

DRILLING TOOLS



THREADING TOOLS



MILLING TOOLS



OTHER TOOLS



YE10
EUROPE

CATALOGUE
2010 / 2011

YE10
EUROPE

2010 / 2011



YG CUTTING TOOLS



CUTTING TOOLS

DRILLING TOOLS / THREADING TOOLS / MILLING TOOLS / OTHER TOOLS

YG-1 CO., LTD.

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YG-1 CO., LTD.

GUIDE LINE TO ICONS

Tool Material

- CBN** Cubic Boron Nitride
- NG HM** Nano Grain Carbide
- MG HM** Micro Grain Carbide
- YPM** YG-1 Premium Powder Metallurgy HSS
- PREMIUM HSS-PM** Premium Powder Metallurgy HSS
- HSS PM** Powder Metallurgy HSS
- PREMIUM HSS-Co** Premium Cobalt HSS
- HSS Co8** 8% Cobalt HSS
- HSS EX** High Vanadium HSS
- HSS-E** 5% Cobalt HSS
- HSS** High Speed Steel

Standard of Tools

- YG STD** YG-1 Standard
- DIN 338** Number of DIN Standard

The Type of Shank

- PLAIN** Plain shank (with DIN Standard)
- FLAT** Flat shank (with DIN Standard)
- 1~5** Range of Morse Taper Shank

Helix Angle

- 30°** **30°** End Mills
- N 30°** **N 30°** Drills
- R40°** **L20°** Taps
- LH7°** **LH45°** Reamers

Point Angle

- 120°** **135°**

Tolerance of Dimension

- h6** **h8** Tolerance of Outside Diameter
- h6** **h8** Tolerance of Shank Diameter

Tolerance of Radius

- R ±0.005** **R ±0.01** Tolerance of Ball Radius $\pm 0.005, \pm 0.01$ mm
- R ±0.010** **R ±0.015** Tolerance of Corner Radius $\pm 0.005, \pm 0.015$ mm

The Type of Periphery

- NR** Roughing, Coarse Pitch
- HR** Roughing, Fine Pitch
- WR** Roughing for Aluminium
- NF** Roughing & Finishing type
- N** Finish type
- W** Finish type for Aluminium

GUIDE LINE TO ICONS

Working Material

- GS** Steels with good machinability $R_m < 850 \text{ N/mm}^2$
- VG** Heat treated and heat-resistant steels $R_m < 850 \text{ N/mm}^2 \leq R_m \leq 1,200 \text{ N/mm}^2$
- HR** High alloyed steels $R_m > 1,200 \text{ N/mm}^2$
- VA** Stainless steels
- NW** Carbon steels with low contents of alloys $R_m < 700 \text{ N/mm}^2$
- Ti** Titanium alloys
- Ni** Nickel alloys
- GV** Any material with atleast 8~10% elongation
- Al** Aluminum & Aluminum alloys
- GG** Grey Cast Iron
- Ms** Brass
- MU** Multi-Purpose

Chamfer Lead Acc. to DIN2197

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

Surface Treatment

- Bright** Bright Finish
- NI** Nitrided
- TiCN** Titanium Carbon Nitride Coating
- Hardslick** TiAlN+WC/C Coating
- Vap** Steam Tempered
- TiN** Titanium Nitride Coating
- TiAlN** Titanium Aluminum Nitride Coating
- BLUE** Blue-Coating

Thread Angle

- 60°** **55°**

O.D. Tolerance of Reamer

- H7** DIN 1420 for H7, Reamed Hole

No. of Flute

- 1** **2** **3** 1,2,3 Flutes
- 4-6** 4~6 Flutes
- 3&4** 3&4 Flutes

Class of Thread

- 6HX** **6H Mod.** **2B**
- 6GX** **6H** **2BX**

Chamfer Angle

- 15°** **45°** Reamers

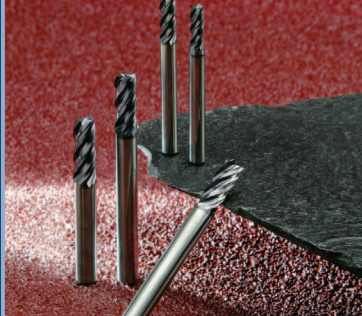
Cutting Condition

- P.** **P.** **P.** Cutting Condition of Tool See the Page 000

CBN Ball End Mill



V7 Mill



X5070 End Mill



D-Power End Mill



Multi-1 Drill



Dream Drill



Tank-Power End Mill



HSS End Mill



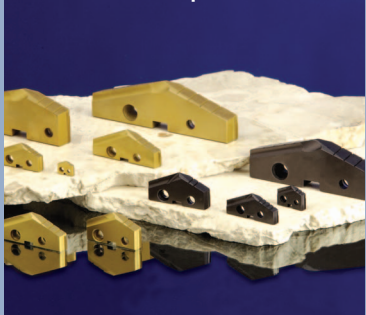
i-Xmill



i-Dream Drill



Spade Drill Inserts



Combo Tap





CUTTING TOOLS



DRILLING TOOLS

1. ENGLISH 2. GERMAN 3. FRENCH 4. ITALIAN 5. SPANISH

	PRODUCTS	DESCRIPTION	PAGE
	1. i-DREAM DRILLS, CARBIDE INSERT 2. i-DREAM DRILLS, HM-EINSÄTZE 3. i-DREAM DRILLS - PLAQUETTES CARBURE 4. i-DREAM DRILL, INSERTI IN METALLO DURO 5. Brocas i-dream, placa de metal duro	Available for General Steels and for Stainless Steels	29
	1. SOLID CARBIDE DREAM DRILLS - GENERAL (with & without coolant Holes) 2. VHM-DREAM DRILLS-UNIVERSAL(mit und ohne Kühlkanäle) 3. DREAM DRILLS - FORETS CARBURE Général(avec et sans arrosage central) 4. PUNTE IN MDI DREAM DRILLS- IN GENERALE(con e senza fori per refrigerante) 5. Brocas Dream de metal duro- General(con y sin agujeros de refrigeración)	General Purpose usually HRc30 to HRc50	43
	1. SOLID CARBIDE DREAM DRILLS - INOX (with coolant Holes) 2. VHM - DREAM DRILLS - INOX(mit Kühlkanälen) 3. DREAM DRILLS - FORETS CARBURE Spécial INOX(avec arrosage central) 4. PUNTE IN MDI DREAM DRILLS - PER INOX(con fori per refrigerante) 5. Brocas de metal duro- Inox(con agujeros de refrigeración)	Tough Materials like Stainless Steels, Nickel Alloys and Titanium up to HRc35	61
	1. SOLID CARBIDE DREAM DRILLS - MQL TYPE (with coolant Holes) 2. VHM - DREAM DRILLS - MQL(mit Kühlkanälen) 3. DREAM DRILLS - FORETS CARBURE - Type MQL(avec arrosage central) 4. PUNTE IN MDI DREAM DRILL - TIPO MQL(con fori per refrigerante) 5. Brocas Dream de metal duro- Tipo MQL(con agujeros de refrigeración)	Minimum Quantity Lubrication. Drilling Deep Holes (10D, 15D & 20D)	73
	1. SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS 2. VHM - DREAM DRILLS FÜR HOCHGEHÄRTETE STÄHLE 3. DREAM DRILLS - FORETS CARBURE pour ACIERS DURS 4. PUNTE IN MDI DREAM DRILLS - PER ACCIAI TEMPRATI 5. Brocas Dream de metal duro para aceros templados	High Hardened Steels HRc50 to HRc70	79
	1. GENERAL SOLID CARBIDE DRILLS, JOBBER & STUB LENGTH 2. UNIVERSELLE VHM - BOHRER(in Längen nach DIN 338 und DIN 1897) 3. FORETS CARBURE à usage général- SERIE COURTE 4. PUNTE IN MDI IN GENERALE, CORTE ED EXTRA CORTE 5. Brocas de metal duro, longitud extra corta, estándar	General Purpose, DIN338 & DIN6539	85
	1. SOLID CARBIDE NC-SPOTTING DRILLS 2. VHM - NC-ANBOHRER 3. FORETS CARBURE A POINTER NC 4. PUNTE IN MDI PER CENTRATURA SU NC 5. Brocas de metal duro para puntear	Centering and Chamfering	93
	1. HSS-PM MULTI-1 DRILLS 2. HSS-PM MULTI-1 BOHRER 3. MULTI-1 DRILLS - FORETS HSS-PM 4. PUNTE IN HSS-PM - MULTI-1 5. Brocas HSS sinterizado Multi-1	Multi Purpose Drilling Particularly for Stainless Steels	99
	1. PREMIUM HSS HPD STRAIGHT SHANK DRILLS 2. PREMIUM-HSS HPD ZYLINDERSCHAFT BOHRER 3. FORETS HSS-PM Haute Performance cylindriques 4. PUNTE IN HSS-PREMIUM - HPD- GAMBO CILINDRICO 5. Brocas HSS Co HPD mango cilíndrico	General Steels and Stainless Steels	107

DRILLING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPAINSH

	PRODUCTS	DESCRIPTION	PAGE
	1. HSS GOLD-P DRILLS 2. HSS GOLD-P BOHRER 3. GOLD-P, FORETS HSS 4. PUNTE HSS GOLD-P DRILLS 5. Brocas Acero rápido Gold-P	Gold-P Coating (HSS & HSS-E)	125
	1. HSS-E WORM PATTERN DRILLS 2. HSS-E FLACHNUTBOHRER 3. FORETS HSS-E à Goujures Paraboliques 4. PUNTE HSS-E CON ELICA A FORTE TORSIONE 5. Brocas HSS-E tipo gusano	Drilling Deep Holes	139
	1. HSS STRAIGHT SHANK DRILLS 2. HSS BOHRER MIT ZYLINDERSCHAFT 3. FORETS HSS Cylindriques 4. PUNTE HSS GAMBO CILINDRICO 5. Brocas HSS mango cilíndrico	General Purpose (HSS & HSS-E & 8% Cobalt)	159
	1. HSS MORSE TAPER SHANK DRILLS 2. HSS BOHRER MIT MK 3. FORETS HSS Queue Cône Morse 4. PUNTE HSS CON ATTACCO CONO MORSE 5. Brocas HSS mango cónico	General Purpose (HSS & HSS-E & 8% Cobalt)	191
	1. HSS (8% Cobalt) NC-SPOTTING DRILLS 2. HSS-Co8 NC-ANBOHRER 3. FORETS HSSCo8 NC à pointer 4. PUNTE HSS (8% Cobalto) PER CENTRATURA SU NC 5. Brocas HSS Co8 para puntear	Centering and Chamfering of Holes	203
	1. HSS-EX CENTER DRILLS 2. HSS-EX ZENTRIERBOHRER 3. FORETS HSS-EX à centrer 4. PUNTE HSS-EX PER CENTRATURA SU TORNII 5. Brocas HSS-Ex de centrar	General Purpose	209
	1. CARBIDE & HSS-PM SPADE DRILLS 2. HM & HSS-PM BOHRMESSER 3. LAMES CARBURE & HSS-PM 4. METALLO DURO & HSS-PM SPADE DRILLS 5. Insertos de metal duro y HSS para taladrado	Carbide for Long Tool Life, and HSS-PM for General Machines and Large Diameters Higher Productivity than Other Drilling Tools	213
	1. TECHNICAL DATA 2. TECHNISCHE DATEN 3. INFORMATIONS TECHNIQUES 4. DATI TECNICI 5. Datos técnicos		285




THREADING TOOLS

1. ENGLISH 2. GERMAN 3. FRENCH 4. ITALIAN 5. SPANISH

	PRODUCTS	DESCRIPTION	PAGE
	1. HSS COMBO TAPS (Spiral Point, Spiral Flute Tap) 2. HSS COMBO GEWINDEBOHRER(gerade- und drallgenutet) 3. COMBO TAPS - TARAUDS HSS(Entree GUN, HELICOIDAUX) 4. MASCHI HSS COMBO(Imbocco corretto, Scanalature elicoidali) 5. Machos Combo HSS(tipo helicoidal con entrada corregida)	Multi Purpose Tapping, YG-1's Patent (HSS-E)	325
	1. HSS SPIRAL POINT TAPS 2. HSS GEWINDEBOHRER MIT SCHÄLANSCHNITT 3. TARAUDS HSS Gun 4. MASCHI HSS CON IMBOCCO CORRETTO 5. Machos HSS con entrada corregida	Tapping Through Holes, (HSS-E & HSS-PM)	337
	1. HSS SPIRAL FLUTE TAPS 2. HSS GEWINDEBOHRER MIT DRALL 3. TARAUDS HSS HELICOÏDAUX 4. MASCHI HSS CON SCANALATURE ELICOIDALI 5. Machos HSS helicoidales	Tapping Blind Holes, (HSS-E & HSS-PM)	381
	1. HSS STRAIGHT FLUTE TAPS 2. HSS GEWINDEBOHRER GERADE GENUTET 3. TARAUDS HSS DROIT 4. MASCHI HSS CON SCANALATURE DIRITTE 5. Machos HSS rectos	Tapping Shallow Holes of Cast Iron, Mild Steels and Brass (HSS-E)	431
	1. HSS COLD FORMING TAPS 2. HSS INNENGEWINDEFORMER 3. TARAUDS HSS A REFOULER 4. MASCHI HSS A RULLARE 5. Machos HSS de laminación	Tapping by Forming Soft Materials (HSS-E & HSS-PM)	447
	1. HSS NUT TAPS 2. HSS MUTTERGEWINDEBOHRER 3. TARAUDS HSS ENFILADE 4. MASCHI HSS PER DADI 5. Machos HSS para roscado de tuercas	Nut Tapping Machines (HSS-E)	463
	1. HSS SCREW THREAD INSERT TAPS 2. HSS GEWINDEBOHRER FÜR GEWINDEDRAHTEINSÄTZE 3. TARAUDS HSS POUR FILETS RAPPORTES 4. MASCHI HSS PER HELICOIL 5. Machos HSS para insertos de roscas de tornillo	Tapping STI Threads of Soft Materials (HSS-E)	465
	1. HSS HAND TAPS 2. HSS HANDGEWINDEBOHRER 3. TARAUDS HSS à MAIN 4. MASCHI HSS - A MANO 5. Machos HSS de mano	General Tapping (HSS & HSS-E)	473
	1. HSS PIPE TAPS 2. HSS GASGEWINDEBOHRER 3. TARAUDS HSS POUR TUBE 4. MASCHI HSS PER TUBI 5. Machos HSS para roscado de tuberías	Tapping Whitworth Pipe threads (HSS & HSS-E)	485



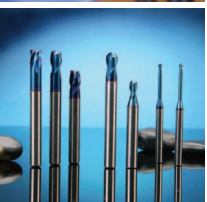
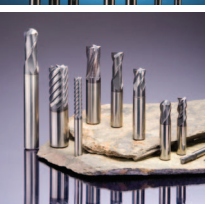

THREADING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPAINSH

	PRODUCTS	DESCRIPTION	PAGE
	1. SOLID CARBIDE TAPS 2. VHM - GEWINDEBOHRER 3. TARAUDS CARBURE 4. MASCHI IN METALLO DURO 5. Machos de metal duro integral	Tapping Cast Iron and High Silicon Aluminium, Mass Production, High Productivity	493
	1. SOLID CARBIDE THREAD MILLS (with & without coolant Holes) 2. VHM - GEWINDEFÄSER (mit und ohne Kühlkanäle) 3. FRAISE A FILETER CARBURE (avec et sans arrosage central) 4. FRESE IN METALLO DURO PER FILETTATURA (con e senza fori per refrigerante) 5. Fresas de interpolación de metal duro (con y sin agujeros de refrigeración)	Threading Most of Materials and Big Sizes in High Quality, Available with Chamfer	495
	1. TECHNICAL DATA 2. TECHNISCHE DATEN 3. INFORMATIONS TECHNIQUES 4. DATI TECNICI 5. Datos técnicos		511

MILLING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPAINSH

	PRODUCTS	DESCRIPTION	PAGE
	1. CBN END MILLS 2. CBN - FRÄSER 3. FRAISE CBN 4. FRESE A CANDELA IN CBN 5. Fresas CBN	CBN(Cubic Boron Nitride) Machining High Hardened Steels up to HRc70, Mirror Finish	553
	1. i-Xmills, CARBIDE INSERT END MILLS 2. i-Xmills, HM-WP - FRÄSER 3. I-Xmills, PLAQUETTES CARBURE 4. INSERTI PER FRESE A CANDELA i-Xmills 5. i-Xmills, insertos metal duro para fresado	Available for General Steels and for Hardened Steels up to HRc65	559
	1. X5070 NANO SOLID CARBIDE END MILLS 2. X5070 NANO-VHM - FRÄSER 3. X5070 - FRAISE CARBURE NG 4. FRESE A CANDELA IN MDI NANO X-5070 5. X5070, fresas de metal duro nanograno	High Hardened Steels HRc45 to HRc70, High Speed Machining, Dry Cutting	571
	1. X-POWER SOLID CARBIDE END MILLS 2. X-POWER VHM - FRÄSER 3. X-POWER - FRAISE CARBURE 4. FRESE A CANDELA IN MDI X-POWER 5. Fresas de metal duro X-Power	Medium Steels to High Hardened Steels up to HRc65	605
	1. JET-POWER SOLID CARBIDE & HSS-PM END MILLS 2. JET - POWER VHM - FRÄSER 3. JET-POWER - FRAISE CARBURE 4. FRESE A CANDELA IN MDI JET-POWER 5. Fresas de metal duro Jet-Power	Exotic materials like Stainless Steels, Nickel alloys and Titanium	679


MILLING TOOLS

1. ENGLISH 2. GERMAN 3. FRENCH 4. ITALIAN 5. SPANISH

	PRODUCTS	DESCRIPTION	PAGE
	1. V7 INOX SOLID CARBIDE END MILLS 2. V7 INOX VHM - FRÄSER 3. V7 FRAISE CARBURE POUR INOX 4. FRESE A CANDELA IN MDI V7 INOX 5. Fresas de metal duro V7 inox	Stainless Steels in Heavy and Silent Cutting Materials up to HRc40 Designed as Variable Leads, YG-1's Patent	697
	1. V7 STEEL SOLID CARBIDE END MILLS 2. V7 - STAHL VHM - FRÄSER 3. V7 - FRAISE CARBURE POUR ACIERS 4. FRESE A CANDELA IN MDI V7-STEEL 5. Fresas de metal duro V7 aceros	Steels in Heavy and Silent Cutting Materials up to HRc40 Designed as Unequal Leads	713
	1. ALU-POWER SOLID CARBIDE & HSS-PM END MILLS 2. ALU - POWER VHM - FRÄSER 3. ALU-POWER - FRAISE CARBURE 4. FRESE A CANDELA IN MDI ALU-POWER 5. Fresas de metal duro Alu-Power	Aluminium Alloys and Silent Cutting	723
	1. D-POWER DIAMOND COATED SOLID CARBIDE END MILLS 2. D - POWER VHM - FRÄSER (diamantbeschichtet) 3. D-POWER - FRAISE CARBURE REV. DIAMANT 4. FRESE A CANDELA IN MDI RIVESTITE DIAMANTE D-POWER 5. Fresas de metal duro D-Power recubrimiento Diamante	D-Power for Graphites Economy type for Low Silicon Aluminium and Copper Alloys	737
	1. K-2 SOLID CARBIDE END MILLS 2. K-2 VHM - FRÄSER 3. K-2 - FRAISE CARBURE 4. FRESE A CANDELA IN MDI K-2 5. Fresas de metal duro K-2	General Purpose as Coating Conventional or High Speed Milling, Wet or Dry Cutting.	779
	1. GENERAL SOLID CARBIDE END MILLS 2. VHM - FRÄSER 3. FRAISES CARBURE à Usage Général 4. FRESE A CANDELA IN MDI 5. Fresas de metal duro	General Purposes, Non-coated, Any Coating Available	827
	1. TANK-POWER HSS-PM END MILLS 2. TANK - POWER HSS-PM - FRÄSER 3. TANK-POWER - FRAISES HSS-PM 4. FRESE A CANDELA IN HSS-PM TANK-POWER 5. Fresas acero sinterizado Tank-Power	Very Good Toughness, Good for Exotic Materials like Stainless Steels, Nickel Alloys, Titanium and General Application, Rough & Finish	873
	1. GENERAL HSS END MILLS 2. HSS SCHAFTFRÄSER 3. FRAISES HSS 4. FRESE A CANDELA IN HSS 5. Fresas HSS	General Purposes, Non-coated, Any Coating Available	895
	1. HSS MILLING CUTTERS 2. HSS FRÄSER 3. FRAISES DE FORME HSS 4. CORPI FRESA IN HSS 5. Fresas HSS	General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% Cobalt) Corner Rounding, Shell End Mills	977

MILLING TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPAINSH

	PRODUCTS	DESCRIPTION	PAGE
	1. TECHNICAL DATA 2. TECHNISCHE DATEN 3. INFORMATIONS TECHNIQUES 4. DATI TECNICI 5. Datos técnicos		1001

OTHER TOOLS

1. ENGLISH 2.GERMAN 3.FRENCH 4. ITALIAN 5. SPAINSH

	PRODUCTS	DESCRIPTION	PAGE
	HSS REAMERS 2. HSS REIBAHLEN 3. ALESOIRS HSS 4. ALESATORI IN HSS 5. Escariadores HSS	HSS Hand Reamers HSS-E Chucking Reamers	1015
	1. HSS COUNTERSINKS 2. HSS SENKER 3. FRAISES A EBAVURER HSS 4. SVASATORI-SMUSSATORI IN HSS 5. Avellanadores conicos HSS mango cilindrico	Deburring, Chamfering, Countersinking (HSS & HSS-E & 8% Cobalt)	1027
	1. HSS-E COUNTERBORES 2. HSS-E FLACHSENKER 3. FRAISES A LAMER HSS-E 4. ALLARGATORI PER SEDI TESTE DI VITI 5. Avellanadores tipo Allen HSS mango cilindrico	General Purpose	1033
	1. CARBIDE ROTARY BURRS 2. HM - ROTIERFRÄSER 3. FRAISES LIMES ROTATIVES CARBURE 4. LIME ROTATIVE IN METALLO DURO 5. Fresas rotativas de metal duro	General Steels and Nonferrous Metals etc.(3mm & 6mm Shank Diameter)	1037
	1. 320mm(LENGTH) GROUND CARBIDE BARS 2. GESCHLIFFENE VHM - RUNDSTÄBE (320 mm Gesamtlänge) 3. BARRAUDS 320mm (Lg Totale) 4. BARRETTE COLINDRICHE IN METALLO DURO RETTIFICATE.320 mm (O.A.L.) 5. Barras de metal duro rectificadas de longitud 320mm	h6(Diameter Tolerance), +6.0mm(Length Tolerance)	1055
	1. SPECIAL CUTTING TOOLS 2. SONDERWERKZEUGE 3. COMPLEMENTS DE GAMME 4. UTENSILI SPECIALI 5. Herramientas especiales	The Custom Tools Depending on your Drawing for Automobile, Medical, Power Generator, Aerospace and Wind Power Industries	1057
	1. TOOL HOLDERS 2. WERKZEUGHALTER 3. ATTACHEMENTS 4. MANDRINI- PORTAUTENSILI 5. Portaherramientas	According to International Standards such as DIN , MAS and ISO	1061

CASE STUDY ♦ i-DREAM DRILL (Reference page : p.29 ~ p.42)

● i-DREAM DRILL - GENERAL

TOOL

HOLDER	ZH14505020
INSERT	YB1A1450 / Ø14.5

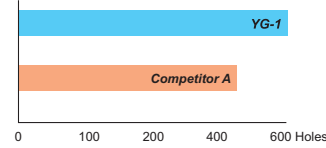
WORKPIECE - Structural Steels

ASTM	A36
DIN	St37-2
JIS	SS400

CONDITIONS

Cutting Speed	80 m/min
Feed	0.24 mm/rev.
Feedrate	421 mm/min.
RPM	1756 rev./min.
Drilling	48.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

RESULT



YG-1 (Total Drilling 600 Holes)



Competitor A (Total Drilling 470 Holes)



● i-DREAM DRILL - INOX

TOOL

HOLDER	ZH14005020
INSERT	YB2C1400 / Ø14.0

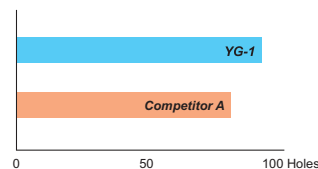
WORKPIECE - Stainless Steels

AISI	304
DIN	X5CrNi189
JIS	SUS304

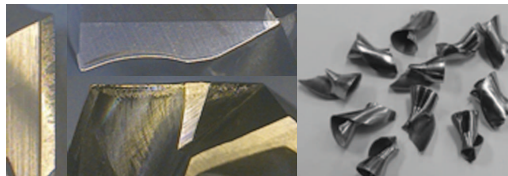
CONDITIONS

Cutting Speed	55 m/min
Feed	0.15 mm/rev.
Feedrate	188 mm/min.
RPM	1250 rev./min.
Drilling	50.0 mm
Coolant	Internal
Machine type	Vertical Machining Center

RESULT



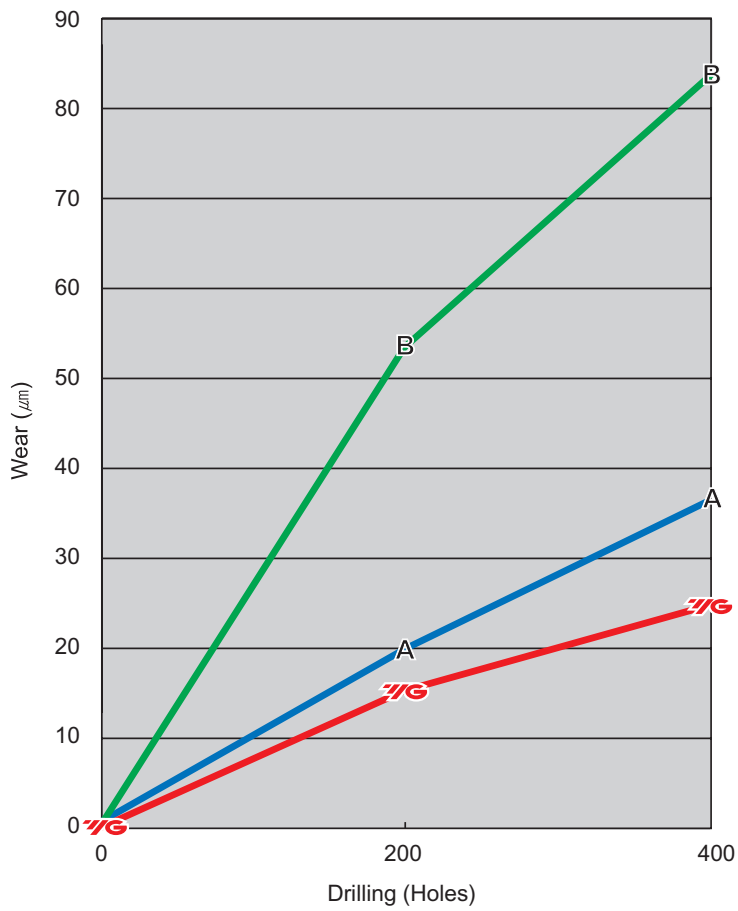
YG-1 (Total Drilling 100 Holes)



Competitor A (Total Drilling 80 Holes)



CASE STUDY ◆ DREAM DRILLS INOX (Reference page : p.61 ~ p.72)



— YG-1
— A Competitor A
— B Competitor B

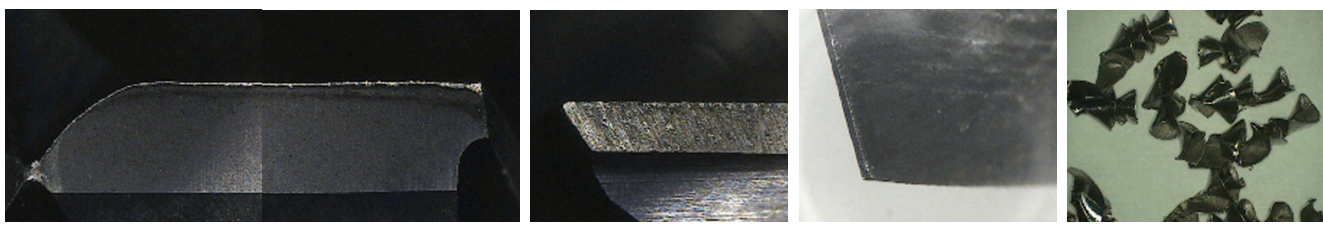
CUTTING CONDITION

Tools : DH452060(DREAM DRILLS-INOX)
Size : Ø6 x Ø6 x 44 x 82
Work Material :

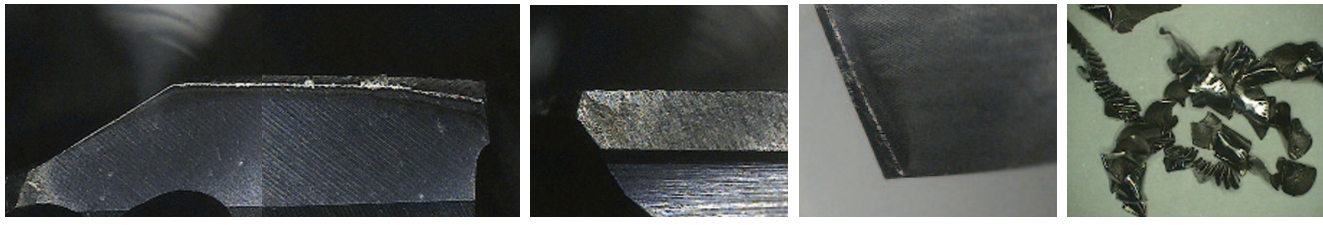
- JIS:SUS304
- DIN:X5CrNi1810 (X4CrNi18-10)
- WR:1.4301

R.P.M : 3700 rev./min.
Feed : 0.07 mm/rev.
Drilling Depth : 24 mm
Coolant : Wet Cut

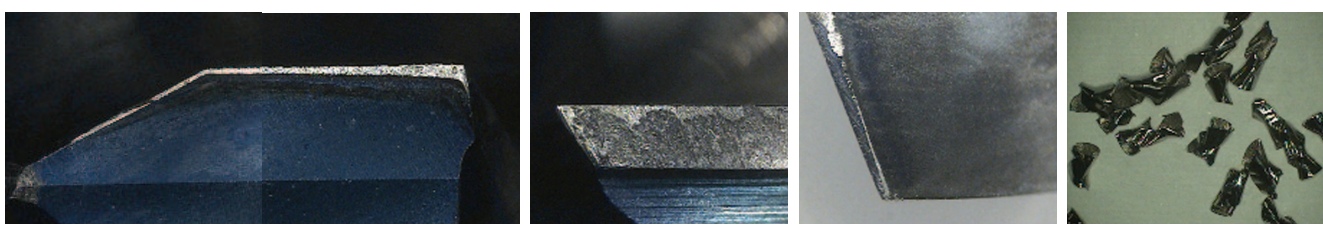
YG-1 (Total Drilling 400 Holes)



Competitor A (Total Drilling 400 Holes)



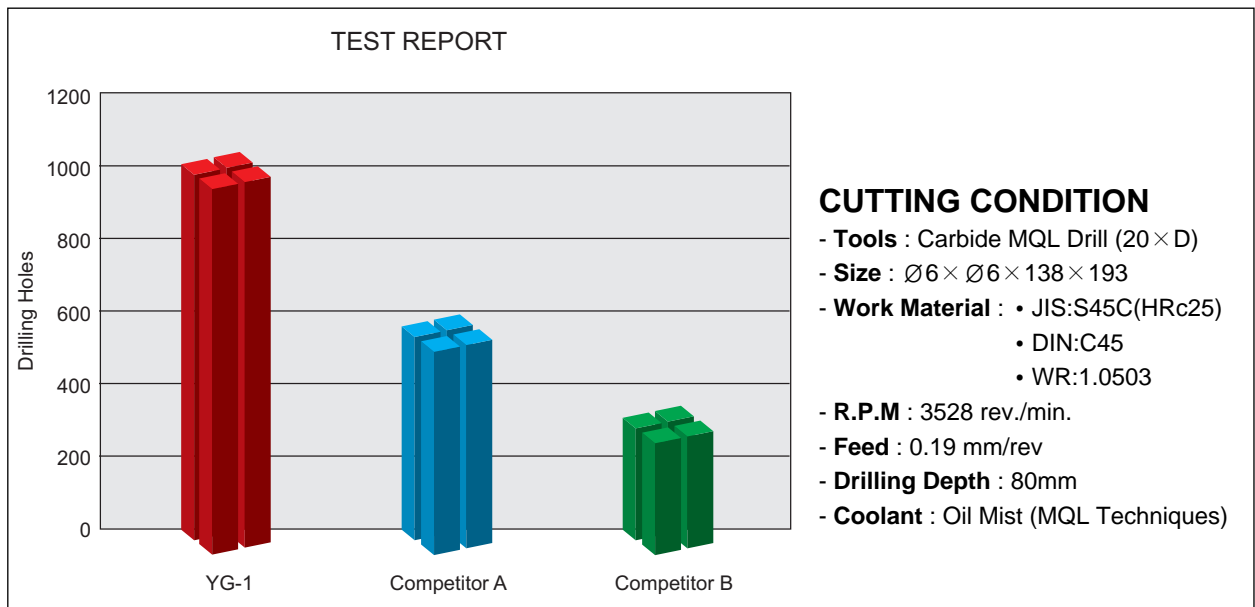
Competitor B (Total Drilling 400 Holes)



FEATURES OF DREAM DRILLS MQL TYPE

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

TEST RESULT AGAINST COMPETITOR'S DRILLS



YG-1 (After Drilling 1,000 Holes)



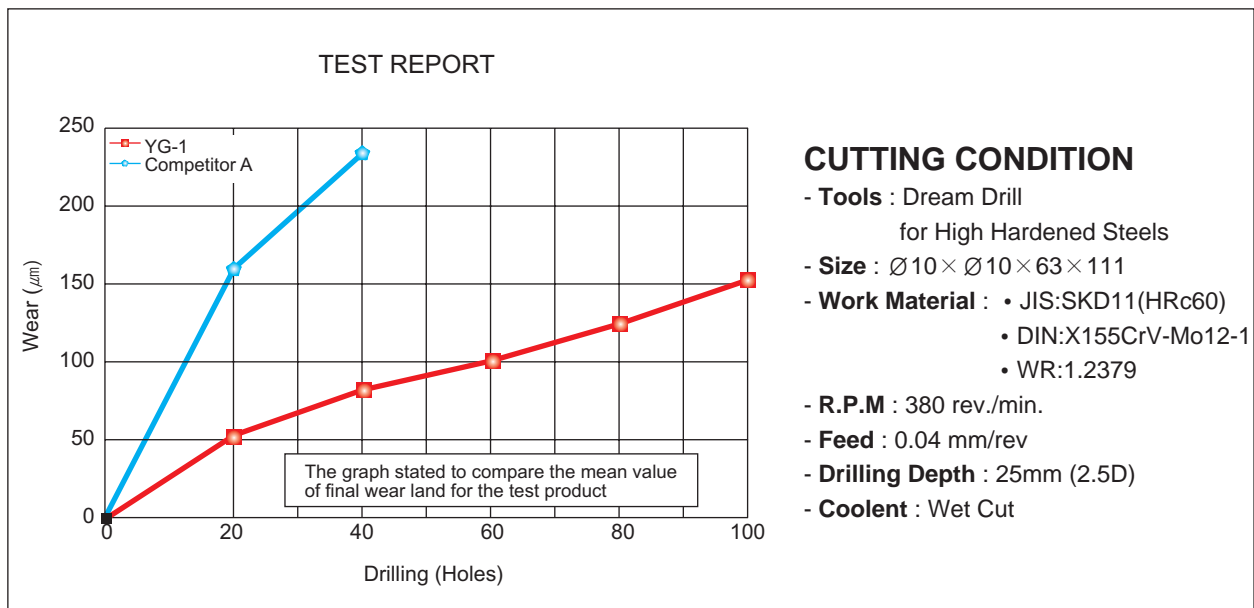
Competitor A (After Drilling 546 Holes)



FEATURES OF DREAM DRILLS HARDENED STEELS

- Low Helix Angle to maximize tools' rigidity.
- Special Point Thinning to improve chip evacuation.
- Excellent Coating and Surface Treatment for improved surface and better chip evacuation.

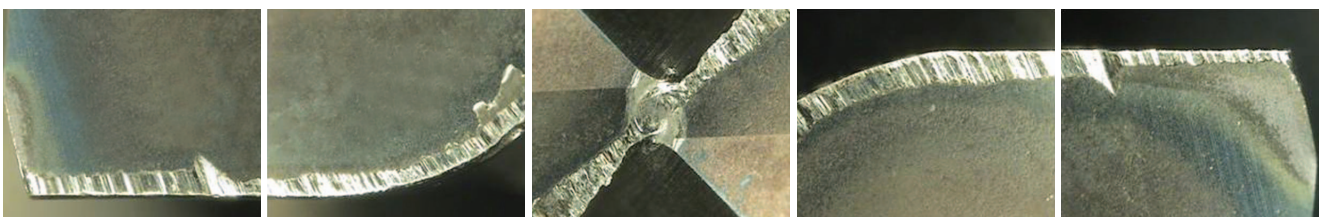
TEST RESULT AGAINST COMPETITOR'S DRILLS



YG-1 (After Drilling 100 Holes)

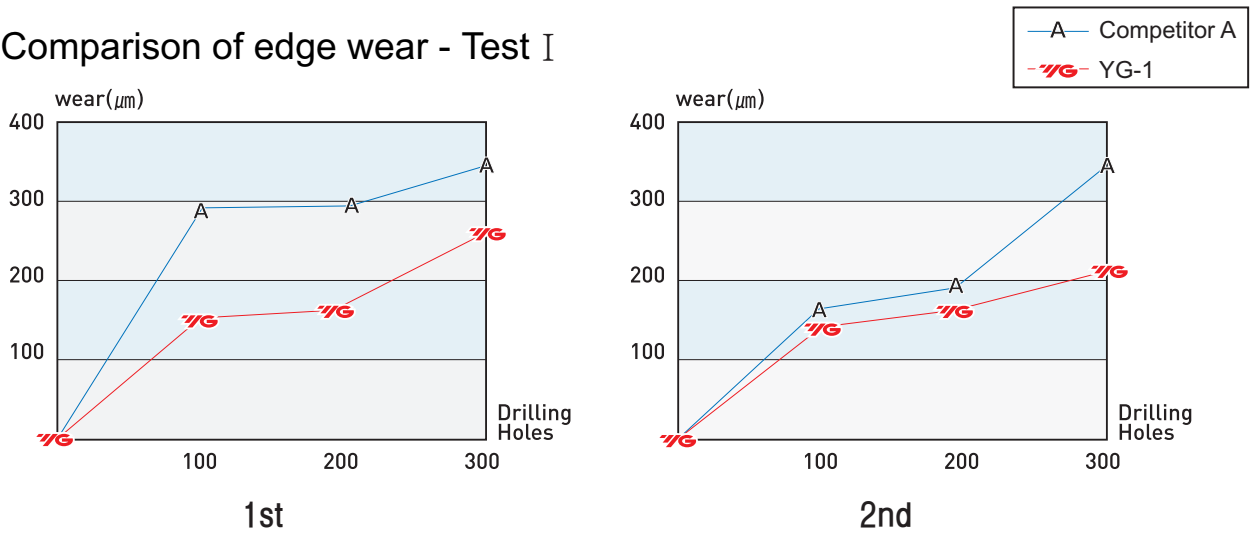


Competitor A (After Drilling 40 Holes)



CASE STUDY ♦ MULTI-1 DRILLS (Reference page : p.99 ~ p.106)

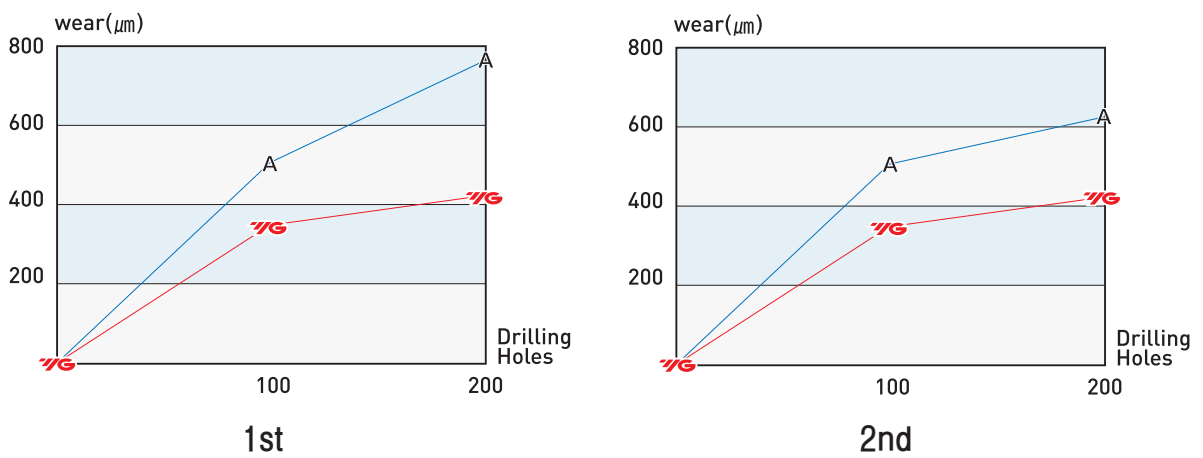
Comparison of edge wear - Test I



CUTTING CONDITION

- Work material : • JIS:SUS316
 - DIN:X3CrNiMo17-13-3
 - WR:1.4436
- Drilling Depth : 24 mm
- Total Drilling(hole) : 300 Holes
- R.P.M : 600 rev./min.
- Feed : 110 mm/min.

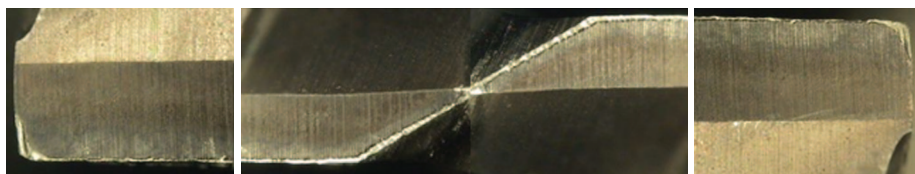
Comparison of edge wear - Test II



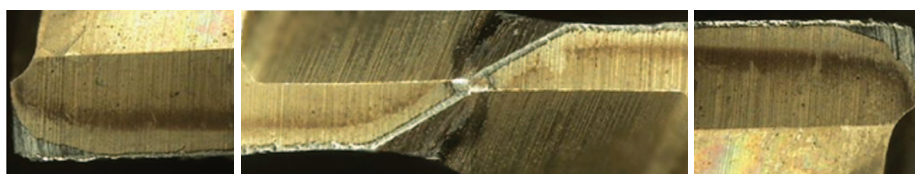
CUTTING CONDITION

- Work material : • JIS:SKD11
 - DIN:X155CrVMo12-1
 - WR:1.4436
- Drilling Depth : 24 mm
- Total Drilling(hole) : 200 Holes
- R.P.M : 600 rev./min.
- Feed : 110 mm/min.

YG-1



Competitor A



● COMBO - SPIRAL FLUTE

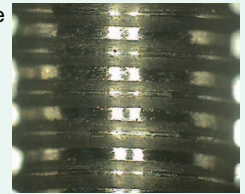
Cutting Condition

- Tools : Combo Spiral Flute Tap
- Size : M8 × 1.25
- Work Material : • JIS:S45C(HRc35)
 - DIN:C45
 - WR:1.0503
- Tapping Depth : 20mm
- Coolant : Water Soluble Oil
- Vc (Tapping Speed) : 10.0m/min

YG-1(Total Tapping 204 Holes)

Surface Roughness of Work Piece
Oberflächengüte des Werkstücks

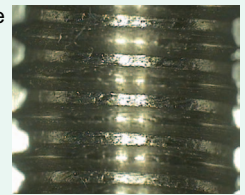
204 Holes ▶



Competitor A (Total Tapping 159 Holes)

Surface Roughness of Work Piece
Oberflächengüte des Werkstücks

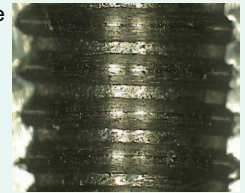
159 Holes ▶



Competitor B (Total Tapping 204 Holes)

Surface Roughness of Work Piece
Oberflächengüte des Werkstücks

204 Holes ▶

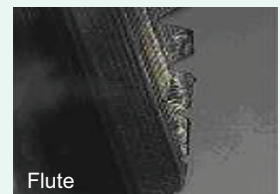


● COMBO - SPIRAL POINT

Cutting Condition

- Tools : Combo Spiral Point Tap
- Size : M2 × 0.4
- Work Material : • JIS:S45C(HRc35)
 - DIN:C45
 - WR:1.0503
- Tapping Depth : 6mm
- Coolant : Tapping Oil
- Vc (Tapping Speed) : 10.0m/min

YG-1(Total Tapping 450 Holes)



Competitor A (Total Tapping 318 Holes)

Tool was broken after 318 holes tapping

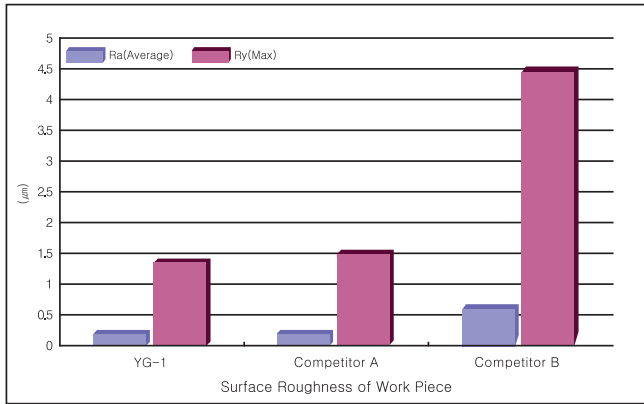
Competitor B (Total Tapping 103 Holes)

Tool was broken after 103 holes tapping

CASE STUDY ◆ CBN END MILLS (Reference page : p.553 ~ p.558)

● TEST I (Total Milling Length : 240m)

▶ Surface Roughness of Work Piece



CUTTING CONDITION (Ø1mm)

Tools : 2Flute, CBN Ball Nose End mill

Size : Ø1 × Ø4 × 0.6 × 50

Work Material : • JIS:SKD11(HRc60)
• DIN:X155CrV-Mo12-1
• WR:1.2379

Cutting Speed : 94.25 m/min.

R.P.M : 30000 rev./min.

Feed : 1500 mm/min.

Milling Depth : 0.01 mm

Coolant : Oil Mist

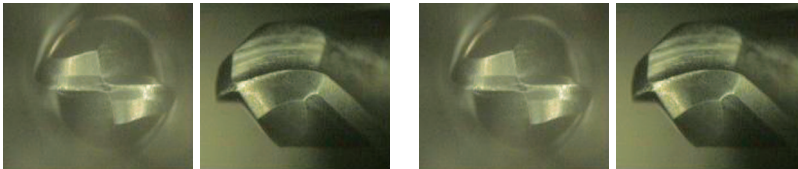
Machine : Machining Center

▶ Maximum Wear (μm)

YG-1 (19.611 μm)

Competitor A (32.249 μm)

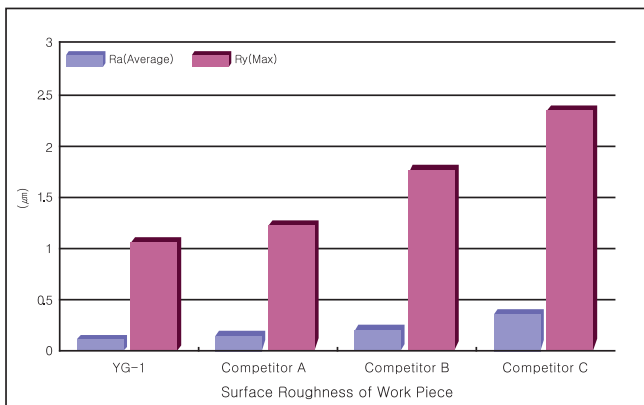
Competitor B



Tool was broken after
100 meter milling

● TEST II (Total Milling Length : 750m)

▶ Surface Roughness of Work Piece



CUTTING CONDITION (Ø2mm)

Tools : 2Flute, CBN Ball Nose End mill

Size : Ø2 × Ø4 × 1.8 × 50

Work Material : • JIS:SKD11(HRc60)
• DIN:X155CrV-Mo12-1
• WR:1.2379

Cutting Speed : 188.50 m/min.

R.P.M : 30000 rev./min.

Feed : 2000 mm/min.

Milling Depth : 0.01 mm

Coolant : Oil Mist

Machine : Machining Center

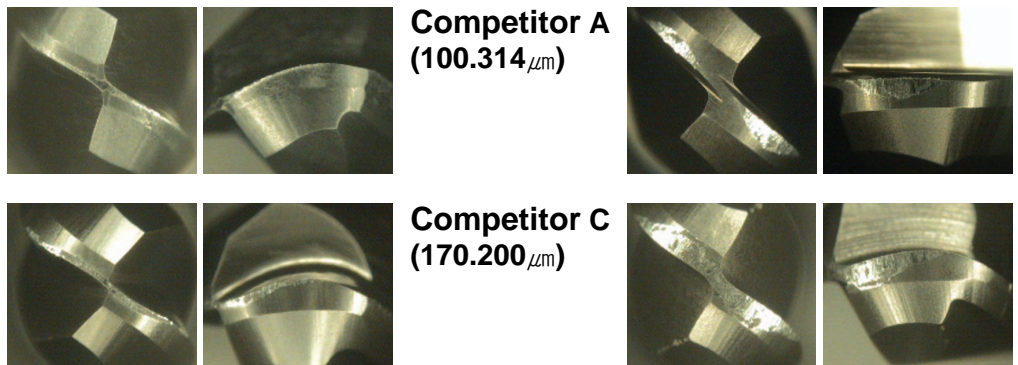
▶ Maximum Wear (μm)

YG-1
(57.630 μm)

Competitor A
(100.314 μm)

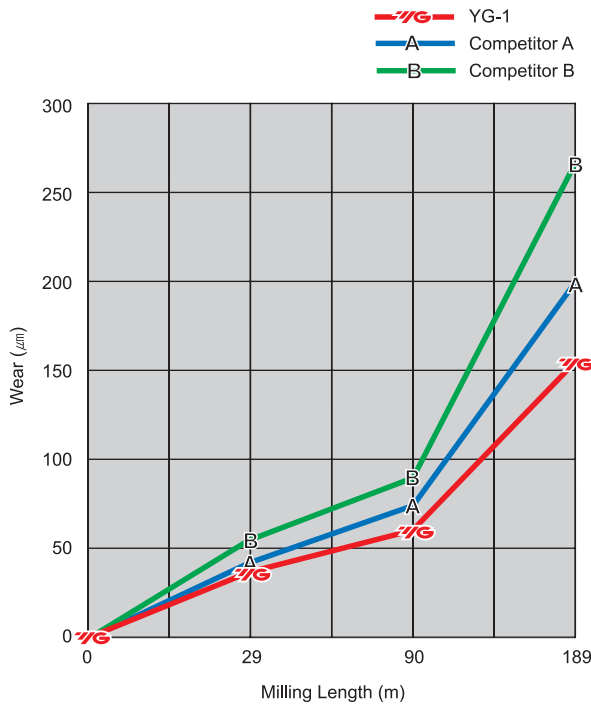
Competitor B
(71.471 μm)

Competitor C
(170.200 μm)

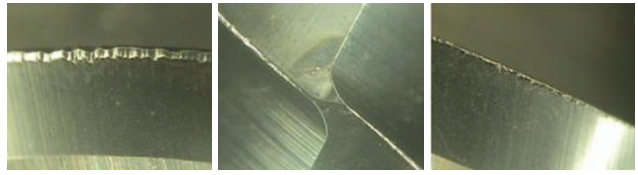


CASE STUDY ◆ **i-Xmill** (Reference page : p.559 ~ p.569)

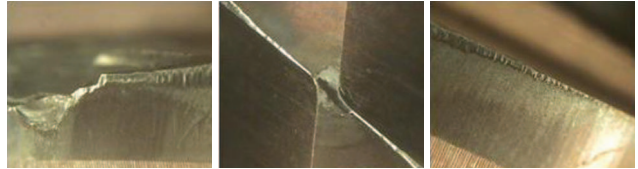
● i-Xmill - **BALL**



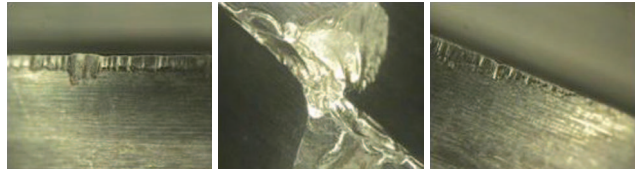
YG-1 *i-Xmill* (Total Milling Length 189m)



Competitor A (Total Milling Length 189m)



Competitor B (Total Milling Length 189m)



CUTTING CONDITION

Tools : i-Xmill Ball (XMB120C160)

Size : $\varnothing 16 \times R8.0$

Work Material : JIS : SKD61 (HRc50),
DIN : X40GrMoV51(1.2344)
AISI : H13

Cutting Speed : 80.42 m/min.

R.P.M : 1600 rev./min.

Feed : 390 mm/min.

Feed per tooth : 0.12 mm/tooth

Milling Method : Side Cutting

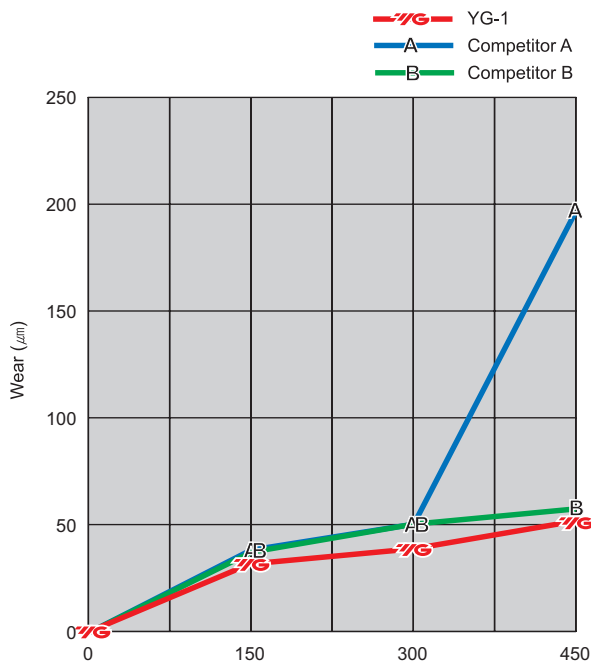
Milling Depth : Axial : 0.8 mm
Radial : 1.6 mm

Coolant : Oil Mist

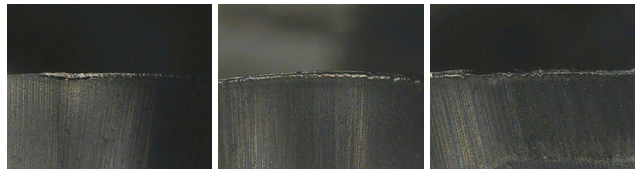
Overhang : YG-1, Competitor B : 48 mm
Competitor A : 56 mm

Machine : Machining Center

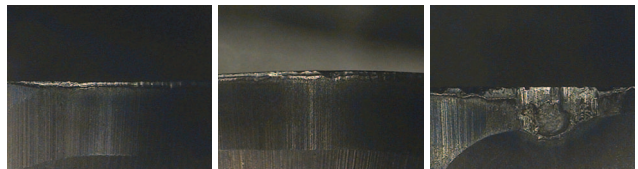
● i-Xmill - **CORNER RADIUS**



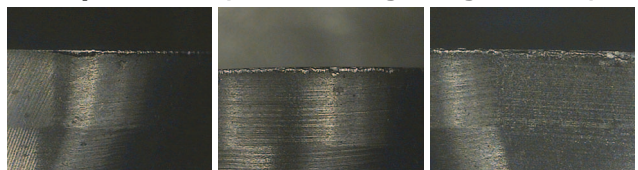
YG-1 *i-Xmill* (Total Milling Length 450m)



Competitor A (Total Milling Length 450m)



Competitor B (Total Milling Length 450m)



CUTTING CONDITION

Tools : i-Xmill Corner Radius (XMR110A16020)

Size : $\varnothing 16 \times R2.0$

Work Material : KS : KP4M (Mold steels HRc35)
DIN : 40CrMnNiMo8-6-4(1.2738)
AISI : P20+Ni

Cutting Speed : 280 m/min.

R.P.M : 5570 rev./min.

Feed : 2230 mm/min.

