.0	6.0
XSQ-RA16	P2777047	M24×1.00	24.0	8.0
XSQ-RA20	P2777048	M28×1.50	28.0	11.0
XSQ-RA25	P2777049	M32×1.50	32.0	12.5
XSQ-RA32	P2777050	M40×1.50	40.0	14.0

■ XSQ-RAT (External Thread / Sealing Disk Type)

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
XSQ-RA11S*	P2777051	M18×1.00	18.0	8.0
XSQ-RAT16	P2777052	M24×1.00	24.0	11.0
XSQ-RAT20	P2777053	M28×1.50	28.0	12.5
XSQ-RAT25	P2777054	M32×1.50	32.0	14.0
XSQ-RAT32	P2777001	M40×1.50	40.0	17.5

* Without sealing disk

■ SEALING DISK SET

Unit : mm

MODEL No.	EDP No.	THREAD	Dia.	LENGTH
DS16S2	P2777061	13.0	4.0	7pcs / set
DS20S2	P2777062	16.0	4.0	10pcs / set
DS25S2	P2777063	21.0	4.0	13pcs / set
DS32S2	P2777064	27.0	4.0	17pcs / set
DS40S2	P2777065	33.5	4.0	23pcs / set
DS50S2	P2777066	31.0	4.0	22pcs / set

ER COLLET CHUCK

DS

SEALING DISK

■ SEALING DISK

Unit : mm

MODEL No.	EDP No.	Dia.	INNER DIA. (Step : 0.5mm)	THICKNESS
DS/ER16-3	P2780501	13.0	3.0	4.0
DS/ER16-3.5	P2780502	13.0	3.5	4.0
DS/ER16-4	P2780503	13.0	4.0	4.0
DS/ER16-4.5	P2780504	13.0	4.5	4.0
DS/ER16-5	P2780505	13.0	5.0	4.0
DS/ER16-6	P2780506	13.0	6.0	4.0
DS/ER16-6.5	P2780507	13.0	6.5	4.0
DS/ER16-7	P2780508	13.0	7.0	4.0
DS/ER16-8	P2780509	13.0	8.0	4.0
DS/ER16-9	P2780510	13.0	9.0	4.0
DS/ER16-10	P2780511	13.0	10.0	4.0
DS/ER20-3	P2780512	16.0	3.0	4.0
DS/ER20-4	P2780513	16.0	4.0	4.0
DS/ER20-4.5	P2780514	16.0	4.5	4.0
DS/ER20-5	P2780515	16.0	5.0	4.0
DS/ER20-5.5	P2780516	16.0	5.5	4.0
DS/ER20-6	P2780517	16.0	6.0	4.0
DS/ER20-6.5	P2780518	16.0	6.5	4.0
DS/ER20-7	P2780519	16.0	7.0	4.0
DS/ER20-7.5	P2780520	16.0	7.5	4.0
DS/ER20-8	P2780521	16.0	8.0	4.0
DS/ER20-8.5	P2780522	16.0	8.5	4.0
DS/ER20-9	P2780523	16.0	9.0	4.0
DS/ER20-10	P2780524	16.0	10.0	4.0
DS/ER20-11	P2780525	16.0	11.0	4.0
DS/ER20-12	P2780526	16.0	12.0	4.0
DS/ER20-13	P2780527	16.0	13.0	4.0
DS/ER25-3	P2780528	21.0	3.0	4.0
DS/ER25-3.5	P2780529	21.0	3.5	4.0
DS/ER25-4	P2780530	21.0	4.0	4.0
DS/ER25-4.5	P2780531	21.0	4.5	4.0
DS/ER25-5	P2780532	21.0	5.0	4.0
DS/ER25-5.5	P2780533	21.0	5.5	4.0
DS/ER25-6	P2780534	21.0	6.0	4.0
DS/ER25-6.5	P2780535	21.0	6.5	4.0
DS/ER25-7	P2780536	21.0	7.0	4.0
DS/ER25-7.5	P2780537	21.0	7.5	4.0
DS/ER25-8	P2780538	21.0	8.0	4.0
DS/ER25-8.5	P2780539	21.0	8.5	4.0
DS/ER25-9	P2780540	21.0	9.0	4.0
DS/ER25-9.5	P2780541	21.0	9.5	4.0
DS/ER25-10	P2780542	21.0	10.0	4.0
DS/ER25-10.5	P2780543	21.0	10.5	4.0
DS/ER25-11	P2780544	21.0	11.0	4.0
DS/ER25-11.5	P2780545	21.0	11.5	4.0
DS/ER25-12	P2780546	21.0	12.0	4.0
DS/ER25-12.5	P2780547	21.0	12.5	4.0
DS/ER25-13	P2780548	21.0	13.0	4.0
DS/ER25-13.5	P2780549	21.0	13.5	4.0
DS/ER25-14	P2780550	21.0	14.0	4.0
DS/ER25-14.5	P2780551	21.0	14.5	4.0

MODEL No.	EDP No.	Dia.	INNER DIA. (Step : 0.5mm)	THICKNESS
DS/ER25-15	P2780552	21.0	15.0	4.0
DS/ER25-15.5	P2780553	21.0	15.5	4.0
DS/ER25-16	P2780554	21.0	16.0	4.0
DS/ER32-3	P2780555	27.0	3.0	4.0
DS/ER32-4	P2780556	27.0	4.0	4.0
DS/ER32-5	P2780557	27.0	5.0	4.0
DS/ER32-6	P2780558	27.0	6.0	4.0
DS/ER32-7	P2780559	27.0	7.0	4.0
DS/ER32-8	P2780560	27.0	8.0	4.0
DS/ER32-9	P2780561	27.0	9.0	4.0
DS/ER32-10	P2780562	27.0	10.0	4.0
DS/ER32-10.5	P2780563	27.0	10.5	4.0
DS/ER32-11	P2780564	27.0	11.0	4.0
DS/ER32-11.5	P2780565	27.0	11.5	4.0
DS/ER32-12	P2780566	27.0	12.0	4.0
DS/ER32-12.5	P2780567	27.0	12.5	4.0
DS/ER32-13	P2780568	27.0	13.0	4.0
DS/ER32-13.5	P2780569	27.0	13.5	4.0
DS/ER32-14	P2780570	27.0	14.0	4.0
DS/ER32-14.5	P2780571	27.0	14.5	4.0
DS/ER32-15	P2780572	27.0	15.0	4.0
DS/ER32-16	P2780573	27.0	16.0	4.0
DS/ER32-17	P2780574	27.0	17.0	4.0
DS/ER32-18	P2780575	27.0	18.0	4.0
DS/ER32-19	P2780576	27.0	19.0	4.0
DS/ER32-20	P2780577	27.0	20.0	4.0
DS/ER40-3	P2780578	33.5	3.0	4.0
DS/ER40-4	P2780579	33.5	4.0	4.0
DS/ER40-5	P2780580	33.5	5.0	4.0
DS/ER40-6	P2780581	33.5	6.0	4.0
DS/ER40-7	P2780582	33.5	7.0	4.0
DS/ER40-8	P2780583	33.5	8.0	4.0
DS/ER40-9	P2780584	33.5	9.0	4.0
DS/ER40-10	P2780585	33.5	10.0	4.0
DS/ER40-11	P2780586	33.5	11.0	4.0
DS/ER40-12	P2780587	33.5	12.0	4.0
DS/ER40-13	P2780588	33.5	13.0	4.0
DS/ER40-14	P2780589	33.5	14.0	4.0
DS/ER40-15	P2780590	33.5	15.0	4.0
DS/ER40-16	P2780591	33.5	16.0	4.0
DS/ER40-17	P2780592	33.5	17.0	4.0
DS/ER40-18	P2780593	33.5	18.0	4.0
DS/ER40-19	P2780594	33.5	19.0	4.0
DS/ER40-20	P2780595	33.5	20.0	4.0
DS/ER40-21	P2780596	33.5	21.0	4.0
DS/ER40-22	P2780597	33.5	22.0	4.0
DS/ER40-23	P2780598	33.5	23.0	4.0
DS/ER40-24	P2780599	33.5	24.0	4.0
DS/ER40-25	P2780600	33.5	25.0	4.0
DS/ER40-26	P2780601	33.5	26.0	4.0

ER COLLET CHUCK

SP

ER SPANNER/WRENCH

ER MAULSCHLÜSEL
ER CL
ER CHIAVE
ER LLAVE

FIG.1

FIG.2

■ FOR ER / SKN NUT

Unit : mm

MODEL No.	EDP No.	A	B	APPLICABLE NUT
ER11SP	P2772601	-	-	ER11, SKN6 (FIG.1)
ER16SP	P2772602	50	160	ER16, SKN10 (FIG.1)
ER20SP	P2772603	55	180	ER20 (FIG.1)
ER25SP	P2772604	65	210	ER25, SKN16 (FIG.2)
ER32SP	P2772605	75	250	ER32 (FIG.2)
ER40SP	P2772606	90	290	ER40 (FIG.2)
ER50SP	P2772612	110	350	ER50 (FIG.2)

▶Design and shape could be changed without prior notice.

■ FOR ER Mini NUT

Unit : mm

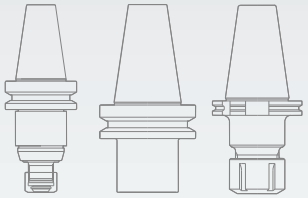
MODEL No.	EDP No.	A	B	APPLICABLE NUT
GE8M	P2772608	12.4	70	ER8M
GE11M	P2772609	16.8	90	ER11M
GE16M	P2772610	22.5	110	ER16M
GE20M	P2772611	29.0	120	ER20M
GE25M	P2772607	36.0	130	ER25M

▶Design and shape could be changed without prior notice.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

Global Cutting Tool Leader **YG-1**



TOOLING SYSTEM

YG-1 TOOLING SYSTEM

END MILL HOLDER & SIDE LOCK ARBOR

- FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
- MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
- MANDRINI PORTA FRESA TIPO WELDON
- PORTAFRESAS Y EJES DE SUJECCION LATERAL

END MILL HOLDER

DIN 69871-SK
DIN 69893/ISO 12164-1-HSK
JIS B6339/MAS 403-BT
SHORT TYPE (SK&BT)
GOST 25827-93

SIDE LOCK ARBOR

CBT (BT DUAL CONTACT)
JIS B6339/MAS 403-BT

PART

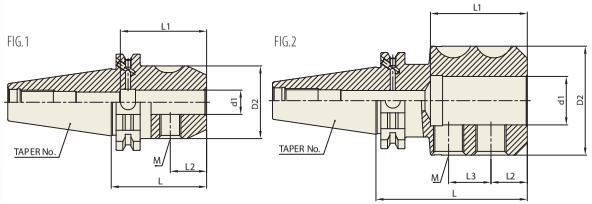
END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | AD or AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	SK30-EMH6-50	P2779025A	6	25	50	35	18	-	M6	1	0.73
	SK30-EMH8-50	P2779026A	8	28	50	35	18	-	M8	1	0.83
	SK30-EMH10-50	P2779027A	10	35	50	42	20	-	M10	1	0.90
	SK30-EMH12-50	P2779028A	12	42	50	47	22.5	-	M12	1	0.90
	SK30-EMH16-63	P2779029A	16	48	63	50	24	-	M14	1	1.10
40	SK40AD/B-EMH6-50	P2779030	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8-50	P2779031	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10-50	P2779032	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12-50	P2779033	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH16-63	P2779034	16	48	63	57	24	-	M14	1	1.26
	SK40AD/B-EMH20-63	P2779035	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25-100	P2779036	25	65	100	60	24	25	M18	2	2.28
	SK40AD/B-EMH32-100	P2779037	32	72	100	64	24	28	M20	2	2.50
50	SK50AD/B-EMH6-63	P2779038	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8-63	P2779039	8	28	63	35	18	-	M8	1	2.70
	SK50AD/B-EMH10-63	P2779040	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12-63	P2779041	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH16-63	P2779042	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH20-63	P2779043	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25-80	P2779044	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32-100	P2779045	32	72	100	64	24	28	M20	2	4.53
	SK50AD/B-EMH40-100	P2779046	40	80	100	74	30	32	M20	2	4.77
	SK50AD/B-EMH50-125	P2779047	50	100	125	84	35	35	M24	2	7.03

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

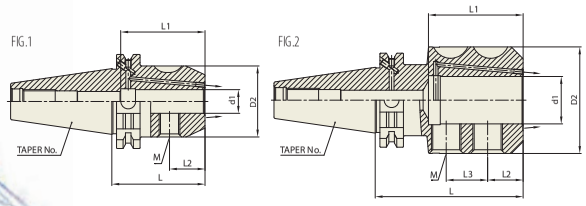
END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER (COOLANT CHANNEL)

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | AD/B+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40AD/B-EMH6C-50	P2779048	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8C-50	P2779049	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10C-50	P2779050	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12C-50	P2779051	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH14C-50	P2779052	14	44	50	48	22.5	-	M12	1	1.26
	SK40AD/B-EMH16C-63	P2779053	16	48	63	57	24	-	M14	1	1.28
	SK40AD/B-EMH18C-63	P2779054	18	50	63	54	24	-	M14	1	1.35
	SK40AD/B-EMH20C-63	P2779055	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25C-100	P2779056	25	65	100	60	24	25	M18	2	2.28
	SK40AD/B-EMH32C-100	P2779057	32	72	100	64	24	28	M20	2	2.50
50	SK50AD/B-EMH6C-63	P2779058	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8C-63	P2779059	8	28	63	35	18	-	M8	1	2.70
	SK50AD/B-EMH10C-63	P2779060	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12C-63	P2779061	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH14C-63	P2779062	14	44	63	45	22.5	-	M12	1	2.90
	SK50AD/B-EMH16C-63	P2779063	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH18C-63	P2779064	18	50	63	46	24	-	M14	1	3.00
	SK50AD/B-EMH20C-63	P2779065	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25C-80	P2779066	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32C-100	P2779067	32	72	100	64	24	28	M20	2	4.53
	SK50AD/B-EMH40C-120	P2779068	40	80	120	74	30	32	M20	2	4.77
	SK50AD/B-EMH50C-125	P2779069	50	100	125	84	35	35	M24	2	7.03

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL

FIG.1

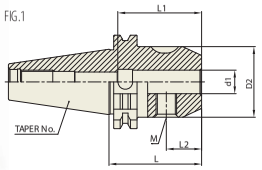
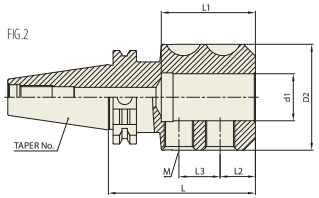


FIG.2



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	SK30-EMH6-50	P2521004	6	25	50	35	18	-	M6	1	0.73
	SK30-EMH8-50	P2521005	8	28	50	35	18	-	M8	1	0.83
	SK30-EMH10-50	P2521006	10	35	50	42	20	-	M10	1	0.90
	SK30-EMH12-50	P2521007	12	42	50	47	22.5	-	M12	1	0.90
	SK30-EMH16-63	P2521008	16	48	63	50	24	-	M14	1	1.10
40	SK40-EMH6-50	P2521009	6	25	50	35	18	-	M6	1	0.86
	SK40-EMH8-50	P2521010	8	28	50	35	18	-	M8	1	0.89
	SK40-EMH10-50	P2521011	10	35	50	39	20	-	M10	1	0.95
	SK40-EMH12-50	P2521012	12	42	50	46	22.5	-	M12	1	1.03
	SK40-EMH16-63	P2521013	16	48	63	57	24	-	M14	1	1.26
	SK40-EMH20-63	P2521014	20	52	63	54	25	-	M16	1	1.28
	SK40-EMH25-100	P2521015	25	65	100	60	24	25	M18	2	2.28
	SK40-EMH32-100	P2521016	32	72	100	64	24	28	M20	2	2.50
50	SK50-EMH6-63	P2521017	6	25	63	35	18	-	M6	1	2.70
	SK50-EMH8-63	P2521018	8	28	63	35	18	-	M8	1	2.70
	SK50-EMH10-63	P2521019	10	35	63	39	20	-	M10	1	2.90
	SK50-EMH12-63	P2521020	12	42	63	46	22.5	-	M12	1	2.90
	SK50-EMH16-63	P2521021	16	48	63	49	24	-	M14	1	3.00
	SK50-EMH20-63	P2521022	20	52	63	52	25	-	M16	1	3.05
	SK50-EMH25-80	P2521023	25	65	80	60	24	25	M18	2	3.73
	SK50-EMH32-100	P2521024	32	72	100	64	24	28	M20	2	4.53
	SK50-EMH40-100	P2521025	40	80	100	74	30	32	M20	2	4.77
	SK50-EMH50-125	P2521026	50	100	125	84	35	35	M24	2	7.03

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL

FIG.1

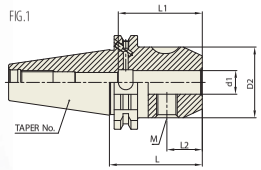
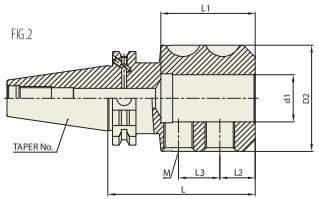


FIG.2



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40AD/B-EMH6-50	P2531009	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8-50	P2531010	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10-50	P2531011	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12-50	P2531012	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH16-63	P2531013	16	48	63	57	24	-	M14	1	1.28
	SK40AD/B-EMH20-63	P2531014	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25-100	P2531015	25	65	100	60	24	25	M18	2	2.28
	SK40AD/B-EMH32-100	P2531016	32	72	100	64	24	28	M20	2	2.50
50	SK50AD/B-EMH6-63	P2531017	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8-63	P2531018	8	28	63	35	18	-	M8	1	2.70
	SK50AD/B-EMH10-63	P2531019	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12-63	P2531020	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH16-63	P2531021	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH20-63	P2531022	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25-80	P2531023	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32-100	P2531024	32	72	100	64	24	28	M20	2	4.53
	SK50AD/B-EMH40-100	P2531025	40	80	100	74	30	32	M20	2	4.77
	SK50AD/B-EMH50-125	P2531026	50	100	125	84	35	35	M24	2	7.03

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

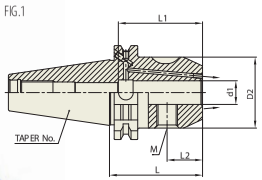
END MILL HOLDER & SIDE LOCK ARBOR

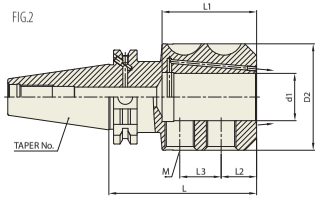
EMH

END MILL HOLDER (COOLANT CHANNEL)

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL





DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD/B+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40AD/B-EMH6C-50	P2779001	6	25	50	35	18	-	M6	1	0.86
	SK40AD/B-EMH8C-50	P2779002	8	28	50	35	18	-	M8	1	0.89
	SK40AD/B-EMH10C-50	P2779003	10	35	50	39	20	-	M10	1	0.95
	SK40AD/B-EMH12C-50	P2779004	12	42	50	46	22.5	-	M12	1	1.03
	SK40AD/B-EMH14C-50	P2779005	14	44	50	48	22.5	-	M12	1	1.26
	SK40AD/B-EMH16C-63	P2779006	16	48	63	57	24	-	M14	1	1.28
	SK40AD/B-EMH18C-63	P2779007	18	50	63	54	24	-	M14	1	1.35
	SK40AD/B-EMH20C-63	P2779008	20	52	63	54	25	-	M16	1	1.28
	SK40AD/B-EMH25C-100	P2779009	25	65	100	60	24	25	M18	2	2.28
	SK40AD/B-EMH32C-100	P2779010	32	72	100	64	24	28	M20	2	2.50
50	SK50AD/B-EMH6C-63	P2779011	6	25	63	35	18	-	M6	1	2.70
	SK50AD/B-EMH8C-63	P2779012	8	28	63	35	18	-	M8	1	2.70
	SK50AD/B-EMH10C-63	P2779013	10	35	63	39	20	-	M10	1	2.90
	SK50AD/B-EMH12C-63	P2779014	12	42	63	46	22.5	-	M12	1	2.90
	SK50AD/B-EMH14C-63	P2779015	14	44	63	45	22.5	-	M12	1	2.90
	SK50AD/B-EMH16C-63	P2779016	16	48	63	49	24	-	M14	1	3.00
	SK50AD/B-EMH18C-63	P2779017	18	50	63	46	24	-	M14	1	3.00
	SK50AD/B-EMH20C-63	P2779018	20	52	63	52	25	-	M16	1	3.05
	SK50AD/B-EMH25C-80	P2779019	25	65	80	60	24	25	M18	2	3.73
	SK50AD/B-EMH32C-100	P2779020	32	72	100	64	24	28	M20	2	4.53
	SK50AD/B-EMH40C-120	P2779021	40	80	120	74	30	32	M20	2	4.77
	SK50AD/B-EMH50C-125	P2779022	50	100	125	84	35	35	M24	2	7.03

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

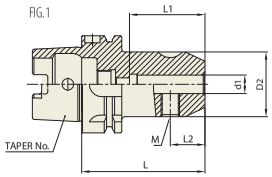
END MILL HOLDER & SIDE LOCK ARBOR

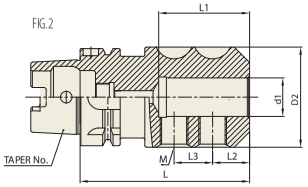
EMH

END MILL HOLDER

DIN 69893/ ISO 12164-1-HSK FORM A

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL





DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40A	HSK40A-EMH6-60	P2775522	6	25	60	38	18	-	M6	1	0.30
	HSK40A-EMH8-60	P2775523	8	28	60	38	18	-	M8	1	0.30
	HSK40A-EMH10-60	P2775524	10	35	60	42	20	-	M10	1	0.30
	HSK40A-EMH12-70	P2775525	12	42	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH14-70	P2775526	14	44	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH16-80	P2775527	16	48	80	50	24	-	M14	1	0.60
50A	HSK50A-EMH6-65	P2775528	6	25	65	38	18	-	M6	1	0.70
	HSK50A-EMH8-65	P2775529	8	28	65	38	18	-	M8	1	0.80
	HSK50A-EMH10-65	P2775530	10	35	65	42	20	-	M10	1	0.80
	HSK50A-EMH12-80	P2775531	12	42	80	47	22.5	-	M12	1	1.20
	HSK50A-EMH14-80	P2775532	14	44	80	47	22.5	-	M12	1	1.30
	HSK50A-EMH16-80	P2775533	16	48	80	50	24	-	M14	1	1.30
	HSK50A-EMH18-80	P2775534	18	50	80	50	24	-	M14	1	1.40
	HSK50A-EMH20-80	P2775535	20	52	80	52	25	-	M16	1	1.50
63A	HSK63A-EMH6-65	P2775501	6	25	65	35	18	-	M6	1	0.80
	HSK63A-EMH8-65	P2775502	8	28	65	38	18	-	M8	1	0.80
	HSK63A-EMH10-65	P2775503	10	35	65	42	20	-	M10	1	0.90
	HSK63A-EMH12-80	P2775504	12	42	80	47	22.5	-	M12	1	1.10
	HSK63A-EMH14-80	P2775505	14	44	80	47	22.5	-	M12	1	1.20
	HSK63A-EMH16-80	P2775506	16	48	80	50	24	-	M14	1	1.30
	HSK63A-EMH18-80	P2775507	18	50	80	50	24	-	M14	1	1.40
	HSK63A-EMH20-80	P2775508	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH25-110	P2775509	25	65	110	60	24	25	M18	2	2.30
	HSK63A-EMH32-110	P2775510	32	72	110	64	24	28	M20	2	2.60
100A	HSK100A-EMH6-80	P2775511	6	25	80	35	18	-	M6	1	0.80
	HSK100A-EMH8-80	P2775512	8	28	80	35	18	-	M8	1	0.80
	HSK100A-EMH10-80	P2775513	10	35	80	39	20	-	M10	1	0.90
	HSK100A-EMH12-80	P2775514	12	42	80	47	22.5	-	M12	1	1.10
	HSK100A-EMH14-80	P2775515	14	44	80	47	22.5	-	M12	1	1.20
	HSK100A-EMH16-100	P2775516	16	48	100	50	24	-	M14	1	1.30
	HSK100A-EMH18-100	P2775517	18	50	100	50	24	-	M14	1	1.40
	HSK100A-EMH20-100	P2775518	20	52	100	52	25	-	M16	1	1.50
	HSK100A-EMH25-100	P2775519	25	65	100	60	24	25	M18	2	2.30
	HSK100A-EMH32-100	P2775520	32	72	100	64	24	28	M20	2	2.60
	HSK100A-EMH40-120	P2775521	40	80	120	74	30	32	M20	2	2.60

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

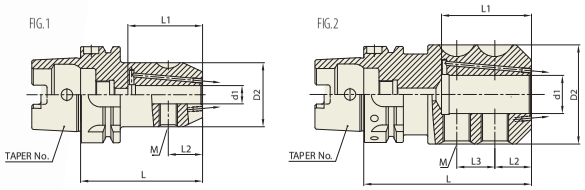
END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER (COOLANT CHANNEL)

DIN 69893/
ISO 12164-1-HSK FORM A

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



DIN 69893-HSK | 2.5G | 25,000 RPM | AD+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40A	HSK40A-EMH6C-60	P2777222	6	25	60	38	18	-	M6	1	0.30
	HSK40A-EMH8C-60	P2777223	8	28	60	38	18	-	M8	1	0.30
	HSK40A-EMH10C-60	P2777224	10	35	60	42	20	-	M10	1	0.30
	HSK40A-EMH12C-70	P2777225	12	42	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH14C-70	P2777226	14	44	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH16C-80	P2777227	16	48	80	50	24	-	M14	1	0.60
50A	HSK50A-EMH6C-65	P2777228	6	25	65	38	18	-	M6	1	0.70
	HSK50A-EMH8C-65	P2777229	8	28	65	38	18	-	M8	1	0.80
	HSK50A-EMH10C-65	P2777230	10	35	65	42	20	-	M10	1	0.80
	HSK50A-EMH12C-80	P2777231	12	42	80	47	22.5	-	M12	1	1.20
	HSK50A-EMH14C-80	P2777232	14	44	80	47	22.5	-	M12	1	1.30
	HSK50A-EMH16C-80	P2777233	16	48	80	50	24	-	M14	1	1.30
	HSK50A-EMH18C-80	P2777234	18	50	80	50	24	-	M14	1	1.40
	HSK50A-EMH20C-80	P2777235	20	52	80	52	25	-	M16	1	1.50
63A	HSK63A-EMH6C-65	P2777201	6	25	65	35	18	-	M6	1	0.80
	HSK63A-EMH8C-65	P2777202	8	28	65	38	18	-	M8	1	0.80
	HSK63A-EMH10C-65	P2777203	10	35	65	42	20	-	M10	1	0.90
	HSK63A-EMH12C-80	P2777204	12	42	80	47	22.5	-	M12	1	1.10
	HSK63A-EMH14C-80	P2777206	14	44	80	47	22.5	-	M12	1	1.20
	HSK63A-EMH16C-80	P2777205	16	48	80	50	24	-	M14	1	1.30
	HSK63A-EMH18C-80	P2777207	18	50	80	50	24	-	M14	1	1.40
	HSK63A-EMH20C-80	P2777208	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH25C-110	P2777209	25	65	110	60	24	25	M18	2	2.30
	HSK63A-EMH32C-110	P2777210	32	72	110	64	24	28	M20	2	2.60
100A	HSK100A-EMH6C-80	P2777211	6	25	80	35	18	-	M6	1	0.80
	HSK100A-EMH8C-80	P2777212	8	28	80	35	18	-	M8	1	0.80
	HSK100A-EMH10C-80	P2777213	10	35	80	39	20	-	M10	1	0.90
	HSK100A-EMH12C-80	P2777214	12	42	80	47	22.5	-	M12	1	1.10
	HSK100A-EMH14C-80	P2777215	14	44	80	47	22.5	-	M12	1	1.20
	HSK100A-EMH16C-100	P2777216	16	48	100	50	24	-	M14	1	1.30
	HSK100A-EMH18C-100	P2777217	18	50	100	50	24	-	M14	1	1.40
	HSK100A-EMH20C-100	P2777218	20	52	100	52	25	-	M16	1	1.50
	HSK100A-EMH25C-100	P2777219	25	65	100	60	24	25	M18	2	2.30
	HSK100A-EMH32C-100	P2777220	32	72	100	64	24	28	M20	2	2.60
	HSK100A-EMH40C-120	P2777221	40	80	120	74	30	32	M20	2	2.60

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
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FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

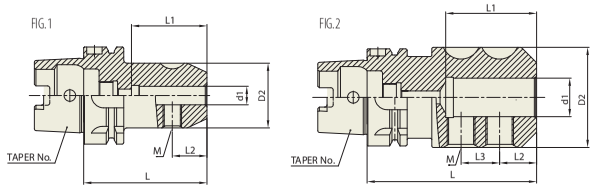
END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER

DIN 69893/
ISO 12164-1-HSK FORM A

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



DIN 69893-HSK | 6.3G | 15,000 RPM | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40A	HSK40A-EMH6-60	P2563011	6	25	60	38	18	-	M6	1	0.30
	HSK40A-EMH8-60	P2563012	8	28	60	38	18	-	M8	1	0.30
	HSK40A-EMH10-60	P2563013	10	35	60	42	20	-	M10	1	0.30
	HSK40A-EMH12-70	P2563014	12	42	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH14-70	P2563015	14	44	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH16-80	P2563016	16	48	80	50	24	-	M14	1	0.60
50A	HSK50A-EMH6-65	P2563017	6	25	65	38	18	-	M6	1	0.70
	HSK50A-EMH8-65	P2563018	8	28	65	38	18	-	M8	1	0.80
	HSK50A-EMH10-65	P2563019	10	35	65	42	20	-	M10	1	0.80
	HSK50A-EMH12-80	P2563020	12	42	80	47	22.5	-	M12	1	1.20
	HSK50A-EMH14-80	P2563031	14	44	80	47	22.5	-	M12	1	1.30
	HSK50A-EMH16-80	P2563032	16	48	80	50	24	-	M14	1	1.30
	HSK50A-EMH18-80	P2563033	18	50	80	50	24	-	M14	1	1.40
	HSK50A-EMH20-80	P2563034	20	52	80	52	25	-	M16	1	1.50
63A	HSK63A-EMH6-65	P2563001	6	25	65	35	18	-	M6	1	0.80
	HSK63A-EMH8-65	P2563002	8	28	65	38	18	-	M8	1	0.80
	HSK63A-EMH10-65	P2563003	10	35	65	42	20	-	M10	1	0.90
	HSK63A-EMH12-80	P2563004	12	42	80	47	22.5	-	M12	1	1.10
	HSK63A-EMH14-80	P2563005	14	44	80	47	22.5	-	M12	1	1.20
	HSK63A-EMH16-80	P2563006	16	48	80	50	24	-	M14	1	1.30
	HSK63A-EMH18-80	P2563007	18	50	80	50	24	-	M14	1	1.40
	HSK63A-EMH20-80	P2563008	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH25-110	P2563009	25	65	110	60	24	25	M18	2	2.30
	HSK63A-EMH32-110	P2563010	32	72	110	64	24	28	M20	2	2.60
100A	HSK100A-EMH6-80	P2563041	6	25	80	35	18	-	M6	1	0.80
	HSK100A-EMH8-80	P2563042	8	28	80	35	18	-	M8	1	0.80
	HSK100A-EMH10-80	P2563043	10	35	80	39	20	-	M10	1	0.90
	HSK100A-EMH12-80	P2563044	12	42	80	47	22.5	-	M12	1	1.10
	HSK100A-EMH14-80	P2563045	14	44	80	47	22.5	-	M12	1	1.20
	HSK100A-EMH16-100	P2563046	16	48	100	50	24	-	M14	1	1.30
	HSK100A-EMH18-100	P2563047	18	50	100	50	24	-	M14	1	1.40
	HSK100A-EMH20-100	P2563048	20	52	100	52	25	-	M16	1	1.50
	HSK100A-EMH25-100	P2563049	25	65	100	60	24	25	M18	2	2.30
	HSK100A-EMH32-100	P2563050	32	72	100	64	24	28	M20	2	2.60
	HSK100A-EMH40-120	P2563051	40	80	120	74	30	32	M20	2	2.60

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER (COOLANT CHANNEL)

DIN 69893/
ISO 12164-1-HSK FORM A

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
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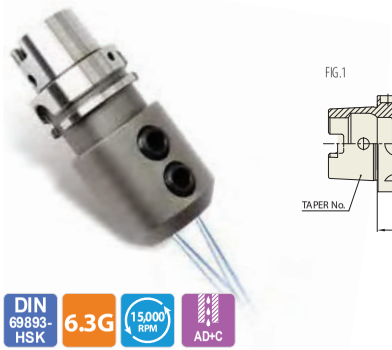

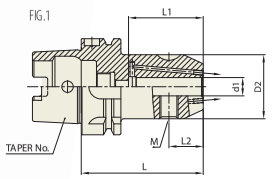

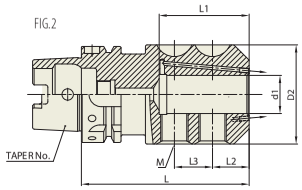

DIN 69893-HSK | 6.3G | 15,000 RPM | AD+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40A	HSK40A-EMH6C-60	P2563061	6	25	60	38	18	-	M6	1	0.30
	HSK40A-EMH8C-60	P2563062	8	28	60	38	18	-	M8	1	0.30
	HSK40A-EMH10C-60	P2563063	10	35	60	42	20	-	M10	1	0.30
	HSK40A-EMH12C-70	P2563064	12	42	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH14C-70	P2563065	14	44	70	47	22.5	-	M12	1	0.40
	HSK40A-EMH16C-80	P2563066	16	48	80	50	24	-	M14	1	0.60
50A	HSK50A-EMH6C-65	P2563067	6	25	65	38	18	-	M6	1	0.70
	HSK50A-EMH8C-65	P2563068	8	28	65	38	18	-	M8	1	0.80
	HSK50A-EMH10C-65	P2563069	10	35	65	42	20	-	M10	1	0.80
	HSK50A-EMH12C-80	P2563070	12	42	80	47	22.5	-	M12	1	1.20
	HSK50A-EMH14C-80	P2563071	14	44	80	47	22.5	-	M12	1	1.30
	HSK50A-EMH16C-80	P2563072	16	48	80	50	24	-	M14	1	1.30
	HSK50A-EMH18C-80	P2563073	18	50	80	50	24	-	M14	1	1.40
	HSK50A-EMH20C-80	P2563074	20	52	80	52	25	-	M16	1	1.50
63A	HSK63A-EMH6C-65	P2563021	6	25	65	35	18	-	M6	1	0.80
	HSK63A-EMH8C-65	P2563022	8	28	65	38	18	-	M8	1	0.80
	HSK63A-EMH10C-65	P2563023	10	35	65	42	20	-	M10	1	0.90
	HSK63A-EMH12C-80	P2563024	12	42	80	47	22.5	-	M12	1	1.10
	HSK63A-EMH14C-80	P2563025	14	44	80	47	22.5	-	M12	1	1.20
	HSK63A-EMH16C-80	P2563026	16	48	80	50	24	-	M14	1	1.30
	HSK63A-EMH18C-80	P2563027	18	50	80	50	24	-	M14	1	1.40
	HSK63A-EMH20C-80	P2563028	20	52	80	52	25	-	M16	1	1.50
	HSK63A-EMH25C-110	P2563029	25	65	110	60	24	25	M18	2	2.30
	HSK63A-EMH32C-110	P2563030	32	72	110	64	24	28	M20	2	2.60
100A	HSK100A-EMH6C-80	P2563059	6	25	80	35	18	-	M6	1	0.80
	HSK100A-EMH8C-80	P2563060	8	28	80	35	18	-	M8	1	0.80
	HSK100A-EMH10C-80	P2563052	10	35	80	39	20	-	M10	1	0.90
	HSK100A-EMH12C-80	P2563053	12	42	80	47	22.5	-	M12	1	1.10
	HSK100A-EMH14C-80	P2563054	14	44	80	47	22.5	-	M12	1	1.20
	HSK100A-EMH16C-100	P2563055	16	48	100	50	24	-	M14	1	1.30
	HSK100A-EMH18C-100	P2563056	18	50	100	50	24	-	M14	1	1.40
	HSK100A-EMH20C-100	P2563057	20	52	100	52	25	-	M16	1	1.50
	HSK100A-EMH25C-100	P2563058	25	65	100	60	24	25	M18	2	2.30
	HSK100A-EMH32C-100	P2772801	32	72	100	64	24	28	M20	2	2.60
	HSK100A-EMH40C-120	P2772802	40	80	120	74	30	32	M20	2	2.60

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▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

TOOLING SYSTEM

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SHELL MILL ARBOR
POWER MILLING CHUCK
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FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER

JIS B6339/
MAS 403-BT

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
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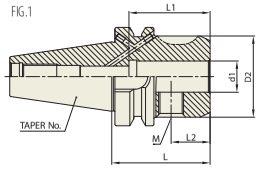

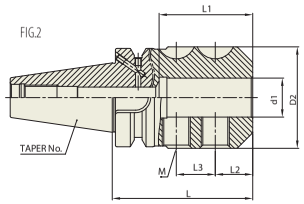

IS 6339 T | AT3 | 2.5G | 25,000 RPM | AD or AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	BT30-EMH6-50	P2772951A	6	25	50	35	18	-	M6	1	0.47
	BT30-EMH8-50	P2772952A	8	28	50	35	18	-	M8	1	0.49
	BT30-EMH10-50	P2772953A	10	35	50	35.5	20	-	M10	1	0.55
	BT30-EMH12-55	P2772954A	12	42	50	36	22.5	-	M12	1	0.67
	BT30-EMH14-55	P2772955A	14	44	55	36	22.5	-	M12	1	0.68
	BT30-EMH16-63	P2772956A	16	48	63	46	24	-	M14	1	0.83
	BT30-EMH18-63	P2772958A	18	50	63	46	24	-	M14	1	0.85
	BT30-EMH20-70	P2772957A	20	52	70	48	25	-	M16	1	0.98
40	BT40AD/B-EMH6-50	P2773031	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8-50	P2773032	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10-63	P2773033	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12-63	P2773034	12	42	63	44	22.5	-	M12	1	1.30
	BT40AD/B-EMH14-63	P2773035	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16-63	P2773036	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18-63	P2773037	18	50	63	50	24		M14	1	1.70
	BT40AD/B-EMH20-63	P2773038	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25-90	P2773039	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32-100	P2773040	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6-63	P2773041	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8-63	P2773042	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10-65	P2773043	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12-80	P2773044	12	42	80	46	22.5	-	M12	1	3.80
	BT40AD/B-EMH14-80	P2773045	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16-80	P2773046	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18-80	P2773047	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20-80	P2773048	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25-100	P2773049	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32-105	P2773050	32	72	105	64	24	28	M20	2	4.70
	BT50AD/B-EMH40-120	P2773051	40	80	120	73	30	32	M20	2	4.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

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BORING SYSTEM
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END MILL HOLDER (COOLANT CHANNEL)

JIS B6339/
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FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL

FIG.1

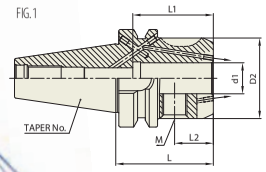
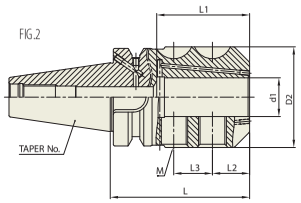


FIG.2



Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40AD/B-EMH6C-50	P2772991	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8C-50	P2772992	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10C-63	P2772993	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12C-63	P2772994	12	42	63	44	22.5	-	M12	1	1.30
	BT40AD/B-EMH14C-63	P2772995	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16C-63	P2772996	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18C-63	P2772997	18	50	63	50	24		M14	1	1.70
	BT40AD/B-EMH20C-63	P2772998	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25C-90	P2772999	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32C-100	P2773000	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6C-63	P2773012	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8C-63	P2773013	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10C-65	P2773014	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12C-80	P2773015	12	42	80	46	22.5	-	M12	1	3.80
	BT40AD/B-EMH14C-80	P2773016	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16C-80	P2773017	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18C-80	P2773018	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20C-80	P2773019	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25C-100	P2773020	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32C-105	P2773021	32	72	105	64	24	28	M20	2	4.70
	BT50AD/B-EMH40C-120	P2773022	40	80	120	73	30	32	M20	2	4.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER

JIS B6339/
MAS 403-BT

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL

FIG.1

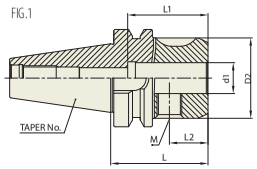
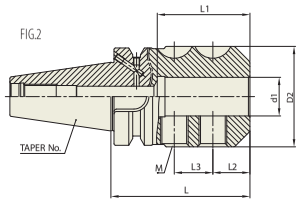


FIG.2



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	BT30-EMH6-50	P2776227A	6	25	50	35	18	-	M6	1	0.47
	BT30-EMH8-50	P2776228A	8	28	50	35	18	-	M8	1	0.49
	BT30-EMH10-50	P2776229A	10	35	50	35.5	20	-	M10	1	0.55
	BT30-EMH12-55	P2776230A	12	42	50	36	22.5	-	M12	1	0.67
	BT30-EMH14-55	P2776231A	14	44	55	36	22.5	-	M12	1	0.68
	BT30-EMH16-63	P2776201A	16	48	63	46	24	-	M14	1	0.83
	BT30-EMH18-63	P2776232A	18	50	63	46	24	-	M14	1	0.85
	BT30-EMH20-70	P2776202A	20	52	70	48	25	-	M16	1	0.98
40	BT40-EMH6-50	P2773061	6	25	50	35	18	-	M6	1	1.00
	BT40-EMH8-50	P2773062	8	28	50	35	18	-	M8	1	1.00
	BT40-EMH10-63	P2773063	10	35	63	39	20	-	M10	1	1.10
	BT40-EMH12-63	P2773064	12	42	63	44	22.5	-	M12	1	1.30
	BT40-EMH14-63	P2773065	14	44	63	49	22.5	-	M12	1	1.40
	BT40-EMH16-63	P2773066	16	48	63	52	24	-	M14	1	1.70
	BT40-EMH18-63	P2773067	18	50	63	50	24		M14	1	1.70
	BT40-EMH20-63	P2773068	20	52	63	52	25	-	M16	1	1.80
	BT40-EMH25-90	P2773069	25	65	90	60	24	25	M18	2	1.80
	BT40-EMH32-100	P2773070	32	72	100	64	24	28	M20	2	2.00
50	BT50-EMH6-63	P2773071	6	25	63	35	18	-	M6	1	3.30
	BT50-EMH8-63	P2773072	8	28	63	35	18	-	M8	1	3.60
	BT50-EMH10-65	P2773073	10	35	65	39	20	-	M10	1	3.80
	BT50-EMH12-80	P2773074	12	42	80	46	22.5	-	M12	1	3.80
	BT50-EMH14-80	P2773075	14	44	80	46	22.5	-	M12	1	4.00
	BT50-EMH16-80	P2773076	16	48	80	49	24	-	M14	1	4.00
	BT50-EMH18-80	P2773077	18	50	80	49	24	-	M14	1	4.20
	BT50-EMH20-80	P2773078	20	52	80	52	25	-	M16	1	4.20
	BT50-EMH25-100	P2773079	25	65	100	60	24	25	M18	2	4.60
	BT50-EMH32-105	P2773080	32	72	105	64	24	28	M20	2	4.70
	BT50-EMH40-120	P2773081	40	80	120	73	30	32	M20	2	4.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

TOOLING SYSTEM
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER

JIS B6339/ MAS 403-BT

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL

FIG.1

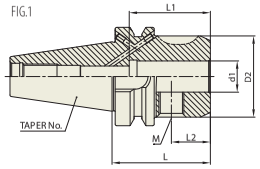
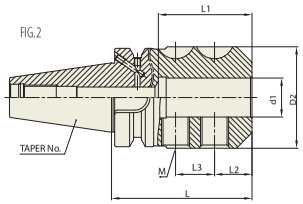


FIG.2



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40AD/B-EMH6-50	P2780301	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8-50	P2780302	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10-63	P2780303	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12-63	P2780304	12	42	63	44	22.5	-	M12	1	1.30
	BT40AD/B-EMH14-63	P2780305	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16-63	P2780306	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18-63	P2780307	18	50	63	50	24		M14	1	1.70
	BT40AD/B-EMH20-63	P2780308	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25-90	P2780309	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32-100	P2780310	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6-63	P2780311	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8-63	P2780312	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10-65	P2780313	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12-80	P2780314	12	42	80	46	22.5	-	M12	1	3.80
	BT50AD/B-EMH14-80	P2780315	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16-80	P2780316	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18-80	P2780317	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20-80	P2780318	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25-100	P2780319	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32-105	P2780320	32	72	105	64	24	28	M20	2	4.70
	BT50AD/B-EMH40-120	P2780321	40	80	120	73	30	32	M20	2	4.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

END MILL HOLDER & SIDE LOCK ARBOR

EMH

END MILL HOLDER (COOLANT CHANNEL)

JIS B6339/ MAS 403-BT

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL

FIG.1

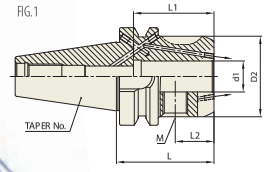
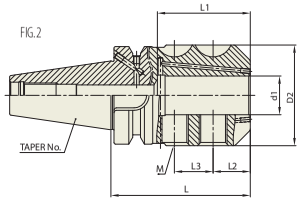


FIG.2



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD/B+C

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40AD/B-EMH6C-50	P2778001	6	25	50	35	18	-	M6	1	1.00
	BT40AD/B-EMH8C-50	P2778002	8	28	50	35	18	-	M8	1	1.00
	BT40AD/B-EMH10C-63	P2778003	10	35	63	39	20	-	M10	1	1.10
	BT40AD/B-EMH12C-63	P2778004	12	42	63	44	22.5	-	M12	1	1.30
	BT40AD/B-EMH14C-63	P2778005	14	44	63	49	22.5	-	M12	1	1.40
	BT40AD/B-EMH16C-63	P2778006	16	48	63	52	24	-	M14	1	1.70
	BT40AD/B-EMH18C-63	P2778007	18	50	63	50	24		M14	1	1.70
	BT40AD/B-EMH20C-63	P2778008	20	52	63	52	25	-	M16	1	1.80
	BT40AD/B-EMH25C-90	P2778009	25	65	90	60	24	25	M18	2	1.80
	BT40AD/B-EMH32C-100	P2778010	32	72	100	64	24	28	M20	2	2.00
50	BT50AD/B-EMH6C-63	P2778011	6	25	63	35	18	-	M6	1	3.30
	BT50AD/B-EMH8C-63	P2778012	8	28	63	35	18	-	M8	1	3.60
	BT50AD/B-EMH10C-65	P2778013	10	35	65	39	20	-	M10	1	3.80
	BT50AD/B-EMH12C-80	P2778014	12	42	80	46	22.5	-	M12	1	3.80
	BT50AD/B-EMH14C-80	P2778015	14	44	80	46	22.5	-	M12	1	4.00
	BT50AD/B-EMH16C-80	P2778016	16	48	80	49	24	-	M14	1	4.00
	BT50AD/B-EMH18C-80	P2778017	18	50	80	49	24	-	M14	1	4.20
	BT50AD/B-EMH20C-80	P2778018	20	52	80	52	25	-	M16	1	4.20
	BT50AD/B-EMH25C-100	P2778019	25	65	100	60	24	25	M18	2	4.60
	BT50AD/B-EMH32C-105	P2778020	32	72	105	64	24	28	M20	2	4.70
	BT50AD/B-EMH40C-120	P2778021	40	80	120	73	30	32	M20	2	4.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Combi-style holder with ball jointed clamping screw which can be used with cutting tools with Weldon and Whistle notch shank is available.

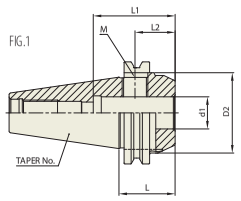
TOOLING SYSTEM

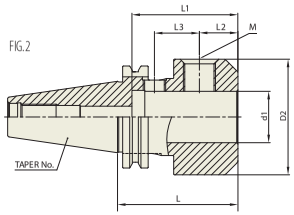
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

END MILL HOLDER (SHORT TYPE)

DIN 69871-SK

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



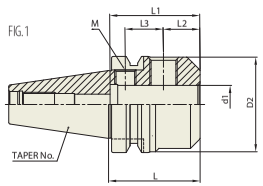


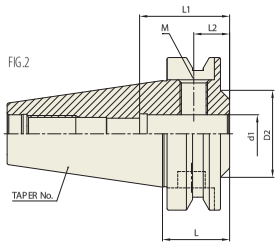
JIS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	SK40-EMH16-35	P2521001	16	48	35	51	24	-	M14	1	0.80
	SK40-EMH20-35	P2521027	20	50	35	51	25	-	M16	1	0.90
	SK40-EMH25-60	P2521003	25	50	60	59	24	25	M18/M14	2	1.20
	SK40-EMH32-75	P2521030	32	72	75	66	24	28	M20/M14	2	1.80
50	SK50-EMH25-60	P2521031	25	65	60	60	23.5	25.4	M18/M14	2	3.35
	SK50-EMH32-60	P2521032	32	72	60	63	24	24.9	M20/M14	2	3.50

JIS B6339/MAS 403-BT





JIS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

Unit : mm

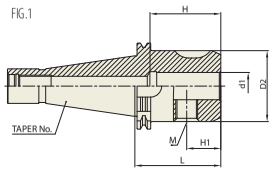
TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
40	BT40-EMH25-60	P2773085	25	62	60	59	24	25	M18	1	1.50
	BT40-EMH32-65	P2773086	32	62	65	63	24	28	M20	1	1.45
50	BT50-EMH25-44	P2773087	25	57	44	59	24	-	M18	2	3.45
	BT50-EMH32-60	P2773088	32	72	60	63	24	28	M20/M14	1	3.80

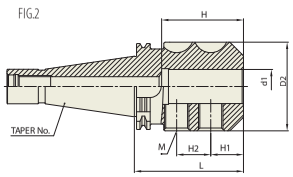
▶Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.

END MILL HOLDER

GOST 25827-93

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL





GOST 25827-93 | AT3 | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	H	H1	H2	M	FIG.	WEIGHT (kg)
40	6-50	P2780361	6	25	50	35	18	-	M6	1	
	GOST40-EMH8-50	P2780362	8	28	50	35	18	-	M8	1	
	GOST40-EMH10-50	P2780363	10	35	50	35.5	20	-	M10	1	
	GOST40-EMH12-50	P2780364	12	42	50	36	22.5	-	M12	1	
	GOST40-EMH14-63	P2780365	14	44	63	36	22.5	-	M12	1	
	GOST40-EMH16-63	P2780366	16	48	63	46	24	-	M14	1	
	GOST40-EMH18-63	P2780367	18	50	63	46	24	-	M14	1	
	GOST40-EMH20-63	P2780368	20	52	63	48	25	-	M16	1	
	GOST40-EMH25-80	P2780369	25	65	80	55	24	25	M18	2	
	GOST40-EMH32-80	P2780370	32	72	80	57	24	28	M20	2	
50	GOST50-EMH6-63	P2780371	6	25	63	35	18	-	M6	1	
	GOST50-EMH8-63	P2780372	8	28	63	35	18	-	M8	1	
	GOST50-EMH10-63	P2780373	10	35	63	35.5	20	-	M10	1	
	GOST50-EMH12-63	P2780374	12	42	63	36	22.5	-	M12	1	
	GOST50-EMH14-63	P2780375	14	44	63	36	22.5	-	M12	1	
	GOST50-EMH16-63	P2780376	16	48	63	46	24	-	M14	1	
	GOST50-EMH18-63	P2780377	18	50	63	46	24	-	M14	1	
	GOST50-EMH20-63	P2780378	20	52	63	48	25	-	M16	1	
	GOST50-EMH25-80	P2780379	25	65	80	55	24	25	M18	2	
	GOST50-EMH32-80	P2780380	32	72	80	63	24	28	M20	2	
	GOST50-EMH40-90	P2780381	40	80	90	68	30	32	M20	2	

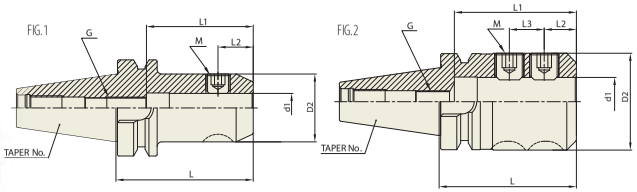
END MILL HOLDER & SIDE LOCK ARBOR

SLA

SIDE LOCK ARBOR

CBT
(BT DUAL CONTACT)

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



CBT AT3 AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	FIG.	WEIGHT (kg)
30	CBT30-SLA6-60	P2772918	6	25	60	35	18	-	M5	1	0.70
	CBT30-SLA8-60	P2772919	8	28	60	35	18	-	M6	1	0.80
	CBT30-SLA10-60	P2772920	10	35	60	40	14	13	M8	2	0.90
	CBT30-SLA12-60	P2772921	12	40	60	50	14	13	M10	2	1.10
	CBT30-SLA14-60	P2772922	14	40	60	50	14	13	M10	2	1.20
	CBT30-SLA16-75	P2772923	16	40	75	70	25	20	M12	2	1.30
	CBT30-SLA20-75	P2772924	20	50	75	70	25	20	M12	2	1.40
	CBT30-SLA25-75	P2772925	25	50	75	70	25	20	M14	2	1.50
	CBT30-SLA32-105	P2772926	32	60	105	80	25	25	M16	2	1.60
40	CBT40-SLA6-60	P2772927	6	25	60	35	18	-	M5	1	1.10
	CBT40-SLA8-60	P2772928	8	28	60	35	18	-	M6	1	1.10
	CBT40-SLA10-60	P2772929	10	35	60	50	14	13	M8	2	1.20
	CBT40-SLA12-60	P2772930	12	40	60	50	14	13	M10	2	1.40
	CBT40-SLA16-90	P2772931	16	40	90	70	25	20	M12	2	1.50
	CBT40-SLA20-90	P2772901	20	50	90	70	25	20	M12	2	1.80
	CBT40-SLA25-90	P2772902	25	50	90	70	25	20	M14	2	1.70
	CBT40-SLA32-90	P2772903	32	60	90	80	25	25	M16	2	1.90
	CBT40-SLA40-90	P2772904	40	63	90	80	25	25	M16	2	1.80
	CBT40-SLA42-90	P2772905	42	63	90	80	25	25	M16	2	1.80
50	CBT50-SLA6-90	P2772906	6	25	90	40	18	-	M5	1	3.70
	CBT50-SLA8-90	P2772907	8	28	90	40	18	-	M6	1	3.90
	CBT50-SLA10-90	P2772908	10	35	90	50	15	15	M8	2	4.10
	CBT50-SLA12-90	P2772909	12	40	90	55	15	15	M10	2	4.30
	CBT50-SLA14-90	P2772910	14	40	90	55	15	15	M10	2	4.30
	CBT50-SLA16-105	P2772911	16	40	105	70	25	20	M12	2	4.40
	CBT50-SLA20-105	P2772912	20	50	105	70	25	20	M12	2	4.80
	CBT50-SLA25-105	P2772913	25	50	105	70	25	20	M14	2	4.70
	CBT50-SLA32-105	P2772914	32	60	105	80	25	25	M14	2	4.00
	CBT50-SLA40-105	P2772915	40	63	105	80	25	25	M16	2	4.50
	CBT50-SLA42-105	P2772916	42	63	105	80	25	25	M16	2	4.70
	CBT50-SLA50.8-121	P2772917	50.8	95	121	87	33.9	35.8	M20	2	5.00

▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Side Lock Arbor is Non-Balancing.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

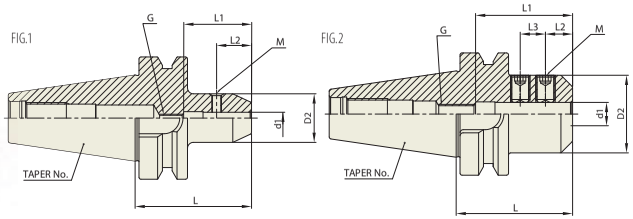
END MILL HOLDER & SIDE LOCK ARBOR

SLA

SIDE LOCK ARBOR

JIS B6339/
MAS 403-BT

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



IS 6339 T AT3 AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	L3	M	G	FIG.	WEIGHT (kg)
30	BT30-SLA 6-60	P2780201	6	25	60	35	18	-	M5	M5	1	0.70
	BT30-SLA 8-60	P2780202	8	28	60	35	18	-	M6	M6	1	0.80
	BT30-SLA10-60	P2780203	10	35	60	40	14	13	M8	M8	2	0.90
	BT30-SLA12-60	P2780204	12	40	60	50	14	13	M10	M10	2	1.10
	BT30-SLA14-60	P2780205	14	40	60	50	14	13	M10	M10	2	1.20
	BT30-SLA16-75	P2780206	16	40	75	70	25	20	M12	M12	2	1.30
	BT30-SLA20-75	P2780207	20	50	75	70	25	20	M12	M12	2	1.40
	BT30-SLA25-75	P2780208	25	50	75	70	25	20	M14	M12	2	1.50
	BT30-SLA32-105	P2780209	32	60	105	80	25	25	M16	M12	2	1.60
40	BT40-SLA6-60	P2780210	6	25	60	35	18	-	M5	M5	1	1.10
	BT40-SLA8-60	P2780211	8	28	60	35	18	-	M6	M6	1	1.10
	BT40-SLA10-60	P2780212	10	35	60	50	14	13	M8	M8	2	1.20
	BT40-SLA12-60	P2780213	12	40	60	50	14	13	M10	M10	2	1.40
	BT40-SLA16-90	P2780214	16	40	90	70	25	20	M12	M12	2	1.50
	BT40-SLA20-90	P2780215	20	50	90	70	25	20	M12	M12	2	1.80
	BT40-SLA25-90	P2780216	25	50	90	70	25	20	M14	M12	2	1.70
	BT40-SLA32-90	P2780217	32	60	90	80	25	25	M16	M12	2	1.90
	BT40-SLA40-90	P2780218	40	63	90	80	25	25	M16	M12	2	1.80
	BT40-SLA42-90	P2780219	42	63	90	80	25	25	M16	M12	2	1.80
50	BT50-SLA6-90	P2780220	6	25	90	40	18	-	M5	M5	1	3.70
	BT50-SLA8-90	P2780221	8	28	90	40	18	-	M6	M6	1	3.90
	BT50-SLA10-90	P2780222	10	35	90	50	15	15	M8	M8	2	4.10
	BT50-SLA12-90	P2780223	12	40	90	55	15	15	M10	M10	2	4.30
	BT50-SLA14-90	P2780224	14	40	90	55	15	15	M10	M12	2	4.30
	BT50-SLA16-105	P2780225	16	40	105	70	25	20	M12	M12	2	4.40
	BT50-SLA20-105	P2780226	20	50	105	70	25	20	M12	M12	2	4.80
	BT50-SLA25-105	P2780227	25	50	105	70	25	20	M14	M12	2	4.70
	BT50-SLA32-105	P2780228	32	60	105	80	25	25	M16	M12	2	4.00
	BT50-SLA40-105	P2780229	40	63	105	80	25	25	M16	M12	2	4.50
	BT50-SLA42-105	P2780230	42	63	105	80	25	25	M16	M12	2	4.70
	BT50-SLA50.8-121	P2780231	50.8	95	121	87	33.9	35.8	M20	-	2	5.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.
▶ Standard End Mill Holder is for a cutting tool with Weldon shank and End Mill Holder for a cutting tool with Whistle notch is available upon request.
▶ Side Lock Arbor is Non-Balancing.

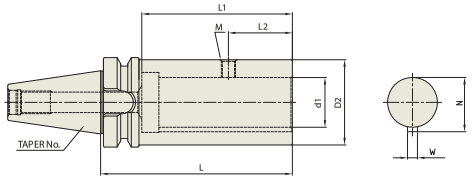
END MILL HOLDER & SIDE LOCK ARBOR

SLB

SIDE LOCK ARBOR

JIS B6339/
MAS 403-BT

FRÄSERFUTTER UND FLÄCHENSPANNFUTTER
MANDRIN PORTE FRAISE À QUEUE CYLINDRIQUE, À MÉPLAT
MANDRINI PORTA FRESA TIPO WELDON
PORTAFRESAS Y EJES DE SUJECCION LATERAL



JIS 6339 T | AT3 | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	L1	L2	M	N	W	WEIGHT (kg)
40	BT40-SLB26-105	P2778051	26	50	105	85	40	M10	28.2	5	1.30
	BT40-SLB35-135	P2778052	35	60	135	105	55	M10	37.6	6	2.20
	BT40-SLB35T-135	P2778053	35	60	135	105	55	M10	38.2	7	2.20
50	BT50-SLB26-105	P2778054	26	50	105	85	40	M10	28.2	5	1.30
	BT50-SLB35-135	P2778055	35	60	135	106	55	M10	37.6	6	2.20
	BT50-SLB35T-135	P2778056	35	60	135	106	55	M10	38.2	7	2.20
	BT50-SLB48-165	P2778057	12	42	165	129	65	M10	51	8	3.80

▶ Standard design of side lock arbor is for cutting tools with straight shank having flat face.
▶ Side Lock Arbor is Non-Balancing.

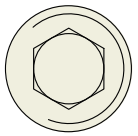
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

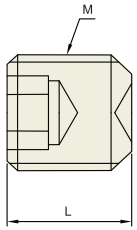
TOOLING SYSTEM

END MILL HOLDER & SIDE LOCK ARBOR

PART

SIDE LOCK BOLT
(for END MILL HOLDER & SIDE LOCK ARBOR)



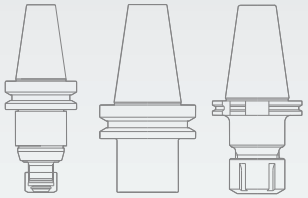


Unit : mm

SLA & EMH ID	EMH			SLA		
	M	L	EDP No.	M	L	EDP No.
6	M6 x 1.0	10.5	P2778088	M5 x 0.8	8	P2778079
8	M8 x 1.25	10.5	P2778089	M6 x 1.0	10	P2778080
10	M10 x 1.5	12.5	P2778090	M8 x 1.25	12	P2778081
12	M12 x 1.75	16.5	P2778091	M10 x 1.5	14	P2778082
14	M12 x 1.75	15.0	P2778092	M10 x 1.5	14	P2778082
16	M14 x 2.0	16.5	P2778093	M12 x 1.75	12	P2778083
18	M14 x 2.0	16.5	P2778093	-	-	-
20	M16 x 2.0	16.5	P2778094	M12 x 1.75	16	P2778084
25	M18 x 2.0	20.5	P2778095	M14 x 2.0	14	P2778085
32	M20 x 2.0	20.5	P2778096	M16 x 2.0	16	P2778086
40	M20 x 2.0	20.5	P2778096	M16 x 2.0	16	P2778086
42	-	-	-	M16 x 2.0	16	P2778086
50	M24 x 2.0	25.5	P2778098	-	-	-
50.8	-	-	-	M20 x 2.5	25	P2778087

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

Global Cutting Tool Leader **YG-1**



TOOLING SYSTEM

SHELL MILL ARBOR

- AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
- MANDRIN PORTE-FRAISES
- MANDRINO CON TRASCINAMENTO FISSO
- PORTA FRESAS

SHELL MILL ARBOR

DIN 69871-SK	DIN 69893/ISO 12164-1-HSK
CBT (BT DUAL CONTACT)	JIS B6339/MAS 403-BT
GOST 25827-93	PARTS

COMBI SHELL MILL ARBOR

DIN 69871-SK	DIN 69893/ISO 12164-1-HSK
CBT (BT DUAL CONTACT)	JIS B6339/MAS 403-BT
DIN 2080-ISO	PARTS

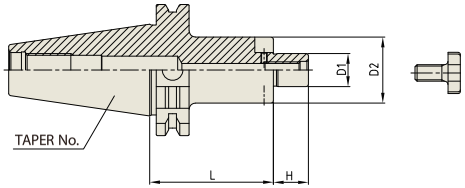
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR

DIN 69871-SK

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | A

Parts, Refer to page 153-154

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	SK30-SMA16-50	P2778901	16	32	50	17	M8x16L	0.85
	SK30-SMA22-50	P2778902	22	40	50	19	M10x18L	0.90
	SK30-SMA27-50	P2778903	27	48	50	21	M12x22L	1.03
40	SK40-SMA16-60	P2778904	16	32	60	17	M8x16L	0.35
	SK40-SMA22-60	P2778905	22	40	60	19	M10x18L	1.45
	SK40-SMA27-60	P2778906	27	48	60	21	M12x22L	1.70
	SK40-SMA32-60	P2778907	32	58	60	24	M16x26L	1.80
	SK40-SMA40-60	P2778908	40	70	60	27	M20x30L	3.10
50	SK50-SMA16-75	P2778909	16	32	75	17	M8x16L	2.80
	SK50-SMA22-75	P2778910	22	40	75	19	M10x18L	3.10
	SK50-SMA27-75	P2778911	27	48	75	21	M12x22L	3.40
	SK50-SMA32-75	P2778912	32	58	75	24	M16x26L	3.80
	SK50-SMA40-75	P2778913	40	70	75	27	M20x30L	4.50
	SK50-SMA50-75	P2778914	50	90	75	30	M24x36L	5.90

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	SK40-SMA16-120	P2778915	16	32	120	17	M8x16L	1.70
	SK40-SMA22-120	P2778916	22	40	120	19	M10x18L	1.80
	SK40-SMA27-120	P2778917	27	48	120	21	M12x22L	2.40
	SK40-SMA32-120	P2778918	32	58	120	24	M16x26L	3.70
50	SK50-SMA16-120	P2778919	16	32	120	17	M8x16L	3.90
	SK50-SMA22-120	P2778920	22	40	120	19	M10x18L	4.40
	SK50-SMA27-120	P2778921	27	48	120	21	M12x22L	4.70
	SK50-SMA32-120	P2778922	32	58	120	24	M16x26L	5.00
	SK50-SMA40-120	P2778923	40	70	120	27	M20x30L	6.05

▶ Without "Coolant Through".
▶ CAT(ANSI B5.50) taper and Inch type products are available.

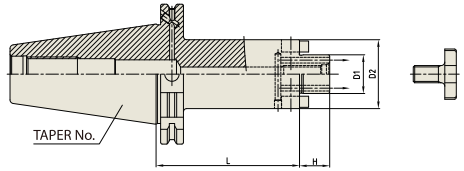
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR (COOLANT CHANNEL)

DIN 69871-SK

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD/B+C

Parts Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	SK40AD/B-SMA16C-60	P2801004C	16	32	60	17	M8x16L	0.35
	SK40AD/B-SMA16C-120	P2801015C	16	32	120	17	M8x16L	0.70
	SK40AD/B-SMA22C-44	P2803003C	22	40	44	19	M10x18L	1.03
	SK40AD/B-SMA22C-100	P2803004C	22	40	100	19	M10x18L	1.60
	SK40AD/B-SMA22C-120	P2801016C	22	40	120	19	M10x18L	1.90
	SK40AD/B-SMA27C-44	P2803006C	27	48	44	21	M12x22L	1.16
	SK40AD/B-SMA27C-100	P2803007C	27	48	100	21	M12x22L	1.97
	SK40AD/B-SMA27C-120	P2801017C	27	48	120	21	M12x22L	2.23
	SK40AD/B-SMA32C-60	P2801007C	32	58	60	24	M16x26L	1.64
	SK40AD/B-SMA32C-120	P2801018C	32	58	120	24	M16x26L	2.00
	SK40AD/B-SMA40C-60	P2803011C	40	70	60	27	M20x30L	1.83
	SK40AD/B-SMA40C-120	P2803012C	40	70	120	27	M20x30L	2.10
50	SK50AD/B-SMA16C-75	P2801009C	16	32	75	17	M8x16L	2.20
	SK50AD/B-SMA16C-120	P2801019C	16	32	120	17	M8x16L	2.50
	SK50AD/B-SMA22C-44	P2803015C	22	40	44	19	M10x18L	2.84
	SK50AD/B-SMA22C-75	P2801010C	22	40	75	19	M10x18L	3.10
	SK50AD/B-SMA22C-100	P2803017C	22	40	100	19	M10x18L	3.37
	SK50AD/B-SMA22C-120	P2801020C	22	40	120	19	M10x18L	3.60
	SK50AD/B-SMA22C-160	P2803019C	22	40	160	19	M10x18L	3.93
	SK50AD/B-SMA27C-75	P2801011C	27	48	75	21	M12x22L	3.40
	SK50AD/B-SMA27C-100	P2803021C	27	48	100	21	M12x22L	3.74
	SK50AD/B-SMA27C-120	P2801021C	27	48	120	21	M12x22L	4.00
	SK50AD/B-SMA27C-160	P2803023C	27	48	160	21	M12x22L	4.42
	SK50AD/B-SMA32C-75	P2801012C	32	58	75	24	M16x26L	3.80
	SK50AD/B-SMA32C-100	P2803025C	32	58	100	24	M16x26L	4.28
	SK50AD/B-SMA32C-120	P2801022C	32	58	120	24	M16x26L	4.40
	SK50AD/B-SMA32C-160	P2803027C	32	58	160	24	M16x26L	5.45
	SK50AD/B-SMA40C-75	P2801013C	40	70	75	27	M20x30L	4.50
	SK50AD/B-SMA40C-100	P2803029C	40	70	100	27	M20x30L	5.11
	SK50AD/B-SMA40C-120	P2801023C	40	70	100	27	M20x30L	5.30
	SK50AD/B-SMA40C-160	P2803031C	40	70	160	27	M20x30L	6.78

▶ With "Coolant Through" by coolant channels.
▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

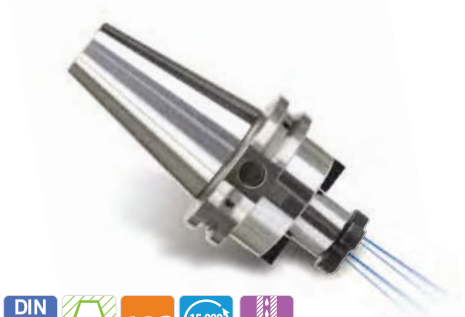
SHELL MILL ARBOR

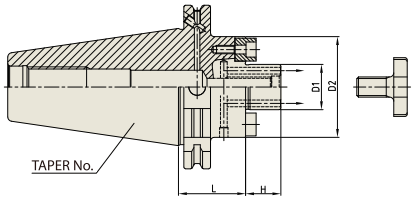
SMA

SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)

DIN 69871-SK

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS





DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD/B+C

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	SK40AD/B-SMA16CE-35	P2803101CE	16	38	35	17	M8x16L	0.94
	SK40AD/B-SMA16CE-100	P2803102CE	16	38	100	17	M8x16L	1.50
	SK40AD/B-SMA22CE-35	P2803103CE	22	48	35	19	M10x18L	1.05
	SK40AD/B-SMA22CE-100	P2803104CE	22	48	100	19	M10x18L	1.95
	SK40AD/B-SMA27CE-45	P2803105CE	27	60	45	21	M12x22L	1.33
	SK40AD/B-SMA27CE-100	P2803106CE	27	60	100	21	M12x22L	2.59
	SK40AD/B-SMA32CE-50	P2803107CE	32	78	50	24	M16x26L	1.72
	SK40AD/B-SMA40CE-50	P2803108CE	40	89	50	27	M20x30L	1.99
50	SK50AD/B-SMA16CE-100	P2803109CE	16	38	100	17	M8x16L	3.27
	SK50AD/B-SMA22CE-35	P2803110CE	22	48	35	19	M10x18L	2.83
	SK50AD/B-SMA22CE-100	P2803111CE	22	48	100	19	M10x18L	3.72
	SK50AD/B-SMA22CE-160	P2803112CE	22	48	160	19	M10x18L	4.54
	SK50AD/B-SMA27CE-40	P2803113CE	27	60	40	21	M12x22L	3.09
	SK50AD/B-SMA27CE-100	P2803114CE	27	60	100	21	M12x22L	4.35
	SK50AD/B-SMA27CE-160	P2803115CE	27	60	160	21	M12x22L	5.62
	SK50AD/B-SMA32CE-50	P2803116CE	32	78	50	24	M16x26L	3.82
	SK50AD/B-SMA32CE-100	P2803117CE	32	78	100	24	M16x26L	5.64
	SK50AD/B-SMA32CE-160	P2803118CE	32	78	160	24	M16x26L	7.81
	SK50AD/B-SMA40CE-50	P2803119CE	40	89	50	27	M20x30L	4.27
	SK50AD/B-SMA40CE-100	P2803120CE	40	89	100	27	M20x30L	6.61
	SK50AD/B-SMA40CE-160	P2803121CE	40	89	160	27	M20x30L	9.43

▶ With "Coolant Through" by coolant channels.
▶ CAT(ANSI B5.50) taper and Inch type products are available.

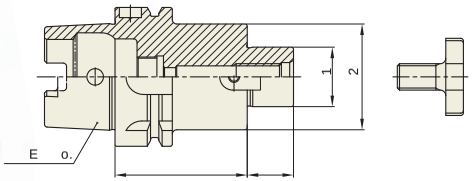
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR

DIN 69893/ ISO 12164-1-HSK FORM A

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



DIN 69893-HSK | 6.3G | 15,000 RPM | A

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40A	HSK40A-SMA16-50	P2778201	16	32	50	17	M8x16L	0.40
	HSK40A-SMA22-50	P2778202	22	40	50	19	M10x18L	0.50
	HSK40A-SMA27-60	P2778203	27	48	60	21	M12x22L	0.60
50A	HSK50A-SMA16-50	P2778204	16	32	50	17	M8x16L	0.50
	HSK50A-SMA22-60	P2778205	22	40	60	19	M10x18L	0.57
	HSK50A-SMA27-60	P2778206	27	48	60	21	M12x22L	0.75
	HSK50A-SMA32-60	P2778207	32	58	60	24	M16x26L	0.90
63A	HSK63A-SMA16-50	P2566001	16	32	50	17	M8x16L	0.81
	HSK63A-SMA22-50	P2566002	22	40	50	19	M10x18L	0.93
	HSK63A-SMA27-60	P2566003	27	48	60	21	M12x22L	1.22
	HSK63A-SMA32-60	P2566004	32	58	60	24	M16x26L	1.46
	HSK63A-SMA40-60	P2566005	40	70	60	27	M20x30L	1.80
100A	HSK100A-SMA16-50	P2566011	16	32	50	17	M8x16L	2.14
	HSK100A-SMA22-50	P2566012	22	40	50	19	M10x18L	2.25
	HSK100A-SMA27-50	P2566013	27	48	50	21	M12x22L	2.40
	HSK100A-SMA32-50	P2566014	32	58	50	24	M16x26L	2.60
	HSK100A-SMA40-60	P2566015	40	70	60	27	M20x30L	3.25
	HSK100A-SMA50-70	P2778209	50	90	70	30	M24x36L	5.40

▶ Without "Coolant Through".

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

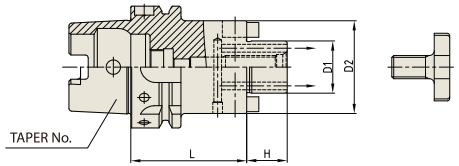
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR (COOLANT CHANNEL)

DIN 69893/
ISO 12164-1-HSK FORM A

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



DIN 69893-HSK | 6.3G | 15,000 RPM | AD+C

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
63A	HSK63A-SMA16C-50	P2566001C	16	32	50	17	M8x16L	0.80
	HSK63A-SMA22C-50	P2566002C	22	40	50	19	M10x18L	0.92
	HSK63A-SMA22C-100	P2801101C	22	40	100	19	M10x18L	1.40
	HSK63A-SMA22C-160	P2803202C	22	40	160	19	M10x18L	1.97
	HSK63A-SMA27C-60	P2566003C	27	48	60	21	M12x22L	1.19
	HSK63A-SMA27C-100	P2801102C	27	48	100	21	M12x22L	1.74
	HSK63A-SMA27C-160	P2803204C	27	48	160	21	M12x22L	2.55
	HSK63A-SMA32C-60	P2566004C	32	58	63	24	M16x26L	1.50
	HSK63A-SMA32C-100	P2801103C	32	58	100	24	M16x26L	2.72
	HSK63A-SMA40C-60	P2566005C	40	70	60	27	M20x30L	1.66
100A	HSK100A-SMA16C-50	P2566011C	16	32	50	17	M8x16L	2.25
	HSK100A-SMA22C-50	P2566012C	22	40	50	19	M10x18L	2.25
	HSK100A-SMA22C-100	P2801105C	22	40	100	19	M10x18L	2.72
	HSK100A-SMA22C-160	P2803206C	22	40	160	19	M10x18L	3.28
	HSK100A-SMA27C-50	P2566013C	27	48	50	21	M12x22L	2.40
	HSK100A-SMA27C-100	P2801106C	27	48	100	21	M12x22L	3.12
	HSK100A-SMA27C-160	P2803207C	27	48	160	21	M12x22L	4.01
	HSK100A-SMA32C-50	P2566014C	32	58	50	24	M16x26L	2.55
	HSK100A-SMA32C-100	P2801107C	32	58	100	24	M16x26L	3.49
	HSK100A-SMA32C-160	P2803208C	32	58	160	24	M16x26L	4.66
	HSK100A-SMA40C-60	P2566015C	40	70	60	27	M20x30L	3.10
	HSK100A-SMA40C-100	P2801108C	40	70	100	27	M20x30L	4.19
	HSK100A-SMA40C-160	P2803209C	40	70	160	27	M20x30L	5.88

▶ With "Coolant Through" by coolant channels.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

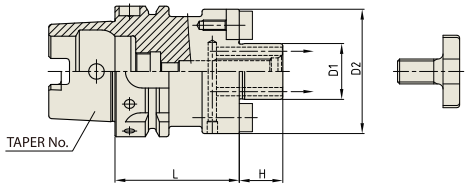
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)

DIN 69893/
ISO 12164-1-HSK FORM A

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



DIN 69893-HSK | 6.3G | 15,000 RPM | AD+C

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
63A	HSK63A-SMA16CE-50	P2803301CE	16	38	50	17	M8x16L	0.86
	HSK63A-SMA16CE-100	P2803302CE	16	38	100	17	M8x16L	1.29
	HSK63A-SMA16CE-145	P2803303CE	16	38	145	17	M8x16L	1.68
	HSK63A-SMA22CE-50	P2803304CE	22	48	50	19	M10x18L	1.02
	HSK63A-SMA22CE-100	P2803305CE	22	48	100	19	M10x18L	1.71
	HSK63A-SMA22CE-160	P2803306CE	22	48	160	19	M10x18L	2.54
	HSK63A-SMA27CE-60	P2803307CE	27	60	60	21	M12x22L	1.39
	HSK63A-SMA27CE-100	P2803308CE	27	60	100	21	M12x22L	2.25
	HSK63A-SMA27CE-160	P2803309CE	27	60	160	21	M12x22L	3.54
	HSK63A-SMA32CE-60	P2803310CE	32	78	63	24	M16x26L	1.70
	HSK63A-SMA32CE-100	P2803311CE	32	78	100	24	M16x26L	3.40
	HSK63A-SMA40CE-60	P2803312CE	40	89	60	27	M20x30L	1.99
100A	HSK100A-SMA16CE-100	P2803313CE	16	38	100	17	M8x16L	2.63
	HSK100A-SMA22CE-50	P2803314CE	22	48	50	19	M10x18L	2.34
	HSK100A-SMA22CE-100	P2803315CE	22	48	100	19	M10x18L	3.02
	HSK100A-SMA22CE-160	P2803316CE	22	48	160	19	M10x18L	3.85
	HSK100A-SMA27CE-50	P2803317CE	27	60	50	21	M12x22L	2.54
	HSK100A-SMA27CE-100	P2803318CE	27	60	100	21	M12x22L	3.60
	HSK100A-SMA27CE-160	P2803319CE	27	60	160	21	M12x22L	4.90
	HSK100A-SMA32CE-50	P2803320CE	32	78	50	24	M16x26L	2.90
	HSK100A-SMA32CE-100	P2803321CE	32	78	100	24	M16x26L	4.68
	HSK100A-SMA32CE-160	P2803322CE	32	78	160	24	M16x26L	6.86
	HSK100A-SMA40CE-60	P2803323CE	40	89	60	27	M20x30L	3.68
	HSK100A-SMA40CE-100	P2803324CE	40	89	100	27	M20x30L	5.51
	HSK100A-SMA40CE-160	P2803325CE	40	89	160	27	M20x30L	8.32

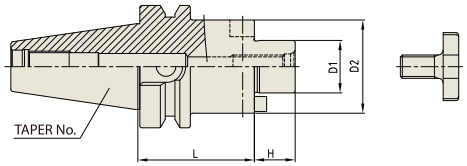
▶ With "Coolant Through" by coolant channels.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHELL MILL ARBOR

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS

CBT (BT DUAL CONTACT)



CBT | AT3 | 2.5G | 25,000 RPM | A

Parts
Refer to page 153-154

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	CBT30-SMA16-50	P2778701	16	32	30	17	M8x16L	0.58
	CBT30-SMA22-50	P2778702	22	40	30	19	M10x18L	0.70
	CBT30-SMA27-50	P2778703	27	48	30	21	M12x22L	0.85
40	CBT40-SMA16-60	P2778704	16	32	60	17	M8x16L	1.17
	CBT40-SMA22-60	P2778705	22	40	60	19	M10x18L	1.31
	CBT40-SMA27-60	P2778706	27	48	60	21	M12x22L	1.48
	CBT40-SMA32-60	P2778707	32	58	60	24	M16x26L	1.72
	CBT40-SMA40-60	P2778708	40	70	60	27	M20x30L	2.00
50	CBT50-SMA16-75	P2778709	16	32	75	17	M8x16L	3.75
	CBT50-SMA22-75	P2778710	22	40	75	19	M10x18L	3.90
	CBT50-SMA27-75	P2778711	27	48	75	21	M12x22L	4.09
	CBT50-SMA32-75	P2778712	32	58	75	24	M16x26L	4.35
	CBT50-SMA40-75	P2778713	40	70	75	27	M20x30L	4.77
	CBT50-SMA50-75	P2778714	50	90	75	30	M24x36L	5.63

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	CBT40-SMA16-120	P2778715	16	32	120	17	M8x16L	1.50
	CBT40-SMA22-120	P2778716	22	40	120	19	M10x18L	1.85
	CBT40-SMA27-120	P2778717	27	48	120	21	M12x22L	2.27
	CBT40-SMA32-120	P2778718	32	58	120	24	M16x26L	2.90
50	CBT50-SMA16-120	P2778719	16	32	120	17	M8x16L	4.03
	CBT50-SMA22-120	P2778720	22	40	120	19	M10x18L	4.25
	CBT50-SMA27-120	P2778721	27	48	120	21	M12x22L	4.56
	CBT50-SMA32-120	P2778722	32	58	120	24	M16x26L	5.22
	CBT50-SMA40-120	P2778723	40	70	120	27	M20x30L	6.04

▶ Without "Coolant Through".

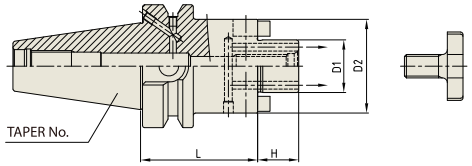
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR (COOLANT CHANNEL)

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS

CBT (BT DUAL CONTACT)



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | AD/B+C

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	CBT40AD/B-SMA16C-60	P2801047C	16	32	60	17	M8x16L	1.20
	CBT40AD/B-SMA16C-120	P2801058C	16	32	120	17	M8x16L	1.20
	CBT40AD/B-SMA22C-60	P2801048C	22	40	60	19	M10x18L	1.27
	CBT40AD/B-SMA22C-120	P2801059C	22	40	120	19	M10x18L	1.84
	CBT40AD/B-SMA27C-60	P2801049C	27	48	60	21	M12x22L	1.44
	CBT40AD/B-SMA27C-120	P2801060C	27	48	120	21	M12x22L	2.26
50	CBT50AD/B-SMA16C-60	P2803407C	16	32	60	17	M8x16L	3.00
	CBT50AD/B-SMA16C-120	P2801062C	16	32	120	17	M8x16L	3.30
	CBT50AD/B-SMA22C-75	P2801053C	22	40	75	19	M10x18L	3.83
	CBT50AD/B-SMA22C-120	P2801063C	22	40	120	19	M10x18L	4.24
	CBT50AD/B-SMA27C-75	P2801054C	27	48	75	21	M12x22L	4.03
	CBT50AD/B-SMA27C-120	P2801064C	27	48	120	21	M12x22L	4.64
	CBT50AD/B-SMA32C-75	P2801055C	32	58	75	24	M16x26L	4.31
	CBT50AD/B-SMA32C-120	P2801065C	32	58	120	24	M16x26L	5.19
	CBT50AD/B-SMA40C-75	P2801056C	40	70	75	27	M20x30L	4.75
	CBT50AD/B-SMA40C-120	P2801066C	40	70	120	27	M20x30L	6.02

▶ With "Coolant Through" by coolant channels.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

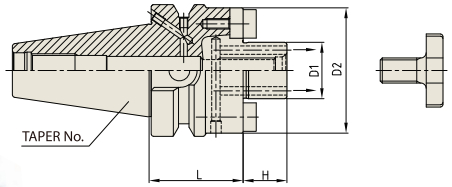
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)

CBT
(BT DUAL CONTACT)

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | AD C or AD/ C

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	CBT30-SMA16CE-40	P2803501CE	16	38	40	17	M8x16L	0.55
	CBT30-SMA22CE-40	P2803502CE	22	48	40	19	M10x18L	0.69
	CBT30-SMA27CE-40	P2803503CE	27	60	40	21	M12x22L	0.85
	CBT30-SMA32CE-45	P2803504CE	32	78	45	24	M16x26L	1.32
40	CBT40AD/B-SMA16CE-50	P2803505CE	22	38	50	17	M10x18L	1.14
	CBT40AD/B-SMA22CE-45	P2803506CE	22	48	45	19	M10x18L	1.22
	CBT40AD/B-SMA27CE-45	P2803507CE	27	60	45	21	M12x22L	1.39
	CBT40AD/B-SMA32CE-50	P2803508CE	32	78	50	24	M16x26L	1.80
	CBT40AD/B-SMA40CE-50	P2803509CE	40	89	50	27	M20x30L	2.05
50	CBT50AD/B-SMA22CE-55	P2803510CE	22	48	55	19	M10x18L	3.72
	CBT50AD/B-SMA27CE-55	P2803511CE	27	60	55	21	M12x22L	3.89
	CBT50AD/B-SMA32CE-55	P2803512CE	32	78	55	24	M16x26L	4.21
	CBT50AD/B-SMA40CE-55	P2803513CE	40	89	55	27	M20x30L	4.52

▶ With "Coolant Through" by coolant channels.
▶ CAT(ANSI B5.50) taper and Inch type products are available.

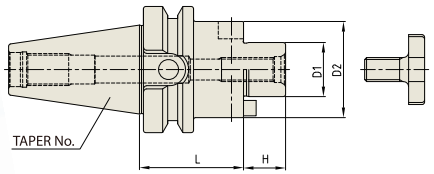
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR

JIS B6339/
MAS 403-BT

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



IS 6339 T | 6.3G | 15,000 RPM | A

Parts
Refer to page 153-154

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	BT30-SMA16-50	P2778801	16	32	50	17	M8x16L	0.58
	BT30-SMA22-50	P2778802	22	40	50	19	M10x18L	0.70
	BT30-SMA27-50	P2778803	27	48	50	21	M12x22L	0.85
40	BT40-SMA16-60	P2778804	16	32	60	17	M8x16L	1.17
	BT40-SMA22-60	P2778805	22	40	60	19	M10x18L	1.31
	BT40-SMA27-60	P2778806	27	48	60	21	M12x22L	1.48
	BT40-SMA32-60	P2778807	32	58	60	24	M16x26L	1.72
	BT40-SMA40-60	P2778808	40	70	60	27	M20x30L	2.00
50	BT50-SMA16-75	P2778809	16	32	75	17	M8x16L	3.75
	BT50-SMA22-75	P2778810	22	40	75	19	M10x18L	3.90
	BT50-SMA27-75	P2778811	27	48	75	21	M12x22L	4.09
	BT50-SMA32-75	P2778812	32	58	75	24	M16x26L	4.35
	BT50-SMA40-75	P2778813	40	70	75	27	M20x30L	4.77
	BT50-SMA50-75	P2778814	50	90	75	30	M24x36L	5.63

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	BT40-SMA16-120	P2778815	16	32	120	17	M8x16L	1.50
	BT40-SMA22-120	P2778816	22	40	120	19	M10x18L	1.85
	BT40-SMA27-120	P2778817	27	48	120	21	M12x22L	2.27
	BT40-SMA32-120	P2778818	32	58	120	24	M16x26L	2.90
50	BT50-SMA16-120	P2778819	16	32	120	17	M8x16L	4.03
	BT50-SMA22-120	P2778820	22	40	120	19	M10x18L	4.25
	BT50-SMA27-120	P2778821	27	48	120	21	M12x22L	4.56
	BT50-SMA32-120	P2778822	32	58	120	24	M16x26L	5.22
	BT50-SMA40-120	P2778823	40	70	120	27	M20x30L	6.04

▶ Without "Coolant Through".
▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

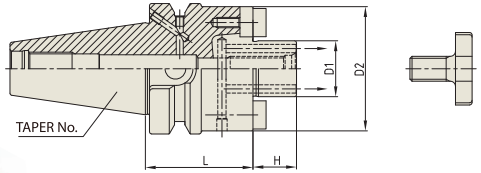
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR (COOLANT CHANNEL)

JIS B6339/ MAS 403-BT

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD C or AD/ C

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
30	BT30-SMA16C-40	P2803601C	16	32	40	17	M8x16L	0.55
	BT30-SMA22C-40	P2803602C	22	40	40	19	M10x18L	0.61
	BT30-SMA22C-100	P2803603C	22	40	100	19	M10x18L	1.18
	BT30-SMA27C-40	P2803604C	27	48	40	21	M12x22L	0.86
	BT30-SMA27C-100	P2803605C	27	48	100	21	M12x22L	1.67
40	BT40AD/B-SMA16C-60	P2801024C	16	32	60	17	M8x16L	1.00
	BT40AD/B-SMA22C-60	P2801025C	22	40	60	19	M10x18L	1.20
	BT40AD/B-SMA22C-100	P2803607C	22	40	100	19	M10x18L	1.65
	BT40AD/B-SMA27C-60	P2801026C	27	48	60	21	M12x22L	1.34
	BT40AD/B-SMA27C-100	P2803608C	27	48	100	21	M12x22L	1.99
	BT40AD/B-SMA32C-60	P2801027C	32	58	60	24	M16x26L	1.55
	BT40AD/B-SMA40C-70	P2803610C	40	70	60	27	M20x30L	1.97
50	BT50AD/B-SMA16C-75	P2801029C	16	32	75	17	M8x16L	3.00
	BT50AD/B-SMA16C-120	P2801039C	16	32	120	17	M8x16L	3.40
	BT50AD/B-SMA22C-75	P2801030C	22	40	75	19	M10x18L	3.72
	BT50AD/B-SMA22C-100	P2803614C	22	40	100	19	M10x18L	4.06
	BT50AD/B-SMA22C-120	P2801040C	22	40	120	19	M10x18L	4.40
	BT50AD/B-SMA22C-160	P2803616C	22	40	160	19	M10x18L	4.61
	BT50AD/B-SMA27C-75	P2801031C	27	48	75	21	M12x22L	3.87
	BT50AD/B-SMA27C-100	P2803618C	27	48	100	21	M12x22L	4.37
	BT50AD/B-SMA27C-120	P2801041C	27	48	120	21	M12x22L	4.68
	BT50AD/B-SMA27C-160	P2803620C	27	48	160	21	M12x22L	5.18
	BT50AD/B-SMA32C-75	P2801032C	32	58	75	24	M16x26L	4.08
	BT50AD/B-SMA32C-100	P2803622C	32	58	100	24	M16x26L	4.80
	BT50AD/B-SMA32C-120	P2801042C	32	58	120	24	M16x26L	5.40
	BT50AD/B-SMA32C-160	P2803624C	32	58	160	24	M16x26L	5.98
	BT50AD/B-SMA40C-75	P2801033C	40	70	75	27	M20x30L	4.41
	BT50AD/B-SMA40C-100	P2803626C	40	70	100	27	M20x30L	5.45
	BT50AD/B-SMA40C-120	P2801043C	40	70	120	27	M20x30L	6.00
	BT50AD/B-SMA40C-160	P2803628C	40	70	160	27	M20x30L	7.15

▶ With "Coolant Through" by coolant channels.
▶ CAT(ANSI B5.50) taper and Inch type products are available.

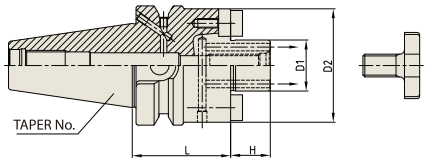
SHELL MILL ARBOR

SMA

SHELL MILL ARBOR (COOLANT CHANNEL & LARGE FACE)

JIS B6339/ MAS 403-BT

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD/B+C

Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	BOLT	WEIGHT (kg)
40	BT40AD/B-SMA16CE-45	P2803701CE	16	38	45	17	M8x16L	1.09
	BT40AD/B-SMA16CE-100	P2803702CE	16	38	100	17	M8x16L	1.57
	BT40AD/B-SMA22CE-45	P2803703CE	22	48	45	19	M10x18L	1.22
	BT40AD/B-SMA22CE-100	P2803704CE	22	48	100	19	M10x18L	1.97
	BT40AD/B-SMA27CE-45	P2803705CE	27	60	45	21	M12x22L	1.39
	BT40AD/B-SMA27CE-100	P2803706CE	27	60	100	21	M12x22L	2.58
	BT40AD/B-SMA32CE-50	P2803707CE	32	78	50	24	M16x26L	1.80
	BT40AD/B-SMA40CE-50	P2803708CE	40	89	50	27	M20x30L	2.05
50	BT50AD/B-SMA22CE-55	P2803709CE	22	48	55	19	M10x18L	3.72
	BT50AD/B-SMA22CE-100	P2803710CE	22	48	100	19	M10x18L	4.33
	BT50AD/B-SMA22CE-160	P2803711CE	22	48	160	19	M10x18L	5.14
	BT50AD/B-SMA27CE-55	P2803712CE	27	60	55	21	M12x22L	3.89
	BT50AD/B-SMA27CE-100	P2803713CE	27	60	100	21	M12x22L	4.86
	BT50AD/B-SMA27CE-160	P2803714CE	27	60	160	21	M12x22L	6.15
	BT50AD/B-SMA32CE-55	P2803715CE	32	78	63	24	M16x26L	4.21
	BT50AD/B-SMA32CE-100	P2803716CE	32	78	100	24	M16x26L	5.87
	BT50AD/B-SMA32CE-160	P2803717CE	32	78	160	24	M16x26L	8.08
	BT50AD/B-SMA40CE-55	P2803718CE	40	89	63	27	M20x30L	4.52
	BT50AD/B-SMA40CE-100	P2803719CE	40	89	100	27	M20x30L	6.68
	BT50AD/B-SMA40CE-160	P2803720CE	40	89	160	27	M20x30L	9.57

▶ With "Coolant Through" by coolant channels.

TOOLING SYSTEM

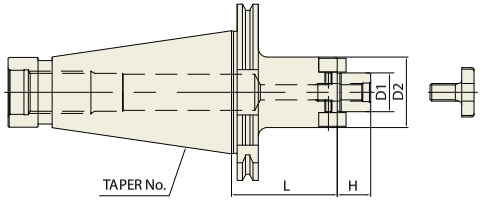
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHELL MILL ARBOR

GOST 25827-93

AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES
MANDRINO CON TRASCINAMENTO FISSO
PORTA FRESAS



GOST 25827-93 AT3 A

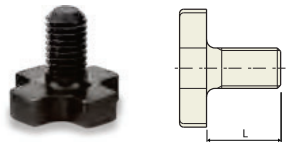
Parts
Refer to page 153-154

Unit : mm

TAPER No.	MODEL No.	EDP No.	D1	D2	L	H	WEIGHT (kg)
40	GOST40-SMA16-40	P2780401	16	32	40	17	
	GOST40-SMA16-100	P2780402	16	32	100	17	
	GOST40-SMA22-40	P2780403	22	40	40	19	
	GOST40-SMA22-100	P2780404	22	40	100	19	
	GOST40-SMA27-45	P2780405	27	48	45	21	
	GOST40-SMA32-45	P2780406	32	58	45	24	
50	GOST50-SMA16-40	P2780407	16	32	40	17	
	GOST50-SMA16-100	P2780408	16	32	100	17	
	GOST40-SMA22-40	P2780409	22	40	40	19	
	GOST40-SMA22-100	P2780410	22	40	100	19	
	GOST40-SMA27-45	P2780411	27	48	45	21	
	GOST40-SMA27-120	P2780412	27	48	120	21	
	GOST40-SMA32-45	P2780413	32	58	45	24	
	GOST40-SMA32-130	P2780414	32	58	130	24	
	GOST40-SMA40-55	P2780415	40	70	55	27	
	GOST40-SMA40-150	P2780416	40	70	150	27	
	GOST40-SMA50-60	P2780417	50	90	60	30	

▶ Without "Coolant Through".

BOLT & KEY
(For SHELL MILL ARBOR)



■ COLLAR BOLT

M (COLLAR BOLT)	EDP No.	L (Length)	SMA SPIGOT Dia.
M8x1.25	P2514051	16	16
M10x1.5	P2514052	18	22
M12x1.75	P2514053	22	27
M16x2.0	P2514054	26	32
M20x2.5	P2514055	30	40
M24x3.0	P2514056	36	50

■ DRIVE KEY

DRIVE KEY	EDP No.	SMA SPIGOT Dia.
8x7x2.8	P2778857	16
10x7.8x15.5	P2778858	22
12x9x18.5	P2778859	27
14x11.5x20.5	P2778860	32
16x13.5x23.5	P2778861	40
18x18x28.5	P2778862	50

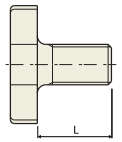
■ KEY BOLT

KEY BOLT	EDP No.	SMA SPIGOT Dia.
M3×0.5×10L	P2778875	16
M4×0.7×10L	P2778864	22
M5×0.8×12L	P2778865	27
M6×1.0×15L	P2778866	32
M6×1.0×15L	P2778866	40
M6×1.0×20L	P2778868	50

SHELL MILL ARBOR

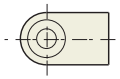
PART

BOLT & KEY
(For SHELL MILL ARBOR - ENLARGED)



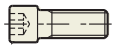
■ COLLAR BOLT

M (COLLAR BOLT)	EDP No.	L (Length)	SMA SPIGOT Dia.
M8 x 1.25	P2514051	16	16
M10 x 1.5	P2514052	18	22
M12 x 1.75	P2514053	22	27
M16 x 2.0	P2514054	26	32
M20 x 2.5	P2514055	30	40
M24 x 3.0	P2514056	36	50



■ DRIVE KEY

DRIVE KEY	EDP No.	SMA SPIGOT Dia.
8 x 10 x 9.7	P2778876	16
10 x 11.2 x 10.8	P2778877	22
12 x 12.6 x 13.6	P2778878	27
14 x 14 x 21	P2778879	32
16 x 16 x 21	P2778880	40



■ KEY BOLT

KEY BOLT	EDP No.	SMA SPIGOT Dia.
M3 x 0.5 x 12L	P2778881	16
M4 x 0.7 x 12L	P2778882	22
M5 x 0.8 x 15L	P2778883	27
M6 x 1.0 x 15L	P2778866	32
M6 x 1.0 x 15L	P2778866	40

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

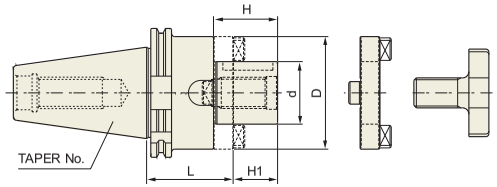
SHELL MILL ARBOR

CMA

COMBI-SHELL MILL ARBOR

DIN 69871-SK

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES COMBINÉS
MANDRINO PORTA FRESE
PORTA FRESAS COMBINADO



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | A

Parts, Refer to page 160

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	SK30-CMA16-50	P2524001	16	50	32	17	27	27, 33, 39	0.58
	SK30-CMA22-50	P2524002	22	50	40	19	31	28, 34, 40	0.71
	SK30-CMA27-55	P2524003	27	55	48	21	33	29, 35, 41	0.78
40	SK40-CMA16-55	P2524004	16	55	32	17	27	27, 33, 39	1.03
	SK40-CMA22-55	P2524005	22	55	40	19	31	28, 34, 40	1.17
	SK40-CMA27-55	P2524006	27	55	48	21	33	29, 35, 41	1.37
	SK40-CMA32-60	P2524007	32	60	58	24	38	30, 36, 42	1.60
	SK40-CMA40-60	P2524008	40	60	70	27	41	31, 37, 43	2.31
50	SK50-CMA16-55	P2524009	16	55	32	17	27	27, 33, 39	2.81
	SK50-CMA22-55	P2524010	22	55	40	19	31	28, 34, 40	2.91
	SK50-CMA27-55	P2524011	27	55	48	21	33	29, 35, 41	3.15
	SK50-CMA32-55	P2524012	32	55	58	24	38	30, 36, 42	3.41
	SK50-CMA40-55	P2524013	40	55	70	27	41	31, 37, 43	3.78
	SK50-CMA50-70	P2524014	50	70	90	30	46	32, 38, 44	5.35

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	SK40-CMA16-100	P2524015	16	100	32	17	27	27, 33, 39	1.27
	SK40-CMA22-100	P2524016	22	100	40	19	31	28, 34, 40	1.59
	SK40-CMA27-100	P2524017	27	100	48	21	33	29, 35, 41	1.94
	SK40-CMA32-100	P2524018	32	100	58	24	38	30, 36, 42	2.40
50	SK50-CMA16-100	P2524019	16	100	32	17	27	27, 33, 39	3.07
	SK50-CMA22-100	P2524020	22	100	40	19	31	28, 34, 40	3.38
	SK50-CMA27-100	P2524021	27	100	48	21	33	29, 35, 41	3.76
	SK50-CMA32-100	P2524022	32	100	58	24	38	30, 36, 42	4.23
	SK50-CMA40-100	P2524023	40	100	70	27	41	31, 37, 43	5.06

▶ Without "Coolant Through".

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

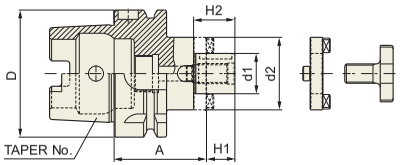
SHELL MILL ARBOR

CMA

COMBI-SHELL MILL ARBOR

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES COMBINÉS
MANDRINO PORTA FRESE
PORTA FRESAS COMBINADO

DIN 69893/
ISO 12164-1-HSK FORM A



DIN 69893-HSK | 6.3G | 15,000 RPM | A

Parts, Refer to page 160

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	d1	d2	A	H1	H2	PART No.	WEIGHT (kg)
50A	HSK50A-CMA16-50	P2562006	50	16	32	50	17	27	27, 33, 39	0.56
	HSK50A-CMA22-50	P2562007	50	22	40	50	19	31	28, 34, 40	0.66
	HSK50A-CMA27-65	P2562008	50	27	48	65	21	33	29, 35, 41	0.96
	HSK50A-CMA32-65	P2562009	50	32	58	65	24	38	30, 36, 42	1.15
63A	HSK63A-CMA16-60	P2562001	63	16	32	60	17	27	27, 33, 39	0.88
	HSK63A-CMA22-60	P2562002	63	22	40	60	19	31	28, 34, 40	1.02
	HSK63A-CMA27-60	P2562003	63	27	48	60	21	33	29, 35, 41	1.20
	HSK63A-CMA32-60	P2562004	63	32	53	60	24	38	30, 36, 42	1.43
	HSK63A-CMA40-70	P2562005	63	40	70	70	27	41	31, 37, 43	1.93
100A	HSK100A-CMA16-60	P2562011	100	16	32	60	17	27	27, 33, 39	2.22
	HSK100A-CMA22-60	P2562012	100	22	40	60	19	31	28, 34, 40	2.34
	HSK100A-CMA27-60	P2562013	100	27	48	60	21	33	29, 35, 41	2.56
	HSK100A-CMA32-60	P2562014	100	32	58	60	24	38	30, 36, 42	2.69
	HSK100A-CMA40-70	P2562015	100	40	70	70	27	41	31, 37, 43	3.39
	HSK100A-CMA50-80	P2562010	100	50	90	80	30	46	32, 38, 44	4.50

▶ Without "Coolant Through".