Feed per tooth : 0.2 mm/tooth

Milling Method : Side Cutting

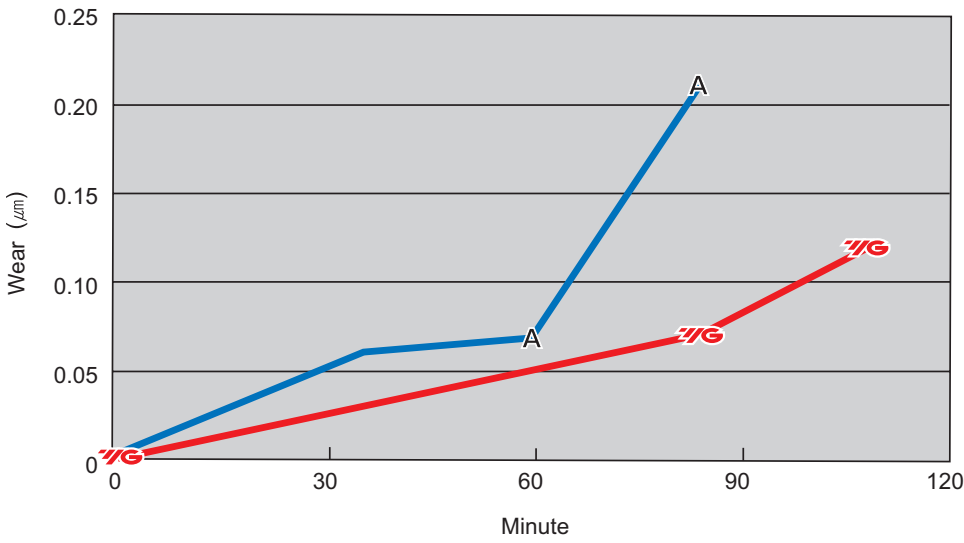
Milling Depth : Axial : 3.0mm
Radial : 0.2mm

Coolant : Oil Mist

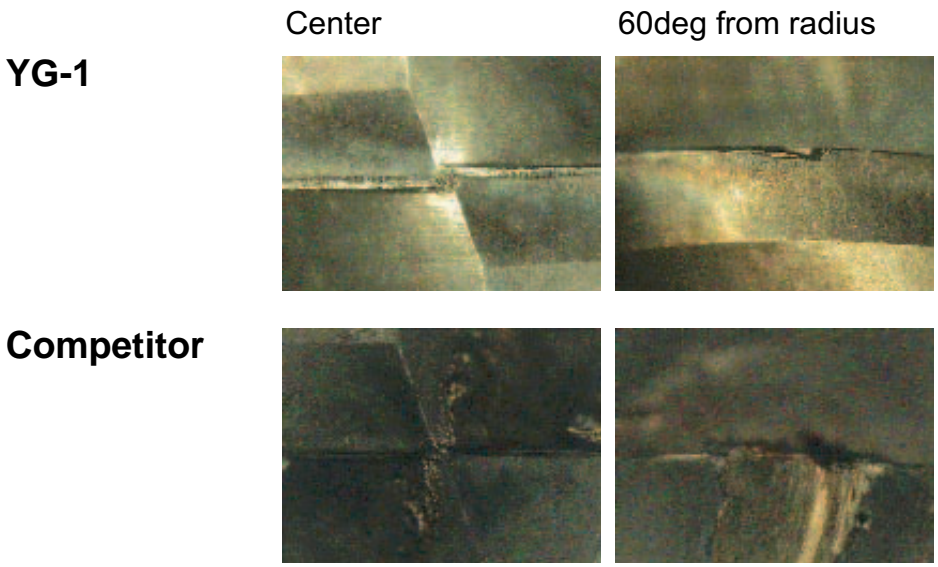
Overhang : 70mm

Machine : Machining Center

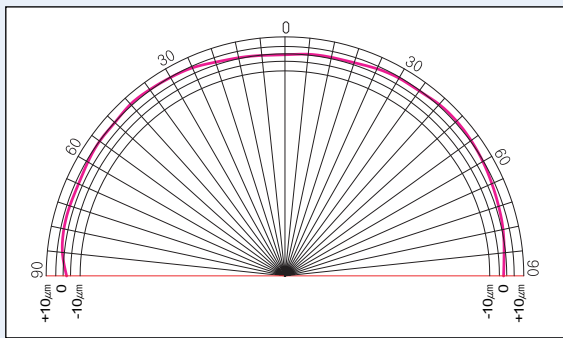
● **X5070 BALL**



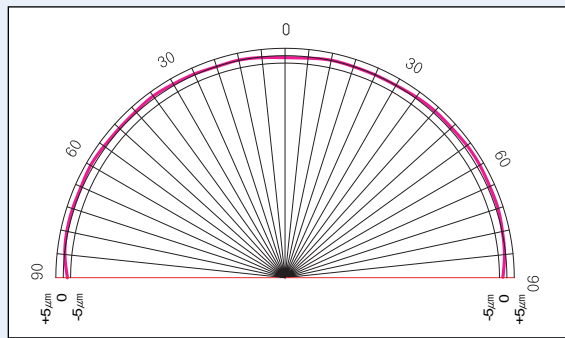
CUTTING CONDITION
 Work Material : STAVAX(HRc52)
 R.P.M : 15000 rev./min.
 Feed : 3000 mm/min.
 Milling Depth : Axial : 0.4 mm
 Radial : 1.0 mm
 Coolant : Oil Mist



● **TIGHTER RADIUS TOLERANCE (G8A28030, R1.5)**



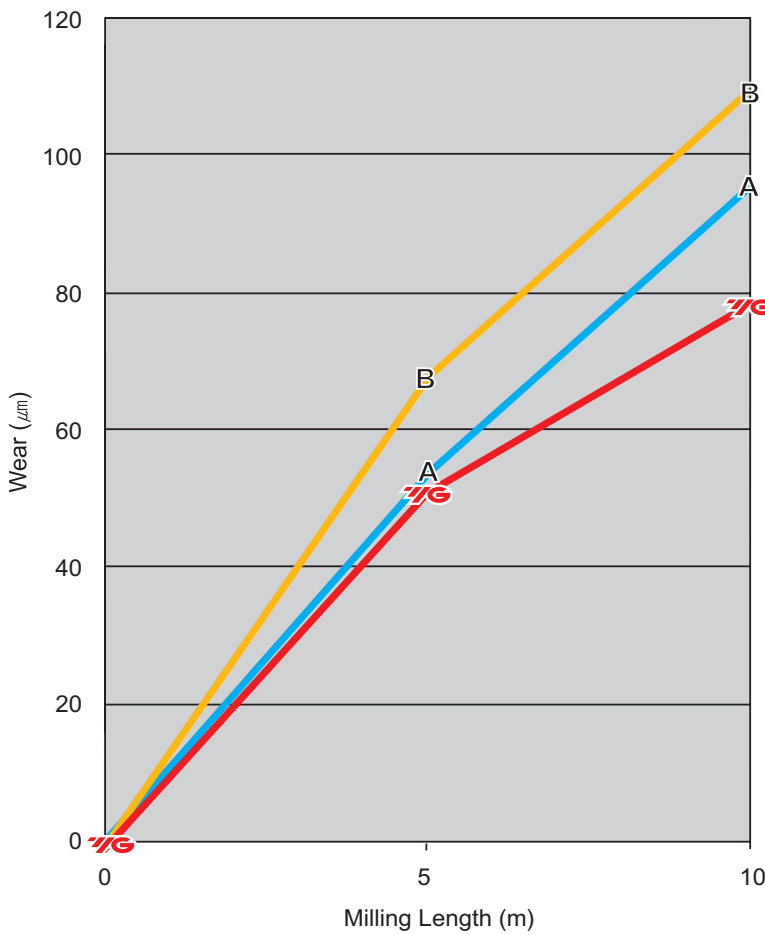
■ BEFORE ±0.010mm



■ IMPROVED ±0.005mm (Up to Ø6)

Tighter Radius Tolerance ±0.005mm higher accuracy and longer tool life.

CASE STUDY ◆ V7 STEELS END MILLS (Reference page : p.713 ~ p.724)



- YG-1
- Competitor A
- Competitor B

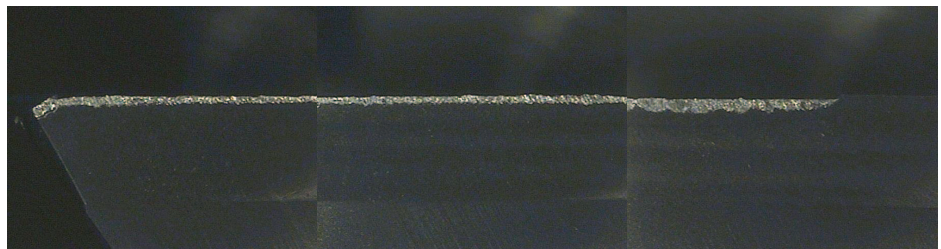
CUTTING CONDITION

Tools: V7 STEELS, 4Flute
Size: $\varnothing 12 \times \varnothing 12 \times 26 \times 83$
Work Material :

- JIS : SKD61 (HRc50)
- DIN : X40GrMoV51(1.2344)
- AISI : H13

Cutting Speed : 139 m/min.
R.P.M : 3688 rev./min.
Feed : 689.7 mm/min.
Milling Method : Down & Side Cutting
Milling Depth : Axial : 18 mm
Radial : 6 mm
Coolant : Wet Cut
Overhang : 40 mm
Machine : Machining Center

YG-1
(Total Milling Length 10m)



Competitor A
(Total Milling Length 10m)

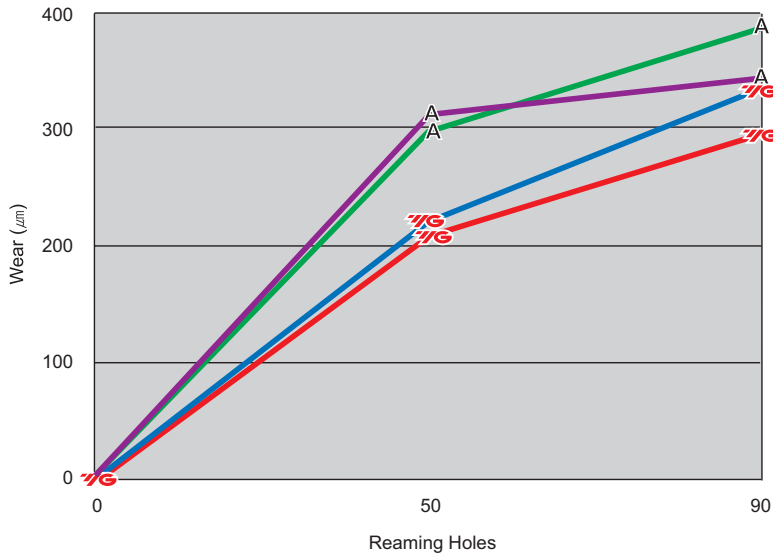


Competitor B
(Total Milling Length 10m)



CASE STUDY ♦ REAMER (Reference page : p.1015 ~ p.1026)

TEST I



CUTTING CONDITION

Tools: Straight Flute Chucking Reamer, Ø8.0

- Work Material :
- JIS:S45C(HRc25)
 - DIN:C45
 - WR:1.0503

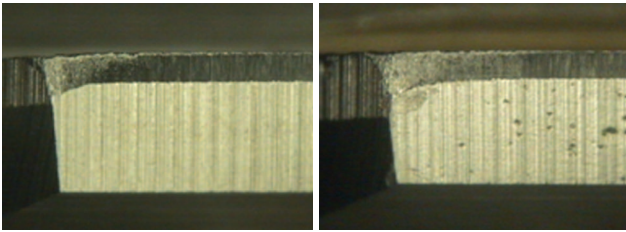
R.P.M : 477 rev./min.

Feed : 57 mm/min.

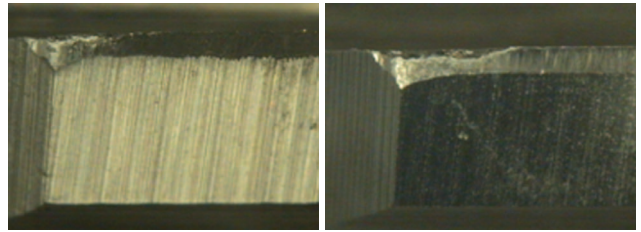
Prepared hole : Ø7.8

Reaming Depth : 16 mm

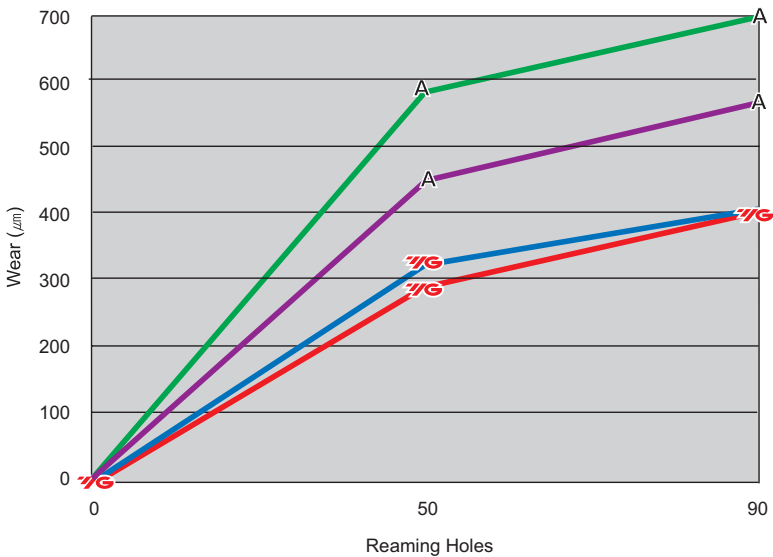
YG-1



Competitor A



TEST II



CUTTING CONDITION

Tools: Spiral Flute Chucking Reamer, Ø12.0

- Work Material :
- JIS:S45C(HRc25)
 - DIN:C45
 - WR:1.0503

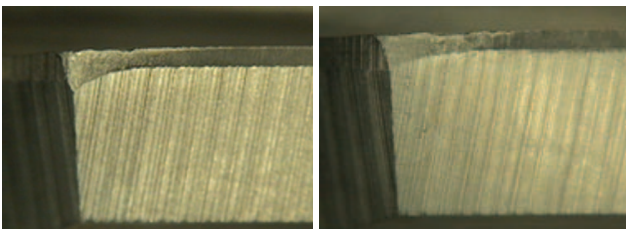
R.P.M : 318 rev./min.

Feed : 48 mm/min.

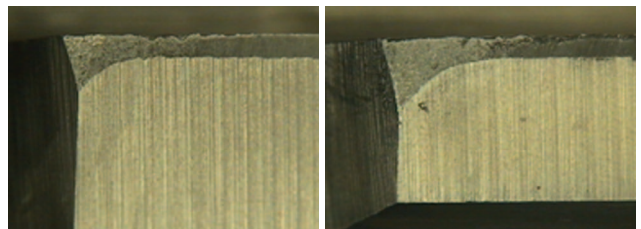
Prepared hole : Ø11.8

Reaming Depth : 24 mm

YG-1



Competitor A



DRILLING TOOLS

i-DREAM DRILLS, CARBIDE INSERT

SOLID CARBIDE DREAM DRILLS - GENERAL
(with & without coolant Holes)

SOLID CARBIDE DREAM DRILLS - INOX
(with coolant Holes)

SOLID CARBIDE DREAM DRILLS - MQL TYPE
(with coolant Holes)

SOLID CARBIDE DREAM DRILLS FOR HIGH HARDENED STEELS

GENERAL SOLID CARBIDE DRILLS, JOBBER & STUB LENGTH

SOLID CARBIDE NC-SPOTTING DRILLS

HSS-PM MULTI-1 DRILLS

PREMIUM HSS HPD STRAIGHT SHANK DRILLS

HSS GOLD-P DRILLS

HSS-E WORM PATTERN DRILLS

HSS STRAIGHT SHANK DRILLS

HSS MORSE TAPER SHANK DRILLS

HSS (8% Cobalt) NC SPOTTING DRILLS

HSS-EX CENTER DRILLS

CARBIDE & HSS-PM SPADE DRILLS

TECHNICAL DATA

Contents

DRILLING TOOLS

CARBIDE INSERT DRILLS

SOLID CARBIDE DRILLS

HSS DRILLS

CARBIDE & HSS-PM SPADE DRILLS

TECHNICAL DATA

Contents / DRILLING TOOLS

i-DREAM DRILLS

Available for General Steels and for Stainless Steels

i-DREAM
DRILLS

SOLID CARBIDE DREAM DRILLS - GENERAL (with & without Coolant Holes)

General Purpose usually HRc30 to HRc50

DREAM
DRILLS
-GENERAL

SOLID CARBIDE DREAM DRILLS - INOX (with Coolant Holes)

Tough Materials like Stainless Steels, Nickel Alloys and Titanium up to HRc35.

DREAM
DRILLS
-INOX

SOLID CARBIDE DREAM DRILLS - MQL TYPE (with Coolant Holes)

Minimum Quantity Lubrication. Drilling Deep Holes, 10D, 15D & 20D

DREAM
DRILLS
-MQL TYPE

SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS

High Hardened Steels, HRc50~HRc70

DREAM
DRILLS
for HARDENED
STEELS

GENERAL SOLID CARBIDE DRILLS (JOBBER & STUB LENGTH)

General Purpose, DIN338 & DIN6539

GENERAL
CARBIDE
DRILLS

SOLID CARBIDE NC-SPOTTING DRILLS

Centering and Chamfering

NC-SPOTTING
DRILLS

HSS-PM MULTI-1 DRILLS

Multi Purpose Drilling. Particularly for Stainless Steels

MULTI-1
DRILLS

PREMIUM HSS HPD STRAIGHT SHANK DRILLS

General Steels and Stainless Steels

HPD DRILLS

HSS GOLD-P DRILLS

Gold-P Coating, HSS & HSS-E

GOLD-P
DRILLS

HSS-E WORM PATTERN DRILLS

Drilling Deep Holes

WORM
PATTERN
DRILLS

HSS STRAIGHT SHANK DRILLS

General Purpose (HSS & HSS-E & 8% Cobalt)

STRAIGHT
SHANK
DRILLS

HSS MORSE TAPER SHANK DRILLS

General Purpose (HSS & HSS-E & 8% Cobalt)

TAPER
SHANK
DRILLS

HSS(8% Cobalt) NC SPOTTING DRILLS

Centering and Chamfering of Holes

NC-SPOTTING
DRILLS

HSS CENTER DRILLS

General Purpose

CENTER
DRILLS

CARBIDE & HSS-PM SPADE DRILLS

Carbide for Long Tool Life, and HSS PM for General Machines and Large Diameters
Higher Productivity than Other Drilling Tools

SPADE
DRILLS

TECHNICAL DATA

TECHNICAL
DATA

DRILL APPLICATION TABLE

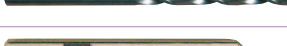

	ITEM	MODEL	DESCRIPTION	SIZE		PAGE
				MIN	MAX	
i-Dream Drills	Y * 1A		Insert for General Purpose	Ø12.0 (#A)	Ø31.75 (#J)	32~37
	Y * 2C		Insert for Stainless Steels	Ø12.0 (#A)	Ø31.75 (#J)	32~37
Spade Drills	S14** (SM4**)		HSS M4 Insert	Ø17.86 (#1)	Ø114.3 (#8)	216~221 242~244
	S11** (SM1**)		Super HSS T15 Insert	Ø9.5 (#Y)	Ø65.09 (#4)	222~226 245~248
	S15** (SM5**)		Premium HSS M48 Insert	Ø9.5 (#Y)	Ø35 (#2)	227~229 249~251
	S16** (SM6**)		Carbide K10 Insert	Ø9.5 (#Y)	Ø35 (#2)	230~232 252~254
	S17** (SM7**)		Carbide K20 Insert	Ø9.5 (#Y)	Ø47.63 (#3)	233~236 255~258
	S18** (SM8**)		Carbide P40 Insert	Ø9.5 (#Y)	Ø47.63 (#3)	237~240 259~262

◎ : Excellent
○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloy
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
○	○		○				○		○		◎			○	○
○	○	○	○		○		○	○			◎	◎	○	◎	◎
◎	◎	◎	◎	○	○	○	◎	◎	○	○	○	○	◎	○	○
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○
												◎	◎		
○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎	◎
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○

▶ NEXT

DRILL APPLICATION TABLE

	ITEM	MODEL	LENGTH	SIZE		PAGE
				MIN	MAX	
SOLID CARBIDE DREAM DRILLS - GENERAL (without coolant hole)	DH404		STUB (3xD)	D3.0	D20.0	46
	DH423		SHORT (3xD)	D3.0	D20.0	48
	DH424		LONG (5xD)	D1.0	D20.0	50
SOLID CARBIDE DREAM DRILLS - GENERAL (with coolant hole)	DH406		SHORT (3xD)	D3.0	D20.0	53
	DH408		LONG (5xD)	D1.0	D20.0	55
	DH421		EXTRA LONG (8xD)	D3.0	D14.0	58
SOLID CARBIDE DREAM DRILLS - INOX (with coolant hole)	DH451		SHORT (3xD)	D3.0	D20.0	64
	DH452		LONG (5xD)	D3.0	D20.0	67
	DH453		EXTRA LONG (8xD)	D3.0	D14.0	70
SOLID CARBIDE DREAM DRILLS - MQL TYPE (with coolant hole)	DH510		EXTRA LONG (10xD)	D3.0	D14.0	76
	DH515		EXTRA LONG (15xD)	D3.0	D12.0	77
	DH520		EXTRA LONG (20xD)	D3.0	D12.0	77
SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS	DH500			D3.0	D12.0	82
GENERAL SOLID CARBID DRILLS	D5405		STUB	D1.0	D13.0	88
	D5407		JOBBER	D1.0	D10.2	90
SOLID CARBID NC-SPOTTING DRILLS	D5306 D5307			D6.0	D20.0	96
HSS-PM MULTI-1 DRILLS	CDRA03		STUB	D1.0	D13.0	102
	CDRA04		JOBBER	D2.0	D13.0	104
HSS HPD STRAIGHT SHANK DRILLS	D4541		STUB	D2.0	D13.0	110
	D4542		JOBBER	D2.0	D32.0	114
	DJ543		STUB	D2.0	D13.0	119
	DJ544		JOBBER	D2.0	D20.0	121
HSS GOLD-P DRILLS	D1GP125		JOBBER	D1.0	D13.0	128
	D1GP165		JOBBER	D1.6	D13.0	130
	DLGP195		JOBBER	D1.0	D13.0	132
	DLGP506		JOBBER	D2.0	D13.0	134

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			~HB225	HB225~325							
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▶ NEXT

DRILL APPLICATION TABLE

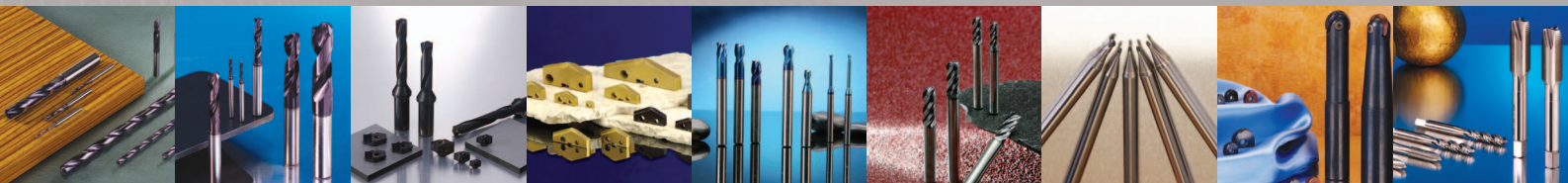
	ITEM	MODEL	LENGTH	SIZE		PAGE
				MIN	MAX	
HSS WORM PATTERN DRILLS	DL510		STUB	D2.0	D20.0	142
	DL508		JOBBER	D2.0	D16.0	144
	DL509		LONG	D2.0	D12.0	146
	DL505		JOBBER	D2.0	D13.0	148
	DL504		LONG	D2.0	D13.0	150
	DL600		EXTRA LONG	D2.0	D13.0	151
	DL608		LONG	D13.0	D30.0	152
	DL609		EXTRA LONG	D13.0	D31.0	153
	DL610		EXTRA LONG	D13.0	D30.0	154
	DL507		EXTRA LONG	D2.0	D13.0	155
HSS STRAIGHT SHANK DRILLS	D2107		STUB	D1.0	D31.0	162
	D1107		STUB	D1.0	D13.0	165
	D2105		JOBBER	D1.0	D20.0	167
	DL105		JOBBER	D1.0	D20.0	170
	D1105		JOBBER	D0.3	D20.0	173
	D1125		JOBBER	D2.0	D20.0	177
	D2104		LONG	D2.0	D12.0	180
	D1121		EXTRA LONG	D2.0	D13.0	182
	DL109		JOBBER	D1.5	D13.0	183
	D1100		JOBBER	D1.5	D13.0	184
	D1106		JOBBER	D1.5	D13.0	186
HSS MORSE TAPER SHANK DRILLS	DN221		SHORT	D13.0	D32.0	194
	DL205		JOBBER	D13.0	D30.0	195
	D1205		JOBBER	D13.0	D60.0	196
	D1206		LONG	D13.0	D30.0	198
	D1209		EXTRA LONG	D13.0	D50.0	199
	D1210		EXTRA LONG	D13.0	D50.0	200
HSS NC SPOTTING DRILLS	D2306 D2307			D3.0	D20.0	206
HSS CENTER DRILLS	DV303			D1.0	D5.0	212
	D1303			D1.0	D5.0	212

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45									
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CUTTING TOOLS





Being the best through innovation

CARBIDE INSERT





i - Dream Drills

i-Dream Drill

- Available for General Steels and for Stainless Steels
- Lieferbar für normale und rostfreie Stähle

SELECTION GUIDE

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Comparison with Split Point Drill, Spade Drill & Dream Drill



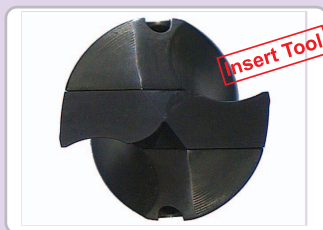
Normal Split Point Drill



Dream Drill



Spade Drill



i-Dream Drill

i-DREAM DRILLS, CARBIDE INSERT

⊙ : Excellent
○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)
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i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER

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

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

i-Dream Drill General / i-Dream Drill allgemeinen

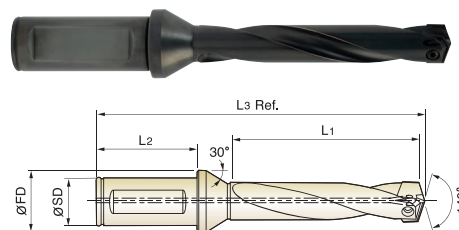
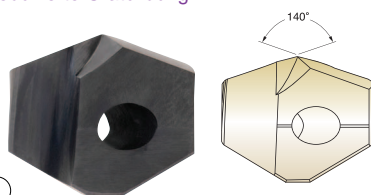
- ▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX / i-Dream Drill INOX

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

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

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



cutting conditions : p.38~39

Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Flute Length L1	Overall Length L3 Ref.	Clamping Screw No.
	TiAlN General	TiCN INOX	dec.	h7 frac. mm									
A Ø12.00 to Ø13.99	YA1A1200	YA2C1200	0.4724		12.00	3D	ZH12003020	20	50	25	52	121	TX1213T08
	YA1A1210	YA2C1210	0.4764		12.10	5D	ZH12005020				77	146	
	YA1A1220	YA2C1220	0.4803		12.20	7D	ZH12007020				101	170	
	YA1A1230	YA2C1230	0.4844	31/64	12.30								
	YA1A1250	YA2C1250	0.4921		12.50								
	YA1A1260	YA2C1260	0.4961		12.60	3D	ZH12503020				54	122	
	YA1A1270	YA2C1270	0.5000	1/2	12.70	5D	ZH12505020	20	50	25	80	148	
	YA1A1280	YA2C1280	0.5039		12.80	7D	ZH12507020				106	174	
	YA1A1290	YA2C1290	0.5079		12.90								
	YA1A1300	YA2C1300	0.5118		13.00	3D	ZH13003020				56	124	
	YA1A1310	YA2C1310	0.5156	33/64	13.10	5D	ZH13005020	20	50	25	83	151	
	YA1A1320	YA2C1320	0.5197		13.20	7D	ZH13007020				110	178	
	YA1A1349	YA2C1349	0.5312	17/32	13.49								
	YA1A1350	YA2C1350	0.5315		13.50								
	YA1A1360	YA2C1360	0.5354		13.60	3D	ZH13503020				57	125	
	YA1A1370	YA2C1370	0.5394		13.70	5D	ZH13505020	20	50	25	85	153	
	YA1A1380	YA2C1380	0.5433		13.80	7D	ZH13507020				113	181	
	YA1A1389	YA2C1389	0.5469	35/64	13.89								
B Ø14.00 to Ø15.99	YB1A1400	YB2C1400	0.5512		14.00								
	YB1A1410	YB2C1410	0.5551		14.10	3D	ZH14003020				59	126	
	YB1A1420	YB2C1420	0.5591		14.20	5D	ZH14005020	20	50	25	88	155	
	YB1A1429	YB2C1429	0.5625	9/16	14.29	7D	ZH14007020				117	184	
	YB1A1430	YB2C1430	0.5630		14.30								
	YB1A1440	YB2C1440	0.5669		14.40								

Coating : TiN, TiCN, TiAlN & Hardslick are available on your request.

◎ : Excellent ○ : Good

	Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)	~HB110
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Y * 2C	○	○		○				○		○		◎			○	○

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER

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

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

i-Dream Drill General / i-Dream Drill allgemeinen

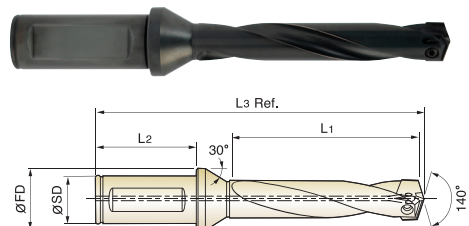
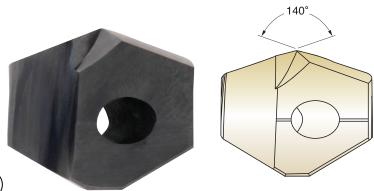
- ▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX / i-Dream Drill INOX

- ▶ For tough, ductile materials and stainless steels
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
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- ▶ Soft cutting action / Weicher Schnitt
- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung

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

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Innovative Oberflächenbehandlung, die die Verschleißfestigkeit erhöht und die Korrosion vermindert.
- ▶ High Performance flute design allowing maximum chip evacuation and minimum interference.
Optimierte Nutenform für maximale Spanabfuhr.



cutting conditions : p.38~39

Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Flute Length L1	Overall Length L3 Ref.	Clamping Screw No.
	TiAlN General	TiCN INOX	dec.	frac.	mm								
B Ø14.00 to Ø15.99	YB1A1450	YB2C1450	0.5709		14.50	3D	ZH14503020				61	128	TX1415T08
	YB1A1460	YB2C1460	0.5748		14.60	5D	ZH14505020	20	50	25	91	158	
	YB1A1468	YB2C1468	0.5781	37/64	14.68	7D	ZH14507020				121	188	
	YB1A1480	YB2C1480	0.5827		14.80								
	YB1A1500	YB2C1500	0.5906		15.00								
	YB1A1508	YB2C1508	0.5938	19/32	15.08	3D	ZH15003020				63	130	
	YB1A1510	YB2C1510	0.5945		15.10	5D	ZH15005020	20	50	25	94	161	
	YB1A1520	YB2C1520	0.5984		15.20	7D	ZH15007020				125	192	
	YB1A1530	YB2C1530	0.6024		15.30								
	YB1A1548	YB2C1548	0.6094	39/64	15.48								
	YB1A1550	YB2C1550	0.6102		15.50								
	YB1A1560	YB2C1560	0.6142		15.60	3D	ZH15503020				65	131	
YB1A1570	YB2C1570	0.6181		15.70	5D	ZH15505020	20	50	25	97	163		
YB1A1580	YB2C1580	0.6220		15.80	7D	ZH15507020				128	194		
YB1A1587	YB2C1587	0.6250	5/8	15.87									
C Ø16.00 to Ø17.99	YC1A1600	YC2C1600	0.6299		16.00								TX1617T08
	YC1A1609	YC2C1609	0.6335		16.09	3D	ZH16003020				65	131	
	YC1A1620	YC2C1620	0.6378		16.20	5D	ZH16005020	20	50	25	98	164	
	YC1A1627	YC2C1627	0.6406	41/64	16.27	7D	ZH16007020				131	197	
	YC1A1630	YC2C1630	0.6417		16.30								
	YC1A1650	YC2C1650	0.6496		16.50	3D	ZH16503020				67	133	
	YC1A1667	YC2C1667	0.6562	21/32	16.67	5D	ZH16505020	20	50	25	101	167	
	YC1A1680	YC2C1680	0.6614		16.80	7D	ZH16507020				134	200	

Coating : TiN, TiCN, TiAlN & Hardslick are available on your request.

◎ : Excellent ○ : Good

	Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron	Aluminum	Copper Alloys	
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)	~HB110
Y * 1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y * 2C	○	○		○				○		○		◎			○	○

CARBIDE
HSS
i-DREAM DRILLS
DREAM DRILLS -GENERAL
DREAM DRILLS -INOX
DREAM DRILLS -MQL TYPE
DREAM DRILLS for HARDENED STEELS
GENERAL CARBIDE DRILLS
NC-SPOTTING DRILLS
MULTI-1 DRILLS
HPD DRILLS
GOLD-P DRILLS
WORM PATTERN DRILLS
STRAIGHT SHANK DRILLS
TAPER SHANK DRILLS
NC-SPOTTING DRILLS
CENTER DRILLS
SPADE DRILLS
TECHNICAL DATA

i-DREAM DRILL INSERTS & HOLDERS i-DREAM DRILL EINSÄTZE UND HALTER

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

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

i-Dream Drill General / i-Dream Drill allgemeinen

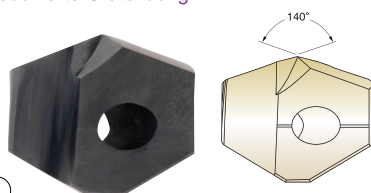
- ▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX / i-Dream Drill INOX

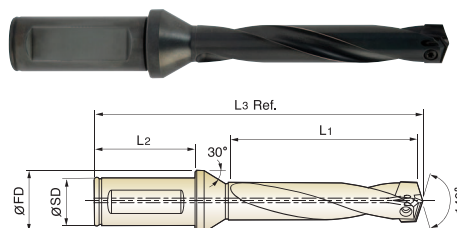
- ▶ For tough, ductile materials and stainless steels
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- ▶ Light, sharp cutting edge / Scharfe Schneidkante
- ▶ Soft cutting action / Weicher Schnitt
- ▶ Minimize cutting forces / Minimaler Schneiddruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung

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

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



cutting conditions : p.38~39



Series Range	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Flute Length	Overall Length	Clamping Screw No.
	TiAIN	TiCN	dec.	frac.	mm								
(mm)	General	INOX					SD	L2	FD	L1	L3 Ref.		
C Ø16.00 to Ø17.99	YC1A1700	YC2C1700	0.6693		17.00	3D	ZH17003020				69	134	TX1617T08
	YC1A1707	YC2C1707	0.6919	43/64	17.07	5D	ZH17005020	20	50	25	104	169	
	YC1A1746	YC2C1746	0.6875	11/16	17.46	7D	ZH17007020				139	204	
	YC1A1750	YC2C1750	0.6890		17.50	3D	ZH17503020				70	135	
	YC1A1780	YC2C1780	0.7008		17.80	5D	ZH17505020	20	50	25	106	171	
	YC1A1786	YC2C1786	0.7031	45/64	17.86	7D	ZH17507020				142	207	
D Ø18.00 to Ø19.99	YD1A1800	YD2C1800	0.7087		18.00	3D	ZH18003025				72	149	TX1819T15
	YD1A1826	YD2C1826	0.7188	23/32	18.26	5D	ZH18005025	25	56	32	109	186	
	YD1A1850	YD2C1850	0.7283		18.50	7D	ZH18007025				146	223	
	YD1A1850	YD2C1850	0.7283		18.50	3D	ZH18503025				74	150	
	YD1A1865	YD2C1865	0.7344	47/64	18.65	5D	ZH18505025	25	56	32	112	188	
	YD1A1880	YD2C1880	0.7402		18.80	7D	ZH18507025				150	226	
	YD1A1900	YD2C1900	0.7480		19.00								
	YD1A1905	YD2C1905	0.7500	3/4	19.05	3D	ZH19003025				76	152	
	YD1A1927	YD2C1927	0.7587		19.27	5D	ZH19005025	25	56	32	115	191	
	YD1A1945	YD2C1945	0.7656	49/64	19.45	7D	ZH19007025				154	230	
	YD1A1950	YD2C1950	0.7677		19.50	3D	ZH19503025				77	153	
	YD1A1980	YD2C1980	0.7795		19.80	5D	ZH19505025	25	56	32	117	193	
	YD1A1984	YD2C1984	0.7812	25/32	19.84	7D	ZH19507025				157	233	

Coating : TiN, TiCN, TiAIN & Hardslick are available on your request.

◎ : Excellent ○ : Good

	Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)	~HB110
Y * 1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y * 2C	○	○	○	○	○	○	○	○	○	○	○	◎			○	○

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER

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

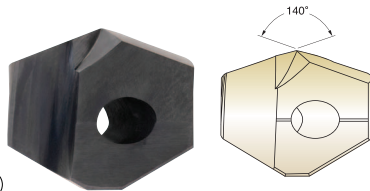
- ▶ Secure and accurate seating resulting in accurate repeatability and concentricity.
Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

i-Dream Drill General / i-Dream Drill allgemeinen

- ▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX / i-Dream Drill INOX

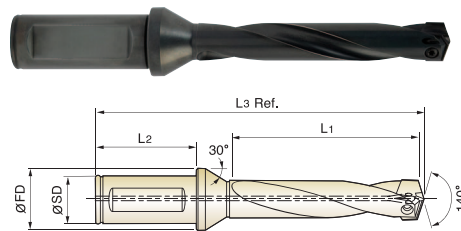
- ▶ For tough, ductile materials and stainless steels
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- ▶ Light, sharp cutting edge / Scharfe Schneidkante
- ▶ Soft cutting action / Weicher Schnitt
- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung



cutting conditions : p.38~39

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

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



Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Flute Length	Overall Length	Clamping Screw No.
	TiAlN General	TiCN INOX	dec.	frac.	mm			SD	L2	FD	L1	L3 Ref.	
E Ø20.00 to Ø21.99	YE1A2000	YE2C2000	0.7874		20.00	3D	ZH20003025				77	152	TX2021T20
	YE1A2024	YE2C2024	0.7969	51/64	20.24	5D	ZH20005025	25	56	32	118	193	
	YE1A2050	YE2C2050	0.8071		20.50	7D	ZH20007025				159	234	
	YE1A2064	YE2C2064	0.8125	13/16	20.64	3D	ZH20503025				79	154	
	YE1A2070	YE2C2070	0.8150		20.70	5D	ZH20505025	25	56	32	121	196	
	YE1A2070	YE2C2070	0.8150		20.70	7D	ZH20507025				163	238	
	YE1A2100	YE2C2100	0.8268		21.00	3D	ZH21003025				81	156	
	YE1A2103	YE2C2103	0.8281	53/64	21.03	5D	ZH21005025	25	56	32	124	199	
	YE1A2143	YE2C2143	0.8438	27/32	21.43	7D	ZH21007025				167	242	
	YE1A2150	YE2C2150	0.8465		21.50	3D	ZH21503025				83	157	
YE1A2170	YE2C2170	0.8543		21.70	5D	ZH21505025	25	56	32	126	200		
YE1A2183	YE2C2183	0.8594	55/64	21.83	7D	ZH21507025				170	244		
F Ø22.00 to Ø23.99	YF1A2200	YF2C2200	0.8661		22.00	3D	ZH22003025				85	159	TX2223T20
	YF1A2223	YF2C2223	0.8750	7/8	22.23	5D	ZH22005025	25	56	32	129	203	
	YF1A2250	YF2C2250	0.8858		22.50	7D	ZH22007025				174	248	
	YF1A2262	YF2C2262	0.8906	57/64	22.62	3D	ZH22503025				86	159	
	YF1A2262	YF2C2262	0.8906	57/64	22.62	5D	ZH22505025	25	56	32	132	205	
	YF1A2270	YF2C2270	0.8937		22.70	7D	ZH22507025				178	251	
	YF1A2300	YF2C2300	0.9055		23.00	3D	ZH23003025				88	161	
	YF1A2302	YF2C2302	0.9062	29/32	23.02	5D	ZH23005025	25	56	32	135	208	
	YF1A2342	YF2C2342	0.9219	59/64	23.42	7D	ZH23007025				182	255	
	YF1A2350	YF2C2350	0.9252		23.50	3D	ZH23503025				90	163	
YF1A2370	YF2C2370	0.9331		23.70	5D	ZH23505025	25	56	32	137	210		
YF1A2381	YF2C2381	0.9375	15/16	23.81	7D	ZH23507025				185	258		

Coating : TiN, TiCN, TiAlN & Hardslick are available on your request.

◎ : Excellent ○ : Good

	Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron	Aluminum	Copper Alloys	
	~HRc24 (-HB250)	~HRc28 (-HB275)	HRc28~ (HB275~)	~HRc28 (-HB275)	HRc28~ (HB275~)	~HRc37 (-HB350)	HRc37~ (HB350~)	~HRc24 (-HB250)	HRc24~ (HB250~)	~HRc13 (-HB200)	HRc13~ (HB200~)	~HRc28 (-HB275)	~HRc19 (-HB220)	HRc19~ (HB220~)	~HRc8 (-HB180)	~HB110
Y * 1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y * 2C	○	○		○				○		○		◎			○	○

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER

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

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

i-Dream Drill General / i-Dream Drill allgemeinen

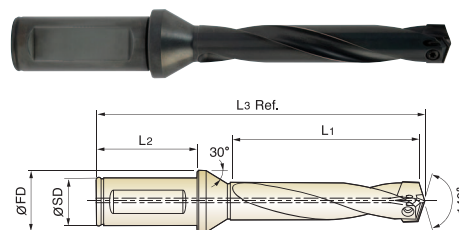
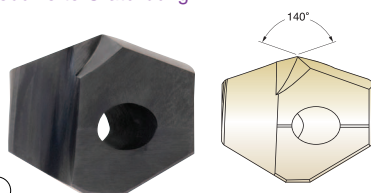
- ▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX / i-Dream Drill INOX

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

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

- ▶ Special Alloy Steels that maintains its hardness and toughness under high temperatures.
Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
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Innovative Oberflächenbehandlung, die die Verschleißfestigkeit erhöht und die Korrosion vermindert.
- ▶ High Performance flute design allowing maximum chip evacuation and minimum interference.
Optimierte Nutenform für maximale Spanabfuhr.



cutting conditions : p.38~39

Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia. SD	Shank Length L2	Flange Dia. FD	Flute Length L1	Overall Length L3 Ref.	Clamping Screw No.
	TiAlN General	TiCN INOX	dec.	frac.	mm								
G Ø24.00 to Ø25.99	YG1A2400	YG2C2400	0.9449		24.00	3D	ZH24003032				91	172	TX2425T20
	YG1A2421	YG2C2421	0.9531	61/64	24.21	5D	ZH24005032	32	60	37	140	221	
	YG1A2450	YG2C2450	0.9646		24.50	7D	ZH24007032				189	270	
	YG1A2461	YG2C2461	0.9688	31/32	24.61	3D	ZH24503032				93	173	
	YG1A2470	YG2C2470	0.9724		24.70	5D	ZH24505032	32	60	37	143	223	
	YG1A2500	YG2C2500	0.9843	63/64	25.00	7D	ZH24507032				193	273	
	YG1A2540	YG2C2540	1.0000	1	25.40	3D	ZH25003032				95	175	
	YG1A2550	YG2C2550	1.0039		25.50	5D	ZH25005032	32	60	37	146	226	
	YG1A2567	YG2C2567	1.0106		25.67	7D	ZH25007032				197	277	
	YG1A2570	YG2C2570	1.0118		25.70	3D	ZH25503032				97	177	
YG1A2580	YG2C2580	1.0156	1 * 1/64	25.80	5D	ZH25505032	32	60	37	148	228		
H Ø26.00 to Ø27.99	YH1A2600	YH2C2600	1.0236		26.00	7D	ZH25507032				200	280	TX2627T25
	YH1A2619	YH2C2619	1.0312	1 * 1/32	26.19	3D	ZH26003032				98	177	
	YH1A2619	YH2C2619	1.0312	1 * 1/32	26.19	5D	ZH26005032	32	60	37	150	229	
	YH1A2619	YH2C2619	1.0312	1 * 1/32	26.19	7D	ZH26007032				202	281	
	YH1A2650	YH2C2650	1.0433		26.50	3D	ZH26503032				99	178	
	YH1A2659	YH2C2659	1.0469	1 * 3/64	26.59	5D	ZH26505032	32	60	37	152	231	
	YH1A2699	YH2C2699	1.0625	1 * 1/16	26.99	7D	ZH26507032				205	284	
	YH1A2700	YH2C2700	1.0630		27.00	3D	ZH27003032				101	180	
	YH1A2700	YH2C2700	1.0630		27.00	5D	ZH27005032	32	60	37	155	234	
	YH1A2700	YH2C2700	1.0630		27.00	7D	ZH27007032				209	288	
YH1A2750	YH2C2750	1.0827		27.50	3D	ZH27503032				103	181		
YH1A2750	YH2C2750	1.0827		27.50	5D	ZH27505032	32	60	37	159	237		
YH1A2778	YH2C2778	1.0938	1 * 3/32	27.78	7D	ZH27507032				214	292		

Coating : TiN, TiCN, TiAlN & Hardslick are available on your request.

◎ : Excellent ○ : Good

	Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)	~HB110
Y * 1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y * 2C	○	○		○				○		○		◎			○	○

i-DREAM DRILL INSERTS & HOLDERS

i-DREAM DRILL EINSÄTZE UND HALTER

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

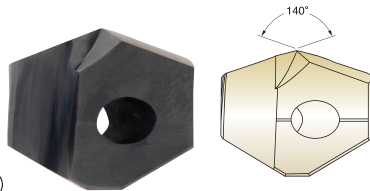
- ▶ Secure and accurate seating resulting in accurate repeatability and concentricity.
Der sichere und genaue Sitz der Platte garantiert genaue Wiederholbarkeit beim Einsatz und beim Rundlauf.

i-Dream Drill General / i-Dream Drill allgemeinen

- ▶ For most steels materials / In den meisten Stahlsorten

i-Dream Drill INOX / i-Dream Drill INOX

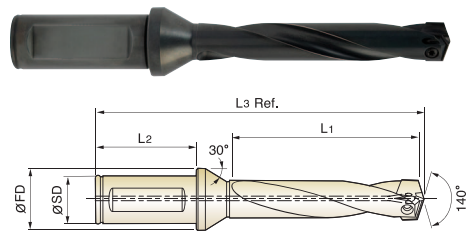
- ▶ For tough, ductile materials and stainless steels
Für zähe, verformbare Werkstoffe und rostfreie Stähle.
- ▶ Light, sharp cutting edge / Scharfe Schneidkante
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- ▶ Minimize cutting forces / Minimaler Schneidendruck
- ▶ Reduce built-up edge / Reduzierte Gratbildung



cutting conditions : p.38~39

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

- ▶ Special Alloy Steels that maintains its hardness and toughness under high temperatures.
Speziell legierter Stahl, der seine Härte und Zähigkeit auch bei hohen Temperaturen behält.
- ▶ Innovative surface treatment that improves wear resistance and reduces corrosion.
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Optimierte Nutenform für maximale Spanabfuhr.



Series Range (mm)	Insert EDP No.		Insert O.D.			Drilling Depth	Holder EDP No.	Shank Dia.	Shank Length	Flange Dia.	Flute Length	Overall Length	Clamping Screw No.
	TiAlN General	TiCN INOX	dec.	frac.	mm			SD	L2	FD	L1	L3 Ref.	
I Ø28.00 to Ø29.99	YI1A2800	YI2C2800	1.1024		28.00	3D	ZH28003032				105	183	TX2829T25
	YI1A2818	YI2C2818	1.1094	1*7/64	28.18	5D	ZH28005032	32	60	37	161	239	
						7D	ZH28007032				217	295	
	YI1A2850	YI2C2850	1.1220		28.50	3D	ZH28503032				106	184	
	YI1A2858	YI2C2858	1.1250	1*1/8	28.58	5D	ZH28505032	32	60	37	163	241	
						7D	ZH28507032				220	298	
	YI1A2900	YI2C2900	1.1417		29.00	3D	ZH29003032				109	186	
						5D	ZH29005032	32	60	37	168	245	
					7D	ZH29007032				226	303		
J Ø30.00 to Ø31.99	YJ1A3000	YJ2C3000	1.1811		30.00	3D	ZH30003032				112	189	TX3031T25
	YJ1A3016	YJ2C3016	1.1875	1*3/16	30.16	5D	ZH30005032	32	60	37	172	249	
						7D	ZH30007032				232	309	
	YJ1A3050	YJ2C3050	1.2008		30.50	3D	ZH30503032				114	190	
	YJ1A3056	YJ2C3056	1.2031	1*11/64	30.56	5D	ZH30505032	32	60	37	176	252	
						7D	ZH30507032				238	314	
	YJ1A3100	YJ2C3100	1.2205		31.00	3D	ZH31003032				115	191	
						5D	ZH31005032	32	60	37	177	253	
					7D	ZH31007032				239	315		
	YJ1A3150	YJ2C3150	1.2402		31.50	3D	ZH31503032				118	194	
					5D	ZH31505032	32	60	37	182	258		
	YJ1A3175	YJ2C3175	1.2500	1*1/4	31.75	7D	ZH31507032				246	322	

Coating : TiN, TiCN, TiAlN & Hardslick are available on your request.

◎ : Excellent ○ : Good

	Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)	~HB110
Y * 1A	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎		
Y * 2C	○	○		○				○		○		◎			○	○

METRIC

Material Werkstück		Tensile Strength		Hardness		Cutting Speed Vc [M/min]	Feed [mm/rev]					
		[N/mm²]	HB	HRc	Ø12.0 ~Ø14.9		Ø15.0 ~Ø17.9	Ø18.0 ~Ø21.9	Ø22.0 ~Ø26.9	Ø27.0 ~Ø31.9		
Non-alloyed steels, Cast steels Free-machining steels	9SMn28, 9SMnPb28, 10SPb20 etc	~500	100-150			95~120	0.16-0.28	0.21~0.35	0.27~0.40	0.34~0.52	0.37~0.55	
		500-850	150-250	~24		80~105	0.14-0.24	0.21~0.35	0.27~0.40	0.34~0.52	0.37~0.55	
Low-alloyed steels, Cast steels(<5%) Carbon steels	C15, C22, 20Mn5, Ck45, C45 etc	~450	85-125			90~115	0.14-0.25	0.20~0.33	0.25~0.39	0.31~0.47	0.34~0.50	
		450-755	125-225	~19		70-90	0.12-0.20	0.17~0.28	0.22~0.32	0.30~0.46	0.33~0.49	
		755-900	225-265	19-27		60~80	0.12-0.20	0.17~0.28	0.22~0.32	0.30~0.46	0.33~0.49	
Alloyed steels	45CrMo4, 42CrMo4, 16MnCr5, Ck75, 35CrMo4, 16MnCr5 etc	900-1200	265-350	27~37		55~70	0.10-0.16	0.15~0.25	0.21~0.30	0.25~0.38	0.29~0.43	
		~600	125-175	~7		80~100	0.14-0.24	0.17~0.28	0.22~0.32	0.30~0.46	0.34~0.50	
		600-800	175-235	7~22		70~90	0.12-0.20	0.17~0.28	0.22~0.32	0.30~0.46	0.34~0.50	
		800-950	235-280	22~29		60-80	0.12-0.20	0.15~0.25	0.22~0.32	0.30~0.46	0.34~0.50	
		950-1110	280-330	29~35		55~70	0.10-0.16	0.13~0.21	0.21~0.30	0.25~0.38	0.29~0.43	
High-alloyed steels	36CrNiMo4, 41CrAlMo7 etc	1110-1230	330-360	35~39		45-60	0.08-0.12	0.13~0.21	0.21~0.30	0.25~0.38	0.29~0.43	
		600-1020	225-300	19~32		45-60	0.12-0.20	0.15~0.25	0.21~0.30	0.20-0.31	0.24~0.35	
		1020-1200	300-355	32~38		40-55	0.10-0.16	0.11~0.18	0.21~0.30	0.20-0.31	0.24~0.35	
Structural steels	St33, St37-2, St44-2, St52, St60 etc	1200-1330	355-390	38~42		40-50	0.08-0.12	0.09~0.14	0.18~0.26	0.19~0.29	0.23~0.34	
		350-500	100-150			75-95	0.14-0.24	0.21~0.35	0.27~0.39	0.29~0.44	0.32~0.47	
		500-850	150-250	~24		60~75	0.12-0.20	0.20~0.33	0.22~0.32	0.25~0.38	0.29~0.43	
Tool steels	102Cr6, 105WCr6, C75W etc	850-1200	250-355	24~38		50-65	0.10-0.16	0.17~0.28	0.21~0.30	0.21~0.32	0.26~0.38	
		500-705	150-210	~16		50-65	0.10-0.16	0.13~0.21	0.18~0.26	0.20~0.31	0.24~0.35	
Grey cast iron	Pearlitic, Ferritic Pearlitic	705-950	210-280	16~29		40-50	0.10-0.16	0.13~0.21	0.18~0.26	0.20~0.31	0.24~0.35	
		500-700	150-210	~16		100~125	0.15-0.26	0.20~0.37	0.27~0.42	0.36~0.51	0.40~0.55	
Cast iron nodular	Ferritic Pearlitic	700-850	210-250	16~24		75-95	0.11~0.20	0.16~0.29	0.20~0.30	0.25~0.35	0.29~0.40	
			540	165	4		95~120	0.13~0.22	0.17~0.31	0.21~0.32	0.28~0.40	0.32~0.44
Malleable cast iron	Ferritic Pearlitic		850	250	24		75-95	0.11~0.20	0.14~0.26	0.19~0.29	0.25~0.35	0.29~0.40
			450	125			100~125	0.13~0.22	0.17~0.31	0.21~0.32	0.28~0.40	0.32~0.44
Aluminum alloys (Wrought)	not heat treatable hardened		780	230	21		75-95	0.11~0.18	0.14~0.26	0.19~0.29	0.25~0.35	0.29~0.40
				65			250-330	0.30-0.40	0.35~0.45	0.40~0.50	0.45~0.55	0.50~0.60
Aluminum alloys (Cast)	≤12% Si, not heat treatable ≤12% Si, hardened >12% Si, not heat treatable											
				75			200-50	0.25-0.35	0.30~0.40	0.35~0.45	0.40~0.50	0.45~0.55
				90			150-220	0.25-0.35	0.30~0.40	0.35~0.45	0.40~0.50	0.45~0.55
Copper alloys	Free machining(Pb>1%) Brass Electrolytic copper			130			100-200	0.20-0.30	0.25~0.35	0.30~0.40	0.35~0.45	0.40~0.50
				110			115~145	0.16-0.28	0.23~0.36	0.29~0.36	0.37~0.45	0.41~0.48
Non ferrous material	Duroplastics Fiber plastics Hard rubber			90			145~185	0.17~0.29	0.24~0.37	0.30~0.38	0.38~0.46	0.42~0.49
				100			95~120	0.06-0.09	0.09~0.13	0.11~0.13	0.15~0.18	0.19~0.22
Stainless steels	Austenitic and Austenitic/ferritic											
			450-610	135-185	~9		45~60	0.10-0.16	0.12~0.18	0.14~0.20	0.15~0.26	0.18~0.28
		610-930	185-275	9~28		30-45	0.08-0.14	0.09~0.15	0.10~0.16	0.12~0.20	0.14~0.22	

*Formulas :

RPM = revolution per minute (rev/min)
M/min = surface meter per minute(M/min)
DIA. = diameter of drill (mm)
mm/rev = feed rate(mm/rev)

$$M/min = \frac{(RPM) \cdot \pi \cdot (DIA.)}{1000}$$

$$mm/min = (RPM) \cdot (mm/rev)$$

$$RPM = \frac{(M/min) \cdot 1000}{(\pi) \cdot (DIA.)}$$

- ▶ The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.
Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.
- ▶ Recommend you to reduce the feed rate to 85%,70% when you use 5xD,7xD holders.
- ▶ For use of 7xD holder, we recommend to drill a centering pre-hole with equal to or larger than 140 ° point angle to min. 2/3 cutting diameter.
The use of the centering pre-hole improves hole location , roundness and surface finish.

INCH

Material Werkstück		Tensile Strength			Hardness		Cutting Speed Vc [SFM]	Feed [IPR]				
		MPa	HB	HRC	Ø31/64 ~Ø37/64	Ø19/32 ~Ø45/64		Ø23/32 ~Ø55/64	Ø7/8 ~Ø1-1/16	Ø1-3/32 ~Ø1-1/4		
Non-alloyed steels, Cast steels Free-machining steels	9SMn28, 9SMnPb28, 10SPb20 etc	~500	100-150		312-394	0.006-0.011	0.008-0.014	0.011-0.016	0.013-0.020	0.015-0.022		
		500-850	150-250	~24	262-344	0.006-0.009	0.008-0.014	0.011-0.016	0.013-0.020	0.015-0.022		
Low-alloyed steels, Cast steels(<5%) Carbon steels	C15, C22, 20Mn5, Ck45, C45 etc	~450	85-125		295-377	0.006-0.010	0.008-0.013	0.010-0.015	0.012-0.019	0.013-0.020		
		450-755	125-225	~19	230-295	0.005-0.008	0.007-0.011	0.009-0.013	0.012-0.018	0.013-0.019		
		755-900	225-265	19-27	197-262	0.005-0.008	0.007-0.011	0.009-0.013	0.012-0.018	0.013-0.019		
Alloyed steels	45CrMo4, 42CrMo4, 16MnCr5, Ck75, 35CrMo4, 16MnCr5 etc	900-1200	265-350	27-37	180-230	0.004-0.006	0.006-0.010	0.008-0.012	0.010-0.015	0.011-0.017		
		~600	125-175	~7	262-328	0.006-0.009	0.007-0.011	0.009-0.013	0.012-0.018	0.013-0.020		
		600-800	175-235	7-22	230-295	0.005-0.008	0.007-0.011	0.009-0.013	0.012-0.018	0.013-0.020		
		800-950	235-280	22-29	197-262	0.005-0.008	0.006-0.010	0.009-0.013	0.012-0.018	0.013-0.020		
		950-1110	280-330	29-35	180-230	0.004-0.006	0.005-0.008	0.008-0.012	0.010-0.015	0.011-0.017		
High-alloyed steels	36CrNiMo4, 41CrAlMo7 etc	1110-1230	330-360	35-39	148-197	0.003-0.005	0.005-0.008	0.008-0.012	0.010-0.015	0.011-0.017		
		600-1020	225-300	19-32	148-197	0.005-0.008	0.006-0.010	0.008-0.012	0.008-0.012	0.009-0.014		
		1020-1200	300-355	32-38	131-180	0.004-0.006	0.004-0.007	0.008-0.012	0.008-0.012	0.009-0.014		
Structural steels	St33, St37-2, St44-2, St52, St60 etc	1200-1330	355-390	38-42	131-164	0.003-0.005	0.004-0.006	0.007-0.010	0.007-0.011	0.009-0.013		
		350-500	100-150		246-312	0.006-0.009	0.008-0.014	0.011-0.015	0.011-0.017	0.013-0.019		
		500-850	150-250	~24	197-246	0.005-0.008	0.008-0.013	0.009-0.013	0.010-0.015	0.011-0.017		
Tool steels	102Cr6, 105WCr6, C75W etc	850-1200	250-355	24-38	164-213	0.004-0.006	0.007-0.011	0.008-0.012	0.008-0.013	0.010-0.015		
		500-705	150-210	~16	164-213	0.004-0.006	0.005-0.008	0.007-0.010	0.008-0.012	0.009-0.014		
Grey cast iron	Pearlitic, Ferritic Pearlitic	705-950	210-280	16-29	131-164	0.004-0.006	0.005-0.008	0.007-0.010	0.008-0.012	0.009-0.014		
		500-700	150-210	~16	328-410	0.006-0.010	0.008-0.015	0.011-0.017	0.014-0.020	0.016-0.022		
Cast iron nodular	Ferritic Pearlitic	700-850	210-250	16-24	246-312	0.004-0.008	0.006-0.011	0.008-0.012	0.010-0.014	0.011-0.016		
		540	165	4	312-394	0.005-0.009	0.007-0.012	0.008-0.013	0.011-0.016	0.013-0.017		
Malleable cast iron	Ferritic Pearlitic	850	250	24	246-312	0.004-0.008	0.006-0.010	0.007-0.011	0.010-0.014	0.011-0.016		
		450	125		328-410	0.005-0.009	0.007-0.012	0.008-0.013	0.011-0.016	0.013-0.017		
Aluminum alloys (Wrought)	not heat treatable hardened	780	230	21	246-312	0.004-0.007	0.006-0.010	0.007-0.011	0.010-0.014	0.011-0.016		
			65		820-1083	0.0118-0.0157	0.0138-0.0177	0.0157-0.0197	0.0177-0.0217	0.0197-0.0236		
Aluminum alloys (Cast)	≤12% Si, not heat treatable ≤12% Si, hardened >12% Si, not heat treatable		75		656-820	0.0118-0.0157	0.0138-0.0177	0.0157-0.0197	0.0177-0.0217	0.0197-0.0236		
			90		492-722	0.0098-0.0138	0.0118-0.0157	0.0138-0.0177	0.0157-0.0197	0.0177-0.0217		
			130		328-656	0.0079-0.0118	0.0098-0.0138	0.0118-0.0157	0.0138-0.0177	0.0157-0.0197		
Copper alloys	Free machining(Pb>1%) Brass Electrolytic copper		110		377-476	0.006-0.011	0.009-0.014	0.011-0.014	0.015-0.018	0.016-0.019		
			90		476-607	0.007-0.011	0.009-0.015	0.012-0.015	0.015-0.018	0.017-0.019		
			100		312-394	0.002-0.004	0.004-0.005	0.004-0.005	0.006-0.007	0.007-0.009		
Non ferrous material	Duroplastics Fiber plastics Hard rubber											
Stainless steels	Austenitic and Austenitic/ferritic	Y10A / Y20C	450-610	135-185	~9	145-197	0.004-0.006	0.005-0.007	0.006-0.008	0.006-0.011	0.007-0.011	
			610-930	185-275	9-28	89-145	0.003-0.005	0.004-0.006	0.004-0.006	0.005-0.008	0.006-0.009	

*Formulas :

$$SFM = \frac{(RPM) \cdot \pi \cdot (DIA.)}{12}$$

$$IPM = (RPM) \cdot (IPR)$$

$$RPM = \frac{(SFM) \cdot 12}{(\pi) \cdot (DIA.)}$$

RPM = revolution per minute (rev/min)
SFM = surface feet per minute (ft/min)
DIA. = diameter of drill (inch)
IPR = feed rate (inch/rev)
IPM = inch per minute penetration rate

► The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

► Recommend you to reduce the feed rate to 85%,70% when you use 5xD,7xD holders.