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

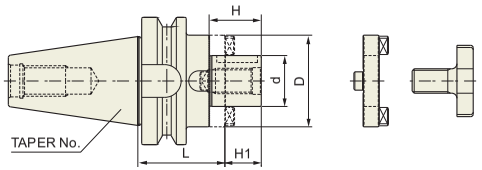
SHELL MILL ARBOR

CMA

COMBI-SHELL MILL ARBOR

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES COMBINÉS
MANDRINO PORTA FRESE
PORTA FRESAS COMBINADO

CBT
(BT DUAL CONTACT)



CBT | AT3 | 2.5G | 25,000 RPM | A

Parts, Refer to page 160

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	CBT30-CMA16-50	P2775601	16	50	32	17	27	27, 33, 39	0.61
	CBT30-CMA22-50	P2775602	22	50	40	19	31	28, 34, 40	0.70
	CBT30-CMA27-55	P2775624	27	55	48	21	33	29, 35, 41	0.92
40	CBT40-CMA16-55	P2775604	16	55	32	17	27	27, 33, 39	1.14
	CBT40-CMA22-55	P2775605	22	55	40	19	31	28, 34, 40	1.26
	CBT40-CMA27-55	P2775606	27	55	48	21	33	29, 35, 41	1.42
	CBT40-CMA32-60	P2775607	32	60	58	24	38	30, 36, 42	1.72
	CBT40-CMA40-70	P2775625	40	70	70	27	41	31, 37, 43	2.46
50	CBT50-CMA16-70	P2775609	16	70	32	17	27	27, 33, 39	3.74
	CBT50-CMA22-70	P2775610	22	70	40	19	31	28, 34, 40	3.86
	CBT50-CMA27-70	P2775611	27	70	48	21	33	29, 35, 41	4.04
	CBT50-CMA32-70	P2775612	32	70	58	24	38	30, 36, 42	4.28
	CBT50-CMA40-70	P2775613	40	70	70	27	41	31, 37, 43	4.62
	CBT50-CMA50-70	P2775614	50	70	90	30	46	32, 38, 44	5.48

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	CBT40-CMA16-100	P2775615	16	100	32	17	27	27, 33, 39	1.41
	CBT40-CMA22-100	P2775616	22	100	40	19	31	28, 34, 40	1.68
	CBT40-CMA27-100	P2775617	27	100	48	21	33	29, 35, 41	2.02
	CBT40-CMA32-100	P2775618	32	100	58	24	38	30, 36, 42	2.51
50	CBT50-CMA16-100	P2775619	16	100	32	17	27	27, 33, 39	3.92
	CBT50-CMA22-100	P2775620	22	100	40	19	31	28, 34, 40	4.15
	CBT50-CMA27-100	P2775621	27	100	48	21	33	29, 35, 41	4.45
	CBT50-CMA32-100	P2775622	32	100	58	24	38	30, 36, 42	4.86
	CBT50-CMA40-100	P2775623	40	100	70	27	41	31, 37, 43	5.47

▶ Without "Coolant Through".

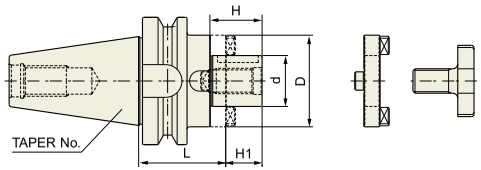
SHELL MILL ARBOR

CMA

COMBI-SHELL MILL ARBOR

JIS B6339/ MAS 403-BT

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES COMBINÉS
MANDRINO PORTA FRESE
PORTA FRESAS COMBINADO



JIS 6339 T | AT3 | 6.3G | 15,000 RPM | A

Parts, Refer to page 160

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	BT30-CMA16-50	P2544001	16	50	32	17	27	27, 33, 39	0.61
	BT30-CMA22-50	P2544002	22	50	40	19	31	28, 34, 40	0.70
	BT30-CMA27-55	P2544003	27	55	48	21	33	29, 35, 41	0.92
40	BT40-CMA16-55	P2544004	16	55	32	17	27	27, 33, 39	1.14
	BT40-CMA22-55	P2544005	22	55	40	19	31	28, 34, 40	1.26
	BT40-CMA27-55	P2544006	27	55	48	21	33	29, 35, 41	1.42
	BT40-CMA32-60	P2544007	32	60	58	24	38	30, 36, 42	1.72
	BT40-CMA40-70	P2544024	40	70	70	27	41	31, 37, 43	2.46
50	BT50-CMA16-70	P2544009	16	70	32	17	27	27, 33, 39	3.74
	BT50-CMA22-70	P2544010	22	70	40	19	31	28, 34, 40	3.86
	BT50-CMA27-70	P2544011	27	70	48	21	33	29, 35, 41	4.04
	BT50-CMA32-70	P2544012	32	70	58	24	38	30, 36, 42	4.28
	BT50-CMA40-70	P2544013	40	70	70	27	41	31, 37, 43	4.62
	BT50-CMA50-70	P2544014	50	70	90	30	46	32, 38, 44	5.48

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	BT40-CMA16-100	P2544015	16	100	32	17	27	27, 33, 39	1.41
	BT40-CMA22-100	P2544016	22	100	40	19	31	28, 34, 40	1.68
	BT40-CMA27-100	P2544017	27	100	48	21	33	29, 35, 41	2.02
	BT40-CMA32-100	P2544018	32	100	58	24	38	30, 36, 42	2.51
50	BT50-CMA16-100	P2544019	16	100	32	17	27	27, 33, 39	3.92
	BT50-CMA22-100	P2544020	22	100	40	19	31	28, 34, 40	4.15
	BT50-CMA27-100	P2544021	27	100	48	21	33	29, 35, 41	4.45
	BT50-CMA32-100	P2544022	32	100	58	24	38	30, 36, 42	4.86
	BT50-CMA40-100	P2544023	40	100	70	27	41	31, 37, 43	5.47

▶ Without "Coolant Through".

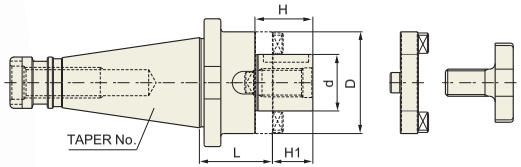
SHELL MILL ARBOR

CMA

COMBI-SHELL MILL ARBOR

DIN 2080-ISO

KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MANDRIN PORTE-FRAISES COMBINÉS
MANDRINO PORTA FRESE
PORTA FRESAS COMBINADO



DIN 2080-ISO | AT3 | A

Parts, Refer to page 160

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
30	ISO30-CMA16-35	P2514001	16	35	32	17	27	27, 33, 39	0.52
	ISO30-CMA22-35	P2514002	22	35	40	19	31	28, 34, 40	0.63
	ISO30-CMA27-35	P2514003	27	35	48	21	33	29, 35, 41	0.72
40	ISO40-CMA16-52	P2514004	16	52	32	17	27	27, 33, 39	0.99
	ISO40-CMA22-52	P2514005	22	52	40	19	31	28, 34, 40	1.15
	ISO40-CMA27-52	P2514006	27	52	48	21	33	29, 35, 41	1.37
	ISO40-CMA32-52	P2514007	32	52	58	24	38	30, 36, 42	1.65
	ISO40-CMA40-52	P2514008	40	52	70	27	41	31, 37, 43	1.94
50	ISO50-CMA16-55	P2514009	16	55	32	17	27	27, 33, 39	2.79
	ISO50-CMA22-55	P2514010	22	55	40	19	31	28, 34, 40	2.95
	ISO50-CMA27-55	P2514011	27	55	48	21	33	29, 35, 41	3.17
	ISO50-CMA32-55	P2514012	32	55	58	24	38	30, 36, 42	3.49
	ISO50-CMA40-55	P2514013	40	55	70	27	41	31, 37, 43	3.85
	ISO50-CMA50-55	P2514014	50	55	90	30	46	32, 38, 44	4.88

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	d	L	D	H1	H	PART No.	WEIGHT (kg)
40	ISO40-CMA16-125	P2514015	16	125	32	17	27	27, 33, 39	1.41
	ISO40-CMA22-125	P2514016	22	125	40	19	31	28, 34, 40	1.78
	ISO40-CMA27-125	P2514017	27	125	48	21	33	29, 35, 41	2.35
	ISO40-CMA32-125	P2514018	32	125	58	24	38	30, 36, 42	3.07
50	ISO50-CMA16-125	P2514019	16	125	32	17	27	27, 33, 39	3.21
	ISO50-CMA22-125	P2514020	22	125	40	19	31	28, 34, 40	3.60
	ISO50-CMA27-125	P2514021	27	125	48	21	33	29, 35, 41	4.11
	ISO50-CMA32-125	P2514022	32	125	58	24	38	30, 36, 42	4.85
	ISO50-CMA40-125	P2514023	40	125	70	27	41	31, 37, 43	5.26

▶ Without "Coolant Through".

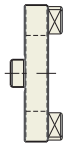
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SHELL MILL ARBOR

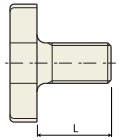
PART

DRIVE RING, BOLT & KEY
(For COMBI-SHELL MILL ARBOR)



■ CLUTCH DRIVE RING

No.	CLUTCH DRIVE RING	EDP No.	CMA SPIGOT Dia.
27	#16	P2514063	16
28	#22	P2514064	22
29	#27	P2514065	27
30	#32	P2514066	32
31	#40	P2514067	40
32	#50	P2514068	50



■ COLLAR BOLT

No.	COLLAR BOLT	EDP No.	L (Length)	CMA SPIGOT Dia.
33	M8×1.25	P2778869	16	16
34	M10×1.5	P2778870	18	22
35	M12×1.75	P2778871	22	27
36	M16×2.0	P2778872	26	32
37	M20×2.5	P2778873	30	40
38	M24×3.0	P2778874	36	50

■ KEY

No.	KEY	EDP No.	CMA SPIGOT Dia.
39	4×4×20	P2514057	16
40	6×6×25	P2514058	22
41	7×7×25	P2514059	27
42	8×7×28	P2514060	32
43	10×8×32	P2514061	40
44	12×8×36	P2514062	50

YG-1 TOOLING SYSTEM

POWER MILLING CHUCK

- FRÄSERSPANNFUTTER
- MANDRIN PORTE FRAISE
- MANDRINI PORTA FRESA
- PORTAHERRAMIENTAS PARA FRESADO

DIN 69871-SK
HIGH-SPEED TYPE / STANDARD TYPE

DIN 69893/ISO 12164-1-HSK
HIGH-SPEED TYPE / STANDARD TYPE

CBT (BT DUAL CONTACT)

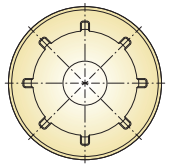
JIS B6339/MAS 403-BT
HIGH-SPEED TYPE / STANDARD TYPE

DIN 228-MTA/MTB, R8

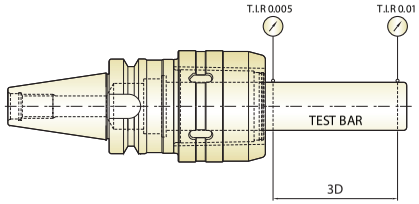
MILLING CHUCK SET
STANDARD MILLING CHUCK SET
Q.C MILLING CHUCK SET

ACCESSORY
END MILL COLLET (K, CK, MT, JT), SPANNER

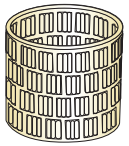
- Rigidity is strengthened through slot made at inside milling chuck, which prevents deformation of milling chuck. Smooth cutting is achieved by maximizing end mill clamping power.
- Enough thickness of clamping part prevents chattering and ensures durability.



- High precision can be achieved through accurate roundness of clamping part, deburred surface and rigidity (deviation of concentricity : below 2, roughness : below RZ B1.0~1.5)
- Maintaining T.I.R not exceeding 0.01mm at 3D from nose part



- 160% more of bearings are used in needle roller than other make's chucks, which provides strong clamping power and high durability by dispersing surface pressure even in case strong load is applied.



- In order to improve durability, YG-1 milling chuck is passed through following processes.
  - "Normalizing" treatment for unifying material composition and removal internal stress.
  - Ultralow temperature (-90°C) treatmemt called "Sub-Zero treatment"after carburizing heat treatment for prior removal of any deformation of milling chuck after use for long periods of time.

TECHNICAL INFORMATION
POWER MILLING CHUCK

High-Speed POWER MILLING CHUCK

- Achieving optimum cutting for High-Speed heavy duty cutting and finishing with strong torque power
- Perfect clamping from 3mm depth of I.D entrance
- Achieving stability when exchanging and setting tools by stable fastening and unfastening torque

Strong Torque Power

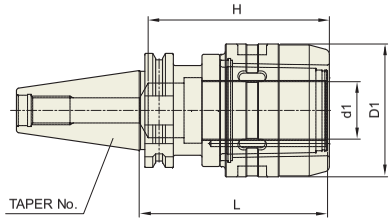
Milling chuck (I.D)	Standard	Tolerance (Taper shank)	Run-out	Clamping torque
C20	AT3	ISO 30 (0~+0.002) ISO 40 (0~+0.003) ISO 50 (0~+0.004)	0.01mm at 3D	980Nm
C25				1,760Nm
C32				3,430Nm
C42				4,900Nm

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HIGH-SPEED POWER MILLING CHUCK

DIN 69871-SK

HOCHGESCHWINDIGKEITS FRÄSERFUTTER
MANDRIN PORTE FRAISE À GRANDE VITESSE
MANDRINI PORTA FRESA PER ALTA VELOCITÀ
PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD



DIN 69871-SK | AT3 | 6.3G | 20,000 RPM | AD

Collet, spanner
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	SK30-C20-80HS	P2773005	20	54	80	70	1.15
	SK30-C25-80HS	P2773006	25	62.5	70	80	1.48
40	SK40-C20-105HS	P2526022	20	54	105	70	1.77
	SK40-C25-105HS	P2773001	25	62.5	105	80	2.10
	SK40-C32-105HS	P2526023	32	74	105	100	2.40
	SK40-C32-135HS	P2773007	32	74	135	100	3.10
50	SK50-C20-105HS	P2773002	20	54	105	70	3.40
	SK50-C25-105HS	P2773003	25	62.5	105	80	3.80
	SK50-C32-105HS	P2773004	32	74	105	100	4.30
	SK50-C32-135HS	P2526024	32	74	135	100	4.90
	SK50-C32-165HS	P2526025	32	74	165	100	5.60
	SK50-C42-115HS	P2773008	42	92	115	110	4.60
	SK50-C42-135HS	P2773009	42	92	135	110	5.60
	SK50-C42-165HS	P2773010	42	92	165	110	6.10

▶ CAT(ANSI B5.50) taper and Inch type products are available.

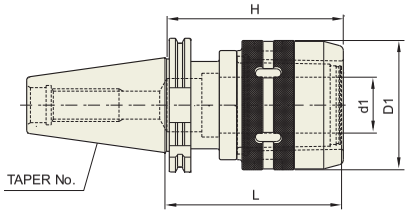
POWER MILLING CHUCK

C

POWER MILLING CHUCK

DIN 69871-SK

FRÄSERSPANNFUTTER
MANDRIN PORTE FRAISE
MANDRINI PORTA FRESA
PORTAHERRAMIENTAS PARA FRESADO



DIN 69871-SK | AT3 | AD

Collet, spanner
Refer to page 176

◆ STUB

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	SK30-C20-80	P2526001	20	54	80	70	1.15
	SK30-C25-80	P2526002	25	62.5	70	80	1.48
40	SK40-C20-90	P2526003	20	54	90	70	1.60
	SK40-C32-90	P2526004	32	72	90	100	2.00
50	SK50-C20-80	P2526005	20	54	80	70	3.22
	SK50-C25-90	P2526006	25	62.5	90	80	3.61
	SK50-C32-90	P2526007	32	72	90	100	3.87

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
40	SK40-C20-105	P2526008	20	54	105	70	1.77
	SK40-C25-105	P2526009	25	62.5	105	80	2.01
	SK40-C32-105	P2526010	32	72	105	100	2.42
50	SK50-C20-105	P2526011	20	54	105	70	3.39
	SK50-C25-105	P2526012	25	62.5	105	80	3.78
	SK50-C32-105	P2526013	32	72	105	100	4.31
	SK50-C42-115	P2526014	42	92	115	110	4.53

◆ EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
40	SK40-C32-135	P2526015	32	72	135	100	3.11
50	SK50-C32-135	P2526018	32	72	135	100	4.94
	SK50-C42-135	P2526017	42	92	135	110	5.62

◆ EXTRA EXTENDED

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
50	SK50-C32-165	P2526020	32	72	165	100	5.59
	SK50-C42-165	P2526016	42	92	165	110	6.10

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

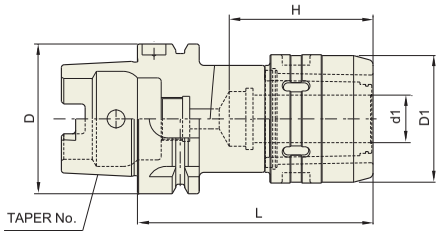
POWER MILLING CHUCK

C

HIGH-SPEED POWER MILLING CHUCK

DIN 69893/
ISO 12164-1-HSK FORM A

HOCHGESCHWINDIGKEITS FRÄSERFUTTER
MANDRIN PORTE FRAISE À GRANDE VITESSE
MANDRINI PORTA FRESA PER ALTA VELOCITÀ
PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD



DIN 69893-HSK | 6.3G | 20,000 RPM | AD

Collet, spanner
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
50A	HSK50A-C20-100HS	P2773102	20	54	100	70	1.30
63A	HSK63A-C20-105HS	P2562016	20	54	105	70	1.50
	HSK63A-C25-120HS	P2773103	25	62.5	120	80	2.20
	HSK63A-C32-130HS	P2562017	32	74	130	100	2.70
100A	HSK100A-C20-110HS	P2773104	20	54	110	70	3.50
	HSK100A-C25-130HS	P2773105	25	62.5	130	80	3.80
	HSK100A-C32-135HS	P2773101	32	74	135	100	4.20
	HSK100A-C42-135HS	P2773106	42	74	135	100	5.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

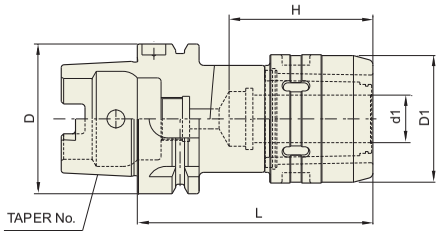
POWER MILLING CHUCK

C

POWER MILLING CHUCK

DIN 69893/
ISO 12164-1-HSK FORM A

FRÄSERSPANNFUTTER
MANDRIN PORTE FRAISE
MANDRINI PORTA FRESA
PORTAHERRAMIENTAS PARA FRESADO



DIN 69893-HSK | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D	D1	L	H	WEIGHT (kg)
50A	HSK50A-C20-100	P2773151	20	50	54	100	70	1.30
63A	HSK63A-C20-105	P2773152	20	63	54	105	70	1.50
	HSK63A-C32-130	P2600032	32	63	72	130	100	2.70
100A	HSK100A-C20-110	P2773153	20	100	54	110	70	3.50
	HSK100A-C32-135	P2773154	32	100	72	135	100	4.20
	HSK100A-C42-135	P2773155	42	100	92	135	100	5.30

◆ ACCESSORY

END MILL COLLET	MODEL No.
	K20-6, 8, 10, 12, 16
	K32-6, 8, 10, 12, 16, 20, 25
	K42-6, 8, 10, 12, 16, 20, 25, 32

▶ Special size of Ø3, Ø4 or Ø5 can be produced and supplied upon request.

END MILL COLLET	MODEL No.
	CK20-6, 8, 10, 12, 16
	CK25-6, 8, 10, 12, 16, 20
	CK32-6, 8, 10, 12, 16, 20, 25
	CK42-6, 8, 10, 12, 16, 20, 25, 32

SPANNER	MODEL No.
	C20 SP
	C25 SP
	C32 SP
	C42 SP

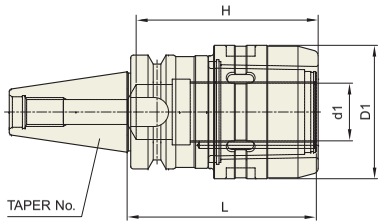
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HIGH-SPEED POWER MILLING CHUCK

HOCHGESCHWINDIGKEITS FRÄSERFUTTER
MANDRIN PORTE FRAISE À GRANDE VITESSE
MANDRINI PORTA FRESA PER ALTA VELOCITÀ
PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD

CBT
(BT DUAL CONTACT)



CBT | AT3 | 6.3G | 20,000 RPM | AD

Collet, spanner
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	CBT30-C20-75HS	P2773251	20	54	75	70	1.50
	CBT30-C25-80HS	P2773252	25	62.5	80	70	2.00
40	CBT40-C20-80HS	P2773253	20	54	80	70	2.00
	CBT40-C20-105HS	P2773254	20	54	105	70	2.10
	CBT40-C25-105HS	P2773255	25	62.5	105	80	2.50
	CBT40-C32-90HS	P2773256	32	74	90	100	3.00
	CBT40-C32-105HS	P2773257	32	74	105	100	3.10
	CBT40-C32-135HS	P2773258	32	74	135	100	3.30
50	CBT50-C20-105HS	P2773259	20	54	105	70	4.50
	CBT50-C20-135HS	P2773260	20	54	135	70	4.90
	CBT50-C20-165HS	P2773261	20	54	165	70	5.40
	CBT50-C25-105HS	P2773262	25	62.5	105	80	5.20
	CBT50-C25-135HS	P2773263	25	62.5	135	80	5.80
	CBT50-C25-165HS	P2773264	25	62.5	165	80	6.20
	CBT50-C32-105HS	P2773265	32	74	105	100	6.00
	CBT50-C32-135HS	P2773266	32	74	135	100	6.70
	CBT50-C32-165HS	P2773267	32	74	165	100	7.40
	CBT50-C42-115HS	P2773268	42	92	115	110	6.70
	CBT50-C42-135HS	P2773269	42	92	135	110	7.60
	CBT50-C42-165HS	P2773270	42	92	165	110	8.30

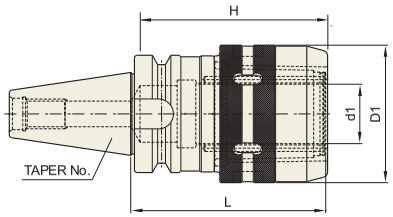
POWER MILLING CHUCK

C

POWER MILLING CHUCK

FRÄSERSPANNFUTTER
MANDRIN PORTE FRAISE
MANDRINI PORTA FRESA
PORTAHERRAMIENTAS PARA FRESADO

CBT
(BT DUAL CONTACT)



CBT | AT3 | AD

Collet, spanner
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	CBT30-C20-75	P2773204	20	54	75	70	1.50
	CBT30-C25-80	P2773205	25	62.5	80	70	2.00
40	CBT40-C20-80	P2773201	20	54	80	70	2.00
	CBT40-C20-105	P2773206	20	54	105	70	2.10
	CBT40-C25-105	P2773207	25	62.5	105	80	2.50
	CBT40-C32-90	P2773202	32	72	90	100	3.00
	CBT40-C32-105	P2773203	32	72	105	100	3.10
	CBT40-C32-135	P2773208	32	72	135	100	3.30
50	CBT50-C20-105	P2773209	20	54	105	70	4.50
	CBT50-C20-135	P2773210	20	54	135	70	4.90
	CBT50-C20-165	P2773211	20	54	165	70	5.40
	CBT50-C25-105	P2773212	25	62.5	105	80	5.20
	CBT50-C25-135	P2773213	25	62.5	135	80	5.80
	CBT50-C25-165	P2773214	25	62.5	165	80	6.20
	CBT50-C32-105	P2773215	32	72	105	100	6.00
	CBT50-C32-115	P2773216	32	72	115	100	6.20
	CBT50-C32-135	P2773217	32	72	135	100	6.70
	CBT50-C32-165	P2773218	32	72	165	100	7.40
	CBT50-C42-115	P2773219	42	92	115	110	6.70
	CBT50-C42-135	P2773220	42	92	135	110	7.60
	CBT50-C42-165	P2773221	42	92	165	110	8.30

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

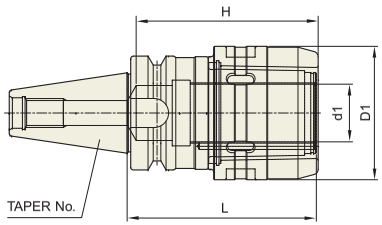
POWER MILLING CHUCK

C

HIGH-SPEED POWER MILLING CHUCK

JIS B6339/MAS 403-BT

HOCHGESCHWINDIGKEITS FRÄSERFUTTER
MANDRIN PORTE FRAISE À GRANDE VITESSE
MANDRINI PORTA FRESA PER ALTA VELOCITÀ
PORTAHERRAMIENTAS PARA FRESADO DE ALTA VELOCIDAD



IS 6339 T | AT3 | 6.3G | 20,000 RPM | AD

Collet, spanner
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	BT30-C20-75HS	P2546101	20	54	75	70	1.50
	BT30-C25-80HS	P2546102	25	62.5	80	70	2.00
40	BT40-C20-80HS	P2546103	20	54	80	70	2.00
	BT40-C20-105HS	P2546104	20	54	105	70	2.10
	BT40-C25-105HS	P2546105	25	62.5	105	80	2.50
	BT40-C32-90HS	P2546106	32	74	90	100	3.00
	BT40-C32-105HS	P2546107	32	74	105	100	3.10
	BT40-C32-135HS	P2546108	32	74	135	100	3.30
50	BT50-C20-105HS	P2546109	20	54	105	70	4.50
	BT50-C20-135HS	P2546110	20	54	135	70	4.90
	BT50-C20-165HS	P2546111	20	54	165	70	5.40
	BT50-C25-105HS	P2546112	25	62.5	105	80	5.20
	BT50-C25-135HS	P2546113	25	62.5	135	80	5.80
	BT50-C25-165HS	P2546114	25	62.5	165	80	6.20
	BT50-C32-105HS	P2546115	32	74	105	100	6.00
	BT50-C32-135HS	P2546116	32	74	135	100	6.70
	BT50-C32-165HS	P2546117	32	74	165	100	7.40
	BT50-C42-115HS	P2546118	42	92	115	110	6.70
	BT50-C42-135HS	P2546119	42	92	135	110	7.60
	BT50-C42-165HS	P2546120	42	92	165	110	8.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

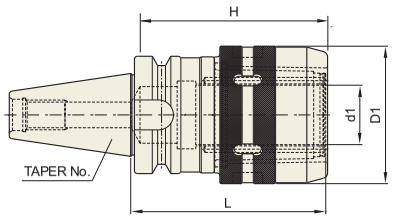
POWER MILLING CHUCK

C

POWER MILLING CHUCK

JIS B6339/MAS 403-BT

FRÄSERSPANNFUTTER
MANDRIN PORTE FRAISE
MANDRINI PORTA FRESA
PORTAHERRAMIENTAS PARA FRESADO



IS 6339 T | AT3 | AD

Collet, spanner
Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
30	BT30-C20-75	P2546001	20	54	75	70	1.50
	BT30-C25-80	P2546002	25	62.5	80	70	2.00
40	BT40-C20-80	P2546003	20	54	80	70	2.00
	BT40-C20-105	P2546004	20	54	105	70	2.10
	BT40-C25-105	P2546005	25	62.5	105	80	2.50
	BT40-C32-90	P2546006	32	72	90	100	3.00
	BT40-C32-105	P2546007	32	72	105	100	3.10
	BT40-C32-135	P2546008	32	72	135	100	3.30
50	BT50-C20-105	P2546009	20	54	105	70	4.50
	BT50-C20-135	P2546010	20	54	135	70	4.90
	BT50-C20-165	P2546011	20	54	165	70	5.40
	BT50-C25-105	P2546012	25	62.5	105	80	5.20
	BT50-C25-135	P2546013	25	62.5	135	80	5.80
	BT50-C25-165	P2546014	25	62.5	165	80	6.20
	BT50-C32-105	P2546015	32	72	105	100	6.00
	BT50-C32-115	P2546016	32	72	115	100	6.20
	BT50-C32-135	P2546017	32	72	135	100	6.70
	BT50-C32-165	P2546018	32	72	165	100	7.40
	BT50-C42-115	P2546019	42	92	115	110	6.70
	BT50-C42-135	P2546020	42	92	135	110	7.60
	BT50-C42-165	P2546121	42	92	165	110	8.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

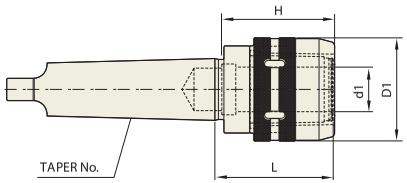
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

POWER MILLING CHUCK

DIN 228-MTA

FRÄSERSPANNFUTTER
MANDRIN PORTE FRAISE
MANDRINI PORTA FRESA
PORTAHERRAMIENTAS PARA FRESADO

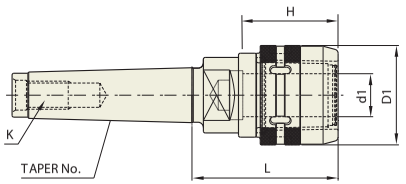


Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	WEIGHT (kg)
4	MTA4-C32	P2546122	32	72	98	85	2.57
5	MTA5-C32	P2546123	32	72	85	100	3.06
	MTA5-C42	P2546124	42	92	114	100	3.45
6	MTA6-C42	P2546125	42	92	99	110	4.14

▶ In case of MT6, it is required to inform machine model number and company name for selection of cutter groove.

DIN 228-MTB



Collet, spanner, refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	H	K	WEIGHT (kg)
3	MTB3-C20	P2546126	20	54	74	65	M12	2.10
4	MTB4-C32	P2546127	32	72	98	80	M16	2.57
5	MTB5-C32	P2546128	32	72	85	100	M20	3.06
	MTB5-C42	P2546129	42	92	114	100	M20	3.45

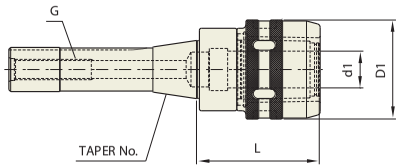
POWER MILLING CHUCK

C

POWER MILLING CHUCK

BRIDGEPORT-R8

FRÄSERSPANNFUTTER
MANDRIN PORTE FRAISE
MANDRINI PORTA FRESA
PORTAHERRAMIENTAS PARA FRESADO



Collet, spanner Refer to page 176

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	G	WEIGHT (kg)
R8	R8-C20	P2546130	20	54	69	U7/16-20	1.40

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

POWER MILLING CHUCK

C

MILLING CHUCK STANDARD SET

GEGENSTÜCK FÜR FRÄSERSPANNFUTTER
ETUI AVEC PORTE-FRAISE ET CLEF
CASSETTA COMPLETA DI MANDRINO, CHIAVE E PINZE
ESTUCHE CON PORTAPINZAS, PINZAS Y LLAVE

TAPER	STANDARD SET MODEL No.	EDP No.	MILLING CHUCK	END MILL COLLET	SPANNER
SK	SSK40-C20	P2526031	SK40-C20-105	K20-6, 8, 10, 12, 16 (5pcs)	C20 SP
	SSK40-C32	P2773301	SK40-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SSK50-C32	P2773302	SK50-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SSK50-C42	P2773303	SK50-C42-115	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP
BT	SBT40-C20	P2546021	BT40-C20-105	K20-6, 8, 10, 12, 16 (5pcs)	C20 SP
	SBT40-C32	P2546022	BT40-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SBT50-C32	P2546023	BT50-C32-105	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SBT50-C42	P2546024	BT50-C42-115	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP
ISO	SISO40-C20	P2516021	ISO40-C20-78	K20-6, 8, 10, 12, 16 (5pcs)	C20 SP
	SISO40-C32	P2516022	ISO40-C32-78	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SISO50-C32	P2516023	ISO50-C32-85	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SISO50-C42	P2516024	ISO50-C42-102	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP
NT	SNT40-C32	P2773304	NT40-C32	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SNT50-C32	P2773305	NT50-C32	K32-6, 8, 10, 12, 16, 20, 25 (7pcs)	C32 SP
	SNT50-C42	P2773306	NT50-C42	K42-6, 8, 10, 12, 16, 20, 25, 32 (8pcs)	C42 SP

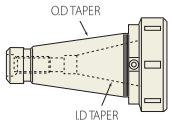
POWER MILLING CHUCK

MH

QUICK CHANGE MILLING CHUCK SET

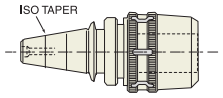
SCHNELLWECHSEL GEGENSTÜCK FÜR FRÄSERSPANNFUTTER
CHANGEMENT RAPIDE ETUI AVEC PORTE-FRAISE ET CLEF
CAMBIO RAPIDO CASSETTA COMPLETA DI MANDRINO, CHIAVE E PINZE
CAMBIO RAPIDO ESTUCHE CON PORTAPINZAS, PINZAS Y LLAVE

TAPER	Q.C MILLING HOLDER SET MODEL No.	EDP No.	Q.C MASTER HOLDER	Q.C MILLING CHUCK	END MILL COLLETS	Q.C FACE MILL ARBOR	Q.C DRILL CHUCK BAR	DRILL CHUCK ARBOR	Q.C TAPER SLEEVE	SPANNER
NT40	SMH40-T35-32A	P2773307	MH40-T35	QT35-32	K32-(6-25)(7pcs)	QT35-4R	-	K32-J6	-	MH40 SP
	SMH40-T35-32B	P2773308	MH40-T35	QT35-32	K32-(6-25)(7pcs)	QT35-4R	QT35-J6	-	QT35-MT2, 3, 4	MH40 SP
NT50	SMH50-T45-32A	P2773309	MH50-T45	QT45-32	K32-(6-25)(7pcs)	QT45-5R	-	K32-J6	-	MH50 SP
	SMH50-T45-32B	P2773310	MH50-T45	QT45-32	K32-(6-25)(7pcs)	QT45-5R	QT45-J6	-	QT45-MT2, 3, 4	MH50 SP
	SMH50-T45-42A	P2773311	MH50-T45	QT45-42	K42-(6-32)(8pcs)	QT45-5R	-	K42-J6	-	MH50 SP
	SMH50-T45-42B	P2773312	MH50-T45	QT45-42	K42-(6-32)(8pcs)	QT45-5R	QT45-J6	-	QT45-MT2, 3, 4	MH50 SP



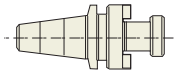
◆ Q.C MASTER HOLDER

MODEL No.	EDP No.	O.D TAPER	I.D TAPER	DRAW THREADS
MH40-T35	P2773313	NT40	NT35	U5/8-11(M16-2)
MH50-T45	P2773314	NT50	NT45	U1-8 (M24-3)



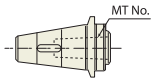
◆ Q.C MILLING CHUCK

Q.C MASTER HOLDER	MODEL No.	EDP No.
MH40	QT35-C32	P2773315
MH50	QT45-C32	P2773316
MH50	QT45-C42	P2773317



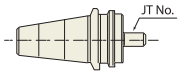
◆ Q.C FACE MILL ARBOR

Q.C MASTER HOLDER	MODEL No.	EDP No.
MH40	QT35-3R	P2773318
	QT35-4R	P2773319
	QT35-5R	P2773320
MH50	QT45-3R	P2773321
	QT45-4R	P2773322
	QT45-5R	P2773323
	QT45-6R	P2773324



◆ Q.C TAPER SLEEVE

Q.C MASTER HOLDER	MODEL No.	EDP No.
MH40	QT35-MT1	P2773325
	QT35-MT2	P2773326
	QT35-MT3	P2773327
MH50	QT45-MT1	P2773328
	QT45-MT2	P2773329
	QT45-MT3	P2773330
	QT45-MT4	P2773331



◆ Q.C DRILL CHUCK ARBOR

Q.C MASTER HOLDER	MODEL No.	EDP No.	DRILL (Ø)
MH40	QT35-J6	P2773332	1-13mm
MH50	QT45-J6	P2773333	1-13mm

TOOLING SYSTEM

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MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

POWER MILLING CHUCK

K/CK/MT/SP

COLLET & SPANNER

■ END MILL COLLET (K TYPE)

MODEL No.	EDP No.
K20-6	P2506401
K20-8	P2506402
K20-10	P2506403
K20-12	P2506404
K20-16	P2506405
K25-6	P2506601
K25-8	P2506602
K25-10	P2506603
K25-12	P2506604
K25-16	P2506605
K25-20	P2506606
K32-6	P2506411
K32-8	P2506412
K32-10	P2506413
K32-12	P2506414
K32-16	P2506415
K32-20	P2506416
K32-25	P2506417
K42-6	P2506511
K42-8	P2506512
K42-10	P2506513
K42-12	P2506514
K42-16	P2506515
K42-20	P2506516
K42-25	P2506517
K42-32	P2506518

■ END MILL COLLET (CK TYPE)

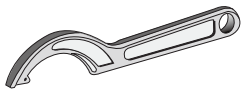
MODEL No.	EDP No.
CK20-6	P2506731
CK20-8	P2506732
CK20-10	P2506733
CK20-12	P2506734
CK20-16	P2506735
CK25-6	P2506736
CK25-8	P2506737
CK25-10	P2506738
CK25-12	P2506739
CK25-16	P2506740
CK25-20	P2506741
CK32-6	P2506742
CK32-8	P2506743
CK32-10	P2506744
CK32-12	P2506745
CK32-16	P2506746
CK32-20	P2506747
CK32-25	P2506748
CK42-6	P2506749
CK42-8	P2506750
CK42-10	P2506751
CK42-12	P2506752
CK42-16	P2506753
CK42-20	P2506754
CK42-25	P2506755
CK42-32	P2506756

■ MT COLLET

MODEL No.	EDP No.
K20-MT1	P2506519
K20-MT2	P2506520
K25-MT1	P2506521
K25-MT2	P2506522
K25-MT3	P2506534
K32-MT1	P2506523
K32-MT2	P2506524
K32-MT3	P2506525
K42-MT1	P2506526
K42-MT2	P2506527
K42-MT3	P2506528
K42-MT4	P2506529

■ DRILL CHUCK ARBOR

MODEL No.	EDP No.
K20-JTA6	P2506530
K25-JTA6	P2506531
K32-JTA6	P2506532
K42-JTA6	P2506533



■ SPANNER

MODEL No.	EDP No.
C20 SP	P2773401
C25 SP	P2773402
C32 SP	P2600033
C42 SP	P2773403

YG-1 TOOLING SYSTEM

MORSE TAPER ARBOR

- EINSATZHÜLSEN FÜR MORSEKEGEL
- DOUILLES DE RÉDUCTION CÔNE MORSE
- MANDRINO RIDUZIONE CONO MORSE
- REDUCTORES A MORSE

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

ANSI B5.18-NT

GOST 25827-93

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
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MORSE TAPER ARBOR

DIN 69871-SK

EINSATZHÜLSEN FÜR MORSEKEGEL
DOUILLES DE RÉDUCTION CÔNE MORSE
MANDRINO RIDUZIONE CONO MORSE
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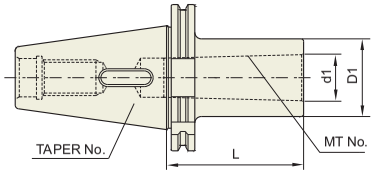


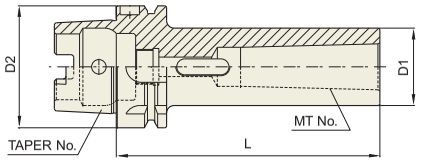
DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | A

◆ STANDARD

Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	d1	D1	L	WEIGHT (kg)
30	SK30-MTA1-50	P2522001	1	12.065	25	50	0.72
	SK30-MTA2-60	P2522002	2	17.78	32	60	0.87
	SK30-MTA3-80	P2522003	3	23.825	40	80	1.02
40	SK40-MTA1-50	P2522004	1	12.065	25	50	1.49
	SK40-MTA2-50	P2522005	2	17.78	32	50	1.62
	SK40-MTA3-70	P2522006	3	23.825	40	70	1.65
	SK40-MTA4-95	P2522007	4	31.267	48	95	1.90
50	SK50-MTA1-45	P2522008	1	12.065	25	45	2.60
	SK50-MTA2-60	P2522009	2	17.78	32	60	2.66
	SK50-MTA3-65	P2522010	3	23.825	40	65	2.75
	SK50-MTA4-95	P2522011	4	31.267	48	95	3.00
	SK50-MTA5-105	P2522012	5	44.399	63	105	3.30

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | 6.3G | 15,000 RPM | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	D1	D2	L	WEIGHT (kg)
50A	HSK50A-MTA1-100	P2565005	1	25	50	100	0.67
	HSK50A-MTA2-120	P2565006	2	32	50	120	0.78
	HSK50A-MTA3-140	P2565007	3	40	50	140	0.91
63A	HSK63A-MTA1-100	P2565001	1	25	63	100	0.87
	HSK63A-MTA2-120	P2565002	2	32	63	120	1.28
	HSK63A-MTA3-140	P2565003	3	40	63	140	1.44
	HSK63A-MTA4-160	P2565004	4	48	63	160	1.86
100A	HSK100A-MTA1-110	P2565011	1	25	100	110	2.12
	HSK100A-MTA2-120	P2565012	2	32	100	120	2.41
	HSK100A-MTA3-150	P2565013	3	40	100	150	2.82
	HSK100A-MTA4-170	P2565014	4	48	100	170	3.63
	HSK100A-MTA5-200	P2565015	5	63	100	200	4.80

▶ CAT(ANSI B5.50) taper and Inch type products are available.

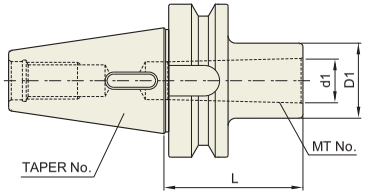
MORSE TAPER ARBOR

MTA

MORSE TAPER ARBOR

JIS B6339/ MAS 403-BT

EINSATZHÜLSEN FÜR MORSEKEGEL
DOUILLES DE RÉDUCTION CÔNE MORSE
MANDRINO RIDUZIONE CONO MORSE
REDUCTORES A MORSE



IS 6339 T | AT3 | 6.3G | 15,000 RPM | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	L	d1	D1	WEIGHT (kg)
30	BT30-MTA1-45	P2542001	1	45	12.065	25	0.40
	BT30-MTA2-60	P2542002	2	60	17.780	32	0.50
	BT30-MTA2-120	P2542003	2	120	17.780	32	0.60
	BT30-MTA3-75	P2542004	3	75	23.825	40	0.70
40	BT40-MTA1-45	P2542005	1	45	12.065	25	1.00
	BT40-MTA1-120	P2542006	1	120	12.065	25	1.30
	BT40-MTA2-60	P2542013	2	60	17.780	32	1.00
	BT40-MTA2-120	P2542009	2	120	17.780	32	1.40
	BT40-MTA3-75	P2542014	3	75	23.825	40	1.20
	BT40-MTA3-135	P2542010	3	135	23.825	40	1.80
	BT40-MTA4-95	P2542007	4	95	31.267	50	1.10
	BT40-MTA4-165	P2542011	4	165	31.267	50	2.40
50	BT50-MTA1-45	P2542008	1	45	12.065	25	4.00
	BT50-MTA1-120	P2542017	1	120	12.065	25	4.30
	BT50-MTA1-180	P2542018	1	180	12.065	25	4.30
	BT50-MTA2-45	P2542015	2	45	17.780	32	4.00
	BT50-MTA2-135	P2542019	2	135	17.780	32	4.40
	BT50-MTA2-180	P2542020	2	180	17.780	32	4.60
	BT50-MTA3-45	P2542021	3	45	23.825	40	3.90
	BT50-MTA3-150	P2542022	3	150	23.825	40	4.70
	BT50-MTA3-180	P2542016	3	180	23.825	40	4.90
	BT50-MTA4-75	P2542023	4	75	31.267	50	4.00
	BT50-MTA4-105	P2542024	4	105	31.267	50	4.50
	BT50-MTA4-180	P2542025	4	180	31.267	50	5.40
	BT50-MTA5-105	P2542012	5	105	44.399	65	4.50
	BT50-MTA5-210	P2542026	5	210	44.399	65	7.20
	BT50-MTA5-270	P2542027	5	270	44.399	65	7.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

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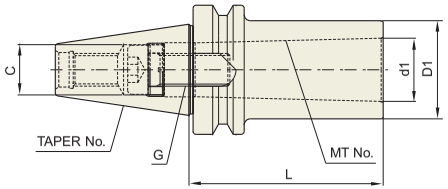
MORSE TAPER ARBOR

JIS B6339/ MAS 403-BT

EINSATZHÜLSEN FÜR MORSEKEGEL
DOUILLES DE RÉDUCTION CÔNE MORSE
MANDRINO RIDUZIONE CONO MORSE
REDUCTORES A MORSE

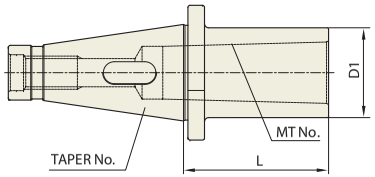


IS 6339 T | AT3 | 6.3G | 15,000 RPM | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	L	d1	D1	C	G	WEIGHT (kg)
30	BT30-MTB1-45	P2542028	1	45	12.065	25	10	M6×1.0	0.80
	BT30-MTB2-45	P2542029	2	45	17.780	32	-	M10×1.5	0.80
40	BT40-MTB1-45	P2600019	1	45	12.065	25	10	M6×1.0	1.00
	BT40-MTB2-45	P2600020	2	45	17.780	32	13.5	M10×1.5	1.10
	BT40-MTB3-60	P2543016	3	60	23.825	40	-	M12×1.75	1.10
	BT40-MTB4-85	P2600021	4	85	31.267	50	-	M16×2.0	1.30
50	BT50-MTB1-45	P2543008	1	45	12.065	25	10	M6×1.0	3.90
	BT50-MTB2-45	P2542030	2	45	17.780	32	16	M10×1.5	3.90
	BT50-MTB3-60	P2542031	3	60	23.825	40	18	M12×1.75	3.90
	BT50-MTB4-75	P2542032	4	75	31.267	50	20.5	M16×2.0	3.90

ANSI B5.18-NT



AT3 | A

Unit : mm

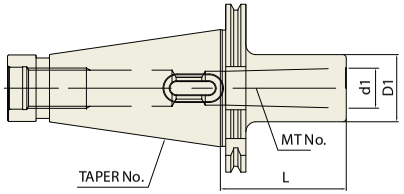
TAPER No.	MODEL No.	EDP No.	MT No.	RANGE OF DRILL		D1	L	DRAW THREAD	WEIGHT (kg)
				Min.	Max.				
40	NT40-MTA1-30	P2542051	1	2.0	14.0	25	30	U5/8-11(M16×2)	0.90
	NT40-MTA2-30	P2542052	2	14.1	23.0	32	30	U5/8-11(M16×2)	1.00
	NT40-MTA3-35	P2542053	3	23.1	32.0	40	45	U5/8-11(M16×2)	1.00
	NT40-MTA4-90	P2542054	4	32.1	50.0	50	90	U5/8-11(M16×2)	1.20
50	NT50-MTA1-30	P2542055	1	2.0	14.0	25	30	U1-8(M24×3)	3.50
	NT50-MTA2-30	P2542056	2	14.1	23.0	32	30	U1-8(M24×3)	3.50
	NT50-MTA3-30	P2542057	3	23.1	32.0	40	30	U1-8(M24×3)	3.50
	NT50-MTA4-45	P2542058	4	32.1	50.0	50	45	U1-8(M24×3)	3.50
	NT50-MTA5-105	P2542059	5	50.1	75.0	60	105	U1-8(M24×3)	4.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

MORSE TAPER ARBOR

GOST 25827-93

EINSATZHÜLSEN FÜR MORSEKEGEL
DOUILLES DE RÉDUCTION CÔNE MORSE
MANDRINO RIDUZIONE CONO MORSE
REDUCTORES A MORSE

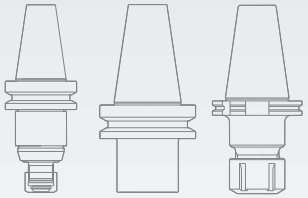


GOST 25827-93 | AT3 | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	MT No.	d1	D1	L	WEIGHT (kg)
40	GOST40-MTA1-115	P2780451	1	12.065	25	115	
	GOST40-MTA2-125	P2780452	2	17.78	32	125	
	GOST40-MTA3-145	P2780453	3	23.825	40	145	
	GOST40-MTA4-165	P2780454	4	31.267	48	165	
50	GOST50-MTA2-135	P2780455	2	17.78	32	135	
	GOST50-MTA3-155	P2780456	3	23.825	40	155	
	GOST50-MTA4-180	P2780457	4	31.267	48	180	
	GOST50-MTA5-215	P2780458	5	44.399	63	215	

Global Cutting Tool Leader **YG-1**



TOOLING SYSTEM

YG-1 TOOLING SYSTEM

SK SLIM CHUCK

- SK SCHLANKE FUTTER
- MANDRIN TYPE SK MINCE
- SK MANDRINI SOTTILI
- PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

CBT (BT DUAL CONTACT)

JIS B6339/MAS 403-BT

ISO 20/25

STRAIGHT K (EXTENSION)

ACCESSORY & PARTS
SK COLLET / SK NUT / SPANNER

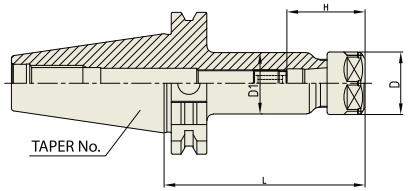
SK SLIM CHUCK

SKA

SK SLIM CHUCK

DIN 69871-SK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
30	SK30-SKA06-60	P2802801	1.8 ~ 6.0	60	20	19.5	31	SKC6	-
	SK30-SKA06-90	P2802802	1.8 ~ 6.0	90	20	19.5	31	SKC6	-
	SK30-SKA10-60	P2802803	1.75 ~ 10.0	60	28	27.5	35	SKC10	-
	SK30-SKA10-90	P2802804	1.75 ~ 10.0	90	28	27.5	35	SKC10	-
	SK30-SKA13-60	P2802805	2.75 ~ 13.0	60	33	33	43.6	SKC13	-
	SK30-SKA13-90	P2802806	2.75 ~ 13.0	90	33	33	43.6	SKC13	-
	SK30-SKA16-60	P2802807	2.75 ~ 16.0	60	40	40	52	SKC16	-
	SK30-SKA16-90	P2802808	2.75 ~ 16.0	90	40	40	52	SKC16	-
	SK30-SKA20-60	P2802809	3.5 ~ 20.0	60	48.5	48.5	59.6	SKC20	-
	SK30-SKA20-90	P2802810	3.5 ~ 20.0	90	48.5	48.5	59.6	SKC20	-
	SK30-SKA25-90	P2802811	16.0 ~ 25.4	90	55	55	63.4	SKC25	-
40	SK40-SKA06-90	P2802812	1.8 ~ 6.0	90	20	19.5	31	SKC6	-
	SK40-SKA06-120	P2802813	1.8 ~ 6.0	120	20	19.5	31	SKC6	-
	SK40-SKA06-150	P2802814	1.8 ~ 6.0	150	20	19.5	31	SKC6	-
	SK40-SKA10-90	P2802815	1.75 ~ 10.0	90	28	27.5	35	SKC10	-
	SK40-SKA10-120	P2802816	1.75 ~ 10.0	120	28	27.5	35	SKC10	-
	SK40-SKA10-150	P2802817	1.75 ~ 10.0	150	28	27.5	35	SKC10	-
	SK40-SKA13-90	P2802818	2.75 ~ 13.0	90	33	33	43.6	SKC13	-
	SK40-SKA13-120	P2802819	2.75 ~ 13.0	120	33	33	43.6	SKC13	-
	SK40-SKA13-150	P2802820	2.75 ~ 13.0	150	33	33	43.6	SKC13	-
	SK40-SKA16-90	P2802821	2.75 ~ 16.0	90	40	40	52	SKC16	-
	SK40-SKA16-120	P2802822	2.75 ~ 16.0	120	40	40	52	SKC16	-
	SK40-SKA16-150	P2802823	2.75 ~ 16.0	150	40	40	52	SKC16	-
	SK40-SKA20-90	P2802824	3.5 ~ 20.0	90	48.5	48.5	59.6	SKC20	-
	SK40-SKA20-120	P2802825	3.5 ~ 20.0	120	48.5	48.5	59.6	SKC20	-
	SK40-SKA20-150	P2802826	3.5 ~ 20.0	150	48.5	48.5	59.6	SKC20	-
	SK40-SKA25-90	P2802827	16.0 ~ 25.4	90	55	55	63.4	SKC25	-
	SK40-SKA25-120	P2802828	16.0 ~ 25.4	120	55	55	63.4	SKC25	-
	SK40-SKA25-150	P2802829	16.0 ~ 25.4	150	55	55	63.4	SKC25	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE

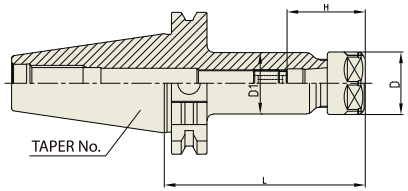
SK SLIM CHUCK

SKA

SK SLIM CHUCK

DIN 69871-SK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO



DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	SK50-SKA06-105	P2802830	1.8 ~ 6.0	105	20	19.5	31	SKC6	-
	SK50-SKA06-135	P2802831	1.8 ~ 6.0	135	20	19.5	31	SKC6	-
	SK50-SKA06-165	P2802832	1.8 ~ 6.0	165	20	19.5	31	SKC6	-
	SK50-SKA06-195	P2802833	1.8 ~ 6.0	195	20	19.5	31	SKC6	-
	SK50-SKA10-105	P2802834	1.75 ~ 10.0	105	28	27.5	35	SKC10	-
	SK50-SKA10-135	P2802835	1.75 ~ 10.0	135	28	27.5	35	SKC10	-
	SK50-SKA10-165	P2802836	1.75 ~ 10.0	165	28	27.5	35	SKC10	-
	SK50-SKA10-195	P2802837	1.75 ~ 10.0	195	28	27.5	35	SKC10	-
	SK50-SKA13-105	P2802838	2.75 ~ 13.0	105	33	33	43.6	SKC13	-
	SK50-SKA13-135	P2802839	2.75 ~ 13.0	135	33	33	43.6	SKC13	-
	SK50-SKA13-165	P2802840	2.75 ~ 13.0	165	33	33	43.6	SKC13	-
	SK50-SKA13-195	P2802841	2.75 ~ 13.0	195	33	33	43.6	SKC13	-
	SK50-SKA16-105	P2802842	2.75 ~ 16.0	105	40	40	52	SKC16	-
	SK50-SKA16-135	P2802843	2.75 ~ 16.0	135	40	40	52	SKC16	-
	SK50-SKA16-165	P2802844	2.75 ~ 16.0	165	40	40	52	SKC16	-
	SK50-SKA16-195	P2802845	2.75 ~ 16.0	195	40	40	52	SKC16	-
	SK50-SKA20-105	P2802846	3.5 ~ 20.0	105	48.5	48.5	59.6	SKC20	-
	SK50-SKA20-135	P2802847	3.5 ~ 20.0	135	48.5	48.5	59.6	SKC20	-
	SK50-SKA20-165	P2802848	3.5 ~ 20.0	165	48.5	48.5	59.6	SKC20	-
	SK50-SKA20-195	P2802849	3.5 ~ 20.0	195	48.5	48.5	59.6	SKC20	-
	SK50-SKA25-105	P2802850	16.0 ~ 25.4	105	55	55	63.4	SKC25	-
	SK50-SKA25-135	P2802851	16.0 ~ 25.4	135	55	55	63.4	SKC25	-
	SK50-SKA25-165	P2802852	16.0 ~ 25.4	165	55	55	63.4	SKC25	-
	SK50-SKA25-195	P2802853	16.0 ~ 25.4	195	55	55	63.4	SKC25	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

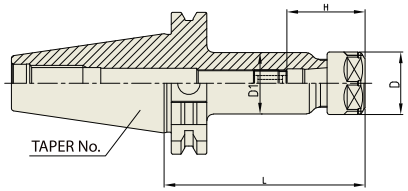
SK SLIM CHUCK

SKA

SK SLIM CHUCK

DIN 69871-SK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | AD/B

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
40	SK40AD/B-SKA06-60	P2802901	1.8 - 6.0	60	20	19.5	31	SKC6	-
	SK40AD/B-SKA06-90	P2802902	1.8 - 6.0	90	20	19.5	31	SKC6	-
	SK40AD/B-SKA06-120	P2802903	1.8 - 6.0	120	20	19.5	31	SKC6	-
	SK40AD/B-SKA06-150	P2802904	1.8 - 6.0	150	20	19.5	31	SKC6	-
	SK40AD/B-SKA10-90	P2802905	1.8 - 10.0	90	28	27.5	35	SKC10	-
	SK40AD/B-SKA10-120	P2802906	1.8 - 10.0	120	28	27.5	35	SKC10	-
	SK40AD/B-SKA10-150	P2802907	1.8 - 10.0	150	28	27.5	35	SKC10	-
	SK40AD/B-SKA13-90	P2802908	2.75 - 13.0	90	33	33	43.6	SKC13	-
	SK40AD/B-SKA13-120	P2802909	2.75 - 13.0	120	33	33	43.6	SKC13	-
	SK40AD/B-SKA13-150	P2802910	2.75 - 13.0	150	33	33	43.6	SKC13	-
	SK40AD/B-SKA16-90	P2802911	2.75 - 16.0	90	40	40	52	SKC16	-
	SK40AD/B-SKA16-120	P2802912	2.75 - 16.0	120	40	40	52	SKC16	-
	SK40AD/B-SKA16-150	P2802913	2.75 - 16.0	150	40	40	52	SKC16	-
	SK40AD/B-SKA20-90	P2802914	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	-
	SK40AD/B-SKA20-120	P2802915	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	-
	SK40AD/B-SKA20-150	P2802916	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	-
	SK40AD/B-SKA25-90	P2802917	16.0 - 25.4	90	55	55	63.4	SKC25	-
	SK40AD/B-SKA25-120	P2802918	16.0 - 25.4	120	55	55	63.4	SKC25	-
	SK40AD/B-SKA25-150	P2802919	16.0 - 25.4	150	55	55	63.4	SKC25	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

▶ NEXT PAGE

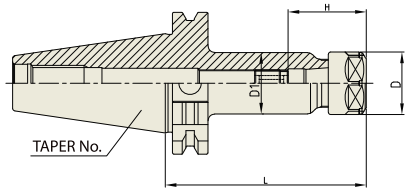
SK SLIM CHUCK

SKA

SK SLIM CHUCK

DIN 69871-SK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | AD/B

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	SK50AD/B-SKA06-105	P2802920	1.8 - 6.0	105	20	19.5	31	SKC6	-
	SK50AD/B-SKA06-135	P2802921	1.8 - 6.0	135	20	19.5	31	SKC6	-
	SK50AD/B-SKA06-165	P2802922	1.8 - 6.0	165	20	19.5	31	SKC6	-
	SK50AD/B-SKA06-195	P2802923	1.8 - 6.0	195	20	19.5	31	SKC6	-
	SK50AD/B-SKA10-105	P2802924	1.75 - 10.0	105	28	27.5	35	SKC10	-
	SK50AD/B-SKA10-135	P2802925	1.75 - 10.0	135	28	27.5	35	SKC10	-
	SK50AD/B-SKA10-165	P2802926	1.75 - 10.0	165	28	27.5	35	SKC10	-
	SK50AD/B-SKA10-195	P2802927	1.75 - 10.0	195	28	27.5	35	SKC10	-
	SK50AD/B-SKA13-105	P2802928	2.75 - 13.0	105	33	33	43.6	SKC13	-
	SK50AD/B-SKA13-135	P2802929	2.75 - 13.0	135	33	33	43.6	SKC13	-
	SK50AD/B-SKA13-165	P2802930	2.75 - 13.0	165	33	33	43.6	SKC13	-
	SK50AD/B-SKA13-195	P2802931	2.75 - 13.0	195	33	33	43.6	SKC13	-
	SK50AD/B-SKA16-105	P2802932	2.75 - 13.0	105	40	40	52	SKC16	-
	SK50AD/B-SKA16-135	P2802933	2.75 - 13.0	135	40	40	52	SKC16	-
	SK50AD/B-SKA16-165	P2802934	2.75 - 13.0	165	40	40	52	SKC16	-
	SK50AD/B-SKA16-195	P2802935	2.75 - 13.0	195	40	40	52	SKC16	-
	SK50AD/B-SKA20-105	P2802936	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	-
	SK50AD/B-SKA20-135	P2802937	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	-
	SK50AD/B-SKA20-165	P2802938	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	-
	SK50AD/B-SKA20-195	P2802939	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	-
	SK50AD/B-SKA25-105	P2802940	16.0 - 25.4	105	55	55	63.4	SKC25	-
	SK50AD/B-SKA25-135	P2802941	16.0 - 25.4	135	55	55	63.4	SKC25	-
	SK50AD/B-SKA25-165	P2802942	16.0 - 25.4	165	55	55	63.4	SKC25	-
	SK50AD/B-SKA25-195	P2802943	16.0 - 25.4	195	55	55	63.4	SKC25	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

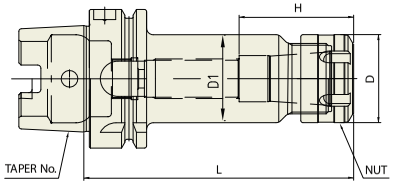
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | 2.5G | 25,000 RPM | AD

Collet, Nut and spanner refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
32A	HSK32A-SKA06-50	P2775860	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32A-SKA10-60	P2775861	1.75 - 10.0	60	28	26	35	SKC10	0.70
40A	HSK40A-SKA06-60	P2775862	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40A-SKA10-60	P2775863	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	HSK40A-SKA13-80	P2775864	2.75 - 13.0	80	33	33	43.6	SKC13	1.00
50A	HSK50A-SKA06-80	P2775865	1.8 - 6.0	80	20	19.5	31	SKC6	0.90
	HSK50A-SKA10-100	P2775866	1.75 - 10.0	100	28	27.5	35	SKC10	1.10
	HSK50A-SKA13-100	P2775867	2.75 - 13.0	100	33	33	43.6	SKC13	1.20
63A	HSK63A-SKA06-100	P2775868	1.8 - 6.0	100	20	19.5	31	SKC6	1.40
	HSK63A-SKA10-100	P2775869	1.75 - 10.0	100	28	27.5	35	SKC10	1.60
	HSK63A-SKA13-100	P2775870	2.75 - 13.0	100	33	33	43.6	SKC13	1.70
	HSK63A-SKA16-120	P2775871	2.75 - 16.0	120	40	40	52	SKC16	1.70
	HSK63A-SKA20-120	P2775872	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.10
	HSK63A-SKA25-150	P2775873	16.0 - 25.4	150	55	55	63.4	SKC25	2.40
80A	HSK80A-SKA06-120	P2775893	1.8 - 6.0	120	20	19.5	31	SKC6	1.60
	HSK80A-SKA10-120	P2775875	1.75 - 10.0	120	28	27.5	35	SKC10	1.72
	HSK80A-SKA13-120	P2775876	2.75 - 13.0	120	33	33	43.6	SKC13	1.79
	HSK80A-SKA16-120	P2775877	2.75 - 16.0	120	40	40	52	SKC16	1.96
	HSK80A-SKA20-130	P2775878	3.5 - 20.0	130	48.5	48.5	59.6	SKC20	2.39
	HSK80A-SKA25-150	P2775879	16.0 - 25.4	150	55	55	63.4	SKC25	2.82
100A	HSK100A-SKA06-120	P2775880	1.8 - 6.0	120	20	19.5	31	SKC6	4.00
	HSK100A-SKA10-150	P2775881	1.75 - 10.0	150	28	27.5	35	SKC10	4.50
	HSK100A-SKA13-150	P2775882	2.75 - 13.0	150	33	33	43.6	SKC13	4.60
	HSK100A-SKA16-150	P2775883	2.75 - 16.0	150	40	40	52	SKC16	5.10
	HSK100A-SKA20-150	P2775884	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	5.40
	HSK100A-SKA25-160	P2775885	16.0 - 25.4	160	55	55	63.4	SKC25	5.50

DIN 69893/ ISO 12164-1-HSK FORM E

Collet, Nut and spanner refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
25E	HSK25E-SKA06-45	P2775886	1.8 - 6.0	45	20	19.5	31	SKC6	-
	HSK25E-SKA10-50	P2775887	1.75 - 10.0	50	28	21.5	35	SKC10	-
32E	HSK32E-SKA06-50	P2775888	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32E-SKA10-60	P2775889	1.75 - 10.0	60	28	26	35	SKC10	0.70
40E	HSK40E-SKA06-60	P2775890	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40E-SKA10-60	P2775891	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	HSK40E-SKA13-80	P2775892	2.75 - 13.0	80	33	33	43.6	SKC13	1.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

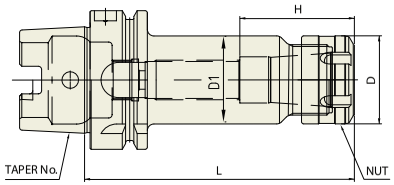
SK SLIM CHUCK

SKA

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | 6.3G | 15,000 RPM | AD

Collet, Nut and spanner Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
32A	HSK32A-SKA06-50	P2773502	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32A-SKA10-60	P2773503	1.75 - 10.0	60	28	26	35	SKC10	0.70
40A	HSK40A-SKA06-60	P2773504	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40A-SKA10-60	P2773505	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	HSK40A-SKA13-80	P2773506	2.75 - 13.0	80	33	33	43.6	SKC13	1.00
50A	HSK50A-SKA06-80	P2773507	1.8 - 6.0	80	20	19.5	31	SKC6	0.90
	HSK50A-SKA10-100	P2773508	1.75 - 10.0	100	28	27.5	35	SKC10	1.10
	HSK50A-SKA13-100	P2773509	2.75 - 13.0	100	33	33	43.6	SKC13	1.20
63A	HSK63A-SKA06-100	P2730492	1.8 - 6.0	100	20	19.5	31	SKC6	1.40
	HSK63A-SKA10-100	P2730494	1.75 - 10.0	100	28	27.5	35	SKC10	1.60
	HSK63A-SKA13-100	P2773510	2.75 - 13.0	100	33	33	43.6	SKC13	1.70
	HSK63A-SKA16-120	P2730510	2.75 - 16.0	120	40	40	52	SKC16	1.70
	HSK63A-SKA20-120	P2730515	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.10
	HSK63A-SKA25-150	P2773501	16.0 - 25.4	150	55	55	63.4	SKC25	2.40
80A	HSK80A-SKA06-120	P2773550	1.8 - 6.0	120	20	19.5	31	SKC6	-
	HSK80A-SKA10-120	P2773512	1.75 - 10.0	120	28	27.5	35	SKC10	-
	HSK80A-SKA13-120	P2773513	2.75 - 13.0	120	33	33	43.6	SKC13	-
	HSK80A-SKA16-120	P2773514	2.75 - 16.0	120	40	40	52	SKC16	-
	HSK80A-SKA20-130	P2773515	3.5 - 20.0	130	48.5	48.5	59.6	SKC20	-
	HSK80A-SKA25-150	P2773516	16.0 - 25.4	150	55	55	63.4	SKC25	-
100A	HSK100A-SKA06-120	P2773517	1.8 - 6.0	120	20	19.5	31	SKC6	4.00
	HSK100A-SKA10-150	P2773518	1.75 - 10.0	150	28	27.5	35	SKC10	4.50
	HSK100A-SKA13-150	P2773519	2.75 - 13.0	150	33	33	43.6	SKC13	4.60
	HSK100A-SKA16-150	P2773520	2.75 - 16.0	150	40	40	52	SKC16	5.10
	HSK100A-SKA20-150	P2773521	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	5.40
	HSK100A-SKA25-160	P2773522	16.0 - 25.4	160	55	55	63.4	SKC25	5.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

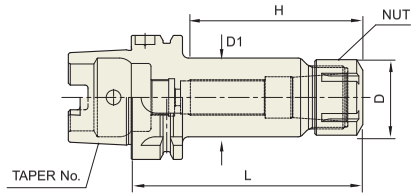
SK SLIM CHUCK

SKA

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

DIN 69893/ ISO 12164-1-HSK FORM E



DIN 69893-HSK | 6.3G | 15,000 RPM | AD

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
25E	HSK25E-SKA06-45	P2773523	1.8 - 6.0	45	20	19.5	31	SKC6	-
	HSK25E-SKA10-50	P2773524	1.75 - 10.0	50	28	21.5	35	SKC10	-
32E	HSK32E-SKA06-50	P2773525	1.8 - 6.0	50	20	19.5	31	SKC6	0.50
	HSK32E-SKA10-60	P2773526	1.75 - 10.0	60	28	26	35	SKC10	0.70
40E	HSK40E-SKA06-60	P2773527	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	HSK40E-SKA10-60	P2773528	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	HSK40E-SKA13-80	P2773529	2.75 - 13.0	80	33	33	43.6	SKC13	1.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

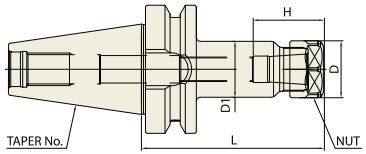
SK SLIM CHUCK

SKA

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

CBT (BT DUAL CONTACT)



CBT | AT3 | 2.5G | 25,000 RPM | AD

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
30	CBT30-SKA06-60	P2775701	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	CBT30-SKA06-90	P2775702	1.8 - 6.0	90	20	19.5	31	SKC6	0.80
	CBT30-SKA10-60	P2775703	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	CBT30-SKA10-90	P2775704	1.75 - 10.0	90	28	27.5	35	SKC10	1.00
	CBT30-SKA13-60	P2775705	2.75 - 13.0	60	33	33	43.6	SKC13	1.00
	CBT30-SKA13-90	P2775706	2.75 - 13.0	90	33	33	43.6	SKC13	1.10
	CBT30-SKA16-60	P2775707	2.75 - 16.0	60	40	40	52	SKC16	1.10
	CBT30-SKA16-90	P2775708	2.75 - 16.0	90	40	40	52	SKC16	1.20
	CBT30-SKA20-60	P2775709	3.5 - 20.0	60	48.5	40	59.6	SKC20	1.30
	CBT30-SKA20-90	P2775710	3.5 - 20.0	90	48.5	40	59.6	SKC20	1.40
	CBT30-SKA25-90	P2775711	16.0 - 25.4	90	55	45	63.4	SKC25	1.50
40	CBT40-SKA06-90	P2775712	1.8 - 6.0	90	20	19.5	31	SKC6	1.10
	CBT40-SKA06-120	P2775713	1.8 - 6.0	120	20	19.5	31	SKC6	1.40
	CBT40-SKA06-150	P2775714	1.8 - 6.0	150	20	19.5	31	SKC6	1.50
	CBT40-SKA10-90	P2775715	1.75 - 10.0	90	28	27.5	35	SKC10	1.20
	CBT40-SKA10-120	P2775716	1.75 - 10.0	120	28	27.5	35	SKC10	1.40
	CBT40-SKA10-150	P2775717	1.75 - 10.0	150	28	27.5	35	SKC10	1.60
	CBT40-SKA13-90	P2775718	2.75 - 13.0	90	33	33	43.6	SKC13	1.40
	CBT40-SKA13-120	P2775719	2.75 - 13.0	120	33	33	43.6	SKC13	1.60
	CBT40-SKA13-150	P2775720	2.75 - 13.0	150	33	33	43.6	SKC13	1.80
	CBT40-SKA16-90	P2775721	2.75 - 16.0	90	40	40	52	SKC16	1.50
	CBT40-SKA16-120	P2775722	2.75 - 16.0	120	40	40	52	SKC16	1.70
	CBT40-SKA16-150	P2775723	2.75 - 16.0	150	40	40	52	SKC16	1.90
	CBT40-SKA20-90	P2775724	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	1.60
	CBT40-SKA20-120	P2775725	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.00
	CBT40-SKA20-150	P2775726	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	2.40
	CBT40-SKA25-90	P2775727	16.0 - 25.4	90	55	55	63.4	SKC25	1.80
	CBT40-SKA25-120	P2775728	16.0 - 25.4	120	55	55	63.4	SKC25	2.00
	CBT40-SKA25-150	P2775729	16.0 - 25.4	150	55	55	63.4	SKC25	2.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

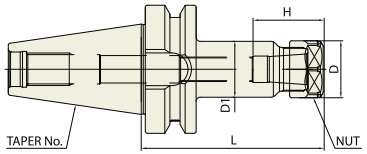
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

CBT
(BT DUAL CONTACT)



CBT | AT3 | 2.5G | 25,000 RPM | AD

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	CBT50-SKA06-105	P2775730	1.8 - 6.0	105	20	19.5	31	SKC6	3.80
	CBT50-SKA06-135	P2775731	1.8 - 6.0	135	20	19.5	31	SKC6	3.90
	CBT50-SKA06-165	P2775732	1.8 - 6.0	165	20	19.5	31	SKC6	4.00
	CBT50-SKA06-195	P2775733	1.8 - 6.0	195	20	19.5	31	SKC6	4.20
	CBT50-SKA10-105	P2775734	1.75 - 10.0	105	28	27.5	35	SKC10	4.20
	CBT50-SKA10-135	P2775735	1.75 - 10.0	135	28	27.5	35	SKC10	4.40
	CBT50-SKA10-165	P2775736	1.75 - 10.0	165	28	27.5	35	SKC10	4.60
	CBT50-SKA10-195	P2775737	1.75 - 10.0	195	28	27.5	35	SKC10	4.80
	CBT50-SKA13-105	P2775738	2.75 - 13.0	105	33	33	43.6	SKC13	4.50
	CBT50-SKA13-135	P2775739	2.75 - 13.0	135	33	33	43.6	SKC13	4.70
	CBT50-SKA13-165	P2775740	2.75 - 13.0	165	33	33	43.6	SKC13	4.90
	CBT50-SKA13-195	P2775741	2.75 - 13.0	195	33	33	43.6	SKC13	5.20
	CBT50-SKA16-105	P2775742	2.75 - 16.0	105	40	40	52	SKC16	4.70
	CBT50-SKA16-135	P2775743	2.75 - 16.0	135	40	40	52	SKC16	4.90
	CBT50-SKA16-165	P2775744	2.75 - 16.0	165	40	40	52	SKC16	5.10
	CBT50-SKA16-195	P2775745	2.75 - 16.0	195	40	40	52	SKC16	5.50
	CBT50-SKA20-105	P2775746	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	4.30
	CBT50-SKA20-135	P2775747	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	4.60
	CBT50-SKA20-165	P2775748	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	5.00
	CBT50-SKA20-195	P2775749	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	5.40
	CBT50-SKA25-105	P2775750	16.0 - 25.4	105	55	55	63.4	SKC25	5.20
	CBT50-SKA25-135	P2775751	16.0 - 25.4	135	55	55	63.4	SKC25	5.40
	CBT50-SKA25-165	P2775752	16.0 - 25.4	165	55	55	63.4	SKC25	5.60
	CBT50-SKA25-195	P2775753	16.0 - 25.4	195	55	55	63.4	SKC25	6.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

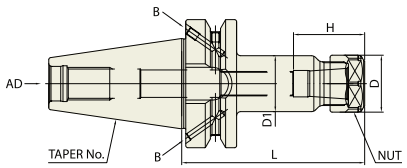
SK SLIM CHUCK

SKA

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

JIS B6339/
MAS 403-BT



IS 6339 T | AT3 | 2.5G | 25,000 RPM | AD or AD/B

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
30	BT30-SKA06-60	P2775754A	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	BT30-SKA06-90	P2775755A	1.8 - 6.0	90	20	19.5	31	SKC6	0.80
	BT30-SKA10-60	P2775756A	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	BT30-SKA10-90	P2775757A	1.75 - 10.0	90	28	27.5	35	SKC10	1.00
	BT30-SKA13-60	P2775758A	2.75 - 13.0	60	33	33	43.6	SKC13	1.00
	BT30-SKA13-90	P2775759A	2.75 - 13.0	90	33	33	43.6	SKC13	1.10
	BT30-SKA16-60	P2775760A	2.75 - 16.0	60	40	40	52	SKC16	1.10
	BT30-SKA16-90	P2775761A	2.75 - 16.0	90	40	40	52	SKC16	1.20
	BT30-SKA20-60	P2775762A	3.5 - 20.0	60	40	48.5	59.6	SKC20	1.30
	BT30-SKA20-90	P2775763A	3.5 - 20.0	90	40	48.5	59.6	SKC20	1.40
	BT30-SKA25-90	P2775764A	16.0 - 25.4	90	45	55	63.4	SKC25	1.50
40	BT40AD/B-SKA06-90	P2775765	1.8 - 6.0	90	20	19.5	31	SKC6	1.10
	BT40AD/B-SKA06-120	P2775766	1.8 - 6.0	120	20	19.5	31	SKC6	1.40
	BT40AD/B-SKA06-150	P2775767	1.8 - 6.0	150	20	19.5	31	SKC6	1.50
	BT40AD/B-SKA10-90	P2775768	1.75 - 10.0	90	28	27.5	35	SKC10	1.20
	BT40AD/B-SKA10-120	P2775769	1.75 - 10.0	120	28	27.5	35	SKC10	1.40
	BT40AD/B-SKA10-150	P2775770	1.75 - 10.0	150	28	27.5	35	SKC10	1.60
	BT40AD/B-SKA13-90	P2775771	2.75 - 13.0	90	33	33	43.6	SKC13	1.40
	BT40AD/B-SKA13-120	P2775772	2.75 - 13.0	120	33	33	43.6	SKC13	1.60
	BT40AD/B-SKA13-150	P2775773	2.75 - 13.0	150	33	33	43.6	SKC13	1.80
	BT40AD/B-SKA16-90	P2775774	2.75 - 16.0	90	40	40	52	SKC16	1.50
	BT40AD/B-SKA16-120	P2775775	2.75 - 16.0	120	40	40	52	SKC16	1.70
	BT40AD/B-SKA16-150	P2775776	2.75 - 16.0	150	40	40	52	SKC16	1.90
	BT40AD/B-SKA20-90	P2775777	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	1.60
	BT40AD/B-SKA20-120	P2775778	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.00
	BT40AD/B-SKA20-150	P2775779	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	2.40
	BT40AD/B-SKA25-90	P2775780	16.0 - 25.4	90	55	55	63.4	SKC25	1.80
	BT40AD/B-SKA25-120	P2775781	16.0 - 25.4	120	55	55	63.4	SKC25	2.00
	BT40AD/B-SKA25-150	P2775782	16.0 - 25.4	150	55	55	63.4	SKC25	2.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
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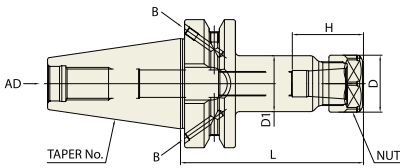
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

JIS B6339/
MAS 403-BT



IS 6339 T | AT3 | 2.5G | 25,000 RPM | AD/B

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	BT50AD/B-SKA06-105	P2775783	1.8 - 6.0	105	20	19.5	31	SKC6	3.80
	BT50AD/B-SKA06-135	P2775784	1.8 - 6.0	135	20	19.5	31	SKC6	3.90
	BT50AD/B-SKA06-165	P2775785	1.8 - 6.0	165	20	19.5	31	SKC6	4.00
	BT50AD/B-SKA06-195	P2775786	1.8 - 6.0	195	20	19.5	31	SKC6	4.20
	BT50AD/B-SKA10-105	P2775787	1.75 - 10.0	105	28	27.5	35	SKC10	4.20
	BT50AD/B-SKA10-135	P2775788	1.75 - 10.0	135	28	27.5	35	SKC10	4.40
	BT50AD/B-SKA10-165	P2775789	1.75 - 10.0	165	28	27.5	35	SKC10	4.60
	BT50AD/B-SKA10-195	P2775790	1.75 - 10.0	195	28	27.5	35	SKC10	4.80
	BT50AD/B-SKA13-105	P2775791	2.75 - 13.0	105	33	33	43.6	SKC13	4.50
	BT50AD/B-SKA13-135	P2775792	2.75 - 13.0	135	33	33	43.6	SKC13	4.70
	BT50AD/B-SKA13-165	P2775793	2.75 - 13.0	165	33	33	43.6	SKC13	4.90
	BT50AD/B-SKA13-195	P2775794	2.75 - 13.0	195	33	33	43.6	SKC13	5.20
	BT50AD/B-SKA16-105	P2775795	2.75 - 16.0	105	40	40	52	SKC16	4.70
	BT50AD/B-SKA16-135	P2775796	2.75 - 16.0	135	40	40	52	SKC16	4.90
	BT50AD/B-SKA16-165	P2775797	2.75 - 16.0	165	40	40	52	SKC16	5.10
	BT50AD/B-SKA16-195	P2775798	2.75 - 16.0	195	40	40	52	SKC16	5.50
	BT50AD/B-SKA20-105	P2775799	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	4.30
	BT50AD/B-SKA20-135	P2775800	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	4.60
	BT50AD/B-SKA20-165	P2775801	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	5.00
	BT50AD/B-SKA20-195	P2775802	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	5.40
	BT50AD/B-SKA25-105	P2775803	16.0 - 25.4	105	55	55	63.4	SKC25	5.20
	BT50AD/B-SKA25-135	P2775804	16.0 - 25.4	135	55	55	63.4	SKC25	5.40
	BT50AD/B-SKA25-165	P2775805	16.0 - 25.4	165	55	55	63.4	SKC25	5.60
	BT50AD/B-SKA25-195	P2775806	16.0 - 25.4	195	55	55	63.4	SKC25	6.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

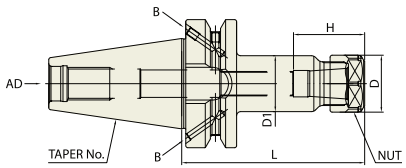
SK SLIM CHUCK

SKA

SK SLIM CHUCK

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO

JIS B6339/
MAS 403-BT



IS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
30	BT30-SKA06-60	P2775807	1.8 - 6.0	60	20	19.5	31	SKC6	0.70
	BT30-SKA06-90	P2775808	1.8 - 6.0	90	20	19.5	31	SKC6	0.80
	BT30-SKA10-60	P2775809	1.75 - 10.0	60	28	27.5	35	SKC10	0.90
	BT30-SKA10-90	P2775810	1.75 - 10.0	90	28	27.5	35	SKC10	1.00
	BT30-SKA13-60	P2775811	2.75 - 13.0	60	33	33	43.6	SKC13	1.00
	BT30-SKA13-90	P2775812	2.75 - 13.0	90	33	33	43.6	SKC13	1.10
	BT30-SKA16-60	P2775813	2.75 - 16.0	60	40	40	52	SKC16	1.10
	BT30-SKA16-90	P2775814	2.75 - 16.0	90	40	40	52	SKC16	1.20
	BT30-SKA20-60	P2775815	3.5 - 20.0	60	48.5	40	59.6	SKC20	1.30
	BT30-SKA20-90	P2775816	3.5 - 20.0	90	48.5	40	59.6	SKC20	1.40
	BT30-SKA25-90	P2775817	16.0 - 25.4	90	55	45	63.4	SKC25	1.50
40	BT40-SKA06-90	P2775818	1.8 - 6.0	90	20	19.5	31	SKC6	1.10
	BT40-SKA06-120	P2775819	1.8 - 6.0	120	20	19.5	31	SKC6	1.40
	BT40-SKA06-150	P2775820	1.8 - 6.0	150	20	19.5	31	SKC6	1.50
	BT40-SKA10-90	P2775821	1.75 - 10.0	90	28	27.5	35	SKC10	1.20
	BT40-SKA10-120	P2775822	1.75 - 10.0	120	28	27.5	35	SKC10	1.40
	BT40-SKA10-150	P2775823	1.75 - 10.0	150	28	27.5	35	SKC10	1.60
	BT40-SKA13-90	P2775824	2.75 - 13.0	90	33	33	43.6	SKC13	1.40
	BT40-SKA13-120	P2775825	2.75 - 13.0	120	33	33	43.6	SKC13	1.60
	BT40-SKA13-150	P2775826	2.75 - 13.0	150	33	33	43.6	SKC13	1.80
	BT40-SKA16-90	P2775827	2.75 - 16.0	90	40	40	52	SKC16	1.50
	BT40-SKA16-120	P2775828	2.75 - 16.0	120	40	40	52	SKC16	1.70
	BT40-SKA16-150	P2775829	2.75 - 16.0	150	40	40	52	SKC16	1.90
	BT40-SKA20-90	P2775830	3.5 - 20.0	90	48.5	48.5	59.6	SKC20	1.60
	BT40-SKA20-120	P2775831	3.5 - 20.0	120	48.5	48.5	59.6	SKC20	2.00
	BT40-SKA20-150	P2775832	3.5 - 20.0	150	48.5	48.5	59.6	SKC20	2.40
	BT40-SKA25-90	P2775833	16.0 - 25.4	90	55	55	63.4	SKC25	1.80
	BT40-SKA25-120	P2775834	16.0 - 25.4	120	55	55	63.4	SKC25	2.00
	BT40-SKA25-150	P2775835	16.0 - 25.4	150	55	55	63.4	SKC25	2.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

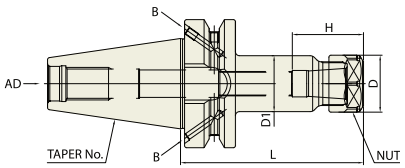
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SK SLIM CHUCK

JIS B6339/
MAS 403-BT

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO



JIS 6339 T | AT3 | 6.3G | 15,000 RPM | AD

Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
50	BT50-SKA06-105	P2775836	1.8 - 6.0	105	20	19.5	31	SKC6	3.80
	BT50-SKA06-135	P2775837	1.8 - 6.0	135	20	19.5	31	SKC6	3.90
	BT50-SKA06-165	P2775838	1.8 - 6.0	165	20	19.5	31	SKC6	4.00
	BT50-SKA06-195	P2775839	1.8 - 6.0	195	20	19.5	31	SKC6	4.20
	BT50-SKA10-105	P2775840	1.75 - 10.0	105	28	27.5	35	SKC10	4.20
	BT50-SKA10-135	P2775841	1.75 - 10.0	135	28	27.5	35	SKC10	4.40
	BT50-SKA10-165	P2775842	1.75 - 10.0	165	28	27.5	35	SKC10	4.60
	BT50-SKA10-195	P2775843	1.75 - 10.0	195	28	27.5	35	SKC10	4.80
	BT50-SKA13-105	P2775844	2.75 - 13.0	105	33	33	43.6	SKC13	4.50
	BT50-SKA13-135	P2775845	2.75 - 13.0	135	33	33	43.6	SKC13	4.70
	BT50-SKA13-165	P2775846	2.75 - 13.0	165	33	33	43.6	SKC13	4.90
	BT50-SKA13-195	P2775847	2.75 - 13.0	195	33	33	43.6	SKC13	5.20
	BT50-SKA16-105	P2775848	2.75 - 16.0	105	40	40	52	SKC16	4.70
	BT50-SKA16-135	P2775849	2.75 - 16.0	135	40	40	52	SKC16	4.90
	BT50-SKA16-165	P2775850	2.75 - 16.0	165	40	40	52	SKC16	5.10
	BT50-SKA16-195	P2775851	2.75 - 16.0	195	40	40	52	SKC16	5.50
	BT50-SKA20-105	P2775852	3.5 - 20.0	105	48.5	48.5	59.6	SKC20	4.30
	BT50-SKA20-135	P2775853	3.5 - 20.0	135	48.5	48.5	59.6	SKC20	4.60
	BT50-SKA20-165	P2775854	3.5 - 20.0	165	48.5	48.5	59.6	SKC20	5.00
	BT50-SKA20-195	P2775855	3.5 - 20.0	195	48.5	48.5	59.6	SKC20	5.40
	BT50-SKA25-105	P2775856	16.0 - 25.4	105	55	55	63.4	SKC25	5.20
	BT50-SKA25-135	P2775857	16.0 - 25.4	135	55	55	63.4	SKC25	5.40
	BT50-SKA25-165	P2775858	16.0 - 25.4	165	55	55	63.4	SKC25	5.60
	BT50-SKA25-195	P2775859	16.0 - 25.4	195	55	55	63.4	SKC25	6.00

▶ CAT(ANSI B5.50) taper and Inch type products are available.

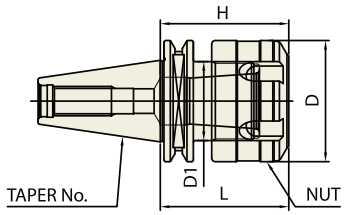
SK SLIM CHUCK

SKA

SK SLIM CHUCK

ISO 20/25

SK SCHLANKE FUTTER
MANDRIN TYPE SK MINCE
SK MANDRINI SOTTILI
PORTAHERRAMIENTAS SK EJE REDUCIDO



ISO 20/25 | AT3 | 2.5G | 30,000 RPM | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	D	D1	H	COLLET	WEIGHT (kg)
20	ISO20-SKA10-35	P2773530	1.75 - 10.0	35	33	21.5	35	SKC10	0.50
25	ISO25-SKA10-35	P2773531	1.75 - 10.0	35	33	21.5	35	SKC10	0.70

▶ Higher balancing grade is available upon request.
▶ To be supplied with assembling of pull stud bolt.

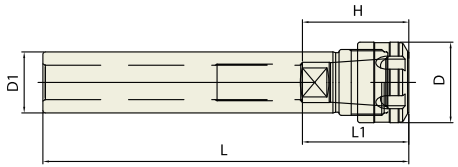
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

SK SLIM CHUCK

STRAIGHT-K

SK SCHLANKE FUTTER - GERADEAUS SCHAFT
MANDRIN TYPE SK MINCE - TOUT DROIT TIGE
SK MANDRINI SOTTILI - TIBIA DIRITTA
PORTAHERRAMIENTAS SK EJE REDUCIDO - CANA RECTA



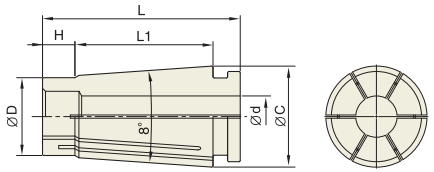
Collet, Nut and spanner
Refer to page 199-201

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	L	L1	D	D1	H	COLLET	WEIGHT (kg)
20	K20-SKA06-100	P2773532	1.8 - 6.0	100	21 - 35	20	20	31	SKC6	0.20
	K20-SKA06-140	P2773533	1.8 - 6.0	140	21 - 35	20	20	31	SKC6	0.30
	K20-SKA10-100	P2773534	1.75 - 10.0	100	30 - 50	28	20	35	SKC10	0.20
	K20-SKA10-140	P2773535	1.75 - 10.0	140	30 - 50	28	20	35	SKC10	0.30
25	K25-SKA06-100	P2773536	1.8 - 6.0	100	21 - 35	20	25	31	SKC6	0.30
	K25-SKA06-140	P2773537	1.8 - 6.0	140	21 - 35	20	25	31	SKC6	0.50
	K25-SKA10-100	P2773538	1.75 - 10.0	100	30 - 50	28	25	35	SKC10	0.30
	K25-SKA10-150	P2773539	1.75 - 10.0	150	30 - 50	28	25	35	SKC10	0.50
	K25-SKA13-100	P2773540	2.75 - 13.0	100	31 - 65	33	25	43.6	SKC13	0.40
	K25-SKA13-150	P2773541	2.75 - 13.0	150	31 - 65	33	25	43.6	SKC13	0.60
32	K32-SKA10-100	P2773542	1.75 - 10.0	100	30 - 50	28	32	35	SKC10	0.50
	K32-SKA10-150	P2773543	1.75 - 10.0	150	30 - 50	28	32	35	SKC10	0.70
	K32-SKA13-100	P2773544	2.75 - 13.0	100	31 - 65	33	32	43.6	SKC13	1.00
	K32-SKA13-150	P2773545	2.75 - 13.0	150	31 - 65	33	32	43.6	SKC13	1.20
	K32-SKA16-100	P2773546	2.75 - 16.0	100	40 - 70	40	32	52	SKC16	1.00
	K32-SKA16-150	P2773547	2.75 - 16.0	150	40 - 70	40	32	52	SKC16	1.20
	K32-SKA20-100	P2773548	3.5 - 20.0	100	47 - 80	48.5	32	59.6	SKC20	1.10
	K32-SKA20-150	P2773549	3.5 - 20.0	150	47 - 80	48.5	32	59.6	SKC20	1.30

SK COLLET

SK SCHLANKE FUTTER SPANNZANGE
MANDRIN TYPE SK MINCE PINCE DE SERRAGE
SK MANDRINI SOTTILI PINZA DI SERRAGGIO
PORTAHERRAMIENTAS SK EJE REDUCIDO PINZA PORTAPIEZAS



◇ T.I.R : ≤0.005mm at 3D

Unit : mm

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC6	SKC6-2	P2730780	1.8 - 2.0
	SKC6-2.5	P2773601	2.3 - 2.5
	SKC6-3	P2730782	2.8 - 3.0
	SKC6-3.5	P2773602	3.0 - 3.5
	SKC6-4	P2730784	3.5 - 4.0
	SKC6-4.5	P2773603	4.0 - 4.5
	SKC6-5	P2730786	4.5 - 5.0
	SKC6-5.5	P2773604	5.0 - 5.5
	SKC6-6	P2730788	5.5 - 6.0

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC10	SKC10-2	P2730790	1.75 - 2.0
	SKC10-2.5	P2773605	2.25 - 2.5
	SKC10-3	P2730791	2.75 - 3.0
	SKC10-3.5	P2773606	3.0 - 3.5
	SKC10-4	P2730792	3.5 - 4.0
	SKC10-4.5	P2773607	4.0 - 4.5
	SKC10-5	P2730793	4.5 - 5.0
	SKC10-5.5	P2773608	5.0 - 5.5
	SKC10-6	P2730794	5.5 - 6.0
	SKC10-6.5	P2773609	6.0 - 6.5
	SKC10-7	P2730795	6.5 - 7.0
	SKC10-7.5	P2773610	7.0 - 7.5
	SKC10-8	P2730796	7.5 - 8.0
	SKC10-8.5	P2773611	8.0 - 8.5
	SKC10-9	P2730797	8.5 - 9.0
	SKC10-9.5	P2773612	9.0 - 9.5
	SKC10-10	P2730798	9.5 - 10.0

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC13	SKC13-3	P2773656	2.75 - 3.0
	SKC13-3.5	P2773657	3.0 - 3.5
	SKC13-4	P2773658	3.5 - 4.0
	SKC13-4.5	P2773659	4.0 - 4.5
	SKC13-5	P2773660	4.5 - 5.0
	SKC13-5.5	P2773661	5.0 - 5.5
	SKC13-6	P2773662	5.5 - 6.0
	SKC13-6.5	P2773663	6.0 - 6.5
	SKC13-7	P2773664	6.5 - 7.0
	SKC13-7.5	P2773665	7.0 - 7.5
	SKC13-8	P2773666	7.5 - 8.0
	SKC13-8.5	P2773667	8.0 - 8.5
	SKC13-9	P2773668	8.5 - 9.0
	SKC13-9.5	P2773669	9.0 - 9.5
	SKC13-10	P2773670	9.5 - 10.0
	SKC13-10.5	P2773671	10.0 - 10.5
	SKC13-11	P2773672	10.5 - 11.0
	SKC13-11.5	P2773673	11.0 - 11.5
	SKC13-12	P2773674	11.5 - 12.0
	SKC13-12.5	P2773675	12.0 - 12.5
	SKC13-13	P2773676	12.5 - 13.0

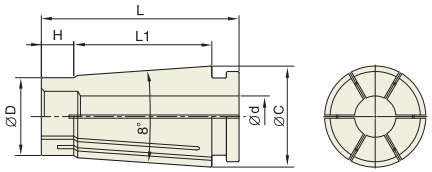
■ SKC COLLET DIMENSION

Unit : mm

TYPE	D	L	L1	H	C	WEIGHT (kg)
SKC6	7.5	25.7	17.6	3.8	10	0.03
SKC10	12	32	21.3	5	15	0.04
SKC13	15.4	39	28.3	5.5	20	
SKC16	18.8	46	32	8	24	0.06
SKC20	22.5	54.2	41	8	29	
SKC25	28.9	58.2	43	8.5	35	0.10

SK COLLET

SK SCHLANKE FUTTER SPANNZANGE
MANDRIN TYPE SK MINCE PINCE DE SERRAGE
SK MANDRINI SOTTILI PINZA DI SERRAGGIO
PORTAHERRAMIENTAS SK EJE REDUCIDO PINZA PORTAPIEZAS



◇T.I.R : ≤0.005mm at 3D

Unit : mm

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC16	SKC16-3	P2730810	2.75 - 3.0
	SKC16-3.5	P2773613	3.0 - 3.5
	SKC16-4	P2730812	3.5 - 4.0
	SKC16-4.5	P2773614	4.0 - 4.5
	SKC16-5	P2773615	4.5 - 5.0
	SKC16-5.5	P2773616	5.0 - 5.5
	SKC16-6	P2730814	5.5 - 6.0
	SKC16-6.5	P2773617	6.0 - 6.5
	SKC16-7	P2773618	6.5 - 7.0
	SKC16-7.5	P2773619	7.0 - 7.5
	SKC16-8	P2730816	7.5 - 8.0
	SKC16-8.5	P2773620	8.0 - 8.5
	SKC16-9	P2773621	8.5 - 9.0
	SKC16-9.5	P2773622	9.0 - 9.5
	SKC16-10	P2730818	9.5 - 10.0
	SKC16-10.5	P2773623	10.0 - 10.5
	SKC16-11	P2773624	10.5 - 11.0
	SKC16-11.5	P2773625	10.0 - 11.5
	SKC16-12	P2730820	11.5 - 12.0
	SKC16-12.5	P2773626	12.0 - 12.5
	SKC16-13	P2773627	12.5 - 13.0
	SKC16-13.5	P2773628	13.0 - 13.5
	SKC16-14	P2773822	13.5 - 14.0
	SKC16-14.5	P2773629	14.0 - 14.5
	SKC16-15	P2773630	14.5 - 15.0
	SKC16-15.5	P2773631	15.0 - 15.5
	SKC16-16	P2730824	15.5 - 16.0

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC20	SKC20-4	P2730830	3.5 - 4.0
	SKC20-4.5	P2773632	4.0 - 4.5
	SKC20-5	P2773633	4.5 - 5.0
	SKC20-5.5	P2773634	5.0 - 5.5
	SKC20-6	P2730832	5.5 - 6.0
	SKC20-6.5	P2773635	6.0 - 6.5
	SKC20-7	P2773636	6.5 - 7.0
	SKC20-7.5	P2773637	7.0 - 7.5
	SKC20-8	P2730834	7.5 - 8.0
	SKC20-8.5	P2773638	8.0 - 8.5
	SKC20-9	P2773639	8.5 - 9.0
	SKC20-9.5	P2773640	9.0 - 9.5
	SKC20-10	P2730836	9.5 - 10.0
	SKC20-10.5	P2773641	10.0 - 10.5
	SKC20-11	P2773642	10.5 - 11.0
	SKC20-11.5	P2773643	11.0 - 11.5
	SKC20-12	P2730838	11.5 - 12.0
	SKC20-12.5	P2773644	12.0 - 12.5
	SKC20-13	P2773645	12.5 - 13.0
	SKC20-13.5	P2773646	13.0 - 13.5
	SKC20-14	P2730840	13.5 - 14.0
	SKC20-14.5	P2773647	14.0 - 14.5
	SKC20-15	P2773648	14.5 - 15.0
	SKC20-15.5	P2773649	15.0 - 15.5
	SKC20-16	P2730842	15.5 - 16.0
	SKC20-16.5	P2773650	16.0 - 16.5
	SKC20-17	P2773651	16.5 - 17.0
	SKC20-17.5	P2773652	17.0 - 17.5
	SKC20-18	P2730844	17.5 - 18.0
	SKC20-18.5	P2773653	18.0 - 18.5
	SKC20-19	P2773654	18.5 - 19.0
	SKC20-19.5	P2773655	19.0 - 19.5
	SKC20-20	P2730846	19.5 - 20.0

TYPE	MODEL No.	EDP No.	CLAMPING RANGE (d)
SKC25	SKC25-16.5	P2773677	16.0 - 16.5
	SKC25-17	P2773678	16.5 - 17.0
	SKC25-17.5	P2773679	17.0 - 17.5
	SKC25-18	P2773680	17.5 - 18.0
	SKC25-18.5	P2773681	18.0 - 18.5
	SKC25-19	P2773682	18.5 - 19.0
	SKC25-19.5	P2773683	19.0 - 19.5
	SKC25-20	P2773684	19.5 - 20.0
	SKC25-20.5	P2773685	20.0 - 20.5
	SKC25-21	P2773686	20.5 - 21.0
	SKC25-21.5	P2773687	21.0 - 21.5
	SKC25-22	P2773688	21.5 - 22.0
	SKC25-22.5	P2773689	22.0 - 22.5
	SKC25-23	P2773690	22.5 - 23.0
	SKC25-23.5	P2773691	23.0 - 23.5
	SKC25-24	P2773692	23.5 - 24.0
	SKC25-24.5	P2773693	24.0 - 24.5
	SKC25-25	P2773694	24.5 - 25.0
	SKC25-25.4	P2773695	25.0 - 25.4

SK NUT

SKN NUSS
SKN ÉCROU
SKN DADO
SKN TUERCA

FIG.1

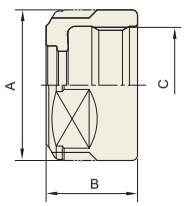
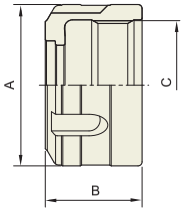


FIG.2



Unit : mm

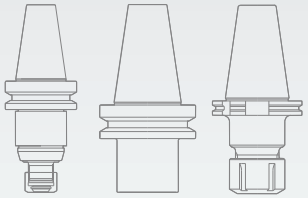
TYPE	EDP No.	A	B	C	FIG.	WEIGHT (kg)
SKN06	P2773581	20	15	M15.5X1.0	1	0.02
SKN10	P2773582	28	17	M21.5X1.0	1	0.04
SKN13	P2773583	33	21	M27X1.0	2	0.05
SKN16	P2773584	40	24	M32X1.5	2	0.06
SKN20	P2773585	48.5	24	M40X1.0	2	0.08
SKN25	P2773586	55	30	M42X1.5	2	0.10

SK SPANNER

MODEL No.	EDP No.
TSK6	P2773588
TSK10	P2773589
TSK13	P2773590
TSK16	P2773591
TSK20	P2773587
TSK25	P2773592

▶ Design and shape could be changed without prior notice.