► For use of 7xD holder, we recommend to drill a centering pre-hole with equal to or larger than 140 ° point angle to min. 2/3 cutting diameter.

The use of the centering pre-hole improves hole location, roundness and surface finish.

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





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



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



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

WRENCH TYPE	PRODUCT No.	SERIES
	TWWT08	A
		B
		C
	TWH600	D-J

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

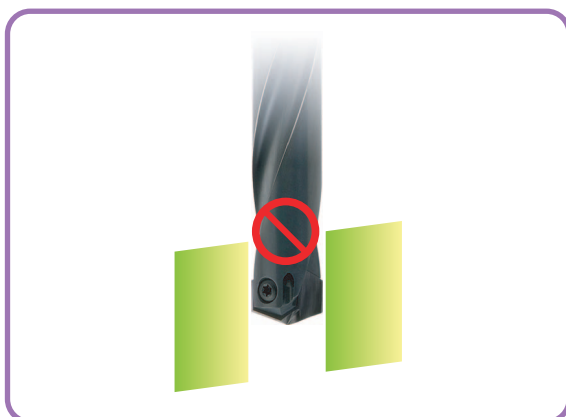
- ▶ Need to use appropriate wrenches and screws as indicated.
Unbedingt die angegebenen Schrauben und Dreher verwenden.
- ▶ It's important to tighten up the screw properly.
Es ist wichtig, die Schraube korrekt und fest anzuziehen.

CAUTION-NOT RECOMMENDABLE APPLICATION
ACHTUNG - NICHT EMPFOHLENE ANWENDUNG



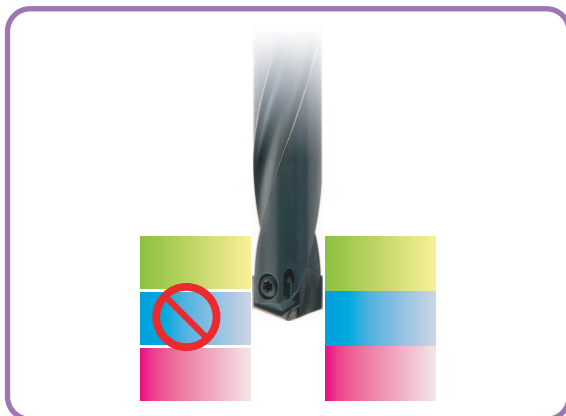
Intersecting cross hole is bigger than the drill insert's Margin Length.

Der Haltersitz ist größer als die Breite des Schneideinsatzes.



Material with slanting entrance and exit over 7 degree. (If drilling 7 degree or under slanting surface, reduce the feed about 30-50 %)

Werkstücke mit schrägem Anschnitt oder Austritt von über 7°. (Zum Bohren von bis zu 7° Schräge den Vorschub um ca. 30 - 50 % reduzieren).

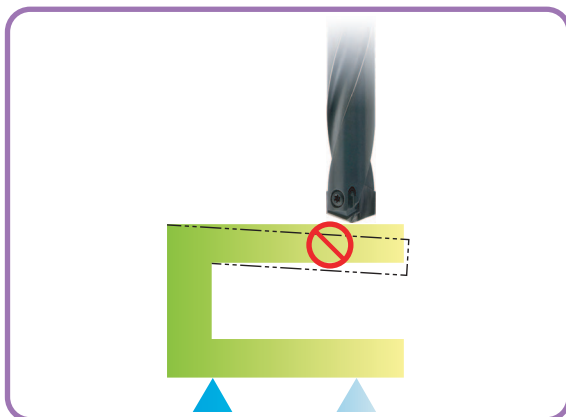


For drilling stacked plates, minimize the space between the plates.

Beim Bohren von Blechpaketen den Abstand der Bleche minimieren.

The space stacked plates can cause insert breakage or poor chip control.

Freiraum in Blechpaketen kann den Bruch des Schneideinsatzes oder schlechte Entspannung verursachen.



The material needs to be fixtured securely before drilling.

Das Werkstück muss fest und sicher aufgespannt sein

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

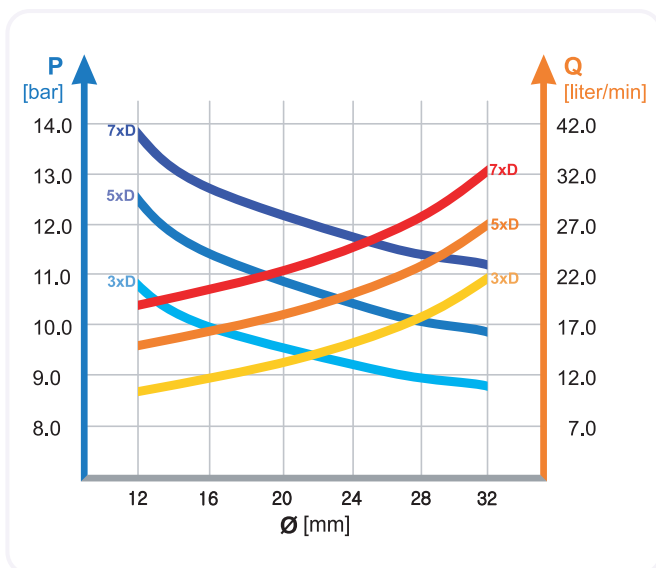
NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

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



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

TROUBLE SHOOTING PROBLEMLÖSUNGEN



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



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



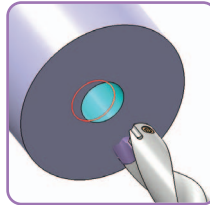
- 3) Build up on cutting edge**
- Increase cutting speed
 - Use a coated insert



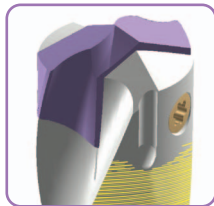
- 4) Chipping or break down on outer corner**
- Reduce feed
 - Rigid clamping of workpiece



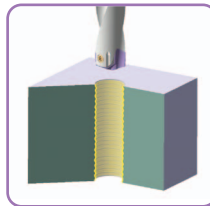
- 5) Wear of land margin**
- Rigid clamping of workpiece
 - Reduce cutting speed
 - Increase coolant flow



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



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



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

CARBIDE



Being the best through innovation



DREAM DRILLS -GENERAL







DREAM DRILLS - UNIVERSAL

- WITH & WITHOUT COOLANT HOLES
General Purpose usually HRc30 to HRc50
- Mit und ohne Kühlkanäle
Für allgemeinen Einsatz von HRc30 bis HRc50

SELECTION GUIDE

SOLID CARBIDE DREAM DRILLS - GENERAL (with & without Coolant Holes)

General Purpose usually HRC30 to HRC50

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
3XD DH404		CARBIDE, DREAM DRILLS VOLLHARTMETALL DREAM SPIRALBOHRER	<i>STUB EXTRA KURZ</i>	D3.0 D20.0	46
3XD DH423		CARBIDE, DREAM DRILLS VOLLHARTMETALL DREAM SPIRALBOHRER	<i>SHORT KURZ</i>	D3.0 D20.0	48
5XD DH424		CARBIDE, DREAM DRILLS VOLLHARTMETALL DREAM SPIRALBOHRER	<i>LONG LANG</i>	D1.0 D20.0	50
3XD DH406		CARBIDE, DREAM DRILLS with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL	<i>SHORT KURZ</i>	D3.0 D20.0	53
5XD DH408		CARBIDE, DREAM DRILLS with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL	<i>LONG LANG</i>	D1.0 D20.0	55
8XD DH421		CARBIDE, DREAM DRILLS with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL	<i>EXTRA LONG ÜBERLANG</i>	D3.0 D14.0	58
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					60

SOLID CARBIDE DREAM DRILLS-GENERAL

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				
○	◎	◎			○		○				
○	◎	◎			○		○				
○	◎	◎			○		○				
○	◎	◎			○		○				
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CARBIDE, DREAM DRILLS VOLLHARTMETALL DREAM SPIRALBOHRER

STUB

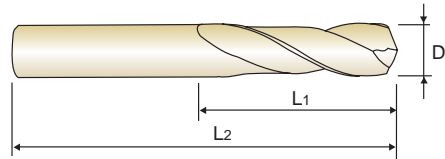
EXTRA KURZ

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



D₁=D₂

3 × D

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D ₁	L ₁	L ₂	TiAlN	D ₁	L ₁	L ₂
DH404030	3.0	16	46	DH404057	5.7	28	66
DH404031	3.1	18	49	DH404058	5.8	28	66
DH404032	3.2	18	49	DH404059	5.9	28	66
DH404033	3.3	18	49	DH404060	6.0	28	66
DH404034	3.4	20	52	DH404061	6.1	31	70
DH404035	3.5	20	52	DH404062	6.2	31	70
DH404036	3.6	20	52	DH404063	6.3	31	70
DH404037	3.7	20	52	DH404064	6.4	31	70
DH404038	3.8	22	55	DH404065	6.5	31	70
DH404039	3.9	22	55	DH404066	6.6	31	70
DH404040	4.0	22	55	DH404067	6.7	31	70
DH404041	4.1	22	55	DH404068	6.8	34	74
DH404042	4.2	22	55	DH404069	6.9	34	74
DH404043	4.3	24	58	DH404070	7.0	34	74
DH404044	4.4	24	58	DH404071	7.1	34	74
DH404045	4.5	24	58	DH404072	7.2	34	74
DH404046	4.6	24	58	DH404073	7.3	34	74
DH404047	4.7	24	58	DH404074	7.4	34	74
DH404048	4.8	26	62	DH404075	7.5	34	74
DH404049	4.9	26	62	DH404076	7.6	37	79
DH404050	5.0	26	62	DH404077	7.7	37	79
DH404051	5.1	26	62	DH404078	7.8	37	79
DH404052	5.2	26	62	DH404079	7.9	37	79
DH404053	5.3	26	62	DH404080	8.0	37	79
DH404054	5.4	28	66	DH404081	8.1	37	79
DH404055	5.5	28	66	DH404082	8.2	37	79
DH404056	5.6	28	66	DH404083	8.3	37	79

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				

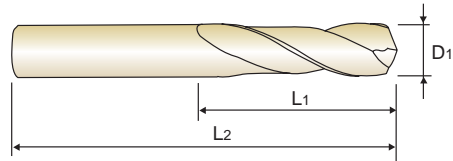
CARBIDE, DREAM DRILLS

VOLLHARTMETALL DREAM SPIRALBOHRER

STUB
EXTRA KURZ

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
- center drilling is not required.
- Excellent positioning
- bush is not necessary.
- Special Design
- reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
- Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
- Spezielles Design
- Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren

 $D_1 = D_2$
 $3 \times D$

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiAlN	D1	L1	L2	TiAlN	D1	L1	L2
DH404084	8.4	37	79	DH404110	11.0	47	95
DH404085	8.5	37	79	DH404115	11.5	47	95
DH404086	8.6	40	84	DH404120	12.0	51	102
DH404087	8.7	40	84	DH404130	13.0	51	102
DH404088	8.8	40	84	DH404135	13.5	54	107
DH404089	8.9	40	84	DH404140	14.0	54	107
DH404090	9.0	40	84	DH404145	14.5	56	111
DH404091	9.1	40	84	DH404150	15.0	56	111
DH404092	9.2	40	84	DH404155	15.5	58	115
DH404093	9.3	40	84	DH404160	16.0	58	115
DH404094	9.4	40	84	DH404165	16.5	60	119
DH404095	9.5	40	84	DH404170	17.0	60	119
DH404096	9.6	43	89	DH404175	17.5	62	123
DH404097	9.7	43	89	DH404180	18.0	62	123
DH404098	9.8	43	89	DH404185	18.5	64	127
DH404099	9.9	43	89	DH404190	19.0	64	127
DH404100	10.0	43	89	DH404195	19.5	66	131
DH404102	10.2	43	89	DH404200	20.0	66	131
DH404105	10.5	43	89				

► Other shank types are available on your request.

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				

◎ : Excellent ○ : Good

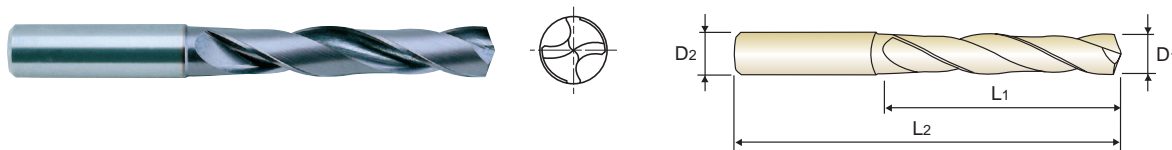


CARBIDE, DREAM DRILLS VOLLHARTMETALL DREAM SPIRALBOHRER

SHORT
KURZ

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537
MG
h6
m7
140°
P.60

3 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH423030	3.0	6	20	62	DH423059	5.9	6	28	66
DH423031	3.1	6	20	62	DH423060	6.0	6	28	66
DH423032	3.2	6	20	62	DH423061	6.1	8	34	79
DH423033	3.3	6	20	62	DH423062	6.2	8	34	79
DH423034	3.4	6	20	62	DH423063	6.3	8	34	79
DH423035	3.5	6	20	62	DH423064	6.4	8	34	79
DH423036	3.6	6	20	62	DH423065	6.5	8	34	79
DH423037	3.7	6	20	62	DH423066	6.6	8	34	79
DH423038	3.8	6	24	66	DH423067	6.7	8	34	79
DH423039	3.9	6	24	66	DH423068	6.8	8	34	79
DH423040	4.0	6	24	66	DH423069	6.9	8	34	79
DH423041	4.1	6	24	66	DH423070	7.0	8	34	79
DH423042	4.2	6	24	66	DH423071	7.1	8	41	79
DH423043	4.3	6	24	66	DH423072	7.2	8	41	79
DH423044	4.4	6	24	66	DH423073	7.3	8	41	79
DH423045	4.5	6	24	66	DH423074	7.4	8	41	79
DH423046	4.6	6	24	66	DH423075	7.5	8	41	79
DH423047	4.7	6	24	66	DH423076	7.6	8	41	79
DH423048	4.8	6	28	66	DH423077	7.7	8	41	79
DH423049	4.9	6	28	66	DH423078	7.8	8	41	79
DH423050	5.0	6	28	66	DH423079	7.9	8	41	79
DH423051	5.1	6	28	66	DH423080	8.0	8	41	79
DH423052	5.2	6	28	66	DH423081	8.1	10	47	89
DH423053	5.3	6	28	66	DH423082	8.2	10	47	89
DH423054	5.4	6	28	66	DH423083	8.3	10	47	89
DH423055	5.5	6	28	66	DH423084	8.4	10	47	89
DH423056	5.6	6	28	66	DH423085	8.5	10	47	89
DH423057	5.7	6	28	66	DH423086	8.6	10	47	89
DH423058	5.8	6	28	66	DH423087	8.7	10	47	89

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				

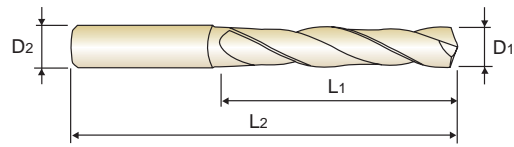
CARBIDE, DREAM DRILLS

VOLLHARTMETALL DREAM SPIRALBOHRER

SHORT
KURZ

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
- center drilling is not required.
- Excellent positioning
- bush is not necessary.
- Special Design
- reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
- Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
- Spezielles Design
- Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537
MG
h6
m7
140°
P.60

3 × D

					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH423088	8.8	10	47	89	DH423117	11.7	12	55	102
DH423089	8.9	10	47	89	DH423118	11.8	12	55	102
DH423090	9.0	10	47	89	DH423119	11.9	12	55	102
DH423091	9.1	10	47	89	DH423120	12.0	12	55	102
DH423092	9.2	10	47	89	DH423123	12.3	14	60	107
DH423093	9.3	10	47	89	DH423125	12.5	14	60	107
DH423094	9.4	10	47	89	DH423128	12.8	14	60	107
DH423095	9.5	10	47	89	DH423130	13.0	14	60	107
DH423096	9.6	10	47	89	DH423135	13.5	14	60	107
DH423097	9.7	10	47	89	DH423138	13.8	14	60	107
DH423098	9.8	10	47	89	DH423140	14.0	14	60	107
DH423099	9.9	10	47	89	DH423145	14.5	16	65	115
DH423100	10.0	10	47	89	DH423148	14.8	16	65	115
DH423101	10.1	12	55	102	DH423150	15.0	16	65	115
DH423102	10.2	12	55	102	DH423155	15.5	16	65	115
DH423103	10.3	12	55	102	DH423158	15.8	16	65	115
DH423104	10.4	12	55	102	DH423160	16.0	16	65	115
DH423105	10.5	12	55	102	DH423165	16.5	18	73	123
DH423106	10.6	12	55	102	DH423168	16.8	18	73	123
DH423107	10.7	12	55	102	DH423170	17.0	18	73	123
DH423108	10.8	12	55	102	DH423175	17.5	18	73	123
DH423109	10.9	12	55	102	DH423178	17.8	18	73	123
DH423110	11.0	12	55	102	DH423180	18.0	18	73	123
DH423111	11.1	12	55	102	DH423185	18.5	20	79	131
DH423112	11.2	12	55	102	DH423190	19.0	20	79	131
DH423113	11.3	12	55	102	DH423195	19.5	20	79	131
DH423114	11.4	12	55	102	DH423198	19.8	20	79	131
DH423115	11.5	12	55	102	DH423200	20.0	20	79	131
DH423116	11.6	12	55	102					

► Other shank types are available on your request.

◎ : Excellent ○ : Good

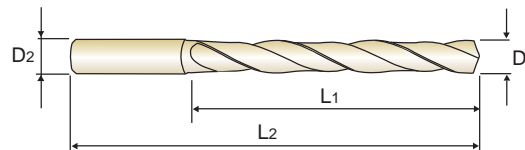
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				

CARBIDE, DREAM DRILLS
VOLLHARTMETALL DREAM SPIRALBOHRER

LONG
LANG

- ▶ **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- ▶ **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

- ▶ **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen
- ▶ **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537
MG
h6
m7
140°
P.60

5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH424010	1.0	3	8	55	DH424036	3.6	6	28	66
DH424011	1.1	3	12	55	DH424037	3.7	6	28	66
DH424012	1.2	3	12	55	DH424038	3.8	6	36	74
DH424013	1.3	3	12	55	DH424039	3.9	6	36	74
DH424014	1.4	3	12	55	DH424040	4.0	6	36	74
DH424015	1.5	3	16	55	DH424041	4.1	6	36	74
DH424016	1.6	3	16	55	DH424042	4.2	6	36	74
DH424017	1.7	3	16	55	DH424043	4.3	6	36	74
DH424018	1.8	3	16	55	DH424044	4.4	6	36	74
DH424019	1.9	3	16	55	DH424045	4.5	6	36	74
DH424020	2.0	4	21	57	DH424046	4.6	6	36	74
DH424021	2.1	4	21	57	DH424047	4.7	6	36	74
DH424022	2.2	4	21	57	DH424048	4.8	6	44	82
DH424023	2.3	4	21	57	DH424049	4.9	6	44	82
DH424024	2.4	4	21	57	DH424050	5.0	6	44	82
DH424025	2.5	4	21	57	DH424051	5.1	6	44	82
DH424026	2.6	4	21	57	DH424052	5.2	6	44	82
DH424027	2.7	4	21	57	DH424053	5.3	6	44	82
DH424028	2.8	4	21	57	DH424054	5.4	6	44	82
DH424029	2.9	4	21	57	DH424055	5.5	6	44	82
DH424030	3.0	6	28	66	DH424056	5.6	6	44	82
DH424031	3.1	6	28	66	DH424057	5.7	6	44	82
DH424032	3.2	6	28	66	DH424058	5.8	6	44	82
DH424033	3.3	6	28	66	DH424059	5.9	6	44	82
DH424034	3.4	6	28	66	DH424060	6.0	6	44	82
DH424035	3.5	6	28	66	DH424061	6.1	8	53	91

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				

CARBIDE, DREAM DRILLS

VOLLHARTMETALL DREAM SPIRALBOHRER

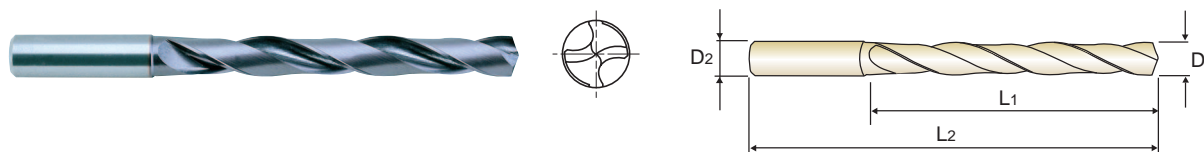
LONG
LANG

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen

► **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537 MG h6 m7 140° P.60

5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH424062	6.2	8	53	91	DH424088	8.8	10	61	103
DH424063	6.3	8	53	91	DH424089	8.9	10	61	103
DH424064	6.4	8	53	91	DH424090	9.0	10	61	103
DH424065	6.5	8	53	91	DH424091	9.1	10	61	103
DH424066	6.6	8	53	91	DH424092	9.2	10	61	103
DH424067	6.7	8	53	91	DH424093	9.3	10	61	103
DH424068	6.8	8	53	91	DH424094	9.4	10	61	103
DH424069	6.9	8	53	91	DH424095	9.5	10	61	103
DH424070	7.0	8	53	91	DH424096	9.6	10	61	103
DH424071	7.1	8	53	91	DH424097	9.7	10	61	103
DH424072	7.2	8	53	91	DH424098	9.8	10	61	103
DH424073	7.3	8	53	91	DH424099	9.9	10	61	103
DH424074	7.4	8	53	91	DH424100	10.0	10	61	103
DH424075	7.5	8	53	91	DH424101	10.1	12	71	118
DH424076	7.6	8	53	91	DH424102	10.2	12	71	118
DH424077	7.7	8	53	91	DH424103	10.3	12	71	118
DH424078	7.8	8	53	91	DH424104	10.4	12	71	118
DH424079	7.9	8	53	91	DH424105	10.5	12	71	118
DH424080	8.0	8	53	91	DH424106	10.6	12	71	118
DH424081	8.1	10	61	103	DH424107	10.7	12	71	118
DH424082	8.2	10	61	103	DH424108	10.8	12	71	118
DH424083	8.3	10	61	103	DH424109	10.9	12	71	118
DH424084	8.4	10	61	103	DH424110	11.0	12	71	118
DH424085	8.5	10	61	103	DH424111	11.1	12	71	118
DH424086	8.6	10	61	103	DH424112	11.2	12	71	118
DH424087	8.7	10	61	103	DH424113	11.3	12	71	118

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
○	◎	◎			○		○				

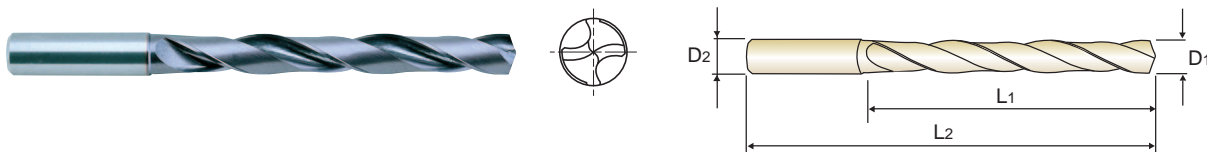


CARBIDE, DREAM DRILLS VOLLHARTMETALL DREAM SPIRALBOHRER

LONG
LANG

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen
- **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537 MG h6 m7 140° P.60

5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH424114	11.4	12	71	118	DH424150	15.0	16	83	133
DH424115	11.5	12	71	118	DH424155	15.5	16	83	133
DH424116	11.6	12	71	118	DH424158	15.8	16	83	133
DH424117	11.7	12	71	118	DH424160	16.0	16	83	133
DH424118	11.8	12	71	118	DH424165	16.5	18	93	143
DH424119	11.9	12	71	118	DH424168	16.8	18	93	143
DH424120	12.0	12	71	118	DH424170	17.0	18	93	143
DH424123	12.3	14	77	124	DH424175	17.5	18	93	143
DH424125	12.5	14	77	124	DH424178	17.8	18	93	143
DH424128	12.8	14	77	124	DH424180	18.0	18	93	143
DH424130	13.0	14	77	124	DH424185	18.5	20	101	153
DH424135	13.5	14	77	124	DH424190	19.0	20	101	153
DH424138	13.8	14	77	124	DH424195	19.5	20	101	153
DH424140	14.0	14	77	124	DH424198	19.8	20	101	153
DH424145	14.5	16	83	133	DH424200	20.0	20	101	153
DH424148	14.8	16	83	133					

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				



DREAM DRILLS -GENERAL

DH406 SERIES

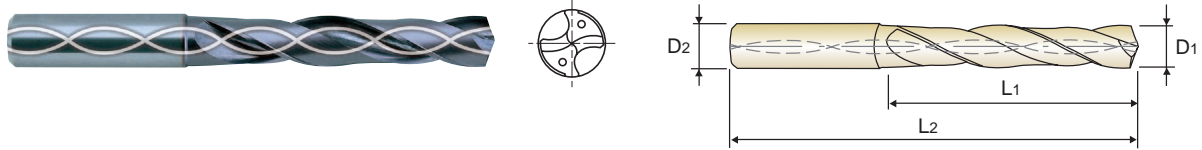
CARBIDE, DREAM DRILLS with COOLANT HOLES SHORT VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL KURZ

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

- **Advantage** : Self centering
- center drilling is not required.
- Excellent positioning
- bush is not necessary.
- Special Design
- reaming is not required.
 - good chip removal
 - powerful drilling

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

- **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
- Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
- Spezielles Design
- Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537
MG
h6
m7
140°
P.60

3 × D

					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH406030	3.0	6	20	62	DH406057	5.7	6	28	66
DH406031	3.1	6	20	62	DH406058	5.8	6	28	66
DH406032	3.2	6	20	62	DH406059	5.9	6	28	66
DH406033	3.3	6	20	62	DH406060	6.0	6	28	66
DH406034	3.4	6	20	62	DH406061	6.1	8	34	79
DH406035	3.5	6	20	62	DH406062	6.2	8	34	79
DH406036	3.6	6	20	62	DH406063	6.3	8	34	79
DH406037	3.7	6	20	62	DH406064	6.4	8	34	79
DH406038	3.8	6	24	66	DH406065	6.5	8	34	79
DH406039	3.9	6	24	66	DH406066	6.6	8	34	79
DH406040	4.0	6	24	66	DH406067	6.7	8	34	79
DH406041	4.1	6	24	66	DH406068	6.8	8	34	79
DH406042	4.2	6	24	66	DH406069	6.9	8	34	79
DH406043	4.3	6	24	66	DH406070	7.0	8	34	79
DH406044	4.4	6	24	66	DH406071	7.1	8	41	79
DH406045	4.5	6	24	66	DH406072	7.2	8	41	79
DH406046	4.6	6	24	66	DH406073	7.3	8	41	79
DH406047	4.7	6	24	66	DH406074	7.4	8	41	79
DH406048	4.8	6	28	66	DH406075	7.5	8	41	79
DH406049	4.9	6	28	66	DH406076	7.6	8	41	79
DH406050	5.0	6	28	66	DH406077	7.7	8	41	79
DH406051	5.1	6	28	66	DH406078	7.8	8	41	79
DH406052	5.2	6	28	66	DH406079	7.9	8	41	79
DH406053	5.3	6	28	66	DH406080	8.0	8	41	79
DH406054	5.4	6	28	66	DH406081	8.1	10	47	89
DH406055	5.5	6	28	66	DH406082	8.2	10	47	89
DH406056	5.6	6	28	66	DH406083	8.3	10	47	89

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
○	◎	◎			○		○				



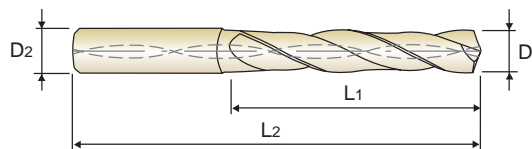
DREAM DRILLS -GENERAL

DH406 SERIES

CARBIDE, DREAM DRILLS with COOLANT HOLES **SHORT**
VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL **KURZ**

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537 MG h6 m7 140° P.60

3 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH406084	8.4	10	47	89	DH406111	11.1	12	55	102
DH406085	8.5	10	47	89	DH406112	11.2	12	55	102
DH406086	8.6	10	47	89	DH406113	11.3	12	55	102
DH406087	8.7	10	47	89	DH406114	11.4	12	55	102
DH406088	8.8	10	47	89	DH406115	11.5	12	55	102
DH406089	8.9	10	47	89	DH406116	11.6	12	55	102
DH406090	9.0	10	47	89	DH406117	11.7	12	55	102
DH406091	9.1	10	47	89	DH406118	11.8	12	55	102
DH406092	9.2	10	47	89	DH406119	11.9	12	55	102
DH406093	9.3	10	47	89	DH406120	12.0	12	55	102
DH406094	9.4	10	47	89	DH406125	12.5	14	60	107
DH406095	9.5	10	47	89	DH406130	13.0	14	60	107
DH406096	9.6	10	47	89	DH406135	13.5	14	60	107
DH406097	9.7	10	47	89	DH406140	14.0	14	60	107
DH406098	9.8	10	47	89	DH406145	14.5	16	65	115
DH406099	9.9	10	47	89	DH406150	15.0	16	65	115
DH406100	10.0	10	47	89	DH406155	15.5	16	65	115
DH406101	10.1	12	55	102	DH406160	16.0	16	65	115
DH406102	10.2	12	55	102	DH406165	16.5	18	73	123
DH406103	10.3	12	55	102	DH406170	17.0	18	73	123
DH406104	10.4	12	55	102	DH406175	17.5	18	73	123
DH406105	10.5	12	55	102	DH406180	18.0	18	73	123
DH406106	10.6	12	55	102	DH406185	18.5	20	79	131
DH406107	10.7	12	55	102	DH406190	19.0	20	79	131
DH406108	10.8	12	55	102	DH406195	19.5	20	79	131
DH406109	10.9	12	55	102	DH406200	20.0	20	79	131
DH406110	11.0	12	55	102					

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				

CARBIDE, DREAM DRILLS with COOLANT HOLES

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL

LONG LANG

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
- center drilling is not required.
- Excellent positioning
- bush is not necessary.
- Special Design
- reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
- Zentrierbohrung wird nicht benötigt.
- Exzellente Positionierbarkeit
- Keine Führungsbuchse notwendig.
- Spezielles Design
- Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537
MG
h6
m7
140°
P.60

5 × D

TiAlN					TiAlN				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
	D1	D2	L1	L2		D1	D2	L1	L2
DH408010	1.0	3	8	55	DH408036	3.6	6	28	66
DH408011	1.1	3	12	55	DH408037	3.7	6	28	66
DH408012	1.2	3	12	55	DH408038	3.8	6	36	74
DH408013	1.3	3	12	55	DH408039	3.9	6	36	74
DH408014	1.4	3	12	55	DH408040	4.0	6	36	74
DH408015	1.5	3	16	55	DH408041	4.1	6	36	74
DH408016	1.6	3	16	55	DH408042	4.2	6	36	74
DH408017	1.7	3	16	55	DH408043	4.3	6	36	74
DH408018	1.8	3	16	55	DH408044	4.4	6	36	74
DH408019	1.9	3	16	55	DH408045	4.5	6	36	74
DH408020	2.0	4	21	57	DH408046	4.6	6	36	74
DH408021	2.1	4	21	57	DH408047	4.7	6	36	74
DH408022	2.2	4	21	57	DH408048	4.8	6	44	82
DH408023	2.3	4	21	57	DH408049	4.9	6	44	82
DH408024	2.4	4	21	57	DH408050	5.0	6	44	82
DH408025	2.5	4	21	57	DH408051	5.1	6	44	82
DH408026	2.6	4	21	57	DH408052	5.2	6	44	82
DH408027	2.7	4	21	57	DH408053	5.3	6	44	82
DH408028	2.8	4	21	57	DH408054	5.4	6	44	82
DH408029	2.9	4	21	57	DH408055	5.5	6	44	82
DH408030	3.0	6	28	66	DH408056	5.6	6	44	82
DH408031	3.1	6	28	66	DH408057	5.7	6	44	82
DH408032	3.2	6	28	66	DH408058	5.8	6	44	82
DH408033	3.3	6	28	66	DH408059	5.9	6	44	82
DH408034	3.4	6	28	66	DH408060	6.0	6	44	82
DH408035	3.5	6	28	66	DH408061	6.1	8	53	91

► Other shank types are available on your request.

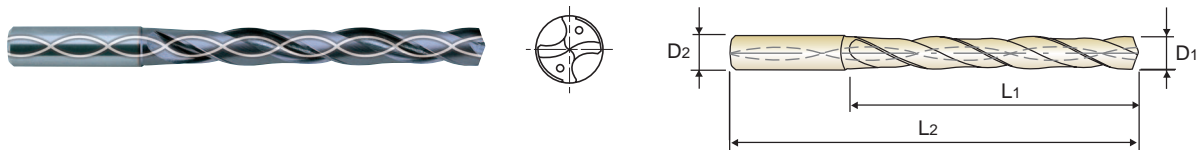
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRc55~							
○	◎	◎			○		○				

CARBIDE, DREAM DRILLS with COOLANT HOLES **LONG LANG**
VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein,Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537 MG h6 m7 140° P.60

5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH408062	6.2	8	53	91	DH408088	8.8	10	61	103
DH408063	6.3	8	53	91	DH408089	8.9	10	61	103
DH408064	6.4	8	53	91	DH408090	9.0	10	61	103
DH408065	6.5	8	53	91	DH408091	9.1	10	61	103
DH408066	6.6	8	53	91	DH408092	9.2	10	61	103
DH408067	6.7	8	53	91	DH408093	9.3	10	61	103
DH408068	6.8	8	53	91	DH408094	9.4	10	61	103
DH408069	6.9	8	53	91	DH408095	9.5	10	61	103
DH408070	7.0	8	53	91	DH408096	9.6	10	61	103
DH408071	7.1	8	53	91	DH408097	9.7	10	61	103
DH408072	7.2	8	53	91	DH408098	9.8	10	61	103
DH408073	7.3	8	53	91	DH408099	9.9	10	61	103
DH408074	7.4	8	53	91	DH408100	10.0	10	61	103
DH408075	7.5	8	53	91	DH408101	10.1	12	71	118
DH408076	7.6	8	53	91	DH408102	10.2	12	71	118
DH408077	7.7	8	53	91	DH408103	10.3	12	71	118
DH408078	7.8	8	53	91	DH408104	10.4	12	71	118
DH408079	7.9	8	53	91	DH408105	10.5	12	71	118
DH408080	8.0	8	53	91	DH408106	10.6	12	71	118
DH408081	8.1	10	61	103	DH408107	10.7	12	71	118
DH408082	8.2	10	61	103	DH408108	10.8	12	71	118
DH408083	8.3	10	61	103	DH408109	10.9	12	71	118
DH408084	8.4	10	61	103	DH408110	11.0	12	71	118
DH408085	8.5	10	61	103	DH408111	11.1	12	71	118
DH408086	8.6	10	61	103	DH408112	11.2	12	71	118
DH408087	8.7	10	61	103	DH408113	11.3	12	71	118

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				



CARBIDE, DREAM DRILLS with COOLANT HOLES

LONG

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL

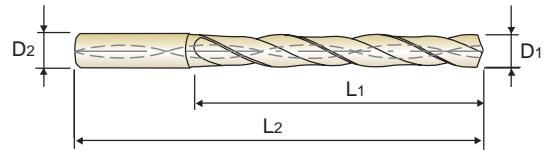
LANG

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537 MG h6 m7 140° P.60

5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH408114	11.4	12	71	118	DH408150	15.0	16	83	133
DH408115	11.5	12	71	118	DH408155	15.5	16	83	133
DH408116	11.6	12	71	118	DH408160	16.0	16	83	133
DH408117	11.7	12	71	118	DH408165	16.5	18	93	143
DH408118	11.8	12	71	118	DH408170	17.0	18	93	143
DH408119	11.9	12	71	118	DH408175	17.5	18	93	143
DH408120	12.0	12	71	118	DH408180	18.0	18	93	143
DH408125	12.5	14	77	124	DH408185	18.5	20	101	153
DH408130	13.0	14	77	124	DH408190	19.0	20	101	153
DH408135	13.5	14	77	124	DH408195	19.5	20	101	153
DH408140	14.0	14	77	124	DH408200	20.0	20	101	153
DH408145	14.5	16	83	133					

► Other shank types are available on your request.

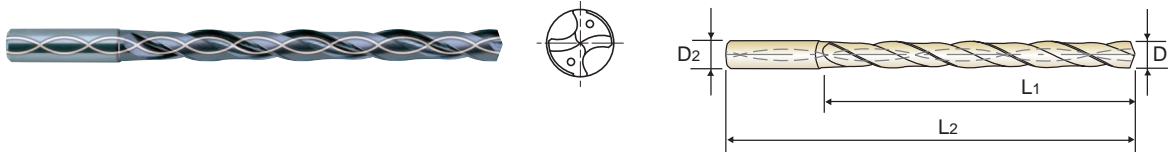
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
○	◎	◎			○		○				

◎ : Excellent ○ : Good

CARBIDE, DREAM DRILLS with COOLANT HOLES **EXTRA LONG**
VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL **ÜBERLANG**

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537 MG h6 m7 140° P.60

8 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAIN	D1	D2	L1	L2	TiAIN	D1	D2	L1	L2
DH421030	3.0	6	34	72	DH421055	5.5	6	57	95
DH421031	3.1	6	34	72	DH421056	5.6	6	57	95
DH421032	3.2	6	34	72	DH421057	5.7	6	57	95
DH421033	3.3	6	34	72	DH421058	5.8	6	57	95
DH421034	3.4	6	34	72	DH421059	5.9	6	57	95
DH421035	3.5	6	34	72	DH421060	6.0	6	57	95
DH421036	3.6	6	34	72	DH421061	6.1	8	76	114
DH421037	3.7	6	34	72	DH421062	6.2	8	76	114
DH421038	3.8	6	43	81	DH421063	6.3	8	76	114
DH421039	3.9	6	43	81	DH421064	6.4	8	76	114
DH421040	4.0	6	43	81	DH421065	6.5	8	76	114
DH421041	4.1	6	43	81	DH421066	6.6	8	76	114
DH421042	4.2	6	43	81	DH421067	6.7	8	76	114
DH421043	4.3	6	43	81	DH421068	6.8	8	76	114
DH421044	4.4	6	43	81	DH421069	6.9	8	76	114
DH421045	4.5	6	43	81	DH421070	7.0	8	76	114
DH421046	4.6	6	43	81	DH421071	7.1	8	76	114
DH421047	4.7	6	43	81	DH421072	7.2	8	76	114
DH421048	4.8	6	57	95	DH421073	7.3	8	76	114
DH421049	4.9	6	57	95	DH421074	7.4	8	76	114
DH421050	5.0	6	57	95	DH421075	7.5	8	76	114
DH421051	5.1	6	57	95	DH421076	7.6	8	76	114
DH421052	5.2	6	57	95	DH421077	7.7	8	76	114
DH421053	5.3	6	57	95	DH421078	7.8	8	76	114
DH421054	5.4	6	57	95	DH421079	7.9	8	76	114

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
○	◎	◎			○		○				



CARBIDE, DREAM DRILLS with COOLANT HOLES

EXTRA LONG

VOLLHARTMETALL DREAM SPIRALBOHRER mit KÜHLKANAL

ÜBERLANG

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Advantage** : Self centering
 - center drilling is not required.
 Excellent positioning
 - bush is not necessary.
 Special Design
 - reaming is not required.
 - good chip removal
 - powerful drilling

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.

► **Vorteile** : Selbst zentrierend
 - Zentrierbohrung wird nicht benötigt.
 Exzellente Positionierbarkeit
 - Keine Führungsbuchse notwendig.
 Spezielles Design
 - Räumen ist nicht notwendig
 - Gute Spanabfuhr
 - Leistungsfähiges Bohren



DIN 6537 MG h6 m7 140° P.60

8 x D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH421080	8.0	8	76	114	DH421103	10.3	12	114	162
DH421081	8.1	10	95	142	DH421104	10.4	12	114	162
DH421082	8.2	10	95	142	DH421105	10.5	12	114	162
DH421083	8.3	10	95	142	DH421106	10.6	12	114	162
DH421084	8.4	10	95	142	DH421107	10.7	12	114	162
DH421085	8.5	10	95	142	DH421108	10.8	12	114	162
DH421086	8.6	10	95	142	DH421109	10.9	12	114	162
DH421087	8.7	10	95	142	DH421110	11.0	12	114	162
DH421088	8.8	10	95	142	DH421111	11.1	12	114	162
DH421089	8.9	10	95	142	DH421112	11.2	12	114	162
DH421090	9.0	10	95	142	DH421113	11.3	12	114	162
DH421091	9.1	10	95	142	DH421114	11.4	12	114	162
DH421092	9.2	10	95	142	DH421115	11.5	12	114	162
DH421093	9.3	10	95	142	DH421116	11.6	12	114	162
DH421094	9.4	10	95	142	DH421117	11.7	12	114	162
DH421095	9.5	10	95	142	DH421118	11.8	12	114	162
DH421096	9.6	10	95	142	DH421119	11.9	12	114	162
DH421097	9.7	10	95	142	DH421120	12.0	12	114	162
DH421098	9.8	10	95	142	DH421125	12.5	14	133	178
DH421099	9.9	10	95	142	DH421130	13.0	14	133	178
DH421100	10.0	10	95	142	DH421135	13.5	14	133	178
DH421101	10.1	12	114	162	DH421140	14.0	14	133	178
DH421102	10.2	12	114	162					

► Other shank types are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
○	◎	◎			○		○				

**CARBIDE, DREAM DRILLS, TiAIN COATED
VOLLHARTMETALL DREAM BOHRER, TiAIN-BESCHICHTET****DH404, DH423, DH424 SERIES**

Unit : mm

WORK MATERIAL	NON-ALLOY STEELS		ALLOY STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
	< 700 N/mm ²		< 1000 N/mm ²		< HB240, GG25		< HB300, GG40	
DIAMETER	N	S	N	S	N	S	N	S
1	13000	0.04	11250	0.04	21300	0.04	14200	0.04
2	13000	0.06	11250	0.06	21300	0.06	14200	0.06
3	13000	0.13	11000	0.13	21000	0.13	14000	0.13
4	9500	0.14	8400	0.14	16000	0.14	10500	0.14
5	7600	0.15	6700	0.15	13000	0.15	8300	0.15
6	6400	0.17	5600	0.17	11000	0.17	6900	0.17
7	5500	0.19	4800	0.19	9100	0.19	5900	0.19
8	4800	0.21	4200	0.21	8000	0.21	5200	0.21
9	4200	0.23	3700	0.23	7100	0.23	4600	0.23
10	3800	0.25	3350	0.25	6400	0.25	4150	0.25
12	3200	0.27	2800	0.27	5300	0.27	3450	0.27
14	2750	0.29	2400	0.29	4550	0.29	3000	0.29
16	2400	0.31	2100	0.31	4000	0.31	2600	0.31
18	2100	0.33	1850	0.33	3550	0.33	2300	0.33
20	1900	0.35	1650	0.35	3200	0.35	2100	0.35

► Recommend to reduce the feed rate as following

N = R.P.M

S = Feed per Revolution (mm/rev.)

Feed 100% : DH404(3×D), DH423(3×D)**Feed 85%** : DH424(5×D)**CARBIDE, DREAM DRILLS with COOLANT HOLES DIN6537, TiAIN COATED
VOLLHARTMETALL DREAM BOHRER mit KÜHLKANAL DIN6537, TiAIN-BESCHICHTET****DH406, DH408, DH421 SERIES**

Unit : mm

WORK MATERIAL	NON-ALLOY STEELS		ALLOY STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
	< 700 N/mm ²		< 1000 N/mm ²		< HB240, GG25		< HB300, GG40	
DIAMETER	N	S	N	S	N	S	N	S
1	16250	0.05	14800	0.05	26600	0.05	17300	0.05
2	16250	0.07	14800	0.07	26600	0.07	17300	0.07
3	16000	0.16	14500	0.16	26000	0.16	17000	0.16
4	12000	0.17	11000	0.17	20000	0.17	13000	0.17
5	9550	0.18	8600	0.18	16000	0.18	10000	0.18
6	8000	0.20	7200	0.20	13000	0.20	8500	0.20
7	6800	0.22	6100	0.22	11500	0.22	7300	0.22
8	6000	0.24	5400	0.24	9900	0.24	6400	0.24
9	5300	0.27	4800	0.27	8800	0.27	5700	0.27
10	4800	0.30	4300	0.30	8000	0.30	5100	0.30
12	4000	0.33	3600	0.33	6600	0.33	4250	0.33
14	3400	0.36	3050	0.36	5700	0.36	3650	0.36
16	3000	0.39	2700	0.39	5000	0.39	3200	0.39
18	2650	0.42	2400	0.42	4400	0.42	2850	0.42
20	2400	0.45	2150	0.45	4000	0.45	2550	0.45

► Recommend to reduce the feed rate as following

N = R.P.M

S = Feed per Revolution (mm/rev.)

Feed 100% : DH406(3×D)**Feed 85%** : DH408(5×D)**Feed 70%** : DH421(8×D)

CARBIDE



Being the best through innovation






DREAM DRILLS -INOX DREAM DRILLS - INOX

- WITH COOLANT HOLES
Tough Materials like Stainless Steels, Nickel Alloys and Titanium up to HRc35.
- Mit Kühlkanälen
Für zähe Werkstoffe, wie rostfreier Stahl, Nickellegierungen und Titan bis zu HRc35

SELECTION GUIDE

SOLID CARBIDE DREAM DRILLS - INOX (with Coolant Holes)

Tough Materials like Stainless Steels, Nickel Alloys and Titanium up to HRc35.

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
3XD DH451		CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL <i>SHORT KURZ</i>	D3.0	D20.0	64
5XD DH452		CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL <i>LONG LANG</i>	D3.0	D20.0	67
8XD DH453		CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL <i>EXTRA LONG ÜBERLANG</i>	D3.0	D14.0	70
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			72

SOLID CARBIDE DREAM DRILLS-INOX

◎ : Excellent
○ : Good

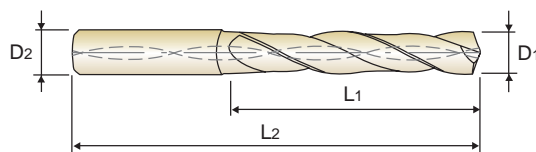
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		
◎	◎	○				○	◎	○	○		
◎	◎	○				○	◎	○	○		



CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES *SHORT*
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL *KURZ*

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
- ▶ Excellent chip evacuation due to better surface treatment.
- ▶ Point R-thinning makes superior centering and chip curling.
- ▶ Applied TiAlN coating achieves, the better surface finish of materials to be cut and the longer tool life.

- ▶ Der Bohrer hat eine besondere Nutenform, die sich besonders zur Bearbeitung von rostfreiem Stahl eignet.
- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



DIN 6537 MG h6 m7 140° P.72

3 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH451030	3.0	6	20	62	DH451059	5.9	6	28	66
DH451031	3.1	6	20	62	DH451060	6.0	6	28	66
DH451032	3.2	6	20	62	DH451061	6.1	8	34	79
DH451033	3.3	6	20	62	DH451062	6.2	8	34	79
DH451034	3.4	6	20	62	DH451063	6.3	8	34	79
DH451035	3.5	6	20	62	DH451064	6.4	8	34	79
DH451036	3.6	6	20	62	DH451065	6.5	8	34	79
DH451037	3.7	6	20	62	DH451066	6.6	8	34	79
DH451038	3.8	6	24	66	DH451067	6.7	8	34	79
DH451039	3.9	6	24	66	DH451068	6.8	8	34	79
DH451040	4.0	6	24	66	DH451069	6.9	8	34	79
DH451041	4.1	6	24	66	DH451070	7.0	8	34	79
DH451042	4.2	6	24	66	DH451071	7.1	8	41	79
DH451043	4.3	6	24	66	DH451072	7.2	8	41	79
DH451044	4.4	6	24	66	DH451073	7.3	8	41	79
DH451045	4.5	6	24	66	DH451074	7.4	8	41	79
DH451046	4.6	6	24	66	DH451075	7.5	8	41	79
DH451047	4.7	6	24	66	DH451076	7.6	8	41	79
DH451048	4.8	6	28	66	DH451077	7.7	8	41	79
DH451049	4.9	6	28	66	DH451078	7.8	8	41	79
DH451050	5.0	6	28	66	DH451079	7.9	8	41	79
DH451051	5.1	6	28	66	DH451080	8.0	8	41	79
DH451052	5.2	6	28	66	DH451081	8.1	10	47	89
DH451053	5.3	6	28	66	DH451082	8.2	10	47	89
DH451054	5.4	6	28	66	DH451083	8.3	10	47	89
DH451055	5.5	6	28	66	DH451084	8.4	10	47	89
DH451056	5.6	6	28	66	DH451085	8.5	10	47	89
DH451057	5.7	6	28	66	DH451086	8.6	10	47	89
DH451058	5.8	6	28	66	DH451087	8.7	10	47	89

◎ : Excellent ○ : Good

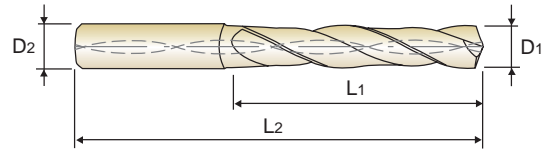
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		



CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES SHORT VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL KURZ

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
- ▶ Excellent chip evacuation due to better surface treatment.
- ▶ Point R-thinning makes superior centering and chip curling.
- ▶ Applied TiAlN coating achieves, the better surface finish of materials to be cut and the longer tool life.

- ▶ Der Bohrer hat eine besondere Nutenform, die sich besonders zur Bearbeitung von rostfreiem Stahl eignet.
- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



DIN 6537
MG
h6
m7
140°
P.72

3 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH451088	8.8	10	47	89	DH451117	11.7	12	55	102
DH451089	8.9	10	47	89	DH451118	11.8	12	55	102
DH451090	9.0	10	47	89	DH451119	11.9	12	55	102
DH451091	9.1	10	47	89	DH451120	12.0	12	55	102
DH451092	9.2	10	47	89	DH451121	12.1	14	60	107
DH451093	9.3	10	47	89	DH451122	12.2	14	60	107
DH451094	9.4	10	47	89	DH451123	12.3	14	60	107
DH451095	9.5	10	47	89	DH451124	12.4	14	60	107
DH451096	9.6	10	47	89	DH451125	12.5	14	60	107
DH451097	9.7	10	47	89	DH451126	12.6	14	60	107
DH451098	9.8	10	47	89	DH451127	12.7	14	60	107
DH451099	9.9	10	47	89	DH451128	12.8	14	60	107
DH451100	10.0	10	47	89	DH451129	12.9	14	60	107
DH451101	10.1	12	55	102	DH451130	13.0	14	60	107
DH451102	10.2	12	55	102	DH451131	13.1	14	60	107
DH451103	10.3	12	55	102	DH451132	13.2	14	60	107
DH451104	10.4	12	55	102	DH451133	13.3	14	60	107
DH451105	10.5	12	55	102	DH451134	13.4	14	60	107
DH451106	10.6	12	55	102	DH451135	13.5	14	60	107
DH451107	10.7	12	55	102	DH451136	13.6	14	60	107
DH451108	10.8	12	55	102	DH451137	13.7	14	60	107
DH451109	10.9	12	55	102	DH451138	13.8	14	60	107
DH451110	11.0	12	55	102	DH451139	13.9	14	60	107
DH451111	11.1	12	55	102	DH451140	14.0	14	60	107
DH451112	11.2	12	55	102	DH451141	14.1	16	65	115
DH451113	11.3	12	55	102	DH451142	14.2	16	65	115
DH451114	11.4	12	55	102	DH451143	14.3	16	65	115
DH451115	11.5	12	55	102	DH451144	14.4	16	65	115
DH451116	11.6	12	55	102	DH451145	14.5	16	65	115

◎ : Excellent ○ : Good

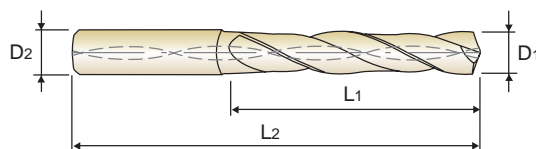
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		



CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES **SHORT**
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL **KURZ**

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
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- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



DIN 6537 MG h6 m7 140° P.72

3 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH451146	14.6	16	65	115	DH451174	17.4	18	73	123
DH451147	14.7	16	65	115	DH451175	17.5	18	73	123
DH451148	14.8	16	65	115	DH451176	17.6	18	73	123
DH451149	14.9	16	65	115	DH451177	17.7	18	73	123
DH451150	15.0	16	65	115	DH451178	17.8	18	73	123
DH451151	15.1	16	65	115	DH451179	17.9	18	73	123
DH451152	15.2	16	65	115	DH451180	18.0	18	73	123
DH451153	15.3	16	65	115	DH451181	18.1	20	79	131
DH451154	15.4	16	65	115	DH451182	18.2	20	79	131
DH451155	15.5	16	65	115	DH451183	18.3	20	79	131
DH451156	15.6	16	65	115	DH451184	18.4	20	79	131
DH451157	15.7	16	65	115	DH451185	18.5	20	79	131
DH451158	15.8	16	65	115	DH451186	18.6	20	79	131
DH451159	15.9	16	65	115	DH451187	18.7	20	79	131
DH451160	16.0	16	65	115	DH451188	18.8	20	79	131
DH451161	16.1	18	73	123	DH451189	18.9	20	79	131
DH451162	16.2	18	73	123	DH451190	19.0	20	79	131
DH451163	16.3	18	73	123	DH451191	19.1	20	79	131
DH451164	16.4	18	73	123	DH451192	19.2	20	79	131
DH451165	16.5	18	73	123	DH451193	19.3	20	79	131
DH451166	16.6	18	73	123	DH451194	19.4	20	79	131
DH451167	16.7	18	73	123	DH451195	19.5	20	79	131
DH451168	16.8	18	73	123	DH451196	19.6	20	79	131
DH451169	16.9	18	73	123	DH451197	19.7	20	79	131
DH451170	17.0	18	73	123	DH451198	19.8	20	79	131
DH451171	17.1	18	73	123	DH451199	19.9	20	79	131
DH451172	17.2	18	73	123	DH451200	20.0	20	79	131
DH451173	17.3	18	73	123					

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		



CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES LONG LANG VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
- ▶ Excellent chip evacuation due to better surface treatment.
- ▶ Point R-thinning makes superior centering and chip curling.
- ▶ Applied TiAlN coating achieves, the better surface finish of materials to be cut and the longer tool life.

- ▶ Der Bohrer hat eine besondere Nutenform, die sich besonders zur Bearbeitung von rostfreiem Stahl eignet.
- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



DIN 6537
MG
h6
m7
140°
P.72

5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH452030	3.0	6	28	66	DH452059	5.9	6	44	82
DH452031	3.1	6	28	66	DH452060	6.0	6	44	82
DH452032	3.2	6	28	66	DH452061	6.1	8	53	91
DH452033	3.3	6	28	66	DH452062	6.2	8	53	91
DH452034	3.4	6	28	66	DH452063	6.3	8	53	91
DH452035	3.5	6	28	66	DH452064	6.4	8	53	91
DH452036	3.6	6	28	66	DH452065	6.5	8	53	91
DH452037	3.7	6	28	66	DH452066	6.6	8	53	91
DH452038	3.8	6	36	74	DH452067	6.7	8	53	91
DH452039	3.9	6	36	74	DH452068	6.8	8	53	91
DH452040	4.0	6	36	74	DH452069	6.9	8	53	91
DH452041	4.1	6	36	74	DH452070	7.0	8	53	91
DH452042	4.2	6	36	74	DH452071	7.1	8	53	91
DH452043	4.3	6	36	74	DH452072	7.2	8	53	91
DH452044	4.4	6	36	74	DH452073	7.3	8	53	91
DH452045	4.5	6	36	74	DH452074	7.4	8	53	91
DH452046	4.6	6	36	74	DH452075	7.5	8	53	91
DH452047	4.7	6	36	74	DH452076	7.6	8	53	91
DH452048	4.8	6	44	82	DH452077	7.7	8	53	91
DH452049	4.9	6	44	82	DH452078	7.8	8	53	91
DH452050	5.0	6	44	82	DH452079	7.9	8	53	91
DH452051	5.1	6	44	82	DH452080	8.0	8	53	91
DH452052	5.2	6	44	82	DH452081	8.1	10	61	103
DH452053	5.3	6	44	82	DH452082	8.2	10	61	103
DH452054	5.4	6	44	82	DH452083	8.3	10	61	103
DH452055	5.5	6	44	82	DH452084	8.4	10	61	103
DH452056	5.6	6	44	82	DH452085	8.5	10	61	103
DH452057	5.7	6	44	82	DH452086	8.6	10	61	103
DH452058	5.8	6	44	82	DH452087	8.7	10	61	103

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		



CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES **LONG**
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL **LANG**

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
- ▶ Excellent chip evacuation due to better surface treatment.
- ▶ Point R-thinning makes superior centering and chip curling.
- ▶ Applied TiAlN coating achieves, the better surface finish of materials to be cut and the longer tool life.