Global Cutting Tool Leader **YG-1**



TOOLING SYSTEM

YG-1 TOOLING SYSTEM

SYNCHRO TAPPING CHUCK

- SYNCHRO GEWINDESCHNEIDFUTTER
- SYNCHRO TARAUDER
- SINCRO MANDRINI PER MASCHIATURA
- SINCRO PORTAMACHOS

SYNCHRO TAPPING CHUCK (ER TYPE)

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

STRAIGHT-K

SYNCHRO TAPPING CHUCK (QUICK CHANGE TYPE)

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

STRAIGHT-K

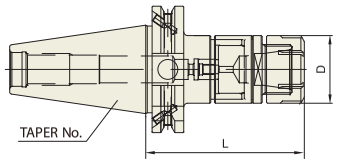
SYNCHRO TAPPING CHUCK

SYTER

SYNCHRO TAPPING CHUCK (ER TYPE)

DIN 69871-SK

SYNCHRO GEWINDESCHNEIDFUTTER (ER)
SYNCHRO TARAUDER (ER)
SINCRO MANDRINI PER MASCHIATURA (ER)
SINCRO PORTAMACHOS (ER)



DIN 69871-SK | AT3 | AD/B

ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	NUT	D	L	WEIGHT (kg)
40	SK40AD/B-SYTER12-79	P2773701	M3-M12	ER16	28	79	1.00
	SK40AD/B-SYTER16-85	P2773702	M3-M16	ER20	34	85	1.08
	SK40AD/B-SYTER20-90	P2773703	M3-M20	ER25	42	90	1.08
	SK40AD/B-SYTER27-100	P2773704	M4-M27	ER32	50	100	1.37
	SK40AD/B-SYTER33-120	P2773705	M4-M33	ER40	63	120	2.16
50	SK50AD/B-SYTER12-79	P2773706	M3-M12	ER16	28	79	2.83
	SK50AD/B-SYTER16-85	P2773707	M3-M16	ER20	34	85	2.86
	SK50AD/B-SYTER20-90	P2773708	M3-M20	ER25	42	90	2.87
	SK50AD/B-SYTER27-100	P2773709	M4-M27	ER32	50	100	3.04
	SK50AD/B-SYTER33-105	P2773710	M4-M33	ER40	63	105	3.93

▶ Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

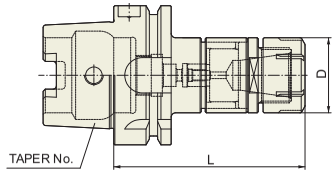
SYNCHRO TAPPING CHUCK

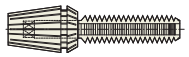
SYTER

SYNCHRO TAPPING CHUCK (ER TYPE)

DIN 69893/ ISO 12164-1-HSK FORM A

SYNCHRO GEWINDESCHNEIDFUTTER (ER)
SYNCHRO TARAUDER (ER)
SINCRO MANDRINI PER MASCHIATURA (ER)
SINCRO PORTAMACHOS (ER)





DIN 69893-HSK | AD

ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	NUT	D	L	WEIGHT (kg)
63A	HSK63A-SYTER16-90	P2773801	M3-M16	ER20	34	90	0.95
	HSK63A-SYTER20-94	P2773802	M3-M20	ER25	42	94	0.95
	HSK63A-SYTER27-105	P2773803	M4-M27	ER32	50	105	1.34

▶ Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

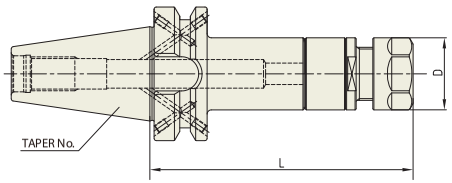
SYNCHRO TAPPING CHUCK

SYTER

SYNCHRO TAPPING CHUCK (ER TYPE)

JIS B6339/ MAS 403-BT

SYNCHRO GEWINDESCHNEIDFUTTER (ER)
SYNCHRO TARAUDER (ER)
SINCRO MANDRINI PER MASCHIATURA (ER)
SINCRO PORTAMACHOS (ER)



JIS 6339 T | AT3 | AD/B

ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	NUT	D	L	WEIGHT (kg)
40	BT40AD/B-SYTER12-79	P2776301	M2-M8	ER16	28	79	1.14
	BT40AD/B-SYTER16-85	P2776302	M3-M10	ER20	34	85	1.17
	BT40AD/B-SYTER20-90	P2776303	M3-M14	ER25	42	90	1.17
	BT40AD/B-SYTER27-100	P2776304	M4-M18	ER32	50	100	1.45
	BT40AD/B-SYTER33-125	P2776305	M8-M24	ER40	63	125	2.40
50	BT50AD/B-SYTER12-100	P2776306	M2-M8	ER16	28	100	3.79
	BT50AD/B-SYTER16-100	P2776307	M3-M10	ER20	34	100	3.79
	BT50AD/B-SYTER20-100	P2776308	M3-M14	ER25	42	100	3.75
	BT50AD/B-SYTER27-110	P2776309	M4-M18	ER32	50	110	3.99
	BT50AD/B-SYTER33-125	P2776310	M8-M24	ER40	63	125	4.75

▶ Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

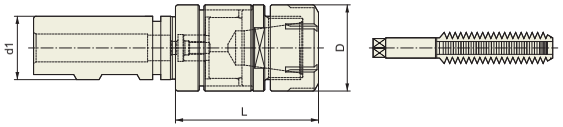
▶ CAT(ANSI B5.50) taper and Inch type products are available.

SYNCHRO TAPPING CHUCK
SYTER

SYNCHRO TAPPING CHUCK (ER TYPE)

STRAIGHT-K

SYNCHRO GEWINDESCHNEIDFUTTER (ER)
SYNCHRO TARAUDER (ER)
SINCRO MANDRINI PER MASCHIATURA (ER)
SINCRO PORTAMACHOS (ER)



ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

MODEL No.	EDP No.	TAP SIZE	NUT / COLLET	D	L	d1	WEIGHT (kg)
K20-SYTER16	P2773901	M3-M16	ER20	34	58	20	0.33
K25-SYTER16	P2773902	M3-M16	ER20	34	61	25	0.44
K25-SYTER27	P2773903	M4-M27	ER32	50	69	25	0.60

▶ Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

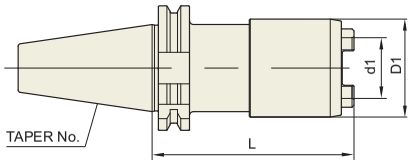
SYNCHRO TAPPING CHUCK

SYTC

SYNCHRO TAPPING CHUCK (QUICK CHANGE TYPE)

DIN69871-SK

SYNCHRO GEWINDESCHNEID-SCHNELLWECHSELFUTTER
SYNCHRO TARAUDER À CHANGEMENT RAPIDE
SINCRO MANDRINO PER MASCHIARE
SINCRO PORTAMACHOS DE CAMBIO RAPIDO



DIN 69871-SK | AT3 | A

Tap Adapter
Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	MATCHING INSERTS	d1	D1	L	WEIGHT (kg)
30	SK30-SYTC12-65	P2774207	M3-M12	1	19	36	65	0.50
	SK30-SYTC20-89	P2774208	M6-M24	2	31	50	89	1.00
40	SK40-SYTC12-65	P2774201	M3-M12	1	19	36	65	1.10
	SK40-SYTC20-79	P2774202	M6-M24	2	31	50	79	1.50
	SK40-SYTC33-115	P2774203	M18-M38	3	48	74	115	3.30
50	SK50-SYTC12-65	P2774204	M3-M12	1	19	36	65	3.00
	SK50-SYTC20-79	P2774205	M6-M24	2	31	50	79	3.30
	SK50-SYTC33-115	P2774206	M18-M38	3	48	74	115	5.20

▶ Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

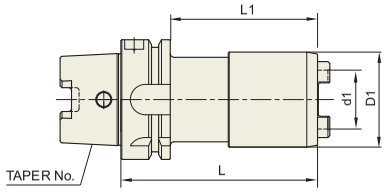
SYNCHRO TAPPING CHUCK

SYTC

SYNCHRO TAPPING CHUCK (QUICK CHANGE TYPE)

DIN 69893/ ISO 12164-1-HSK FORM A

SYNCHRO GEWINDESCHNEID-SCHNELLWECHSELFUTTER
SYNCHRO TARAUDER À CHANGEMENT RAPIDE
SINCRO MANDRINO PER MASCHIARE
SINCRO PORTAMACHOS DE CAMBIO RAPIDO



DIN 69893-HSK | A

Tap Adapter
Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	MATCHING INSERTS	d1	D1	L	L1	WEIGHT (kg)
32A	HSK32A-SYTC12-75	P2774314	M3-M12	1	19	36	75	55	0.32
50A	HSK50A-SYTC12-72	P2774315	M3-M12	1	19	36	72	46	0.54
	HSK50A-SYTC20-91	P2774316	M6-M24	2	31	50	91	65	0.70
63A	HSK63A-SYTC12-75	P2774301	M3-M12	1	19	36	75	49	0.82
	HSK63A-SYTC12-80	P2774302	M3-M12	1	19	36	80	54	0.85
	HSK63A-SYTC12-120	P2774303	M3-M12	1	19	36	120	94	1.08
	HSK63A-SYTC12-152	P2774304	M3-M12	1	19	36	152	126	1.27
	HSK63A-SYTC12-180	P2774305	M3-M12	1	19	36	180	154	1.44
	HSK63A-SYTC20-89	P2774306	M6-M24	2	31	50	89	63	0.84
	HSK63A-SYTC33-121	P2774307	M18-M38	3	48	74	121	95	1.45
100A	HSK100A-SYTC12-75	P2774308	M3-M12	1	19	36	75	43	2.20
	HSK100A-SYTC12-160	P2774309	M3-M12	1	19	36	160	131	2.60
	HSK100A-SYTC20-94	P2774310	M6-M24	2	31	50	94	65	2.39
	HSK100A-SYTC20-160	P2774311	M6-M24	2	31	50	160	131	2.99
	HSK100A-SYTC33-127	P2774312	M18-M38	3	48	74	127	98	3.11
	HSK100A-SYTC33-160	P2774313	M18-M38	3	48	74	160	131	4.03

▶ Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

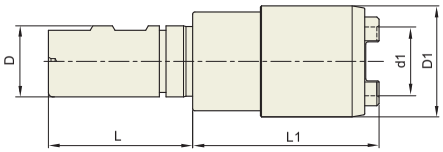
SYNCHRO TAPPING CHUCK

SYTC

SYNCHRO TAPPING CHUCK (QUICK CHANGE TYPE)

STRAIGHT-K

SYNCHRO GEWINDESCHNEID-SCHNELLWECHSELFUTTER
SYNCHRO TARAUDER À CHANGEMENT RAPIDE
SINCRO MANDRINO PER MASCHIARE
SINCRO PORTAMACHOS DE CAMBIO RAPIDO



Tap Adapter
Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	MATCHING INSERTS	d1	D1	L	L1	D	WEIGHT (kg)
20	K20-SYTC12-46	P2774401	M3-M12	1	19	36	50	46	20	0.28
	K20-SYTC12-107.5	P2774406	M3-M12	1	19	36	50	107.5	20	0.65
25	K25-SYTC12-46	P2774402	M3-M12	1	19	36	56	46	25	0.37
	K25-SYTC20-74	P2774403	M6-M24	2	31	50	56	74	25	0.69
	K25-SYTC33-107.5	P2774404	M18-M38	3	48	74	56	107.5	25	1.32
32	K32-SYTC12-74	P2774405	M3-M12	1	31	50	60	74	32	0.71

▶ Feature :
- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

YG-1 TOOLING SYSTEM

ONE STEP TAPPING CHUCK

- GEWINDE-SCHNELLWECHSELFUTTER
- MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE
- PORTAMASCHI A CAMBIO RAPIDO
- MANDRINO DE CAMBIO RÁPIDO CON ROSCA

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

STRAIGHT-KW

JIS B6339/MAS 403-BT

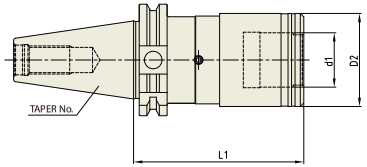
ONE STEP TAPPING CHUCK

OTC

ONE STEP TAPPING CHUCK

DIN69871-SK

GEWINDE-SCHNELLWECHSELFUTTER
MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE
PORTAMASCHI A CAMBIO RAPIDO
MANDRINO DE CAMBIO RÁPIDO CON ROSCA



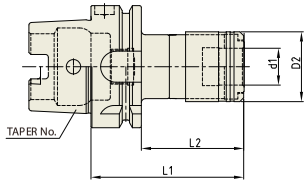
DIN 69871-SK AT3

Tap Adapter, Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	WEIGHT (kg)
40	SK40-OTC-M3 ~ M12	P2802351	19	36	59	1.10
	SK40-OTC-M6 ~ M20	P2802352	31	53	97	1.50
	SK40-OTC-M24 ~ M33	P2802353	48	78	149	3.30
50	SK50-OTC-M3 ~ M12	P2802354	19	36	59	3.00
	SK50-OTC-M6 ~ M20	P2802355	31	53	83	3.30
	SK50-OTC-M24 ~ M33	P2802356	48	78	138	5.20

DIN 69893/ ISO 12164-1-HSK



DIN 69893-HSK

Tap Adapter, Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L1	L2	WEIGHT (kg)
63A	HSK63A-OTC-M3 ~ M12	P2802401	19	36	77	51	-
	HSK63A-OTC-M8 ~ M20	P2802402	31	53	110	84	-
	HSK63A-OTC-M14 ~ M36	P2802403	48	78	155	129	-
100A	HSK100A-OTC-M3 ~ M12	P2802404	19	36	85.5	56.5	-
	HSK100A-OTC-M6 ~ M20	P2802405	31	53	119.5	90.5	-
	HSK100A-OTC-M14 ~ M36	P2802406	48	78	161	132	-

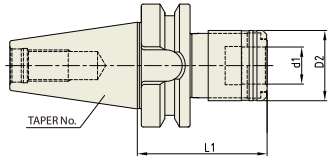
ONE STEP TAPPING CHUCK

OTC

ONE STEP TAPPING CHUCK

JIS B6339/ MAS 403-BT

GEWINDE-SCHNELLWECHSELFUTTER
MANDRIN DE TARAUDAGE À CHANGEMENT RAPIDE
PORTAMASCHI A CAMBIO RAPIDO
MANDRINO DE CAMBIO RÁPIDO CON ROSCA



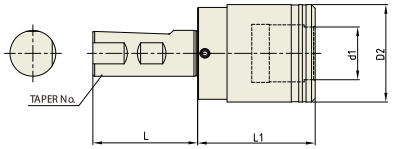
IS 6339 T AT3

Tap Adapter, Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L	WEIGHT (kg)
40	BT40-OTC-M3 ~ M12	P2802451	19	36	66.5	1.10
	BT40-OTC-M6 ~ M20	P2802452	31	53	93.5	1.50
	BT40-OTC-M24 ~ M33	P2802453	48	78	162.5	3.30
50	BT50-OTC-M3 ~ M12	P2802454	19	36	85	3.00
	BT50-OTC-M6 ~ M20	P2802455	31	53	101.5	3.30
	BT50-OTC-M24 ~ M33	P2802456	48	78	141	5.20

STRAIGHT-KW



STRAI HT

Tap Adapter, Refer to page 227-228

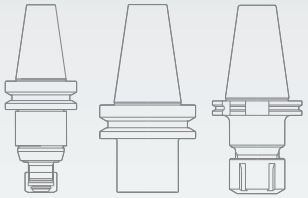
Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D2	L1	L2	WEIGHT (kg)
20	KW20-OTC-M3 ~ M12	P2802457	19	36	51	40	0.80
25	KW25-OTC-M3 ~ M12	P2802458	19	36	57	40	3.00
	KW25-OTC M6 ~M20	P2802459	31	53	57	64	3.30
32	KW32-OTC-M3 ~ M12	P2802460	19	36	60	39	3.00
	KW32-OTC-M8 ~ M20	P2802461	31	53	60.5	63	3.30
	KW32-OTC-M14 ~ M36	P2802462	48	78	61	124	-

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

Global Cutting Tool Leader **YG-1**



TOOLING SYSTEM

YG-1 TOOLING SYSTEM

TAPPING ER CHUCK

- ER - GEWINDESCHNEIDFUTTER
- MANDRIN DE TARAUDAGE PINCE ER
- MANDRINI PORTAPINZA ER PER MASCHIATURA
- PORTAPINZAS ER PARA MACHOS

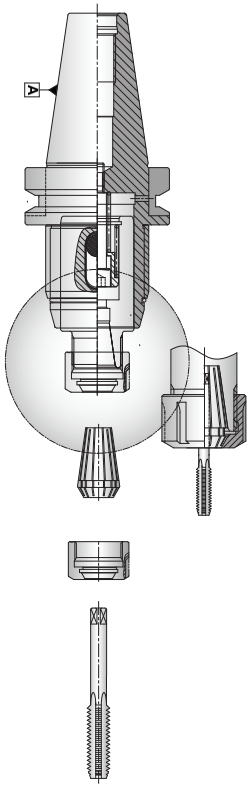
DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

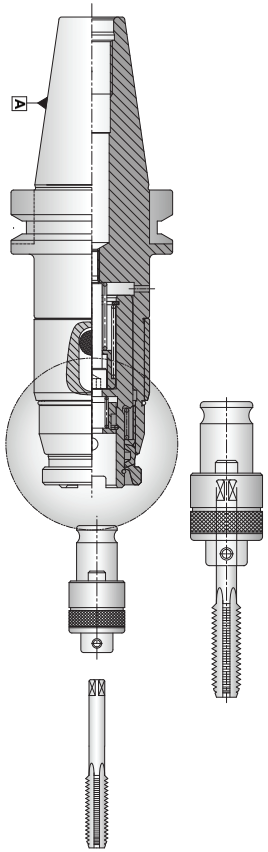
CBT (BT DUAL CONTACT)

JIS B6339/MAS 403-BT

TAPPING ER CHUCK



Tapping ER chuck	Tapping chuck
Minimizing tool interference during machining with short gauge line	Interfered with tool during machining due to long gauge line
Combining strength of strong torque power of ER chuck and tension and compression function of tapping chuck	Tension and compression function
Possible to change suitable tap for machining conditions by replacement of cheaper ER collet (Sharing collet with ER chuck) -> Saving costs	Preparing and changing expensive tap adapter according to machining conditions



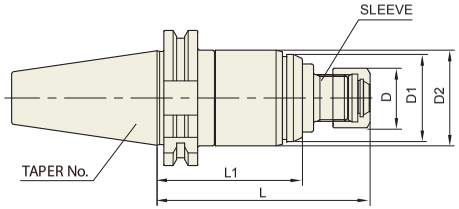
TAPPING ER CHUCK

TER

TAPPING ER CHUCK

DIN 69871-SK

ER - GEWINDESCHNEIDFUTTER
MANDRIN DE TARAUDAGE PINCE ER
MANDRINI PORTAPINZA ER PER MASCHIATURA
PORTAPINZAS ER PARA MACHOS



DIN 69871-SK AT3 A

ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
40	SK40-TER16-100	P2774001	28	41	45	100	68.4	ER16	1.65
	SK40-TER16-150	P2774002	28	41	45	150	118.4	ER16	1.85
	SK40-TER32-130	P2774003	50	58	63	130	92	ER32	2.10
	SK40-TER32-150	P2774004	50	58	63	150	112	ER32	2.30
50	SK50-TER16-115	P2774005	28	41	45	115	79.4	ER16	4.30
	SK50-TER16-150	P2774006	28	41	45	150	114.4	ER16	4.50
	SK50-TER32-120	P2774007	50	58	63	120	83	ER32	4.65
	SK50-TER32-150	P2774008	50	58	63	150	113	ER32	4.85

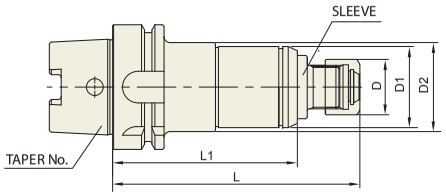
▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

TAPPING ER CHUCK

ER - GEWINDESCHNEIDFUTTER
MANDRIN DE TARAUDAGE PINCE ER
MANDRINI PORTAPINZA ER PER MASCHIATURA
PORTAPINZAS ER PARA MACHOS

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | A

ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
50A	HSK50A-TER16-125	P2774107	28	41	45	125	93.4	ER16	1.20
	HSK50A-TER16-150	P2774108	28	41	45	150	118.4	ER16	1.30
63A	HSK63A-TER16-125	P2774101	28	41	45	125	93.4	ER16	1.70
	HSK63A-TER16-150	P2774102	28	41	45	150	118.4	ER16	1.85
	HSK63A-TER32-150	P2774103	50	58	63	150	112	ER32	2.10
	HSK63A-TER32-180	P2774109	50	58	63	180	142	ER32	2.30
100A	HSK100A-TER16-130	P2774104	28	41	45	130	98.4	ER16	4.00
	HSK100A-TER16-150	P2774105	28	41	45	150	118.4	ER16	4.20
	HSK100A-TER32-150	P2774106	50	58	63	150	112	ER32	4.40
	HSK100A-TER32-180	P2774110	50	58	63	180	142	ER32	4.60

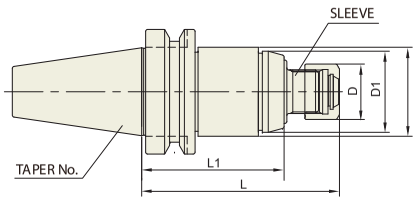
TAPPING ER CHUCK

TER

TAPPING ER CHUCK

ER - GEWINDESCHNEIDFUTTER
MANDRIN DE TARAUDAGE PINCE ER
MANDRINI PORTAPINZA ER PER MASCHIATURA
PORTAPINZAS ER PARA MACHOS

CBT (BT DUAL CONTACT)



CBT | AT3 | A

ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
40	CBT40-TER16-100	P2774151	28	41	45	100	68.4	ER16	1.45
	CBT40-TER16-150	P2774152	28	41	45	150	118.4	ER16	2.00
	CBT40-TER32-110	P2774153	50	58	63	110	72	ER32	2.20
	CBT40-TER32-150	P2774154	50	58	63	150	112	ER32	2.70
50	CBT50-TER16-115	P2774155	28	41	45	115	79.4	ER16	3.95
	CBT50-TER16-150	P2774156	28	41	45	150	114.4	ER16	4.35
	CBT50-TER32-120	P2774157	50	58	63	120	83	ER32	4.70
	CBT50-TER32-150	P2774158	50	58	63	150	113	ER32	5.20

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

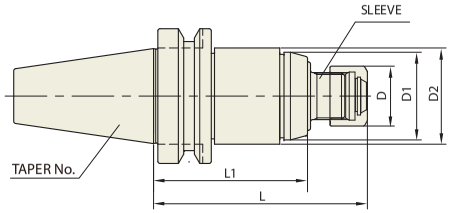
TAPPING ER CHUCK

TER

TAPPING ER CHUCK

JIS B6339/
MAS 403-BT

ER - GEWINDESCHNEIDFUTTER
MANDRIN DE TARAUDAGE PINCE ER
MANDRINI PORTAPINZA ER PER MASCHIATURA
PORTAPINZAS ER PARA MACHOS



JIS 6339 T | AT3 | A

ER collet refer to page 103-107
Tap ER collet refer to page 108-109

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1	D2	L	L1	NUT	WEIGHT (kg)
40	BT40-TER16-100	P2774159	28	41	45	100	68.4	ER16	1.45
	BT40-TER16-150	P2774160	28	41	45	150	118.4	ER16	2.00
	BT40-TER32-110	P2774161	50	58	63	110	72	ER32	2.20
	BT40-TER32-150	P2774162	50	58	63	150	112	ER32	2.70
50	BT50-TER16-115	P2774163	28	41	45	115	79.4	ER16	3.95
	BT50-TER16-150	P2774164	28	41	45	150	114.4	ER16	4.35
	BT50-TER32-120	P2774165	50	58	63	120	83	ER32	4.70
	BT50-TER32-150	P2774166	50	58	63	150	113	ER32	5.20

▶ CAT(ANSI B5.50) taper and Inch type products are available.

YG-1 TOOLING SYSTEM

TAPPING CHUCK

- GEWINDESCHNEID - SCHNELLWECHSELFUTTER
- TARAUDER À CHANGEMENT RAPIDE
- MANDRINO PER MASCHIARE
- PORTAMACHOS DE CAMBIO RAPIDO

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

STRAIGHT-K

DIN 228-MTA

ACCESSORY
TAP ADAPTER

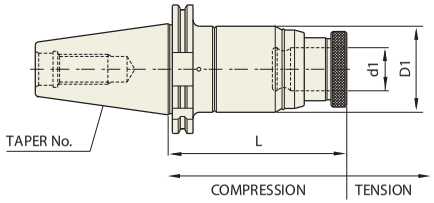
TAPPING CHUCK

TC

TAPPING CHUCK

DIN 69871-SK

GEWINDESCHNEID - SCHNELLWECHSELFUTTER
TARAUDER À CHANGEMENT RAPIDE
MANDRINO PER MASCHIARE
PORTAMACHOS DE CAMBIO RAPIDO



DIN 69871-SK | AT3 | A

Tap Adapter
Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
40	SK40-TC12-90	P2520001	M3-M12	5	15	19	45	90	1.30
	SK40-TC12-130	P2520006	M3-M12	5	15	19	45	130	1.80
	SK40-TC24-120	P2520002	M6-M24	5	20	31	63	120	2.50
	SK40-TC24-142	P2520007	M6-M24	5	20	31	63	142	2.80
50	SK50-TC12-130	P2520003	M3-M12	5	15	19	45	130	4.30
	SK50-TC12-175	P2520008	M3-M12	5	15	19	45	175	5.50
	SK50-TC24-142	P2520004	M6-M24	5	20	31	63	142	5.30
	SK50-TC24-187	P2520009	M6-M24	5	20	31	63	187	7.80
	SK50-TC38-175	P2520005	M18-M38	10	25	48	98	175	7.50

▶ CAT(ANSI B5.50) taper and Inch type products are available.

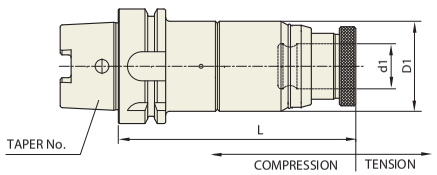
TAPPING CHUCK

TC

TAPPING CHUCK

DIN 69893/
ISO 12164-1-HSK FORM A

GEWINDESCHNEID - SCHNELLWECHSELFUTTER
TARAUDER À CHANGEMENT RAPIDE
MANDRINO PER MASCHIARE
PORTAMACHOS DE CAMBIO RAPIDO



DIN 69893-HSK | A

Tap Adapter
Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
50A	HSK50A-TC12-120	P2774506	M3-M12	5	15	19	45	120	0.80
63A	HSK63A-TC12-120	P2774501	M3-M12	5	15	19	45	120	1.00
	HSK63A-TC12-150	P2774507	M3-M12	5	15	19	45	150	1.70
	HSK63A-TC24-142	P2774502	M6-M24	5	20	31	63	142	2.40
	HSK63A-TC24-172	P2774508	M6-M24	5	20	31	63	172	2.70
100A	HSK100A-TC12-130	P2774503	M3-M12	5	15	19	45	130	4.30
	HSK100A-TC12-175	P2774509	M3-M12	5	15	19	45	175	4.80
	HSK100A-TC12-220	P2774510	M3-M12	5	15	19	45	220	5.30
	HSK100A-TC24-142	P2774504	M6-M24	5	20	31	63	142	5.20
	HSK100A-TC24-187	P2774511	M6-M24	5	20	31	63	187	6.60
	HSK100A-TC38-200	P2774505	M18-M38	10	25	48	98	200	8.00

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

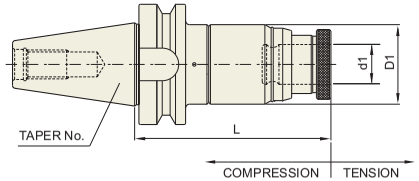
TAPPING CHUCK

TC

TAPPING CHUCK

JIS B6339/
MAS 403-BT

GEWINDESCHNEID - SCHNELLWECHSELFUTTER
TARAUDER À CHANGEMENT RAPIDE
MANDRINO PER MASCHIARE
PORTAMACHOS DE CAMBIO RAPIDO



JIS 6339 T | AT3 | A

Tap Adapter
Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
30	BT30-TC12-105	P2778401	M3-M12	5	15	19	45	105	1.00
40	BT40-TC12-90	P2540011	M3-M12	5	15	19	45	95	1.50
	BT40-TC12-130	P2778403	M3-M12	5	15	19	45	130	1.60
	BT40-TC24-100	P2540002	M6-M24	5	20	31	63	100	2.10
	BT40-TC24-142	P2778405	M6-M24	5	20	31	63	142	2.90
50	BT50-TC12-130	P2540003	M3-M12	5	15	19	45	130	4.20
	BT50-TC12-175	P2778407	M3-M12	5	15	19	45	175	4.80
	BT50-TC12-220	P2778408	M3-M12	5	15	19	45	220	5.10
	BT50-TC24-142	P2540004	M6-M24	5	20	31	63	142	5.80
	BT50-TC24-187	P2778410	M6-M24	5	20	31	63	187	6.00
	BT50-TC38-175	P2540005	M18-M38	10	25	48	98	175	8.30

▶ CAT(ANSI B5.50) taper and Inch type products are available.

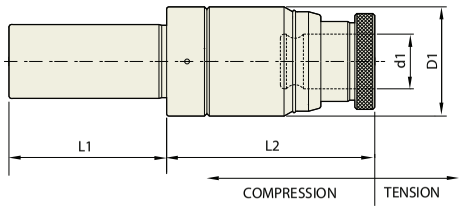
TAPPING CHUCK

TC

TAPPING CHUCK

STRAIGHT-K

GEWINDESCHNEID-SCHNELLWECHSELFUTTER - GERADEAUS SCHAFT
TARAUDER À CHANGEMENT RAPIDE - TOUT DROIT TIGE
MANDRINO PER MASCHIARE -TIBIA DIRITTA
PORTAMACHOS DE CAMBIO RAPIDO - CANA RECTA



Tap Adapter
Refer to page 227-228

Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L1	L2	WEIGHT (kg)
				Comp.	Ten.					
32	K32-TC12-100	P2774551	M3-M12	5	15	19	45	60	100	0.90
	K32-TC24-120	P2774552	M6-M24	5	20	31	63	60	120	1.40
42	K42-TC12-100	P2774553	M3-M12	5	15	19	45	70	100	1.10
	K42-TC24-120	P2774554	M6-M24	5	20	31	63	70	120	1.60

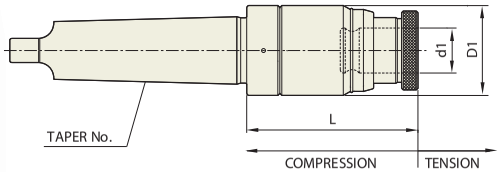
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

TAPPING CHUCK

DIN 228-MTA

GEWINDESCHNEID-SCHNELLWECHSELFUTTER - GERADEAUS SCHAFT
TARAUDER À CHANGEMENT RAPIDE - TOUT DROIT TIGE
MANDRINO PER MASCHIARE - TIBIA DIRITTA
PORTAMACHOS DE CAMBIO RAPIDO - CANA RECTA



Tap Adapter
Refer to page 227-228

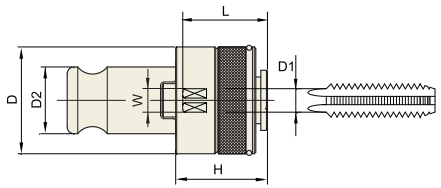
Unit : mm

TAPER No.	MODEL No.	EDP No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	WEIGHT (kg)
				Comp.	Ten.				
3	MTA3-TC12-90	P2774555	M3-M12	5	15	19	45	90	1.00
	MTA3-TC24-115	P2774556	M6-M24	5	20	31	63	115	2.00
4	MTA4-TC12-105	P2774557	M3-M12	5	15	19	45	105	1.20
	MTA4-TC24-115	P2774558	M6-M24	5	20	31	63	115	2.20
5	MTA5-TC12-145	P2774559	M3-M12	5	15	19	45	145	1.50
	MTA5-TC24-175	P2774560	M6-M24	5	20	31	63	175	2.60

TAP ADAPTER (JIS)

Below standard
Tap Adapter conforms to JIS

SCHNELLWECHSEL-EINSATZ
ADAPTATEUR CHANGEMENT RAPIDE
BUSSOLA A INNESTO RAPIDO
INSERTO DE CAMBIO RAPIDO



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1 (Ø)	D2	H	W (□)	L	WEIGHT (kg)
TCS12	TCS12-M3	P2774651	32	4	19	25	3.2	24	0.18
	TCS12-M4	P2774652	32	5	19	25	4.	24	0.18
	TCS12-M5	P2774653	32	5.5	19	25	4.5	24	0.18
	TCS12-M6, U1/4	P2774654	32	6	19	25	4.5	24	0.18
	TCS12-M8	P2774655	32	6.2	19	25	5	25	0.18
	TCS12-M10, U3/8	P2774656	32	7	19	25	5.5	25	0.18
	TCS12-M12	P2774657	32	8.5	19	25	6.5	26	0.18
TCS24	TCS24-M6	P2774658	52	6	31	33	4.5	38	0.60
	TCS24-M8	P2774659	52	6.2	31	33	5	38	0.60
	TCS24-M10	P2774660	52	7	31	33	5.5	38	0.60
	TCS24-M12	P2774661	52	8.5	31	33	6.5	39	0.60
	TCS24-M14, U3/4	P2774662	52	10.5	31	33	8	41	0.60
	TCS24-M16	P2774663	52	12.5	31	33	10	43	0.60
	TCS24-M18, P3/8	P2774664	52	14	31	33	11	43	0.60
	TCS24-M20	P2774665	52	15	31	33	12	43.5	0.60
	TCS24-M22, U7/8	P2774666	52	17	31	33	13	46	0.60
	TCS24-M24, PF5/8	P2774667	52	19	31	33	15	46	0.60
TCS38	TCS38-M18	P2774668	72	14	48	45	11	43	1.80
	TCS38-M20	P2774669	72	15	48	45	12	43.5	1.80
	TCS38-M22	P2774670	72	17	48	45	13	45	1.80
	TCS38-M24	P2774671	72	19	48	45	15	45	1.80
	TCS38-M27, U1	P2774672	72	20	48	45	15	62	1.80
	TCS38-M30, PT3/4	P2774673	72	23	48	45	17	64	1.80
	TCS38-M33	P2774674	72	25	48	45	19	66	1.80
	TCS38-M36	P2774675	72	28	48	45	21	68	1.80
	TCS38-M38	P2774676	72	28	48	45	21	68	1.80

▶ Feature : Quick Change Type with Built-in Torque Safety Device
▶ For Pipe Type Tap, please discuss separately.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

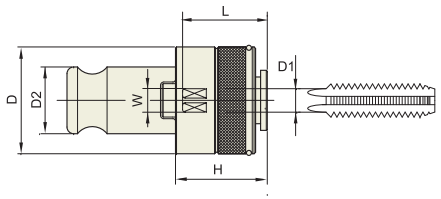
TAPPING CHUCK

TC

TAP ADAPTER (DIN)

SCHNELLWECHSEL-EINSATZ
ADAPTATEUR CHANGEMENT RAPIDE
BUSSOLA A INNESTO RAPIDO
INSERTO DE CAMBIO RAPIDO

Below standard
Tap Adapter conforms to DIN



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	D1 (Ø)	D2	H	W (□)	L	DIN No.	WEIGHT (kg)
TSC12D	TCS12D-2821	P2774601	32	2.8	19	25	2.1	24	371	0.20
	TCS12D-3527	P2774602	32	3.5	19	25	2.7	24	371	0.20
	TCS12D-4534	P2774603	32	4.5	19	25	3.4	24	371	0.20
	TCS12D-43	P2774604	32	4	19	25	3	24	371	0.20
	TCS12D-5543	P2774605	32	5.5	19	25	4.3	25	376	0.20
	TCS12D-649	P2774606	32	6	19	25	4.9	25	371	0.20
	TCS12D-755	P2774607	32	7	19	25	5.5	25	376	0.20
	TCS12D-862	P2774608	32	8	19	25	6.2	25	371	0.20
	TCS12D-97	P2774609	32	9	19	25	7	26	376	0.20
	TCS12D-108	P2774610	32	10	19	25	8	26	371	0.20
	TCS12D-119	P2774611	32	11	19	25	9	26	376	0.20
TCS24D	TCS24D-649	P2774612	52	6	31	33	4.9	38	371	0.60
	TCS24D-755	P2774613	52	7	31	33	5.5	38	376	0.60
	TCS24D-862	P2774614	52	8	31	33	6.2	38	371	0.60
	TCS24D-97	P2774615	52	9	31	33	7	38	376	0.60
	TCS24D-108	P2774616	52	10	31	33	8	39	371	0.60
	TCS24D-119	P2774617	52	11	31	33	9	41	376	0.60
	TCS24D-129	P2774618	52	12	31	33	9	43	376	0.60
	TCS24D-1411	P2774619	52	14	31	33	11	43	376	0.60
	TCS24D-1612	P2774620	52	16	31	33	12	46	376	0.60
	TCS24D-18145	P2774621	52	18	31	33	14.5	46	376	0.60
TCS38D	TCS38D-119	P2774622	72	11	48	45	9	43	376	1.80
	TCS38D-129	P2774623	72	12	48	45	9	43	376	1.80
	TCS38D-1411	P2774624	72	14	48	45	11	45	376	1.80
	TCS38D-1612	P2774625	72	16	48	45	12	45	376	1.80
	TCS38D-18145	P2774626	72	18	48	45	14.5	62	376	1.80
	TCS38D-2016	P2774627	72	20	48	45	16	64	376	1.80
	TCS38D-2218	P2774628	72	22	48	45	18	66	376	1.80
	TCS38D-2520	P2774629	72	25	48	45	20	68	376	1.80
	TCS38D-2822	P2774630	72	28	48	45	22	68	376	1.80

▶ Feature : Quick Change Type with Built-in Torque Safety Device
▶ For Pipe Type Tap, please discuss separately.

YG-1 TOOLING SYSTEM

FACE MILL ARBOR

- AUFNAHMEDORN FÜR MESSERKÖPFE
- ARBRE PORTE FRAISE À ALÉSAGE
- MANDRINO PORTA FRESE FRONTALE
- EJE PARA PLATOS DE PLACAS

CBT (BT DUAL CONTACT)
FMA

JIS B6339/MAS 403-BT
FMA

DIN 69893/ISO 12164-1-HSK
FMA

ANSI B5.18-NT
FMA

DIN 228-MTA

CBT (BT DUAL CONTACT)
FMB / FMC

JIS B6339/MAS 403-BT
FMB / FMC

DIN 69893/ISO 12164-1-HSK
FMC

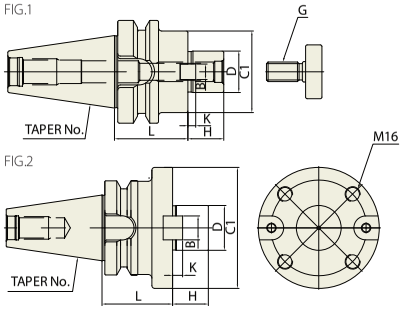
PARTS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

CBT
(BT DUAL CONTACT)



CBT | AT3 | 2.5G | 25,000 RPM | A

Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C1	H	B	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMA25.4-45	P2779201	25.4	45	50	22	9.5	5	M12	1	1.10
	CBT30-FMA31.75-45	P2779202	31.75	45	60	30	12.7	7	M16	1	1.20
40	CBT40-FMA25.4-45	P2779203	25.4	45	50	22	9.5	5	M12	1	1.50
	CBT40-FMA25.4-90	P2779204	25.4	90	50	22	9.5	5	M12	1	3.10
	CBT40-FMA31.75-45	P2779205	31.75	45	60	30	12.7	7	M16	1	1.90
	CBT40-FMA31.75-75	P2779206	31.75	75	60	30	12.7	7	M16	1	2.70
	CBT40-FMA38.1-60	P2779207	38.1	60	80	34	15.9	9	M20	1	2.90
50	CBT50-FMA25.4-45	P2779208	25.4	45	50	22	9.5	5	M12	1	3.70
	CBT50-FMA25.4-90	P2779209	25.4	90	50	22	9.5	5	M12	1	4.60
	CBT50-FMA25.4-150	P2779210	25.4	150	50	22	9.5	5	M12	1	5.50
	CBT50-FMA31.75-45	P2779211	31.75	45	60	30	12.7	7	M16	1	4.50
	CBT50-FMA31.75-75	P2779212	31.75	75	60	30	12.7	7	M16	1	5.30
	CBT50-FMA31.75-105	P2779213	31.75	105	60	30	12.7	7	M16	1	5.80
	CBT50-FMA31.75-150	P2779214	31.75	150	60	30	12.7	7	M16	1	6.30
	CBT50-FMA38.1-45	P2779215	38.1	45	80	34	15.9	9	M20	1	4.30
	CBT50-FMA38.1-75	P2779216	38.1	75	80	34	15.9	9	M20	1	5.60
	CBT50-FMA38.1-105	P2779217	38.1	105	80	34	15.9	9	M20	1	6.00
	CBT50-FMA38.1-150	P2779218	38.1	150	80	34	15.9	9	M20	1	6.50
	CBT50-FMA50.8-45	P2779219	50.8	45	100	36	19.05	10	M24	1	4.90
	CBT50-FMA50.8-75	P2779220	50.8	75	100	36	19.05	10	M24	1	6.80
	CBT50-FMA47.625-75	P2779221	47.625	75	128.57	38	25.4	12.5	-	2	7.70

▶ Without "Coolant Through".

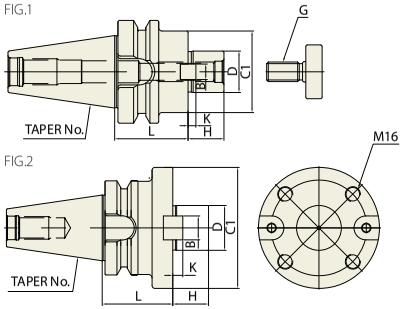
FACE MILL ARBOR

FMA

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

JIS B6339/
MAS 403-BT



IS 6339 T | AT3 | 6.3G | 15,000 RPM | A

Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C1	H	B	K	G	FIG.	WEIGHT (kg)
30	BT30-FMA25.4-45	P2779222	25.4	45	50	22	9.5	5	M12	1	1.10
	BT30-FMA31.75-45	P2779223	31.75	45	60	30	12.7	7	M16	1	1.20
40	BT40-FMA25.4-45	P2779224	25.4	45	50	22	9.5	5	M12	1	1.50
	BT40-FMA25.4-90	P2779225	25.4	90	50	22	9.5	5	M12	1	3.10
	BT40-FMA31.75-45	P2779226	31.75	45	60	30	12.7	7	M16	1	1.90
	BT40-FMA31.75-75	P2779227	31.75	75	60	30	12.7	7	M16	1	2.70
	BT40-FMA38.1-60	P2779228	38.1	60	80	34	15.9	9	M20	1	2.90
50	BT50-FMA25.4-45	P2779229	25.4	45	50	22	9.5	5	M12	1	3.70
	BT50-FMA25.4-90	P2779230	25.4	90	50	22	9.5	5	M12	1	4.60
	BT50-FMA25.4-150	P2779231	25.4	150	50	22	9.5	5	M12	1	5.50
	BT50-FMA31.75-45	P2779232	31.75	45	60	30	12.7	7	M16	1	4.50
	BT50-FMA31.75-75	P2779233	31.75	75	60	30	12.7	7	M16	1	5.30
	BT50-FMA31.75-105	P2779234	31.75	105	60	30	12.7	7	M16	1	5.80
	BT50-FMA31.75-150	P2779235	31.75	150	60	30	12.7	7	M16	1	6.30
	BT50-FMA38.1-45	P2779236	38.1	45	80	34	15.9	9	M20	1	4.30
	BT50-FMA38.1-75	P2779237	38.1	75	80	34	15.9	9	M20	1	5.60
	BT50-FMA38.1-105	P2779238	38.1	105	80	34	15.9	9	M20	1	6.00
	BT50-FMA38.1-150	P2779239	38.1	150	80	34	15.9	9	M20	1	6.50
	BT50-FMA50.8-45	P2779240	50.8	45	100	36	19.05	10	M24	1	4.90
	BT50-FMA50.8-75	P2779241	50.8	75	100	36	19.05	10	M24	1	6.80
	BT50-FMA47.625-75	P2779242	47.625	75	128.57	38	25.4	12.5	-	2	7.70

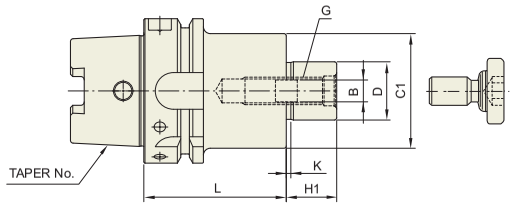
▶ Without "Coolant Through".
▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

DIN 69893/ ISO 12164-1-HSK FORM A



DIN 69893-HSK | AT3 | 6.3G | 15,000 RPM | A

Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	C1	L	H1	B	K	G	WEIGHT (kg)
40A	HSK40A-FMA25.4-50	P2779243	25.4	50	50	22	9.5	5	M12	0.61
50A	HSK50A-FMA25.4-60	P2779244	25.4	50	60	22	9.5	5	M12	0.90
63A	HSK63A-FMA25.4-45	P2779245	25.4	50	45	22	9.5	5	M12	1.03
	HSK63A-FMA31.75-50	P2779246	31.75	60	50	30	12.7	7	M16	1.26
100A	HSK100A-FMA25.4-45	P2779247	25.4	50	45	22	9.5	5	M12	2.31
	HSK100A-FMA31.75-50	P2779248	31.75	60	50	30	12.7	7	M16	2.61
	HSK100A-FMA38.1-55	P2779249	38.1	80	55	34	15.9	9	M20	3.22
	HSK100A-FMA50.8-60	P2779250	50.8	100	60	36	19.05	10	M24	4.06

▶ Without "Coolant Through".

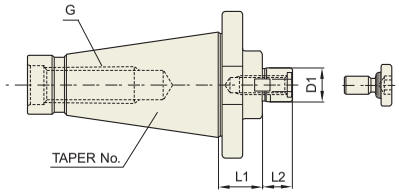
FACE MILL ARBOR

FMA

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

ANSI B5.18-NT



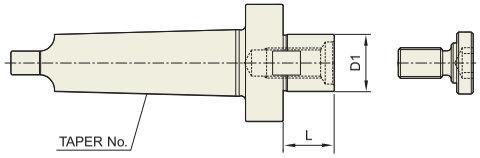
DIN 2080-NT | AT3 | A

Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	CUTTER (Ø)	D1	L1	L2	DRAW THREAD	OLD MODEL No.	WEIGHT (kg)
40	NT40-FMA25.4	P2779251	3"(75)	25.4	30	22	U5/8-11(M16×2)	NT40-3R	1.45
	NT40-FMA31.75	P2779252	4"(100)	31.75	30	30	U5/8-11(M16×2)	NT40-4R	1.75
	NT40-FMA38.1	P2779253	5"(125)	38.1	30	34	U5/8-11(M16×2)	NT40-5R	1.93
	NT40-FMA50.8	P2779254	6"(150)	50.8	30	36	U5/8-11(M16×2)	NT40-6R	2.55
50	NT50-FMA25.4	P2779255	3"(75)	25.4	30	22	U1-8(M24×3)	NT50-3R	3.30
	NT50-FMA31.75	P2779256	4"(100)	31.75	30	30	U1-8(M24×3)	NT50-4R	3.40
	NT50-FMA38.1	P2779257	5"(125)	38.1	30	34	U1-8(M24×3)	NT50-5R	3.60
	NT50-FMA50.8	P2779258	6"(150)	50.8	30	36	U1-8(M24×3)	NT50-6R	3.90
	NT50-FMA47.625	P2779259	8"(200)	47.625	45	38	U1-8(M24×3)	NT50-8R	4.90

DIN 228-MTA



Tap Parts, Refer to page 239

Unit : mm

TAPER No.	MODEL No.	EDP No.	CUTTER (Ø)	D1	L	WEIGHT (kg)
5	MTA5-FMA25.4	P2779260	3"(75)	25.4	22	1.60
	MTA5-FMA31.75	P2779261	4"(100)	31.75	30	1.90
	MTA5-FMA38.1	P2779262	5"(125)	38.1	34	2.20
6	MTA6-FMA25.4	P2779263	3"(75)	25.4	22	3.50
	MTA6-FMA31.75	P2779264	4"(100)	31.75	30	3.80
	MTA6-FMA38.1	P2779265	5"(125)	38.1	34	4.10
	MTA6-FMA50.8	P2779266	6"(150)	50.8	36	4.60
	MTA6-FMA47.625	P2779267	8"(200)	47.625	38	5.40

FACE MILL ARBOR

FMB

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

CBT (BT DUAL CONTACT)

FIG.1

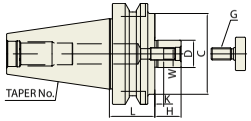


FIG.2

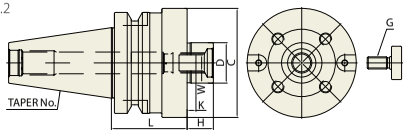
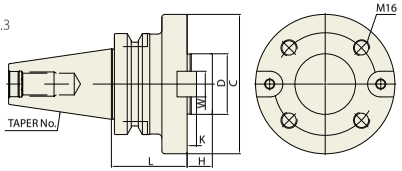


FIG.3



CBT | AT3 | 2.5G | 25,000 RPM | A

Tap Parts, Refer to page 239

◆ METRIC TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMB27-45	P2779316	27	45	80	26	12	6	M12	1	2.10
40	CBT40-FMB27-60	P2779269	27	60	80	26	12	6	M12	1	2.50
	CBT40-FMB27-90	P2779270	27	90	80	26	12	6	M12	1	4.70
	CBT40-FMB40-60	P2779271	40	60	85	26	16	8.5	M20	1	7.40
50	CBT50-FMB27-45	P2779272	27	45	80	26	12	6	M12	1	4.00
	CBT50-FMB27-90	P2779273	27	90	80	26	12	6	M12	1	5.80
	CBT50-FMB27-150	P2779274	27	150	80	26	12	6	M12	1	8.20
	CBT50-FMB40-45	P2779275	40	45	85	26	16	8.5	M20	1	4.70
	CBT50-FMB40-75	P2779276	40	75	85	26	16	8.5	M20	1	6.10
	CBT50-FMB40-105	P2779277	40	105	85	26	16	8.5	M20	1	8.10
	CBT50-FMB40F-75	P2779278	40	75	110	26	16	8.5	M20	2	6.60
	CBT50-FMB60-75	P2779279	60	75	140	25	25.4	12.5	-	3	7.90

◆ INCH TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMB25.4-45	P2779314	25.4	45	80	26	9.5	5	M12	1	2.10
40	CBT40-FMB25.4-60	P2779281	25.4	60	80	26	9.5	5	M12	1	2.50
	CBT40-FMB25.4-90	P2779282	25.4	90	80	26	9.5	5	M12	1	4.70
	CBT40-FMB38.1-60	P2779283	38.1	60	85	26	15.9	9	M20	1	7.40
50	CBT50-FMB25.4-45	P2779284	25.4	45	80	26	9.5	5	M12	1	4.00
	CBT50-FMB25.4-90	P2779285	25.4	90	80	26	9.5	5	M12	1	5.80
	CBT50-FMB25.4-150	P2779286	25.4	150	80	26	9.5	5	M12	1	8.20
	CBT50-FMB38.1-45	P2779287	38.1	45	85	26	15.9	9	M20	1	4.70
	CBT50-FMB38.1-75	P2779288	38.1	75	85	26	15.9	9	M20	1	6.10
	CBT50-FMB38.1-105	P2779289	38.1	105	85	26	15.9	9	M20	1	8.70
	CBT50-FMB38.F-75	P2779290	38.1	75	110	26	15.9	9	M20	2	6.60

▶ Without "Coolant Through".