- ▶ Der Bohrer hat eine besondere Nutenform, die sich besonders zur Bearbeitung von rostfreiem Stahl eignet.
- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



5 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH452088	8.8	10	61	103	DH452117	11.7	12	71	118
DH452089	8.9	10	61	103	DH452118	11.8	12	71	118
DH452090	9.0	10	61	103	DH452119	11.9	12	71	118
DH452091	9.1	10	61	103	DH452120	12.0	12	71	118
DH452092	9.2	10	61	103	DH452121	12.1	14	77	124
DH452093	9.3	10	61	103	DH452122	12.2	14	77	124
DH452094	9.4	10	61	103	DH452123	12.3	14	77	124
DH452095	9.5	10	61	103	DH452124	12.4	14	77	124
DH452096	9.6	10	61	103	DH452125	12.5	14	77	124
DH452097	9.7	10	61	103	DH452126	12.6	14	77	124
DH452098	9.8	10	61	103	DH452127	12.7	14	77	124
DH452099	9.9	10	61	103	DH452128	12.8	14	77	124
DH452100	10.0	10	61	103	DH452129	12.9	14	77	124
DH452101	10.1	12	71	118	DH452130	13.0	14	77	124
DH452102	10.2	12	71	118	DH452131	13.1	14	77	124
DH452103	10.3	12	71	118	DH452132	13.2	14	77	124
DH452104	10.4	12	71	118	DH452133	13.3	14	77	124
DH452105	10.5	12	71	118	DH452134	13.4	14	77	124
DH452106	10.6	12	71	118	DH452135	13.5	14	77	124
DH452107	10.7	12	71	118	DH452136	13.6	14	77	124
DH452108	10.8	12	71	118	DH452137	13.7	14	77	124
DH452109	10.9	12	71	118	DH452138	13.8	14	77	124
DH452110	11.0	12	71	118	DH452139	13.9	14	77	124
DH452111	11.1	12	71	118	DH452140	14.0	14	77	124
DH452112	11.2	12	71	118	DH452141	14.1	16	83	133
DH452113	11.3	12	71	118	DH452142	14.2	16	83	133
DH452114	11.4	12	71	118	DH452143	14.3	16	83	133
DH452115	11.5	12	71	118	DH452144	14.4	16	83	133
DH452116	11.6	12	71	118	DH452145	14.5	16	83	133

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		



CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES LONG LANG VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
- ▶ Excellent chip evacuation due to better surface treatment.
- ▶ Point R-thinning makes superior centering and chip curling.
- ▶ Applied TiAlN coating achieves, the better surface finish of materials to be cut and the longer tool life.

- ▶ Der Bohrer hat eine besondere Nutenform, die sich besonders zur Bearbeitung von rostfreiem Stahl eignet.
- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



DIN 6537
MG
h6
m7
140°
P.72

5 × D

					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH452146	14.6	16	83	133	DH452174	17.4	18	93	143
DH452147	14.7	16	83	133	DH452175	17.5	18	93	143
DH452148	14.8	16	83	133	DH452176	17.6	18	93	143
DH452149	14.9	16	83	133	DH452177	17.7	18	93	143
DH452150	15.0	16	83	133	DH452178	17.8	18	93	143
DH452151	15.1	16	83	133	DH452179	17.9	18	93	143
DH452152	15.2	16	83	133	DH452180	18.0	18	93	143
DH452153	15.3	16	83	133	DH452181	18.1	20	101	153
DH452154	15.4	16	83	133	DH452182	18.2	20	101	153
DH452155	15.5	16	83	133	DH452183	18.3	20	101	153
DH452156	15.6	16	83	133	DH452184	18.4	20	101	153
DH452157	15.7	16	83	133	DH452185	18.5	20	101	153
DH452158	15.8	16	83	133	DH452186	18.6	20	101	153
DH452159	15.9	16	83	133	DH452187	18.7	20	101	153
DH452160	16.0	16	83	133	DH452188	18.8	20	101	153
DH452161	16.1	18	93	143	DH452189	18.9	20	101	153
DH452162	16.2	18	93	143	DH452190	19.0	20	101	153
DH452163	16.3	18	93	143	DH452191	19.1	20	101	153
DH452164	16.4	18	93	143	DH452192	19.2	20	101	153
DH452165	16.5	18	93	143	DH452193	19.3	20	101	153
DH452166	16.6	18	93	143	DH452194	19.4	20	101	153
DH452167	16.7	18	93	143	DH452195	19.5	20	101	153
DH452168	16.8	18	93	143	DH452196	19.6	20	101	153
DH452169	16.9	18	93	143	DH452197	19.7	20	101	153
DH452170	17.0	18	93	143	DH452198	19.8	20	101	153
DH452171	17.1	18	93	143	DH452199	19.9	20	101	153
DH452172	17.2	18	93	143	DH452200	20.0	20	101	153
DH452173	17.3	18	93	143					

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		



CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES EXTRA LONG
VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL ÜBERLANG

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
- ▶ Excellent chip evacuation due to better surface treatment.
- ▶ Point R-thinning makes superior centering and chip curling.
- ▶ Applied TiAlN coating achieves, the better surface finish of materials to be cut and the longer tool life.

- ▶ Der Bohrer hat eine besondere Nutenform, die sich besonders zur Bearbeitung von rostfreiem Stahl eignet.
- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



8 × D

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH453030	3.0	6	34	72	DH453057	5.7	6	57	95
DH453031	3.1	6	34	72	DH453058	5.8	6	57	95
DH453032	3.2	6	34	72	DH453059	5.9	6	57	95
DH453033	3.3	6	34	72	DH453060	6.0	6	57	95
DH453034	3.4	6	34	72	DH453061	6.1	8	76	114
DH453035	3.5	6	34	72	DH453062	6.2	8	76	114
DH453036	3.6	6	34	72	DH453063	6.3	8	76	114
DH453037	3.7	6	34	72	DH453064	6.4	8	76	114
DH453038	3.8	6	43	81	DH453065	6.5	8	76	114
DH453039	3.9	6	43	81	DH453066	6.6	8	76	114
DH453040	4.0	6	43	81	DH453067	6.7	8	76	114
DH453041	4.1	6	43	81	DH453068	6.8	8	76	114
DH453042	4.2	6	43	81	DH453069	6.9	8	76	114
DH453043	4.3	6	43	81	DH453070	7.0	8	76	114
DH453044	4.4	6	43	81	DH453071	7.1	8	76	114
DH453045	4.5	6	43	81	DH453072	7.2	8	76	114
DH453046	4.6	6	43	81	DH453073	7.3	8	76	114
DH453047	4.7	6	43	81	DH453074	7.4	8	76	114
DH453048	4.8	6	57	95	DH453075	7.5	8	76	114
DH453049	4.9	6	57	95	DH453076	7.6	8	76	114
DH453050	5.0	6	57	95	DH453077	7.7	8	76	114
DH453051	5.1	6	57	95	DH453078	7.8	8	76	114
DH453052	5.2	6	57	95	DH453079	7.9	8	76	114
DH453053	5.3	6	57	95	DH453080	8.0	8	76	114
DH453054	5.4	6	57	95	DH453081	8.1	10	95	142
DH453055	5.5	6	57	95	DH453082	8.2	10	95	142
DH453056	5.6	6	57	95	DH453083	8.3	10	95	142

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		

CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES *EXTRA LONG*

VOLLHARTMETALL DREAM SPIRALBOHRER - INOX mit KÜHLKANAL *ÜBERLANG*

- ▶ The tool has the special flute shape and geometry for suitable machining of stainless steels.
- ▶ Excellent chip evacuation due to better surface treatment.
- ▶ Point R-thinning makes superior centering and chip curling.
- ▶ Applied TiAlN coating achieves, the better surface finish of materials to be cut and the longer tool life.

- ▶ Der Bohrer hat eine besondere Nutenform, die sich besonders zur Bearbeitung von rostfreiem Stahl eignet.
- ▶ Ausgezeichnete Entspannung wegen der besseren Oberflächenqualität.
- ▶ Vorzügliche Zentrierung und Spanbruch durch die R-Ausspitzung.
- ▶ Modifizierte TiAlN-Beschichtung verbessert die Oberflächengüte der Bohrung und verlängert die Lebensdauer der Bohrung.



8 × D

					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH453084	8.4	10	95	142	DH453105	10.5	12	114	162
DH453085	8.5	10	95	142	DH453106	10.6	12	114	162
DH453086	8.6	10	95	142	DH453107	10.7	12	114	162
DH453087	8.7	10	95	142	DH453108	10.8	12	114	162
DH453088	8.8	10	95	142	DH453109	10.9	12	114	162
DH453089	8.9	10	95	142	DH453110	11.0	12	114	162
DH453090	9.0	10	95	142	DH453111	11.1	12	114	162
DH453091	9.1	10	95	142	DH453112	11.2	12	114	162
DH453092	9.2	10	95	142	DH453113	11.3	12	114	162
DH453093	9.3	10	95	142	DH453114	11.4	12	114	162
DH453094	9.4	10	95	142	DH453115	11.5	12	114	162
DH453095	9.5	10	95	142	DH453116	11.6	12	114	162
DH453096	9.6	10	95	142	DH453117	11.7	12	114	162
DH453097	9.7	10	95	142	DH453118	11.8	12	114	162
DH453098	9.8	10	95	142	DH453119	11.9	12	114	162
DH453099	9.9	10	95	142	DH453120	12.0	12	114	162
DH453100	10.0	10	95	142	DH453125	12.5	14	133	178
DH453101	10.1	12	114	162	DH453130	13.0	14	133	178
DH453102	10.2	12	114	162	DH453135	13.5	14	133	178
DH453103	10.3	12	114	162	DH453140	14.0	14	133	178
DH453104	10.4	12	114	162					

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○				○	◎	○	○		

- CARBIDE
- HSS
- i-DREAM DRILLS
- DREAM DRILLS -GENERAL
- DREAM DRILLS -INOX
- DREAM DRILLS -MQL TYPE
- DREAM DRILLS for HARDENED STEELS
- GENERAL CARBIDE DRILLS
- NC-SPOTTING DRILLS
- MULTI-1 DRILLS
- HPD DRILLS
- GOLD-P DRILLS
- WORM PATTERN DRILLS
- STRAIGHT SHANK DRILLS
- TAPER SHANK DRILLS
- NC-SPOTTING DRILLS
- CENTER DRILLS
- SPADE DRILLS
- TECHNICAL DATA

**DREAM DRILLS
-INOX****RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN****CARBIDE, DREAM DRILLS - INOX with COOLANT HOLES, TiAIN COATED
VOLLHARTMETALL DREAM BOHRER - INOX mit KÜHLKANAL, TiAIN-BESCHICHTET****DH451, DH452, DH453 SERIES**

Unit : mm

WORK MATERIAL	STAINLESS STEELS		STAINLESS STEELS		ALUMINUM		ALUMINUM		TITANIUM Ti ALLOYS		CARBON STEELS ALLOY STEELS		TITANIUM NON FRERROUS	
	< 800 N/mm ²		> 800 N/mm ²		< 10% Si		> 10% Si							
STRENGTH														
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S
3	7400	0.04	4700	0.02	23000	0.12	18500	0.10	5300	0.03	13000	0.04	16000	0.08
4	5600	0.05	3600	0.03	17500	0.18	13900	0.15	4000	0.04	10000	0.05	11900	0.10
5	4400	0.05	2800	0.03	14000	0.20	11000	0.18	3200	0.05	8000	0.05	9500	0.12
6	3700	0.06	2400	0.04	11700	0.25	9300	0.25	2650	0.06	6600	0.06	8000	0.15
8	2800	0.08	1800	0.06	8800	0.30	7000	0.30	2000	0.07	5000	0.08	6000	0.18
10	2200	0.10	1400	0.08	7000	0.40	5600	0.35	1600	0.08	4000	0.10	4800	0.22
12	1900	0.12	1200	0.10	5800	0.50	4600	0.40	1300	0.10	3300	0.12	4000	0.26
14	1600	0.15	1000	0.12	5000	0.60	4000	0.50	1100	0.12	2800	0.15	3400	0.30
16	1400	0.20	900	0.15	4380	0.80	3500	0.60	1000	0.14	2500	0.20	3000	0.40
18	1250	0.22	800	0.17	3900	1.00	3100	0.70	900	0.16	2200	0.22	2650	0.45
20	1120	0.24	720	0.19	3500	1.20	2800	0.80	800	0.18	2000	0.24	2400	0.50

Feed 100% : DH451(3xD), DH452(5XD)

Feed 85% : DH453(8xD)

N = R.P.M

S = Feed per Revolution (mm/rev.)



Being the best through innovation

CARBIDE



DREAM DRILLS -MQL TYPE




DREAM DRILLS - MQL TYPE

- WITH COOLANT HOLES
Minimum Quantity Lubrication. Drilling Deep Holes, 10D, 15D & 20D
- Mit Kühlkanälen
Minimale Mengenschmierung. Tiefloch 10xD, 15xD und 20xD

SELECTION GUIDE

SOLID CARBIDE DREAM DRILLS - MQL TYPE (with Coolant Holes)

Minimum Quantity Lubrication. Drilling Deep Holes, 10D, 15D & 20D

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
10XD DH510		CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL <i>EXTRA LONG ÜBERLANG</i>	D3.0	D14.0	76
15XD DH515		CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL <i>EXTRA LONG ÜBERLANG</i>	D3.0	D12.0	77
20XD DH520		CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL <i>EXTRA LONG ÜBERLANG</i>	D3.0	D12.0	77
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			78

SOLID CARBIDE DREAM DRILLS-MQL TYPE

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○				○		
◎	◎	○			○				○		
◎	◎	○			○				○		

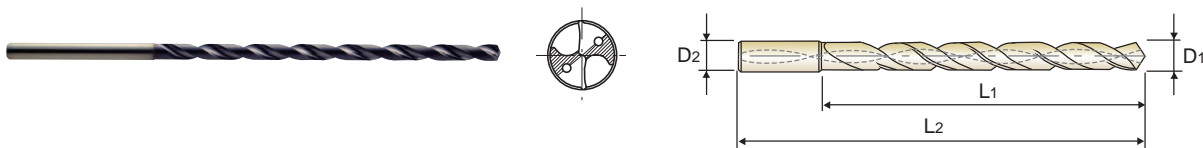
Y/G DREAM DRILLS -MQL TYPE

DH510 SERIES

CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES EXTRA LONG
VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL ÜBERLANG

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Non step drilling up to 10 times of drill diameter. Available for processing MQL (Minimum Quantity Lubrication).
 Excellent positioning
 - Bush is not necessary.
 Special design
 - Good chip removal
 Powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart- und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Bohren bis zu 10 x D ohne abzusetzen, Geeignet für MQL (minimale Kühlschmierung) Selbstzentrierend
 - Keine vorherige Zentrierung notwendig
 Kein Verlaufen
 - Keine Bohrbuchse notwendig
 Spezielle Bohrergeometrie
 - Gute Spanabfuhr
 Hochleistungsbohren



10 × D

Unit : mm

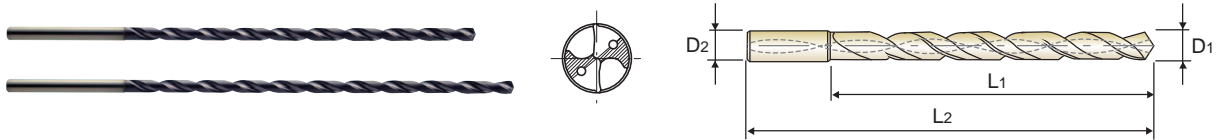
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH510030	3.0	3	39	90	DH510080	8.0	8	104	161
DH510033	3.3	4	46	97	DH510085	8.5	9	111	169
DH510035	3.5	4	46	97	DH510090	9.0	9	117	175
DH510040	4.0	4	52	103	DH510095	9.5	10	124	182
DH510042	4.2	5	59	112	DH510100	10.0	10	130	188
DH510045	4.5	5	59	112	DH510105	10.5	11	137	201
DH510050	5.0	5	65	118	DH510110	11.0	11	143	207
DH510055	5.5	6	72	127	DH510115	11.5	12	150	215
DH510060	6.0	6	78	133	DH510120	12.0	12	156	221
DH510065	6.5	7	85	141	DH510125	12.5	13	163	229
DH510068	6.8	7	91	147	DH510130	13.0	13	169	235
DH510070	7.0	7	91	147	DH510135	13.5	14	176	243
DH510075	7.5	8	98	155	DH510140	14.0	14	182	249

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○				○		

CARBIDE, DREAM DRILLS MQL TYPE with COOLANT HOLES EXTRA LONG
VOLLHARTMETALL DREAM SPIRALBOHRER MQL - TYPE mit KÜHLKANAL ÜBERLANG

- **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.
- **Advantage** : Non step drilling up to 15 times (20 times) of drill diameter.
Available for processing MQL (Minimum Quantity Lubrication).
Excellent positioning
- Bush is not necessary.
Special design
- Good chip removal
Powerful drilling

- **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.
- **Vorteile** : Bohren bis zu 15 x D (20 x D) ohne abzusetzen, Geeignet für MQL (minimale Kühlschmierung) Selbstzentrierend
- Keine vorherige Zentrierung notwendig
Kein Verlaufen
- Keine Bohrbuchse notwendig
Spezielle Bohrergeometrie
- Gute Spanabfuhr
Hochleistungsbohren



					Unit : mm				
EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH515030	3.0	3	54	105	DH520030	3.0	3	69	120
DH515035	3.5	4	63	114	DH520035	3.5	4	81	132
DH515040	4.0	4	72	123	DH520040	4.0	4	92	143
DH515045	4.5	5	81	134	DH520045	4.5	5	104	157
DH515050	5.0	5	90	143	DH520050	5.0	5	115	168
DH515055	5.5	6	99	154	DH520055	5.5	6	127	182
DH515060	6.0	6	108	163	DH520060	6.0	6	138	193
DH515070	7.0	7	126	182	DH520070	7.0	7	161	217
DH515080	8.0	8	144	201	DH520080	8.0	8	184	241
DH515090	9.0	9	162	220	DH520090	9.0	9	207	265
DH515100	10.0	10	180	238	DH520100	10.0	10	230	288
DH515110	11.0	11	198	262	DH520120	12.0	12	276	341
DH515120	12.0	12	216	281					

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○				○		



DREAM DRILLS -MQL TYPE

**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**

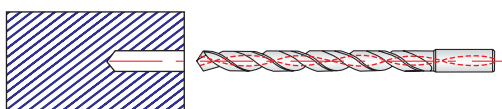
**CARBIDE, DREAM DRILL MQL TYPE with COOLANT HOLES, TiAIN COATED
VOLLHARTMETALL DREAM BOHRER MQL-TYPE, TiAIN-BESCHICHTET**

DH510, DH515, DH520 SERIES

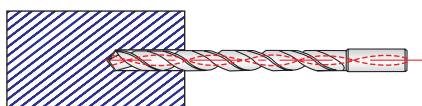
Unit : mm

WORK MATERIAL	CARBON STEELS ALLOY STEELS		CAST IRON		DUCTILE CAST IRON	
STRENGTH	~ 1060 N/mm ²		250 ~ 350 N/mm ²		400 ~ 500 N/mm ²	
DRILLING SPEED	63 ~ 125 m/min		63 ~ 125 m/min		60 ~ 80 m/min	
DIAMETER	N	S	N	S	N	S
3	7500	0.06~0.12	7500	0.06~0.12	7500	0.06~0.12
4	6400	0.08~0.16	6400	0.08~0.16	5600	0.08~0.16
5	5800	0.10~0.20	5800	0.10~0.20	4500	0.10~0.20
6	4800	0.12~0.24	4800	0.12~0.24	3800	0.12~0.24
8	3600	0.16~0.28	3600	0.16~0.28	2800	0.16~0.28
10	2900	0.20~0.35	2900	0.20~0.35	2300	0.20~0.35
12	2400	0.24~0.42	2400	0.24~0.42	1900	0.24~0.42
14	2050	0.28~0.46	2050	0.28~0.46	1600	0.28~0.46

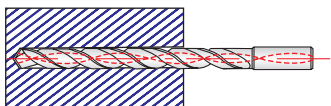
N = R.P.M
S = Feed per Revolution (mm/rev.)



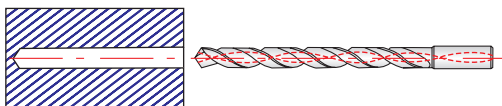
1. Guide Drilling should be done as Diameter+0.1mm between 3xD and 5xD depth.



2. For Main Drilling, proceed with low RPM at Guide Drilling segment.
(RPM 300, FEED 400mm/min)



3. Just before the end of Guide Drilling segment, reduce feed to zero and increase the RPM according to Recommended Cutting Condition chart (See above).

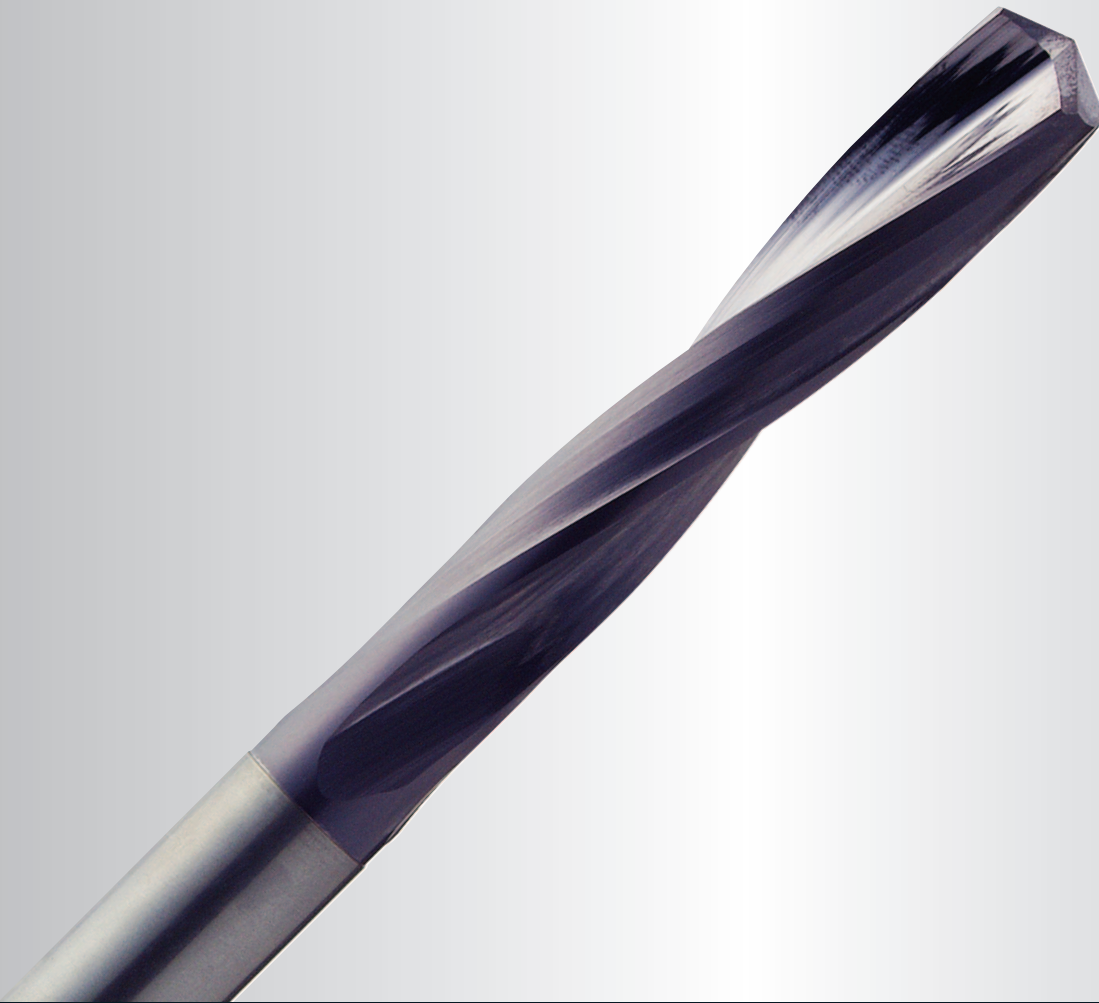


4. After then, proceed main drilling by increasing feed without step drilling.
5. When coming out from Guide Drilling start point after drilling, RPM should be reduced as 300 and feed should be 1000 mm/min.
6. When coming out from Guide Drilling segment to the outside, the feed should be decreased as 50%.

CARBIDE



Being the best through innovation




DREAM DRILLS
- For HIGH HARDENED STEELS
DREAM DRILLS
- FÜR HOCHGEHÄRTETE STÄHLE

- HIGH HARDENED STEELS, HRc50~HRc70
- HOCHGEHÄRTETE STÄHLE HRc50 TO HRc70

SELECTION GUIDE

SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS

High Hardened Steels, HRc50~HRc70

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
DH500		CARBIDE, DREAM DRILLS for HIGH HARDENED STEELS VOLLHARTMETALL DREAM SPIRALBOHRER für HOCHGEHARTETE STAHL	D3.0	D14.0	82
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			83

SOLID CARBIDE DREAM DRILLS for HIGH HARDENED STEELS

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	◎	◎							

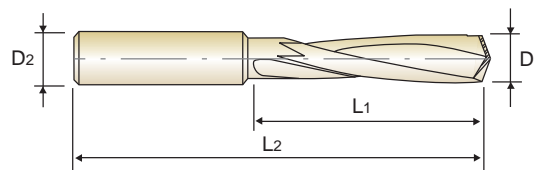
Y/G DREAM DRILLS for HIGH HARDENED STEELS

DH500 SERIES

CARBIDE, DREAM DRILLS for HIGH HARDENED STEELS (HRc50~HRc70) VOLLHARTMETALL DREAM SPIRALBOHRER für HOCHGEHARTETE STAHL

- ▶ **Application** : Drilling for High Hardened Steels[Quenched Steels, Tempered Steels (Under HRc 70)]
- ▶ **Advantage** : Special Design
Minimum of cutting load through special thinning
Good chip removal
Powerful Drilling

- ▶ **Verwendung** : Hoch gehärtete Stähle (Vergütungsstähle, angelassene Stähle) bis HRc 70
- ▶ **Vorteile** : Spezielle Bohrergeometrie
Minimaler Schneidendruck durch besondere Ausspitzung
Gute Spanabfuhr
Hochleistungsbohren



Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
DH500026	2.6	3	14	44	DH500070	7.0	8	45	85
DH500030	3.0	3	16	46	DH500075	7.5	8	45	85
DH500033	3.3	4	18	48	DH500080	8.0	8	50	98
DH500034	3.4	4	20	50	DH500085	8.5	10	50	98
DH500035	3.5	4	20	50	DH500086	8.6	10	57	105
DH500040	4.0	4	22	52	DH500088	8.8	10	57	105
DH500042	4.2	6	25	65	DH500090	9.0	10	57	105
DH500043	4.3	6	28	68	DH500095	9.5	10	57	105
DH500044	4.4	6	28	68	DH500100	10.0	10	63	111
DH500045	4.5	6	28	68	DH500102	10.2	12	63	111
DH500050	5.0	6	32	72	DH500103	10.3	12	63	111
DH500051	5.1	6	32	72	DH500105	10.5	12	63	111
DH500052	5.2	6	32	72	DH500108	10.8	12	71	119
DH500055	5.5	6	35	75	DH500110	11.0	12	71	119
DH500060	6.0	6	35	75	DH500115	11.5	12	71	119
DH500065	6.5	8	40	80	DH500120	12.0	12	71	119
DH500068	6.8	8	45	85	DH500140	14.0	14	77	125
DH500069	6.9	8	45	85					

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
			◎	◎							



DREAM DRILLS for HIGH HARDENED STEELS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, DREAM DRILLS for HIGH HARDENED STEELS (HRc50~HRc70), TiAlN COATED VOLLHARTMETALL DREAM BOHRER für HOCHGEHÄRTETE STÄHLE, TiAlN-BESCHICHTET

DH500 SERIES

Unit : mm

WORK MATERIAL	HARDENED STEELS					
	HRc 50~55		HRc 55~60		HRc 60~70	
DRILLING SPEED	14 ~ 22 m/min		10 ~ 16 m/min		8 ~ 13 m/min	
DIAMETER	N	S	N	S	N	S
3	1900	0.04	1330	0.04	1250	0.04
4	1430	0.04	1000	0.04	950	0.04
5	1150	0.04	800	0.04	750	0.04
6	960	0.04	670	0.04	630	0.04
8	720	0.04	500	0.04	480	0.04
10	570	0.04	400	0.04	380	0.04
12	480	0.04	330	0.04	320	0.04
14	438	0.04	282	0.04	272	0.04

N = R.P.M

S = Feed per Revolution (mm/rev.)

CARBIDE

HSS

i-DREAM
DRILLS

DREAM
DRILLS
-GENERAL

DREAM
DRILLS
-INOX

DREAM
DRILLS
-MQL TYPE

DREAM
DRILLS
for HARDENED
STEELS

GENERAL
CARBIDE
DRILLS

NC-SPOTTING
DRILLS

MULTI-1
DRILLS

HPD DRILLS

GOLD-P
DRILLS

WORM
PATTERN
DRILLS

STRAIGHT
SHANK
DRILLS

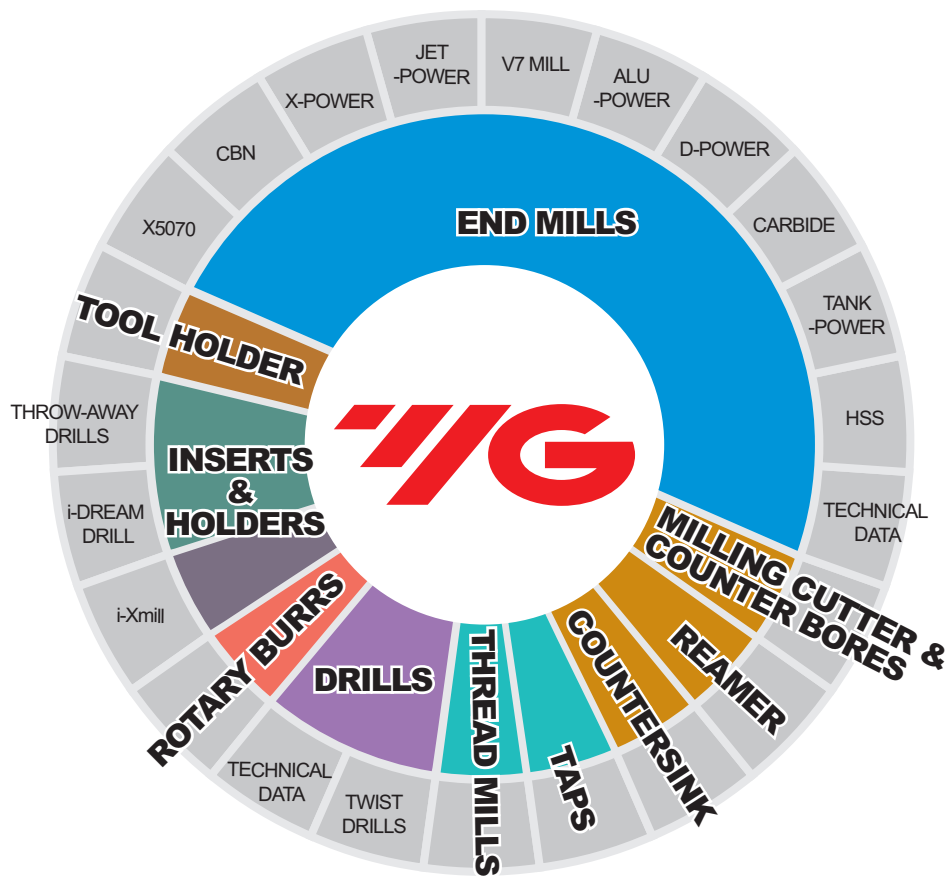
TAPER
SHANK
DRILLS

NC-SPOTTING
DRILLS

CENTER
DRILLS

SPADE
DRILLS

TECHNICAL
DATA



Challenge toward a Global Leader-

YG-1 Leads the World Market.

CARBIDE



Being the best through innovation



GENERAL CARBIDE DRILLS



UNIVERSELLE VHM - BOHRER

- JOBBER & STUB LENGTH
General Purpose, DIN338 & DIN6539
- Kurz & Extra Kurz
Für allgemeinen Einsatz, DIN 338 und DIN 6539

SELECTION GUIDE

GENERAL SOLID CARBIDE DRILLS

For General materials, Cast steels, Cast iron, Non-ferrous materials

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
D5405		CARBIDE DRILLS VOLLHARTMETALL-SPIRALBOHRER <i>STUB EXTRA KURZ</i>	D1.0	D13.0	88
D5407		CARBIDE DRILLS VOLLHARTMETALL-SPIRALBOHRER <i>JOBBER KURZ</i>	D1.0	D13.0	90
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					92

GENERAL SOLID CARBIDE DRILLS

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	◎		
◎	◎				○	○	○	○	◎		

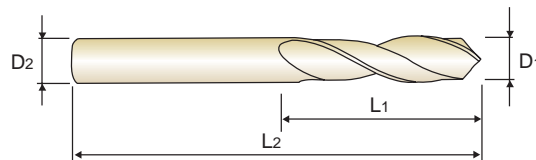
CARBIDE DRILLS
VOLLHARTMETALL-SPIRALBOHRER

STUB

EXTRA KURZ

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



DIN 6539
MG
N 30°
h6
h7
118°
P.92

D1=D2

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5405010	1.0	6	26	D5405035	3.5	20	52
D5405011	1.1	7	28	D5405036	3.6	20	52
D5405012	1.2	8	30	D5405037	3.7	20	52
D5405013	1.3	8	30	D5405038	3.8	20	52
D5405014	1.4	9	32	D5405039	3.9	22	55
D5405015	1.5	9	32	D5405040	4.0	22	55
D5405016	1.6	10	34	D5405041	4.1	22	55
D5405017	1.7	10	34	D5405042	4.2	22	55
D5405018	1.8	11	36	D5405043	4.3	24	58
D5405019	1.9	11	36	D5405044	4.4	24	58
D5405020	2.0	12	38	D5405045	4.5	24	58
D5405021	2.1	12	38	D5405046	4.6	24	58
D5405022	2.2	13	40	D5405047	4.7	24	58
D5405023	2.3	13	40	D5405048	4.8	26	62
D5405024	2.4	14	43	D5405049	4.9	26	62
D5405025	2.5	14	43	D5405050	5.0	26	62
D5405026	2.6	14	43	D5405051	5.1	26	62
D5405027	2.7	16	46	D5405052	5.2	26	62
D5405028	2.8	16	46	D5405053	5.3	26	62
D5405029	2.9	16	46	D5405054	5.4	28	66
D5405030	3.0	16	46	D5405055	5.5	28	66
D5405031	3.1	18	49	D5405056	5.6	28	66
D5405032	3.2	18	49	D5405057	5.7	28	66
D5405033	3.3	18	49	D5405058	5.8	28	66
D5405034	3.4	20	52	D5405059	5.9	28	66

► TiN(D6405), TiCN(DG405) and TiAlN(DH405) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	○	○	◎		



GENERAL CARBIDE DRILLS

D5405 SERIES

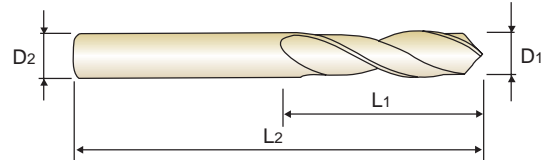
CARBIDE DRILLS VOLLHARTMETALL-SPIRALBOHRER

STUB

EXTRA KURZ

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



DIN 6539

MG

N 30°

h6

h7

118°



P.92

D₁=D₂

Unit : mm

EDP No.	Drill Diameter D ₁	Flute Length L ₁	Overall Length L ₂	EDP No.	Drill Diameter D ₁	Flute Length L ₁	Overall Length L ₂
D5405060	6.0	28	66	D5405084	8.4	37	79
D5405061	6.1	31	70	D5405085	8.5	37	79
D5405062	6.2	31	70	D5405086	8.6	40	84
D5405063	6.3	31	70	D5405087	8.7	40	84
D5405064	6.4	31	70	D5405088	8.8	40	84
D5405065	6.5	31	70	D5405089	8.9	40	84
D5405066	6.6	31	70	D5405090	9.0	40	84
D5405067	6.7	31	70	D5405091	9.1	40	84
D5405068	6.8	34	74	D5405092	9.2	40	84
D5405069	6.9	34	74	D5405093	9.3	40	84
D5405070	7.0	34	74	D5405094	9.4	40	84
D5405071	7.1	34	74	D5405095	9.5	40	84
D5405072	7.2	34	74	D5405096	9.6	43	89
D5405073	7.3	34	74	D5405097	9.7	43	89
D5405074	7.4	34	74	D5405098	9.8	43	89
D5405075	7.5	34	74	D5405099	9.9	43	89
D5405076	7.6	37	79	D5405100	10.0	43	89
D5405077	7.7	37	79	D5405102	10.2	43	89
D5405078	7.8	37	79	D5405105	10.5	43	89
D5405079	7.9	37	79	D5405110	11.0	47	95
D5405080	8.0	37	79	D5405115	11.5	47	95
D5405081	8.1	37	79	D5405120	12.0	51	102
D5405082	8.2	37	79	D5405130	13.0	51	102
D5405083	8.3	37	79				

► TiN(D6405), TiCN(DG405) and TiAlN(DH405) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	○	○	◎		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

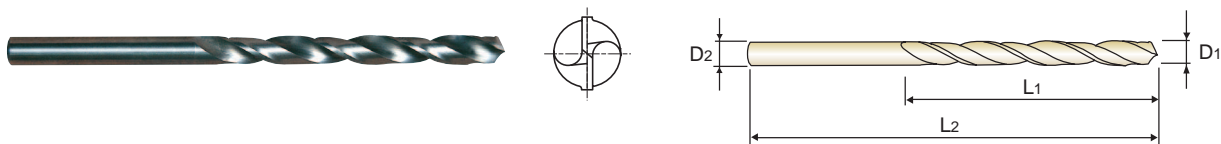
TECHNICAL DATA

CARBIDE DRILLS
VOLLHARTMETALL-SPIRALBOHRER

JOBBER
KURZ

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



D1=D2

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D5407010	1.0	12	34	D5407032	3.2	36	65
D5407011	1.1	14	36	D5407033	3.3	36	65
D5407012	1.2	16	38	D5407034	3.4	39	70
D5407013	1.3	16	38	D5407035	3.5	39	70
D5407014	1.4	18	40	D5407036	3.6	39	70
D5407015	1.5	18	40	D5407037	3.7	39	70
D5407016	1.6	20	43	D5407038	3.8	43	75
D5407017	1.7	20	43	D5407039	3.9	43	75
D5407018	1.8	22	46	D5407040	4.0	43	75
D5407019	1.9	22	46	D5407041	4.1	43	75
D5407020	2.0	24	49	D5407042	4.2	43	75
D5407021	2.1	24	49	D5407043	4.3	47	80
D5407022	2.2	27	53	D5407044	4.4	47	80
D5407023	2.3	27	53	D5407045	4.5	47	80
D5407024	2.4	30	57	D5407046	4.6	47	80
D5407025	2.5	30	57	D5407047	4.7	47	80
D5407026	2.6	30	57	D5407048	4.8	52	86
D5407027	2.7	33	61	D5407049	4.9	52	86
D5407028	2.8	33	61	D5407050	5.0	52	86
D5407029	2.9	33	61	D5407051	5.1	52	86
D5407030	3.0	33	61	D5407052	5.2	52	86
D5407031	3.1	36	65	D5407053	5.3	52	86

► TiN(D6407), TiCN(DG407) and TiAlN(DH407) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	○	○	◎		



GENERAL CARBIDE DRILLS

D5407 SERIES

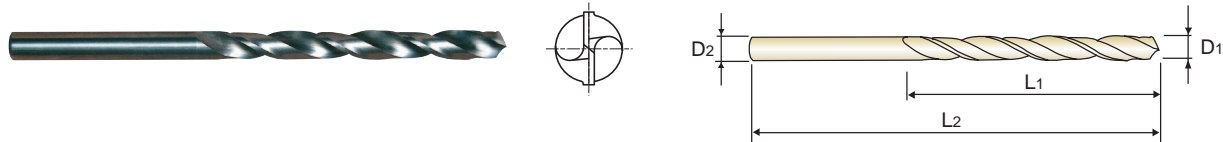
CARBIDE DRILLS VOLLHARTMETALL-SPIRALBOHRER

JOBBER

KURZ

► **Application** : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.

► **Verwendung** : Zum wirtschaftlichen Bohren von Stahl allgemein, Stahlguß, Hart-und Temperguß, Nichteisen Leichtmetallen, abrasiven Kunststoffen.



$D_1 = D_2$

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
D5407054	5.4	57	93	D5407068	6.8	69	109
D5407055	5.5	57	93	D5407070	7.0	69	109
D5407056	5.6	57	93	D5407080	8.0	75	117
D5407057	5.7	57	93	D5407085	8.5	75	117
D5407058	5.8	57	93	D5407100	10.0	87	133
D5407059	5.9	57	93	D5407102	10.2	87	133
D5407060	6.0	57	93	D5407105	10.5	87	133
D5407061	6.1	63	101	D5407110	11.0	94	142
D5407062	6.2	63	101	D5407115	11.5	94	142
D5407063	6.3	63	101	D5407120	12.0	101	151
D5407064	6.4	63	101	D5407130	13.0	101	151
D5407065	6.5	63	101				

► TiN(D6407), TiCN(DG407) and TiAlN(DH407) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	○	○	◎		

**CARBIDE DRILLS, DIN6539, DIN338
VOLLHARTMETALL SPIRALBOHRER, DIN 6539, DIN 338****D5405, D5407 SERIES**

Unit : mm

WORK MATERIAL	NON-ALLOY STEELS		ALLOY STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON		STAINLESS STEELS		Al-Si ALLOYS, Si<10%		Al-Si ALLOYS, Si>10%		Ti, Ni ALLOY STEELS	
	< 700 N/mm ²		< 1000 N/mm ²		< HB240, GG25		< HB300, GG40									
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S
1	23000	0.03	17200	0.03	32000	0.04	23000	0.04	12000	0.04	54000	0.05	42000	0.05	11800	0.02
2	11500	0.04	8600	0.04	16000	0.05	11500	0.05	6000	0.03	27000	0.06	21000	0.06	5900	0.03
3	7800	0.05	5750	0.05	10500	0.06	7600	0.06	4000	0.04	18000	0.07	14000	0.07	3900	0.04
4	5800	0.06	4300	0.06	7800	0.07	5700	0.07	3000	0.05	13000	0.08	10500	0.08	2950	0.05
5	4700	0.07	3450	0.07	6200	0.08	4550	0.08	2400	0.06	10500	0.09	8500	0.09	2350	0.06
6	3900	0.08	2850	0.08	5200	0.09	3800	0.09	2000	0.07	8800	0.11	7100	0.11	1950	0.07
7	3350	0.09	2450	0.09	4500	0.10	3250	0.10	1700	0.08	7600	0.13	6100	0.13	1700	0.08
8	2900	0.10	2150	0.10	3900	0.12	2850	0.12	1500	0.09	6600	0.15	5350	0.15	1450	0.09
9	2600	0.11	1900	0.11	3450	0.14	2550	0.14	1350	0.10	5900	0.17	4750	0.17	1300	0.10
10	2350	0.12	1700	0.12	3100	0.16	2300	0.16	1200	0.11	5300	0.19	4250	0.19	1200	0.11
11	2150	0.13	1600	0.13	2850	0.18	2100	0.18	1100	0.12	4850	0.21	3900	0.21	1050	0.12
12	1950	0.14	1450	0.14	2600	0.20	1900	0.20	1000	0.13	4450	0.23	3550	0.23	980	0.13
13	1800	0.16	1350	0.16	2400	0.20	1750	0.20	950	0.13	4100	0.25	3300	0.25	905	0.13

N = R.P.M

S = Feed per Revolution (mm/rev.)

CARBIDE



Being the best through innovation



NC-SPOTTING DRILLS


NC-ANBOHRER

- CENTERING and CHAMFERING
- Zentrier & Abfasen

SELECTION GUIDE

SOLID CARBIDE NC-SPOTTING DRILLS

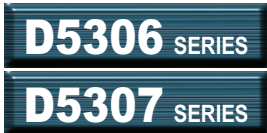
For General materials, Cast steels, Cast iron, Non-ferrous materials

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
D5306 D5307		CARBIDE, NC-SPOTTING DRILLS VOLLHARTMETALL NC-ANBOHRER	D6.0	D20.0	96
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			97

SOLID CARBIDE NC-SPOTTING DRILLS

◎ : Excellent
○ : Good

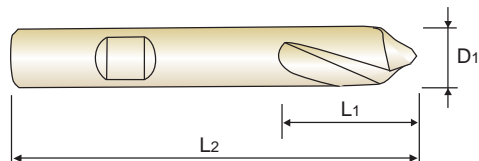
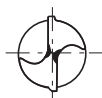
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	◎			○	○	○	○	○		



CARBIDE, NC-SPOTTING DRILLS VOLLHARTMETALL NC-ANBOHRER

► **Application** : For more precise centering work on NC/CNC Machines.
The large diameter of the tool permits chamfering work after centering continuously.

► **Verwendung** : Auf NC-Maschinen, Lehrenbohrwerken u.a. kapitalintensiven Bohrwerken, zum Zentrieren und Anfasen von Gewindebohrungen in einem Arbeitsgang. Besonders geeignet zum Anbohren von hochfesten Stählen, Stahlguß, Grauguß, Hartguß, Mangan-Hartstahl, CrNi-Stählen, Bronze, Leicht- und Buntmetallen.



NC-Spotting drills 90° NC-Anbohrer 90°

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D5306060	6.0	13	50
D5306080	8.0	23	60
D5306100	10.0	24	70
D5306120	12.0	24	70
D5306160	16.0	29	75
D5306200	20.0	35	100

NC-Spotting drills 120° NC-Anbohrer 120°

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D5307060	6.0	13	50
D5307080	8.0	23	60
D5307100	10.0	24	70
D5307120	12.0	24	70
D5307160	16.0	29	75
D5307200	20.0	35	100

► TiN(D6407), TiCN(DG407) and TiAlN(DH407) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	◎			○	○	○	○	○		

CARBIDE NC - SPOTTING DRILLS 90°, 120° with FLATTED SHANK
VOLLHARTMETALL NC-ANBOHRER 90°, 120° mit MITNAHME FLÄCHE
D5306, D5307 SERIES

Unit : mm

WORK MATERIAL	NON-ALLOY STEELS		ALLOY STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON		STAINLESS STEELS		Al-Si ALLOYS, Si<10%		Al-Si ALLOYS, Si>10%		Ti, Ni ALLOY STEELS	
	< 700 N/mm ²		< 1000 N/mm ²		< HB240, GG25		< HB300, GG40									
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S
6	3900	0.08	2850	0.08	5200	0.09	3800	0.09	2000	0.07	8800	0.11	7100	0.11	1950	0.07
8	2900	0.10	2150	0.10	3900	0.12	2850	0.12	1500	0.09	6600	0.15	5350	0.15	1450	0.09
10	2350	0.12	1700	0.12	3100	0.16	2300	0.16	1200	0.11	5300	0.19	4250	0.19	1200	0.11
12	1950	0.14	1450	0.14	2600	0.20	1900	0.20	1000	0.13	4450	0.23	3550	0.23	980	0.13
16	1450	0.17	1100	0.17	1950	0.24	1450	0.24	755	0.17	3300	0.27	2650	0.27	735	0.17
20	1150	0.19	850	0.19	1550	0.28	1150	0.28	590	0.20	2650	0.31	2150	0.31	590	0.20

N = R.P.M

S = Feed per Revolution (mm/rev.)

CARBIDE

HSS

 I-DREAM
DRILLS

 DREAM
DRILLS
-GENERAL

 DREAM
DRILLS
-INOX

 DREAM
DRILLS
-MQL TYPE

 DREAM
DRILLS
for HARDENED
STEELS

 GENERAL
CARBIDE
DRILLS

 NC-SPOTTING
DRILLS

 MULTI-1
DRILLS

HPD DRILLS

 GOLD-P
DRILLS

 WORM
PATTERN
DRILLS

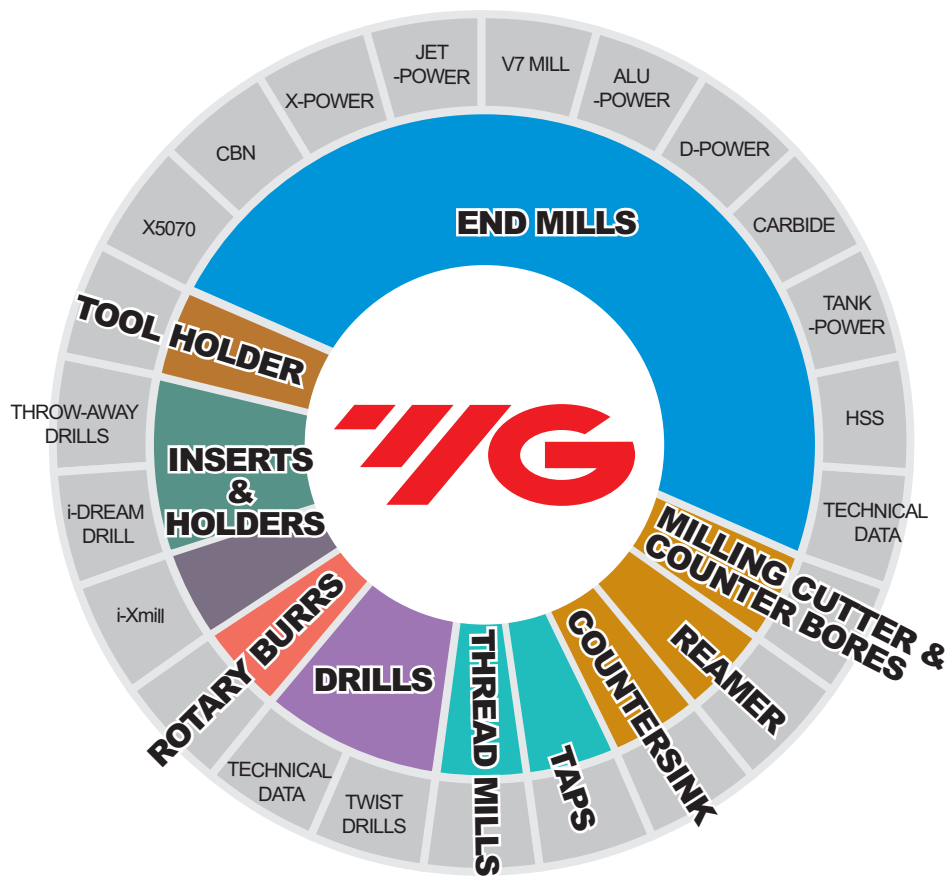
 STRAIGHT
SHANK
DRILLS

 TAPER
SHANK
DRILLS

 NC-SPOTTING
DRILLS

 CENTER
DRILLS

 SPADE
DRILLS



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



MULTI-1 DRILLS

MULTI-1 BOHRER



- HSS-PM MULTI-1 DRILLS
Multi Purpose Drilling. Particularly for Stainless Steels
- HSS-PM MULTI-1 BOHRER
Mehrzweckbohrer. Besonders für rostfreien Stahl

SELECTION GUIDE

PREMIUM HSS-PM MULTI-1 DRILLS

Premium HSS-PM Drills for wide range of applications

- Carbon Steels, Alloy Steels, Stainless steels, etc

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
CDRA03		PREMIUM HSS-PM MULTI-1 DRILLS PREMIUM HSS-PM MULTI-1 SPIRALBOHRER <i>STUB EXTRA KURZ</i>	D1.0	D13.0	102
CDRA04		PREMIUM HSS-PM MULTI-1 DRILLS PREMIUM HSS-PM MULTI-1 SPIRALBOHRER <i>JOBBER KURZ</i>	D2.0	D13.0	104
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					106

HSS-PM MULTI-1 DRILLS

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○		◎		
◎	◎	○			○	○	○		◎		



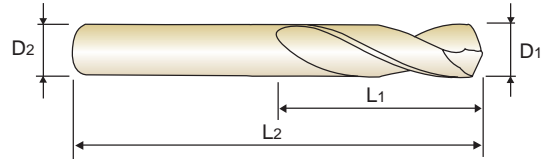
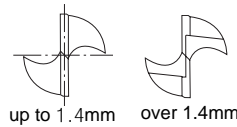
PREMIUM HSS-PM MULTI-1 DRILLS
PREMIUM HSS-PM MULTI-1 BROHER

STUB

EXTRA KURZ

- ▶ **Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, stainless steels, Hardened steels(HRC30~45), Cast iron, Aluminum alloys, Nonferrous alloys.
- ▶ **Advantage** : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

- ▶ **Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRC 30 – 45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen.
- ▶ **Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



up to 1.9mm over 1.9mm

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
CDRA03010	1.0	3	6	38	CDRA03041	4.1	6	22	66
CDRA03011	1.1	3	7	39	CDRA03042	4.2	6	22	66
CDRA03012	1.2	3	8	40	CDRA03043	4.3	6	24	68
CDRA03013	1.3	3	8	40	CDRA03044	4.4	6	24	68
CDRA03014	1.4	3	9	41	CDRA03045	4.5	6	24	68
CDRA03015	1.5	3	9	41	CDRA03046	4.6	6	24	68
CDRA03016	1.6	3	10	42	CDRA03047	4.7	6	24	68
CDRA03017	1.7	3	10	42	CDRA03048	4.8	6	26	70
CDRA03018	1.8	3	11	43	CDRA03049	4.9	6	26	70
CDRA03019	1.9	3	11	43	CDRA03050	5.0	6	26	70
CDRA03020	2.0	3	12	44	CDRA03051	5.1	6	26	70
CDRA03021	2.1	3	12	44	CDRA03052	5.2	6	26	70
CDRA03022	2.2	3	13	45	CDRA03053	5.3	6	26	70
CDRA03023	2.3	3	13	45	CDRA03054	5.4	6	28	72
CDRA03024	2.4	3	14	46	CDRA03055	5.5	6	28	72
CDRA03025	2.5	3	14	46	CDRA03056	5.6	6	28	72
CDRA03026	2.6	3	14	46	CDRA03057	5.7	6	28	72
CDRA03027	2.7	3	16	48	CDRA03058	5.8	6	28	72
CDRA03028	2.8	3	16	48	CDRA03059	5.9	6	28	72
CDRA03029	2.9	3	16	48	CDRA03060	6.0	6	28	72
CDRA03030	3.0	3	16	48	CDRA03061	6.1	8	31	75
CDRA03031	3.1	4	18	50	CDRA03062	6.2	8	31	75
CDRA03032	3.2	4	18	50	CDRA03063	6.3	8	31	75
CDRA03033	3.3	4	18	50	CDRA03064	6.4	8	31	75
CDRA03034	3.4	4	20	52	CDRA03065	6.5	8	31	75
CDRA03035	3.5	4	20	52	CDRA03066	6.6	8	31	75
CDRA03036	3.6	4	20	52	CDRA03067	6.7	8	31	75
CDRA03037	3.7	4	20	52	CDRA03068	6.8	8	34	78
CDRA03038	3.8	4	22	54	CDRA03069	6.9	8	34	78
CDRA03039	3.9	4	22	54	CDRA03070	7.0	8	34	78
CDRA03040	4.0	4	22	54	CDRA03071	7.1	8	34	78

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○	○	○		◎		



MULTI-1 DRILLS

CDRA03 SERIES

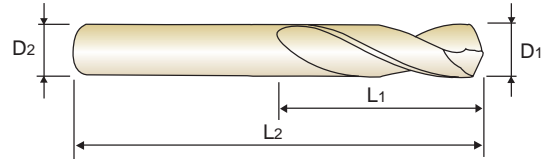
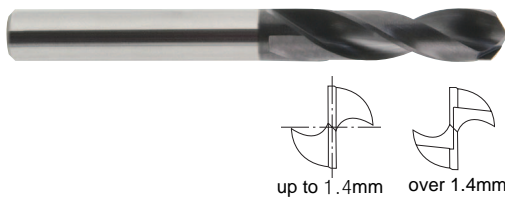
PREMIUM HSS-PM MULTI-1 DRILLS PREMIUM HSS-PM MULTI-1 BROHER

STUB

EXTRA KURZ

- **Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, stainless steels, Hardened steels(HRC30~45), Cast iron, Aluminum alloys, Nonferrous alloys.
- **Advantage** : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

- **Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRC 30 – 45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen.
- **Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



up to 1.9mm over 1.9mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03072	7.2	8	34	78
CDRA03073	7.3	8	34	78
CDRA03074	7.4	8	34	78
CDRA03075	7.5	8	34	78
CDRA03076	7.6	8	37	81
CDRA03077	7.7	8	37	81
CDRA03078	7.8	8	37	81
CDRA03079	7.9	8	37	81
CDRA03080	8.0	8	37	81
CDRA03081	8.1	10	37	87
CDRA03082	8.2	10	37	87
CDRA03083	8.3	10	37	87
CDRA03084	8.4	10	37	87
CDRA03085	8.5	10	37	87
CDRA03086	8.6	10	40	90
CDRA03087	8.7	10	40	90
CDRA03088	8.8	10	40	90
CDRA03089	8.9	10	40	90
CDRA03090	9.0	10	40	90
CDRA03091	9.1	10	40	90
CDRA03092	9.2	10	40	90
CDRA03093	9.3	10	40	90
CDRA03094	9.4	10	40	90
CDRA03095	9.5	10	40	90
CDRA03096	9.6	10	43	93
CDRA03097	9.7	10	43	93
CDRA03098	9.8	10	43	93
CDRA03099	9.9	10	43	93
CDRA03100	10.0	10	43	93
CDRA03101	10.1	12	43	100

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2
CDRA03102	10.2	12	43	100
CDRA03103	10.3	12	43	100
CDRA03104	10.4	12	43	100
CDRA03105	10.5	12	43	100
CDRA03106	10.6	12	43	100
CDRA03107	10.7	12	47	104
CDRA03108	10.8	12	47	104
CDRA03109	10.9	12	47	104
CDRA03110	11.0	12	47	104
CDRA03111	11.1	12	47	104
CDRA03112	11.2	12	47	104
CDRA03113	11.3	12	47	104
CDRA03114	11.4	12	47	104
CDRA03115	11.5	12	47	104
CDRA03116	11.6	12	47	104
CDRA03117	11.7	12	47	104
CDRA03118	11.8	12	47	104
CDRA03119	11.9	12	51	108
CDRA03120	12.0	12	51	108
CDRA03121	12.1	12	51	108
CDRA03122	12.2	12	51	108
CDRA03123	12.3	12	51	108
CDRA03124	12.4	12	51	108
CDRA03125	12.5	12	51	108
CDRA03126	12.6	12	51	108
CDRA03127	12.7	12	51	108
CDRA03128	12.8	12	51	108
CDRA03129	12.9	12	51	108
CDRA03130	13.0	12	51	108

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○	○	○		◎		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



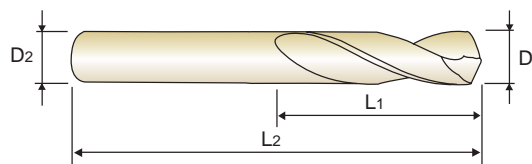
PREMIUM HSS-PM MULTI-1 DRILLS
PREMIUM HSS-PM MULTI-1 BROHER

JOBBER

KURZ

- **Application** : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, stainless steels, Hardened steels(HRc30~45), Cast iron, Aluminum alloys, Nonferrous alloys.
- **Advantage** : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

- **Anwendung** : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRc 30 – 45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen.
- **Vorteile** : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
CDRA04020	2.0	3	24	56	CDRA04048	4.8	6	52	94
CDRA04021	2.1	3	24	56	CDRA04049	4.9	6	52	94
CDRA04022	2.2	3	25	56	CDRA04050	5.0	6	52	94
CDRA04023	2.3	3	25	56	CDRA04051	5.1	6	52	94
CDRA04024	2.4	3	30	61	CDRA04052	5.2	6	52	94
CDRA04025	2.5	3	30	61	CDRA04053	5.3	6	52	94
CDRA04026	2.6	3	30	61	CDRA04054	5.4	6	57	99
CDRA04027	2.7	3	33	64	CDRA04055	5.5	6	57	99
CDRA04028	2.8	3	33	64	CDRA04056	5.6	6	57	99
CDRA04029	2.9	3	33	64	CDRA04057	5.7	6	57	99
CDRA04030	3.0	3	33	64	CDRA04058	5.8	6	57	99
CDRA04031	3.1	4	36	68	CDRA04059	5.9	6	57	99
CDRA04032	3.2	4	36	68	CDRA04060	6.0	6	57	99
CDRA04033	3.3	4	36	68	CDRA04061	6.1	8	63	107
CDRA04034	3.4	4	39	71	CDRA04062	6.2	8	63	107
CDRA04035	3.5	4	39	71	CDRA04063	6.3	8	63	107
CDRA04036	3.6	4	39	71	CDRA04064	6.4	8	63	107
CDRA04037	3.7	4	39	71	CDRA04065	6.5	8	63	107
CDRA04038	3.8	4	43	75	CDRA04066	6.6	8	63	107
CDRA04039	3.9	4	43	75	CDRA04067	6.7	8	63	107
CDRA04040	4.0	4	43	75	CDRA04068	6.8	8	69	113
CDRA04041	4.1	6	43	85	CDRA04069	6.9	8	69	113
CDRA04042	4.2	6	43	85	CDRA04070	7.0	8	69	113
CDRA04043	4.3	6	47	89	CDRA04071	7.1	8	69	113
CDRA04044	4.4	6	47	89	CDRA04072	7.2	8	69	113
CDRA04045	4.5	6	47	89	CDRA04073	7.3	8	69	113
CDRA04046	4.6	6	47	89	CDRA04074	7.4	8	69	113
CDRA04047	4.7	6	47	89	CDRA04075	7.5	8	69	113

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○		◎		



MULTI-1 DRILLS

CDRA04 SERIES

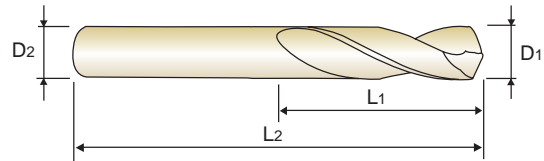
PREMIUM HSS-PM MULTI-1 DRILLS PREMIUM HSS-PM MULTI-1 BROHER

JOBBER

KURZ

- ▶ Application : Structural steels, Carbon steels, Alloy steels, Pre-hardened steels, Mold steels, stainless steels, Hardened steels(HRC30~45), Cast iron, Aluminum alloys, Nonferrous alloys.
- ▶ Advantage : Point shape to maximize self-centering. Flute design for the best chip evacuation. Premium powder materials with excellent toughness.

- ▶ Anwendung : Baustähle, Kohlenstoffstähle, legierte Stähle, vorgehärtete Stähle, Formstähle, rostfreie Stähle, gehärtete Stähle (HRC 30 – 45), Gusseisen, Aluminiumlegierungen, Nichteisen Legierungen.
- ▶ Vorteile : Maximale Selbstzentrierung durch besonderen Spitzenanschliff. Bohrergeometrie für optimale Spanabfuhr. Premium Pulverstahl mit ausgezeichneter Zähigkeit.



P.106

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Shank Diameter	Flute Length	Overall Length
TiAlN	D1	D2	L1	L2	TiAlN	D1	D2	L1	L2
CDRA04076	7.6	8	75	119	CDRA04104	10.4	12	87	144
CDRA04077	7.7	8	75	119	CDRA04105	10.5	12	87	144
CDRA04078	7.8	8	75	119	CDRA04106	10.6	12	87	144
CDRA04079	7.9	8	75	119	CDRA04107	10.7	12	94	151
CDRA04080	8.0	8	75	119	CDRA04108	10.8	12	94	151
CDRA04081	8.1	10	75	125	CDRA04109	10.9	12	94	151
CDRA04082	8.2	10	75	125	CDRA04110	11.0	12	94	151
CDRA04083	8.3	10	75	125	CDRA04111	11.1	12	94	151
CDRA04084	8.4	10	75	125	CDRA04112	11.2	12	94	151
CDRA04085	8.5	10	75	125	CDRA04113	11.3	12	94	151
CDRA04086	8.6	10	81	131	CDRA04114	11.4	12	94	151
CDRA04087	8.7	10	81	131	CDRA04115	11.5	12	94	151
CDRA04088	8.8	10	81	131	CDRA04116	11.6	12	94	151
CDRA04089	8.9	10	81	131	CDRA04117	11.7	12	94	151
CDRA04090	9.0	10	81	131	CDRA04118	11.8	12	94	151
CDRA04091	9.1	10	81	131	CDRA04119	11.9	12	101	158
CDRA04092	9.2	10	81	131	CDRA04120	12.0	12	101	158
CDRA04093	9.3	10	81	131	CDRA04121	12.1	12	101	158
CDRA04094	9.4	10	81	131	CDRA04122	12.2	12	101	158
CDRA04095	9.5	10	81	131	CDRA04123	12.3	12	101	158
CDRA04096	9.6	10	87	137	CDRA04124	12.4	12	101	158
CDRA04097	9.7	10	87	137	CDRA04125	12.5	12	101	158
CDRA04098	9.8	10	87	137	CDRA04126	12.6	12	101	158
CDRA04099	9.9	10	87	137	CDRA04127	12.7	12	101	158
CDRA04100	10.0	10	87	137	CDRA04128	12.8	12	101	158
CDRA04101	10.1	12	87	144	CDRA04129	12.9	12	101	158
CDRA04102	10.2	12	87	144	CDRA04130	13.0	12	101	158
CDRA04103	10.3	12	87	144					

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○	○	○		◎		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



PREMIUM HSS-PM MULTI-1 DRILLS, TiAIN COATED

PREMIUM HSS-PM MULTI-1 BROHER, TiAIN-BESCHICHTET

CDRA03 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS		ALLOY STEELS PRE-HARDENED STEELS		CAST IRON		ALUMINUM ALLOYS NONFERROUS ALLOYS		MOLD STEELS, HARDENED STEELS (HRc30~45) STAINLESS STEELS (SUS304, 200)		STAINLESS STEELS (SUS420, 440)		
	DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
2.0	5800	0.06	4700	0.05	6500	0.08	10500	0.17	2600	0.04	3100	0.08	
3.0	4300	0.12	3500	0.09	4900	0.14	10500	0.27	1800	0.05	2100	0.09	
4.0	3200	0.15	2600	0.13	3600	0.18	8000	0.33	1300	0.07	1600	0.11	
5.0	2600	0.18	2100	0.16	2900	0.21	6500	0.39	1050	0.09	1250	0.17	
6.0	2100	0.20	1700	0.18	2400	0.25	5200	0.46	900	0.10	1050	0.19	
8.0	1600	0.24	1300	0.20	1800	0.29	4200	0.51	650	0.14	800	0.26	
10.0	1300	0.27	1000	0.24	1500	0.32	3400	0.61	550	0.17	630	0.33	
12.0	1100	0.29	850	0.26	1200	0.36	2700	0.73	450	0.20	530	0.39	

N = R.P.M

S = Feed per Revolution (mm/rev.)

PREMIUM HSS-PM MULTI-1 DRILLS, TiAIN COATED

PREMIUM HSS-PM MULTI-1 BROHER, TiAIN-BESCHICHTET

CDRA04 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS		ALLOY STEELS PRE-HARDENED STEELS		CAST IRON		ALUMINUM ALLOYS NONFERROUS ALLOYS		MOLD STEELS, HARDENED STEELS (HRc30~45) STAINLESS STEELS (SUS304, 200)		STAINLESS STEELS (SUS420, 440)		
	DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
2.0	5800	0.05	4700	0.04	6500	0.07	10500	0.14	2600	0.03	3100	0.07	
3.0	4300	0.10	3500	0.08	4900	0.12	10500	0.23	1800	0.04	2100	0.08	
4.0	3200	0.13	2600	0.11	3600	0.15	8000	0.28	1300	0.06	1600	0.09	
5.0	2600	0.15	2100	0.14	2900	0.18	6500	0.33	1050	0.08	1250	0.14	
6.0	2100	0.17	1700	0.15	2400	0.21	5200	0.39	900	0.09	1050	0.16	
8.0	1600	0.20	1300	0.17	1800	0.25	4200	0.43	650	0.12	800	0.22	
10.0	1300	0.23	1000	0.20	1500	0.27	3400	0.52	550	0.14	630	0.28	
12.0	1100	0.25	850	0.22	1200	0.31	2700	0.62	450	0.17	530	0.33	

N = R.P.M

S = Feed per Revolution (mm/rev.)

HSS



Being the best through innovation



HPD DRILLS

HPD BOHRER





- PREMIUM HSS HPD STRAIGHT SHANK DRILLS
General Steels and Stainless Steels
- PREMIUM-HSS HPD ZYLINDERSCHAFT BOHRER
Für normale und rostfreie Stähle

SELECTION GUIDE

HPD - HIGH PERFORMANCE DRILLS

HPD Drills for High precision drilling in general steels.

HPD-SUS Drills for High precision drilling in Stainless steels

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
D4541		PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS <i>STUB</i> PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE <i>EXTRA KURZ</i>	D2.0	D13.0	110
D4542		PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS <i>JOBBER</i> PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE <i>KURZ</i>	D2.0	D32.0	114
DJ543		HSS-EX, HPD-SUS DRILLS for STAINLESS STEELS <i>STUB</i> HSS-EX, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE <i>EXTRA KURZ</i>	D2.0	D13.0	119
DJ544		HSS-EX, HPD-SUS DRILLS for STAINLESS STEELS <i>JOBBER</i> HSS-EX, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE <i>KURZ</i>	D2.0	D20.0	121
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					124

PREMIUM HSS HPD STRAIGHT SHANK DRILLS

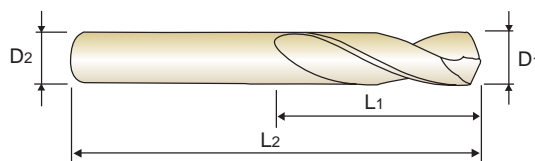
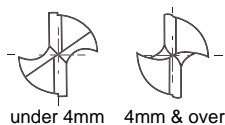
◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			
◎	◎	○			○	○	○	○			
◎						○	◎	○	○	○	
◎						○	◎	○	○	○	

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS *STUB*
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE *EXTRA KURZ*

- **Application** : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity

- **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4541020	2.0	12	44	D4541032	3.2	18	50
D4541920	2.05	12	44	D4541932	3.25	18	50
D4541021	2.1	12	44	D4541033	3.3	18	50
D4541921	2.15	13	45	D4541933	3.35	18	50
D4541022	2.2	13	45	D4541034	3.4	20	52
D4541922	2.25	13	45	D4541934	3.45	20	52
D4541023	2.3	13	45	D4541035	3.5	20	52
D4541923	2.35	13	45	D4541935	3.55	20	52
D4541024	2.4	14	46	D4541036	3.6	20	52
D4541924	2.45	14	46	D4541936	3.65	20	52
D4541025	2.5	14	46	D4541037	3.7	20	52
D4541925	2.55	14	46	D4541937	3.75	20	52
D4541026	2.6	14	46	D4541038	3.8	22	54
D4541926	2.65	14	46	D4541938	3.85	22	54
D4541027	2.7	16	48	D4541039	3.9	22	54
D4541927	2.75	16	48	D4541939	3.95	22	54
D4541028	2.8	16	48	D4541040	4.0	22	54
D4541928	2.85	16	48	D4541940	4.05	22	66
D4541029	2.9	16	48	D4541041	4.1	22	66
D4541929	2.95	16	48	D4541941	4.15	22	66
D4541030	3.0	16	48	D4541042	4.2	22	66
D4541930	3.05	18	50	D4541942	4.25	22	66
D4541031	3.1	18	50	D4541043	4.3	24	68
D4541931	3.15	18	50	D4541943	4.35	24	68

► TiCN(D7541), TiAlN(DQ541) are available on your request.

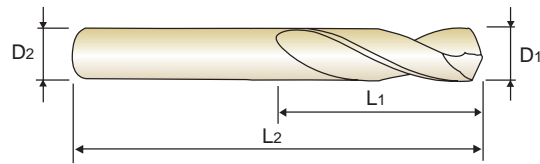
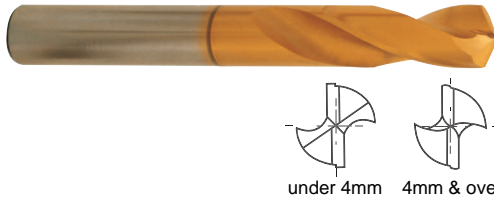
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS STUB PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE EXTRA KURZ

- **Application** : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.
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- **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4541044	4.4	24	68	D4541056	5.6	28	72
D4541944	4.45	24	68	D4541956	5.65	28	72
D4541045	4.5	24	68	D4541057	5.7	28	72
D4541945	4.55	24	68	D4541957	5.75	28	72
D4541046	4.6	24	68	D4541058	5.8	28	72
D4541946	4.65	24	68	D4541958	5.85	28	72
D4541047	4.7	24	68	D4541059	5.9	28	72
D4541947	4.75	24	68	D4541959	5.95	28	72
D4541048	4.8	26	70	D4541060	6.0	28	72
D4541948	4.85	26	70	D4541061	6.1	31	75
D4541049	4.9	26	70	D4541062	6.2	31	75
D4541949	4.95	26	70	D4541063	6.3	31	75
D4541050	5.0	26	70	D4541064	6.4	31	75
D4541950	5.05	26	70	D4541065	6.5	31	75
D4541051	5.1	26	70	D4541965	6.55	31	75
D4541951	5.15	26	70	D4541066	6.6	31	75
D4541052	5.2	26	70	D4541966	6.65	31	75
D4541952	5.25	26	70	D4541067	6.7	31	75
D4541053	5.3	26	70	D4541068	6.8	34	78
D4541953	5.35	28	72	D4541069	6.9	34	78
D4541054	5.4	28	72	D4541070	7.0	34	78
D4541954	5.45	28	72	D4541071	7.1	34	78
D4541055	5.5	28	72	D4541072	7.2	34	78
D4541955	5.55	28	72	D4541073	7.3	34	78

► TiCN(D7541), TiAlN(DQ541) are available on your request.

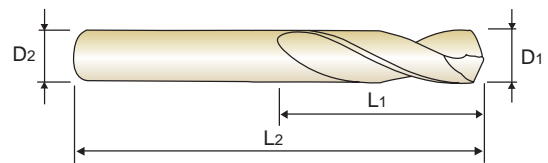
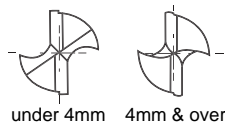
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS *STUB*
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE *EXTRA KURZ*

- **Application** : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity

- **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4541973	7.35	34	78	D4541092	9.2	40	90
D4541074	7.4	34	78	D4541992	9.25	40	90
D4541075	7.5	34	78	D4541093	9.3	40	90
D4541975	7.55	37	81	D4541993	9.35	40	90
D4541076	7.6	37	81	D4541094	9.4	40	90
D4541976	7.65	37	81	D4541994	9.45	40	90
D4541077	7.7	37	81	D4541095	9.5	40	90
D4541078	7.8	37	81	D4541995	9.55	43	93
D4541079	7.9	37	81	D4541096	9.6	43	93
D4541080	8.0	37	81	D4541996	9.65	43	93
D4541081	8.1	37	87	D4541097	9.7	43	93
D4541082	8.2	37	87	D4541098	9.8	43	93
D4541083	8.3	37	87	D4541099	9.9	43	93
D4541983	8.35	37	87	D4541999	9.95	43	93
D4541084	8.4	37	87	D4541100	10.0	43	93
D4541085	8.5	37	87	D4541101	10.1	43	100
D4541985	8.55	40	90	D4541102	10.2	43	100
D4541086	8.6	40	90	D4541802	10.25	43	100
D4541986	8.65	40	90	D4541103	10.3	43	100
D4541087	8.7	40	90	D4541803	10.35	43	100
D4541088	8.8	40	90	D4541104	10.4	43	100
D4541089	8.9	40	90	D4541105	10.5	43	100
D4541090	9.0	40	90	D4541805	10.55	43	100
D4541091	9.1	40	90	D4541106	10.6	43	100

► TiCN(D7541), TiAlN(DQ541) are available on your request.

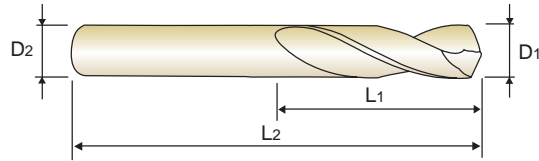
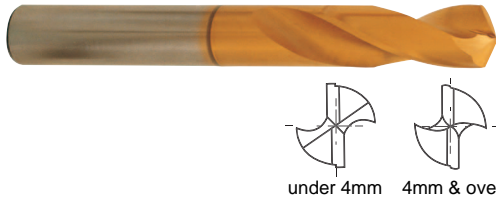
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS STUB PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE EXTRA KURZ

- ▶ **Application** : Designed for accurate drilling on NC/CNC machines. Drilling hard and tough materials, alloyed tool steels, inconel, nimonic, cast iron, aluminum die casting, etc.
- ▶ **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and stub length - increasing rigidity, reducing vibration and deflection. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity

- ▶ **Anwendung** : Für präzises Bohren mit NC/CNC Maschinen, geeignet zum Bearbeiten von harten und zähen Werkstücken, Legierungen, Werkzeugstahl, Nimonic, Inconel, Gusseisen, Aluminium-Guss usw.
- ▶ **Vorteile** : Durch Kreuzanschliff gute Spanentfernung, reduzierter Druck, verbesserte Genauigkeit, selbstzentriert, extra kurze Ausführung, verbesserte Stabilität, weniger Vibrationen und Abdrängung, Premium Kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4541806	10.65	47	104	D4541117	11.7	47	104
D4541107	10.7	47	104	D4541118	11.8	47	104
D4541108	10.8	47	104	D4541119	11.9	51	108
D4541109	10.9	47	104	D4541120	12.0	51	108
D4541809	10.95	47	104	D4541121	12.1	51	108
D4541110	11.0	47	104	D4541122	12.2	51	108
D4541111	11.1	47	104	D4541123	12.3	51	108
D4541112	11.2	47	104	D4541124	12.4	51	108
D4541812	11.25	47	104	D4541125	12.5	51	108
D4541113	11.3	47	104	D4541126	12.6	51	108
D4541813	11.35	47	104	D4541127	12.7	51	108
D4541114	11.4	47	104	D4541128	12.8	51	108
D4541115	11.5	47	104	D4541129	12.9	51	108
D4541815	11.55	47	104	D4541130	13.0	51	108
D4541116	11.6	47	104				

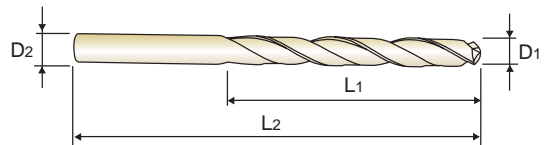
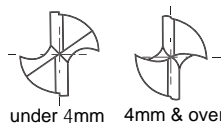
▶ TiCN(D7541), TiAlN(DQ541) are available on your request.

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS **JOBBER**
PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE **KURZ**

- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D-5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~ 5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



D1=D2

up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4542020	2.0	124	56	D4542932	3.25	36	68
D4542920	2.05	24	56	D4542033	3.3	36	68
D4542021	2.1	24	56	D4542933	3.35	36	68
D4542921	2.15	27	59	D4542034	3.4	39	71
D4542022	2.2	27	59	D4542934	3.45	39	71
D4542922	2.25	27	59	D4542035	3.5	39	71
D4542023	2.3	27	59	D4542935	3.55	39	71
D4542923	2.35	27	59	D4542036	3.6	39	71
D4542024	2.4	30	62	D4542936	3.65	39	71
D4542924	2.45	30	62	D4542037	3.7	39	71
D4542025	2.5	30	62	D4542937	3.75	39	71
D4542925	2.55	30	62	D4542038	3.8	43	75
D4542026	2.6	30	62	D4542938	3.85	43	75
D4542926	2.65	30	62	D4542039	3.9	43	75
D4542027	2.7	33	65	D4542939	3.95	43	75
D4542927	2.75	33	65	D4542040	4.0	43	75
D4542028	2.8	33	65	D4542940	4.05	43	87
D4542928	2.85	33	65	D4542041	4.1	43	87
D4542029	2.9	33	65	D4542941	4.15	43	87
D4542929	2.95	33	65	D4542042	4.2	43	87
D4542030	3.0	33	65	D4542942	4.25	43	87
D4542930	3.05	36	68	D4542043	4.3	47	91
D4542031	3.1	36	68	D4542943	4.35	47	91
D4542931	3.15	36	68	D4542044	4.4	47	91
D4542032	3.2	36	68	D4542944	4.45	47	91

► TiCN(D7542), TiAlN(DQ542) are available on your request.

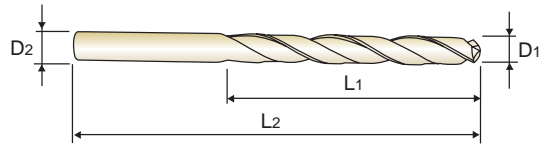
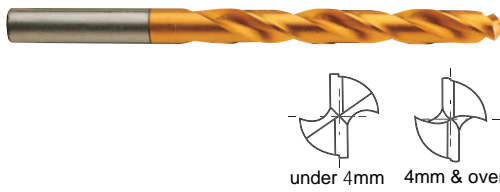
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS JOBBER PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE KURZ

- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D-5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~ 5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



PREMIUM HSS-Co
N 30°
h7
h6
h8
130°
P.124
D1=D2

up to 13mm over 13mm Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4542045	4.5	47	91	D4542957	5.75	57	101
D4542945	4.55	47	91	D4542058	5.8	57	101
D4542046	4.6	47	91	D4542958	5.85	57	101
D4542946	4.65	47	91	D4542059	5.9	57	101
D4542047	4.7	47	91	D4542959	5.95	57	101
D4542947	4.75	47	91	D4542060	6.0	57	101
D4542048	4.8	52	96	D4542960	6.05	63	107
D4542948	4.85	52	96	D4542061	6.1	63	107
D4542049	4.9	52	96	D4542961	6.15	63	107
D4542949	4.95	52	96	D4542062	6.2	63	107
D4542050	5.0	52	96	D4542962	6.25	63	107
D4542950	5.05	52	96	D4542063	6.3	63	107
D4542051	5.1	52	96	D4542963	6.35	63	107
D4542951	5.15	52	96	D4542064	6.4	63	107
D4542052	5.2	52	96	D4542964	6.45	63	107
D4542952	5.25	52	96	D4542065	6.5	63	107
D4542053	5.3	52	96	D4542965	6.55	63	107
D4542953	5.35	57	101	D4542066	6.6	63	107
D4542054	5.4	57	101	D4542966	6.65	63	107
D4542954	5.45	57	101	D4542067	6.7	63	107
D4542055	5.5	57	101	D4542967	6.75	69	113
D4542955	5.55	57	101	D4542068	6.8	69	113
D4542056	5.6	57	101	D4542968	6.85	69	113
D4542956	5.65	57	101	D4542069	6.9	69	113
D4542057	5.7	57	101	D4542969	6.95	69	113

► TiCN(D7542), TiAlN(DQ542) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS

JOBBER

PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE

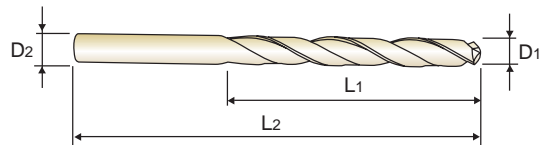
KURZ

- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D-5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~ 5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



under 4mm 4mm & over



D1=D2

up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4542070	7.0	69	113	D4542982	8.25	75	125
D4542970	7.05	69	113	D4542083	8.3	75	125
D4542071	7.1	69	113	D4542983	8.35	75	125
D4542971	7.15	69	113	D4542084	8.4	75	125
D4542072	7.2	69	113	D4542984	8.45	75	125
D4542972	7.25	69	113	D4542085	8.5	75	125
D4542073	7.3	69	113	D4542985	8.55	81	131
D4542973	7.35	69	113	D4542086	8.6	81	131
D4542074	7.4	69	113	D4542986	8.65	81	131
D4542974	7.45	69	113	D4542087	8.7	81	131
D4542075	7.5	69	113	D4542987	8.75	81	131
D4542975	7.55	75	119	D4542088	8.8	81	131
D4542076	7.6	75	119	D4542988	8.85	81	131
D4542976	7.65	75	119	D4542089	8.9	81	131
D4542077	7.7	75	119	D4542989	8.95	81	131
D4542977	7.75	75	119	D4542090	9.0	81	131
D4542078	7.8	75	119	D4542990	9.05	81	131
D4542978	7.85	75	119	D4542091	9.1	81	131
D4542079	7.9	75	119	D4542991	9.15	81	131
D4542979	7.95	75	119	D4542092	9.2	81	131
D4542080	8.0	75	119	D4542992	9.25	81	131
D4542980	8.05	75	125	D4542093	9.3	81	131
D4542081	8.1	75	125	D4542993	9.35	81	131
D4542981	8.15	75	125	D4542094	9.4	81	131
D4542082	8.2	75	125	D4542994	9.45	81	131

► TiCN(D7542), TiAlN(DQ542) are available on your request.

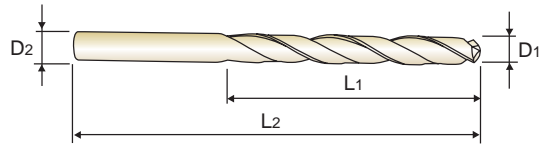
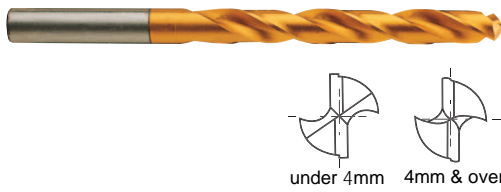
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS JOBBER PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE KURZ

- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.
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PREMIUM HSS-Co
N 30°
h7
h6
h8
130°
P.124
D1=D2

up to 13mm over 13mm Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4542095	9.5	81	131	D4542807	10.75	94	151
D4542995	9.55	87	137	D4542108	10.8	94	151
D4542096	9.6	87	137	D4542808	10.85	94	151
D4542996	9.65	87	137	D4542109	10.9	94	151
D4542097	9.7	87	137	D4542809	10.95	94	151
D4542997	9.75	87	137	D4542110	11.0	94	151
D4542098	9.8	87	137	D4542810	11.05	94	151
D4542998	9.85	87	137	D4542111	11.1	94	151
D4542099	9.9	87	137	D4542811	11.15	94	151
D4542999	9.95	87	137	D4542112	11.2	94	151
D4542100	10.0	87	137	D4542812	11.25	94	151
D4542800	10.05	87	144	D4542113	11.3	94	151
D4542101	10.1	87	144	D4542813	11.35	94	151
D4542801	10.15	87	144	D4542114	11.4	94	151
D4542102	10.2	87	144	D4542814	11.45	94	151
D4542802	10.25	87	144	D4542115	11.5	94	151
D4542103	10.3	87	144	D4542815	11.55	94	151
D4542803	10.35	87	144	D4542116	11.6	94	151
D4542104	10.4	87	144	D4542816	11.65	94	151
D4542804	10.45	87	144	D4542117	11.7	94	151
D4542105	10.5	87	144	D4542817	11.75	94	151
D4542805	10.55	87	144	D4542118	11.8	94	151
D4542106	10.6	87	144	D4542818	11.85	101	158
D4542806	10.65	94	151	D4542119	11.9	101	158
D4542107	10.7	94	151	D4542819	11.95	101	158

► TiCN(D7542), TiAlN(DQ542) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

PREMIUM HSS COBALT, HPD TWIST DRILLS for STEELS

JOBBER

PREMIUM HSS KOBALT, HPD SPIRALBOHRER für STÄHLE

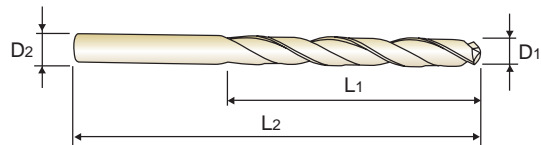
KURZ

- **Application** : Designed for high speed non-step 4D ~ 5D drilling. Drilling mild steels, cast iron, aluminum, alloyed tool steels, etc.
- **Advantage** : Helical thinning - good chip removal, self-centering, reducing thrust and improving accuracy. Reinforced web and jobbers length - increasing rigidity and suitable for 4D-5D drilling. Premium Cobalt HSS with superior TiN coating - higher speed and feed, longer tool life. High quality & good surface finish, high productivity.

- **Anwendung** : Zum Hochgeschwindigkeitsbohren 4D~ 5D Bohrtiefe geeignet zum Bearbeiten von Stahl, Gusseisen, Aluminium, Legierungen, Werkzeugstahl, usw.
- **Vorteile** : Gute Spanabfuhr, selbstzentriert, geringere Abdrängung und verbesserte Genauigkeit, kurze Ausführung, verbesserte Stabilität, zum Bearbeiten von Premium kobalt HSS mit hochwertiger TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



under 4mm 4mm & over



D1=D2

up to 13mm over 13mm

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
D4542120	12.0	101	158	D4542190	19.0	118	194
D4542121	12.1	101	158	D4542195	19.5	125	201
D4542122	12.2	101	158	D4542196	19.6	125	201
D4542123	12.3	101	158	D4542200	20.0	125	201
D4542124	12.4	101	158	D4542205	20.5	128	204
D4542125	12.5	101	158	D4542210	21.0	128	204
D4542126	12.6	101	158	D4542211	21.1	128	204
D4542127	12.7	101	158	D4542215	21.5	132	208
D4542128	12.8	101	158	D4542220	22.0	132	208
D4542129	12.9	101	158	D4542225	22.5	136	212
D4542130	13.0	101	158	D4542230	23.0	136	212
D4542135	13.5	90	150	D4542235	23.5	136	212
D4542140	14.0	90	150	D4542240	24.0	140	220
D4542141	14.1	95	155	D4542245	24.5	140	220
D4542145	14.5	95	155	D4542250	25.0	140	220
D4542150	15.0	95	161	D4542255	25.5	145	225
D4542155	15.5	100	166	D4542260	26.0	145	225
D4542156	15.6	100	166	D4542265	26.5	145	225
D4542160	16.0	100	166	D4542270	27.0	150	230
D4542165	16.5	106	172	D4542280	28.0	150	230
D4542170	17.0	106	172	D4542290	29.0	155	235
D4542175	17.5	112	178	D4542300	30.0	155	235
D4542176	17.6	112	178	D4542310	31.0	160	240
D4542180	18.0	112	178	D4542320	32.0	165	245
D4542185	18.5	118	184				

► TiCN(D7542), TiAlN(DQ542) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○	○			

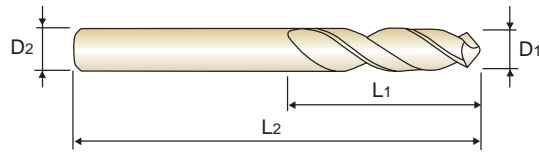
HSS-EX, HPD-SUS TWIST DRILLS for STAINLESS STEELS *STUB* HSS-EX, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE *EXTRA KURZ*

- ▶ **Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.
- ▶ **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
 Wide flute and stub length-increasing chip removal and reducing vibration and deflection.
 High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer tool life
 High quality & good surface finish, high productivity.

- ▶ **Anwendung** : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.
- ▶ **Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



four facet



for STAINLESS STEELS
für rostfreier Stähle

HSS EX
W 38°
h7
h8
130°
120°
P.124

up to 4mm over 4mm

D1=D2

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
DJ543020	2.0	12	44	DJ543048	4.8	26	70
DJ543021	2.1	12	44	DJ543049	4.9	26	70
DJ543022	2.2	13	45	DJ543050	5.0	26	70
DJ543023	2.3	13	45	DJ543051	5.1	26	70
DJ543024	2.4	14	46	DJ543052	5.2	26	70
DJ543025	2.5	14	46	DJ543053	5.3	26	70
DJ543026	2.6	14	46	DJ543054	5.4	28	72
DJ543027	2.7	16	48	DJ543055	5.5	28	72
DJ543028	2.8	16	48	DJ543056	5.6	28	72
DJ543029	2.9	16	48	DJ543057	5.7	28	72
DJ543030	3.0	16	48	DJ543058	5.8	28	72
DJ543031	3.1	18	50	DJ543059	5.9	28	72
DJ543032	3.2	18	50	DJ543060	6.0	28	72
DJ543033	3.3	18	50	DJ543061	6.1	31	75
DJ543034	3.4	20	52	DJ543062	6.2	31	75
DJ543035	3.5	20	52	DJ543063	6.3	31	75
DJ543036	3.6	20	52	DJ543064	6.4	31	75
DJ543037	3.7	20	52	DJ543065	6.5	31	75
DJ543038	3.8	22	54	DJ543066	6.6	31	75
DJ543039	3.9	22	54	DJ543067	6.7	31	75
DJ543040	4.0	22	54	DJ543068	6.8	34	78
DJ543041	4.1	22	66	DJ543069	6.9	34	78
DJ543042	4.2	22	66	DJ543070	7.0	34	78
DJ543043	4.3	24	68	DJ543071	7.1	34	78
DJ543044	4.4	24	68	DJ543072	7.2	34	78
DJ543045	4.5	24	68	DJ543073	7.3	34	78
DJ543046	4.6	24	68	DJ543074	7.4	34	78
DJ543047	4.7	24	68	DJ543075	7.5	34	78

▶ TiCN(DW543), TiAlN(DY543) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎						○	◎	○	○	○	

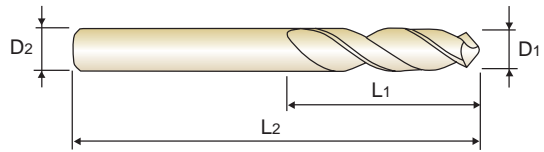
HSS-EX, HPD-SUS TWIST DRILLS for STAINLESS STEELS *STUB*
HSS-EX, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE *EXTRA KURZ*

- ▶ **Application** : Designed for drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.
- ▶ **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
 Wide flute and stub length-increasing chip removal and reducing vibration and deflection.
 High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer tool life
 High quality & good surface finish, high productivity.

- ▶ **Anwendung** : Geeignet zum Bearbeiten von rostfreier stähle, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierungen usw.
- ▶ **Vorteile** : Durch hohen Helix wird Spanstau vermieden, geeignet zum Hochleistungsbohren, durch die breiten Schneiden und die kurze Ausführung wird die Spanabfuhr erhöht und Vibrationen und Stoß reduziert. Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Oberflächengüte und Produktivität.



four facet



for STAINLESS STEELS
für rostfreier Stähle

HSS EX
W 38°
h7
h8
130°
120°
P.124

up to 4mm over 4mm

D1=D2

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
DJ543076	7.6	37	81	DJ543104	10.4	43	100
DJ543077	7.7	37	81	DJ543105	10.5	43	100
DJ543078	7.8	37	81	DJ543106	10.6	43	100
DJ543079	7.9	37	81	DJ543107	10.7	47	104
DJ543080	8.0	37	81	DJ543108	10.8	47	104
DJ543081	8.1	37	87	DJ543109	10.9	47	104
DJ543082	8.2	37	87	DJ543110	11.0	47	104
DJ543083	8.3	37	87	DJ543111	11.1	47	104
DJ543084	8.4	37	87	DJ543112	11.2	47	104
DJ543085	8.5	37	87	DJ543113	11.3	47	104
DJ543086	8.6	40	90	DJ543114	11.4	47	104
DJ543087	8.7	40	90	DJ543115	11.5	47	104
DJ543088	8.8	40	90	DJ543116	11.6	47	104
DJ543089	8.9	40	90	DJ543117	11.7	47	104
DJ543090	9.0	40	90	DJ543118	11.8	47	104
DJ543091	9.1	40	90	DJ543119	11.9	51	108
DJ543092	9.2	40	90	DJ543120	12.0	51	108
DJ543093	9.3	40	90	DJ543121	12.1	51	108
DJ543094	9.4	40	90	DJ543122	12.2	51	108
DJ543095	9.5	40	90	DJ543123	12.3	51	108
DJ543096	9.6	43	93	DJ543124	12.4	51	108
DJ543097	9.7	43	93	DJ543125	12.5	51	108
DJ543098	9.8	43	93	DJ543126	12.6	51	108
DJ543099	9.9	43	93	DJ543127	12.7	51	108
DJ543100	10.0	43	93	DJ543128	12.8	51	108
DJ543101	10.1	43	100	DJ543129	12.9	51	108
DJ543102	10.2	43	100	DJ543130	13.0	51	108
DJ543103	10.3	43	100				

▶ TiCN(DW543), TiAlN(DY543) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎						○	◎	○	○	○	

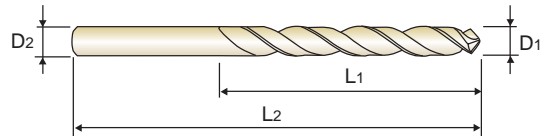
HSS-EX, HPD-SUS TWIST DRILLS for STAINLESS STEELS **JOBBER** HSS-EX, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE **KURZ**

- ▶ **Application** : Designed for 4D ~ 5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.
- ▶ **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
 Reinforced web and jobbers length-increasing rigidity and suitable for 4D ~ 5D drilling.
 High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer tool life
 High quality & good surface finish, high productivity.

- ▶ **Anwendung** : Für 4D ~ 5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.
- ▶ **Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



up to 13mm over 13mm



for **STAINLESS STEELS**
für rostfreier Stähle

HSS EX
W 38°
h7
h8
130°
120°
P.124
D1=D2

up to 4mm over 4mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
DJ544020	2.0	24	56	DJ544044	4.4	47	91
DJ544021	2.1	24	56	DJ544045	4.5	47	91
DJ544022	2.2	27	59	DJ544046	4.6	47	91
DJ544023	2.3	27	59	DJ544047	4.7	47	91
DJ544024	2.4	30	62	DJ544048	4.8	52	96
DJ544025	2.5	30	62	DJ544049	4.9	52	96
DJ544026	2.6	30	62	DJ544050	5.0	52	96
DJ544027	2.7	33	65	DJ544051	5.1	52	96
DJ544028	2.8	33	65	DJ544052	5.2	52	96
DJ544029	2.9	33	65	DJ544053	5.3	52	96
DJ544030	3.0	33	65	DJ544054	5.4	57	101
DJ544031	3.1	36	68	DJ544055	5.5	57	101
DJ544032	3.2	36	68	DJ544056	5.6	57	101
DJ544033	3.3	36	68	DJ544057	5.7	57	101
DJ544034	3.4	39	71	DJ544058	5.8	57	101
DJ544035	3.5	39	71	DJ544059	5.9	57	101
DJ544036	3.6	39	71	DJ544060	6.0	57	101
DJ544037	3.7	39	71	DJ544061	6.1	63	107
DJ544038	3.8	43	75	DJ544062	6.2	63	107
DJ544039	3.9	43	75	DJ544063	6.3	63	107
DJ544040	4.0	43	75	DJ544064	6.4	63	107
DJ544041	4.1	43	87	DJ544065	6.5	63	107
DJ544042	4.2	43	87	DJ544066	6.6	63	107
DJ544043	4.3	47	91	DJ544067	6.7	63	107

▶ TiCN(DW544), TiAlN(DY544) are available on your request.

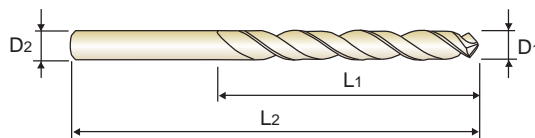
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRc45~55	HRc55~							
◎						○	◎	○	○	○	

HSS-EX, HPD-SUS TWIST DRILLS for STAINLESS STEELS *JOBBER*
HSS-EX, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE *KURZ*

- ▶ **Application** : Designed for 4D ~ 5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.
- ▶ **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
 Reinforced web and jobbers length-increasing rigidity and suitable for 4D ~ 5D drilling.
 High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer tool life
 High quality & good surface finish, high productivity.

- ▶ **Anwendung** : Für 4D ~ 5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.
- ▶ **Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



for STAINLESS STEELS
für rostfreier Stähle

HSS EX
W 38°
h7
h8
130°
120°
P.124

up to 4mm over 4mm

D₁=D₂

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D ₁	L ₁	L ₂	TiN	D ₁	L ₁	L ₂
DJ544068	6.8	69	113	DJ544092	9.2	81	131
DJ544069	6.9	69	113	DJ544093	9.3	81	131
DJ544070	7.0	69	113	DJ544094	9.4	81	131
DJ544071	7.1	69	113	DJ544095	9.5	81	131
DJ544072	7.2	69	113	DJ544096	9.6	87	137
DJ544073	7.3	69	113	DJ544097	9.7	87	137
DJ544074	7.4	69	113	DJ544098	9.8	87	137
DJ544075	7.5	69	113	DJ544099	9.9	87	137
DJ544076	7.6	75	119	DJ544100	10.0	87	137
DJ544077	7.7	75	119	DJ544101	10.1	87	144
DJ544078	7.8	75	119	DJ544102	10.2	87	144
DJ544079	7.9	75	119	DJ544103	10.3	87	144
DJ544080	8.0	75	119	DJ544104	10.4	87	144
DJ544081	8.1	75	125	DJ544105	10.5	87	144
DJ544082	8.2	75	125	DJ544106	10.6	87	144
DJ544083	8.3	75	125	DJ544107	10.7	94	151
DJ544084	8.4	75	125	DJ544108	10.8	94	151
DJ544085	8.5	75	125	DJ544109	10.9	94	151
DJ544086	8.6	81	131	DJ544110	11.0	94	151
DJ544087	8.7	81	131	DJ544111	11.1	94	151
DJ544088	8.8	81	131	DJ544112	11.2	94	151
DJ544089	8.9	81	131	DJ544113	11.3	94	151
DJ544090	9.0	81	131	DJ544114	11.4	94	151
DJ544091	9.1	81	131	DJ544115	11.5	94	151

▶ TiCN(DW544), TiAlN(DY544) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎						○	◎	○	○	○	

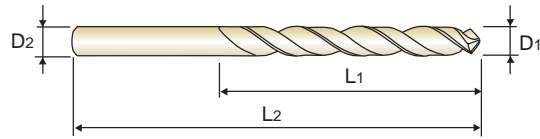
HSS-EX, HPD-SUS TWIST DRILLS for STAINLESS STEELS **JOBBER** HSS-EX, HPD-SUS SPIRALBOHRER für ROSTFREIER STÄHLE **KURZ**

- **Application** : Designed for 4D ~ 5D drilling stainless steels, mild steels, aluminum, aluminum alloys, aluminum die casting, copper, copper alloys, etc.
- **Advantage** : High helix-sharp cutting edges to avoid built-up and to be suitable for high performance drilling
 Reinforced web and jobbers length-increasing rigidity and suitable for 4D ~ 5D drilling.
 High vanadium HSS-EX material with superior TiN coating - higher speed and feed, longer tool life
 High quality & good surface finish, high productivity.

- **Anwendung** : Für 4D ~ 5D Bohrtiefe, geeignet für rostfreier stähle, Stahl, Aluminium, Aluminium-Legierungen, Aluminium-Guss, Kupfer, Kupfer-Legierung usw.
- **Vorteile** : Helixwinkel, durch scharfe Hauptschneide wird Spanstau vermieden, geeignet zum Hochleistungsbohren, verstärkte Kerndicke, kurze Ausführung, Hoch Vanadium HSS-EX-Material mit TiN-Beschichtung, höhere Geschwindigkeit und Vorschub, längere Standzeit, verbesserte Stabilität, Oberflächengüte und Produktivität.



up to 13mm over 13mm



for **STAINLESS STEELS**
für rostfreier Stähle

HSS EX
W 38°
h7
h8
130°
120°
P.124
D1=D2

up to 4mm over 4mm

				Unit : mm			
EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
TiN	D1	L1	L2	TiN	D1	L1	L2
DJ544116	11.6	94	151	DJ544141	14.1	109	169
DJ544117	11.7	94	151	DJ544145	14.5	109	169
DJ544118	11.8	94	151	DJ544150	15.0	109	169
DJ544119	11.9	101	158	DJ544155	15.5	112	172
DJ544120	12.0	101	158	DJ544156	15.6	112	172
DJ544121	12.1	101	158	DJ544160	16.0	112	172
DJ544122	12.2	101	158	DJ544165	16.5	115	181
DJ544123	12.3	101	158	DJ544170	17.0	115	181
DJ544124	12.4	101	158	DJ544175	17.5	118	184
DJ544125	12.5	101	158	DJ544176	17.6	118	184
DJ544126	12.6	101	158	DJ544180	18.0	118	184
DJ544127	12.7	101	158	DJ544185	18.5	122	188
DJ544128	12.8	101	158	DJ544190	19.0	122	188
DJ544129	12.9	101	158	DJ544195	19.5	125	191
DJ544130	13.0	101	158	DJ544196	19.6	125	191
DJ544135	13.5	106	166	DJ544200	20.0	125	191
DJ544140	14.0	106	166				

► TiCN(DW544), TiAlN(DY544) are available on your request.

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎						○	◎	○	○	○	



PREMIUM HSS COBALT, HPD TWIST DRILLS, TiN COATED PREMIUM HSS KOBALT, HPD SPIRALBOHRER, TiN-BESCHICHTET

D4541, D4542 SERIES

Please decrease the feed rate (15~20%) in D4542 SERIES HPD drills.
Den Vorschub in der D4542 Gruppe HPD Bohrer bitte verringern.

Unit : mm

WORK MATERIAL DIAMETER	CARBON STEELS		ALLOY STEELS (SCM-SNC-SNCM)		TOOL STEELS ALLOY STEELS (SKD11)		CAST IRON TOOL STEELS		ALUMINUM ALLOYS MAGNESIUM ALLOYS	
	N	S	N	S	N	S	N	S	N	S
2	4200	0.08	3600	0.08	1750	0.08	5800	0.11	10500	0.16
3	2900	0.13	2500	0.13	1170	0.13	4000	0.14	10500	0.25
4	2100	0.14	1900	0.14	880	0.14	3000	0.17	8000	0.30
5	1700	0.16	1500	0.16	700	0.16	2400	0.20	6500	0.36
6	1300	0.17	1300	0.17	580	0.17	2100	0.23	5200	0.42
8	1000	0.21	950	0.21	440	0.21	1500	0.26	4200	0.47
10	850	0.25	750	0.25	350	0.25	1100	0.32	3400	0.56
12	700	0.30	650	0.30	290	0.30	1000	0.38	2700	0.67
14	550	0.35	500	0.35	250	0.35	850	0.40	2400	0.72
16	520	0.38	470	0.38	220	0.38	750	0.42	2100	0.77
18	450	0.44	420	0.44	195	0.44	700	0.45	1900	0.80
20	400	0.45	350	0.45	175	0.45	600	0.51	1600	0.87
22	370	0.50	340	0.50	160	0.50	550	0.52	1500	0.95
24	350	0.54	300	0.54	145	0.54	500	0.58	1400	1.00
26	320	0.58	280	0.58	135	0.58	450	0.60	1300	1.05
28	300	0.62	260	0.62	125	0.62	420	0.63	1200	1.10
30	280	0.66	240	0.66	115	0.66	400	0.74	1100	1.15
32	260	0.70	230	0.70	110	0.70	380	0.74	950	1.20

N = R.P.M

S = Feed per Revolution (mm/rev.)

HSS-EX, HPD-SUS TWIST DRILLS, TiN COATED HSS-EX, HPD-SUS SPIRALBOHRER, TiN-BESCHICHTET

DJ543, DJ544 SERIES

Please decrease the feed rate (15~20%) in DJ544 SERIES HPD-SUS drills.
Den Vorschub in der DJ544 Gruppe HPD-SUS Bohrer bitte verringern

Unit : mm

WORK MATERIAL DIAMETER	STAINLESS STEELS (SUS304, 200)		STAINLESS STEELS (SUS420, 440)		ALUMINUM & ALUMINIUM ALLOYS		PLASTICS COPPER COPPER ALLOYS		MILD STEELS LOW CARBON STEELS	
	N	S	N	S	N	S	N	S	N	S
2	2600	0.03	3100	0.07	11000	0.09	5600	0.06	6300	0.08
3	1800	0.04	2100	0.08	7350	0.13	3750	0.08	4200	0.13
4	1300	0.06	1600	0.10	7050	0.18	2800	0.10	3200	0.14
5	1050	0.08	1250	0.15	5500	0.22	2250	0.13	2500	0.16
6	900	0.09	1050	0.18	4600	0.26	1850	0.15	2100	0.18
8	650	0.12	800	0.24	3500	0.34	1350	0.20	1550	0.22
10	550	0.15	630	0.30	2800	0.40	1100	0.25	1250	0.26
12	450	0.18	530	0.36	2300	0.50	950	0.30	1050	0.32
14	400	0.33	450	0.44	2050	0.55	800	0.33	900	0.36
16	350	0.36	390	0.48	1750	0.62	700	0.35	790	0.40
18	300	0.39	350	0.50	1600	0.70	620	0.40	700	0.45
20	260	0.43	320	0.53	1450	0.75	560	0.40	620	0.47

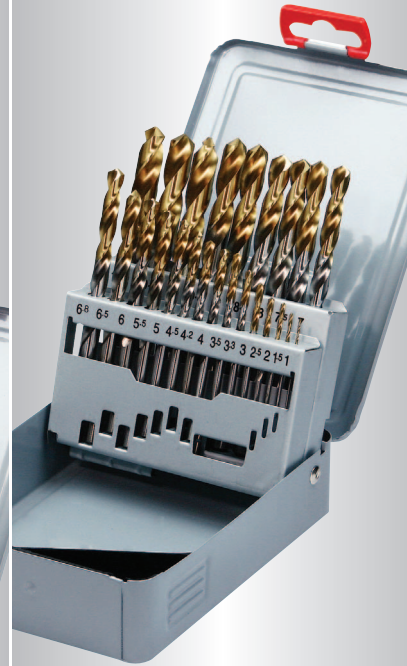
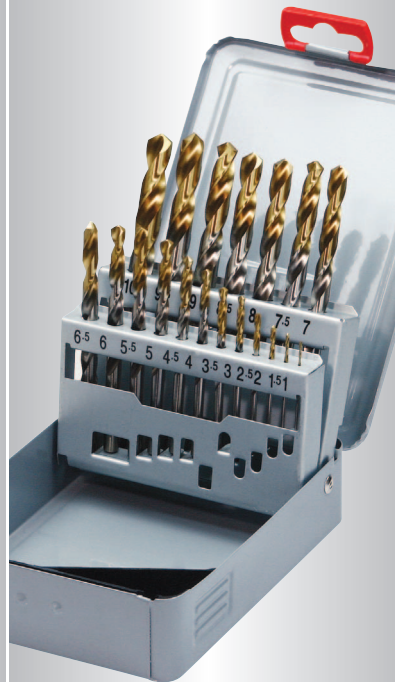
N = R.P.M

S = Feed per Revolution (mm/rev.)

HSS



Being the best through innovation



GOLD-P DRILLS


GOLD-P BOHRER

- GOLD-P COATING, HSS & HSS-E
- TiN-teilbeschichtete Bohrer, HSS und HSS-E

SELECTION GUIDE

GOLD-P DRILLS (GOLD-P COATED)

Competitive price and same performance as full TiN coating

ITEM	MODEL	DESCRIPTION	SIZE		PAGE	
			MIN	MAX		
D1GP125		HSS STRAIGHT SHANK DRILLS, GOLD-P COATED HSS SPIRALBOHRER, GOLD-P BESCHICHTET	<i>JOBBER</i> <i>KURZ</i>	D1.0	D13.0	128
D1GP165		HSS STRAIGHT SHANK DRILLS, GOLD-P COATED HSS SPIRALBOHRER, GOLD-P BESCHICHTET	<i>JOBBER</i> <i>KURZ</i>	D1.6	D13.0	130
DLGP195		HSS-E STRAIGHT SHANK DRILLS, GOLD-P COATED HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET	<i>JOBBER</i> <i>KURZ</i>	D1.0	D13.0	132
DLGP506		HSS-E DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET	<i>JOBBER</i> <i>KURZ</i>	D2.0	D13.0	134
GOLD-P DRILL SETS	1.0mm ~ 10.0mm × 0.5mm STEP SET1(19PCS) 	1.0mm ~ 13.0mm × 0.5mm STEP SET2(25PCS) 	1.0mm ~ 10.5mm × 0.5mm STEP +3.3 +4.2 +6.8 +10.2 SET3(24PCS) 			136
	RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					137

HSS GOLD-P DRILLS

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○	○	○		
◎	◎					○	○	○	○		
◎	◎					○	○	○	○		
◎	◎				○	○			○		



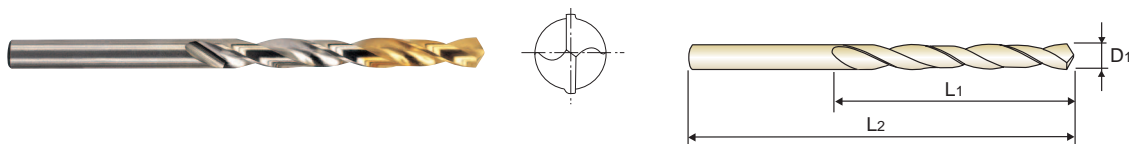
HSS STRAIGHT SHANK DRILLS, GOLD-P COATED
HSS SPIRALBOHRER, GOLD-P BESCHICHTET

JOBBER

KURZ

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 118°, Normal point
- ▶ **Surface treatment**: Bright body, TiN coating on working area
- ▶ **Application** : Drilling steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron

- ▶ **Nutenform** : Rechtsspirale
- ▶ **Spitzenwinkel** : 118° Normalanschliff
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1GP125010	1.0	12	34	D1GP125041	4.1	43	75
D1GP125011	1.1	14	36	D1GP125042	4.2	43	75
D1GP125012	1.2	16	38	D1GP125043	4.3	47	80
D1GP125013	1.3	16	38	D1GP125044	4.4	47	80
D1GP125014	1.4	18	40	D1GP125045	4.5	47	80
D1GP125015	1.5	18	40	D1GP125046	4.6	47	80
D1GP125016	1.6	20	43	D1GP125047	4.7	47	80
D1GP125017	1.7	20	43	D1GP125048	4.8	52	86
D1GP125018	1.8	22	46	D1GP125049	4.9	52	86
D1GP125019	1.9	22	46	D1GP125050	5.0	52	86
D1GP125020	2.0	24	49	D1GP125051	5.1	52	86
D1GP125021	2.1	24	49	D1GP125052	5.2	52	86
D1GP125022	2.2	27	53	D1GP125053	5.3	52	86
D1GP125023	2.3	27	53	D1GP125054	5.4	57	93
D1GP125024	2.4	30	57	D1GP125055	5.5	57	93
D1GP125025	2.5	30	57	D1GP125056	5.6	57	93
D1GP125026	2.6	30	57	D1GP125057	5.7	57	93
D1GP125027	2.7	33	61	D1GP125058	5.8	57	93
D1GP125028	2.8	33	61	D1GP125059	5.9	57	93
D1GP125029	2.9	33	61	D1GP125060	6.0	57	93
D1GP125030	3.0	33	61	D1GP125061	6.1	63	101
D1GP125031	3.1	36	65	D1GP125062	6.2	63	101
D1GP125032	3.2	36	65	D1GP125063	6.3	63	101
D1GP125033	3.3	36	65	D1GP125064	6.4	63	101
D1GP125034	3.4	39	70	D1GP125065	6.5	63	101
D1GP125035	3.5	39	70	D1GP125066	6.6	63	101
D1GP125036	3.6	39	70	D1GP125067	6.7	63	101
D1GP125037	3.7	39	70	D1GP125068	6.8	69	109
D1GP125038	3.8	43	75	D1GP125069	6.9	69	109
D1GP125039	3.9	43	75	D1GP125070	7.0	69	109
D1GP125040	4.0	43	75	D1GP125071	7.1	69	109

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○	○	○		



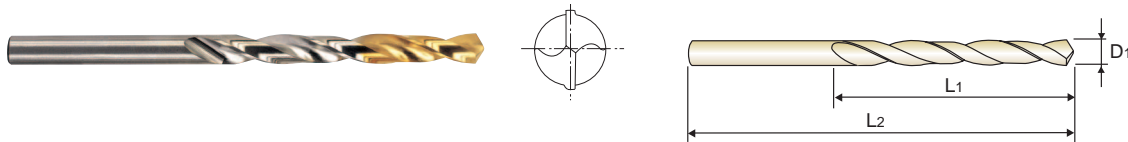
HSS STRAIGHT SHANK DRILLS, GOLD-P COATED HSS SPIRALBOHRER, GOLD-P BESCHICHTET

JOBBER

KURZ

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 118°, Normal point
- ▶ **Surface treatment**: Bright body, TiN coating on working area
- ▶ **Application** : Drilling steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron

- ▶ **Nutenform** : Rechtsspirale
- ▶ **Spitzenwinkel** : 118° Normalanschliff
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1GP125072	7.2	69	109	D1GP125102	10.2	87	133
D1GP125073	7.3	69	109	D1GP125103	10.3	87	133
D1GP125074	7.4	69	109	D1GP125104	10.4	87	133
D1GP125075	7.5	69	109	D1GP125105	10.5	87	133
D1GP125076	7.6	75	117	D1GP125106	10.6	87	133
D1GP125077	7.7	75	117	D1GP125107	10.7	94	142
D1GP125078	7.8	75	117	D1GP125108	10.8	94	142
D1GP125079	7.9	75	117	D1GP125109	10.9	94	142
D1GP125080	8.0	75	117	D1GP125110	11.0	94	142
D1GP125081	8.1	75	117	D1GP125111	11.1	94	142
D1GP125082	8.2	75	117	D1GP125112	11.2	94	142
D1GP125083	8.3	75	117	D1GP125113	11.3	94	142
D1GP125084	8.4	75	117	D1GP125114	11.4	94	142
D1GP125085	8.5	75	117	D1GP125115	11.5	94	142
D1GP125086	8.6	81	125	D1GP125116	11.6	94	142
D1GP125087	8.7	81	125	D1GP125117	11.7	94	142
D1GP125088	8.8	81	125	D1GP125118	11.8	94	142
D1GP125089	8.9	81	125	D1GP125119	11.9	101	151
D1GP125090	9.0	81	125	D1GP125120	12.0	101	151
D1GP125091	9.1	81	125	D1GP125121	12.1	101	151
D1GP125092	9.2	81	125	D1GP125122	12.2	101	151
D1GP125093	9.3	81	125	D1GP125123	12.3	101	151
D1GP125094	9.4	81	125	D1GP125124	12.4	101	151
D1GP125095	9.5	81	125	D1GP125125	12.5	101	151
D1GP125096	9.6	87	133	D1GP125126	12.6	101	151
D1GP125097	9.7	87	133	D1GP125127	12.7	101	151
D1GP125098	9.8	87	133	D1GP125128	12.8	101	151
D1GP125099	9.9	87	133	D1GP125129	12.9	101	151
D1GP125100	10.0	87	133	D1GP125130	13.0	101	151
D1GP125101	10.1	87	133				

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○	○	○		



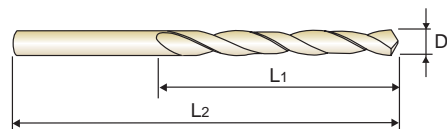
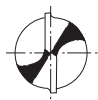
HSS STRAIGHT SHANK DRILLS, GOLD-P COATED
HSS SPIRALBOHRER, GOLD-P BESCHICHTET

JOBBER

KURZ

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 118°, Split point
- ▶ **Surface treatment** : Bright body, TiN coating on working area
- ▶ **Application** : Drilling steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron

- ▶ **Nutenform** : Rechtsspirale
- ▶ **Spitzenwinkel** : 118° Kreuzanschliff
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338

HSS

N 30°

h8

118°



P.137

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1GP165016	1.6	20	43	D1GP165046	4.6	47	80
D1GP165017	1.7	20	43	D1GP165047	4.7	47	80
D1GP165018	1.8	22	46	D1GP165048	4.8	52	86
D1GP165019	1.9	22	46	D1GP165049	4.9	52	86
D1GP165020	2.0	24	49	D1GP165050	5.0	52	86
D1GP165021	2.1	24	49	D1GP165051	5.1	52	86
D1GP165022	2.2	27	53	D1GP165052	5.2	52	86
D1GP165023	2.3	27	53	D1GP165053	5.3	52	86
D1GP165024	2.4	30	57	D1GP165054	5.4	57	93
D1GP165025	2.5	30	57	D1GP165055	5.5	57	93
D1GP165026	2.6	30	57	D1GP165056	5.6	57	93
D1GP165027	2.7	33	61	D1GP165057	5.7	57	93
D1GP165028	2.8	33	61	D1GP165058	5.8	57	93
D1GP165029	2.9	33	61	D1GP165059	5.9	57	93
D1GP165030	3.0	33	61	D1GP165060	6.0	57	93
D1GP165031	3.1	36	65	D1GP165061	6.1	63	101
D1GP165032	3.2	36	65	D1GP165062	6.2	63	101
D1GP165033	3.3	36	65	D1GP165063	6.3	63	101
D1GP165034	3.4	39	70	D1GP165064	6.4	63	101
D1GP165035	3.5	39	70	D1GP165065	6.5	63	101
D1GP165036	3.6	39	70	D1GP165066	6.6	63	101
D1GP165037	3.7	39	70	D1GP165067	6.7	63	101
D1GP165038	3.8	43	75	D1GP165068	6.8	69	109
D1GP165039	3.9	43	75	D1GP165069	6.9	69	109
D1GP165040	4.0	43	75	D1GP165070	7.0	69	109
D1GP165041	4.1	43	75	D1GP165071	7.1	69	109
D1GP165042	4.2	43	75	D1GP165072	7.2	69	109
D1GP165043	4.3	47	80	D1GP165073	7.3	69	109
D1GP165044	4.4	47	80	D1GP165074	7.4	69	109
D1GP165045	4.5	47	80	D1GP165075	7.5	69	109

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○	○	○		



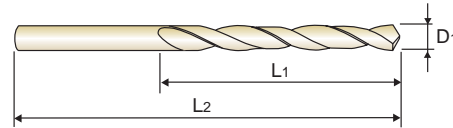
HSS STRAIGHT SHANK DRILLS, GOLD-P COATED HSS SPIRALBOHRER, GOLD-P BESCHICHTET

JOBBER

KURZ

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 118°, Split point
- ▶ **Surface treatment** : Bright body, TiN coating on working area
- ▶ **Application** : Drilling steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron

- ▶ **Nutenform** : Rechtsspirale
- ▶ **Spitzenwinkel** : 118° Kreuzanschliff
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Stahl, legierter und unlegierter Stahlguss, Grauguss, Graphit, Temperguss



DIN 338

HSS

N 30°

h8

118°



P.137

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1GP165076	7.6	75	117	D1GP165104	10.4	87	133
D1GP165077	7.7	75	117	D1GP165105	10.5	87	133
D1GP165078	7.8	75	117	D1GP165106	10.6	87	133
D1GP165079	7.9	75	117	D1GP165107	10.7	94	142
D1GP165080	8.0	75	117	D1GP165108	10.8	94	142
D1GP165081	8.1	75	117	D1GP165109	10.9	94	142
D1GP165082	8.2	75	117	D1GP165110	11.0	94	142
D1GP165083	8.3	75	117	D1GP165111	11.1	94	142
D1GP165084	8.4	75	117	D1GP165112	11.2	94	142
D1GP165085	8.5	75	117	D1GP165113	11.3	94	142
D1GP165086	8.6	81	125	D1GP165114	11.4	94	142
D1GP165087	8.7	81	125	D1GP165115	11.5	94	142
D1GP165088	8.8	81	125	D1GP165116	11.6	94	142
D1GP165089	8.9	81	125	D1GP165117	11.7	94	142
D1GP165090	9.0	81	125	D1GP165118	11.8	94	142
D1GP165091	9.1	81	125	D1GP165119	11.9	101	151
D1GP165092	9.2	81	125	D1GP165120	12.0	101	151
D1GP165093	9.3	81	125	D1GP165121	12.1	101	151
D1GP165094	9.4	81	125	D1GP165122	12.2	101	151
D1GP165095	9.5	81	125	D1GP165123	12.3	101	151
D1GP165096	9.6	87	133	D1GP165124	12.4	101	151
D1GP165097	9.7	87	133	D1GP165125	12.5	101	151
D1GP165098	9.8	87	133	D1GP165126	12.6	101	151
D1GP165099	9.9	87	133	D1GP165127	12.7	101	151
D1GP165100	10.0	87	133	D1GP165128	12.8	101	151
D1GP165101	10.1	87	133	D1GP165129	12.9	101	151
D1GP165102	10.2	87	133	D1GP165130	13.0	101	151
D1GP165103	10.3	87	133				

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○	○	○		



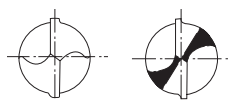
HSS-E STRAIGHT SHANK DRILLS, GOLD-P COATED
HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET

JOBBER

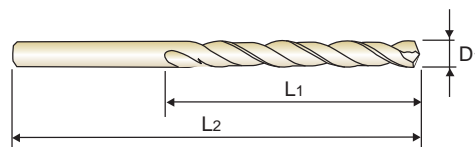
KURZ

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 135°, up to 1.5mm : Normal point
over 1.5mm : Split point
- ▶ **Surface treatment**: Bright body, TiN coating on working area
- ▶ **Application** : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.