FACE MILL ARBOR

FMB

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

JIS B6339/ MAS 403-BT

FIG.1

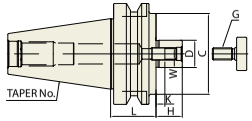


FIG.2

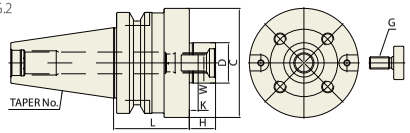
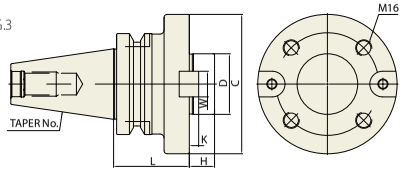


FIG.3



IS 6339 T | AT3 | 6.3G | 15,000 RPM | A

Tap Parts, Refer to page 239

◆ METRIC TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMB27-45	P2779291	27	45	80	26	12	6	M12	1	2.10
40	BT40-FMB27-60	P2779292	27	60	80	26	12	6	M12	1	2.50
	BT40-FMB27-90	P2779293	27	90	80	26	12	6	M12	1	4.70
	BT40-FMB40-60	P2779294	40	60	85	26	16	8.5	M20	1	7.40
50	BT50-FMB27-45	P2779295	27	45	80	26	12	6	M12	1	4.00
	BT50-FMB27-90	P2779296	27	90	80	26	12	6	M12	1	5.80
	BT50-FMB27-150	P2779297	27	150	80	26	12	6	M12	1	8.20
	BT50-FMB40-45	P2779298	40	45	85	26	16	8.5	M20	1	4.70
	BT50-FMB40-75	P2779299	40	75	85	26	16	8.5	M20	1	6.10
	BT50-FMB40-105	P2779300	40	105	85	26	16	8.5	M20	1	8.10
	BT50-FMB40F-75	P2779301	40	75	110	26	16	8.5	M20	2	6.60
	BT50-FMB60-75	P2779302	60	75	140	25	25.4	12.5	-	3	7.90

◆ INCH TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMB25.4-45	P2779315	25.4	45	80	26	9.5	5	M12	1	2.10
40	BT40-FMB25.4-60	P2779304	25.4	60	80	26	9.5	5	M12	1	2.50
	BT40-FMB25.4-90	P2779305	25.4	90	80	26	9.5	5	M12	1	4.70
	BT40-FMB38.1-60	P2779306	38.1	60	85	26	15.9	9	M20	1	7.40
50	BT50-FMB25.4-45	P2779307	25.4	45	80	26	9.5	5	M12	1	4.00
	BT50-FMB25.4-90	P2779308	25.4	90	80	26	9.5	5	M12	1	5.80
	BT50-FMB25.4-150	P2779309	25.4	150	80	26	9.5	5	M12	1	8.20
	BT50-FMB38.1-45	P2779310	38.1	45	85	26	15.9	9	M20	1	4.70
	BT50-FMB38.1-75	P2779311	38.1	75	85	26	15.9	9	M20	1	6.10
	BT50-FMB38.1-105	P2779312	38.1	105	85	26	15.9	9	M20	1	8.70
	BT50-FMB38.F-75	P2779313	38.1	75	110	26	15.9	9	M20	2	6.60

▶ Without "Coolant Through".
▶ CAT(ANSI B5.50) taper and Inch type products are available.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

CBT
(BT DUAL CONTACT)

FIG.1

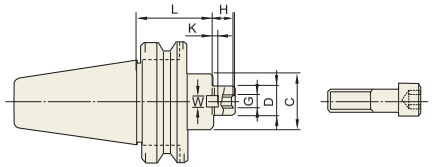
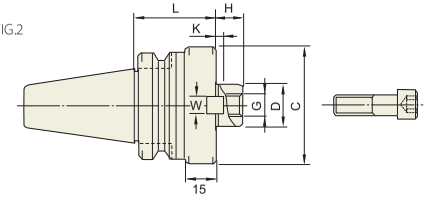


FIG.2



CBT | AT3 | 2.5G | 25,000 RPM | A

Tap Parts, Refer to page 239

◆ METRIC TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMC22-45	P2776131	22	45	45	18	10	5	M10	2	0.80
40	CBT40-FMC22-45	P2776132	22	45	45	18	10	5	M10	1	1.30
	CBT40-FMC27-60	P2776133	27	60	70	20	12	6	M12	2	1.50
	CBT40-FMC32-60	P2776134	32	60	85	22	14	7	M16	2	2.30
50	CBT50-FMC22-60	P2776135	22	60	45	18	10	5	M10	1	4.20
	CBT50-FMC22-105	P2776136	22	105	45	18	10	5	M10	1	4.70
	CBT50-FMC22-150	P2776137	22	150	45	18	10	5	M10	1	5.30
	CBT50-FMC27-45	P2776138	27	45	70	20	12	6	M12	1	4.10
	CBT50-FMC27-90	P2776139	27	90	70	20	12	6	M12	1	5.50
	CBT50-FMC27-150	P2776140	27	150	70	20	12	6	M12	1	7.30
	CBT50-FMC32-60	P2776141	32	60	85	22	14	7	M16	1	4.20
	CBT50-FMC32-105	P2776142	32	105	85	22	14	7	M16	1	5.50
	CBT50-FMC32-150	P2776143	32	150	85	22	14	7	M16	1	7.00

◆ INCH TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	CBT30-FMC25.4-45	P2776144	25.4	45	70	20	9.5	6	M12	2	1.10
40	CBT40-FMC25.4-60	P2776145	25.4	60	70	20	9.5	6	M12	2	1.50
	CBT40-FMC25.4-90	P2776146	25.4	90	70	20	9.5	6	M12	2	2.20
	CBT40-FMC38.1-60	P2776147	38.1	60	85	22	15.9	7	M16	2	2.30
	CBT40-FMC38.1-75	P2776148	38.1	75	85	22	15.9	7	M16	2	2.60
50	CBT50-FMC25.4-45	P2776149	25.4	45	70	20	9.5	6	M12	1	4.10
	CBT50-FMC25.4-90	P2776150	25.4	90	70	20	9.5	6	M12	1	5.50
	CBT50-FMC25.4-150	P2776151	25.4	150	70	20	9.5	6	M12	1	7.30
	CBT50-FMC38.1-45	P2776152	38.1	45	85	22	15.9	7	M16	1	4.20
	CBT50-FMC38.1-75	P2776153	38.1	75	85	22	15.9	7	M16	1	5.50
	CBT50-FMC38.1-105	P2776154	38.1	105	85	22	15.9	7	M16	1	7.00

▶ Without "Coolant Through".

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

JIS B6339/
MAS 403-BT

FIG.1

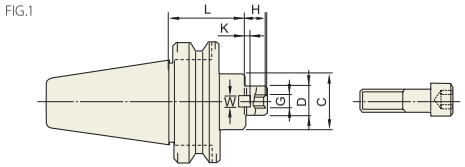
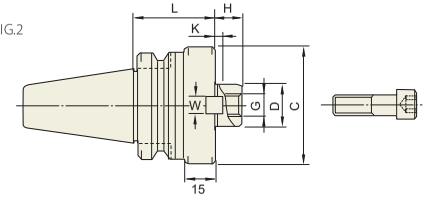


FIG.2



IS 6339 T | AT3 | 6.3G | 15,000 RPM | A

Tap Parts, Refer to page 239

◆ METRIC TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMC22-45	P2776101	22	45	45	18	10	5	M10	2	0.80
40	BT40-FMC22-45	P2776102	22	45	45	18	10	5	M10	1	1.30
	BT40-FMC27-60	P2776103	27	60	70	20	12	6	M12	2	1.50
	BT40-FMC32-60	P2776104	32	60	85	22	14	7	M16	2	2.30
50	BT50-FMC22-60	P2776105	22	60	45	18	10	5	M10	1	4.20
	BT50-FMC22-105	P2776106	22	105	45	18	10	5	M10	1	4.70
	BT50-FMC22-150	P2776107	22	150	45	18	10	5	M10	1	5.30
	BT50-FMC27-45	P2776108	27	45	70	20	12	6	M12	1	4.10
	BT50-FMC27-90	P2776109	27	90	70	20	12	6	M12	1	5.50
	BT50-FMC27-150	P2776110	27	150	70	20	12	6	M12	1	7.30
	BT50-FMC32-60	P2776111	32	60	85	22	14	7	M16	1	4.20
	BT50-FMC32-105	P2776112	32	105	85	22	14	7	M16	1	5.50
	BT50-FMC32-150	P2776113	32	150	85	22	14	7	M16	1	7.00

◆ INCH TYPE

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	C	H	W	K	G	FIG.	WEIGHT (kg)
30	BT30-FMC25.4-45	P2776114	25.4	45	70	20	9.5	6	M12	2	1.10
40	BT40-FMC25.4-60	P2776115	25.4	60	70	20	9.5	6	M12	2	1.50
	BT40-FMC25.4-90	P2776116	25.4	90	70	20	9.5	6	M12	2	2.20
	BT40-FMC38.1-60	P2776117	38.1	60	85	22	15.9	7	M16	2	2.30
	BT40-FMC38.1-75	P2776118	38.1	75	85	22	15.9	7	M16	2	2.60
50	BT50-FMC25.4-45	P2776119	25.4	45	70	20	9.5	6	M12	1	4.10
	BT50-FMC25.4-90	P2776120	25.4	90	70	20	9.5	6	M12	1	5.50
	BT50-FMC25.4-150	P2776121	25.4	150	70	20	9.5	6	M12	1	7.30
	BT50-FMC38.1-45	P2776122	38.1	45	85	22	15.9	7	M16	1	4.20
	BT50-FMC38.1-75	P2776123	38.1	75	85	22	15.9	7	M16	1	5.50
	BT50-FMC38.1-105	P2776124	38.1	105	85	22	15.9	7	M16	1	7.00

▶ Without "Coolant Through".
▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

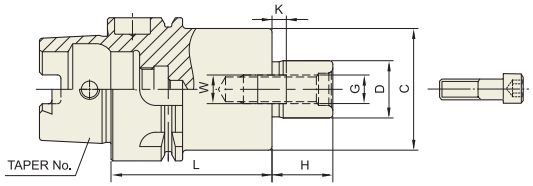
FACE MILL ARBOR

FMC

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE
ARBRE PORTE FRAISE À ALÉSAGE
MANDRINO PORTA FRESE FRONTALE
EJE PARA PLATOS DE PLACAS

DIN 69893/
ISO 12164-1-HSK FORM A



DIN 69893-HSK | AT3 | 6.3G | 15,000 RPM | A

Tap Parts, Refer to page 239

Unit : mm

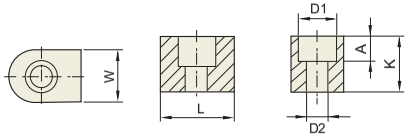
TAPER No.	MODEL No.	EDP No.	D	C	L	H	W	K	G	WEIGHT (kg)
40A	HSK40A-FMC16-45	P2774707	16	34	45	17	8	4	M8	0.43
	HSK40A-FMC22-50	P2774708	22	45	50	18	10	5	M10	0.56
	HSK40A-FMC27-60	P2774709	27	68	60	20	12	7	M12	1.02
50A	HSK50A-FMC16-40	P2774710	16	34	40	17	8	4	M8	0.54
	HSK50A-FMC22-50	P2774711	22	45	50	18	10	5	M10	0.73
	HSK50A-FMC27-60	P2774712	27	70	60	20	12	6	M12	1.20
63A	HSK63A-FMC22-45	P2774701	22	45	45	18	10	5	M10	0.97
	HSK63A-FMC27-60	P2774702	27	70	60	20	12	6	M12	1.57
	HSK63A-FMC32-60	P2774703	32	85	60	22	14	7	M16	1.81
100A	HSK100A-FMC22-50	P2774704	22	45	50	18	10	5	M10	2.33
	HSK100A-FMC27-60	P2774705	27	70	60	20	12	6	M12	3.02
	HSK100A-FMC32-60	P2774706	32	85	60	22	14	7	M16	3.41

▶ Without "Coolant Through".

FACE MILL ARBOR

PART

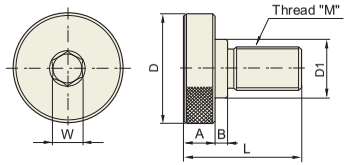
KEY & BOLT
(For FACE MILL ARBOR)



KEY

Unit : mm

KEY	EDP No.	W	K	L	D1	D2	A	APPLICABLE ARBOR
8 × 7 × 12.8	P2778857	8	7	12.8	5.8	3.2	3.2	SMA16
10 × 7.8 × 15.5	P2778858	10	7.8	15.5	7.5	4.2	4.3	SMA22
9.52 × 9.52 × 10.2	P2774753	9.52	9.52	10.2	7.5	4.5	5.2	FMA25.4 / FMB25.4
9.5 × 12 × 11	P2774754	9.5	12	11	7.5	4.2	5	FMC25.4
12 × 9 × 18.5	P2778859	12	9	18.5	9	5.3	5.5	SMA27
10 × 10 × 11	P2774756	10	10	11	7.5	4.2	5	FMC22
14 × 11.5 × 20.5	P2778860	14	11.5	20.5	10.5	6.5	6.5	SMA32
12 × 13 × 18	P2774758	12	13	18	9	5.3	8	FMB27 / FMC27
16 × 13.5 × 23.5	P2778861	16	13.5	23.5	10.5	6.5	6.5	SMA40
12.7 × 12.7 × 12.7	P2774760	12.7	12.7	12.7	7.5	4.5	5.2	FMA31.75
15.87 × 15.87 × 18.5	P2774761	15.87	15.87	18.5	10.3	6.6	7.5	FMA38.1 / FMB40 / FMB40F
14 × 15 × 20	P2774762	14	15	20	10.5	6.3	8	FMC32
18 × 18 × 28.5	P2778862	18	18	28.5	10.5	6.5	10	SMA50
19 × 18 × 22	P2774764	19	18	22	10.5	6.3	7	FMA50.8



MOUNTING BOLT

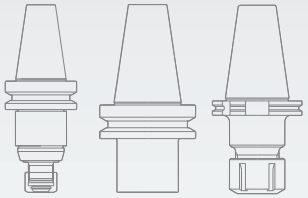
Unit : mm

MOUNTING BOLT	EDP No.	M	D	D1	L	A	B	W	APPLICABLE ARBOR
MB8	P2774765	8 × 1.25	20	15	23	7	2	6	FMC16
MB10	P2774766	10 × 1.5	28	18	29	9	2	8	FMC22
MB12	P2774767	12 × 1.75	33	23	32	10	2	10	FMC27 / FMB27 / FMA25.4
MB16	P2774768	16 × 2.0	40	23	42	10	6	12	FMC32 / FMA31.75
MB20	P2774769	20 × 2.5	50	27	54	14	6	14	FMC40 / FMA38.1 / FMB40 / FMB40F
MB24	P2774770	24 × 3.0	65	37	62	14	10	17	FMA50.8

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

Global Cutting Tool Leader **YG-1**



TOOLING SYSTEM

YG-1 TOOLING SYSTEM

COPY MILL ARBOR & INDEXABLE DRILL HOLDER

- WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE
- MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE
- MANDRINO PER FRESE MODULARI FILETTATE
- PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA & WERKZEUGHALTER FÜR VOLLBOHRER
- MANDRIN POUR FORETS À PLAQUETTES
- MANDRINO PER PUNTE A INSERTI
- SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO

COPY MILL ARBOR

DIN 69871-SK

DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

INDEXABLE DRILL HOLDER

DIN 69871-SK

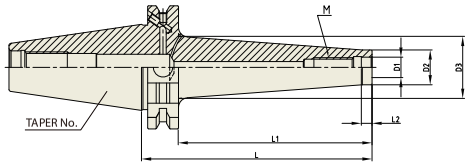
DIN 69893/ISO 12164-1-HSK

JIS B6339/MAS 403-BT

COPY MILL ARBOR

DIN 69871-SK

WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE
MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE
MANDRINO PER FRESE MODULARI FILETTATE
PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA



DIN 69871-SK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

Unit : mm

TAPER No.	MODEL No. (M-L1)	EDP No.	D1	D2	D3	L	L1	L2	WEIGHT (kg)
40	SK40AD/B-M6-25	P2801701	6.5	10	13	44	25	5	0.80
	SK40AD/B-M8-25	P2801702	8.5	13	15	44	25	5	0.80
	SK40AD/B-M8-50	P2801703	8.5	13	23	69	50	5	0.86
	SK40AD/B-M8-75	P2801704	8.5	13	23	94	75	5	0.90
	SK40AD/B-M8-100	P2801705	8.5	13	25	119	100	5	0.97
	SK40AD/B-M10-5	P2801706	10.5	18	18	24	5	5	0.77
	SK40AD/B-M10-25	P2801707	10.5	18	20	44	25	5	0.79
	SK40AD/B-M10-50	P2801708	10.5	18	23	69	50	5	0.85
	SK40AD/B-M10-75	P2801709	10.5	18	28	94	75	5	0.87
	SK40AD/B-M10-100	P2801710	10.5	18	32	119	100	5	1.12
	SK40AD/B-M10-150	P2801711	10.5	18	36.5	169	150	5	1.38
	SK40AD/B-M12-5	P2801712	12.5	21	21	24	5	5	0.77
	SK40AD/B-M12-25	P2801713	12.5	21	24	44	25	5	0.82
	SK40AD/B-M12-50	P2801714	12.5	21	24	69	50	5	0.85
	SK40AD/B-M12-75	P2801715	12.5	21	31	94	75	5	1.02
	SK40AD/B-M12-100	P2801716	12.5	21	33	119	100	5	1.09
	SK40AD/B-M12-150	P2801717	12.5	21	40	169	150	5	1.53
	SK40AD/B-M16-5	P2801718	17	29	29	24	5	5	0.77
	SK40AD/B-M16-25	P2801719	17	29	29	44	25	5	0.85
	SK40AD/B-M16-50	P2801720	17	29	34	69	50	5	1.00
	SK40AD/B-M16-75	P2801721	17	29	34	94	75	5	0.99
	SK40AD/B-M16-100	P2801722	17	29	36	119	100	5	1.34
	SK40AD/B-M16-150	P2801723	17	29	42.5	169	150	5	1.84
50	SK50AD/B-M8-50	P2801724	8.5	13	23	69	50	5	2.69
	SK50AD/B-M10-50	P2801725	10.5	18	23	69	50	5	2.71
	SK50AD/B-M10-100	P2801726	10.5	18	32	119	100	10	2.88
	SK50AD/B-M10-150	P2801727	10.5	18	36.5	169	150	10	3.17
	SK50AD/B-M12-50	P2801728	12.5	21	24	69	50	5	2.67
	SK50AD/B-M12-100	P2801729	12.5	21	33	119	100	10	2.93
	SK50AD/B-M12-150	P2801730	12.5	21	40	169	150	10	3.33
	SK50AD/B-M16-50	P2801731	17	29	34	69	50	5	2.79
	SK50AD/B-M16-100	P2801732	17	29	36	119	100	10	3.00
	SK50AD/B-M16-150	P2801733	17	29	42.5	169	150	10	3.60

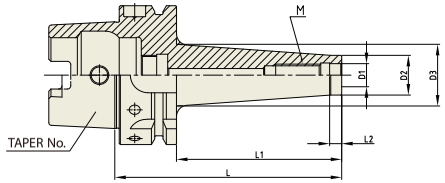
COPY MILL ARBOR & INDEXABLE DRILL HOLDER

M

COPY MILL ARBOR

DIN 69893/ ISO 12164-1-HSK FORM A

WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE
MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE
MANDRINO PER FRESE MODULARI FILETTATE
PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA



DIN 69893-HSK | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD

Unit : mm

TAPER No.	MODEL No. (M-L1)	EDP No.	D1	D2	D3	L	L1	L2	WEIGHT (kg)
63A	HSK63A-M5-25	P2801801	5.5	10	13	51	25	5	0.77
	HSK63A-M6-25	P2801802	6.5	10	13	51	25	5	0.77
	HSK63A-M8-25	P2801803	8.5	13	15	51	25	5	0.81
	HSK63A-M8-50	P2801804	8.5	13	23	76	50	5	1.09
	HSK63A-M8-75	P2801805	8.5	13	23	101	75	5	1.29
	HSK63A-M10-25	P2801806	10.5	18	20	51	25	5	0.90
	HSK63A-M10-50	P2801807	10.5	18	23	76	50	5	1.20
	HSK63A-M10-75	P2801808	10.5	18	28	101	75	5	1.33
	HSK63A-M10-100	P2801809	10.5	18	32	126	100	5	1.45
	HSK63A-M10-150	P2801810	10.5	18	36.5	176	150	5	1.60
	HSK63A-M12-25	P2801811	12.5	21	24	51	25	5	0.98
	HSK63A-M12-50	P2801812	12.5	21	24	76	50	5	1.29
	HSK63A-M12-75	P2801813	12.5	21	31	101	75	5	1.92
	HSK63A-M12-100	P2801814	12.5	21	33	126	100	5	2.48
	HSK63A-M12-150	P2801815	12.5	21	40	176	150	5	4.19
	HSK63A-M16-25	P2801816	17	29	29	51	25	5	0.78
	HSK63A-M16-50	P2801817	17	29	34	76	50	5	1.85
	HSK63A-M16-75	P2801818	17	29	34	101	75	5	2.46
	HSK63A-M16-100	P2801819	17	29	36	126	100	5	3.23
	HSK63A-M16-150	P2801820	17	29	42.5	176	150	5	5.39
100A	HSK100A-M8-50	P2801821	8.5	13	23	79	50	5	2.33
	HSK100A-M10-50	P2801822	10.5	18	23	79	50	5	2.35
	HSK100A-M10-100	P2801823	10.5	18	32	129	100	10	2.59
	HSK100A-M10-150	P2801824	10.5	18	36.5	179	150	10	2.90
	HSK100A-M12-50	P2801825	12.5	21	24	79	50	5	2.37
	HSK100A-M12-100	P2801826	12.5	21	33	129	100	10	2.64
	HSK100A-M12-150	P2801827	12.5	21	40	179	150	10	3.05
	HSK100A-M16-50	P2801828	17	29	34	79	50	5	2.48
	HSK100A-M16-100	P2801829	17	29	36	129	100	10	2.81
	HSK100A-M16-150	P2801830	17	29	42.5	179	150	10	3.32

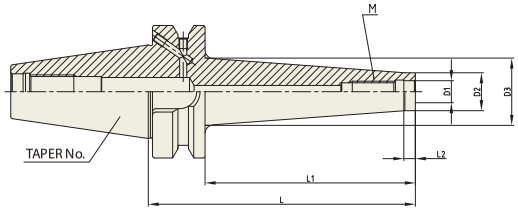
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

COPY MILL ARBOR

JIS B6339/
MAS 403-BT

WERKZEUGAUFNAHME FÜR EINSCHRAUBFRÄSER MIT GEWINDE
MANDRIN POUR FRAISES À QUEUE FILETÉE AVEC FILETAGE
MANDRINO PER FRESE MODULARI FILETTATE
PORTAHERRAMIENTAS PARA FRESAS DE ENROSCAR CON ROSCA



JIS 6339 T | AT3 | 2.5G | 25,000 RPM | (at 3D) ≤3μm | AD/B

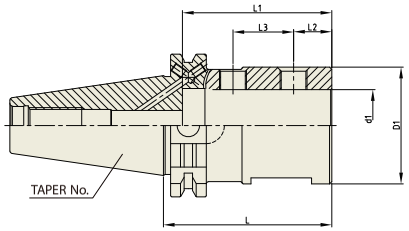
Unit : mm

TAPER No.	MODEL No. (M-L1)	EDP No.	D1	D2	D3	L	L1	L2	WEIGHT (kg)
40	BT40AD/B-M6-25	P2801901	6.5	10	13	52	25	5	0.94
	BT40AD/B-M6-50	P2801902	6.5	10	20	77	50	5	0.99
	BT40AD/B-M6-75	P2801903	6.5	10	23	102	75	5	1.04
	BT40AD/B-M8-25	P2801904	8.5	13	15	52	25	5	0.95
	BT40AD/B-M8-50	P2801905	8.5	13	23	77	50	5	1.01
	BT40AD/B-M8-75	P2801906	8.5	13	23	102	75	5	1.05
	BT40AD/B-M10-25	P2801907	10.5	18	20	52	25	5	0.97
	BT40AD/B-M10-50	P2801908	10.5	18	23	77	50	5	1.04
	BT40AD/B-M10-75	P2801909	10.5	18	32	102	75	5	1.28
	BT40AD/B-M12-25	P2801910	12.5	21	15	52	25	5	0.98
	BT40AD/B-M12-75	P2801911	12.5	21	23	102	75	5	1.22
	BT40AD/B-M12-125	P2801912	12.5	21	23	152	125	5	1.50
	BT40AD/B-M16-25	P2801913	17	29	29	52	25	5	1.01
	BT40AD/B-M16-75	P2801914	17	29	34	102	75	5	1.32
	BT40AD/B-M16-125	P2801915	17	29	40	152	125	5	1.75
50	BT50AD/B-M8-50	P2801916	8.5	13	23	88	50	5	3.51
	BT50AD/B-M10-50	P2801917	10.5	18	23	88	50	5	3.54
	BT50AD/B-M10-100	P2801918	10.5	18	32	138	100	10	3.77
	BT50AD/B-M12-50	P2801919	12.5	21	24	88	50	10	3.55
	BT50AD/B-M12-100	P2801920	12.5	21	33	138	100	10	3.82
	BT50AD/B-M16-50	P2801921	17	29	29	88	50	10	3.63
	BT50AD/B-M16-100	P2801922	17	29	36	138	100	10	3.98
	BT50AD/B-M16-150	P2801923	17	29	42.5	188	150	10	4.48

INDEXABLE DRILL HOLDER

DIN 69871-SK

WERKZEUGHALTER FÜR VOLLBOHRER
MANDRIN POUR FORETS À PLAQUETTES
MANDRINO PER PUNTE A INSERTI
SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO

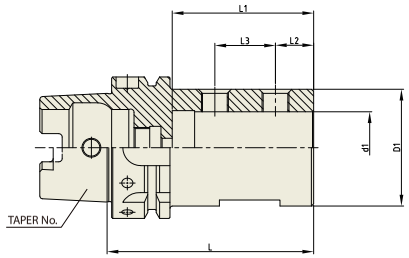


DIN 69871-SK | AT3 | 6.3G | 15,000 RPM | AD/B

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	L1	L2	L3	WEIGHT (kg)
40	SK40AD/B-SL20-65	P2802001	20	40	65	56	15	20	1.07
	SK40AD/B-SL25-70	P2802002	25	45	70	61.5	17	23	1.15
	SK40AD/B-SL32-75	P2802003	32	52	75	66.5	17	27	1.27
	SK40AD/B-SL40-115	P2802004	40	60	115	73	22	28	2.10
50	SK50AD/B-SL20-70	P2802005	20	40	70	54	15	20	3.00
	SK50AD/B-SL25-70	P2802006	25	45	70	64	17	23	3.04
	SK50AD/B-SL32-75	P2802007	32	52	75	68	17	27	3.14
	SK50AD/B-SL40-80	P2802008	40	60	80	77.0	22	28	3.26

DIN 69893/
ISO 12164-1-HSK FORM A



DIN 69893-HSK | AT3 | 6.3G | 15,000 RPM | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	d1	D1	L	L1	L2	L3	WEIGHT (kg)
63A	HSK63A-SL20-80	P2802051	20	40	80	54	15	20	1.04
	HSK63A-SL25-90	P2802052	25	45	90	59	17	23	1.21
	HSK63A-SL32-90	P2802053	32	52	90	63	17	27	1.30
	HSK63A-SL40-105	P2802054	40	60	105	73	22	28	1.58
100A	HSK100A-SL20-90	P2802055	20	40	90	54	15	20	2.71
	HSK100A-SL25-95	P2802056	25	45	95	59	17	23	2.84
	HSK100A-SL32-100	P2802057	32	52	100	63	17	27	3.03
	HSK100A-SL40-110	P2802058	40	60	110	73	22	28	3.32

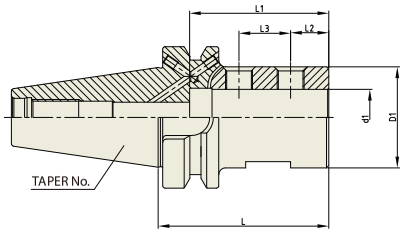
COPY MILL ARBOR & INDEXABLE DRILL HOLDER

SL

INDEXABLE DRILL HOLDER

JIS B6339/
MAS 403-BT

WERKZEUGHALTER FÜR VOLLBOHRER
MANDRIN POUR FORETS À PLAQUETTES
MANDRINO PER PUNTE A INSERTI
SOPORTE PARA HERRAMIENTAS PARA BROCAS DE ACERO MACIZO



JIS 6339 T | AT3 | 6.3G | 15,000 RPM | AD/B

Unit : mm

TAPER No.	MODEL No. (M-L1)	EDP No.	d1	D1	L	L1	L2	L3	WEIGHT (kg)
40	BT40AD/B-SL20-72	P2802101	20	40	72	54	15	20	1.09
	BT40AD/B-SL25-76	P2802102	25	45	76	62	17	23	1.11
	BT40AD/B-SL32-80	P2802103	32	52	80	67	17	27	1.17
	BT40AD/B-SL40-100	P2802104	40	60	100	73	22	28	1.67
50	BT50AD/B-SL20-90	P2802105	20	40	90	54	15	20	3.74
	BT50AD/B-SL25-90	P2802106	25	45	90	59	17	23	3.81
	BT50AD/B-SL32-90	P2802107	32	52	90	70	17	27	3.90
	BT50AD/B-SL40-100	P2802108	40	60	100	80	22	28	4.12

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

YG-1 TOOLING SYSTEM

NC DRILL CHUCK & OTHER TOOL HOLDERS

- NC - BOHRFUTTER UND ANDERE WERKZEUGHALTER
- MANDRIN DE PERÇAGE NC ET D'AUTRES PORTE-OUTIL
- NC MANDRINI PORTA PUNTE E ALTRI PORTAUTENSILI
- PORTABROCAS PARA BROCAS NC Y OTRA PORTAHERRAMIENTAS

NC DRILL CHUCK

CBT (BT DUAL CONTACT) JIS B6339/MAS 403-BT
DIN 69893/ISO 12164-1-HSK STRAIGHT-K
DIN 69871-SK

SIDE CUTTER ARBOR

JIS B6339/MAS 403-BT

JACOBS TAPER ADAPTER

JIS B6339/MAS 403-BT

BLANK BAR

DIN 69871-SK JIS B6339/MAS 403-BT
DIN 69893/ISO 12164-1-HSK FORM A

TEST BAR

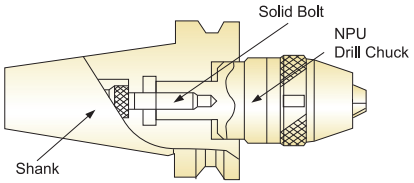
DIN69871-SK JIS B6339/MAS 403-BT
DIN69893/ISO 12164-1-HSK

NC DRILL CHUCK

FEATURE

YG-1 Drill Chuck is completely tightened with solid bolt, and there is no danger of falling during rotating or cutting.

HIGH PRECISION



• Drill chuck with excellent high precision (T.I.R 0.05) and shank are integrated, which guarantees excellent T.I.R

Strong Chucking Power

Drill may be damaged due to reverse thrust during perforation, but with YG-1 Drill Chuck strongly tightened with wrench, there is no possibility of damage to drill.

Safety

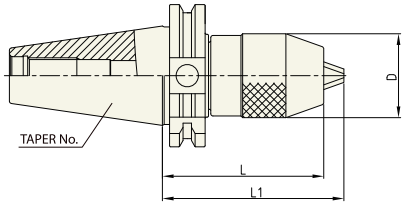
YG-1 NC Drill Chuck with strong rigidity contributes to factory automation by unmanned operation by preventing accident from occuring during operation.

- Falling of drill occurring by sudden stopping
- Falling of drill occurring by rapid rotation
- Damage to drill caused by reverse thrust during perforation process

NC DRILL CHUCK

DIN 69871-SK

NC - BOHRFUTTER
MANDRIN DE PERÇAGE NC
NC MANDRINI PORTA PUNTE
PORTABROCAS PARA BROCAS NC



DIN 69871-SK AT3 A

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
40	SK40-NPU8-80	P2802201	0.3 ~ 8	36.5	80	80.7	-
	SK40-NPU8-110	P2802202	0.3 ~ 8	36.5	110	115.7	-
	SK40-NPU8-150	P2802203	0.3 ~ 8	36.5	150	155.7	-
	SK40-NPU13-95	P2802204	1 ~ 13	50	95	100.7	-
	SK40-NPU13-130	P2802205	1 ~ 13	50	130	130.7	-
	SK40-NPU8-150	P2802206	1 ~ 13	50	150	155.7	-
50	SK50-NPU8-80	P2802207	0.3 ~ 8	36.5	80	80.7	-
	SK50-NPU8-110	P2802208	0.3 ~ 8	36.5	110	115.7	-
	SK50-NPU8-150	P2802209	0.3 ~ 8	36.5	150	155.7	-
	SK50-NPU13-95	P2802210	1 ~ 13	50	95	100.7	-
	SK50-NPU13-130	P2802211	1 ~ 13	50	130	130.7	-
	SK50-NPU8-150	P2802212	1 ~ 13	50	150	155.7	-

▶ CAT(ANSI B5.50) taper and Inch type products are available.

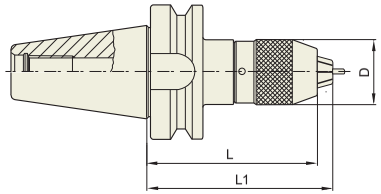
TOOLING SYSTEM
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

NC DRILL CHUCK

CBT
(BT DUAL CONTACT)

NC - BOHRFUTTER
MANDRIN DE PERÇAGE NC
NC MANDRINI PORTA PUNTE
PORTABROCAS PARA BROCAS NC



CBT AT3 A

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
30	CBT30-NPU8-75	P2776066	0.3 - 8	36.5	75	80.7	0.80
	CBT30-NPU13-105	P2776067	1 - 13	50.4	105	115	1.80
40	CBT40-NPU8-80	P2776068	0.3 - 8	36.5	80	85.7	1.50
	CBT40-NPU8-110	P2776054	0.3 - 8	36.5	110	115.7	1.80
	CBT40-NPU8-150	P2776055	0.3 - 8	36.5	150	155.7	2.60
	CBT40-NPU13-95	P2776069	1 - 13	50.4	95	100.7	2.10
	CBT40-NPU13-130	P2776057	1 - 13	50.4	130	140	2.70
	CBT40-NPU13-150	P2776058	1 - 13	50.4	150	160	3.40
50	CBT50-NPU8-90	P2776059	0.3 - 8	36.5	90	95.7	4.20
	CBT50-NPU8-110	P2776060	0.3 - 8	36.5	110	115.7	4.50
	CBT50-NPU8-170	P2776061	0.3 - 8	36.5	170	180.7	5.20
	CBT50-NPU13-105	P2776070	1 - 13	50.4	105	115	4.80
	CBT50-NPU13-130	P2776063	1 - 13	50.4	130	140	5.20
	CBT50-NPU13-150	P2776064	1 - 13	50.4	150	160	5.50
	CBT50-NPU13-190	P2776065	1 - 13	50.4	190	200	5.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.

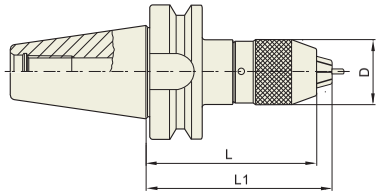
NC DRILL CHUCK & OTHER TOOL HOLDERS

NPU

NC DRILL CHUCK

JIS B6339/
MAS403-BT

NC - BOHRFUTTER
MANDRIN DE PERÇAGE NC
NC MANDRINI PORTA PUNTE
PORTABROCAS PARA BROCAS NC



IS 6339 T AT3 A

Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
30	BT30-NPU8-75	P2776016	0.3 - 8	36.5	75	80.7	0.80
	BT30-NPU13-105	P2776017	1 - 13	50.4	105	115	1.80
40	BT40-NPU8-80	P2776018	0.3 - 8	36.5	80	85.7	1.50
	BT40-NPU8-110	P2776006	0.3 - 8	36.5	110	115.7	1.80
	BT40-NPU8-150	P2776007	0.3 - 8	36.5	150	155.7	2.60
	BT40-NPU13-95	P2776019	1 - 13	50.4	95	100.7	2.10
	BT40-NPU13-130	P2776008	1 - 13	50.4	130	140	2.70
	BT40-NPU13-150	P2776003	1 - 13	50.4	150	160	3.40
50	BT50-NPU8-90	P2776009	0.3 - 8	36.5	90	95.7	4.20
	BT50-NPU8-110	P2776010	0.3 - 8	36.5	110	115.7	4.50
	BT50-NPU8-170	P2776011	0.3 - 8	36.5	170	180.7	5.20
	BT50-NPU13-105	P2776020	1 - 13	50.4	105	115	4.80
	BT50-NPU13-130	P2776013	1 - 13	50.4	130	140	5.20
	BT50-NPU13-150	P2776014	1 - 13	50.4	150	160	5.50
	BT50-NPU13-190	P2776015	1 - 13	50.4	190	200	5.90

▶ CAT(ANSI B5.50) taper and Inch type products are available.

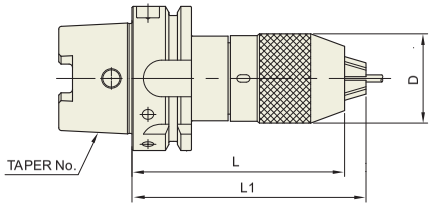
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

NC DRILL CHUCK

NC - BOHRFUTTER
MANDRIN DE PERÇAGE NC
NC MANDRINI PORTA PUNTE
PORTABROCAS PARA BROCAS NC

DIN 69893/ ISO 12164-1-HSK FORM A

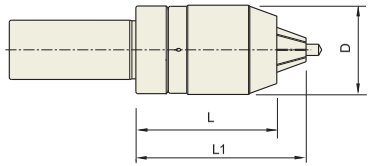


DIN 69893-HSK | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	CAPACITY	D	L (Min.)	L1 (Max.)	WEIGHT (kg)
40A	HSK40A-NPU 8-120	P2775202	0.3 - 8	36.5	120	125.7	1.00
50A	HSK50A-NPU 8-120	P2775203	0.3 - 8	36.5	120	125.7	1.20
	HSK50A-NPU13-150	P2775201	1 - 13	50.4	150	160	2.10
63A	HSK63A-NPU 8-125	P2775204	0.3 - 8	36.5	125	130.7	2.10
	HSK63A-NPU13-150	P2775205	1 - 13	50.4	150	150	3.00
100A	HSK100A-NPU 8-130	P2775206	0.3 - 8	36.5	130	135.7	4.80
	HSK100A-NPU13-150	P2775207	1 - 13	50.4	150	160	5.50

STRAIGHT-K



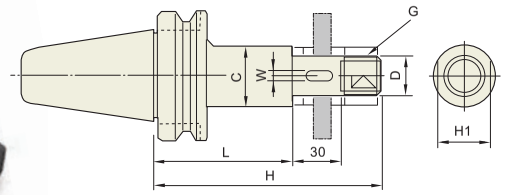
Unit : mm

TAPER No.	MODEL No.	EDP No.	CLAMPING RANGE	D	L (Min.)	L1 (Max.)	d	WEIGHT (kg)
32	K32-NPU8-75	P2776021	0.3 - 8	36.5	75	80.7	32	0.70
	K32-NPU13-100	P2775252	1 - 13	50.4	100	110	32	1.50
42	K42-NPU8-70	P2775253	0.3 - 8	36.5	70	75.7	42	0.80
	K42-NPU13-100	P2775254	1 - 13	50.4	100	110	42	1.60

SIDE CUTTER ARBOR

SEITENSCHNEIDER LAUBE
TONNELLE PINCE COUPANTE
LATO CUTTER PERGOLATO
LADO DEL EJE DE CORTE

JIS B6339/ MAS403-BT



IS 6339 T | AT3 | A

Unit : mm

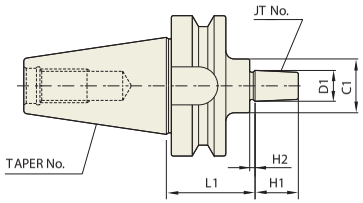
TAPER No.	MODEL No.	EDP No.	H	H1	C	W	G	D	L	WEIGHT (kg)
30	BT30-SCA12.7-60	P2779141	105	17	20	-	M12	12.7	60	1.00
	BT30-SCA15.875-60	P2779142	106	23	26	3.18	M14	15.875	60	1.10
	BT30-SCA22.225-60	P2779143	110	29	34	3.18	M20	22.225	60	1.20
	BT30-SCA25.4-60	P2779144	115	32	40	6.35	M24	25.4	60	1.30
40	BT40-SCA12.7-75	P2779145	120	17	20	-	M12	12.7	75	1.20
	BT40-SCA12.7-105	P2779146	150	17	20	-	M12	12.7	105	1.30
	BT40-SCA15.875-75	P2779147	121	23	26	3.18	M14	15.875	75	1.40
	BT40-SCA15.875-120	P2779148	151	23	26	3.18	M14	15.875	120	1.50
	BT40-SCA22.225-75	P2779149	126	29	34	3.18	M20	22.225	75	1.70
	BT40-SCA22.225-120	P2779150	171	29	34	3.18	M20	22.225	120	2.00
	BT40-SCA25.4-75	P2779151	130	32	40	6.35	M24	25.4	75	2.00
	BT40-SCA25.4-120	P2779152	175	32	40	6.35	M24	25.4	120	2.40
	BT40-SCA31.75-90	P2779153	150	41	46	7.92	M30	31.75	90	2.60
50	BT50-SCA12.7-75	P2779154	120	17	20	-	M12	12.7	75	4.10
	BT50-SCA12.7-105	P2779155	150	17	20	-	M12	12.7	105	4.20
	BT50-SCA15.875-90	P2779156	136	23	26	3.18	M14	15.875	90	4.20
	BT50-SCA15.875-120	P2779157	166	23	26	3.18	M14	15.875	120	4.20
	BT50-SCA22.225-90	P2779158	144	29	34	3.18	M20	22.225	90	4.40
	BT50-SCA22.225-135	P2779159	186	29	34	3.18	M20	22.225	135	4.70
	BT50-SCA25.4-90	P2779160	145	32	40	6.35	M24	25.4	90	4.50
	BT50-SCA25.4-135	P2779161	190	32	40	6.35	M24	25.4	135	4.90
	BT50-SCA31.75-90	P2779162	150	41	46	7.92	M30	31.75	90	4.70
	BT50-SCA31.75-135	P2779163	195	41	46	7.92	M30	31.75	135	5.20
	BT50-SCA38.1-90	P2779164	156	46	55	9.52	M36	38.1	90	4.90
	BT50-SCA38.1-135	P2779165	201	46	55	9.52	M36	38.1	135	5.90

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

JACOBS TAPER ADAPTER

JACOBS KEGELZAPFEN ADAPTER
JACOBS ADAPTEUR DE CÔNE
JACOBS ADATTATORE DEL CONO
JACOBS ADAPTADOR DE LA FORMA CONICA

JIS B6339/ MAS 403-BT



JIS 6339 T | AT3 | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	JT No.	D1	L1	H1	H2	C1	WEIGHT (kg)
30	BT30-JTA1-45	P2779101	1	9.754	45	14	3	30	0.90
	BT30-JTA2-45	P2779102	2	14.199	45	20	4	30	1.00
	BT30-JTA6-45	P2779103	6	17.17	45	24	4	30	1.00
40	BT40-JTA1-45	P2779104	1	9.754	45	14	3	30	1.10
	BT40-JTA1-90	P2779105	1	9.754	90	14	3	30	1.10
	BT40-JTA2S-45	P2779106	2(SHORT)	13.94	45	18	3	30	1.40
	BT40-JTA2S-90	P2779107	2(SHORT)	13.94	90	18	3	30	1.40
	BT40-JTA2-45	P2779108	2	14.199	45	20	4	30	1.10
	BT40-JTA2-90	P2779109	2	14.199	90	20	4	30	1.40
	BT40-JTA33-45	P2779110	33	15.85	45	24	4	30	1.10
	BT40-JTA33-90	P2779111	33	15.85	90	24	4	30	1.40
	BT40-JTA6-45	P2779112	6	17.17	45	24	4	30	1.10
	BT40-JTA6-90	P2779113	6	17.17	90	24	4	30	1.40
	BT40-JTA3-45	P2779114	3	20.599	45	28	5	35	1.20
	BT40-JTA3-90	P2779115	3	20.599	90	28	5	35	1.50
50	BT50-JTA1-45	P2779116	1	9.754	45	14	3	30	4.00
	BT50-JTA1-105	P2779117	1	9.754	105	14	3	30	4.40
	BT50-JTA2S-45	P2779118	2(SHORT)	13.94	45	18	3	30	4.00
	BT50-JTA2S-105	P2779119	2(SHORT)	13.94	105	18	3	30	4.40
	BT50-JTA2-45	P2779120	2	14.199	45	20	4	30	4.00
	BT50-JTA2-105	P2779121	2	14.199	105	20	4	30	4.40
	BT50-JTA33-45	P2779122	33	15.85	45	24	4	30	4.00
	BT50-JTA33-105	P2779123	33	15.85	105	24	4	30	4.40
	BT50-JTA6-45	P2779124	6	17.17	45	24	4	30	4.00
	BT50-JTA6-105	P2779125	6	17.17	105	24	4	30	4.40
	BT50-JTA3-45	P2779126	3	20.599	45	28	5	35	4.00
	BT50-JTA3-105	P2779127	3	20.599	105	28	5	35	4.60

▶ CAT(ANSI B5.50) taper and Inch type products are available.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
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END MILL HOLDER & SIDE LOCK ARBOR
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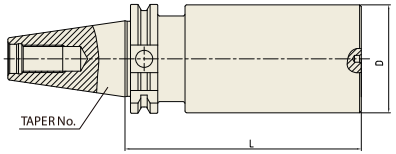
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

BLANK BAR

BOHRSTANGENROHLING
EBAUCHE DE BARRES D ALÉSAGE
BARRA ALESATRICE GREZZA
PIEZA EN BRUTO PARA BARRAS DE MANDRINAR

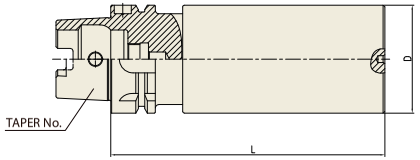
DIN 69871-SK



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
40	SK40A-BL63-250	P2779196	63	160	6.18
50	SK50A-BL97-315	P2779197	97	315	18.67

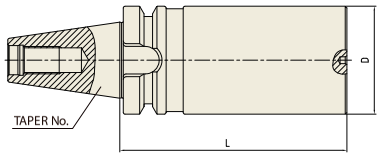
DIN 69893/ ISO12164-1-HSK FORM A



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
63A	HSK63A-BL63-160	P2779198	63	160	3.91
100A	HSK100A-BL97-250	P2779199	97	250	17.70

JIS B6339/ MAS 403-BT



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
BT40	BT40-BL63-250	P2779191	63	160	6.37
BT50	BT50-BL97-315	P2779351	97	250	19.60

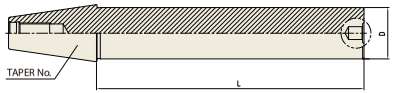
NC DRILL CHUCK & OTHER TOOL HOLDERS

TB

TEST BAR

DIN 69871-SK

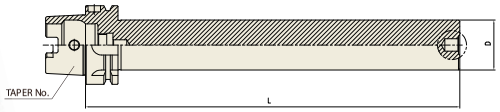
KONTROLLDORN
MANDRIN DE CONTROLE
MANDRINO DI CONTROLLO
MANDRIL DE CONTROL



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
40	SK40A-TB40-300	P2802301	40	300	3.45
50	SK50A-TB50-300	P2802302	50	300	6.44

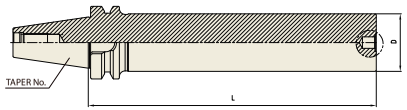
DIN 69893/ ISO12164-1-HSK FORM A



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
63A	HSK63A-TB40-300	P2802303	40	300	2.90
100A	HSK100A-TB50-300	P2802304	50	300	6.17

JIS B6339/ MAS 403-BT



Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L	WEIGHT (kg)
40	BT40-TB50-300	P2802305	40	300	4.59
50	BT50-TB30-200	P2802306	30	200	4.34
	BT50-TB50-300	P2802307	50	300	6.88

YG-1 TOOLING SYSTEM

BORING SYSTEM

- AUSBOHRSYSTEM
- SYSTÈME D'ALÉSAGE
- SISTEMA DI BARENATURA
- SISTEMAS DE MANDRINADO

FINE BORING BAR

BORING BAR SET / BASIC HOLDER / EXTENSION BAR / FINE BORING HEAD

TWIN BORING BAR

BORING BAR SET / STRAIGHT TWIN EDGE BORING BAR / BASIC HOLDER
TWIN BORE HEAD / INSERT HOLDER / REDUCTION / EXTENSION BAR

MICRO BORING BAR : JIS B6339/MAS 403-BT

BT / ST (BCA) / MICRO UNIT PARTS

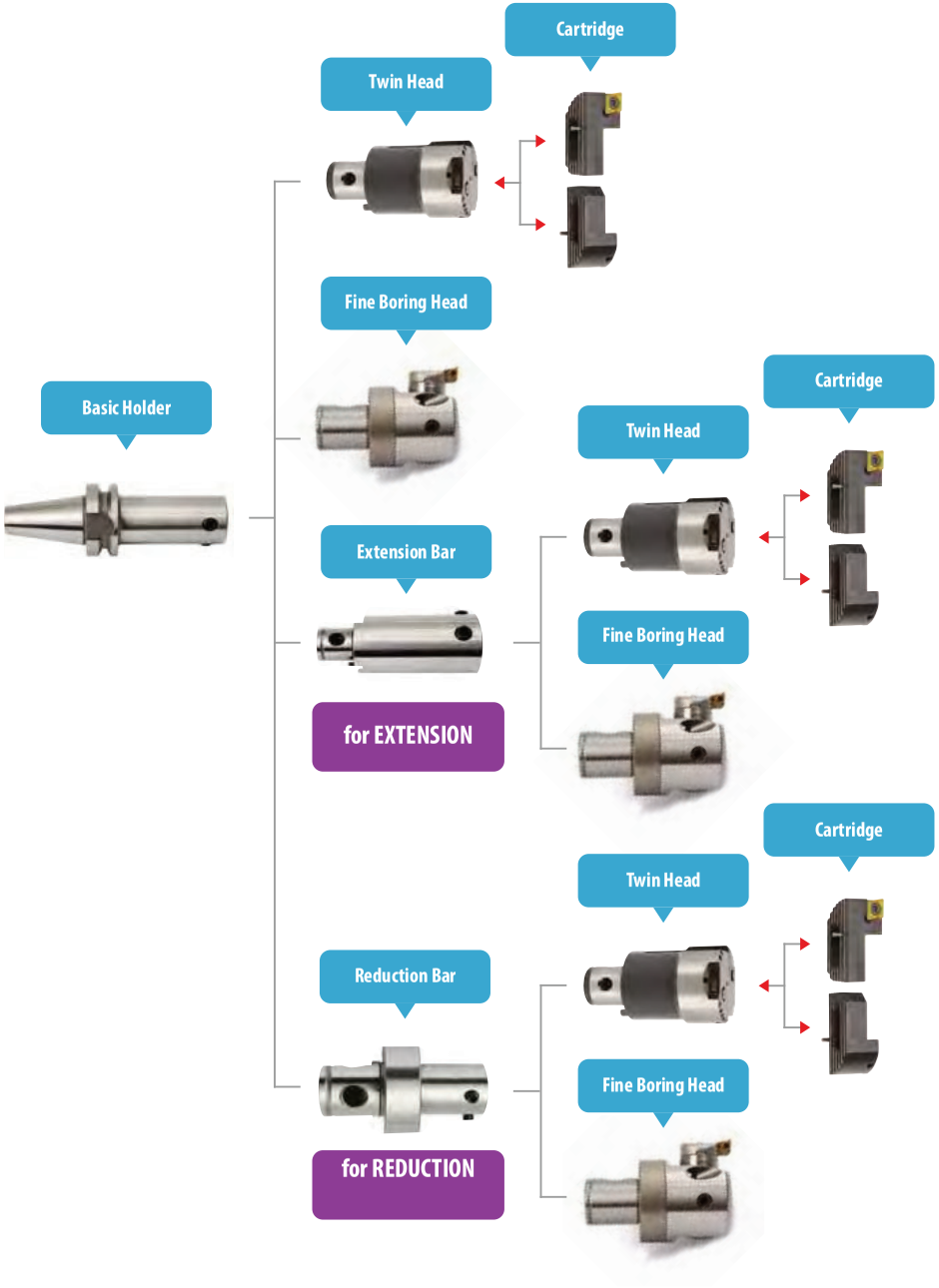
SQUARE BORING BAR : JIS B6339/MAS 403-BT