- ▶ **Nutenform** : Rechtsspirale
- ▶ **Spitzenwinkel** : 135°, bis 1.5 mm : Normalanschliff
über 1.5 mm : Kreuzanschliff
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



up to 1.5mm over 1.5mm



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DLGP195010	1.0	12	34	DLGP195041	4.1	43	75
DLGP195011	1.1	14	36	DLGP195042	4.2	43	75
DLGP195012	1.2	16	38	DLGP195043	4.3	47	80
DLGP195013	1.3	16	38	DLGP195044	4.4	47	80
DLGP195014	1.4	18	40	DLGP195045	4.5	47	80
DLGP195015	1.5	18	40	DLGP195046	4.6	47	80
DLGP195016	1.6	20	43	DLGP195047	4.7	47	80
DLGP195017	1.7	20	43	DLGP195048	4.8	52	86
DLGP195018	1.8	22	46	DLGP195049	4.9	52	86
DLGP195019	1.9	22	46	DLGP195050	5.0	52	86
DLGP195020	2.0	24	49	DLGP195051	5.1	52	86
DLGP195021	2.1	24	49	DLGP195052	5.2	52	86
DLGP195022	2.2	27	53	DLGP195053	5.3	52	86
DLGP195023	2.3	27	53	DLGP195054	5.4	57	93
DLGP195024	2.4	30	57	DLGP195055	5.5	57	93
DLGP195025	2.5	30	57	DLGP195056	5.6	57	93
DLGP195026	2.6	30	57	DLGP195057	5.7	57	93
DLGP195027	2.7	33	61	DLGP195058	5.8	57	93
DLGP195028	2.8	33	61	DLGP195059	5.9	57	93
DLGP195029	2.9	33	61	DLGP195060	6.0	57	93
DLGP195030	3.0	33	61	DLGP195061	6.1	63	101
DLGP195031	3.1	36	65	DLGP195062	6.2	63	101
DLGP195032	3.2	36	65	DLGP195063	6.3	63	101
DLGP195033	3.3	36	65	DLGP195064	6.4	63	101
DLGP195034	3.4	39	70	DLGP195065	6.5	63	101
DLGP195035	3.5	39	70	DLGP195066	6.6	63	101
DLGP195036	3.6	39	70	DLGP195067	6.7	63	101
DLGP195037	3.7	39	70	DLGP195068	6.8	69	109
DLGP195038	3.8	43	75	DLGP195069	6.9	69	109
DLGP195039	3.9	43	75	DLGP195070	7.0	69	109
DLGP195040	4.0	43	75	DLGP195071	7.1	69	109

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○	○	○		



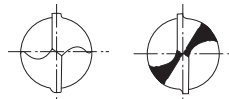
HSS-E STRAIGHT SHANK DRILLS, GOLD-P COATED HSS-E SPIRALBOHRER, GOLD-P BESCHICHTET

JOBBER

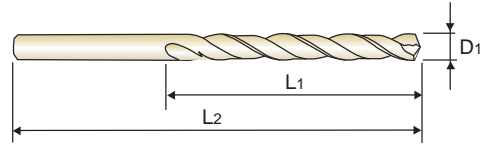
KURZ

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 135°, up to 1.5mm : Normal point
over 1.5mm : Split point
- ▶ **Surface treatment**: Bright body, TiN coating on working area
- ▶ **Application** : Drilling stainless steels, difficult to cut materials such as titanium alloys and inconel.

- ▶ **Nutenform** : Rechtsspirale
- ▶ **Spitzenwinkel** : 135°, bis 1.5 mm : Normalanschliff
über 1.5 mm : Kreuzanschliff
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



up to 1.5mm over 1.5mm



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DLGP195072	7.2	69	109	DLGP195102	10.2	87	133
DLGP195073	7.3	69	109	DLGP195103	10.3	87	133
DLGP195074	7.4	69	109	DLGP195104	10.4	87	133
DLGP195075	7.5	69	109	DLGP195105	10.5	87	133
DLGP195076	7.6	75	117	DLGP195106	10.6	87	133
DLGP195077	7.7	75	117	DLGP195107	10.7	94	142
DLGP195078	7.8	75	117	DLGP195108	10.8	94	142
DLGP195079	7.9	75	117	DLGP195109	10.9	94	142
DLGP195080	8.0	75	117	DLGP195110	11.0	94	142
DLGP195081	8.1	75	117	DLGP195111	11.1	94	142
DLGP195082	8.2	75	117	DLGP195112	11.2	94	142
DLGP195083	8.3	75	117	DLGP195113	11.3	94	142
DLGP195084	8.4	75	117	DLGP195114	11.4	94	142
DLGP195085	8.5	75	117	DLGP195115	11.5	94	142
DLGP195086	8.6	81	125	DLGP195116	11.6	94	142
DLGP195087	8.7	81	125	DLGP195117	11.7	94	142
DLGP195088	8.8	81	125	DLGP195118	11.8	94	142
DLGP195089	8.9	81	125	DLGP195119	11.9	101	151
DLGP195090	9.0	81	125	DLGP195120	12.0	101	151
DLGP195091	9.1	81	125	DLGP195121	12.1	101	151
DLGP195092	9.2	81	125	DLGP195122	12.2	101	151
DLGP195093	9.3	81	125	DLGP195123	12.3	101	151
DLGP195094	9.4	81	125	DLGP195124	12.4	101	151
DLGP195095	9.5	81	125	DLGP195125	12.5	101	151
DLGP195096	9.6	87	133	DLGP195126	12.6	101	151
DLGP195097	9.7	87	133	DLGP195127	12.7	101	151
DLGP195098	9.8	87	133	DLGP195128	12.8	101	151
DLGP195099	9.9	87	133	DLGP195129	12.9	101	151
DLGP195100	10.0	87	133	DLGP195130	13.0	101	151
DLGP195101	10.1	87	133				

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎					○	○	○	○		



HSS-E DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED

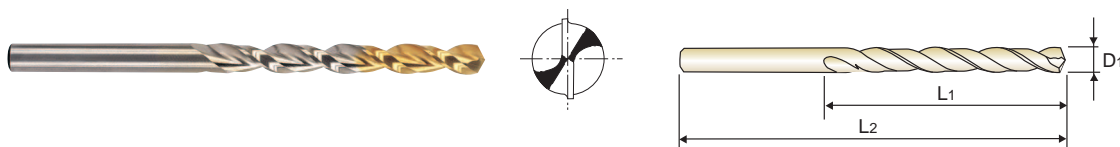
JOBBER

HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET

KURZ

- ▶ **Flute Geometry** : Right hand, 38° helix, DH100 worm pattern type.
- ▶ **Point Angle** : 130°, Split point giving higher chip removal.
- ▶ **Surface treatment** : Bright body, TiN coating on working area.
- ▶ **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

- ▶ **Nutenform** : 38° Rechtsspirale, DH 100 Flachnut
- ▶ **Spitzenwinkel** : Durch 130° Kreuzanschliff Gute Spanabfuhr
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



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Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DLGP506020	2.0	24	49	DLGP506049	4.9	52	86
DLGP506021	2.1	24	49	DLGP506050	5.0	52	86
DLGP506022	2.2	27	53	DLGP506051	5.1	52	86
DLGP506023	2.3	27	53	DLGP506052	5.2	52	86
DLGP506024	2.4	30	57	DLGP506053	5.3	52	86
DLGP506025	2.5	30	57	DLGP506054	5.4	57	93
DLGP506026	2.6	30	57	DLGP506055	5.5	57	93
DLGP506027	2.7	33	61	DLGP506056	5.6	57	93
DLGP506028	2.8	33	61	DLGP506057	5.7	57	93
DLGP506029	2.9	33	61	DLGP506058	5.8	57	93
DLGP506030	3.0	33	61	DLGP506059	5.9	57	93
DLGP506031	3.1	36	65	DLGP506060	6.0	57	93
DLGP506032	3.2	36	65	DLGP506061	6.1	63	101
DLGP506033	3.3	36	65	DLGP506062	6.2	63	101
DLGP506034	3.4	39	70	DLGP506063	6.3	63	101
DLGP506035	3.5	39	70	DLGP506064	6.4	63	101
DLGP506036	3.6	39	70	DLGP506065	6.5	63	101
DLGP506037	3.7	39	70	DLGP506066	6.6	63	101
DLGP506038	3.8	43	75	DLGP506067	6.7	63	101
DLGP506039	3.9	43	75	DLGP506068	6.8	69	109
DLGP506040	4.0	43	75	DLGP506069	6.9	69	109
DLGP506041	4.1	43	75	DLGP506070	7.0	69	109
DLGP506042	4.2	43	75	DLGP506071	7.1	69	109
DLGP506043	4.3	47	80	DLGP506072	7.2	69	109
DLGP506044	4.4	47	80	DLGP506073	7.3	69	109
DLGP506045	4.5	47	80	DLGP506074	7.4	69	109
DLGP506046	4.6	47	80	DLGP506075	7.5	69	109
DLGP506047	4.7	47	80	DLGP506076	7.6	75	117
DLGP506048	4.8	52	86	DLGP506077	7.7	75	117

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		



HSS-E DH100 STRAIGHT SHANK DRILLS for DEEP HOLES, GOLD-P COATED

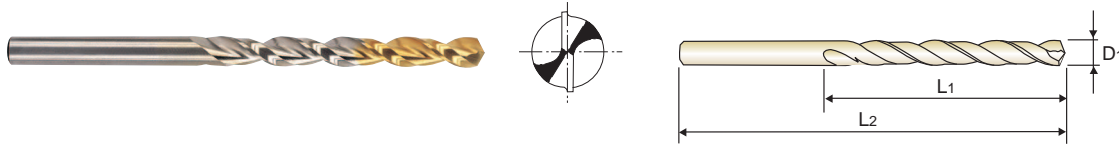
JOBBER

HSS-E DH100 SPIRALBOHRER, für TIEFLOCH mit ZYLINDERSCHAFT, GOLD-P BESCHICHTET

KURZ

- ▶ **Flute Geometry** : Right hand, 38° helix, DH100 worm pattern type.
- ▶ **Point Angle** : 130°, Split point giving higher chip removal.
- ▶ **Surface treatment** : Bright body, TiN coating on working area.
- ▶ **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, Special aluminum or magnesium alloys.

- ▶ **Nutenform** : 38° Rechtsspirale, DH 100 Flachnut
- ▶ **Spitzenwinkel** : Durch 130° Kreuzanschliff Gute Spanabfuhr
- ▶ **Oberfläche** : Blank mit TiN-Beschichtung im Arbeitsbereich
- ▶ **Anwendung** : Tiefe Bohrungen in unlegierten und legierten Stählen, Grauguss, Temperguss, Aluminium- und Magnesiumlegierungen



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DLGP506078	7.8	75	117	DLGP506105	10.5	87	133
DLGP506079	7.9	75	117	DLGP506106	10.6	87	133
DLGP506080	8.0	75	117	DLGP506107	10.7	94	142
DLGP506081	8.1	75	117	DLGP506108	10.8	94	142
DLGP506082	8.2	75	117	DLGP506109	10.9	94	142
DLGP506083	8.3	75	117	DLGP506110	11.0	94	142
DLGP506084	8.4	75	117	DLGP506111	11.1	94	142
DLGP506085	8.5	75	117	DLGP506112	11.2	94	142
DLGP506086	8.6	81	125	DLGP506113	11.3	94	142
DLGP506087	8.7	81	125	DLGP506114	11.4	94	142
DLGP506088	8.8	81	125	DLGP506115	11.5	94	142
DLGP506089	8.9	81	125	DLGP506116	11.6	94	142
DLGP506090	9.0	81	125	DLGP506117	11.7	94	142
DLGP506091	9.1	81	125	DLGP506118	11.8	94	142
DLGP506092	9.2	81	125	DLGP506119	11.9	101	151
DLGP506093	9.3	81	125	DLGP506120	12.0	101	151
DLGP506094	9.4	81	125	DLGP506121	12.1	101	151
DLGP506095	9.5	81	125	DLGP506122	12.2	101	151
DLGP506096	9.6	87	133	DLGP506123	12.3	101	151
DLGP506097	9.7	87	133	DLGP506124	12.4	101	151
DLGP506098	9.8	87	133	DLGP506125	12.5	101	151
DLGP506099	9.9	87	133	DLGP506126	12.6	101	151
DLGP506100	10.0	87	133	DLGP506127	12.7	101	151
DLGP506101	10.1	87	133	DLGP506128	12.8	101	151
DLGP506102	10.2	87	133	DLGP506129	12.9	101	151
DLGP506103	10.3	87	133	DLGP506130	13.0	101	151
DLGP506104	10.4	87	133				

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○			○		



GOLD-P COATED DRILL SETS GOLD-P BESCHICHTET BOHRER SATS



DIN338 DRILL SETS JOBBER LENGTH Gold-P coated Drills

SET NO.	DESCRIPTON	SIZE	Q'TY
D1GP165SET1	HSS Straight Shank, Split Point (∅1.0 & ∅1.5 : NORMAL point)	1.0-10.0x0.5mm step	19 pcs
D1GP165SET2	HSS Straight Shank, Split Point (∅1.0 & ∅1.5 : NORMAL point)	1.0-13.0X0.5mm step	25 pcs
D1GP165SET3	HSS Straight Shank, Split Point (∅1.0 & ∅1.5 : NORMAL point)	1.0-10.5x0.5mm step +3.3 +4.2 +6.8 +10.2	24 pcs
DLGP195SET1	HSS-E Straight Shank, Split Point (∅1.0 & ∅1.5 : NORMAL point)	1.0-10.0x0.5mm step	19 pcs
DLGP195SET2	HSS-E Straight Shank, Split Point (∅1.0 & ∅1.5 : NORMAL point)	1.0-13.0x0.5mm step	25 pcs
DLGP195SET3	HSS-E Straight Shank, Split Point (∅1.0 & ∅1.5 : NORMAL point)	1.0-10.5x0.5mm step +3.3 +4.2 +6.8 +10.2	24 pcs



GOLD-P COATED DRILLS GOLD-P BESCHICHTET BOHRER

D1GP125, D1GP165, DLGP195 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS		CARBON STEELS		ALLOY STEELS		STAINLESS STEELS		TITANIUM ALLOYS		ALUMINUM ALLOYS, ZINC ALLOYS		MAGNESIUM ALLOYS	
	N	S	N	S	N	S	N	S	N	S	N	S	N	S
HARDNESS			~ HRC23		~ HRC23 ~ 34		HRC23							
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		810 ~ 1110 N/mm ²		~ 830 N/mm ²		~ 410 N/mm ²					
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S
1	14000	0.02	12500	0.02	7700	0.02	7000	0.02	8050	0.02	30000	0.02	11500	0.03
2	7000	0.06	6100	0.06	3850	0.06	3500	0.06	4050	0.06	15000	0.06	5800	0.09
3	4650	0.10	4100	0.08	2550	0.08	2350	0.08	2700	0.08	9900	0.10	3850	0.13
4	3500	0.11	3050	0.11	1950	0.10	1750	0.10	2000	0.09	7450	0.11	2900	0.15
5	2800	0.12	2450	0.11	1550	0.10	1400	0.10	1600	0.10	5950	0.12	2300	0.17
6	2350	0.14	2050	0.13	1300	0.12	1150	0.12	1350	0.12	4950	0.14	1950	0.19
7	2000	0.16	1750	0.15	1100	0.14	1000	0.14	1150	0.14	4250	0.16	1650	0.22
8	1750	0.18	1550	0.18	960	0.15	875	0.15	1000	0.15	3700	0.18	1450	0.24
9	1550	0.20	1350	0.22	855	0.18	780	0.18	895	0.17	3300	0.20	1280	0.27
10	1400	0.21	1250	0.22	770	0.18	700	0.18	805	0.18	3000	0.23	1150	0.29
11	1250	0.22	1100	0.22	700	0.18	650	0.18	730	0.18	2700	0.23	1050	0.30
12	1150	0.23	1000	0.22	650	0.20	585	0.20	670	0.20	2480	0.23	960	0.31
13	1050	0.23	950	0.22	595	0.20	540	0.20	620	0.20	2300	0.23	890	0.31

N = R.P.M

S = Feed per Revolution (mm/rev.)

GOLD-P COATED DRILLS for DEEP HOLES GOLD-P BESCHICHTET BOHRER für TIEFLOCH MIT ZYLINDERSCHAFT

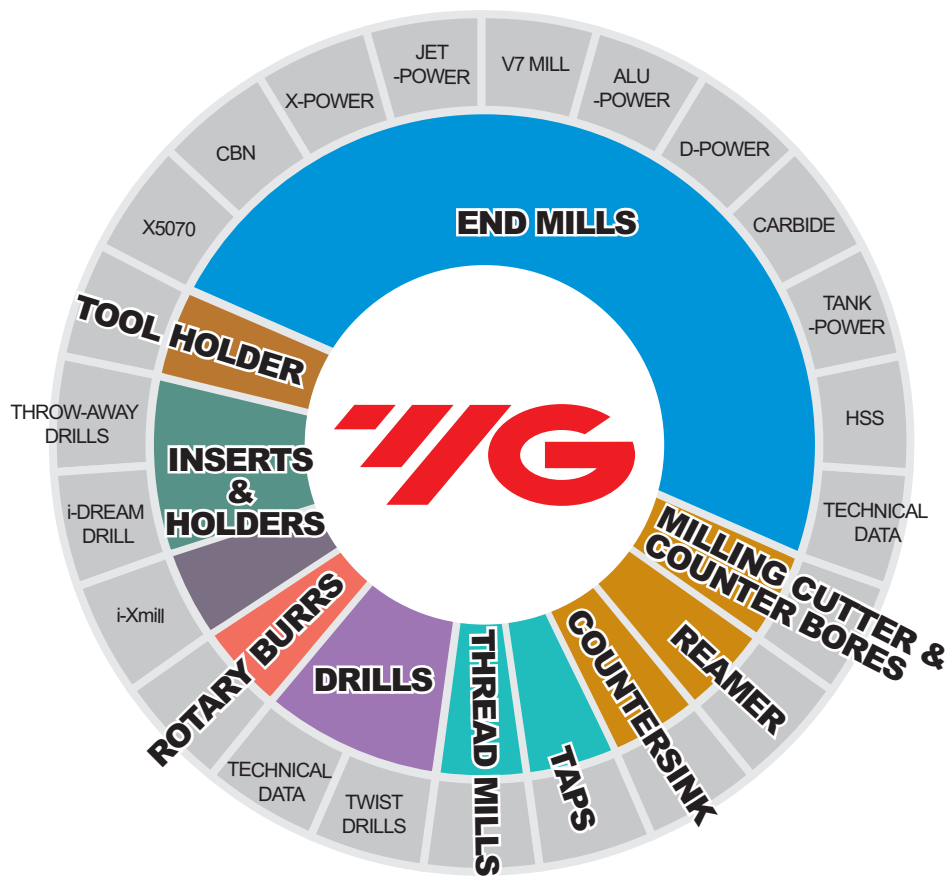
DLGP506 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS ALLOY STEELS		TOOL STEELS HARDENED STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
	N	S	N	S	N	S	N	S
HARDNESS	HRC15 ~ 30		HRC20 ~ 40					
STRENGTH	700 ~ 1000 N/mm ²		800 ~ 1200 N/mm ²					
DIAMETER	N	S	N	S	N	S	N	S
1	8750	0.02	6300	0.02	16000	0.02	9800	0.02
2	4400	0.06	3150	0.06	7900	0.07	4900	0.07
3	2900	0.08	2100	0.08	5250	0.11	3250	0.11
4	2200	0.09	1600	0.09	3950	0.14	2450	0.14
5	1750	0.10	1250	0.10	3150	0.14	1950	0.14
6	1450	0.12	1050	0.12	2650	0.18	1650	0.18
7	1250	0.14	900	0.14	2250	0.20	1400	0.20
8	1100	0.15	790	0.15	1950	0.22	1250	0.22
9	975	0.17	700	0.17	1750	0.24	1100	0.24
10	875	0.18	630	0.18	1600	0.28	980	0.28
11	800	0.20	575	0.20	1450	0.28	890	0.28
12	730	0.20	525	0.20	1300	0.28	815	0.28
13	675	0.20	485	0.20	1200	0.28	755	0.28

N = R.P.M

S = Feed per Revolution (mm/rev.)



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



WORM PATTERN DRILLS










FLACHNUTBOHRER

- Drilling Deep Holes
- Zum Tieflochbohren


SELECTION GUIDE

DH100, DH50-WORM PATTERN DRILLS

DH100-For Deep hole drilling in general steels

ITEM	MODEL	DESCRIPTION	SIZE		PAGE	
			MIN	MAX		
DH100 DL510		HSS-E, STRAIGHT SHANK DRILLS for DEEP HOLES, FORM B HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT	<i>STUB EXTRA KURZ</i>	D2.0	D20.0	142
DH100 DL508		HSS-E, STRAIGHT SHANK DRILLS for DEEP HOLES, FORM B HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D2.0	D16.0	144
DH100 DL509		HSS-E, STRAIGHT SHANK DRILLS for DEEP HOLES, FORM B HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT	<i>LONG LANG</i>	D2.0	D12.0	146
DH100 DL505		HSS-E, STRAIGHT SHANK DRILLS for DEEP HOLES, FORM C HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D2.0	D13.0	148
DH100 DL504		HSS-E, STRAIGHT SHANK DRILLS for DEEP HOLES, FORM C HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT	<i>LONG LANG</i>	D2.0	D13.0	150
DH100 DL600		HSS-E, STRAIGHT SHANK DRILLS for DEEP HOLES, FORM C HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT	<i>EXTRA LONG ÜBERLANG</i>	D2.0	D13.0	151
DH100 DL608		HSS-E, TAPER SHANK DRILLS for DEEP HOLES, FORM C HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT	<i>LONG LANG</i>	D13.0	D30.0	152
DH100 DL609		HSS-E, TAPER SHANK DRILLS for DEEP HOLES, FORM C HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT	<i>EXTRA LONG ÜBERLANG</i>	D13.0	D31.0	153
DH100 DL610		HSS-E, TAPER SHANK DRILLS for DEEP HOLES, FORM C HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT	<i>EXTRA LONG ÜBERLANG</i>	D13.0	D30.0	154

DH50-For Deep hole drilling in aluminum

DH50 DL507		HSS-E, STRAIGHT SHANK DRILLS for ALUMINIUM DEEP HOLES, FORM C HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT	<i>EXTRA LONG ÜBERLANG</i>	D2.0	D13.0	155
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN						157

HSS-E WORM PATTERN DRILLS

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		
◎	◎				○	○			○		

◎	◎				○	◎			○		
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WORM PATTERN DRILLS

DL510 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES *STUB* HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT *EXTRA KURZ*

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL510020	2.0	12	38	DL510047	4.7	24	58
DL510021	2.1	12	38	DL510048	4.8	26	62
DL510022	2.2	13	40	DL510049	4.9	26	62
DL510023	2.3	13	40	DL510050	5.0	26	62
DL510024	2.4	14	43	DL510051	5.1	26	62
DL510025	2.5	14	43	DL510052	5.2	26	62
DL510026	2.6	14	43	DL510053	5.3	26	66
DL510027	2.7	16	46	DL510054	5.4	28	66
DL510028	2.8	16	46	DL510055	5.5	28	66
DL510029	2.9	16	46	DL510056	5.6	28	66
DL510030	3.0	16	46	DL510057	5.7	28	66
DL510031	3.1	18	49	DL510058	5.8	28	66
DL510032	3.2	18	49	DL510059	5.9	28	66
DL510033	3.3	18	49	DL510060	6.0	28	66
DL510034	3.4	20	52	DL510061	6.1	31	70
DL510035	3.5	20	52	DL510062	6.2	31	70
DL510036	3.6	20	52	DL510063	6.3	31	70
DL510037	3.7	20	52	DL510064	6.4	31	70
DL510038	3.8	22	55	DL510065	6.5	31	70
DL510039	3.9	22	55	DL510066	6.6	31	70
DL510040	4.0	22	55	DL510067	6.7	31	70
DL510041	4.1	22	55	DL510068	6.8	34	74
DL510042	4.2	22	55	DL510069	6.9	34	74
DL510043	4.3	24	58	DL510070	7.0	34	74
DL510044	4.4	24	58	DL510071	7.1	34	74
DL510045	4.5	24	58	DL510072	7.2	34	74
DL510046	4.6	24	58	DL510073	7.3	34	74

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		



WORM PATTERN DRILLS

DL510 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES *STUB*

STUB

HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT *EXTRA KURZ*

EXTRA KURZ

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2
	D1				D1		
DL510074	7.4	34	74	DL510100	10.0	43	89
DL510075	7.5	34	74	DL510102	10.2	43	89
DL510076	7.6	37	79	DL510105	10.5	43	89
DL510077	7.7	37	79	DL510108	10.8	47	95
DL510078	7.8	37	79	DL510110	11.0	47	95
DL510079	7.9	37	79	DL510112	11.2	47	95
DL510080	8.0	37	79	DL510115	11.5	47	95
DL510081	8.1	37	79	DL510118	11.8	47	95
DL510082	8.2	37	79	DL510120	12.0	51	102
DL510083	8.3	37	79	DL510125	12.5	51	102
DL510084	8.4	37	79	DL510130	13.0	51	102
DL510085	8.5	37	79	DL510135	13.5	54	107
DL510086	8.6	40	84	DL510140	14.0	54	107
DL510087	8.7	40	84	DL510145	14.5	56	111
DL510088	8.8	40	84	DL510150	15.0	56	111
DL510089	8.9	40	84	DL510155	15.5	58	115
DL510090	9.0	40	84	DL510160	16.0	58	115
DL510091	9.1	40	84	DL510165	16.5	60	119
DL510092	9.2	40	84	DL510170	17.0	60	119
DL510093	9.3	40	84	DL510175	17.5	62	123
DL510094	9.4	40	84	DL510180	18.0	62	123
DL510095	9.5	40	84	DL510185	18.5	64	127
DL510096	9.6	43	89	DL510190	19.0	64	127
DL510097	9.7	43	89	DL510195	19.5	66	131
DL510098	9.8	43	89	DL510200	20.0	66	131
DL510099	9.9	43	89				

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		

WORM PATTERN DRILLS

DL508 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

JOBBER

KURZ

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL508020	2.0	24	49	DL508047	4.7	47	80
DL508021	2.1	24	49	DL508048	4.8	52	86
DL508022	2.2	27	53	DL508049	4.9	52	86
DL508023	2.3	27	53	DL508050	5.0	52	86
DL508024	2.4	30	57	DL508051	5.1	52	86
DL508025	2.5	30	57	DL508052	5.2	52	86
DL508026	2.6	30	57	DL508053	5.3	52	86
DL508027	2.7	33	61	DL508054	5.4	57	93
DL508028	2.8	33	61	DL508055	5.5	57	93
DL508029	2.9	33	61	DL508056	5.6	57	93
DL508030	3.0	33	61	DL508057	5.7	57	93
DL508031	3.1	36	65	DL508058	5.8	57	93
DL508032	3.2	36	65	DL508059	5.9	57	93
DL508033	3.3	36	65	DL508060	6.0	57	93
DL508034	3.4	39	70	DL508061	6.1	63	101
DL508035	3.5	39	70	DL508062	6.2	63	101
DL508036	3.6	39	70	DL508063	6.3	63	101
DL508037	3.7	39	70	DL508064	6.4	63	101
DL508038	3.8	43	75	DL508065	6.5	63	101
DL508039	3.9	43	75	DL508066	6.6	63	101
DL508040	4.0	43	75	DL508067	6.7	63	101
DL508041	4.1	43	75	DL508068	6.8	69	109
DL508042	4.2	43	75	DL508069	6.9	69	109
DL508043	4.3	47	80	DL508070	7.0	69	109
DL508044	4.4	47	80	DL508071	7.1	69	109
DL508045	4.5	47	80	DL508072	7.2	69	109
DL508046	4.6	47	80	DL508073	7.3	69	109

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		



WORM PATTERN DRILLS

DL508 SERIES

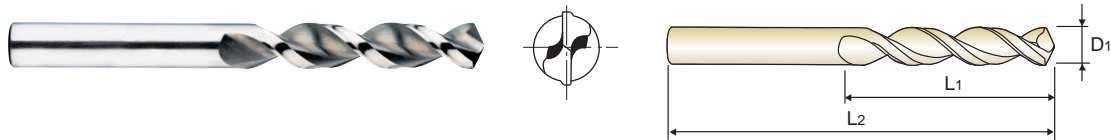
HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

JOBBER

KURZ

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



DIN 338

HSS-E

42°

h8

130°



P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL508074	7.4	69	109	DL508095	9.5	81	125
DL508075	7.5	69	109	DL508096	9.6	87	133
DL508076	7.6	75	117	DL508097	9.7	87	133
DL508077	7.7	75	117	DL508098	9.8	87	133
DL508078	7.8	75	117	DL508099	9.9	87	133
DL508079	7.9	75	117	DL508100	10.0	87	133
DL508080	8.0	75	117	DL508102	10.2	87	133
DL508081	8.1	75	117	DL508105	10.5	87	133
DL508082	8.2	75	117	DL508110	11.0	94	142
DL508083	8.3	75	117	DL508112	11.2	94	142
DL508084	8.4	75	117	DL508115	11.5	94	142
DL508085	8.5	75	117	DL508120	12.0	101	151
DL508086	8.6	81	125	DL508125	12.5	101	151
DL508087	8.7	81	125	DL508130	13.0	101	151
DL508088	8.8	81	125	DL508135	13.5	108	160
DL508089	8.9	81	125	DL508140	14.0	108	160
DL508090	9.0	81	125	DL508145	14.5	114	169
DL508091	9.1	81	125	DL508150	15.0	114	169
DL508092	9.2	81	125	DL508155	15.5	120	178
DL508093	9.3	81	125	DL508160	16.0	120	178
DL508094	9.4	81	125				

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

WORM PATTERN DRILLS

DL509 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

LONG LANG

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL509020	2.0	56	85	DL509047	4.7	82	126
DL509021	2.1	56	85	DL509048	4.8	87	132
DL509022	2.2	59	90	DL509049	4.9	87	132
DL509023	2.3	59	90	DL509050	5.0	87	132
DL509024	2.4	62	95	DL509051	5.1	87	132
DL509025	2.5	62	95	DL509052	5.2	87	132
DL509026	2.6	62	95	DL509053	5.3	87	132
DL509027	2.7	66	100	DL509054	5.4	91	139
DL509028	2.8	66	100	DL509055	5.5	91	139
DL509029	2.9	66	100	DL509056	5.6	91	139
DL509030	3.0	66	100	DL509057	5.7	91	139
DL509031	3.1	69	106	DL509058	5.8	91	139
DL509032	3.2	69	106	DL509059	5.9	91	139
DL509033	3.3	69	106	DL509060	6.0	91	139
DL509034	3.4	73	112	DL509061	6.1	97	148
DL509035	3.5	73	112	DL509062	6.2	97	148
DL509036	3.6	73	112	DL509063	6.3	97	148
DL509037	3.7	73	112	DL509064	6.4	97	148
DL509038	3.8	78	119	DL509065	6.5	97	148
DL509039	3.9	78	119	DL509066	6.6	97	148
DL509040	4.0	78	119	DL509067	6.7	97	148
DL509041	4.1	78	119	DL509068	6.8	102	156
DL509042	4.2	78	119	DL509069	6.9	102	156
DL509043	4.3	82	126	DL509070	7.0	102	156
DL509044	4.4	82	126	DL509071	7.1	102	156
DL509045	4.5	82	126	DL509072	7.2	102	156
DL509046	4.6	82	126	DL509073	7.3	102	156

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		



WORM PATTERN DRILLS

DL509 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

LONG LANG

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



DIN 340

HSS-E

42°

h8

130°



P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL509074	7.4	102	156	DL509090	9.0	115	175
DL509075	7.5	102	156	DL509091	9.1	115	175
DL509076	7.6	109	165	DL509092	9.2	115	175
DL509077	7.7	109	165	DL509093	9.3	115	175
DL509078	7.8	109	165	DL509094	9.4	115	175
DL509079	7.9	109	165	DL509095	9.5	115	175
DL509080	8.0	109	165	DL509096	9.6	121	184
DL509081	8.1	109	165	DL509097	9.7	121	184
DL509082	8.2	109	165	DL509098	9.8	121	184
DL509083	8.3	109	165	DL509099	9.9	121	184
DL509084	8.4	109	165	DL509100	10.0	121	184
DL509085	8.5	109	165	DL509102	10.2	121	184
DL509086	8.6	115	175	DL509105	10.5	121	184
DL509087	8.7	115	175	DL509110	11.0	128	195
DL509088	8.8	115	175	DL509115	11.5	128	195
DL509089	8.9	115	175	DL509120	12.0	134	205

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



WORM PATTERN DRILLS

DL505 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

JOBBER

KURZ

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL505020	2.0	24	49	DL505047	4.7	47	80
DL505021	2.1	24	49	DL505048	4.8	52	86
DL505022	2.2	27	53	DL505049	4.9	52	86
DL505023	2.3	27	53	DL505050	5.0	52	86
DL505024	2.4	30	57	DL505051	5.1	52	86
DL505025	2.5	30	57	DL505052	5.2	52	86
DL505026	2.6	30	57	DL505053	5.3	52	86
DL505027	2.7	33	61	DL505054	5.4	57	93
DL505028	2.8	33	61	DL505055	5.5	57	93
DL505029	2.9	33	61	DL505056	5.6	57	93
DL505030	3.0	33	61	DL505057	5.7	57	93
DL505031	3.1	36	65	DL505058	5.8	57	93
DL505032	3.2	36	65	DL505059	5.9	57	93
DL505033	3.3	36	65	DL505060	6.0	57	93
DL505034	3.4	39	70	DL505061	6.1	63	101
DL505035	3.5	39	70	DL505062	6.2	63	101
DL505036	3.6	39	70	DL505063	6.3	63	101
DL505037	3.7	39	70	DL505064	6.4	63	101
DL505038	3.8	43	75	DL505065	6.5	63	101
DL505039	3.9	43	75	DL505066	6.6	63	101
DL505040	4.0	43	75	DL505067	6.7	63	101
DL505041	4.1	43	75	DL505068	6.8	69	109
DL505042	4.2	43	75	DL505069	6.9	69	109
DL505043	4.3	47	80	DL505070	7.0	69	109
DL505044	4.4	47	80	DL505071	7.1	69	109
DL505045	4.5	47	80	DL505072	7.2	69	109
DL505046	4.6	47	80	DL505073	7.3	69	109

► TiN(DN505), TiCN(DX505) and TiAlN(DT505) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○			○		



WORM PATTERN DRILLS

DL505 SERIES

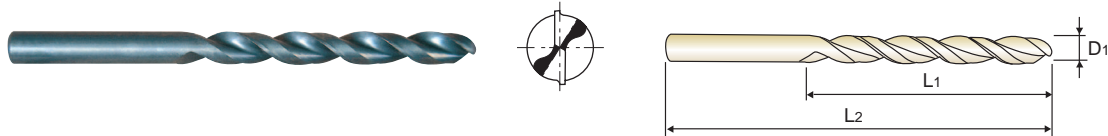
HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

JOBBER

KURZ

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



DIN 338

HSS-E

38°

h8

130°



P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL505074	7.4	69	109	DL505094	9.4	81	125
DL505075	7.5	69	109	DL505095	9.5	81	125
DL505076	7.6	75	117	DL505096	9.6	87	133
DL505077	7.7	75	117	DL505097	9.7	87	133
DL505078	7.8	75	117	DL505098	9.8	87	133
DL505079	7.9	75	117	DL505099	9.9	87	133
DL505080	8.0	75	117	DL505100	10.0	87	133
DL505081	8.1	75	117	DL505101	10.1	87	133
DL505082	8.2	75	117	DL505102	10.2	87	133
DL505083	8.3	75	117	DL505105	10.5	87	133
DL505084	8.4	75	117	DL505108	10.8	94	142
DL505085	8.5	75	117	DL505110	11.0	94	142
DL505086	8.6	81	125	DL505112	11.2	94	142
DL505087	8.7	81	125	DL505115	11.5	94	142
DL505088	8.8	81	125	DL505118	11.8	94	142
DL505089	8.9	81	125	DL505120	12.0	101	151
DL505090	9.0	81	125	DL505122	12.2	101	151
DL505091	9.1	81	125	DL505125	12.5	101	151
DL505092	9.2	81	125	DL505128	12.8	101	151
DL505093	9.3	81	125	DL505130	13.0	101	151

► TiN(DN505), TiCN(DX505) and TiAlN(DT505) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



WORM PATTERN DRILLS

DL504 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

LONG LANG

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl,Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► **DH100 worm pattern drills**

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL504020	2.0	56	85	DL504052	5.2	87	132
DL504021	2.1	56	85	DL504055	5.5	91	139
DL504022	2.2	59	90	DL504058	5.8	91	139
DL504023	2.3	59	90	DL504060	6.0	91	139
DL504024	2.4	62	95	DL504062	6.2	97	148
DL504025	2.5	62	95	DL504065	6.5	97	148
DL504026	2.6	62	95	DL504068	6.8	102	156
DL504027	2.7	66	100	DL504070	7.0	102	156
DL504028	2.8	66	100	DL504072	7.2	102	156
DL504029	2.9	66	100	DL504075	7.5	102	156
DL504030	3.0	66	100	DL504078	7.8	109	165
DL504031	3.1	69	106	DL504080	8.0	109	165
DL504032	3.2	69	106	DL504082	8.2	109	165
DL504033	3.3	69	106	DL504085	8.5	109	165
DL504034	3.4	73	112	DL504090	9.0	115	175
DL504035	3.5	73	112	DL504095	9.5	115	175
DL504036	3.6	73	112	DL504098	9.8	121	184
DL504037	3.7	73	112	DL504100	10.0	121	184
DL504038	3.8	78	119	DL504105	10.5	121	184
DL504039	3.9	78	119	DL504110	11.0	128	195
DL504040	4.0	78	119	DL504115	11.5	128	195
DL504042	4.2	78	119	DL504120	12.0	134	205
DL504045	4.5	82	126	DL504125	12.5	134	205
DL504048	4.8	87	132	DL504130	13.0	134	205
DL504050	5.0	87	132				

► TiN(DN504), TiCN(DX504) and TiAIN(DT504) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		



WORM PATTERN DRILLS

DL600 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit ZYLINDERSCHAFT

EXTRA LONG**ÜBERLANG**

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL600020	2.0	85	125	DL600070	7.0	155	225
DL600922	2.25	90	135	DL600972	7.25	155	225
DL600025	2.5	95	140	DL600075	7.5	155	225
DL600927	2.75	100	150	DL600977	7.75	165	240
DL600030	3.0	100	150	DL600080	8.0	165	240
DL600932	3.25	105	155	DL600982	8.25	165	240
DL600035	3.5	115	165	DL600085	8.5	165	240
DL600937	3.75	115	165	DL600987	8.75	175	250
DL600040	4.0	120	175	DL600090	9.0	175	250
DL600942	4.25	120	175	DL600992	9.25	175	250
DL600045	4.5	125	185	DL600095	9.5	175	250
DL600947	4.75	125	185	DL600997	9.75	185	265
DL600050	5.0	135	195	DL600100	10.0	185	265
DL600952	5.25	135	195	DL600105	10.5	185	265
DL600055	5.5	140	205	DL600110	11.0	195	280
DL600957	5.75	140	205	DL600115	11.5	195	280
DL600060	6.0	140	205	DL600120	12.0	205	295
DL600962	6.25	150	215	DL600125	12.5	205	295
DL600065	6.5	150	215	DL600130	13.0	205	295
DL600967	6.75	155	225				

► TiN(DN600), TiCN(DX600) and TiAlN(DT600) are available on your request.

© : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		

WORM PATTERN DRILLS

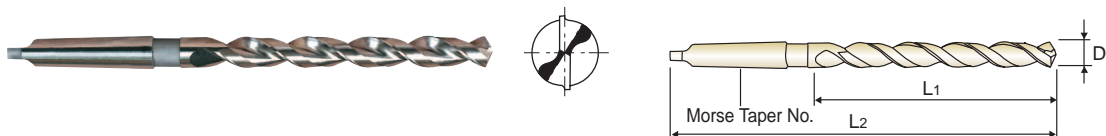
DL608 SERIES

HSS-E, MORSE TAPER SHANK TWIST DRILLS for DEEP HOLES HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT

LONG LANG

► **Application** : Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



DIN 341
HSS-E
38°
1~3
h8
130°
P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	No. of Morse Taper	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	No. of Morse Taper
	D1					D1			
DL608130	13.0	134	215	1	DL608195	19.5	177	275	2
DL608135	13.5	142	223	1	DL608200	20.0	177	275	2
DL608140	14.0	142	223	1	DL608210	21.0	184	282	2
DL608145	14.5	147	245	2	DL608220	22.0	191	289	2
DL608150	15.0	147	245	2	DL608230	23.0	198	296	2
DL608155	15.5	153	251	2	DL608240	24.0	206	327	3
DL608160	16.0	153	251	2	DL608250	25.0	206	327	3
DL608165	16.5	159	257	2	DL608260	26.0	214	335	3
DL608170	17.0	159	257	2	DL608270	27.0	222	343	3
DL608175	17.5	165	263	2	DL608280	28.0	222	343	3
DL608180	18.0	165	263	2	DL608290	29.0	230	351	3
DL608185	18.5	171	269	2	DL608300	30.0	230	351	3
DL608190	19.0	171	269	2					

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		



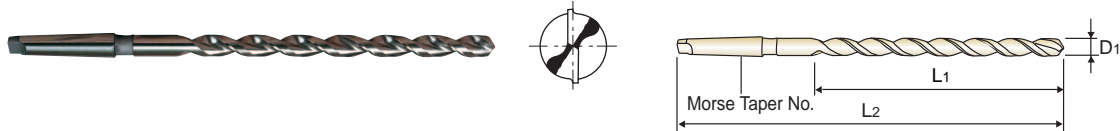
WORM PATTERN DRILLS

DL609 SERIES

HSS-E, MORSE TAPER SHANK TWIST DRILLS for DEEP HOLES *EXTRA LONG* HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT *ÜBERLANG*

► **Application** : Designed for drilling deep holes or deeply located holes.
Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher
Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length		No. of Morse Taper	EDP No.	Drill Diameter	Flute Length L1	Overall Length		No. of Morse Taper
	D1		L2	L2			D1		L2	L2	
DL609130	13.0	205	310	1	DL609220	22.0	270	405	2		
DL609135	13.5	220	325	1	DL609225	22.5	270	405	2		
DL609140	14.0	220	325	1	DL609230	23.0	270	405	2		
DL609145	14.5	220	340	2	DL609235	23.5	270	425	3		
DL609150	15.0	220	340	2	DL609240	24.0	290	440	3		
DL609155	15.5	230	355	2	DL609245	24.5	290	440	3		
DL609160	16.0	230	355	2	DL609250	25.0	290	440	3		
DL609165	16.5	230	355	2	DL609255	25.5	290	440	3		
DL609170	17.0	230	355	2	DL609260	26.0	290	440	3		
DL609175	17.5	245	370	2	DL609265	26.5	290	440	3		
DL609180	18.0	245	370	2	DL609270	27.0	305	460	3		
DL609185	18.5	245	370	2	DL609275	27.5	305	460	3		
DL609190	19.0	245	370	2	DL609280	28.0	305	460	3		
DL609195	19.5	260	385	2	DL609285	28.5	305	460	3		
DL609200	20.0	260	385	2	DL609290	29.0	305	460	3		
DL609205	20.5	260	385	2	DL609295	29.5	305	460	3		
DL609210	21.0	260	385	2	DL609300	30.0	305	460	3		
DL609215	21.5	270	405	2	DL609310	31.0	320	480	3		

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

WORM PATTERN DRILLS

DL610 SERIES

HSS-E, MORSE TAPER SHANK TWIST DRILLS for DEEP HOLES EXTRA LONG HSS-E, SPIRALBOHRER für TIEFLOCH mit MORSEKEGELSCHAFT ÜBERLANG

► **Application** : Designed for drilling deep holes or deeply located holes.
Drilling deep holes in non alloy steels, alloy steels, grey cast iron, malleable cast iron, special aluminum or magnesium alloys.

► **Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher
Zum Bohren von legiertem und unlegiertem stahl, Grauguß, Temperguß, Sphäroguß, Druckguß, Alu-Legierungen kurzspanend, Bronze, Messing zäh, Neusilber.



DIN 1870/2
HSS-E
38°
1~3
h8
130°
P.157

► DH100 worm pattern drills

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No. of Morse Taper	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No. of Morse Taper
DL610130	13.0	260	395	1	DL610220	22.0	345	515	2
DL610135	13.5	275	410	1	DL610225	22.5	345	515	2
DL610140	14.0	275	410	1	DL610230	23.0	345	515	2
DL610145	14.5	275	425	2	DL610235	23.5	345	535	3
DL610150	15.0	275	425	2	DL610240	24.0	365	555	3
DL610155	15.5	295	445	2	DL610245	24.5	365	555	3
DL610160	16.0	295	445	2	DL610250	25.0	365	555	3
DL610165	16.5	295	445	2	DL610255	25.5	365	555	3
DL610170	17.0	295	445	2	DL610260	26.0	365	555	3
DL610175	17.5	310	465	2	DL610265	26.5	365	555	3
DL610180	18.0	310	465	2	DL610270	27.0	385	580	3
DL610185	18.5	310	465	2	DL610275	27.5	385	580	3
DL610190	19.0	310	465	2	DL610280	28.0	385	580	3
DL610195	19.5	325	490	2	DL610285	28.5	385	580	3
DL610200	20.0	325	490	2	DL610290	29.0	385	580	3
DL610205	20.5	325	490	2	DL610295	29.5	385	580	3
DL610210	21.0	325	490	2	DL610300	30.0	385	580	3
DL610215	21.5	345	515	2					

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○			○		

◎ : Excellent ○ : Good



WORM PATTERN DRILLS

DL507 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES *EXTRA LONG* HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT *ÜBERLANG*

► **Application** : Drilling deep holes in aluminum and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.

► **Verwendung** : Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunststoffe und Holz.



► DH50 worm pattern drills

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2
DL507120	2.0	40	75	DL507430	3.0	100	200
DL507121	2.1	40	75	DL507433	3.3	100	200
DL507220	2.0	50	100	DL507435	3.5	100	200
DL507221	2.1	50	100	DL507440	4.0	100	200
DL507225	2.5	50	100	DL507442	4.2	100	200
DL507227	2.7	50	100	DL507445	4.5	100	200
DL507230	3.0	50	100	DL507450	5.0	100	200
DL507233	3.3	50	100	DL507453	5.3	100	200
DL507235	3.5	50	100	DL507455	5.5	100	200
DL507320	2.0	75	150	DL507460	6.0	100	200
DL507321	2.1	75	150	DL507465	6.5	100	200
DL507325	2.5	75	150	DL507468	6.8	100	200
DL507327	2.7	75	150	DL507470	7.0	100	200
DL507330	3.0	75	150	DL507475	7.5	100	200
DL507333	3.3	75	150	DL507480	8.0	100	200
DL507335	3.5	75	150	DL507485	8.5	100	200
DL507340	4.0	75	150	DL507488	8.8	100	200
DL507342	4.2	75	150	DL507490	9.0	100	200
DL507345	4.5	75	150	DL507495	9.5	100	200
DL507350	5.0	75	150	DL507700	10.0	100	200
DL507353	5.3	75	150	DL507540	4.0	150	250
DL507355	5.5	75	150	DL507542	4.2	150	250
DL507360	6.0	75	150	DL507545	4.5	150	250
				DL507550	5.0	150	250
				DL507553	5.3	150	250

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	◎			○		

WORM PATTERN DRILLS

DL507 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS for ALUMINUM DEEP HOLES *EXTRA LONG* HSS-E, SPIRALBOHRER für ALUMINIUM TIEFLOCH mit ZYLINDERSCHAFT *ÜBERLANG*

► **Application** : Drilling deep holes in aluminum and its alloys, silumin, zinc, refined copper, wood and other soft synthetic materials.

► **Verwendung** : Zum Bohren von weichen und langspanenden Werkstoffen wie Alu-Legierungen, Zink, Kupfer, Kunststoffe und Holz.



► DH50 worm pattern drills

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL507555	5.5	150	250	DL507650	5.0	180	300
DL507560	6.0	150	250	DL507653	5.3	180	300
DL507565	6.5	150	250	DL507655	5.5	180	300
DL507568	6.8	150	250	DL507660	6.0	180	300
DL507570	7.0	150	250	DL507665	6.5	180	300
DL507575	7.5	150	250	DL507668	6.8	180	300
DL507580	8.0	150	250	DL507670	7.0	180	300
DL507585	8.5	150	250	DL507675	7.5	180	300
DL507588	8.8	150	250	DL507680	8.0	180	300
DL507590	9.0	150	250	DL507685	8.5	180	300
DL507595	9.5	150	250	DL507688	8.8	180	300
DL507800	10.0	150	250	DL507690	9.0	180	300
DL507803	10.3	150	250	DL507695	9.5	180	300
DL507805	10.5	150	250	DL507900	10.0	180	300
DL507810	11.0	150	250	DL507903	10.3	180	300
DL507815	11.5	150	250	DL507905	10.5	180	300
DL507820	12.0	150	250	DL507910	11.0	180	300
DL507825	12.5	150	250	DL507915	11.5	180	300
DL507830	13.0	150	250	DL507920	12.0	180	300
				DL507925	12.5	180	300
				DL507930	13.0	180	300

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	◎			○		



WORM PATTERN DRILLS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

HSS-E, DH100 TYPE WORM PATTERN DRILLS, DIN1897, DIN338, DIN340, DIN1869, DIN341, DIN1870
HSS-E, DH100 TYPE WORM PATTERN SPIRALBOHRER, DIN1897, DIN 338, DIN 340, DIN 1869, DIN 341, DIN 1870

DL510, DL508, DL509, DL505, DL504, DL600, DL608, DL609, DL610 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS ALLOY STEELS		TOOL STEELS HARDENED STEELS		SOFT GREY CAST IRON		HARD GREY CAST IRON	
	HRC15 ~ 30		HRC20 ~ 40					
STRENGTH	700 ~ 1000 N/mm ²		800 ~ 1200 N/mm ²					
DIAMETER	N	S	N	S	N	S	N	S
2.0	2630	0.03	2100	0.025	4200	0.06	1680	0.05
2.5	2100	0.04	1680	0.03	3300	0.08	1310	0.06
3.0	1680	0.05	1310	0.04	2630	0.10	1050	0.08
4.0	1310	0.06	1050	0.05	2100	0.13	840	0.10
5.0	1050	0.06	840	0.05	1680	0.13	660	0.10
6.0	840	0.08	660	0.06	1310	0.16	530	0.13
8.0	660	0.10	530	0.08	1050	0.20	420	0.17
10.0	530	0.13	420	0.10	840	0.25	330	0.21
13.0	420	0.13	330	0.10	660	0.25	260	0.21
16.0	330	0.15	260	0.13	530	0.30	210	0.25
20.0	260	0.20	210	0.15	420	0.40	170	0.30
25.0	210	0.25	170	0.20	330	0.50	130	0.50
30.0	170	0.25	130	0.20	260	0.50	110	0.50

N = R.P.M
S = Feed per Revolution (mm/rev.)