BT (BSA) / BT (BSB) / SQUARE BITE (SBC)

BIG MICRO CUT BORING BAR : JIS B6339/MAS 403-BT

BT (BRA) / (RING ADAPTER, RING HEAD)

FINE & TWIN Boring Bar (Small Bore)



TECHNICAL INFORMATION

FINE & TWIN Boring Bar (Small Bore)

Fine Boring Range : 20mm~153mm

FEATURE

- Excellent roughness of boring surface by precise boring
- Precise boring range adjustment by adjustment Dial with 1/100mm unit
- Ease to adjust length by employing modular system to use extension bar with various size
- Double rigid fixing of extension bar with
  - Side locking
  - Fixing pin inside
- Design to use insert conforming to ISO standard
- Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar

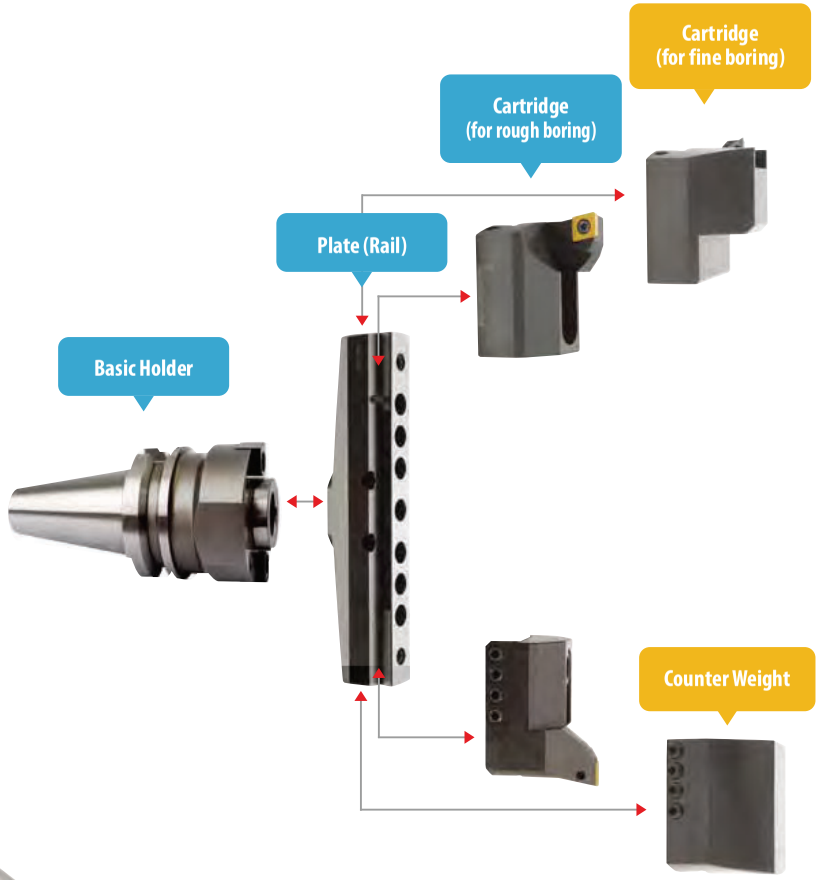
Twin Boring Range : 25mm~156mm

FEATURE

- Easy to replace head
- Extension Bar : Adjusting length according to machining conditions
- Reduction Bar : Adjusting boring range according to machining conditions
- Precision of extension, reduction, and repeatability of assembling and disassembling of Boring Head ; ≤0.002mm
- Using insert conforming to ISO standard
- Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar

FINE and TWIN EDGE BORING (Big Bore)

Boring Range : 153mm~576mm (FINE BORING BAR)
156mm~576mm (TWIN EDGE BORING BAR)



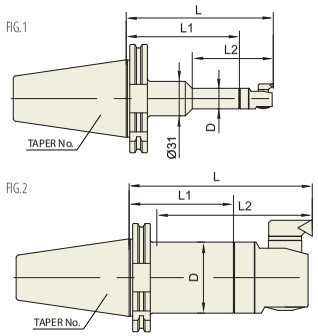
FEATURE

- Easy to replace head
- Using insert conforming to ISO standard
- Special twin edge boring bars with a boring range up to 800mm could be manufactured
- Basic holder interchangeable between Fine Boring Bar and Twin Edge Boring Bar

FINE BORING BAR (SMALL BORE)

DIN 69871-SK

FEIN BOHRHALTER
ALÉSAGE PROFOND
BARRE DI ALESATURA FINE
BARRA DE MANDRINADO FINO



DIN 69871-SK | AT3 | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	BORE RANGE (FRONT)	D	L	L1	L2	FIG.	WEIGHT (kg)
40	SK40-BAH1-105	P2777767	20 - 26	19	104.5	72	73	2	
	SK40-BAH2-80	P2777768	25 - 33	24	78	42.5	48	2	
	SK40-BAH2-120	P2777769	25 - 33	24	118	82.5	88	2	
	SK40-BAH3-85	P2777770	32 - 42	31	84	44	53	2	
	SK40-BAH3-135	P2777771	32 - 42	31	134	94	103	2	
	SK40-BAH4-90	P2777772	41 - 54	39	90	43	58	2	
	SK40-BAH4-135	P2777773	41 - 54	39	135	88	103	2	
	SK40-BAH5-105	P2777774	53 - 70	50	105	48	73	2	
	SK40-BAH5-135	P2777775	53 - 70	50	135	79	103	2	
	SK40-BAH6-135	P2777776	68 - 100	64	135	64	103	2	
50	SK50-BAH1-135	P2777777	20 - 26	19	134.5	102	73	1	
	SK50-BAH2-90	P2777778	25 - 33	24	88	52.5	66	2	
	SK50-BAH2-150	P2777779	25 - 33	24	148	112.5	126	2	
	SK50-BAH3-95	P2777780	32 - 42	31	94	54	71	2	
	SK50-BAH3-165	P2777781	32 - 42	31	164	124	141	2	
	SK50-BAH4-105	P2777782	41 - 54	39	105	58	81	2	
	SK50-BAH4-165	P2777783	41 - 54	39	165	118	141	2	
	SK50-BAH4-225	P2777784	41 - 54	39	225	178	201	2	
	SK50-BAH5-120	P2777785	53 - 70	50	120	63	96	2	
	SK50-BAH5-165	P2777786	53 - 70	50	165	105	141	2	
	SK50-BAH5-240	P2777787	53 - 70	50	240	183	216	2	
	SK50-BAH5-285	P2777788	53 - 70	50	285	228	261	2	
	SK50-BAH6-165	P2777789	68 - 100	64	165	94	141	2	
	SK50-BAH6-240	P2777790	68 - 100	64	240	169	216	2	
	SK50-BAH6-300	P2777791	68 - 100	64	300	229	276	2	
	SK50-BAH7-210	P2777792	100 - 153	90	210	93	191	2	
	SK50-BAH7-360	P2777793	100 - 153	90	360	243	341	2	

▶ Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar.

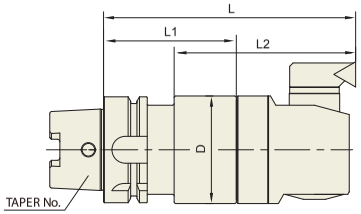
BORING SYSTEM

BAH

FINE BORING BAR (SMALL BORE)

DIN 69893/ ISO 12164-1-HSK FORM A

FEINBOHRHALTER
ALÉSAGE PROFOND
BARRE DI ALESATURA FINE
BARRA DE MANDRINADO FINO



DIN 69893-HSK | AT3 | AD

Unit : mm

TAPER No.	MODEL No.	EDP No.	BORE RANGE (FRONT)	D	L	L1	L2	WEIGHT (kg)
40A	HSK40A-BAH1-72.5	P2777736	20 - 26	19	105	72.5	73	
	HSK40A-BAH2-39.5	P2777737	25 - 33	24	75	39.5	44	
	HSK40A-BAH2-84.5	P2777738	25 - 33	24	120	84.5	89	
	HSK40A-BAH3-45	P2777739	32 - 42	31	85	45	57	
	HSK40A-BAH3-80	P2777740	32 - 42	31	120	80	92	
	HSK40A-BAH4-53	P2777741	41 - 54	39	100	53	-	
	HSK40A-BAH4-73	P2777742	41 - 54	39	120	73	-	
50A	HSK50A-BAH1-72.5	P2777743	20 - 26	19	105	72.5	65	
	HSK50A-BAH2-84.5	P2777744	25 - 33	24	117	84.5	80	
	HSK50A-BAH3-80	P2777745	32 - 42	31	120	80	82	
	HSK50A-BAH4-73	P2777746	41 - 54	39	120	73	76	
	HSK50A-BAH5-83	P2777747	53 - 70	50	140	83	-	
63A	HSK63A-BAH1-77.5	P2777748	20 - 26	19	110	77.5	73	
	HSK63A-BAH2-89.5	P2777749	25 - 33	24	125	89.5	88	
	HSK63A-BAH3-100	P2777750	32 - 42	31	140	100	103	
	HSK63A-BAH4-93	P2777751	41 - 54	39	140	93	103	
	HSK63A-BAH5-83	P2777752	53 - 70	50	140	83	105	
	HSK63A-BAH6-79	P2777753	68 - 100	64	150	79	-	
100A	HSK100A-BAH1-102.5	P2777754	20 - 26	19	135	102.5	73	
	HSK100A-BAH2-114.5	P2777755	25 - 33	24	150	114.5	107	
	HSK100A-BAH3-125	P2777756	32 - 42	31	165	125	122	
	HSK100A-BAH4-118	P2777757	41 - 54	39	165	118	122	
	HSK100A-BAH4-178	P2777758	41 - 54	39	225	178	182	
	HSK100A-BAH5-108	P2777759	53 - 70	50	165	108	122	
	HSK100A-BAH5-183	P2777760	53 - 70	50	240	183	197	
	HSK100A-BAH5-228	P2777761	53 - 70	50	285	228	242	
	HSK100A-BAH6-94	P2777762	68 - 100	64	165	94	122	
	HSK100A-BAH6-169	P2777763	68 - 100	64	240	169	197	
	HSK100A-BAH6-229	P2777764	68 - 100	64	300	229	257	
	HSK100A-BAH7-123	P2777765	100 - 153	90	210	123	181	
	HSK100A-BAH7-273	P2777766	100 - 153	90	360	273	331	

▶ Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar.

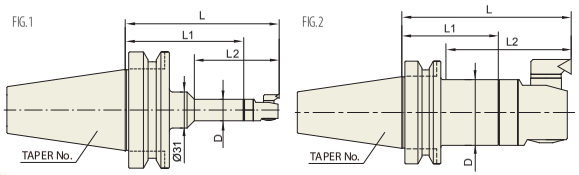
BORING SYSTEM

BAH

FINE BORING BAR (SMALL BORE)

JIS B6339/ MAS 403-BT

FEINBOHRHALTER
ALÉSAGE PROFOND
BARRE DI ALESATURA FINE
BARRA DE MANDRINADO FINO



IS 6339 T | AT3 | AD

Unit : mm

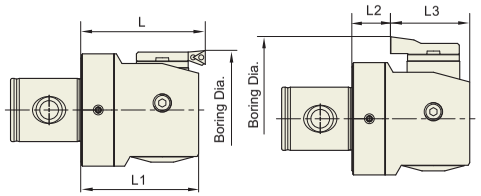
TAPER No.	MODEL No.	EDP No.	BORE RANGE (FRONT)	D	L	L1	L2	FIG.	WEIGHT (kg)
30	BT30-BAH1-105	P2777701	20 - 26	19	104.5	72	73	1	
	BT30-BAH2-75	P2777702	25 - 33	24	73	37.5	48	2	
	BT30-BAH2-120	P2777703	25 - 33	24	118	82.5	93	2	
	BT30-BAH3-80	P2777704	32 - 42	31	79	39	53	2	
	BT30-BAH3-120	P2777705	32 - 42	31	119	79	93	2	
	BT30-BAH4-85	P2777706	41 - 54	39	85	38	58	2	
	BT30-BAH4-120	P2777707	41 - 54	39	120	73	93	2	
	BT30-BAH5-120	P2777708	53 - 70	50	120	63	93	2	
40	BT40-BAH1-105	P2777709	20 - 26	19	104.5	72	73	2	
	BT40-BAH2-80	P2777710	25 - 33	24	78	42.5	48	2	
	BT40-BAH2-120	P2777711	25 - 33	24	118	82.5	88	2	
	BT40-BAH3-85	P2777712	32 - 42	31	84	44	53	2	
	BT40-BAH3-135	P2777713	32 - 42	31	134	94	103	2	
	BT40-BAH4-90	P2777714	41 - 54	39	90	43	58	2	
	BT40-BAH4-135	P2777715	41 - 54	39	135	88	103	2	
	BT40-BAH5-105	P2777716	53 - 70	50	105	48	73	2	
	BT40-BAH5-135	P2777717	53 - 70	50	135	79	103	2	
	BT40-BAH6-135	P2777718	68 - 100	64	135	64	103	2	
50	BT50-BAH1-135	P2777719	20 - 26	19	134.5	102	73	1	
	BT50-BAH2-90	P2777720	25 - 33	24	88	52.5	47	2	
	BT50-BAH2-150	P2777721	25 - 33	24	148	112.5	107	2	
	BT50-BAH3-95	P2777722	32 - 42	31	94	54	52	2	
	BT50-BAH3-165	P2777723	32 - 42	31	164	124	122	2	
	BT50-BAH4-105	P2777724	41 - 54	39	105	58	62	2	
	BT50-BAH4-165	P2777725	41 - 54	39	165	118	122	2	
	BT50-BAH4-225	P2777726	41 - 54	39	225	178	182	2	
	BT50-BAH5-120	P2777727	53 - 70	50	120	63	77	2	
	BT50-BAH5-165	P2777728	53 - 70	50	165	108	122	2	
	BT50-BAH5-240	P2777729	53 - 70	50	240	183	197	2	
	BT50-BAH5-285	P2777730	53 - 70	50	285	228	242	2	
	BT50-BAH6-165	P2777731	68 - 100	64	165	94	122	2	
	BT50-BAH6-240	P2777732	68 - 100	64	240	169	197	2	
	BT50-BAH6-300	P2777733	68 - 100	64	300	229	257	2	
	BT50-BAH7-180	P2777734	100 - 153	90	180	93	142	2	
	BT50-BAH7-330	P2777735	100 - 153	90	330	243	292	2	

▶ Basic Holder, Extension Bar and Reduction Bar interchangeable between Fine Boring Bar and Twin Edge Boring Bar.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

BORING HEAD
(For FINE BORING BAR-SMALL BORE)

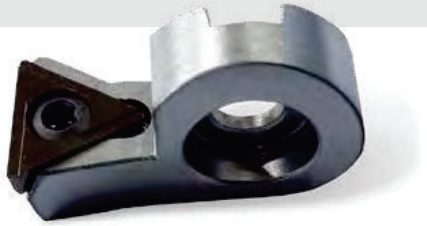


Unit : mm

MODEL No.	EDP No.	CARTRIDGE	FRONT BORE			BACK BORE			INSERT	WEIGHT (kg)
			BORE RANGE	L	L1	BORE RANGE	L2	L3		
FBH20	P2777869	FBH1-1	20 - 26	32.5	29.5	-	10.5	19	TP08	
FBH25	P2777870	FBH2-1	25 - 33	35.5	32.5	-	10.5	19	TP08	
FBH32	P2777871	FBH3-1	32 - 42	40	35	-	10	25	TP08	
FBH41	P2777872	FBH4-1	41 - 54	47	43	-	14	29	TP11	
FBH53	P2777873	FBH5-1	53 - 70	57	53	52 - 70	19	34	TP11	
FBH68	P2777874	FBH6-1	68 - 100	71	67.2	80 - 100	22	45.2	TP11	
FBH100	P2777875	FBH6-1	100 - 153	71	67.2	112 - 153	22	45.2	TP11	
FBH100-2	P2777876	FBH6-1	100 - 153	87	83.2	112 - 153	38	45.2	TP11	

PART

FBH BITE

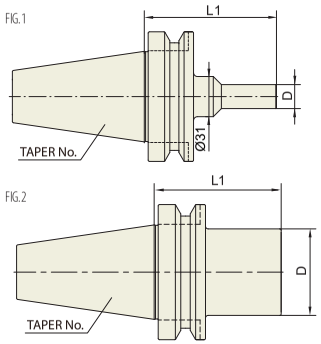


Unit : mm

MODEL No.	EDP No.	INSERT	BORE RANGE	CAMP BOLT	BORING HEAD
FBH20-B	P2802701	TPGT08	20 - 26	FTNA 0204	FBH20
FBH25-B	P2802702	TPGT08	25 - 33	FTNA 0204	FBH25
FBH32-B	P2802703	TPGT08	32 - 42	FTNA 0204	FBH32
FBH41-B	P2802704	TPGT1103	41 - 54	FTNA 0307	FBH41
FBH53-B	P2802705	TPGT1103	53 - 70	FTNA 0307	FBH53
FBH68-B	P2802706	TPGT1103	68 - 100	FTNA 0307	FBH68
FBH100-B	P2802707	TPGT1103	100 - 153	FTNA 0307	FBH100
FBH100-2B	P2802708	TPGT1103	100 - 560	FTNA 0307	FBH100

BASIC HOLDER
(For FINE and TWIN EDGE BORING BAR - SMALL BORE)

JIS B6339/ MAS 403-BT



IS 6339 T

AT3

Unit : mm

TAPER No.	MODEL No.	EDP No.	D	L1	FIG.	WEIGHT (kg)
30	BT30-SAS19-72	P2777794	19	72	1	
	BT30-SAS24-37.5	P2777795	24	37.5	2	
	BT30-SAS24-82.5	P2777796	24	82.5	2	
	BT30-SAS31-39	P2777797	31	39	2	
	BT30-SAS31-79	P2777798	31	79	2	
	BT30-SAS39-38	P2777799	39	38	2	
	BT30-SAS39-73	P2777800	39	73	2	
	BT30-SAS50-63	P2777801	50	63	2	
40	BT40-SAS19-72	P2777802	19	72	2	
	BT40-SAS24-42.5	P2777803	24	42.5	2	
	BT40-SAS24-82.5	P2777804	24	82.5	2	
	BT40-SAS31-44	P2777805	31	44	2	
	BT40-SAS31-94	P2777806	31	94	2	
	BT40-SAS39-43	P2777807	39	43	2	
	BT40-SAS39-88	P2777808	39	88	2	
	BT40-SAS50-48	P2777809	50	48	2	
	BT40-SAS50-79	P2777810	50	79	2	
	BT40-SAS64-64	P2777811	64	64	2	
50	BT50-SAS19-102	P2777812	19	102	1	
	BT50-SAS24-52.5	P2777813	24	52.5	2	
	BT50-SAS24-112.5	P2777814	24	112.5	2	
	BT50-SAS31-54	P2777815	31	54	2	
	BT50-SAS31-124	P2777816	31	124	2	
	BT50-SAS39-58	P2777817	39	58	2	
	BT50-SAS39-118	P2777818	39	118	2	
	BT50-SAS39-178	P2777819	39	178	2	
	BT50-SAS50-63	P2777820	50	63	2	
	BT50-SAS50-108	P2777821	50	108	2	
	BT50-SAS50-183	P2777822	50	183	2	
	BT50-SAS50-228	P2777823	50	228	2	
	BT50-SAS64-94	P2777824	64	94	2	
	BT50-SAS64-169	P2777825	64	169	2	
	BT50-SAS64-229	P2777826	64	229	2	
	BT50-SAS90-93	P2777827	90	93	2	
	BT50-SAS90-243	P2777828	90	243	2	

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
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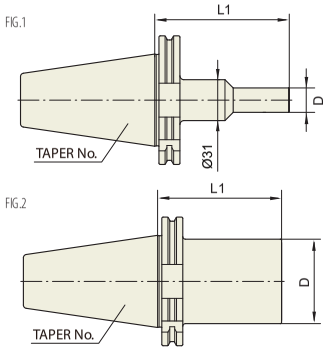
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

BASIC HOLDER

DIN 69871-SK

(For FINE and TWIN EDGE BORING BAR - SMALL BORE)



DIN 69871-SK

AT3

Unit : mm

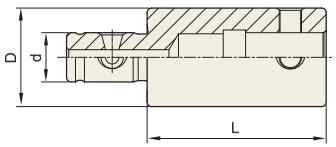
TAPER No.	MODEL No.	EDP No.	D	L1	FIG.	WEIGHT (kg)
40	SK40-SAS19-72	P2777829	19	72	2	
	SK40-SAS24-42.5	P2777830	24	42.5	2	
	SK40-SAS24-82.5	P2777831	24	82.5	2	
	SK40-SAS31-44	P2777832	31	44	2	
	SK40-SAS31-94	P2777833	31	94	2	
	SK40-SAS39-43	P2777834	39	43	2	
	SK40-SAS39-88	P2777835	39	88	2	
	SK40-SAS50-48	P2777836	50	48	2	
	SK40-SAS50-79	P2777837	50	79	2	
	SK40-SAS64-64	P2777838	64	64	2	
50	SK50-SAS19-102	P2777839	19	102	1	
	SK50-SAS24-52.5	P2777840	24	52.5	2	
	SK50-SAS24-112.5	P2777841	24	112.5	2	
	SK50-SAS31-54	P2777842	31	54	2	
	SK50-SAS31-124	P2777843	31	124	2	
	SK50-SAS39-58	P2777844	39	58	2	
	SK50-SAS39-118	P2777845	39	118	2	
	SK50-SAS39-178	P2777846	39	178	2	
	SK50-SAS50-63	P2777847	50	63	2	
	SK50-SAS50-105	P2777848	50	105	2	
	SK50-SAS50-183	P2777849	50	183	2	
	SK50-SAS50-228	P2777850	50	228	2	
	SK50-SAS64-94	P2777851	64	94	2	
	SK50-SAS64-169	P2777852	64	169	2	
	SK50-SAS64-229	P2777853	64	229	2	
	SK50-SAS90-93	P2777854	90	93	2	
	SK50-SAS90-243	P2777855	90	243	2	

BORING SYSTEM

PART

EXTENSION BAR

(For FINE and TWIN EDGE BORING BAR - SMALL BORE)



Unit : mm

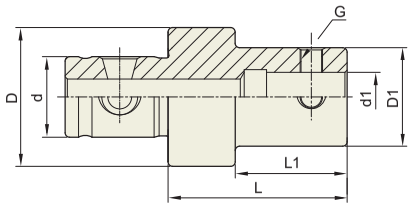
MODEL No.	EDP No.	d	D	L	WEIGHT (kg)
E-BAH1-20	P2777856	11	19	20	
E-BAH1-30	P2777857	11	19	30	
E-BAH2-30	P2777858	14	24	30	
E-BAH2-45	P2777859	14	24	45	
E-BAH3-30	P2777860	18	31	30	
E-BAH3-45	P2777861	18	31	45	
E-BAH4-45	P2777862	22	39	45	
E-BAH4-60	P2777863	22	39	60	
E-BAH5-60	P2777864	28	50	60	
E-BAH5-90	P2777865	28	50	90	
E-BAH6-60	P2777866	36	64	60	
E-BAH6-100	P2777867	36	64	100	
E-BAH7-105	P2777868	46	90	105	

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

REDUCTION BAR

(For FINE and TWIN EDGE BORING BAR-SMALL BORE)



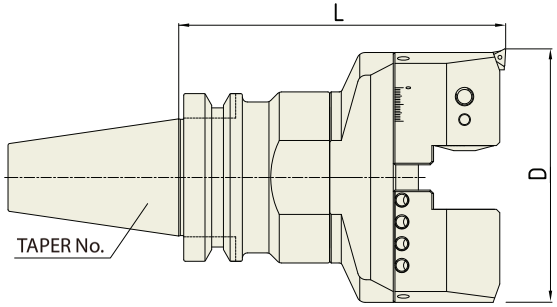
Unit : mm

MODEL No.	EDP No.	d	d1	D	D1	L	L1	G	WEIGHT (kg)
R-SAS24-19-30	P2777912	14	11	24	19	30	20	M5	
R-SAS31-19-30	P2777913	18	11	31	19	30	20	M5	
R-SAS31-24-30	P2777914	18	14	31	24	30	20	M5	
R-SAS39-19-45	P2777915	22	11	39	19	45	25	M5	
R-SAS39-24-45	P2777916	22	14	39	24	45	25	M5	
R-SAS39-31-45	P2777917	22	18	39	31	45	25	M8	
R-SAS50-19-60	P2777918	28	11	50	19	60	35	M5	
R-SAS50-24-60	P2777919	28	14	50	24	60	35	M5	
R-SAS50-31-60	P2777920	28	18	50	31	60	35	M8	
R-SAS50-39-60	P2777921	28	22	50	39	60	35	M8	
R-SAS64-19-60	P2777922	36	11	64	19	60	35	M5	
R-SAS64-24-60	P2777923	36	14	64	24	60	35	M5	
R-SAS64-31-60	P2777924	36	18	64	31	60	35	M8	
R-SAS64-39-60	P2777925	36	22	64	39	60	35	M8	
R-SAS64-50-60	P2777926	36	28	64	50	60	35	M10	
R-SAS90-19-105	P2777927	46	11	90	19	105	75	M5	
R-SAS90-24-105	P2777928	46	14	90	24	105	75	M5	
R-SAS90-31-105	P2777929	46	18	90	31	105	75	M8	
R-SAS90-39-105	P2777930	46	22	90	39	105	75	M8	
R-SAS90-50-105	P2777931	46	28	90	50	105	75	M10	
R-SAS90-64-105	P2777932	46	36	90	64	105	75	M16	

FINE BORING BAR (BIG BORE)

FEIN BOHRHALTER
ALÉSAGE PROFOND
BARRE DI ALESATURA FINE
BARRA DE MANDRINADO FINO

JIS B6339/ MAS 403-BT



IS 6339 T | AT3 | A

Unit : mm

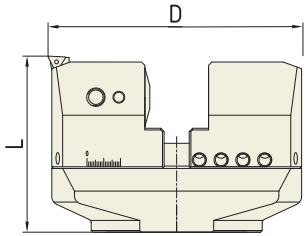
MODEL No.	EDP No.	D (BORE RANGE) Min.	D (BORE RANGE) Max.	BODY (BASIC HOLDER)	BORING HEAD	WEIGHT (kg)
BT50-FBH153-195	P2777877	153	216	BT50-SAS102-90	FBH153S	
BT50-FBH153-265	P2777878			BT50-SAS102-160		
BT50-FBH153-315	P2777879			BT50-SAS102-210		
BT50-FBH153-365	P2777880			BT50-SAS102-260		
BT50-FBH216-195	P2777881	216	276	BT50-SAS102-90	FBH216S	
BT50-FBH216-265	P2777882			BT50-SAS102-160		
BT50-FBH216-315	P2777883			BT50-SAS102-210		
BT50-FBH216-365	P2777884			BT50-SAS102-260		
BT50-FBH276-195	P2777885	276	336	BT50-SAS102-90	FBH276S	
BT50-FBH276-265	P2777886			BT50-SAS102-160		
BT50-FBH276-315	P2777887			BT50-SAS102-210		
BT50-FBH276-365	P2777888			BT50-SAS102-260		
BT50-FBH336-195	P2777889	336	396	BT50-SAS102-90	FBH336S	
BT50-FBH336-265	P2777890			BT50-SAS102-160		
BT50-FBH336-315	P2777891			BT50-SAS102-210		
BT50-FBH336-365	P2777892			BT50-SAS102-260		
BT50-FBH396-195	P2777893	396	456	BT50-SAS102-90	FBH396S	
BT50-FBH396-265	P2777894			BT50-SAS102-160		
BT50-FBH396-315	P2777895			BT50-SAS102-210		
BT50-FBH396-365	P2777896			BT50-SAS102-260		
BT50-FBH456-195	P2777897	456	516	BT50-SAS102-90	FBH456S	
BT50-FBH456-265	P2777898			BT50-SAS102-160		
BT50-FBH456-315	P2777899			BT50-SAS102-210		
BT50-FBH456-365	P2777900			BT50-SAS102-260		
BT50-FBH516-195	P2777901	516	576	BT50-SAS102-90	FBH516S	
BT50-FBH516-265	P2777902			BT50-SAS102-160		
BT50-FBH516-315	P2777903			BT50-SAS102-210		
BT50-FBH516-365	P2777904			BT50-SAS102-260		

▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

BORING HEAD
(For FINE BORING BAR-BIG BORE)



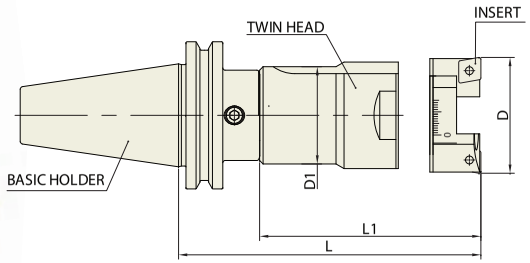
MODEL No.	EDP No.	D (BORE RANGE)		L (HEIGHT)	WEIGHT (kg)
		Min.	Max.		
FBH153S	P2777905	153	216	105	
FBH216S	P2777906	216	276	105	
FBH276S	P2777907	276	336	105	
FBH336S	P2777908	336	396	105	
FBH396S	P2777909	396	456	105	
FBH456S	P2777910	456	516	105	
FBH516S	P2777911	516	576	105	

SPARE PART							
BORING HEAD	PLATE	CARTRIDGE	CLAMPBOLT	COUNTER WEIGHT	WRENCH	CLAMP SCREW	T-WRENCH
FBH153S	PLA153	FTP11	M10*30L	FBB153	L-W 5	FTNA0307	T7
FBH216S	PLA216						
FBH276S	PLA276						
FBH336S	PLA336						
FBH396S	PLA396						
FBH456S	PLA456						
FBH516S	PLA516						

TWIN EDGE BORING BAR (SMALL BORE)

DIN 69871-SK

DOPPELSCHNEIDER - BOHRSTANGE
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE
PORTA TESTINE BILAMA
BARRAS DE MANDRINAR DE DOS PLACAS



DIN 69871-SK AT3 AD

Unit : mm

MODEL No.	EDP No.	D (BORE RANGE)	L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT	WEIGHT (kg)
		Min. - Max.							
SK40-TBH25-122	P2779663	25 - 34	122	SK40-SAS19-72	TBH25-50	22	50	CCMT060204	
SK40-TBH34-104	P2779664	34 - 50	104	SK40-SAS31-44	TBH34-60	31	60	CCMT060204	
SK40-TBH34-154	P2779665	34 - 50	154	SK40-SAS31-94	TBH34-60	31	60	CCMT060204	
SK40-TBH50-123	P2779666	50 - 76	123	SK40-SAS39-43	TBH50-80	42	80	CCMT09T308	
SK40-TBH50-168	P2779667	50 - 76	168	SK40-SAS39-88	TBH50-80	42	80	CCMT09T308	
SK40-TBH76-174	P2779668	76 - 116	174	SK40-SAS64-64	TBH76-110	65	110	CCMT120408	
SK50-TBH25-152	P2779669	25 - 34	152	SK50-SAS19-102	TBH25-50	22	50	CCMT060204	
SK50-TBH34-114	P2779670	34 - 50	114	SK50-SAS31-54	TBH34-60	31	60	CCMT060204	
SK50-TBH34-184	P2779671	34 - 50	184	SK50-SAS31-124	TBH34-60	31	60	CCMT060204	
SK50-TBH50-138	P2779672	50 - 76	138	SK50-SAS39-58	TBH50-80	42	80	CCMT09T308	
SK50-TBH50-198	P2779673	50 - 76	198	SK50-SAS39-118	TBH50-80	42	80	CCMT09T308	
SK50-TBH50-258	P2779674	50 - 76	258	SK50-SAS39-178	TBH50-80	42	80	CCMT09T308	
SK50-TBH76-204	P2779675	76 - 116	204	SK50-SAS64-94	TBH76-110	65	110	CCMT120408	
SK50-TBH76-279	P2779676	76 - 116	279	SK50-SAS64-169	TBH76-110	65	110	CCMT120408	
SK50-TBH76-339	P2779677	76 - 116	339	SK50-SAS64-229	TBH76-110	65	110	CCMT120408	
SK50-TBH116-198	P2779678	116 - 156	198	SK50-SAS90-93	TBH116-105	90	105	CCMT120408	
SK50-TBH116-348	P2779679	116 - 156	348	SK50-SAS90-243	TBH116-105	90	105	CCMT120408	

▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

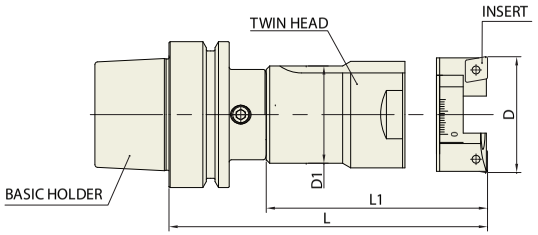
BORING SYSTEM

TBH

TWIN EDGE BORING BAR (SMALL BORE)

DIN 69893/
ISO 12164-1-HSK FORM A

DOPPELSCHNEIDER - BOHRSTANGE
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE
PORTA TESTINE BILAMA
BARRAS DE MANDRINAR DE DOS PLACAS



DIN 69893-HSK AD

Unit : mm

MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT	WEIGHT (kg)
HSK40A-TBH25-122.5	P2779642	25 - 34	122.5	HSK40A-SAS19-72.5	TBH25-50	22	50	CCMT060204	
HSK40A-TBH34-105	P2779643	34 - 50	105	HSK40A-SAS31-45	TBH34-60	31	60	CCMT060204	
HSK40A-TBH34-140	P2779644	34 - 50	140	HSK40A-SAS31-80	TBH34-60	31	60	CCMT060204	
HSK40A-TBH50-133	P2779645	50 - 76	133	HSK40A-SAS39-53	TBH50-80	42	80	CCMT09T308	
HSK40A-TBH50-153	P2779646	50 - 76	153	HSK40A-SAS39-73	TBH50-80	42	80	CCMT09T308	
HSK50A-TBH25-122.5	P2779647	25 - 34	122.5	HSK50A-SAS19-72.5	TBH25-50	22	50	CCMT060204	
HSK50A-TBH34-140	P2779648	34 - 50	140	HSK50A-SAS31-80	TBH34-60	31	60	CCMT060204	
HSK50A-TBH50-153	P2779649	50 - 76	153	HSK50A-SAS39-73	TBH50-80	42	80	CCMT09T308	
HSK63A-TBH25-127.5	P2779650	25 - 34	127.5	HSK63A-SAS19-77.5	TBH25-50	22	50	CCMT060204	
HSK63A-TBH34-160	P2779651	34 - 50	160	HSK63A-SAS31-100	TBH34-60	31	60	CCMT060204	
HSK63A-TBH50-173	P2779652	50 - 76	173	HSK63A-SAS39-93	TBH50-80	42	80	CCMT09T308	
HSK63A-TBH76-189	P2779653	76 - 116	189	HSK63A-SAS64-79	TBH76-110	65	110	CCMT120408	
HSK100A-TBH19-152.5	P2779654	25 - 34	152.5	HSK100A-SAS19-102.5	TBH25-50	22	50	CCMT060204	
HSK100A-TBH34-185	P2779655	34 - 50	185	HSK100A-SAS31-125	TBH34-60	31	60	CCMT060204	
HSK100A-TBH50-198	P2779656	50 - 76	198	HSK100A-SAS39-118	TBH50-80	42	80	CCMT09T308	
HSK100A-TBH50-258	P2779657	50 - 76	258	HSK100A-SAS39-178	TBH50-80	42	80	CCMT09T308	
HSK100A-TBH76-204	P2779658	76 - 116	204	HSK100A-SAS64-94	TBH76-110	65	110	CCMT120408	
HSK100A-TBH76-279	P2779659	76 - 116	279	HSK100A-SAS64-169	TBH76-110	65	110	CCMT120408	
HSK100A-TBH76-339	P2779660	76 - 116	339	HSK100A-SAS64-229	TBH76-110	65	110	CCMT120408	
HSK100A-TBH116-228	P2779661	116 - 156	228	HSK100A-SAS90-123	TBH116-105	90	105	CCMT120408	
HSK100A-TBH116-378	P2779662	116 - 156	378	HSK100A-SAS90-273	TBH116-105	90	105	CCMT120408	

▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

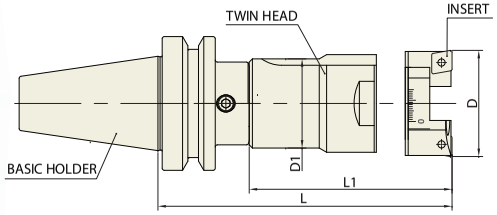
BORING SYSTEM

FBH

TWIN EDGE BORING BAR (SMALL BORE)

JIS B6339/
MAS 403-BT

DOPPELSCHNEIDER - BOHRSTANGE
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE
PORTA TESTINE BILAMA
BARRAS DE MANDRINAR DE DOS PLACAS



IS 6339 T AT3 AD

Unit : mm

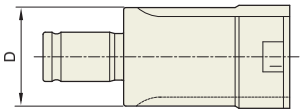
MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT	WEIGHT (kg)
BT30-TBH25-122	P2779620	25 - 34	122	BT30-SAS19-72	TBH25-50	22	50	CCMT060204	
BT30-TBH34-99	P2779621	34 - 50	99	BT30-SAS31-39	TBH34-60	31	60	CCMT060204	
BT30-TBH34-139	P2779622	34 - 50	139	BT30-SAS31-79	TBH34-60	31	60	CCMT060204	
BT30-TBH50-118	P2779623	50 - 76	118	BT30-SAS39-38	TBH50-80	42	80	CCMT09T308	
BT30-TBH50-153	P2779624	50 - 76	153	BT30-SAS39-73	TBH50-80	42	80	CCMT09T308	
BT40-TBH25-122	P2779625	25 - 34	122	BT40-SAS19-72	TBH25-50	22	50	CCMT060204	
BT40-TBH34-104	P2779626	34 - 50	104	BT40-SAS31-44	TBH34-60	31	60	CCMT060204	
BT40-TBH34-154	P2779627	34 - 50	154	BT40-SAS31-94	TBH34-60	31	60	CCMT060204	
BT40-TBH50-123	P2779628	50 - 76	123	BT40-SAS39-43	TBH50-80	42	80	CCMT09T308	
BT40-TBH50-168	P2779629	50 - 76	168	BT40-SAS39-88	TBH50-80	42	80	CCMT09T308	
BT40-TBH76-174	P2779630	76 - 116	174	BT40-SAS64-64	TBH76-110	65	110	CCMT120408	
BT50-TBH25-152	P2779631	25 - 34	152	BT50-SAS19-102	TBH25-50	22	50	CCMT060204	
BT50-TBH34-114	P2779632	34 - 50	114	BT50-SAS31-54	TBH34-60	31	60	CCMT060204	
BT50-TBH34-184	P2779633	34 - 50	184	BT50-SAS31-124	TBH34-60	31	60	CCMT060204	
BT50-TBH50-138	P2779634	50 - 76	138	BT50-SAS39-58	TBH50-80	42	80	CCMT09T308	
BT50-TBH50-198	P2779635	50 - 76	198	BT50-SAS39-118	TBH50-80	42	80	CCMT09T308	
BT50-TBH50-258	P2779636	50 - 76	258	BT50-SAS39-178	TBH50-80	42	80	CCMT09T308	
BT50-TBH76-204	P2779637	76 - 116	204	BT50-SAS64-94	TBH76-110	65	110	CCMT120408	
BT50-TBH76-279	P2779638	76 - 116	279	BT50-SAS64-169	TBH76-110	65	110	CCMT120408	
BT50-TBH76-339	P2779639	76 - 116	339	BT50-SAS64-229	TBH76-110	65	110	CCMT120408	
BT50-TBH116-198	P2779640	116 - 156	198	BT50-SAS90-93	TBH116-105	90	105	CCMT120408	
BT50-TBH116-348	P2779641	116 - 156	348	BT50-SAS90-243	TBH116-105	90	105	CCMT120408	

▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

BORING HEAD
(For TWIN EDGE BORING BAR-SMALL BORE)

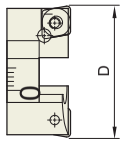


Unit : mm

MODEL No.	EDP No.	D	WEIGHT (kg)
SAS22-TBH25-50	P2779529	22	
SAS31-TBH34-60	P2779530	31	
SAS42-TBH50-80	P2779531	42	
SAS65-TBH76-110	P2779532	65	
SAS84-TBH116-145	P2779533	84	

PART

INSERT HOLDER
(CARTRIDGE For TWIN EDGE BORING BAR-SMALL BORE)

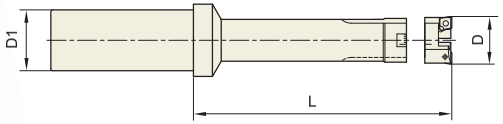


Unit : mm

MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	WEIGHT (kg)
TBH25-CC06	P2779534	25 - 34	
TBH34-CC06	P2779535	34 - 50	
TBH50-CC09	P2779536	50 - 76	
TBH76-CC12	P2779537	76 - 116	
TBH116-CC12	P2779538	116 - 156	

TWIN EDGE BORING BAR
STRAIGHT-ST

DOPPELSCHNEIDER - BOHRSTANGE - GERADEAUS SCHAFT
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE - TOUT DROIT TIGE
PORTA TESTINE BILAMA - TIBIA DIRITTA
BARRA S DE MANDRINAR DE DOS PLACAS - CANA RECTA



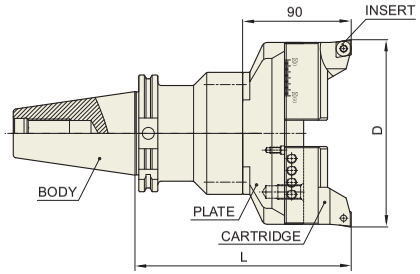
Unit : mm

TYPE	MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	D1	INSERT	WEIGHT (kg)
32	ST32-TBH25-125	P2779559	25 - 34	125	32	CCMT060200	
	ST32-TBH34-130	P2779560	34 - 50	130	32	CCMT060200	
	ST32-TBH50-155	P2779561	50 - 76	155	32	CCMT09T300	
40	ST40-TBH76-185	P2779562	76 - 116	185	40	CCMT120400	
42	ST42-TBH76-185	P2779563	76 - 116	185	42	CCMT120400	

TWIN EDGE BORING BAR (BIG BORE)

DIN 69871-SK

DOPPELSCHNEIDER - BOHRSTANGE
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE
PORTA TESTINE BILAMA
BARRAS DE MANDRINAR DE DOS PLACAS



DIN 69871-SK | AT3 | A

Unit : mm

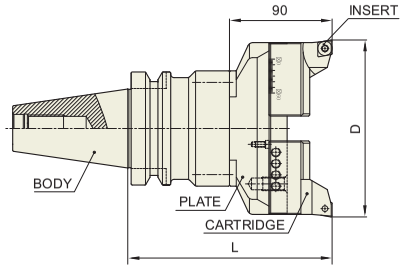
MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	BODY	PLATE	INSERT	WEIGHT (kg)
SK50-TBH156-180	P2779585	156 - 216	180	SK50-SAS102-90	PLA156	CCMT120400	
SK50-TBH156-230	P2779586	156 - 216	230	SK50-SAS102-140	PLA156	CCMT120400	
SK50-TBH156-280	P2779587	156 - 216	280	SK50-SAS102-190	PLA156	CCMT120400	
SK50-TBH216-180	P2779588	216 - 276	180	SK50-SAS102-90	PLA216	CCMT120400	
SK50-TBH216-230	P2779589	216 - 276	230	SK50-SAS102-140	PLA216	CCMT120400	
SK50-TBH216-280	P2779590	216 - 276	280	SK50-SAS102-190	PLA216	CCMT120400	
SK50-TBH276-180	P2779591	276 - 336	180	SK50-SAS102-90	PLA276	CCMT120400	
SK50-TBH276-230	P2779592	276 - 336	230	SK50-SAS102-140	PLA276	CCMT120400	
SK50-TBH276-280	P2779593	276 - 336	280	SK50-SAS102-190	PLA276	CCMT120400	
SK50-TBH336-180	P2779594	336 - 396	180	SK50-SAS102-90	PLA336	CCMT120400	
SK50-TBH336-230	P2779595	336 - 396	230	SK50-SAS102-140	PLA336	CCMT120400	
SK50-TBH336-280	P2779596	336 - 396	280	SK50-SAS102-190	PLA336	CCMT120400	
SK50-TBH396-180	P2779597	396 - 456	180	SK50-SAS102-90	PLA396	CCMT120400	
SK50-TBH396-230	P2779598	396 - 456	230	SK50-SAS102-140	PLA396	CCMT120400	
SK50-TBH396-280	P2779599	396 - 456	280	SK50-SAS102-190	PLA396	CCMT120400	
SK50-TBH456-180	P2779600	456 - 516	180	SK50-SAS102-90	PLA456	CCMT120400	
SK50-TBH456-230	P2779601	456 - 516	230	SK50-SAS102-140	PLA456	CCMT120400	
SK50-TBH456-280	P2779602	456 - 516	280	SK50-SAS102-190	PLA456	CCMT120400	
SK50-TBH516-180	P2779603	516 - 576	180	SK50-SAS102-90	PLA516	CCMT120400	
SK50-TBH516-230	P2779604	516 - 576	230	SK50-SAS102-140	PLA516	CCMT120400	
SK50-TBH516-280	P2779605	516 - 576	280	SK50-SAS102-190	PLA516	CCMT120400	

▶ Upon request, special twin edge boring bars with a boring range up to 800mm could be manufactured and supplied.
▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

TWIN EDGE BORING BAR (BIG BORE)

JIS B6339/ MAS 403-BT

DOPPELSCHNEIDER - BOHRSTANGE
BARRE D'ALÉSAGE À 2 ARÊTES DE COUPE
PORTA TESTINE BILAMA
BARRAS DE MANDRINAR DE DOS PLACAS



IS 6339 T | AT3 | A

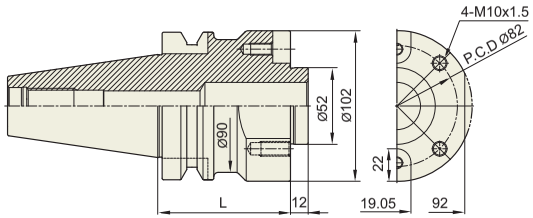
Unit : mm

MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	BODY	PLATE	INSERT	WEIGHT (kg)
BT50-TBH156-180	P2779564	156 - 216	180	BT50-SAS102-90	PLA156	CCMT120400	
BT50-TBH156-230	P2779565	156 - 216	230	BT50-SAS102-140	PLA156	CCMT120400	
BT50-TBH156-280	P2779566	156 - 216	280	BT50-SAS102-190	PLA156	CCMT120400	
BT50-TBH216-180	P2779567	216 - 276	180	BT50-SAS102-90	PLA216	CCMT120400	
BT50-TBH216-230	P2779568	216 - 276	230	BT50-SAS102-140	PLA216	CCMT120400	
BT50-TBH216-280	P2779569	216 - 276	280	BT50-SAS102-190	PLA216	CCMT120400	
BT50-TBH276-180	P2779570	276 - 336	180	BT50-SAS102-90	PLA276	CCMT120400	
BT50-TBH276-230	P2779571	276 - 336	230	BT50-SAS102-140	PLA276	CCMT120400	
BT50-TBH276-280	P2779572	276 - 336	280	BT50-SAS102-190	PLA276	CCMT120400	
BT50-TBH336-180	P2779573	336 - 396	180	BT50-SAS102-90	PLA336	CCMT120400	
BT50-TBH336-230	P2779574	336 - 396	230	BT50-SAS102-140	PLA336	CCMT120400	
BT50-TBH336-280	P2779575	336 - 396	280	BT50-SAS102-190	PLA336	CCMT120400	
BT50-TBH396-180	P2779576	396 - 456	180	BT50-SAS102-90	PLA396	CCMT120400	
BT50-TBH396-230	P2779577	396 - 456	230	BT50-SAS102-140	PLA396	CCMT120400	
BT50-TBH396-280	P2779578	396 - 456	280	BT50-SAS102-190	PLA396	CCMT120400	
BT50-TBH456-180	P2779579	456 - 516	180	BT50-SAS102-90	PLA456	CCMT120400	
BT50-TBH456-230	P2779580	456 - 516	230	BT50-SAS102-140	PLA456	CCMT120400	
BT50-TBH456-280	P2779581	456 - 516	280	BT50-SAS102-190	PLA456	CCMT120400	
BT50-TBH516-180	P2779582	516 - 576	180	BT50-SAS102-90	PLA516	CCMT120400	
BT50-TBH516-230	P2779583	516 - 576	230	BT50-SAS102-140	PLA516	CCMT120400	
BT50-TBH516-280	P2779584	516 - 576	280	BT50-SAS102-190	PLA516	CCMT120400	

▶ Upon request, special twin edge boring bars with a boring range up to 800mm could be manufactured and supplied.
▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

BORING HEAD
(For FINE and TWIN EDGE BORING BAR-BIG BORE)

JIS B6339/
MAS 403-BT

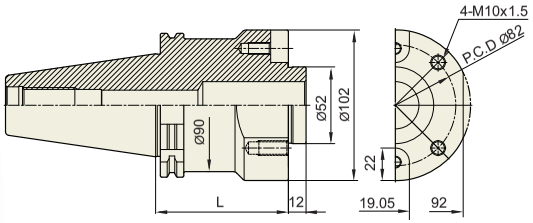


IS 6339 T AT3

Unit : mm

MODEL No.	EDP No.	L	WEIGHT (kg)
BT50-SAS102-90	P2779606	90	
BT50-SAS102-140	P2779607	140	
BT50-SAS102-190	P2779608	190	

DIN 69871-SK



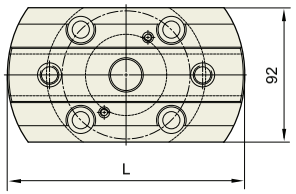
DIN 69871-SK AT3

Unit : mm

MODEL No.	EDP No.	L	WEIGHT (kg)
SK50-SAS102-90	P2779609	90	
SK50-SAS102-140	P2779610	140	
SK50-SAS102-190	P2779611	190	

▶ Basic holder interchangeable between Fine Boring Bar and Twing Edge Boring Bar.

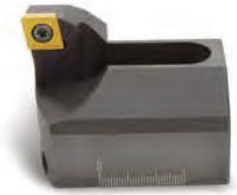
PLATE
(For TWIN EDGE BORING BAR-BIG BORE)

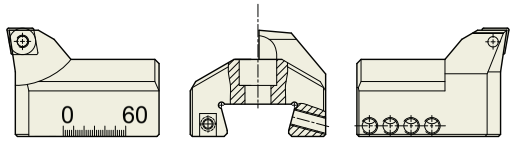


Unit : mm

PLATE	EDP No.	D	WEIGHT (kg)
PLA156	P2779612	152	
PLA216	P2779613	212	
PLA276	P2779614	272	
PLA336	P2779615	332	
PLA396	P2779616	392	
PLA456	P2779617	452	
PLA516	P2779618	512	

INSERT HOLDER
(CARTRIDGE For TWIN EDGE BORING BAR-BIG BORE)





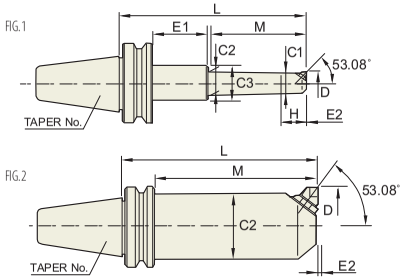
Unit : mm

CARTRIDGE (For Rough Cutting)	EDP No.	WEIGHT (kg)
CN120	P2779619	

MICRO BORING BAR

MIKRO - BOHRSTANGE
BARRE D'ALÉSAGE MICRO
PORTA TESTINE MICROREGISTRABILI
BARRAS DE MANDRINAR MICRO

JIS B6339/
MAS 403-BT



IS 6339 T | AT3 | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	M	C1	C2	C3	H	E1	E2	UNIT	INSERT	FIG.	WEIGHT (kg)
30	BT30-BCA13.5-105	P2779701	13.5 - 16	105	68	12	13.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT30-BCA14.5-105	P2779702	14.5 - 17	105	68	13	14.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT30-BCA16-105	P2779703	16 - 22.5	105	73	14	15	-	18	-	0.2	M1A2E/F	BRAZED TYPE	3	
	BT30-BCA19-120	P2779704	19 - 23	120	85	16	18	44	23	3	0.2	M2B2CC	CCGT0401	1	0.70
	BT30-BCA23-135	P2779705	23 - 29	135	105	19	22	-	24	-	0.2	M3B2TC	TBGT0601	3	0.70
	BT30-BCA29-150	P2779706	29 - 41	150	115	25	28	44	30	8	0.2	M3A2TC	TBGT0601	1	0.90
	BT30-BCA29-195	P2779707	29 - 41	195	115	25	28	44	30	53	0.2	M3A2TC	TBGT0601	1	
	BT30-BCA38-150	P2779708	38 - 49	150	115	33	35	55	41	8	0.2	M5B2TC	TCGT1102	1	1.40
	BT30-BCA38-210	P2779709	38 - 49	210	175	33	37	55	41	8	0.2	M5B2TC	TCGT1102	1	
	BT30-BCA46-150	P2779710	46 - 66	150	115	38	41	55	45	8	0.2	M5A2TC	TCGT1102	1	2.10
	BT30-BCA46-210	P2779711	46 - 66	210	175	38	45	55	45	8	0.2	M5A2TC	TCGT1102	1	
	BT30-BCA62-165	P2779712	62 - 87	165	135	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	
40	BT40-BCA13.5-105	P2779713	13.5 - 16	105	68	12	13.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT40-BCA14.5-105	P2779714	14.5 - 17	105	68	13	14.0	44	15	5	0.2	M1B2E/F	BRAZED TYPE	1	
	BT40-BCA16-105	P2779715	16 - 22.5	105	73	14	15	-	18	-	0.2	M1A2E/F	BRAZED TYPE	3	
	BT40-BCA19-120	P2779716	19 - 23	120	85	16	18	44	23	3	0.2	M2B2CC	CCGT0401	1	1.50
	BT40-BCA23-135	P2779717	23 - 29	135	105	19	22	-	24	-	0.2	M3B2TC	TBGT0601	3	1.50
	BT40-BCA29-150	P2779718	29 - 41	150	115	25	28	44	30	8	0.2	M3A2TC	TBGT0601	1	1.50
	BT40-BCA29-195	P2779719	29 - 41	195	115	25	28	44	30	53	0.2	M3A2TC	TBGT0601	1	2.00
	BT40-BCA38-150	P2779720	38 - 49	150	115	33	35	55	41	8	0.2	M5B2TC	TCGT1102	1	1.80
	BT40-BCA38-210	P2779721	38 - 49	210	175	33	37	55	41	8	0.2	M5B2TC	TCGT1102	1	2.20
	BT40-BCA46-150	P2779722	46 - 66	150	115	38	41	55	45	8	0.2	M5A2TC	TCGT1102	1	2.10
	BT40-BCA46-210	P2779723	46 - 66	210	175	38	45	55	45	8	0.2	M5A2TC	TCGT1102	1	2.30
	BT40-BCA62-165	P2779724	62 - 87	165	135	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	2.90
	BT40-BCA62-210	P2779725	62 - 87	210	180	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	3.60
	BT40-BCA83-150	P2779726	83 - 108	150	120	63	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	
	BT40-BCA83-210	P2779727	83 - 108	210	180	63	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	
	BT40-BCA98-150	P2779728	98 - 142	150	120	83	-	-	85	-	0.2	M10A2TC	TCGT16T3	4	

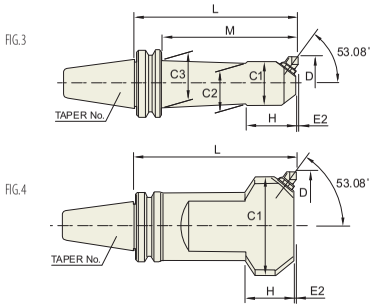
BORING SYSTEM

BCA

MICRO BORING BAR

MIKRO - BOHRSTANGE
BARRE D'ALÉSAGE MICRO
PORTA TESTINE MICROREGISTRABILI
BARRAS DE MANDRINAR MICRO

JIS B6339/
MAS 403-BT



IS 6339 T | AT3 | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	M	C1	C2	C3	H	E1	E2	UNIT	INSERT	FIG.	WEIGHT (kg)
50	BT50-BCA13.5-120	P2779729	13.5 - 16	120	67	12	13	44	15	10	0.2	M1B2E/F	-	1	
	BT50-BCA13.5-195	P2779730	13.5 - 16	195	67	12	13	44	15	85	0.2	M1B2E/F	-	1	
	BT50-BCA14.5-120	P2779731	14.5 - 17	120	67	13	14	44	15	10	0.2	M1B2E/F	-	1	
	BT50-BCA14.5-195	P2779732	14.5 - 17	195	67	13	14	44	15	85	0.2	M1B2E/F	-	1	
	BT50-BCA16-120	P2779733	16 - 22.5	120	73	14	15	44	18	4	0.2	M1A2E/F	-	1	
	BT50-BCA16-195	P2779734	16 - 22.5	195	73	14	15	44	18	79	0.2	M1A2E/F	-	1	
	BT50-BCA19-135	P2779735	19 - 23	135	86	16	18	44	23	6	0.2	M2B2CC	CCGT0401	1	3.80
	BT50-BCA19-210	P2779736	19 - 23	210	86	16	18	44	23	81	0.2	M2B2CC	CCGT0401	1	
	BT50-BCA23-150	P2779737	23 - 29	150	105	19	22	44	24	2	0.2	M3B2TC	TBGT0601	1	3.90
	BT50-BCA23-225	P2779738	23 - 29	225	105	19	22	44	24	77	0.2	M3B2TC	TBGT0601	1	
	BT50-BCA29-165	P2779739	29 - 41	165	115	25	28	44	30	7	0.2	M3A2TC	TBGT0601	1	4.50
	BT50-BCA29-225	P2779740	29 - 41	225	165	25	28	44	30	67	0.2	M3A2TC	TBGT0601	1	
	BT50-BCA38-165	P2779741	38 - 49	165	115	33	35	55	41	7	0.2	M5B2TC	TCGT1102	1	
	BT50-BCA38-225	P2779742	38 - 49	225	172	33	37	55	41	10	0.2	M5B2TC	TCGT1102	1	5.00
	BT50-BCA46-165	P2779743	46 - 66	165	115	38	41	55	45	7	0.2	M5A2TC	TCGT1102	1	5.20
	BT50-BCA46-225	P2779744	46 - 66	225	182	38	-	-	45	-	0.2	M5A2TC	TCGT1102	3	
	BT50-BCA46-255	P2779745	46 - 66	255	206	38	-	55	45	6	0.2	M5A2TC	TCGT1102	1	5.70
	BT50-BCA62-180	P2779746	62 - 87	180	137	51	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	7.00
	BT50-BCA62-240	P2779747	62 - 87	240	184	51	57	70	60	13	0.2	M7A2TC	TCGT16T3	1	7.60
	BT50-BCA62-330	P2779748	62 - 87	330	280	51	60	70	60	7	0.2	M7A2TC	TCGT16T3	1	9.50
	BT50-BCA83-165	P2779749	83 - 108	165	122	63	-	-	-	-	0.2	M7A2TC	TCGT16T3	2	
	BT50-BCA83-240	P2779750	83 - 108	240	190	63	62	90	95	7	0.2	M7A2TC	TCGT16T3	1	
	BT50-BCA83-345	P2779751	83 - 108	345	295	63	62	90	95	7	0.2	M7A2TC	TCGT16T3	1	
	BT50-BCA98-165	P2779752	98 - 142	165	122	83	-	-	-	-	0.2	M10A2TC	TCGT16T3	2	
	BT50-BCA98-240	P2779753	98 - 142	240	197	83	-	-	-	-	0.2	M10A2TC	TCGT16T3	2	
	BT50-BCA98-345	P2779754	98 - 142	345	302	83	92	-	85	-	0.2	M10A2TC	TCGT16T3	3	
	BT50-BCA132-210	P2779755	132 - 176	210	-	108	-	-	65	-	0.2	M10A2TC	TCGT16T3	4	
	BT50-BCA132-315	P2779756	132 - 176	315	-	108	-	-	65	-	0.2	M10A2TC	TCGT16T3	4	
	BT50-BCA166-225	P2779757	166 - 210	225	-	142	-	-	70	-	0.2	M10A2TC	TCGT16T3	4	
	BT50-BCA166-315	P2779758	166 - 210	315	-	142	-	-	70	-	0.2	M10A2TC	TCGT16T3	4	
	BT50-BCA200-210	P2779759	200 - 244	210	-	176	-	-	75	-	0.2	M10A2TC	TCGT16T3	4	

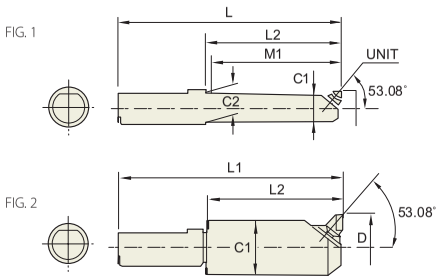
TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

MICRO BORING BAR

STRAIGHT-ST

MIKRO - BOHRSTANGE
BARRE D'ALÉSAGE MICRO
PORTA TESTINE MICROREGISTRABILI
BARRAS DE MANDRINAR MICRO

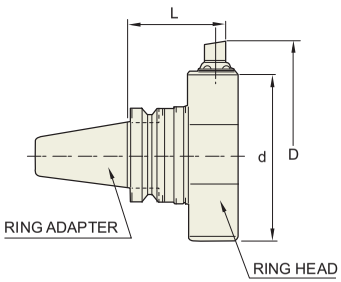


Unit : mm

TYPE	MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L1	L2	M1	C1	C2	UNIT	FIG.	WEIGHT (kg)
32	ST32-BCA13.5-75	P2779760	13.5 - 16	135	75	67	12	13	M1B2E/F	1	0.50
	ST32-BCA14.5-75	P2779761	14.5 - 17	145	75	67	12	14	M1B2E/F	1	0.50
	ST32-BCA16-90	P2779762	16 - 22.5	160	90	82	14	15	M1A2E/F	1	0.50
	ST32-BCA19-90	P2779763	19 - 23.0	160	90	82	16	18	M2B-2CC	1	0.50
	ST32-BCA23-120	P2779764	23 - 29.0	190	120	110	19	22	M3B-2TC	1	1.00
	ST32-BCA29-120	P2779765	29 - 41.0	190	120	110	25	28	M3A-2TC	1	1.00
	ST32-BCA38-120	P2779766	38 - 49.0	190	120	115	33	35	M5B-2TC	2	1.50
	ST32-BCA46-120	P2779767	46 - 66	190	120	115	38	-	M5A-2TC	2	1.50
	ST32-BCA62-120	P2779768	62 - 87.0	190	120	115	51	-	M7A-2TC	2	2.50
42	ST42-BCA13.5-85	P2779769	13.5 - 16	165	85	67	12	13	M1B2E/F	1	1.00
	ST42-BCA14.5-85	P2779770	14.5 - 17	165	85	67	12	14	M1B2E/F	1	1.00
	ST42-BCA16-100	P2779771	16 - 22.5	180	100	82	14	15	M1A2E/F	1	1.00
	ST42-BCA19-100	P2779772	19 - 23.0	180	100	82	16	18	M2B2E/F	1	1.00
	ST42-BCA23-120	P2779773	23 - 29.0	200	120	110	19	22	M3B-2TC	1	1.50
	ST42-BCA29-120	P2779774	29 - 41.0	200	120	110	25	28	M3A-2TC	1	1.50
	ST42-BCA38-130	P2779775	38 - 49.0	210	130	125	33	35	M5B-2TC	1	1.50
	ST42-BCA46-135	P2779776	46 - 66.0	215	135	130	38	44	M5A-2TC	1	1.50
	ST42-BCA62-135	P2779777	62 - 87.0	215	135	130	51	-	M7A-2TC	2	2.50
	ST42-BCA83-150	P2779778	83 - 108	230	150	145	63	-	M7A-2TC	2	3.00

BIG SIZE MICRO CUT BORING BAR

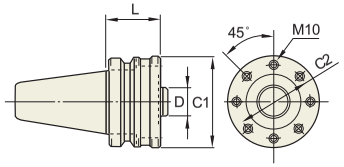
JIS B6339/
MAS 403-BT



BORING RING HOLDER

Unit : mm

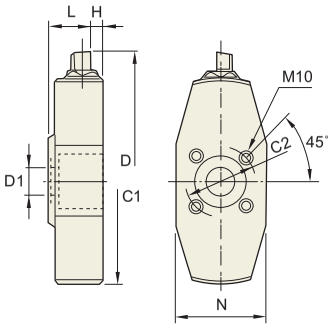
MODEL No.	EDP No.	d	D	L
BT50-BRA140-105	P2779779	140	197	105
BT50-BRA140-165	P2779780	140	197	165
BT50-BRA191-105	P2779781	191	248	105
BT50-BRA191-165	P2779782	191	248	165
BT50-BRA242-105	P2779783	242	299	105
BT50-BRA242-165	P2779784	242	299	165
BT50-BRA293-105	P2779785	293	350	105
BT50-BRA293-165	P2779786	293	350	165
BT50-BRA344-105	P2779787	344	401	105
BT50-BRA344-165	P2779788	344	401	165
BT50-BRA395-105	P2779789	395	452	105
BT50-BRA395-165	P2779790	395	452	165



RING ADAPTER

Unit : mm

MODEL No.	EDP No.	D (h6)	L	C1	C2
BT50-RAA32-60	P2779791	32	60	102	82
BT50-RAA32-120	P2779792	32	120	102	82



RING HEAD

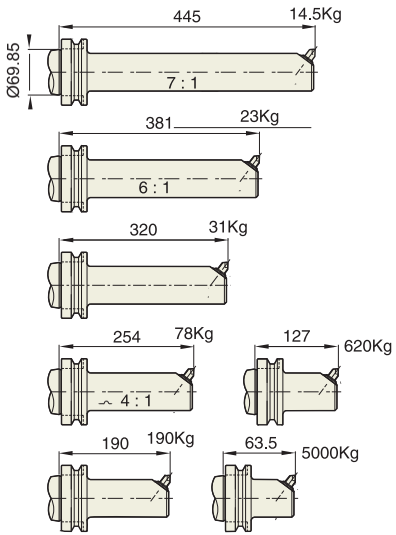
Unit : mm

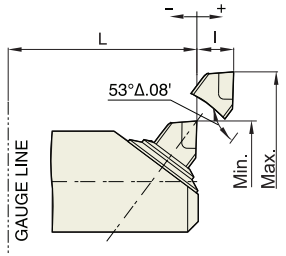
MODEL No.	EDP No.	D1 (h7)	D (BORE RANGE) Min. - Max.	L	C1	C2	H	N	UNIT
RH32-BCA140	P2779793	32	140 - 197	45	102	82	14	-	M10A2TC
RH32-BCA191	P2779794	32	191 - 248	45	136	82	14	-	M10A2TC
RH32-BCA242	P2779795	32	242 - 299	45	184	82	14	103	M10A2TC
RH32-BCA293	P2779796	32	293 - 350	45	234	82	14	103	M10A2TC
RH32-BCA344	P2779797	32	344 - 401	45	284	82	14	103	M10A2TC
RH32-BCA395	P2779798	32	395 - 452	45	36	82	14	103	M10A2TC

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

Strength of BORING BAR and Comparison Table of MICRO UNITS



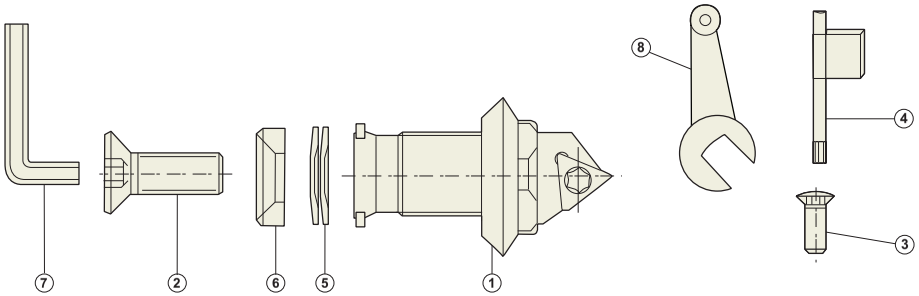


BORING BAR MODEL No.	BRAZED TYPE B EF		SCREW ON TYPE			INSERT SPEC.
	Min.	Max.	Min.	Max.	ΔL	
BCA19	M2B2	M2B2	-	-	-	CCGT0401
	19	23	-	-	-1.9	CCGT0401
BCA23	M3B2	M3B2	M3B2TC	M3B2TC	M3B2TC	TBGT060102
	23	29	24.9	30.9	-1.9	TBGT060102
BCA29	M3A2	M3A2	M3A2TC	M3A2TC	M3A2TC	TBGT060102
	29	41.8	30.9	43.8	-1.9	TBGT060102
BCA38	M5B2	M5B2	M5B2TC	M5B2TC	M5B2TC	TCGT110204
	38	49.2	40.9	52.1	-1.9	TCGT110204
BCA46	M5A2	M5A2	M5A2TC	M5A2TC	M5A2TC	TCGT110204
	46	66.6	48.9	69.5	-1.9	TCGT110204
BCA62	M7A2	M7A2	M7A2TC	M7A2TC	M7A2TC	TCGT16T304
	62	87.4	62	87.4	0	TCGT16T304
BCA83	M7A2	M7A2	M7A2TC	M7A2TC	M7A2TC	TCGT16T304
	83	108.4	83	108.4	0	TCGT16T304
BCA98	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	98	142.4	98	142.4	0	TCGT16T304
BCA132	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	132	176.4	132	176.4	0	TCGT16T304
BCA166	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	166	210.4	166	210.4	0	TCGT16T304
BCA200	M10A2	M10A2	M10A2TC	M10A2TC	M10A2TC	TCGT16T304
	200	244.4	200	244.4	0	TCGT16T304

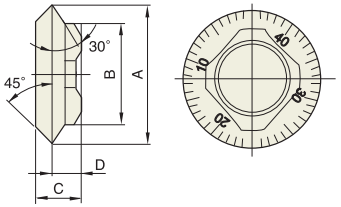
BORING SYSTEM

PART

MICRO UNIT SPARE PART



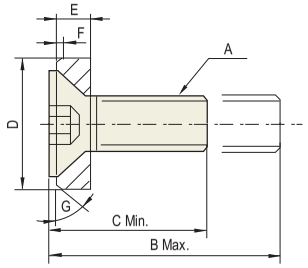
	PART NAME	ORDER No. / No.	M1A-B	M2A-B	M3A-B	M5A-B	M5A-B	M7A-B	M10A-B
1	DIAL NUT	Slant Angle	1-40	2-40	3-40	5-40	5-40	7-80	10-80
	DIAL NUT	Right Angle	1-50	2-50	3-50	5-50	5-50	7-100	10-100
2	CARTRIDGE BOLT	M-A	F-M3-0.5-8	F-M3-0.5-12	F-M4-0.7-15	F-M6-1.0-25	F-M6-1.0-25	F-M10-1.5-30	M12-1.75-50
	CARTRIDGE BOLT	M-B	M-M3-0.5-6	M-M3-0.5-10	M-M4-0.7-12	M-M6-1.0-20	M-M6-1.0-20	M-M10-1.5-25	M12-1.75-35
3	INSERT SCREW		S1845L5	S1845L5	S2045L6	S2555L6	S2555L6	S4095L6	S4095L6
4	T-WRENCH		T6	T6	T6	T8	T8	T15	T15
5	SPRING WASHER			CB-2	CB-3	CB-5	CB-5	CB-7	CB-10
6	MOUNTING WASHER			2306	3306	5306	5306	7306	10306
7	L-WRENCH		WR-2	WR-2	WR-2.5	WR-4	WR-4	WR-6	WR-8
8	SPANNER		GS12	GS12	GS35	GS35	GS35	GS710	GS710



■ GRADUATED DIAL UNIT

Unit : mm

SIZE	A	B	C	D
M1	9.53	6.99	4.45	2.54
M2	12.7	9.53	5.08	3.30
M3	15.88	11.3	5.59	3.56
M5	25.4	19.05	8.76	4.83
M7	34.93	25.40	11.68	7.11
M10	44.45	34.93	13.84	7.49



■ LOCK SCREW AND WASHER

Unit : mm

SIZE	A	B	C	D	E	F	G
M1	M3	8	6	-	-	-	-
M2	M3	12	10	7.82	1.83	0.5	45˚
M3	M4	15	12	10.9	2.46	1.0	45˚
M5	M6	25	20	15.7	4.32	0.8	37˚
M7	M10	30	25	23.7	6.35	1.30	37˚
M10	M12	50	35	31.6	7.92	2.5	37˚

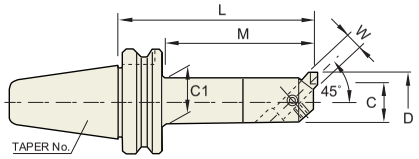
BORING SYSTEM

BSA

SQUARE BORING BAR (45°)

JIS B6339/ MAS 403-BT

VIERKANT - BOHRSTANGE
BARRE D'ALÉSAGE CARRÉ
BARRA PORTA TESTINE
BARRAS DE MANDRINAR CUADRADAS



IS 6339 T | AT3 | A

Unit : mm

TAPER No.	MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	C	C1	W	M	WEIGHT (kg)
30	BT30-BSA25-120	P2775401	25 - 38	120	20	22	8	90	1.00
	BT30-BSA30-135	P2775402	30 - 42	135	24	26	8	105	1.10
	BT30-BSA38-150	P2775403	38 - 52	150	30	33	10	120	1.40
	BT30-BSA42-150	P2775404	42 - 56	150	34	37	10	125	1.60
	BT30-BSA50-150	P2775405	50 - 65	150	40	44	13	125	1.80
40	BT40-BSA25-135	P2775406	25 - 38	135	20	22	8	108	1.30
	BT40-BSA30-165	P2775407	30 - 42	165	24	26	8	138	1.50
	BT40-BSA38-180	P2775408	38 - 52	180	30	33	10	153	1.80
	BT40-BSA42-210	P2775409	42 - 56	210	34	37	10	183	2.30
	BT40-BSA50-180	P2775410	50 - 65	180	40	44	13	153	2.40
	BT40-BSA50-225	P2775411	50 - 65	225	40	44	13	198	2.90
	BT40-BSA62-180	P2775412	62 - 90	180	50	54	16	153	3.20
	BT40-BSA62-240	P2775413	62 - 90	240	50	54	16	213	4.20
	BT40-BSA72-180	P2775414	72 - 110	180	60	63	19	153	4.40
	BT40-BSA72-240	P2775415	72 - 110	240	60	63	19	213	5.70
	BT40-BSA90-180	P2775416	90 - 125	180	75	63	19	153	5.40
50	BT50-BSA25-135	P2775417	25 - 38	135	20	22	8	95	4.40
	BT50-BSA30-165	P2775418	30 - 42	165	24	26	8	125	4.60
	BT50-BSA38-180	P2775419	38 - 52	180	30	33	10	140	4.80
	BT50-BSA42-210	P2775420	42 - 56	210	34	37	10	170	5.00
	BT50-BSA50-180	P2775421	50 - 65	180	40	44	13	140	5.40
	BT50-BSA50-240	P2775422	50 - 65	240	40	44	13	200	5.70
	BT50-BSA62-195	P2775423	62 - 90	195	50	54	16	155	6.10
	BT50-BSA62-270	P2775424	62 - 90	270	50	54	16	230	7.50
	BT50-BSA72-195	P2775425	72 - 110	195	60	66	19	155	6.90
	BT50-BSA72-285	P2775426	72 - 110	285	60	66	19	245	9.30
	BT50-BSA90-210	P2775427	90 - 125	210	75	80	19	170	9.20
	BT50-BSA90-300	P2775428	90 - 125	300	75	80	19	260	12.30
	BT50-BSA105-195	P2775429	105 - 160	195	90	90	25	157	10.50
	BT50-BSA105-285	P2775430	105 - 160	285	90	90	25	247	14.80

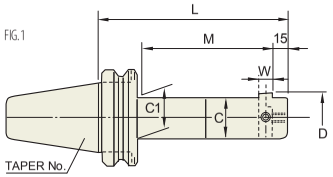
BORING SYSTEM

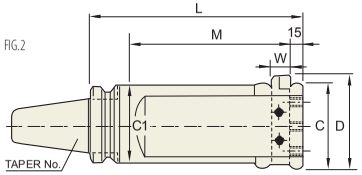
BSB

SQUARE BORING BAR (90°)

JIS B6339/ MAS 403-BT

VIERKANT - BOHRSTANGE
BARRE D'ALÉSAGE CARRÉ
BARRA PORTA TESTINE
BARRAS DE MANDRINAR CUADRADAS





IS 6339 T | AT3 | A

Unit : mm

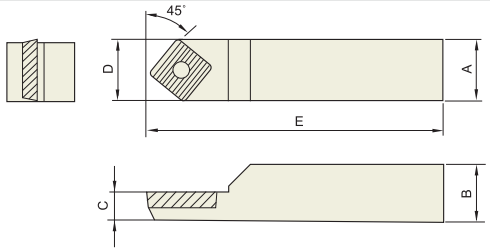
TAPER No.	MODEL No.	EDP No.	D (BORE RANGE) Min. - Max.	L	C	C1	W	M	WEIGHT (kg)	FIG.
30	BT30-BSB25-120	P2775431	25 - 50	120	20	22	8	90	1.10	1
	BT30-BSB38-150	P2775432	38 - 70	150	30	33	10	120	1.50	1
	BT30-BSB50-150	P2775433	50 - 90	150	40	44	13	125	2.20	1
40	BT40-BSB25-135	P2775434	25 - 50	135	20	22	8	108	1.30	1
	BT40-BSB38-180	P2775435	38 - 70	180	30	33	10	153	1.90	1
	BT40-BSB50-180	P2775436	50 - 90	180	40	44	13	153	2.60	1
	BT40-BSB50-225	P2775437	50 - 90	225	40	44	13	198	3.10	1
	BT40-BSB62-180	P2775438	62 - 115	180	50	56	16	153	3.40	1
	BT40-BSB62-225	P2775439	62 - 115	225	50	56	16	198	4.10	1
	BT40-BSB72-180	P2775440	72 - 135	180	60	66	19	153	4.70	1
	BT40-BSB72-225	P2775441	72 - 135	225	60	66	19	198	5.60	1
	BT40-BSB90-180	P2775442	90 - 150	180	75	80	19	153	5.70	1
	BT40-BSB90-225	P2775443	90 - 150	225	75	80	19	198	6.60	1
50	BT50-BSB25-135	P2775444	25 - 50	135	20	22	8	95	4.10	1
	BT50-BSB38-180	P2775445	38 - 70	180	30	33	10	140	4.80	1
	BT50-BSB50-180	P2775446	50 - 90	180	40	44	13	140	5.50	1
	BT50-BSB50-240	P2775447	50 - 50	240	40	44	13	200	5.70	1
	BT50-BSB62-195	P2775448	62 - 115	195	50	56	16	155	6.40	1
	BT50-BSB62-270	P2775449	62 - 115	270	50	56	16	230	7.90	1
	BT50-BSB72-195	P2775450	72 - 135	195	60	66	19	155	7.30	1
	BT50-BSB72-285	P2775451	72 - 135	285	60	66	19	245	9.60	1
	BT50-BSB90-210	P2775452	90 - 150	210	75	80	19	170	9.60	1
	BT50-BSB90-300	P2775453	90 - 150	300	75	80	19	260	12.60	1
	BT50-BSB105-195	P2775454	105 - 190	195	90	-	25	155	11.10	2
	BT50-BSB105-285	P2775455	105 - 190	285	90	94	25	245	15.40	2

TOOLING SYSTEM
HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

BORING SYSTEM

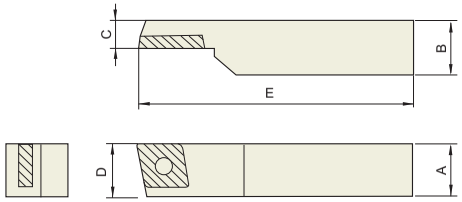
PART

SQUARE BITE



Unit : mm

CLASSIFICATION / SIZE	EDP No.	A	B	C	D	E	SCREW	WRENCH	INSERT
SBC08-45	P2775456	08	08	6.3	8.39	70	SSB-2506	T7	CCMT0602
SBC10-45	P2775457	10	10	7	10.39	70	SSB-2506	T7	CCMT0602
SBC13-45	P2775458	13	13	10	13.6	80	SSB-4009	T15	CCMT09T3
SBC16-45	P2775459	16	16	11	16.68	100	SSB-5012	T15	CCMT1204
SBC19-45	P2775460	19	19	11	19.68	100	SSB-5012	T15	CCMT1204
SBC25-45	P2775461	25	25	12.5	25.68	120	SSB-5012	T15	CCMT1204



Unit : mm

CLASSIFICATION / SIZE	EDP No.	A	B	C	D	E	SCREW	WRENCH	INSERT
SBC08-90	P2775462	08	08	6.3	8.4	70	SSB-2506	T7	CCMT0602
SBC10-90	P2775463	10	10	7	10.4	70	SSB-2506	T7	CCMT0602
SBC13-90	P2775464	13	13	10	13.6	80	SSB-4009	T15	CCMT09T3
SBC16-90	P2775465	16	16	11	16.7	100	SSB-5012	T15	CCMT1204
SBC19-90	P2775466	19	19	11	19.7	100	SSB-5012	T15	CCMT1204
SBC25-90	P2775467	25	25	12.5	25.7	120	SSB-5012	T15	CCMT1204

YG-1 TOOLING SYSTEM

ACCESSORY & OTHERS

PULL STUD BOLT
PULL STUD BOLT & SPANNER

TOOL CLAMP

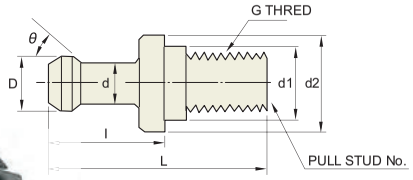
HEIGHT PRESETTER

COOLANT TUBE & SPANNER

TECHNICAL DATA : SHANK STANDARD
DIN 69871-SK / JIS B6339/MAS 403-BT / DIN 69893/ISO 12164-1-HSK
ANSI/ASME B5.50-CAT
DIN 228 (MORSE TAPER) : TANG / SCREW TYPE

PULL STUD BOLT & SPANNER

ANZUGBOLZEN
BOULONS DE SERRAGE
TIRANTI PER MANDRINI UNIVERSALI
TIRANTES PARA PORTAHERRAMIENTAS

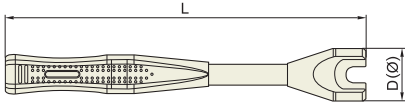


■ PULL STUD BOLT

Unit : mm

MODEL No.	EDP No.	D	d2	d1	d	L	l	G	O	TYPE
PS-1	P2775051	15	23	17	10	60	35	M16	45°	BT40-I STANDARD TYPE
PS-2	P2775052	15	23	17	10	60	35	M16	60°	BT40-II STANDARD TYPE
PS-805	P2775101	19	23	17	14	54	29	M16	75°	BT40
PS-806	P2775102	19	23	17	14	54	29	M16	75°	BT40 (Through Hole)
PS-5	P2775053	23	38	25	17	85	45	M24	45°	BT50-I STANDARD TYPE
PS-6	P2775054	23	38	25	17	85	45	M24	60°	BT50-II STANDARD TYPE
PS-16	P2775055	11	16.5	12.5	7	43	23	M12	45°	BT30-I STANDARD TYPE
PS-17	P2775056	11	16.5	12.5	7	43	23	M12	60°	BT30-II STANDARD TYPE
PS-0	P2506706	23	38	25	17	85	45	M24	90°	for BT50 OKK
PS-08	P2506703	15	23	17	10	60	35	M16	90°	for BT40 OKK
PS-P	P2775057	24	36	25	18	71	31	M24	90°	for BT50 MITISUI SEIKI
PS-P5	P2775058	15	23	17	10	50	25	M16	90°	for BT40 MITISUI SEIKI
PS-G41	P2775059	29	37	25	21	65.2	25.2	M24	45°	for BT50 MAZAK
PS-G51	P2775060	18.8	22	17	12.45	44.1	19.1	M16	45°	for BT40 MAZAK
PS-S2	P2775061	25	39	25	18	95	55	M24	60°	for SHIN NIPPON KOKI
PS-F1	P2775062	23	39	25	18	104	64	M24	45°	for MITSUBISHI
PS-B1	P2775063	22	38	25	16	112	72	M24	60°	for OKUMA
PSS-1	P2506707	19	23	17	14	54	26	M16	75°	for SK40
PSS-5	P2506708	28	36	25	21	74	34	M24	75°	for SK50

▶ Upon requests, other pull stud bolts with special dimensions could be produced and supplied.
▶ Through hole type ("H" Type) is available upon request.



■ PULL STUD BOLT SPANNER

Unit : mm

MODEL No.	EDP No.	D	L	WEIGHT (kg)	TYPE
PSWB-30	P2775064	27	210	0.30	BT30
PSWB-40	P2775065	37	230	0.40	BT40
PSWB-50	P2775066	49	280	0.78	BT50

PULL STUD BOLT

ANZUGBOLZEN
BOULONS DE SERRAGE
TIRANTI PER MANDRINI UNIVERSALI
TIRANTES PARA PORTAHERRAMIENTAS

■ APPLICATION TABLE OF PULL STUD BOLT

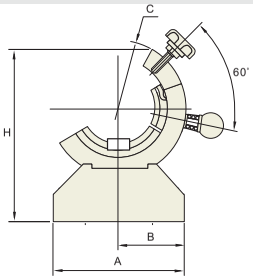
MACHINE MANUFACTURER	MACHINE MODEL No.	TAPER No.	PS BOLT
DOOSAN	T 4000	BT30	PS-16
	DT 360D	BT30	PS-16
	DNM 400II/500II/ 650II	BT40	PSS-1
	DNM 750II/40	BT40	PSS-1
	DNM 750II/50	BT50	PS-5
	Mynx 6500	BT50	PS-5
	Mynx 7500	BT50	PS-5
	VM 5400/6500	BT40	PSS-1
	VM 750	BT50	PS-5
	VM 960	BT50	PS-5
	VM 1260	BT50	PS-5
	VC 430	BT40	PSS-1
	VC 510	BT40	PSS-1
	DVM 500II	BT40	PSS-1
	DVM 5650II	BT40	PSS-1
	NX 4500II	BT40	PSS-1
	NX 5500II	BT40	PSS-1
	NX 6500II	BT40	PSS-1
	NHM 5000	BT50	PS-5
	NHM 6300	BT50	PS-5
	NHM 8000	BT50	PS-5
	NHM 1000	BT50	PS-5
	NHM 1250	BT50	PS-5
	NHP 5000	BT50	PS-5
	NHP 6300	BT50	PS-5
	HC 400II	BT40	PSS-1
	HC 500II	BT40	PSS-1
WIA	i-CUT 380T/420T	BT30	PS-16
	i-CUT 400T/M	BT30	PS-16
	F 400/500/650	BT40	PS-1
	F 500/650	BT50	PS-5
	F 510M/550M/660M	BT40	PS-1
	F 510B	BT40	PS-1
	F 600B/750B/960B	BT50	PS-5
	KH 50G/63G	BT50	PS-5
	KH 80G/1000	BT40	PS-1
	HS 5000	BT40	PS-1
	HS 5000/6300/8000	BT50	PS-5

MACHINE MANUFACTURER	MACHINE MODEL No.	TAPER No.	PS BOLT
SEMC	Any Mill LCV30A/B	BT30	PS-17
	Any Mill LCV55S	BT50	PS-6
	Any Mill LCV650S	BT50	PS-5
	Any Mill ICV66	BT50	PS-5
	Any Mill ICV80	BT50	PS-5
	DMC-3000	BT50	PS-0
	PCH40	BT40	PS-1
	PCH50	BT50	PS-5
HWACHEON	SIRIUS-1	BT30	PS-16
	SIRIUS-550	BT40	PS-1
	SIRIUS-UL/ULG	BT40	PS-1
	SIRIUS-7040	BT50	PS-0
	SIRIUS-650/650N	BT50	PS-0
	SIRIUS-850/850N	BT50	PS-0
	SIRIUS-700	BT50	PS-0
	SIRIUS-12580	BT50	PS-0
S&T	TCH-45	BT40	PS-1
	TCH-50	BT50	PS-6
	TCH-80	BT50	PS-6
	TCH-80TS	BT50	PS-6
	FX-500H	BT40	PS-2
	TNV-40A	BT40	PS-1
	TNV-80A	BT40	PS-1
	TNV-650V	BT50	PS-6
HASS	TM-1/2	BT40	PS-1
	VF-4SS/3SS/2SS	BT40	PS-1
	VF-2TR	BT40	PS-1
	VF-5/50TR	BT50	PS-5
	VF-9/50	BT50	PS-5
	VF-8/50	BT50	PS-5
MAZAK		BT40	PS-G51
		BT50	PS-G41
MORI SEKI		BT40	PS-08
		BT50	PS-51

TC

TOOL CLAMP

MONTAGEVORRICHTUNGEN
DISPOSITIF DE MONTAGE
ATTREZZO PER IL MONTAGGIO DI MANDRINI
SOPORTE PARA MONTAJE



• Flange Clamping Design

Unit : mm

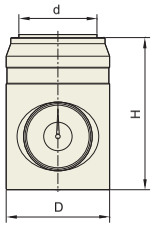
TAPER No.	MODEL No	EDP No.	A	B	C	H	WEIGHT (kg)
BT30	TCP30	P2775067	125	65	108	135	3.00
BT40	TCP40	P2775068	160	80	138	180	7.60
BT50	TCP50	P2775069	180	90	165	205	8.60
SK30	TSK30	P2775070	125	65	108	135	3.00
SK40	TSK40	P2775071	160	80	138	180	7.60
SK50	TSK50	P2775072	180	90	165	205	8.60
HSK32	THSK32	P2775073	125	65	108	135	-
HSK40	THSK40	P2775074	-	-	-	-	-
HSK50	THSK50	P2775075	-	-	-	-	-
HSK63	THSK63	P2775076	160	80	138	180	-
HSK100	THSK100	P2775077	180	90	165	205	-

▶Tool clamp for CAT tepare available.

HP

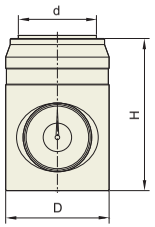
HEIGHT PRESETTER

MAGNETIC HEIGHT PRESETTER



• Both vertical and horizontal type usable
• Slim design

HEIGHT PRESETTER



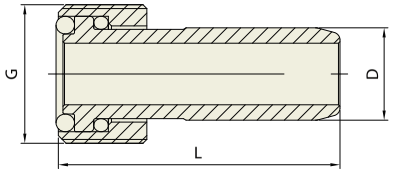
• Exclusively for vertical

Unit : mm

MODEL No.	EDP No.	D	H	d	DIAL
MHP-100 (magnetic)	P2591001	76	100	33	0.01
HP-100	P2775901	68	100 / - 0.01	33	0.01

CT

COOLANT TUBE

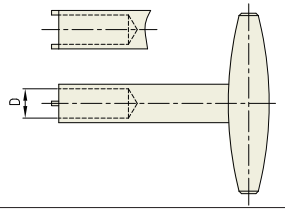


Unit : mm

TAPER No.	EDP No.	G	D	WEIGHT (kg)
32A	P2775078	M10	6	
40A	P2775079	M12	8	
50A	P2775080	M16	10	
63A	P2775081	M18	12	
80A	P2775106	M20	14	
100A	P2775082	M24	16	

CTS

COOLANT TUBE SPANNER



Unit : mm

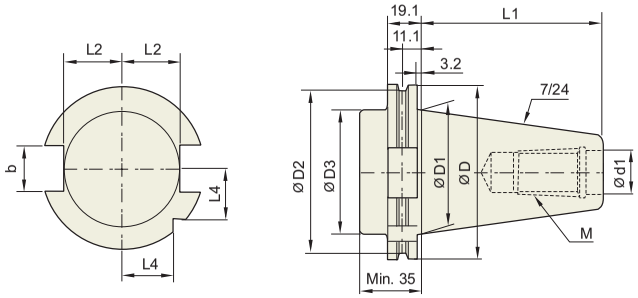
TAPER No.	EDP No.	D
HSK32	P2775103	6
HSK40	P2775104	8
HSK50	P2775089	10
HSK63	P2775087	12
HSK80	P2775105	14
HSK100	P2775090	16

▶ Design and shape could be changed without prior notice.

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

TECHNICAL DATA : SHANK STANDARD

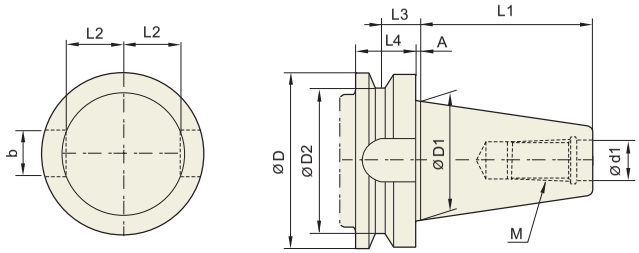
DIN 69871-SK



Unit : mm

TAPER No.	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	L4	b	M
SK30	50	31.75	44.3	45	13	47.8	16.4	19	15	16.1	M12×1.75
SK40	63.55	44.45	56.25	50	17	68.4	22.8	25	18.5	16.1	M16×2.0
SK50	97.5	69.85	91.25	80	25	101.75	35.5	37.7	30	25.7	M24×3.0

JIS B6339/
MAS 403-BT



Unit : mm

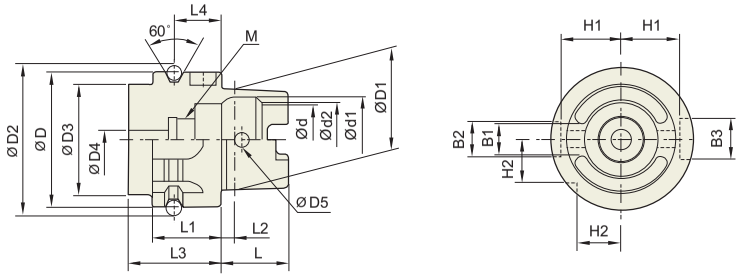
TAPER No.	ØD	ØD1	ØD2	Ød13.	L1	L2	L3	L4	A	b	M
BT30	46	31.75	38	12.5	48.4	16.3	13.6	20	2	16.1	M12×1.75
BT40	63	44.45	53	17	65.4	22.6	16.6	25	2	16.1	M16×2
BT50	100	69.85	85	25	101.8	35.4	23.2	35	3	25.7	M24×3
BT60	155	107.95	135	31	161.8	60.1	28.2	45	3	25.7	M30×3.5

ACCESSORY & OTHERS

STD

TECHNICAL DATA : SHANK STANDARD

DIN 69893/
ISO12164-1-HSK



Unit : mm

TAPER No.	ØD	ØD1	ØD2	ØD3	ØD4	ØD5	L	L1	L2	L3	L4
HSK32A	32	24	37.00	26	4.2	4.0	16	20	3.2	35	16
HSK40A	40	30	45.00	34	5.0	4.6	20	20	4.0	35	16
HSK50A	50	38	59.30	42	6.8	6.0	25	26	5.0	42	18
HSK63A	63	48	72.30	53	8.4	7.5	32	26	6.3	42	18
HSK80A	80	60	88.8	68	10.2	8.5	40	26	8	42	18
HSK100A	100	75	109.75	85	12.0	12.0	50	29	10.0	45	20

Unit : mm

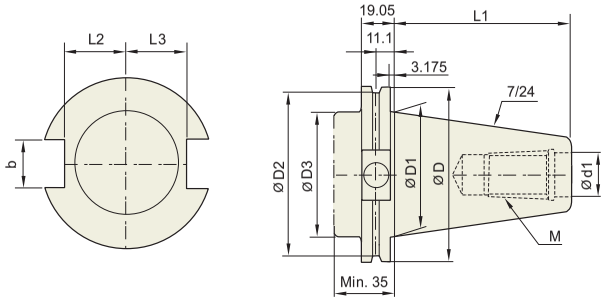
TAPER No.	Ød	Ød1	Ød2	B1	B2	B3	H1	H2	L4
HSK32A	17	20.5	19	7.05	7	9	13.0	9.5	M10×1.0
HSK40A	21	25.5	23	8.05	9	11	17.0	12.0	M12×1.0
HSK50A	26	32.0	29	10.54	12	14	21.0	15.5	M16×1.0
HSK63A	34	40.0	37	12.54	16	18	26.5	20.0	M18×1.0
HSK80A	42	50	46	16.04	18	20	34	25	M20×1.5
HSK100A	53	63.0	58	20.02	20	22	44.0	31.5	M24×1.5

TOOLING SYSTEM

HYDRAULIC CHUCK
SHRINK FIT HOLDER
ER COLLET CHUCK
END MILL HOLDER & SIDE LOCK ARBOR
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

TECHNICAL DATA : SHANK STANDARD

ANSI/ ASME B5.50-CAT (OLD : 1978)



Unit : mm

TAPER No	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	b	M
CAT30	50	31.75	44.3	31.75	13	47.625	16.25	18.67	16.1	UNC1/2-13
CAT40	63.55	44.45	56.25	44.45	17	68.25	22.60	25	16.1	UNC5/8-11
CAT50	97.5	69.85	91.25	70.1	25	101.6	35.3	37.7	25.7	UNC1-18
CAT60	155	107.95	132.56	108	32	161.93	54	59.3	25.7	UNC1,1/4-7

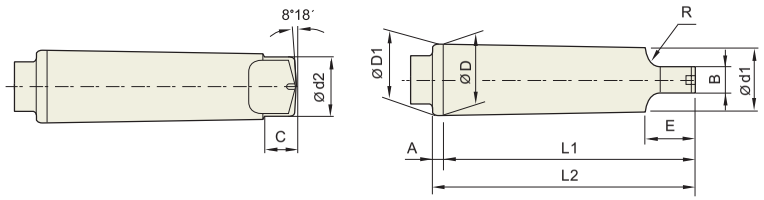
ANSI/ ASME B5.50-CAT (NEW : Revision 2009)

Unit : mm

TAPER No.	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	b	P	M
CAT30	46.02	31.75	38.89	46.02	13	47.625	16.25	18.67	16.1	-	UNC1/2-13
CAT40	63.5	44.45	56.36	63.5	17	68.25	22.6	25	16.1	-	UNC5/8-11
CAT50	98.43	69.85	91.29	98.43	25	101.6	35.3	37.7	25.7	-	UNC1-18
CAT60	139.7	107.95	132.56	139.7	32	161.93	54	59.3	25.7	-	UNC1 1/4-7

TECHNICAL DATA : SHANK STANDARD

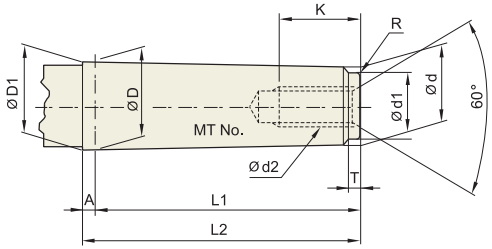
DIN 228 (MORSE TAPER) TANG TYPE (MTA)



Unit : mm

TAPER No.	TAPER RATIO (Rad)	TAPER ANGLE (α)	ØD	A3	ØD1	Ød1	L1	L2	Ød2	B	C	E	R
MT0	1/19.212	1°29´27´´	9.045	3	9.045	6.104	56.5	59.5	6.0	3.9	6.5	10.5	4
MT1	1/20.047	1°25´43´´	12.065	3.5	12.065	8.972	62.0	65.5	8.7	5.2	8.5	13.5	5
MT2	1/20.020	1°25´50´´	17.780	5	17.780	14.034	75.0	80.0	13.5	6.3	10	16	6
MT3	1/19.922	1°26´16´´	23.825	5	23.825	19.107	94.0	99.0	18.5	7.9	13	20	7
MT4	1/19.254	1°29´15´´	31.267	6.5	31.267	25.164	117.5	124.0	24.5	11.9	16	24	8
MT5	1/19.002	1°30´26´´	44.399	6.5	44.399	36.531	149.5	156.0	35.7	15.9	19	29	10
MT6	1/19.180	1°29´36´´	63.348	8	63.348	52.399	210.0	218.0	51.0	19.0	27	40	13
MT7	1/19.231	1°29´22´´	83.058	10	83.058	68.186	286.0	296.0	66.8	28.6	35	54	19

DIN 228 (MORSE TAPER) SCREW TYPE (MTB)



Unit : mm

TAPER No.	TAPER RATIO (Rad)	TAPER ANGLE (α)	ØD	A	ØD1	d	L1	L2	Ød1	d2	K	T	R
MT0	1/19.212	1°29´27´´	9.045	3	9.201	6.442	50	53	6.4	-	-	4	0.2
MT1	1/20.047	1°25´43´´	12.065	3.5	12.230	9.396	53.5	57	9.4	M6	16	5	0.2
MT2	1/20.020	1°25´50´´	17.780	5	18.030	14.583	64	69	14.6	M10	24	5	0.2
MT3	1/19.922	1°26´16´´	23.825	5	24.076	19.759	81	86	19.8	M12	28	7	0.6
MT4	1/19.254	1°29´15´´	31.267	6.5	31.605	25.943	102.5	109	25.9	M16	32	9	1
MT5	1/19.002	1°30´26´´	44.399	6.5	44.741	37.584	129.5	136	37.6	M20	40	9	2.5
MT6	1/19.180	1°29´36´´	63.348	8	63.765	53.859	182	190	53.9	M24	50	12	4
MT7	1/19.231	1°29´22´´	83.058	10	83.578	70.058	250	260	70.0	M33	80	18.5	5

HYDRAULIC CHUCK
SHRINK FIT HOLDER
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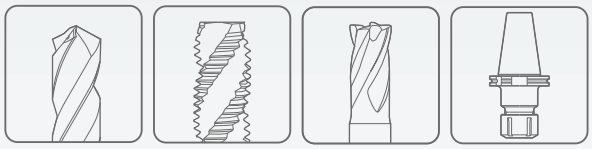
SHELL MILL ARBOR
POWER MILLING CHUCK
MORSE TAPER ARBOR
SK SLIM CHUCK
SYNCHRO TAPPING CHUCK
ONE STEP TAPPING CHUCK
TAPPING ER CHUCK
TAPPING CHUCK
FACE MILL ARBOR
COPY MILL ARBOR & INDEXABLE DRILL HOLDER
NC DRILL CHUCK & OTHER TOOL HOLDERS
BORING SYSTEM
ACCESSORY & OTHERS

Global Cutting Tool Leader **YG-1**



YG-1 CO., LTD.

HEAD OFFICE

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