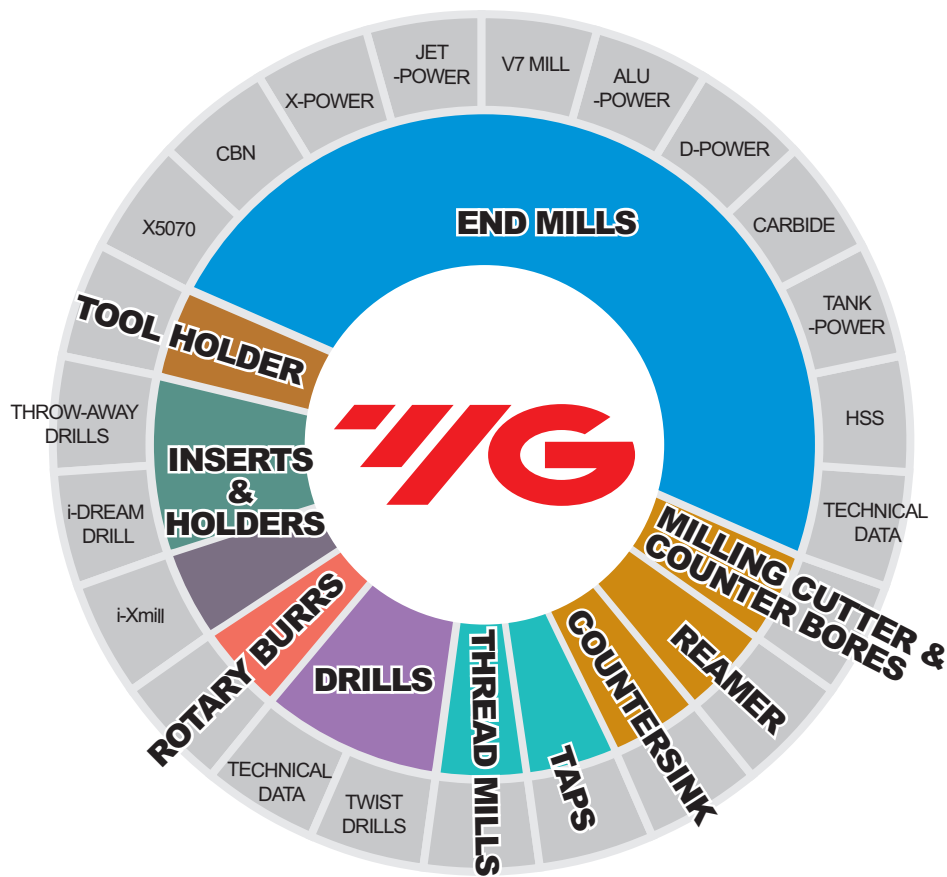
HSS-E, DH50 TYPE WORM PATTERN DRILLS HSS-E, DH50 TYPE WORM PATTERN SPIRALBOHRER

DL507 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS ALLOY STEELS		SOFT GREY CAST IRON		ALUMINUM ALLOY	
	HRC15 ~ 30					
STRENGTH	700 ~ 1000 N/mm ²					
DIAMETER	N	S	N	S	N	S
2.0	2630	0.03	4200	0.06	8700	0.04
2.5	2100	0.04	3300	0.08	6950	0.05
3.0	1680	0.05	2630	0.10	5800	0.06
4.0	1310	0.06	2100	0.13	4300	0.08
5.0	1050	0.06	1680	0.13	3500	0.10
6.0	840	0.08	1310	0.16	2900	0.12
8.0	660	0.10	1050	0.20	2200	0.16
10.0	530	0.13	840	0.25	1750	0.20
13.0	420	0.13	660	0.25	1350	0.26

N = R.P.M
S = Feed per Revolution (mm/rev.)

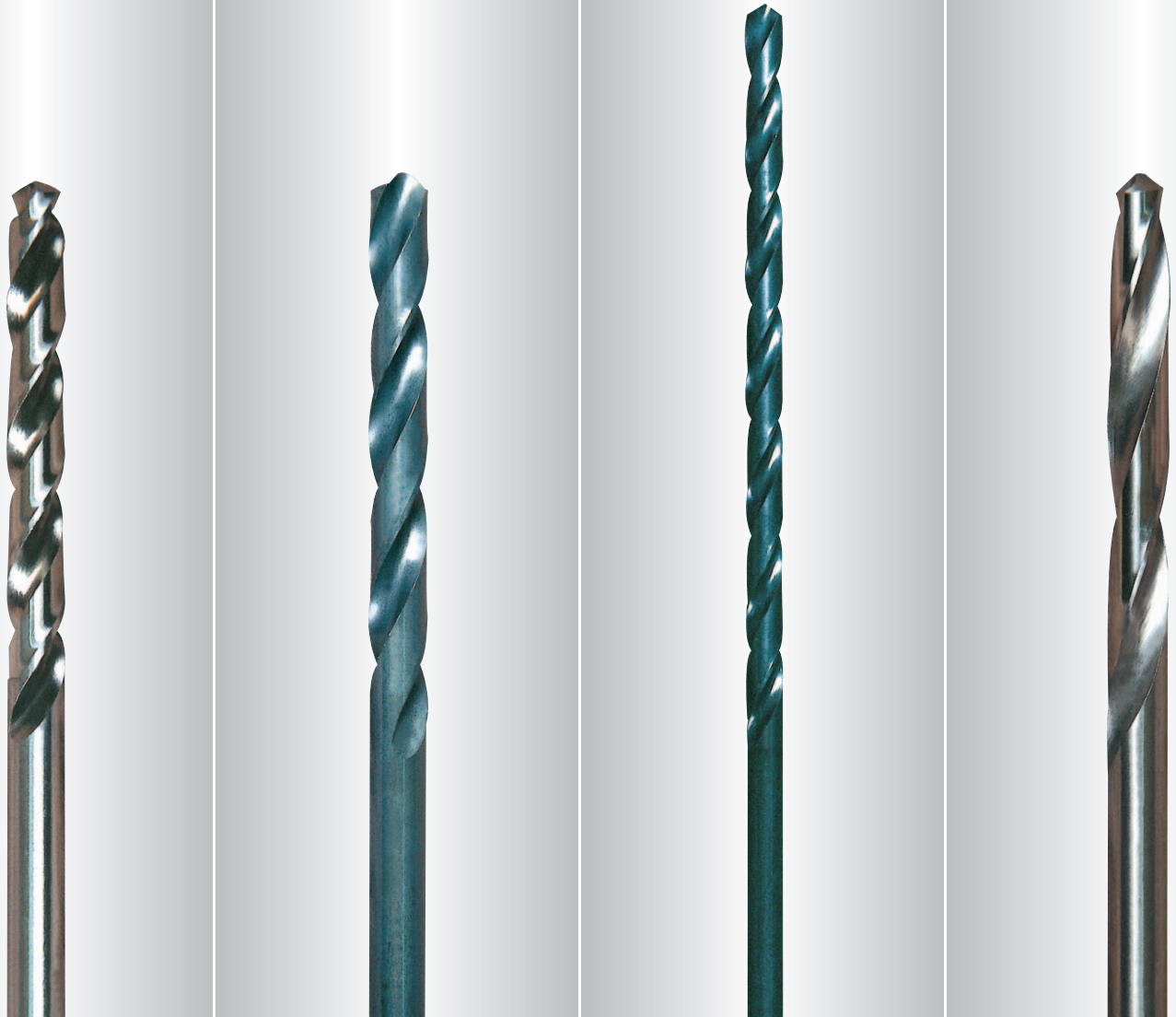


Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



STRAIGHT SHANK DRILLS












BOHRER MIT ZYLINDERSCHAFT

- General Purpose (HSS & HSS-E & 8% Cobalt)
- Für allgemeinen Einsatz, HSS und HSSE-Co8

SELECTION GUIDE

STRAIGHT SHANK TWIST DRILLS

HSS Drills for soft materials & HSS cobalt Drills for tough materials

ITEM	MODEL	DESCRIPTION	SIZE		PAGE	
			MIN	MAX		
D2107		HSSCo8, STRAIGHT SHANK TWIST DRILLS, FORM C HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>STUB EXTRA KURZ</i>	D1.0	D31.0	162
D1107		HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>STUB EXTRA KURZ</i>	D1.0	D13.0	165
D2105		HSSCo8, STRAIGHT SHANK TWIST DRILLS, FORM C HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D1.0	D20.0	167
DL105		HSS-E, STRAIGHT SHANK TWIST DRILLS, FORM C HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D1.0	D20.0	170
D1105		HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D0.3	D20.0	173
D1125		HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D2.0	D20.0	177
D2104		HSSCo8, STRAIGHT SHANK TWIST DRILLS HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>LONG LANG</i>	D2.0	D12.0	180
D1121		HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT	<i>EXTRA LONG ÜBERLANG</i>	D2.0	D13.0	182
DL109		HSS-E, STRAIGHT SHANK TWIST DRILLS for HEAVY DUTY HSS-E, SPIRALBOHRER für HOHE LEISTUNGEN mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D1.5	D13.0	183
D1100		HSS, STRAIGHT SHANK TWIST DRILLS for BRASS HSS, SPIRALBOHRER für MESSING mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D1.5	D13.0	184
D1106		HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM, FORM C HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT	<i>JOBBER KURZ</i>	D1.5	D13.0	186
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN						188

HSS STRAIGHT SHANK DRILLS

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		
◎	◎				○	○	○	○	○		
◎	◎				○	○	◎	○	○		
◎	◎				○	○	◎	○	○		
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◎	◎				○	○	○	○	○		
											◎
						◎					○

Y/G STRAIGHT SHANK DRILLS

D2107 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS

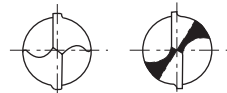
STUB

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

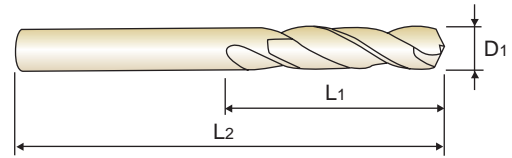
EXTRA KURZ

- ▶ **Surface treatment:** Coloring(Gold color)
- ▶ **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes

- ▶ **Oberflächenbehandlung** : Coloring(Goldfarbe)
- ▶ **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



up to 1.5mm over 1.5mm



DIN 1897
HSS Co8
N 33°
h8
135°
P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2107010	1.0	6	26	D2107034	3.4	20	52
D2107011	1.1	7	28	D2107035	3.5	20	52
D2107012	1.2	8	30	D2107036	3.6	20	52
D2107912	1.25	8	30	D2107037	3.7	20	52
D2107013	1.3	8	30	D2107937	3.75	20	52
D2107014	1.4	9	32	D2107038	3.8	22	55
D2107015	1.5	9	32	D2107039	3.9	22	55
D2107016	1.6	10	34	D2107040	4.0	22	55
D2107017	1.7	10	34	D2107041	4.1	22	55
D2107917	1.75	11	36	D2107042	4.2	22	55
D2107018	1.8	11	36	D2107942	4.25	22	55
D2107019	1.9	11	36	D2107043	4.3	24	58
D2107020	2.0	12	38	D2107044	4.4	24	58
D2107021	2.1	12	38	D2107045	4.5	24	58
D2107022	2.2	13	40	D2107046	4.6	24	58
D2107925	2.55	13	40	D2107946	4.65	24	58
D2107023	2.3	13	40	D2107047	4.7	24	58
D2107024	2.4	14	43	D2107947	4.75	24	58
D2107025	2.5	14	43	D2107048	4.8	26	62
D2107026	2.6	14	43	D2107049	4.9	26	62
D2107027	2.7	16	46	D2107050	5.0	26	62
D2107927	2.75	16	46	D2107051	5.1	26	62
D2107028	2.8	16	46	D2107052	5.2	26	62
D2107029	2.9	16	46	D2107952	5.25	26	62
D2107030	3.0	16	46	D2107053	5.3	26	62
D2107031	3.1	18	49	D2107054	5.4	28	66
D2107032	3.2	18	49	D2107055	5.5	28	66
D2107932	3.25	18	49	D2107955	5.55	28	66
D2107033	3.3	18	49	D2107056	5.6	28	66

- ▶ HSS-E(DL107) is available on your request.
- ▶ TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		



STRAIGHT SHANK DRILLS

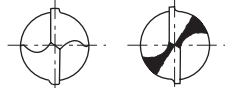
D2107 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

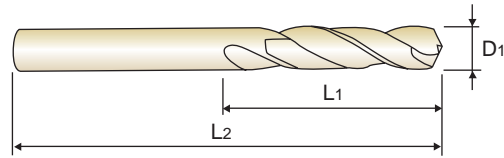
STUB**EXTRA KURZ**

- **Surface treatment:** Coloring(Gold color)
 ► **Application** : Suitable for drilling thin materials with portable electric drills.
 Special twist drills for automatic and turret lathes

- **Oberflächenbehandlung** : Coloring(Goldfarbe)
 ► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



up to 1.5mm over 1.5mm



DIN 1897

HSS Co8

N 33°

h8

135°



P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2107057	5.7	28	66	D2107080	8.0	37	79
D2107957	5.75	28	66	D2107081	8.1	37	79
D2107058	5.8	28	66	D2107082	8.2	37	79
D2107059	5.9	28	66	D2107982	8.25	37	79
D2107060	6.0	28	66	D2107083	8.3	37	79
D2107061	6.1	31	70	D2107084	8.4	37	79
D2107062	6.2	31	70	D2107085	8.5	37	79
D2107962	6.25	31	70	D2107086	8.6	40	84
D2107063	6.3	31	70	D2107087	8.7	40	84
D2107064	6.4	31	70	D2107987	8.75	40	84
D2107065	6.5	31	70	D2107088	8.8	40	84
D2107066	6.6	31	70	D2107089	8.9	40	84
D2107067	6.7	31	70	D2107090	9.0	40	84
D2107967	6.75	34	74	D2107091	9.1	40	84
D2107068	6.8	34	74	D2107092	9.2	40	84
D2107069	6.9	34	74	D2107992	9.25	40	84
D2107070	7.0	34	74	D2107093	9.3	40	84
D2107071	7.1	34	74	D2107993	9.35	40	84
D2107072	7.2	34	74	D2107094	9.4	40	84
D2107972	7.25	34	74	D2107095	9.5	40	84
D2107073	7.3	34	74	D2107096	9.6	43	89
D2107074	7.4	34	74	D2107097	9.7	43	89
D2107974	7.45	34	74	D2107997	9.75	43	89
D2107075	7.5	34	74	D2107098	9.8	43	89
D2107076	7.6	37	79	D2107099	9.9	43	89
D2107077	7.7	37	79	D2107100	10.0	43	89
D2107977	7.75	37	79	D2107102	10.2	43	89
D2107078	7.8	37	79	D2107802	10.25	43	89
D2107079	7.9	37	79	D2107105	10.5	43	89

- HSS-E(DL107) is available on your request.
 ► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	○	○	○		

Y/G STRAIGHT SHANK DRILLS

D2107 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS

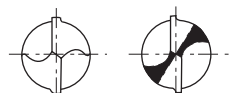
STUB

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

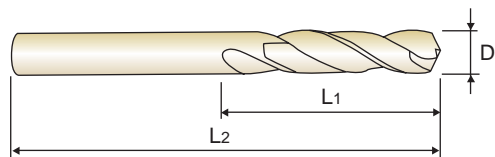
EXTRA KURZ

► **Surface treatment:** Coloring(Gold color)
 ► **Application:** Suitable for drilling thin materials with portable electric drills.
 Special twist drills for automatic and turret lathes

► **Oberflächenbehandlung:** Coloring(Goldfarbe)
 ► **Verwendung:** Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



up to 1.5mm over 1.5mm



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2107807	10.75	47	95	D2107872	17.25	62	123
D2107110	11.0	47	95	D2107175	17.5	62	123
D2107812	11.25	47	95	D2107877	17.75	62	123
D2107115	11.5	47	95	D2107180	18.0	62	123
D2107817	11.75	47	95	D2107882	18.25	64	127
D2107118	11.8	47	95	D2107185	18.5	64	127
D2107120	12.0	51	102	D2107887	18.75	64	127
D2107822	12.25	51	102	D2107190	19.0	64	127
D2107125	12.5	51	102	D2107892	19.25	66	131
D2107827	12.75	51	102	D2107195	19.5	66	131
D2107130	13.0	51	102	D2107897	19.75	66	131
D2107832	13.25	54	107	D2107200	20.0	66	131
D2107135	13.5	54	107	D2107205	20.5	68	136
D2107837	13.75	54	107	D2107210	21.0	68	136
D2107138	13.8	54	107	D2107215	21.5	70	141
D2107140	14.0	54	107	D2107220	22.0	70	141
D2107842	14.25	56	111	D2107225	22.5	72	146
D2107145	14.5	56	111	D2107230	23.0	72	146
D2107847	14.75	56	111	D2107235	23.5	72	146
D2107150	15.0	56	111	D2107240	24.0	75	151
D2107852	15.25	58	115	D2107245	24.5	75	151
D2107155	15.5	58	115	D2107250	25.0	75	151
D2107857	15.75	58	115	D2107260	26.0	78	156
D2107160	16.0	58	115	D2107270	27.0	81	162
D2107862	16.25	60	119	D2107280	28.0	81	162
D2107165	16.5	60	119	D2107290	29.0	84	168
D2107867	16.75	60	119	D2107300	30.0	84	168
D2107170	17.0	60	119	D2107310	31.0	87	174

► HSS-E(DL107) is available on your request.
 ► TiN(D4107), TiCN(D7107) and TiAlN(DQ107) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		



STRAIGHT SHANK DRILLS

D1107 SERIES

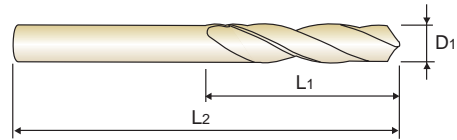
HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

STUB

EXTRA KURZ

- **Surface treatment:** Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm
- **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.

- **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2 mm
- **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken.
Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS N 20~30° h8 118° P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1107010	1.0	6	26	D1107036	3.6	20	52
D1107011	1.1	7	28	D1107037	3.7	20	52
D1107012	1.2	8	30	D1107937	3.75	20	52
D1107912	1.25	8	30	D1107038	3.8	22	55
D1107013	1.3	8	30	D1107039	3.9	22	55
D1107014	1.4	9	32	D1107040	4.0	22	55
D1107015	1.5	9	32	D1107041	4.1	22	55
D1107016	1.6	9	34	D1107042	4.2	22	55
D1107017	1.7	10	34	D1107942	4.25	22	55
D1107917	1.75	11	36	D1107043	4.3	24	58
D1107018	1.8	11	36	D1107044	4.4	24	58
D1107019	1.9	11	36	D1107045	4.5	24	58
D1107020	2.0	12	38	D1107046	4.6	24	58
D1107021	2.1	12	38	D1107047	4.7	24	58
D1107022	2.2	13	40	D1107947	4.75	24	58
D1107922	2.25	13	40	D1107048	4.8	26	62
D1107023	2.3	13	40	D1107049	4.9	26	62
D1107024	2.4	14	43	D1107050	5.0	26	62
D1107025	2.5	14	43	D1107051	5.1	26	62
D1107026	2.6	14	43	D1107052	5.2	26	62
D1107027	2.7	16	46	D1107952	5.25	26	62
D1107927	2.75	16	46	D1107053	5.3	26	62
D1107028	2.8	16	46	D1107054	5.4	28	66
D1107029	2.9	16	46	D1107055	5.5	28	66
D1107030	3.0	16	46	D1107056	5.6	28	66
D1107031	3.1	18	49	D1107057	5.7	28	66
D1107032	3.2	18	49	D1107957	5.75	28	66
D1107932	3.25	18	49	D1107058	5.8	28	66
D1107033	3.3	18	49	D1107059	5.9	28	66
D1107034	3.4	20	52	D1107060	6.0	28	66
D1107035	3.5	20	52	D1107061	6.1	31	70

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

Y/G STRAIGHT SHANK DRILLS

D1107 SERIES

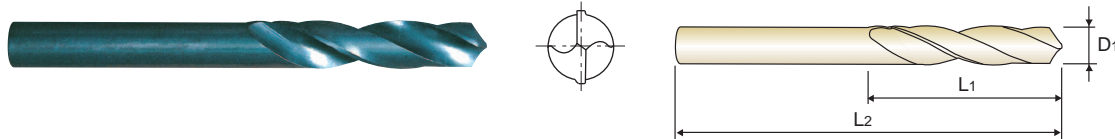
HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

STUB

EXTRA KURZ

► **Surface treatment:** Steam Tempered(Black Oxide Finish)
► **Application** : Suitable for drilling thin materials with portable electric drills.
Special twist drills for automatic and turret lathes.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Sonderbohrer zum Einsatz auf Automaten und Revolverdrehbänken. Geeignet für den Einsatz in Handbohrmaschinen zum Bohren von dünnwandigem Material.



DIN 1897 HSS N 20~30° h8 118° P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1107062	6.2	31	70	D1107087	8.7	40	84
D1107962	6.25	31	70	D1107987	8.75	40	84
D1107063	6.3	31	70	D1107088	8.8	40	84
D1107064	6.4	31	70	D1107089	8.9	40	84
D1107065	6.5	31	70	D1107090	9.0	40	84
D1107066	6.6	31	70	D1107091	9.1	40	84
D1107067	6.7	31	70	D1107092	9.2	40	84
D1107967	6.75	34	74	D1107992	9.25	40	84
D1107068	6.8	34	74	D1107093	9.3	40	84
D1107069	6.9	34	74	D1107094	9.4	40	84
D1107070	7.0	34	74	D1107095	9.5	40	84
D1107071	7.1	34	74	D1107096	9.6	43	89
D1107072	7.2	34	74	D1107097	9.7	43	89
D1107972	7.25	34	74	D1107997	9.75	43	89
D1107073	7.3	34	74	D1107098	9.8	43	89
D1107074	7.4	34	74	D1107099	9.9	43	89
D1107075	7.5	34	74	D1107100	10.0	43	89
D1107076	7.6	37	79	D1107802	10.25	43	89
D1107077	7.7	37	79	D1107105	10.5	43	89
D1107977	7.75	37	79	D1107807	10.75	47	95
D1107078	7.8	37	79	D1107110	11.0	47	95
D1107079	7.9	37	79	D1107812	11.25	47	95
D1107080	8.0	37	79	D1107115	11.5	47	95
D1107081	8.1	37	79	D1107817	11.75	47	95
D1107082	8.2	37	79	D1107120	12.0	51	102
D1107982	8.25	37	79	D1107822	12.25	51	102
D1107083	8.3	37	79	D1107125	12.5	51	102
D1107084	8.4	37	79	D1107827	12.75	51	102
D1107085	8.5	37	79	D1107130	13.0	51	102
D1107086	8.6	40	84				

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		



STRAIGHT SHANK DRILLS

D2105 SERIES

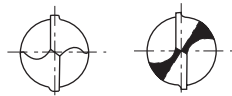
HSSCo8, STRAIGHT SHANK TWIST DRILLS HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

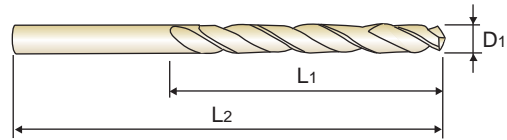
KURZ

► **Surface treatment:** Coloring(Gold color)
 ► **Application:** Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung:** Coloring(Goldfarbe)
 ► **Verwendung:** Zum Bohren von rostfreien und austenitischen. Stählen, schwererspanbaren Werkstoffen wie Titan und Inconel.



up to 1.5mm over 1.5mm



DIN 338 HSS Co8 N 33° h8 135° P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1				L1		
D2105010	1.0	12	34	D2105031	3.1	36	65
D2105011	1.1	14	36	D2105032	3.2	36	65
D2105012	1.2	16	38	D2105932	3.25	36	65
D2105912	1.25	16	38	D2105033	3.3	36	65
D2105013	1.3	16	38	D2105034	3.4	39	70
D2105014	1.4	18	40	D2105035	3.5	39	70
D2105015	1.5	18	40	D2105036	3.6	39	70
D2105016	1.6	20	43	D2105037	3.7	39	70
D2105017	1.7	20	43	D2105937	3.75	39	70
D2105917	1.75	22	46	D2105038	3.8	43	75
D2105018	1.8	22	46	D2105039	3.9	43	75
D2105019	1.9	22	46	D2105040	4.0	43	75
D2105020	2.0	24	49	D2105041	4.1	43	75
D2105021	2.1	24	49	D2105042	4.2	43	75
D2105022	2.2	27	53	D2105942	4.25	43	75
D2105922	2.25	27	53	D2105043	4.3	47	80
D2105023	2.3	27	53	D2105044	4.4	47	80
D2105024	2.4	30	57	D2105045	4.5	47	80
D2105025	2.5	30	57	D2105046	4.6	47	80
D2105026	2.6	30	57	D2105047	4.7	47	80
D2105027	2.7	33	61	D2105947	4.75	47	80
D2105927	2.75	33	61	D2105048	4.8	52	86
D2105028	2.8	33	61	D2105049	4.9	52	86
D2105029	2.9	33	61	D2105050	5.0	52	86
D2105030	3.0	33	61	D2105051	5.1	52	86

► TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	◎	○	○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

Y/G STRAIGHT SHANK DRILLS

D2105 SERIES

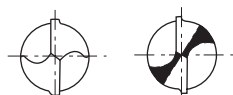
HSSCo8, STRAIGHT SHANK TWIST DRILLS HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

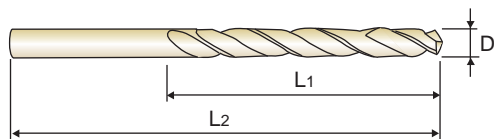
KURZ

► **Surface treatment:** Coloring(Gold color)
► **Application:** Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung:** Coloring(Goldfarbe)
► **Verwendung:** Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



up to 1.5mm over 1.5mm



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2105052	5.2	52	86	D2105972	7.25	69	109
D2105952	5.25	52	86	D2105073	7.3	69	109
D2105053	5.3	52	86	D2105074	7.4	69	109
D2105054	5.4	57	93	D2105075	7.5	69	109
D2105055	5.5	57	93	D2105076	7.6	75	117
D2105056	5.6	57	93	D2105077	7.7	75	117
D2105057	5.7	57	93	D2105977	7.75	75	117
D2105957	5.75	57	93	D2105078	7.8	75	117
D2105058	5.8	57	93	D2105079	7.9	75	117
D2105059	5.9	57	93	D2105080	8.0	75	117
D2105060	6.0	57	93	D2105081	8.1	75	117
D2105061	6.1	63	101	D2105082	8.2	75	117
D2105062	6.2	63	101	D2105982	8.25	75	117
D2105962	6.25	63	101	D2105083	8.3	75	117
D2105063	6.3	63	101	D2105084	8.4	75	117
D2105064	6.4	63	101	D2105085	8.5	75	117
D2105065	6.5	63	101	D2105086	8.6	81	125
D2105066	6.6	63	101	D2105087	8.7	81	125
D2105067	6.7	63	101	D2105987	8.75	81	125
D2105967	6.75	69	109	D2105088	8.8	81	125
D2105068	6.8	69	109	D2105089	8.9	81	125
D2105069	6.9	69	109	D2105090	9.0	81	125
D2105070	7.0	69	109	D2105091	9.1	81	125
D2105071	7.1	69	109	D2105092	9.2	81	125
D2105072	7.2	69	109	D2105992	9.25	81	125

► TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	◎	○	○		



STRAIGHT SHANK DRILLS

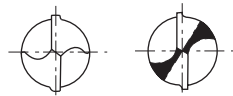
D2105 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

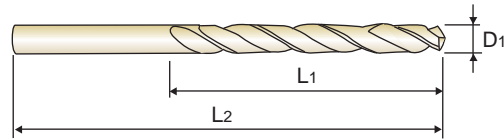
JOBBER**KURZ**

► **Surface treatment:** Coloring(Gold color)
 ► **Application:** Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung:** Coloring(Goldfarbe)
 ► **Verwendung:** Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



up to 1.5mm over 1.5mm



Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2
	D1				D1		
D2105093	9.3	81	125	D2105130	13.0	101	151
D2105094	9.4	81	125	D2105135	13.5	108	160
D2105095	9.5	81	125	D2105140	14.0	108	160
D2105096	9.6	87	133	D2105145	14.5	114	169
D2105097	9.7	87	133	D2105150	15.0	114	169
D2105997	9.75	87	133	D2105155	15.5	120	178
D2105098	9.8	87	133	D2105160	16.0	120	178
D2105099	9.9	87	133	D2105165	16.5	125	184
D2105100	10.0	87	133	D2105170	17.0	125	184
D2105102	10.2	87	133	D2105175	17.5	130	191
D2105105	10.5	87	133	D2105180	18.0	130	191
D2105110	11.0	94	142	D2105185	18.5	135	198
D2105115	11.5	94	142	D2105190	19.0	135	198
D2105120	12.0	101	151	D2105195	19.5	140	205
D2105125	12.5	101	151	D2105200	20.0	140	205

► TiN(D4105), TiCN(D7105) and TiAlN(DQ105) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	◎	○	○		

CARBIDE

HSS

I-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

Y/G STRAIGHT SHANK DRILLS

DL105 SERIES

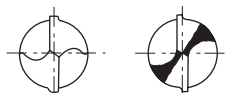
HSS-E, STRAIGHT SHANK TWIST DRILLS HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

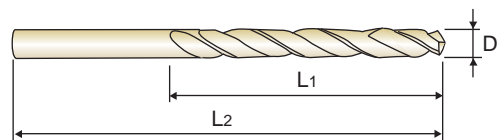
KURZ

► **Surface treatment:** Coloring(Gold color)
► **Application:** Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung:** Coloring(Goldfarbe)
► **Verwendung:** Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



up to 1.5mm over 1.5mm



DIN 338
HSS-E
N 33°
h8
135°
P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL105010	1.0	12	34	DL105031	3.1	36	65
DL105011	1.1	14	36	DL105032	3.2	36	65
DL105012	1.2	16	38	DL105932	3.25	36	65
DL105912	1.25	16	38	DL105033	3.3	36	65
DL105013	1.3	16	38	DL105034	3.4	39	70
DL105014	1.4	18	40	DL105035	3.5	39	70
DL105015	1.5	18	40	DL105036	3.6	39	70
DL105016	1.6	20	43	DL105037	3.7	39	70
DL105017	1.7	20	43	DL105937	3.75	39	70
DL105917	1.75	22	46	DL105038	3.8	43	75
DL105018	1.8	22	46	DL105039	3.9	43	75
DL105019	1.9	22	46	DL105040	4.0	43	75
DL105020	2.0	24	49	DL105041	4.1	43	75
DL105021	2.1	24	49	DL105042	4.2	43	75
DL105022	2.2	27	53	DL105942	4.25	43	75
DL105922	2.25	27	53	DL105043	4.3	47	80
DL105023	2.3	27	53	DL105044	4.4	47	80
DL105024	2.4	30	57	DL105045	4.5	47	80
DL105025	2.5	30	57	DL105046	4.6	47	80
DL105026	2.6	30	57	DL105047	4.7	47	80
DL105027	2.7	33	61	DL105947	4.75	47	80
DL105927	2.75	33	61	DL105048	4.8	52	86
DL105028	2.8	33	61	DL105049	4.9	52	86
DL105029	2.9	33	61	DL105050	5.0	52	86
DL105030	3.0	33	61	DL105051	5.1	52	86

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	◎	○	○		



STRAIGHT SHANK DRILLS

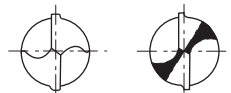
DL105 SERIES

HSS-E, STRAIGHT SHANK TWIST DRILLS HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT

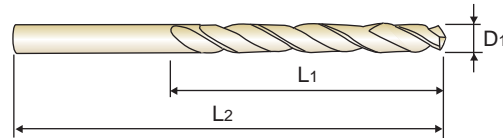
JOBBER**KURZ**

► **Surface treatment:** Coloring(Gold color)
 ► **Application:** Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung:** Coloring(Goldfarbe)
 ► **Verwendung:** Zum Bohren von rostfreien und austenitischen. Stählen, schwererspanbaren Werkstoffen wie Titan und Inconel.



up to 1.5mm over 1.5mm



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL105052	5.2	52	86	DL105972	7.25	69	109
DL105952	5.25	52	86	DL105073	7.3	69	109
DL105053	5.3	52	86	DL105074	7.4	69	109
DL105054	5.4	57	93	DL105075	7.5	69	109
DL105055	5.5	57	93	DL105076	7.6	75	117
DL105056	5.6	57	93	DL105077	7.7	75	117
DL105057	5.7	57	93	DL105977	7.75	75	117
DL105957	5.75	57	93	DL105078	7.8	75	117
DL105058	5.8	57	93	DL105079	7.9	75	117
DL105059	5.9	57	93	DL105080	8.0	75	117
DL105060	6.0	57	93	DL105081	8.1	75	117
DL105061	6.1	63	101	DL105082	8.2	75	117
DL105062	6.2	63	101	DL105982	8.25	75	117
DL105962	6.25	63	101	DL105083	8.3	75	117
DL105063	6.3	63	101	DL105084	8.4	75	117
DL105064	6.4	63	101	DL105085	8.5	75	117
DL105065	6.5	63	101	DL105086	8.6	81	125
DL105066	6.6	63	101	DL105087	8.7	81	125
DL105067	6.7	63	101	DL105987	8.75	81	125
DL105967	6.75	63	101	DL105088	8.8	81	125
DL105068	6.8	69	109	DL105089	8.9	81	125
DL105069	6.9	69	109	DL105090	9.0	81	125
DL105070	7.0	69	109	DL105091	9.1	81	125
DL105071	7.1	69	109	DL105092	9.2	81	125
DL105072	7.2	69	109	DL105992	9.25	81	125

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	◎	○	○		

YG STRAIGHT SHANK DRILLS

DL105 SERIES

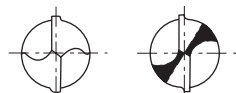
HSS-E, STRAIGHT SHANK TWIST DRILLS HSS-E, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

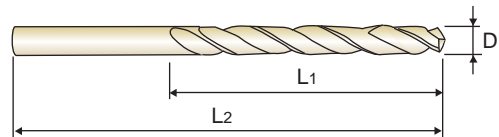
KURZ

► **Surface treatment:** Coloring(Gold color)
► **Application** : Drilling stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
► **Verwendung** : Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



up to 1.5mm over 1.5mm



DIN 338
HSS-E
N 33°
h8
135°
P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
DL105093	9.3	81	125	DL105130	13.0	101	151
DL105094	9.4	81	125	DL105135	13.5	108	160
DL105095	9.5	81	125	DL105140	14.0	108	160
DL105096	9.6	87	133	DL105145	14.5	114	169
DL105097	9.7	87	133	DL105150	15.0	114	169
DL105997	9.75	87	133	DL105155	15.5	120	178
DL105098	9.8	87	133	DL105160	16.0	120	178
DL105099	9.9	87	133	DL105165	16.5	125	184
DL105100	10.0	87	133	DL105170	17.0	125	184
DL105102	10.2	87	133	DL105175	17.5	130	191
DL105105	10.5	87	133	DL105180	18.0	130	191
DL105110	11.0	94	142	DL105185	18.5	135	198
DL105115	11.5	94	142	DL105190	19.0	135	198
DL105120	12.0	101	151	DL105195	19.5	140	205
DL105125	12.5	101	151	DL105200	20.0	140	205

► TiN(DN105), TiCN(DX105) and TiAlN(DT105) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	◎	○	○		



STRAIGHT SHANK DRILLS

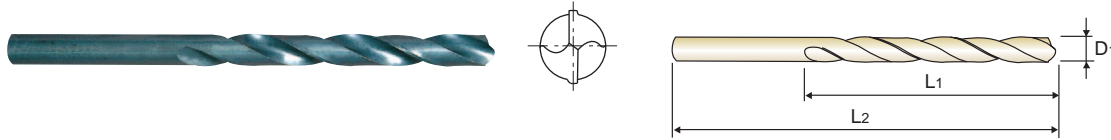
D1105 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER**KURZ**

- ▶ **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm
- ▶ **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

- ▶ **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2 mm
- ▶ **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterisen, Graphite.



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1105003G	0.3	3	19	D1105921	2.15	27	53
D1105004G	0.4	5	20	D1105022	2.2	27	53
D1105005G	0.5	6	22	D1105922	2.25	27	53
D1105006G	0.6	7	24	D1105023	2.3	27	53
D1105007G	0.7	9	28	D1105923	2.35	27	53
D1105008G	0.8	10	30	D1105024	2.4	30	57
D1105009G	0.9	11	32	D1105924	2.45	30	57
D1105010	1.0	12	34	D1105025	2.5	30	57
D1105910	1.05	12	34	D1105925	2.55	30	57
D1105011	1.1	14	36	D1105026	2.6	30	57
D1105911	1.15	14	36	D1105926	2.65	30	57
D1105012	1.2	16	38	D1105027	2.7	33	61
D1105912	1.25	16	38	D1105927	2.75	33	61
D1105013	1.3	16	38	D1105028	2.8	33	61
D1105913	1.35	18	40	D1105928	2.85	33	61
D1105014	1.4	18	40	D1105029	2.9	33	61
D1105914	1.45	18	40	D1105929	2.95	33	61
D1105015	1.5	18	40	D1105030	3.0	33	61
D1105915	1.55	20	43	D1105930	3.05	36	65
D1105016	1.6	20	43	D1105031	3.1	36	65
D1105916	1.65	20	43	D1105931	3.15	36	65
D1105017	1.7	20	43	D1105032	3.2	36	65
D1105917	1.75	22	46	D1105932	3.25	36	65
D1105018	1.8	22	46	D1105033	3.3	36	65
D1105918	1.85	22	46	D1105933	3.35	36	65
D1105019	1.9	22	46	D1105034	3.4	39	70
D1105919	1.95	24	49	D1105934	3.45	39	70
D1105020	2.0	24	49	D1105035	3.5	39	70
D1105920	2.05	24	49	D1105935	3.55	39	70
D1105021	2.1	24	49	D1105036	3.6	39	70

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		



STRAIGHT SHANK DRILLS

D1105 SERIES

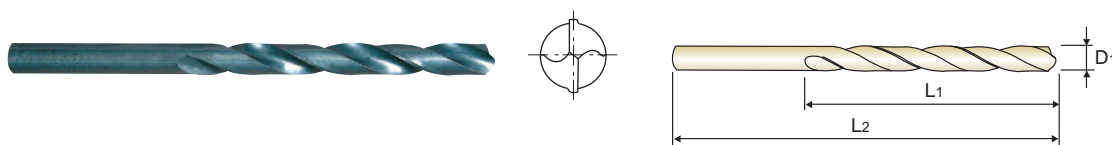
HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

KURZ

- ▶ **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm
- ▶ **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

- ▶ **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2 mm
- ▶ **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338
HSS
N 20~30°
h8
118°
P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1105936	3.65	39	70	D1105951	5.15	52	86
D1105037	3.7	39	70	D1105052	5.2	52	86
D1105937	3.75	39	70	D1105952	5.25	52	86
D1105038	3.8	43	75	D1105053	5.3	52	86
D1105938	3.85	43	75	D1105953	5.35	57	93
D1105039	3.9	43	75	D1105054	5.4	57	93
D1105939	3.95	43	75	D1105954	5.45	57	93
D1105040	4.0	43	75	D1105055	5.5	57	93
D1105940	4.05	43	75	D1105955	5.55	57	93
D1105041	4.1	43	75	D1105056	5.6	57	93
D1105941	4.15	43	75	D1105956	5.65	57	93
D1105042	4.2	43	75	D1105057	5.7	57	93
D1105942	4.25	43	75	D1105957	5.75	57	93
D1105043	4.3	47	80	D1105058	5.8	57	93
D1105943	4.35	47	80	D1105958	5.85	57	93
D1105044	4.4	47	80	D1105059	5.9	57	93
D1105944	4.45	47	80	D1105959	5.95	57	93
D1105045	4.5	47	80	D1105060	6.0	57	93
D1105945	4.55	47	80	D1105960	6.05	63	101
D1105046	4.6	47	80	D1105061	6.1	63	101
D1105946	4.65	47	80	D1105961	6.15	63	101
D1105047	4.7	47	80	D1105062	6.2	63	101
D1105947	4.75	47	80	D1105962	6.25	63	101
D1105048	4.8	52	86	D1105063	6.3	63	101
D1105948	4.85	52	86	D1105963	6.35	63	101
D1105049	4.9	52	86	D1105064	6.4	63	101
D1105949	4.95	52	86	D1105964	6.45	63	101
D1105050	5.0	52	86	D1105065	6.5	63	101
D1105950	5.05	52	86	D1105965	6.55	63	101
D1105051	5.1	52	86	D1105066	6.6	63	101

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		



STRAIGHT SHANK DRILLS

D1105 SERIES

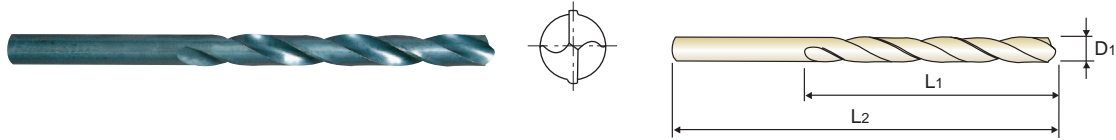
HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

KURZ

- ▶ **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm
- ▶ **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

- ▶ **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2 mm
- ▶ **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



DIN 338
HSS
N 20~30°
h8
118°
P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1105966	6.65	63	101	D1105982	8.25	75	117
D1105067	6.7	63	101	D1105083	8.3	75	117
D1105967	6.75	69	109	D1105084	8.4	75	117
D1105068	6.8	69	109	D1105085	8.5	75	117
D1105968	6.85	69	109	D1105086	8.6	81	125
D1105069	6.9	69	109	D1105087	8.7	81	125
D1105969	6.95	69	109	D1105987	8.75	81	125
D1105070	7.0	69	109	D1105088	8.8	81	125
D1105970	7.05	69	109	D1105089	8.9	81	125
D1105071	7.1	69	109	D1105090	9.0	81	125
D1105971	7.15	69	109	D1105091	9.1	81	125
D1105072	7.2	69	109	D1105092	9.2	81	125
D1105972	7.25	69	109	D1105992	9.25	81	125
D1105073	7.3	69	109	D1105093	9.3	81	125
D1105973	7.35	69	109	D1105094	9.4	81	125
D1105074	7.4	69	109	D1105095	9.5	81	125
D1105974	7.45	69	109	D1105096	9.6	87	133
D1105075	7.5	69	109	D1105097	9.7	87	133
D1105975	7.55	75	117	D1105997	9.75	87	133
D1105076	7.6	75	117	D1105098	9.8	87	133
D1105976	7.65	75	117	D1105099	9.9	87	133
D1105077	7.7	75	117	D1105100	10.0	87	133
D1105977	7.75	75	117	D1105101	10.1	87	133
D1105078	7.8	75	117	D1105102	10.2	87	133
D1105978	7.85	75	117	D1105802	10.25	87	133
D1105079	7.9	75	117	D1105103	10.3	87	133
D1105979	7.95	75	117	D1105104	10.4	87	133
D1105080	8.0	75	117	D1105105	10.5	87	133
D1105081	8.1	75	117	D1105106	10.6	87	133
D1105082	8.2	75	117	D1105107	10.7	94	142

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

Y/G STRAIGHT SHANK DRILLS

D1105 SERIES

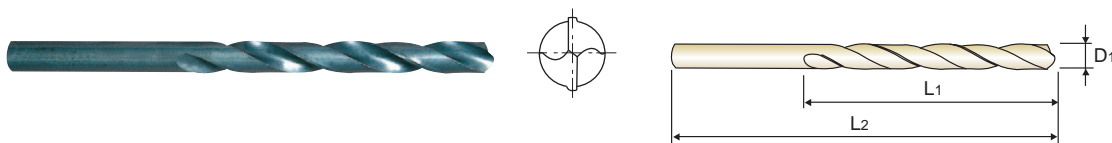
HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

KURZ

- **Surface treatment** : Steam Tempered(Black Oxide Finish)
Bright Finish under 2mm
- **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

- **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
Helle Beschaffenheit unter 2 mm
- **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphite.



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1105807	10.75	94	142	D1105832	13.25	108	160
D1105108	10.8	94	142	D1105135	13.5	108	160
D1105109	10.9	94	142	D1105837	13.75	108	160
D1105110	11.0	94	142	D1105140	14.0	108	160
D1105111	11.1	94	142	D1105842	14.25	114	169
D1105112	11.2	94	142	D1105145	14.5	114	169
D1105812	11.25	94	142	D1105847	14.75	114	169
D1105113	11.3	94	142	D1105150	15.0	114	169
D1105114	11.4	94	142	D1105852	15.25	120	178
D1105115	11.5	94	142	D1105155	15.5	120	178
D1105116	11.6	94	142	D1105857	15.75	120	178
D1105117	11.7	94	142	D1105160	16.0	120	178
D1105817	11.75	94	142	D1105862	16.25	125	184
D1105118	11.8	94	142	D1105165	16.5	125	184
D1105119	11.9	101	151	D1105867	16.75	125	184
D1105120	12.0	101	151	D1105170	17.0	125	184
D1105121	12.1	101	151	D1105872	17.25	130	191
D1105122	12.2	101	151	D1105175	17.5	130	191
D1105822	12.25	101	151	D1105877	17.75	130	191
D1105123	12.3	101	151	D1105180	18.0	130	191
D1105124	12.4	101	151	D1105882	18.25	135	198
D1105125	12.5	101	151	D1105185	18.5	135	198
D1105126	12.6	101	151	D1105887	18.75	135	198
D1105127	12.7	101	151	D1105190	19.0	135	198
D1105827	12.75	101	151	D1105892	19.25	140	205
D1105128	12.8	101	151	D1105195	19.5	140	205
D1105129	12.9	101	151	D1105897	19.75	140	205
D1105130	13.0	101	151	D1105200	20.0	140	205

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		



STRAIGHT SHANK DRILLS

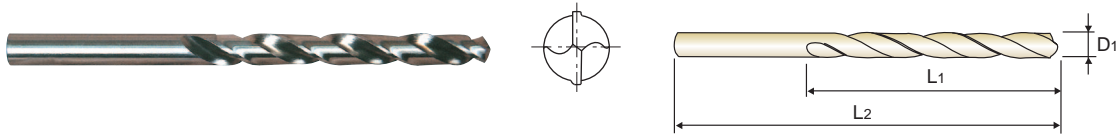
D1125 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER**KURZ**

► **Surface treatment** : Bright Finish
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Helle Beschaffenheit
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinterreisen, Graphite.



Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2
	D1				D1		
D1125020	2.0	24	49	D1125045	4.5	47	80
D1125021	2.1	24	49	D1125046	4.6	47	80
D1125022	2.2	27	53	D1125047	4.7	47	80
D1125023	2.3	27	53	D1125048	4.8	52	86
D1125024	2.4	30	57	D1125049	4.9	52	86
D1125025	2.5	30	57	D1125050	5.0	52	86
D1125026	2.6	30	57	D1125051	5.1	52	86
D1125027	2.7	33	61	D1125052	5.3	52	86
D1125028	2.8	33	61	D1125053	5.3	52	86
D1125029	2.9	33	61	D1125054	5.4	57	93
D1125030	3.0	33	61	D1125055	5.5	57	93
D1125031	3.1	36	65	D1125056	5.6	57	93
D1125032	3.2	36	65	D1125057	5.7	57	93
D1125033	3.3	36	65	D1125058	5.8	57	93
D1125034	3.4	39	70	D1125059	5.9	57	93
D1125035	3.5	39	70	D1125060	6.0	57	93
D1125036	3.6	39	70	D1125061	6.1	63	101
D1125037	3.7	39	70	D1125062	6.2	63	101
D1125038	3.8	43	75	D1125063	6.3	63	101
D1125039	3.9	43	75	D1125064	6.4	63	101
D1125040	4.0	43	75	D1125065	6.5	63	101
D1125041	4.1	43	75	D1125066	6.6	63	101
D1125042	4.2	43	75	D1125067	6.7	63	101
D1125043	4.3	47	80	D1125068	6.8	69	109
D1125044	4.4	47	80	D1125069	6.9	69	109

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	○	○	○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

Y/G STRAIGHT SHANK DRILLS

D1125 SERIES

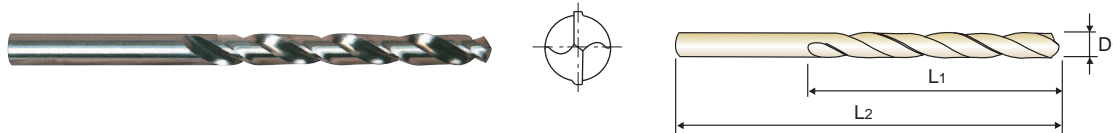
HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER

KURZ

► **Surface treatment** : Bright Finish
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Helle Beschaffenheit
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphärguß, Sintereisen, Graphite.



DIN 338 **HSS** **N 20~30°** **h8** **118°** **P.188**

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1125070	7.0	69	109	D1125095	9.5	81	125
D1125071	7.1	69	109	D1125096	9.6	87	133
D1125072	7.2	69	109	D1125097	9.7	87	133
D1125073	7.3	69	109	D1125098	9.8	87	133
D1125074	7.4	69	109	D1125099	9.9	87	133
D1125075	7.5	69	109	D1125100	10.0	87	133
D1125076	7.6	75	117	D1125101	10.1	87	133
D1125077	7.7	75	117	D1125102	10.2	87	133
D1125078	7.8	75	117	D1125103	10.3	87	133
D1125079	7.9	75	117	D1125104	10.4	87	133
D1125080	8.0	75	117	D1125105	10.5	87	133
D1125081	8.1	75	117	D1125106	10.6	87	133
D1125082	8.2	75	117	D1125107	10.7	94	142
D1125083	8.3	75	117	D1125108	10.8	94	142
D1125084	8.4	75	117	D1125109	10.9	94	142
D1125085	8.5	75	117	D1125110	11.0	94	142
D1125086	8.6	81	125	D1125111	11.1	94	142
D1125087	8.7	81	125	D1125112	11.2	94	142
D1125088	8.8	81	125	D1125113	11.3	94	142
D1125089	8.9	81	125	D1125114	11.4	94	142
D1125090	9.0	81	125	D1125115	11.5	94	142
D1125091	9.1	81	125	D1125116	11.6	94	142
D1125092	9.2	81	125	D1125117	11.7	94	142
D1125093	9.3	81	125	D1125118	11.8	94	142
D1125094	9.4	81	125	D1125119	11.9	101	151

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		

◎ : Excellent ○ : Good



STRAIGHT SHANK DRILLS

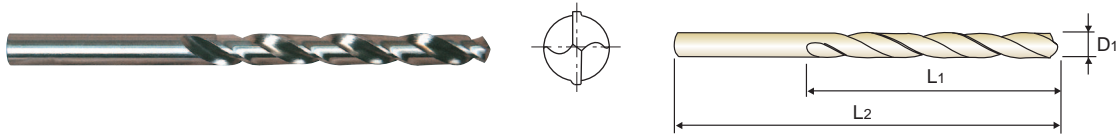
D1125 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

JOBBER**KURZ**

► **Surface treatment** : Bright Finish
 ► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Helle Beschaffenheit
 ► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sinter Eisen, Graphite.



Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1125120	12.0	101	151	D1125140	14.0	108	160
D1125121	12.1	101	151	D1125145	14.5	114	169
D1125122	12.2	101	151	D1125150	15.0	114	169
D1125123	12.3	101	151	D1125155	15.5	120	178
D1125124	12.4	101	151	D1125160	16.0	120	178
D1125125	12.5	101	151	D1125165	16.5	125	184
D1125126	12.6	101	151	D1125170	17.0	125	184
D1125127	12.7	101	151	D1125175	17.5	130	191
D1125128	12.8	101	151	D1125180	18.0	130	191
D1125129	12.9	101	151	D1125185	18.5	135	198
D1125130	13.0	101	151	D1125190	19.0	135	198
D1125132	13.2	101	151	D1125195	19.5	140	205
D1125133	13.3	108	160	D1125200	20.0	140	205
D1125135	13.5	108	160				

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45									
◎	◎				○	○	○	○	○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



STRAIGHT SHANK DRILLS

D2104 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS

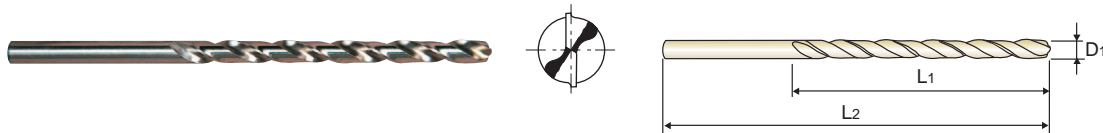
LONG

HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

LANG

- ▶ **Surface treatment** : Coloring(Gold color)
- ▶ **Application** : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

- ▶ **Oberflächenbehandlung** : Coloring(Goldfarbe)
- ▶ **Verwendung** : Für Bohrarbeiten mit Bohrungen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



DIN 340
HSS Co8
N 33°
h8
135°
P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D2104020	2.0	56	85	D2104047	14.7	82	126
D2104021	2.1	56	85	D2104048	4.8	87	132
D2104022	2.2	59	90	D2104049	4.9	87	132
D2104023	2.3	59	90	D2104050	5.0	87	132
D2104024	2.4	62	95	D2104051	5.1	87	132
D2104025	2.5	62	95	D2104052	5.2	87	132
D2104026	2.6	62	95	D2104053	5.3	87	132
D2104027	2.7	66	100	D2104054	5.4	91	139
D2104028	2.8	66	100	D2104055	5.5	91	139
D2104029	2.9	66	100	D2104056	5.6	91	139
D2104030	3.0	66	100	D2104057	5.7	91	139
D2104031	3.1	69	106	D2104058	5.8	91	139
D2104032	3.2	69	106	D2104059	5.9	91	139
D2104033	3.3	69	106	D2104060	6.0	91	139
D2104034	3.4	73	112	D2104061	6.1	97	148
D2104035	3.5	73	112	D2104062	6.2	97	148
D2104036	3.6	73	112	D2104063	6.3	97	148
D2104037	3.7	73	112	D2104064	6.4	97	148
D2104038	3.8	78	119	D2104065	6.5	97	148
D2104039	3.9	78	119	D2104066	6.6	97	148
D2104040	4.0	78	119	D2104067	6.7	97	148
D2104041	4.1	78	119	D2104068	6.8	102	156
D2104042	4.2	78	119	D2104069	6.9	102	156
D2104043	4.3	82	126	D2104070	7.0	102	156
D2104044	4.4	82	126	D2104071	7.1	102	156
D2104045	4.5	82	126	D2104072	7.2	102	156
D2104046	4.6	82	126	D2104073	7.3	102	156

- ▶ HSS-E(DL104) is available on your request.
- ▶ TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	◎	○	○		



STRAIGHT SHANK DRILLS

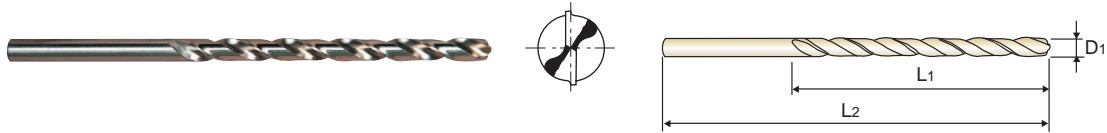
D2104 SERIES

HSSCo8, STRAIGHT SHANK TWIST DRILLS HSSCo8, SPIRALBOHRER mit ZYLINDERSCHAFT

LONG
LANG

► **Surface treatment** : Coloring(Gold color)
 ► **Application** : Drilling deep holes in stainless steels and difficult - to - cut materials such as titanium and inconel.

► **Oberflächenbehandlung** : Coloring(Goldfarbe)
 ► **Verwendung** : Für Bohrarbeiten mit Bohrbuchsen oder an tief liegenden Stellen. Zum Bohren von rostfreien und austenitischen. Stählen, schwerzerspanbaren Werkstoffen wie Titan und Inconel.



Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2
	D1				D1		
D2104074	7.4	102	156	D2104092	9.2	115	175
D2104075	7.5	102	156	D2104093	9.3	115	175
D2104076	7.6	109	165	D2104094	9.4	115	175
D2104077	7.7	109	165	D2104095	9.5	115	175
D2104078	7.8	109	165	D2104096	9.6	121	184
D2104079	7.9	109	165	D2104097	9.7	121	184
D2104080	8.0	109	165	D2104098	9.8	121	184
D2104081	8.1	109	165	D2104099	9.9	121	184
D2104082	8.2	109	165	D2104100	10.0	121	184
D2104083	8.3	109	165	D2104102	10.2	121	184
D2104084	8.4	109	165	D2104105	10.5	121	184
D2104085	8.5	109	165	D2104108	10.8	128	195
D2104086	8.6	115	175	D2104110	11.0	128	195
D2104087	8.7	115	175	D2104112	11.2	128	195
D2104088	8.8	115	175	D2104115	11.5	128	195
D2104089	8.9	115	175	D2104118	11.8	128	195
D2104090	9.0	115	175	D2104120	12.0	134	205
D2104091	9.1	115	175				

► HSS-E(DL104) is available on your request.
 ► TiN(D4104), TiCN(D7104) and TiAlN(DQ104) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	◎	○	○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

Y/G STRAIGHT SHANK DRILLS

D1121 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS HSS, SPIRALBOHRER mit ZYLINDERSCHAFT

**EXTRA LONG
ÜBERLANG**

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
 ► **Application** : Designed for drilling deep holes or deeply located holes
 Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
 ► **Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher, zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



Unit : mm

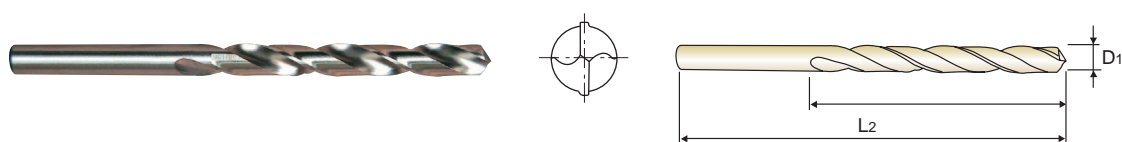
EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1121020	2.0	85	125	D1121070	7.0	155	225
D1121922	2.25	90	135	D1121972	7.25	155	225
D1121025	2.5	95	140	D1121075	7.5	155	225
D1121927	2.75	100	150	D1121977	7.75	165	240
D1121030	3.0	100	150	D1121080	8.0	165	240
D1121932	3.25	105	155	D1121982	8.25	165	240
D1121035	3.5	115	165	D1121085	8.5	165	240
D1121937	3.75	115	165	D1121987	8.75	175	250
D1121040	4.0	120	175	D1121090	9.0	175	250
D1121942	4.25	120	175	D1121992	9.25	175	250
D1121045	4.5	125	185	D1121095	9.5	175	250
D1121947	4.75	125	185	D1121997	9.75	185	265
D1121050	5.0	135	195	D1121100	10.0	185	265
D1121952	5.25	135	195	D1121105	10.5	185	265
D1121055	5.5	140	205	D1121110	11.0	195	280
D1121957	5.75	140	205	D1121115	11.5	195	280
D1121060	6.0	140	205	D1121120	12.0	205	295
D1121962	6.25	150	215	D1121125	12.5	205	295
D1121065	6.5	150	215	D1121130	13.0	205	295
D1121967	6.75	155	225				

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		

HSS-E, STRAIGHT SHANK TWIST DRILLS for HEAVY DUTY JOBBER HSS-E, SPIRALBOHRER für HOHE LEISTUNGEN mit ZYLINDERSCHAFT KURZ

► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron and graphite.

► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 338
HSS-E
N 20~30°
h8
118°
P.188

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1				L1		
DL109015	1.5	18	40	DL109967	6.75	69	109
DL109917	1.75	22	46	DL109070	7.0	69	109
DL109020	2.0	24	49	DL109972	7.25	69	109
DL109922	2.25	27	53	DL109075	7.5	69	109
DL109025	2.5	30	57	DL109977	7.75	75	117
DL109927	2.75	33	61	DL109080	8.0	75	117
DL109030	3.0	33	61	DL109982	8.25	75	117
DL109932	3.25	36	65	DL109085	8.5	75	117
DL109035	3.5	39	70	DL109987	8.75	81	125
DL109937	3.75	39	70	DL109090	9.0	81	125
DL109040	4.0	43	75	DL109992	9.25	81	125
DL109942	4.25	43	75	DL109095	9.5	81	125
DL109045	4.5	47	80	DL109997	9.75	87	133
DL109947	4.75	47	80	DL109100	10.0	87	133
DL109050	5.0	52	86	DL109105	10.5	87	133
DL109952	5.25	52	86	DL109110	11.0	94	142
DL109055	5.5	57	93	DL109115	11.5	94	142
DL109957	5.75	57	93	DL109120	12.0	101	151
DL109060	6.0	57	93	DL109125	12.5	101	151
DL109962	6.25	63	101	DL109130	13.0	101	151
DL109065	6.5	63	101				

► TiN(DN109), TiCN(DX109) and TiAlN(DT109) are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○		



STRAIGHT SHANK DRILLS

D1100 SERIES

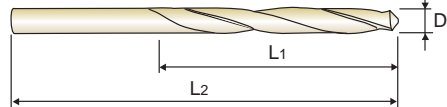
HSS, STRAIGHT SHANK TWIST DRILLS for BRASS

JOBBER

HSS, SPIRALBOHRER für HOHE LEISTUNGEN mit ZYLINDERSCHAFT **KURZ**

► **Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.

► **Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338

HSS

15~20°

h8

118°



P.189

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1100015	1.5	18	40	D1100043	4.3	47	80
D1100016	1.6	20	43	D1100044	4.4	47	80
D1100017	1.7	20	43	D1100045	4.5	47	80
D1100018	1.8	22	46	D1100046	4.6	47	80
D1100019	1.9	22	46	D1100047	4.7	47	80
D1100020	2.0	24	49	D1100048	4.8	52	86
D1100021	2.1	24	49	D1100049	4.9	52	86
D1100022	2.2	27	53	D1100050	5.0	52	86
D1100023	2.3	27	53	D1100051	5.1	52	86
D1100024	2.4	30	57	D1100052	5.2	52	86
D1100025	2.5	30	57	D1100053	5.3	52	86
D1100026	2.6	30	57	D1100054	5.4	57	93
D1100027	2.7	33	61	D1100055	5.5	57	93
D1100028	2.8	33	61	D1100056	5.6	57	93
D1100029	2.9	33	61	D1100057	5.7	57	93
D1100030	3.0	33	61	D1100058	5.8	57	93
D1100031	3.1	36	65	D1100059	5.9	57	93
D1100032	3.2	36	65	D1100060	6.0	57	93
D1100033	3.3	36	65	D1100061	6.1	63	101
D1100034	3.4	39	70	D1100062	6.2	63	101
D1100035	3.5	39	70	D1100063	6.3	63	101
D1100036	3.6	39	70	D1100064	6.4	63	101
D1100037	3.7	39	70	D1100065	6.5	63	101
D1100038	3.8	43	75	D1100066	6.6	63	101
D1100039	3.9	43	75	D1100067	6.7	63	101
D1100040	4.0	43	75	D1100068	6.8	69	109
D1100041	4.1	43	75	D1100069	6.9	69	109
D1100042	4.2	43	75	D1100070	7.0	69	109

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
											◎



STRAIGHT SHANK DRILLS

D1100 SERIES

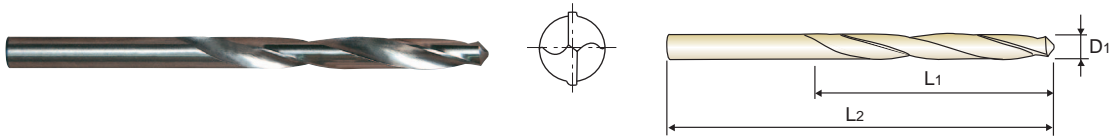
HSS, STRAIGHT SHANK TWIST DRILLS for BRASS

JOBBER

HSS, SPIRALBOHRER für HOHE LEISTUNGEN mit ZYLINDERSCHAFT KURZ

► **Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.

► **Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



DIN 338
HSS
15~20°
h8
118°
P.189

Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2
	D1				D1		
D1100071	7.1	69	109	D1100089	8.9	81	125
D1100072	7.2	69	109	D1100090	9.0	81	125
D1100073	7.3	69	109	D1100091	9.1	81	125
D1100074	7.4	69	109	D1100092	9.2	81	125
D1100075	7.5	69	109	D1100093	9.3	81	125
D1100076	7.6	75	117	D1100094	9.4	81	125
D1100077	7.7	75	117	D1100095	9.5	81	125
D1100078	7.8	75	117	D1100096	9.6	87	133
D1100079	7.9	75	117	D1100097	9.7	87	133
D1100080	8.0	75	117	D1100098	9.8	87	133
D1100081	8.1	75	117	D1100099	9.9	87	133
D1100082	8.2	75	117	D1100100	10.0	87	133
D1100083	8.3	75	117	D1100105	10.5	87	133
D1100084	8.4	75	117	D1100110	11.0	94	142
D1100085	8.5	75	117	D1100115	11.5	94	142
D1100086	8.6	81	125	D1100120	12.0	101	151
D1100087	8.7	81	125	D1100125	12.5	101	151
D1100088	8.8	81	125	D1100130	13.0	101	151

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
											◎

CARBIDE

HSS

I-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

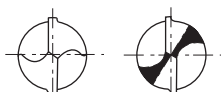
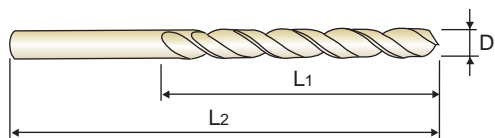
Y/G STRAIGHT SHANK DRILLS

D1106 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM JOBBER HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT KURZ

► **Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.

► **Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



up to 1.5mm over 1.5mm

DIN 338
HSS
W 38°
h8
135°
P.189

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2		D1	L1	L2
D1106015	1.5	18	40	D1106043	4.3	47	80
D1106016	1.6	20	43	D1106044	4.4	47	80
D1106017	1.7	20	43	D1106045	4.5	47	80
D1106018	1.8	22	46	D1106046	4.6	47	80
D1106019	1.9	22	46	D1106047	4.7	47	80
D1106020	2.0	24	49	D1106048	4.8	52	86
D1106021	2.1	24	49	D1106049	4.9	52	86
D1106022	2.2	27	53	D1106050	5.0	52	86
D1106023	2.3	27	53	D1106051	5.1	52	86
D1106024	2.4	30	57	D1106052	5.2	52	86
D1106025	2.5	30	57	D1106053	5.3	52	86
D1106026	2.6	30	57	D1106054	5.4	57	93
D1106027	2.7	33	61	D1106055	5.5	57	93
D1106028	2.8	33	61	D1106056	5.6	57	93
D1106029	2.9	33	61	D1106057	5.7	57	93
D1106030	3.0	33	61	D1106058	5.8	57	93
D1106031	3.1	36	65	D1106059	5.9	57	93
D1106032	3.2	36	65	D1106060	6.0	57	93
D1106033	3.3	36	65	D1106061	6.1	63	101
D1106034	3.4	39	70	D1106062	6.2	63	101
D1106035	3.5	39	70	D1106063	6.3	63	101
D1106036	3.6	39	70	D1106064	6.4	63	101
D1106037	3.7	39	70	D1106065	6.5	63	101
D1106038	3.8	43	75	D1106066	6.6	63	101
D1106039	3.9	43	75	D1106067	6.7	63	101
D1106040	4.0	43	75	D1106068	6.8	69	109
D1106041	4.1	43	75	D1106069	6.9	69	109
D1106042	4.2	43	75	D1106070	7.0	69	109

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
						◎					○



STRAIGHT SHANK DRILLS

D1106 SERIES

HSS, STRAIGHT SHANK TWIST DRILLS for ALUMINUM

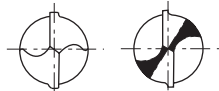
JOBBER

HSS, SPIRALBOHRER für ALUMINIUM mit ZYLINDERSCHAFT

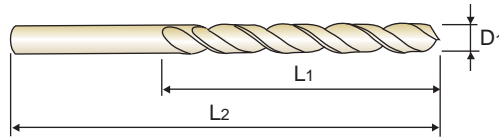
KURZ

► **Application** : Drilling hard, brittle and short-chip materials. i.e., brass, bronze, phosphor bronze and magnesium alloys.

► **Verwendung** : Zum Bohren von harten und spröden Werkstoffen wie Messing, Magnesium-Legierungen, Bronze, Phosphorbronze.



up to 1.5mm over 1.5mm

**DIN 338****HSS****W 38°****h8****135°**

P.189

Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2
	D1				D1		
D1106071	7.1	69	109	D1106089	8.9	81	125
D1106072	7.2	69	109	D1106090	9.0	81	125
D1106073	7.3	69	109	D1106091	9.1	81	125
D1106074	7.4	69	109	D1106092	9.2	81	125
D1106075	7.5	69	109	D1106093	9.3	81	125
D1106076	7.6	75	117	D1106094	9.4	81	125
D1106077	7.7	75	117	D1106095	9.5	81	125
D1106078	7.8	75	117	D1106096	9.6	87	133
D1106079	7.9	75	117	D1106097	9.7	87	133
D1106080	8.0	75	117	D1106098	9.8	87	133
D1106081	8.1	75	117	D1106099	9.9	87	133
D1106082	8.2	75	117	D1106100	10.0	87	133
D1106083	8.3	75	117	D1106105	10.5	87	133
D1106084	8.4	75	117	D1106110	11.0	94	142
D1106085	8.5	75	117	D1106115	11.5	94	142
D1106086	8.6	81	125	D1106120	12.0	101	151
D1106087	8.7	81	125	D1106125	12.5	101	151
D1106088	8.8	81	125	D1106130	13.0	101	151

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
						◎					○

CARBIDE

HSS

I-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



STRAIGHT SHANK DRILLS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

HSS & HSS 8% COBALT DRILLS, DIN1897, DIN338, DIN340, DIN1869 HSS & HSSCo8 SPIRALBOHRER, DIN 1897, DIN 338, DIN 340, DIN 1869

D1107, D2107, D1105, D1125, D2105, DL105, D2104, D1121 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS		STAINLESS STEELS		TITANIUM ALLOYS	
	N	S	N	S	N	S	N	S	N	S	N	S	N	S
HARDNESS			~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34		HRc34 ~ 38		HRc23			
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²		830 N/mm ²		410 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S
2.5	3380	0.025	2550	0.025	1900	0.015	2380	0.020	1400	0.015	2550	0.025	1400	0.020
3	2700	0.050	2000	0.050	1500	0.025	1880	0.050	1100	0.020	2000	0.050	1100	0.025
5	1700	0.063	1280	0.063	960	0.038	1190	0.063	700	0.025	1280	0.063	700	0.038
8	1050	0.130	780	0.130	590	0.076	730	0.130	430	0.038	780	0.130	430	0.076
11	750	0.150	560	0.150	425	0.076	520	0.180	310	0.050	560	0.150	430	0.076
19	440	0.230	330	0.230	255	0.130	300	0.230	180	0.050	330	0.230	180	0.130
31	260	0.280	195	0.280	145	0.180	180	0.180	107	0.076	195	0.280	107	0.180

WORK MATERIAL	TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		MAGNESIUM ALLOYS		ZINC ALLOYS		PLASTICS	
	N	S	N	S	N	S	N	S	N	S	N	S
HARDNESS			~ HRc21									
STRENGTH	~ 270 N/mm ²		~ 800 N/mm ²									
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
2.5	3180	0.042	2250	0.025	6400	0.038	8600	0.038	6400	0.038	3380	0.025
3	2500	0.050	2000	0.050	5000	0.063	6800	0.063	5000	0.063	2700	0.050
5	1590	0.063	1280	0.063	3200	0.076	4300	0.076	3200	0.076	1700	0.063
8	970	0.130	780	0.130	2000	0.180	2600	0.180	2000	0.180	1050	0.130
11	700	0.180	560	0.150	1400	0.200	1900	0.200	1400	0.200	750	0.150
19	440	0.230	330	0.230	820	0.300	1100	0.300	820	0.300	440	0.230
31	240	0.300	195	0.280	490	0.380	660	0.380	490	0.380	260	0.280

N = R.P.M
S = Feed per Revolution (mm/rev.)

HSS-E, TWIST DRILLS for HEAVY DUTY, DIN338 HSS-E, SPIRALBOHRER für HOHELEISTUNGEN, DIN 338

DL109 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS		STAINLESS STEELS		CAST IRON	
	N	S	N	S	N	S	N	S	N	S	N	S	N	S
HARDNESS			~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34		HRc34 ~ 38		HRc23		HRc21	
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²		830 N/mm ²		800 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S
2	5000	0.03	3750	0.03	2850	0.02	3500	0.02	2070	0.02	5000	0.03	5000	0.03
3	3750	0.04	2810	0.04	2150	0.02	2625	0.04	1560	0.02	3750	0.04	3750	0.04
4	2500	0.06	1870	0.06	1450	0.03	1750	0.06	1050	0.02	2500	0.06	2500	0.06
5	2085	0.07	1560	0.07	1205	0.04	1460	0.07	870	0.03	2085	0.07	2085	0.07
6	1670	0.08	1250	0.08	960	0.05	1170	0.09	690	0.03	1670	0.08	1670	0.08
7	1460	0.10	1095	0.10	840	0.06	1025	0.11	605	0.03	1460	0.10	1460	0.10
8	1250	0.13	940	0.13	720	0.08	880	0.13	520	0.04	1250	0.13	1250	0.13
9	1125	0.14	845	0.14	645	0.08	790	0.15	465	0.04	1125	0.14	1125	0.14
10	1000	0.14	750	0.14	570	0.08	700	0.16	410	0.05	1000	0.14	1000	0.14
11	925	0.15	685	0.15	525	0.08	640	0.18	380	0.05	925	0.15	925	0.15
12	850	0.16	620	0.16	480	0.08	580	0.19	350	0.05	850	0.16	850	0.16
13	785	0.17	575	0.17	445	0.09	540	0.20	325	0.05	785	0.17	785	0.17

N = R.P.M
S = Feed per Revolution (mm/rev.)

HSS, TWIST DRILLS for BRASS, DIN 338
HSS, SPIRALBOHRER für MESSING, DIN338
D1100 SERIES

Unit : mm

WORK MATERIAL	BRASS	
	N	S
DIAMETER		
2	8750	0.08
3	5850	0.10
4	4400	0.12
5	3500	0.14
6	2900	0.16
7	2500	0.18
8	2200	0.20
9	1950	0.22
10	1750	0.25
11	1600	0.27
12	1450	0.29
13	1350	0.32

N = R.P.M

S = Feed per Revolution (mm/rev.)

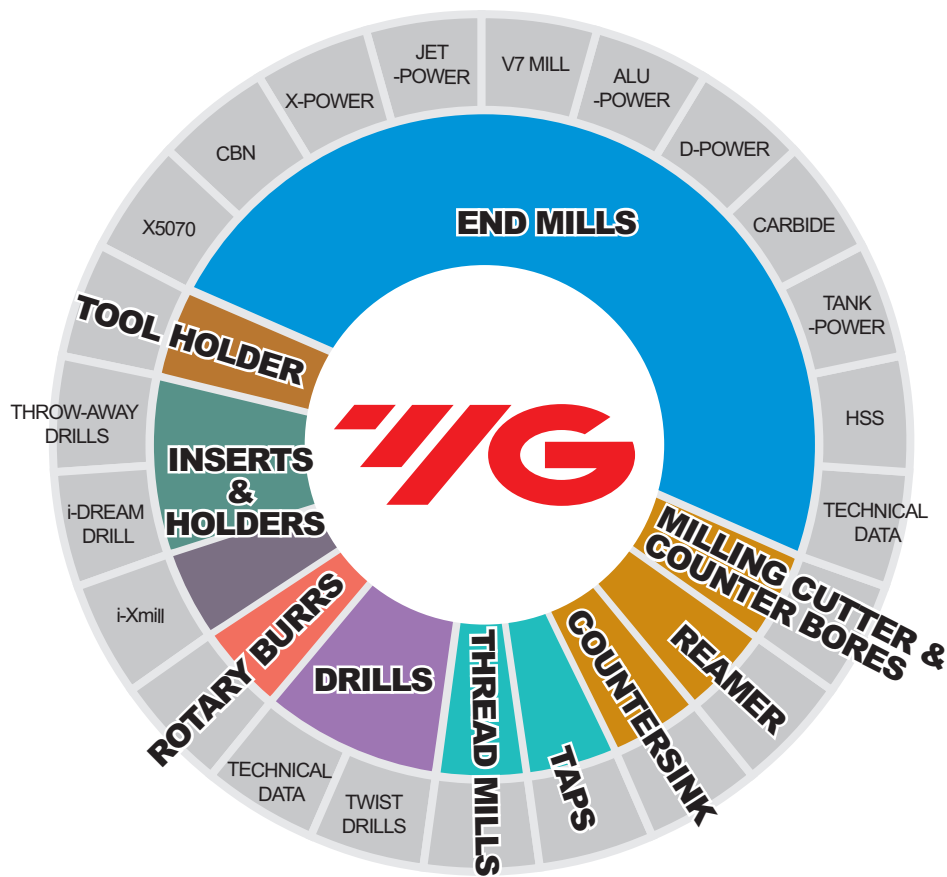
HSS, TWIST DRILLS for ALUMINUM, DIN338
HSS, SPIRALBOHRER für ALUMINIUM, DIN338
D1106 SERIES

Unit : mm

WORK MATERIAL	LONG CHIP ALUMINUM ALLOYS		SHORT CHIP ALUMINUM ALLOYS	
	N	S	N	S
DIAMETER				
2	7950	0.08	5550	0.06
3	5300	0.10	3700	0.07
4	4000	0.12	2800	0.08
5	3200	0.14	2230	0.09
6	2650	0.16	1850	0.10
7	2250	0.18	1600	0.11
8	2000	0.20	1400	0.12
9	1750	0.22	1250	0.14
10	1600	0.25	1100	0.16
11	1450	0.28	1000	0.18
12	1330	0.32	930	0.20
13	1220	0.35	860	0.22

N = R.P.M

S = Feed per Revolution (mm/rev.)



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



MORSE TAPER SHANK DRILLS







BOHRER MIT MK

- General Purpose, HSS & HSS-E & 8% Cobalt
- Für allgemeinen Einsatz, HSS und HSSE-Co8

SELECTION GUIDE

MORSE TAPER SHANK DRILLS

Morse Taper Shank Twist Drills for wide applications

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
DN221		HSS-E, TAPER SHANK TWIST DRILLS HSS-E, SPIRALBOHRER mit MORSEKEGELSCHAFT	<i>SHORT</i> <i>KURZ</i>	D13.0 D32.0	194
DL205		HSS-E, TAPER SHANK TWIST DRILLS for HEAVY DUTY HSS-E, SPIRALBOHRER für HOHE LEISTUNGEN mit MORSEKEGELSCHAFT	<i>JOBBER</i> <i>KURZ</i>	D13.0 D30.0	195
D1205		HSS, TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT	<i>JOBBER</i> <i>KURZ</i>	D13.0 D60.0	196
D1206		HSS, TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT	<i>LONG</i> <i>LANG</i>	D13.0 D30.0	198
D1209		HSS, TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT	<i>EXTRA LONG</i> <i>ÜBERLANG</i>	D13.0 D50.0	199
D1210		HSS, TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT	<i>EXTRA LONG</i> <i>ÜBERLANG</i>	D13.0 D50.0	200
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					201

HSS MORSE TAPER SHANK DRILLS

◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○		○		
◎	◎	○			○	○	○		○		
◎	◎	○			○	○	○		○		
◎	◎	○			○	○	○		○		
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YG MORSE TAPER SHANK DRILLS

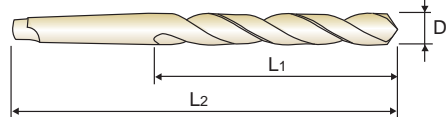
DN221 SERIES

HSS-E, MORSE TAPER SHANK TWIST DRILLS HSS-E, SPIRALBOHRER mit MORSEKEGELSCHAFT

SHORT
KURZ

► **Application** : Short length - designed for high speed drilling in wide range of materials like carbon steels, stainless steels and aluminum.

► **Verwendung** : Der kurze Bohrer ist geeignet fuer Hochgeschwindigkeitsbohrungen, präzises Positionieren. Geignet für Karbon- und rostfreiem Stahl, Alu..



HSS-E
N 20~30°
1~3
h8
135°
P.201

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper	EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper
TiN	D1	L1	L2		TiN	D1	L1	L2	
DN221130	13.0	65.5	146.5	1	DN221230	23.0	99.5	197.5	2
DN221135	13.5	69.5	150.5	1	DN221235	23.5	102.5	223.5	3
DN221140	14.0	69.5	150.5	1	DN221240	24.0	102.5	223.5	3
DN221145	14.5	73	171	2	DN221245	24.5	102.5	223.5	3
DN221150	15.0	73	171	2	DN221250	25.0	102.5	223.5	3
DN221155	15.5	77	175	2	DN221255	25.5	105	226	3
DN221160	16.0	77	175	2	DN221260	26.0	105	226	3
DN221165	16.5	80.5	178.5	2	DN221265	26.5	105	226	3
DN221170	17.0	80.5	178.5	2	DN221270	27.0	108.5	229.5	3
DN221175	17.5	83.5	181.5	2	DN221275	27.5	108.5	229.5	3
DN221180	18.0	83.5	181.5	2	DN221280	28.0	108.5	229.5	3
DN221185	18.5	86.5	184.5	2	DN221285	28.5	111	232	3
DN221190	19.0	86.5	184.5	2	DN221290	29.0	111	232	3
DN221195	19.5	90	188	2	DN221295	29.5	111	232	3
DN221200	20.0	90	188	2	DN221300	30.0	111	232	3
DN221205	20.5	93	191	2	DN221305	30.5	114	235	3
DN221210	21.0	93	191	2	DN221310	31.0	114	235	3
DN221215	21.5	95.5	193.5	2	DN221315	31.5	114	235	3
DN221220	22.0	95.5	193.5	2	DN221320	32.0	114	235	3
DN221225	22.5	99.5	197.5	2					

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○	○	○		○		

◎ : Excellent ○ : Good



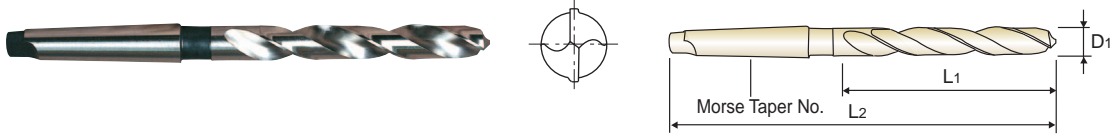
MORSE TAPER SHANK DRILLS

DL205 SERIES

HSS-E, MORSE TAPER SHANK TWIST DRILLS for HEAVY DUTY **JOBBER** HSS-E, SPIRALBOHRER für HOHELEISTUNGEN mit MORSEKEGELSCHAFT **KURZ**

► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 345
HSS-E
N 20~30°
1~3
h8
118°
P.201

Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	No. of Morse Taper	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	No. of Morse Taper
	D1					D1			
DL205130	13.0	101	182	1	DL205220	22.0	150	248	2
DL205135	13.5	108	189	1	DL205225	22.5	155	253	2
DL205140	14.0	108	189	1	DL205230	23.0	155	253	2
DL205145	14.5	114	212	2	DL205235	23.5	155	276	3
DL205150	15.0	114	212	2	DL205240	24.0	160	281	3
DL205155	15.5	120	218	2	DL205245	24.5	160	281	3
DL205160	16.0	120	218	2	DL205250	25.0	160	281	3
DL205165	16.5	125	223	2	DL205255	25.5	165	286	3
DL205170	17.0	125	223	2	DL205260	26.0	165	286	3
DL205175	17.5	130	228	2	DL205265	26.5	165	286	3
DL205180	18.0	130	228	2	DL205270	27.0	170	291	3
DL205185	18.5	135	233	2	DL205275	27.5	170	291	3
DL205190	19.0	135	233	2	DL205280	28.0	170	291	3
DL205195	19.5	140	238	2	DL205285	28.5	175	296	3
DL205200	20.0	140	238	2	DL205290	29.0	175	296	3
DL205205	20.5	145	243	2	DL205295	29.5	175	296	3
DL205210	21.0	145	243	2	DL205300	30.0	175	296	3
DL205215	21.5	150	248	2					

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
-HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○	○	○		○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

YG MORSE TAPER SHANK DRILLS

D1205 SERIES

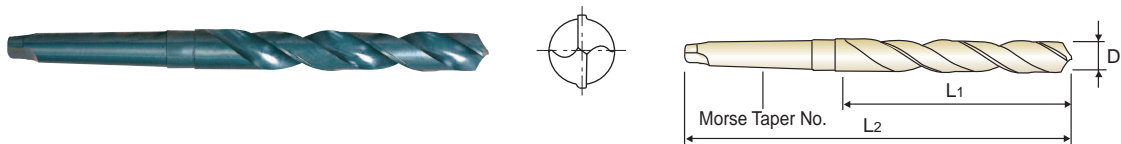
HSS, MORSE TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT

JOBBER

KURZ

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
► **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
► **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 345
HSS
N 20~30°
1~5
h8
118°
P.202

Unit : mm

EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No. of Morse Taper	EDP No.	Drill Diameter D1	Flute Length L1	Overall Length L2	No. of Morse Taper
D1205130	13.0	101	182	1	D1205205	20.5	145	243	2
D1205132	13.2	101	182	1	D120520B	20.75	145	243	2
D120513A	13.25	108	189	1	D1205210	21.0	145	243	2
D1205135	13.5	108	189	1	D120521A	21.25	150	248	2
D120513B	13.75	108	189	1	D1205215	21.5	150	248	2
D1205138	13.8	108	189	1	D120521B	21.75	150	248	2
D1205140	14.0	108	189	1	D1205220	22.0	150	248	2
D120514A	14.25	114	212	2	D120522A	22.25	150	248	2
D1205145	14.5	114	212	2	D1205225	22.5	155	253	2
D120514B	14.75	114	212	2	D120522B	22.75	155	253	2
D1205150	15.0	114	212	2	D1205230	23.0	155	253	2
D120515A	15.25	120	218	2	D120523A	23.25	155	276	3
D1205155	15.5	120	218	2	D1205235	23.5	155	276	3
D120515B	15.75	120	218	2	D120523B	23.75	160	281	3
D1205160	16.0	120	218	2	D1205240	24.0	160	281	3
D120516A	16.25	125	223	2	D120524A	24.25	160	281	3
D1205165	16.5	125	223	2	D1205245	24.5	160	281	3
D120516B	16.75	125	223	2	D120524B	24.75	160	281	3
D1205170	17.0	125	223	2	D1205250	25.0	160	281	3
D120517A	17.25	130	228	2	D120525A	25.25	165	286	3
D1205175	17.5	130	228	2	D1205255	25.5	165	286	3
D120517B	17.75	130	228	2	D120525B	25.75	165	286	3
D1205180	18.0	130	228	2	D1205260	26.0	165	286	3
D120518A	18.25	135	233	2	D120526A	26.25	165	286	3
D1205185	18.5	135	233	2	D1205265	26.5	165	286	3
D120518B	18.75	135	233	2	D120526B	26.75	170	291	3
D1205190	19.0	135	233	2	D1205270	27.0	170	291	3
D120519A	19.25	140	238	2	D120527A	27.25	170	291	3
D1205195	19.5	140	238	2	D1205275	27.5	170	291	3
D120519B	19.75	140	238	2	D120527B	27.75	170	291	3
D1205200	20.0	140	238	2	D1205280	28.0	170	291	3
D120520A	20.25	145	243	2	D120528A	28.25	175	296	3

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○		○		



MORSE TAPER SHANK DRILLS

D1205 SERIES

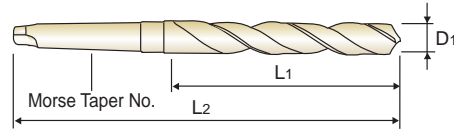
HSS, MORSE TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT

JOBBER

KURZ

- ▶ **Surface treatment** : Steam Tempered(Black Oxide Finish)
- ▶ **Application** : Drilling steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

- ▶ **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
- ▶ **Verwendung** : Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen, Graphit.



DIN 345
HSS
N 20~30°
1~5
h8
118°
P.202

Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length		No. of Morse Taper	EDP No.	Drill Diameter	Flute Length L1	Overall Length		No. of Morse Taper
	D1		L2	D1			L2				
D1205285	28.5	175	296	3	D1205405	40.5	205	354	4		
D120528B	28.75	175	296	3	D1205410	41.0	205	354	4		
D1205290	29.0	175	296	3	D1205415	41.5	205	354	4		
D120529A	29.25	175	296	3	D1205420	42.0	205	354	4		
D1205295	29.5	175	296	3	D1205425	42.5	205	354	4		
D120529B	29.75	175	296	3	D1205430	43.0	210	359	4		
D1205300	30.0	175	296	3	D1205435	43.5	210	359	4		
D120530A	30.25	180	301	3	D1205440	44.0	210	359	4		
D1205305	30.5	180	301	3	D1205445	44.5	210	359	4		
D120530B	30.75	180	301	3	D1205450	45.0	210	359	4		
D1205310	31.0	180	301	3	D1205455	45.5	215	364	4		
D120531A	31.25	180	301	3	D1205460	46.0	215	364	4		
D1205315	31.5	180	301	3	D1205465	46.5	215	364	4		
D120531B	31.75	185	306	3	D1205470	47.0	215	364	4		
D1205320	32.0	185	334	4	D1205475	47.5	215	364	4		
D1205325	32.5	185	334	4	D1205480	48.0	220	369	4		
D1205330	33.0	185	334	4	D1205485	48.5	220	369	4		
D1205335	33.5	185	334	4	D1205490	49.0	220	369	4		
D1205340	34.0	190	339	4	D1205495	49.5	220	369	4		
D1205345	34.5	190	339	4	D1205500	50.0	220	369	4		
D1205350	35.0	190	339	4	D1205505	50.5	225	374	4		
D1205355	35.5	190	339	4	D1205510	51.0	225	412	5		
D1205360	36.0	195	344	4	D1205520	52.0	225	412	5		
D1205365	36.5	195	344	4	D1205530	53.0	225	412	5		
D1205370	37.0	195	344	4	D1205540	54.0	230	417	5		
D1205375	37.5	195	344	4	D1205550	55.0	230	417	5		
D1205380	38.0	200	349	4	D1205560	56.0	230	417	5		
D1205385	38.5	200	349	4	D1205570	57.0	235	422	5		
D1205390	39.0	200	349	4	D1205580	58.0	235	422	5		
D1205395	39.5	200	349	4	D1205590	59.0	235	422	5		
D1205400	40.0	200	349	4	D1205600	60.0	235	422	5		

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○		○		

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA



MORSE TAPER SHANK DRILLS

D1206 SERIES

HSS, MORSE TAPER SHANK TWIST DRILLS

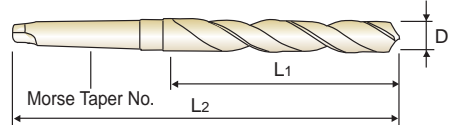
LONG

HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT

LANG

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
 ► **Application** : Drilling deep holes in steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
 ► **Verwendung** : Für Bohrungen mit Bohrbuchsen oder an tief liegenden Stellen.
 Zum Bohren von Stahl und Stahlguß, Grauß, Temperguß, Sphäroguß, Sintereisen, Neusilber und Graphit.



DIN 341

HSS

N 20~30°

1~3

h8

118°



P.202

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper	EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper
	D1	L1	L2			D1	L1	L2	
D1206130	13.0	134	215	1	D1206195	19.5	177	275	2
D1206135	13.5	142	223	1	D1206200	20.0	177	275	2
D1206140	14.0	142	223	1	D1206210	21.0	184	282	2
D1206145	14.5	147	245	2	D1206220	22.0	191	289	2
D1206150	15.0	147	245	2	D1206230	23.0	198	296	2
D1206155	15.5	153	251	2	D1206240	24.0	206	327	3
D1206160	16.0	153	251	2	D1206250	25.0	206	327	3
D1206165	16.5	159	257	2	D1206260	26.0	214	335	3
D1206170	17.0	159	257	2	D1206270	27.0	222	343	3
D1206175	17.5	165	263	2	D1206280	28.0	222	343	3
D1206180	18.0	165	263	2	D1206290	29.0	230	351	3
D1206185	18.5	171	269	2	D1206300	30.0	230	351	3
D1206190	19.0	171	269	2					

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○		○		

◎ : Excellent ○ : Good



MORSE TAPER SHANK DRILLS

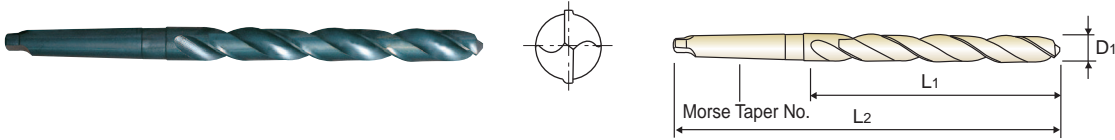
D1209 SERIES

HSS, MORSE TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT

JOBBER**KURZ**

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
 ► **Application** : Drilling deep holes in steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, graphite.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
 ► **Verwendung** : Für Bohrungen mit Bohrbuchsen oder an tief liegenden Stellen.
 Zum Bohren von Stahl und Stahlguß, Grauß, Temperguß, Sphäroguß, Sinter Eisen, Neusilber und Graphit



Unit : mm

EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	No. of Morse Taper	EDP No.	Drill Diameter	Flute Length L1	Overall Length L2	No. of Morse Taper
	D1					D1			
D1209130	13.0	205	310	1	D1209270	27.0	305	460	3
D1209135	13.5	220	325	1	D1209275	27.5	305	460	3
D1209140	14.0	220	325	1	D1209280	28.0	305	460	3
D1209145	14.5	220	340	2	D1209285	28.5	305	460	3
D1209150	15.0	220	340	2	D1209290	29.0	305	460	3
D1209155	15.5	230	355	2	D1209295	29.5	305	460	3
D1209160	16.0	230	355	2	D1209300	30.0	305	460	3
D1209165	16.5	230	355	2	D1209305	30.5	320	480	3
D1209170	17.0	230	355	2	D1209310	31.0	320	480	3
D1209175	17.5	245	370	2	D1209320	32.0	320	505	4
D1209180	18.0	245	370	2	D1209330	33.0	320	505	4
D1209185	18.5	245	370	2	D1209340	34.0	340	530	4
D1209190	19.0	245	370	2	D1209350	35.0	340	530	4
D1209195	19.5	260	385	2	D1209360	36.0	340	530	4
D1209200	20.0	260	385	2	D1209370	37.0	340	530	4
D1209205	20.5	260	385	2	D1209380	38.0	360	555	4
D1209210	21.0	260	385	2	D1209390	39.0	360	555	4
D1209215	21.5	270	405	2	D1209400	40.0	360	555	4
D1209220	22.0	270	405	2	D1209410	41.0	360	555	4
D1209225	22.5	270	405	2	D1209420	42.0	360	555	4
D1209230	23.0	270	405	2	D1209430	43.0	385	585	4
D1209235	23.5	270	425	3	D1209440	44.0	385	585	4
D1209240	24.0	290	440	3	D1209450	45.0	385	585	4
D1209245	24.5	290	440	3	D1209460	46.0	385	585	4
D1209250	25.0	290	440	3	D1209470	47.0	385	585	4
D1209255	25.5	290	440	3	D1209480	48.0	405	605	4
D1209260	26.0	290	440	3	D1209490	49.0	405	605	4
D1209265	26.5	290	440	3	D1209500	50.0	405	605	4

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	○			○	○	○		○		



MORSE TAPER SHANK DRILLS

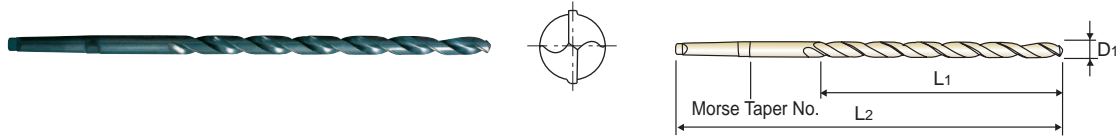
D1210 SERIES

HSS, MORSE TAPER SHANK TWIST DRILLS HSS, SPIRALBOHRER mit MORSEKEGELSCHAFT

**EXTRA LONG
ÜBERLANG**

► **Surface treatment** : Steam Tempered(Black Oxide Finish)
 ► **Application** : Designed for drilling deep holes or deeply located holes. Drilling into steels, cast steels alloyed and non-alloyed, grey cast iron, malleable cast iron, Spheroidal graphite cast iron, sintered iron, aluminum and aluminum alloys.

► **Oberflächenbehandlung** : Steam Homo(Schwarzoxidation)
 ► **Verwendung** : Standardbohrer zum Bohren extrem tiefer Löcher.
 Zum Bohren von Stahl und Stahlguß, Grauguß, Temperguß, Sphäroguß, Sintereisen und Graphit



DIN 1870/2
HSS
N 20~30°
1~4
h8
118°
P.202

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper	EDP No.	Drill Diameter	Flute Length	Overall Length	No. of Morse Taper
	D1	L1	L2			D1	L1	L2	
D1210130	13.0	260	395	1	D1210270	27.0	385	580	3
D1210135	13.5	275	410	1	D1210275	27.5	385	580	3
D1210140	14.0	275	410	1	D1210280	28.0	385	580	3
D1210145	14.5	275	425	2	D1210285	28.5	385	580	3
D1210150	15.0	275	425	2	D1210290	29.0	385	580	3
D1210155	15.5	295	445	2	D1210295	29.5	385	580	3
D1210160	16.0	295	445	2	D1210300	30.0	385	580	3
D1210165	16.5	295	445	2	D1210310	31.0	410	610	3
D1210170	17.0	295	445	2	D1210320	32.0	410	635	4
D1210175	17.5	310	465	2	D1210330	33.0	410	635	4
D1210180	18.0	310	465	2	D1210340	34.0	430	665	4
D1210185	18.5	310	465	2	D1210350	35.0	430	665	4
D1210190	19.0	310	465	2	D1210360	36.0	430	665	4
D1210195	19.5	325	490	2	D1210370	37.0	430	665	4
D1210200	20.0	325	490	2	D1210380	38.0	460	695	4
D1210205	20.5	325	490	2	D1210390	39.0	460	695	4
D1210210	21.0	325	490	2	D1210400	40.0	460	695	4
D1210215	21.5	345	515	2	D1210410	41.0	460	695	4
D1210220	22.0	345	515	2	D1210420	42.0	460	695	4
D1210225	22.5	345	515	2	D1210430	43.0	490	735	4
D1210230	23.0	345	515	2	D1210440	44.0	490	735	4
D1210235	23.5	345	535	3	D1210450	45.0	490	735	4
D1210240	24.0	365	555	3	D1210460	46.0	490	735	4
D1210245	24.5	365	555	3	D1210470	47.0	490	735	4
D1210250	25.0	365	555	3	D1210480	48.0	510	765	4
D1210255	25.5	365	555	3	D1210490	49.0	510	765	4
D1210260	26.0	365	555	3	D1210500	50.0	510	765	4
D1210265	26.5	365	555	3					

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	○			○	○	○		○		

HSS-E, MORSE TAPER SHANK TWIST DRILLS, TiN COATED
HSS-E, SPIRALBOHTER mit MORSEKEGEL SCHAFT, TiN-BESCHICHTET

DN221 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS		ALLOY STEELS		TOOL STEELS, ALLOY STEELS		CAST IRON TOOL STEELS		ALUMINUM ALLOYS MAGNESIUM ALLOYS	
	N	S	N	S	N	S	N	S	N	S
DIAMETER										
14	455	0.25	415	0.25	200	0.25	1980	0.29	1980	0.51
16	430	0.27	390	0.27	175	0.27	1730	0.30	1730	0.55
18	370	0.31	350	0.31	155	0.31	1570	0.33	1570	0.57
20	330	0.33	290	0.33	140	0.33	1320	0.36	1320	0.62
22	305	0.36	280	0.36	132	0.36	1240	0.37	1240	0.68
24	290	0.37	250	0.37	125	0.37	1150	0.42	1150	0.72
26	265	0.40	230	0.40	105	0.40	1070	0.43	1070	0.75
28	250	0.43	215	0.43	100	0.43	990	0.45	990	0.79
30	230	0.45	200	0.45	88	0.45	910	0.53	910	0.83
32	215	0.49	190	0.49	88	0.49	785	0.53	785	0.86

N = R.P.M
 S = Feed per Revolution (mm/rev.)

HSS-E, TWIST DRILLS for HEAVY DUTY, DIN345
HSS-E, SPIRALBOHRER für HOHELEISTUNGEN DIN 345

DL205 SERIES

Unit : mm

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS		STAINLESS STEELS		CAST IRON	
	N	S	N	S	N	S	N	S	N	S	N	S	N	S
HARDNESS			~ HRc23		HRc23 ~ 28		HRc23 ~ 34		HRc34 ~ 38		HRc23		HRc21	
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²		830 N/mm ²		800 N/mm ²	
DIAMETER														
13	785	0.17	575	0.17	445	0.09	540	0.20	325	0.05	785	0.17	785	0.17
14	720	0.18	530	0.18	410	0.10	500	0.20	300	0.05	720	0.18	720	0.18
16	635	0.20	475	0.20	365	0.11	445	0.22	265	0.05	635	0.20	635	0.20
18	550	0.22	420	0.22	320	0.12	390	0.23	230	0.05	550	0.22	550	0.22
20	500	0.23	380	0.23	290	0.13	355	0.23	210	0.06	500	0.23	500	0.23
22	450	0.24	340	0.24	260	0.14	320	0.23	190	0.06	450	0.24	450	0.24
24	420	0.25	320	0.25	240	0.15	295	0.23	175	0.07	420	0.25	420	0.25
26	390	0.26	300	0.26	220	0.16	270	0.23	160	0.07	390	0.26	390	0.26
28	360	0.27	275	0.27	205	0.17	250	0.23	150	0.07	360	0.27	360	0.27
30	330	0.28	250	0.28	190	0.18	230	0.23	140	0.08	330	0.28	330	0.28

N = R.P.M
 S = Feed per Revolution (mm/rev.)

**HSS DRILLS DIN345, DIN341, DIN1870****HSS SPIRALBOHRER DIN 345, DIN 341, DIN 1870****D1205, D1206, D1209, D1210 SERIES**

Unit : mm

WORK MATERIAL	CARBON STEELS		CARBON STEELS		CARBON STEELS		ALLOY STEELS		ALLOY STEELS		STAINLESS STEELS		TITANIUM ALLOYS	
			~ HRC23		~ HRC23 ~ 28		HRC23 ~ 34		HRC34 ~ 38		HRC23			
HARDNESS														
STRENGTH	~ 570 N/mm ²		~ 830 N/mm ²		830 ~ 950 N/mm ²		830 ~ 1110 N/mm ²		1110 ~ 1260 N/mm ²		830 N/mm ²		410 N/mm ²	
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S	N	S
13	645	0.17	480	0.17	370	0.09	440	0.20	265	0.05	480	0.17	265	0.09
19	440	0.23	330	0.23	255	0.13	300	0.23	180	0.05	330	0.23	180	0.13
32	260	0.28	195	0.28	145	0.18	180	0.18	107	0.08	195	0.28	107	0.18
50	165	0.33	125	0.33	93	0.20	115	0.20	68	0.08	125	0.33	68	0.20
60	140	0.40	105	0.40	78	0.23	95	0.23	57	0.10	105	0.40	57	0.23

WORK MATERIAL	TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		MAGNESIUM ALLOYS		ZINC ALLOYS		PLASTICS	
			~ HRC21									
HARDNESS												
STRENGTH	~ 270 N/mm ²		~ 800 N/mm ²									
DIAMETER	N	S	N	S	N	S	N	S	N	S	N	S
13	645	0.17	480	0.17	1200	0.26	1600	0.26	1200	0.26	645	0.17
19	440	0.23	330	0.23	820	0.30	1100	0.30	820	0.30	440	0.23
32	240	0.30	195	0.28	490	0.38	660	0.38	490	0.38	260	0.28
50	150	0.43	125	0.33	310	0.46	415	0.46	310	0.46	165	0.33
60	125	0.48	105	0.40	260	0.50	345	0.50	260	0.50	140	0.40

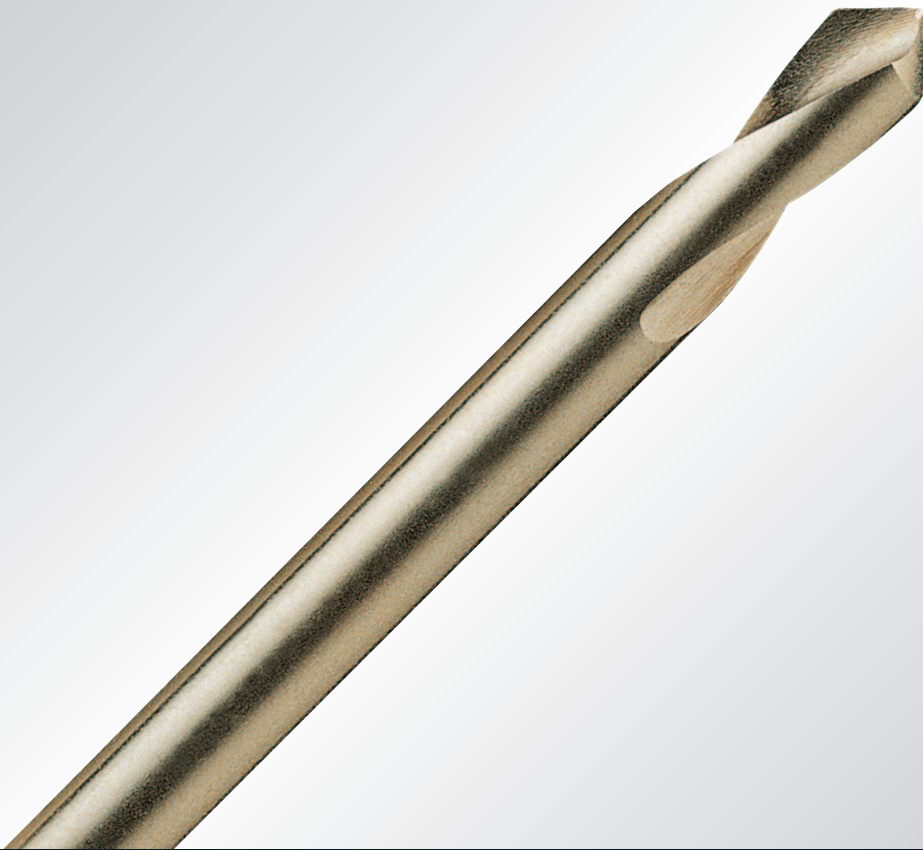
N = R.P.M

S = Feed per Revolution (mm/rev.)

HSS



Being the best through innovation



NC-SPOTTING DRILLS


NC-ANBOHRER

- HSS(8% COBALT)
Centering and Chamfering of Holes
- HSS-Co8 NC-ANBOHRER
Zum Zentrieren und Anfasen

SELECTION GUIDE

HSS(8% Cobalt) NC-SPOTTING DRILLS

Centering and Chamfering of Holes

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
D2306 D2307		HSSCo8, NC-SPOTTING DRILLS HSSCo8, NC-ANBOHRER	D3.0	D20.0	206
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			207

HSS NC-SPOTTING DRILLS

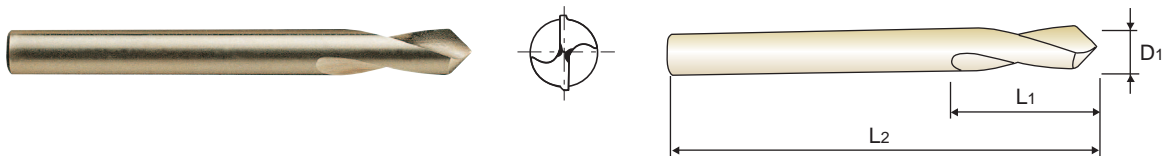
◎ : Excellent
○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○		○		○

HSSCo8, NC-SPOTTING DRILLS
HSSCo8, NC-ANBOHRER

► **Application** : For more precise centering work on NC/CNC Machines.
The large diameter of the tool permits chamfering work after centering continuously.

► **Verwendung** : Für positionsgenaueres und schnelles Anbohren mit NC/CNC-Maschinen und Bearbeitungszentren, die Ausführung mit Spitzenwinkel 90° ermöglicht sowohl ein Zentrieren, als auch das Vorbohren für einen nächstgrößeren Durchmesser.



NC-Anbohrer 90°
NC-Spotting drills 90°

NC-Anbohrer 120°
NC-Spotting drills 120°

Unit : mm

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2306030	3.0	12	46
D2306040	4.0	12	55
D2306050	5.0	15	60
D2306060	6.0	20	66
D2306080	8.0	25	79
D2306100	10.0	25	89
D2306120	12.0	30	102
D2306160	16.0	35	115
D2306200	20.0	40	131

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
D2307030	3.0	12	46
D2307040	4.0	12	55
D2307050	5.0	15	60
D2307060	6.0	20	66
D2307080	8.0	25	79
D2307100	10.0	25	89
D2307120	12.0	30	102
D2307160	16.0	35	115
D2307200	20.0	40	131

► TiN(D4306, D4307), TiCN(D7306, D7307) and TiAlN(DQ306, DQ307) are available on your request.

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎					○	○		○		○

◎ : Excellent ○ : Good

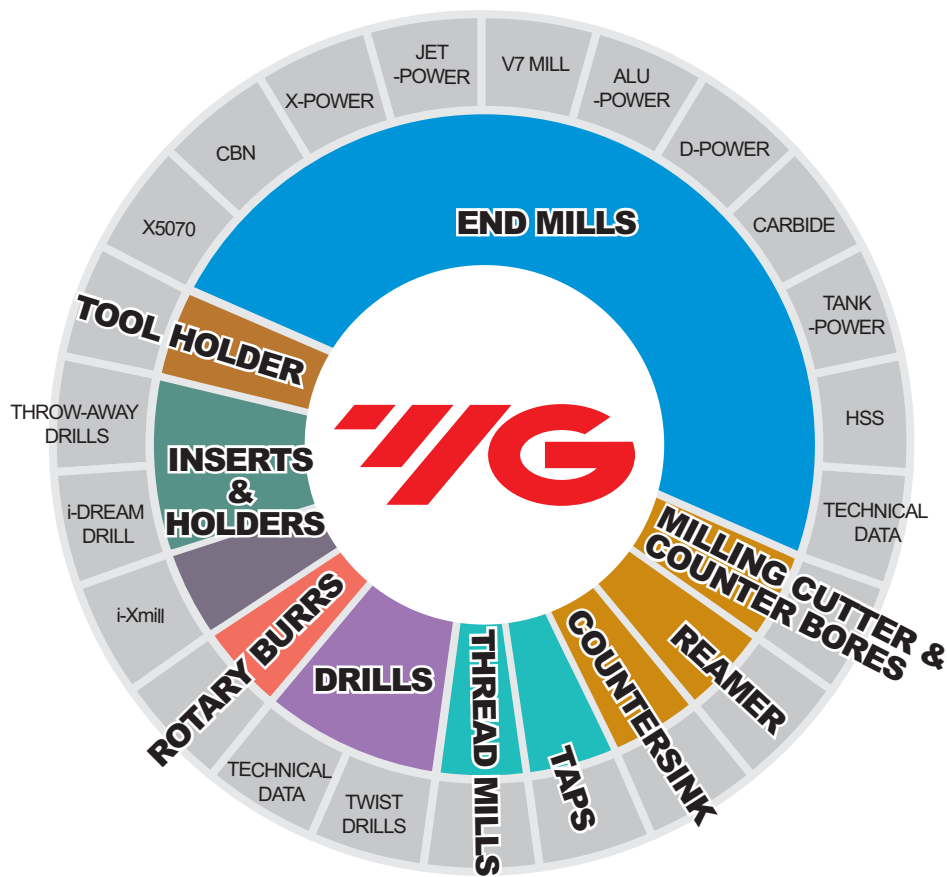
HSSCo8, NC-SPOTTING DRILLS 90°, 120°
HSSCo8, NC-ANBOHRER 90°, 120°
D2306, D2307 SERIES

Unit : mm

WORK MATERIAL DIAMETER	CARBON STEELS		ALLOY STEELS		ALLOY STEELS, TOOL STEELS, HARDENED STEELS		STAINLESS STEELS		ALUMINUM, ALUMINUM ALLOYS	
	N	S	N	S	N	S	N	S	N	S
3	2460	0.06	2110	0.06	1080	0.06	940	0.06	7040	0.14
4	1850	0.07	1580	0.07	800	0.07	700	0.07	5280	0.15
5	1510	0.08	1300	0.08	670	0.08	580	0.08	4400	0.17
6	1170	0.09	1030	0.09	540	0.09	460	0.09	3520	0.19
8	880	0.11	790	0.11	400	0.11	350	0.11	2640	0.22
10	700	0.12	630	0.12	320	0.12	290	0.12	2110	0.25
12	590	0.14	530	0.14	260	0.14	240	0.14	1760	0.28
16	460	0.20	400	0.20	200	0.20	180	0.20	1320	0.33
20	350	0.24	320	0.24	150	0.24	140	0.24	1060	0.45

N = R.P.M

S = Feed per Revolution (mm/rev.)



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



CENTER DRILLS

ZENTRIERBOHRER

- General Purpose (HSS & HSS-EX)
- Für allgemeinen Einsatz (HSS & HSS-EX)

SELECTION GUIDE

HSS-EX CENTER DRILLS

General Purpose

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
DV303		HSS-EX, CENTER DRILLS HSS-EX, ZENTRIERBOHRER	D1.0	D5.0	212
D1303		HSS, CENTER DRILLS HSS, ZENTRIERBOHRER	D1.0	D5.0	212

HSS-EX CENTER DRILLS

◎ : Excellent
○ : Good

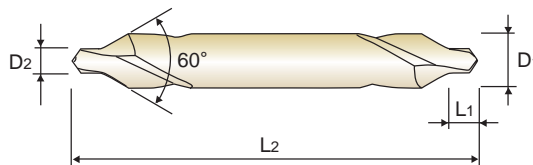
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc45~55	HRc55~							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○	○	○
◎	◎				○	○	○	○	○	○	○



HSS-EX & HSS, CENTER DRILLS HSS-EX & HSS, ZENTRIERBOHRER

► **Application** : High heat resistant centering drills. Especially suitable for high thermal load applications.

► **Verwendung** : Zentrierbohrer mit ausgeprägter Warmhärtebeständigkeit. Besonders geeignet bei hoher thermischer Beanspruchung.



FORM A (60°)

EDP No.	Drill Diameter	Shank Diameter	Pilot Length	Overall Length
	D1	D2	L1	L2
DV303010	1.0	3.15	1.3	31.5
DV303912	1.25	3.15	1.6	31.5
DV303016	1.6	4.0	2.0	35.5
DV303020	2.0	5.0	2.5	40
DV303025	2.5	6.3	3.1	45
DV303931	3.15	8.0	3.9	50
DV303040	4.0	10.0	5.0	56
DV303050	5.0	12.5	6.3	63

FORM A (60°)

Unit : mm

EDP No.	Drill Diameter	Shank Diameter	Pilot Length	Overall Length
	D1	D2	L1	L2
D1303010	1.0	3.15	1.3	31.5
D1303912	1.25	3.15	1.6	31.5
D1303016	1.6	4.0	2.0	35.5
D1303020	2.0	5.0	2.5	40
D1303025	2.5	6.3	3.1	45
D1303931	3.15	8.0	3.9	50
D1303040	4.0	10.0	5.0	56
D1303050	5.0	12.5	6.3	63

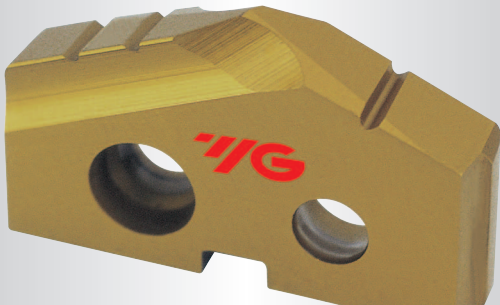
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Cast Iron	Aluminum	Stainless Steels	Titanium	Mild Steels	Copper	Bronze
			HRc30~45	HRc45~55							
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○	○	○	○	○	○	○

◎ : Excellent ○ : Good



Being the best through innovation

INSERTS & HOLDERS















SPADE DRILLS BOHRMESSER

- Carbide for Long Tool Life, and HSS-PM for General Machines and Large Diameters
Higher Productivity than Other Drilling Tools
- VHM für lange Standzeit; HSS-PM für große Durchmesser und konventionelle Maschinen.
Größere Produktivität als andere Bohrer

SELECTION GUIDE

SPADE DRILL INSERTS

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
SERIES 1~8		SPADE DRILL INSERTS - HSS M4 EINWEG BOHREINSATZ - HSS M4	Ø17.86 (#1)	Ø114.3 (#8)	216
SERIES Y,Z,0,1~4		SPADE DRILL INSERTS - SUPER HSS T15 EINWEG BOHREINSATZ - SUPER HSS T15	Ø9.5 (#Y)	Ø65.09 (#4)	222
SERIES Y,Z,0,1,2		SPADE DRILL INSERTS - PREMIUM HSS M48 EINWEG BOHREINSATZ - PREMIUM HSS M48	Ø9.5 (#Y)	Ø35 (#2)	227
SERIES Y,Z,0,1,2		SPADE DRILL INSERTS for CAST IRON - CARBIDE(K10) EINWEG BOHREINSATZ - VOLLHARTMETALL (K10)	Ø9.5 (#Y)	Ø35 (#2)	230
SERIES Y,Z,0,1~3		SPADE DRILL INSERTS - CARBIDE(K20) EINWEG BOHREINSATZ - VOLLHARTMETALL (K20)	Ø9.5 (#Y)	Ø47.63 (#3)	233
SERIES Y,Z,0,1~3		SPADE DRILL INSERTS - CARBIDE(P40) EINWEG BOHREINSATZ - VOLLHARTMETALL (P40)	Ø9.5 (#Y)	Ø47.63 (#3)	237
SERIES 1~3		SM-POINT SPADE DRILL INSERTS - HSS M4 SM-POINT EINWEG BOHREINSATZ - HSS M4	Ø17.86 (#1)	Ø47.63 (#3)	242
SERIES Y,Z,0,1~3		SM-POINT SPADE DRILL INSERTS - SUPER HSS T15 SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15	Ø9.5 (#Y)	Ø47.63 (#3)	245
SERIES Y,Z,0,1,2		SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48 SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48	Ø9.5 (#Y)	Ø35 (#2)	249
SERIES Y,Z,0,1,2		SM-POINT SPADE DRILL INSERTS for CAST IRON - CARBIDE(K10) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL (K10)	Ø9.5 (#Y)	Ø35 (#2)	252
SERIES Y,Z,0,1~3		SM-POINT SPADE DRILL INSERTS - CARBIDE(K20) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL (K20)	Ø9.5 (#Y)	Ø47.63 (#3)	255
SERIES Y,Z,0,1~3		SM-POINT SPADE DRILL INSERTS - CARBIDE(P40) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL (P40)	Ø9.5 (#Y)	Ø47.63 (#3)	259

SPADE DRILL HOLDERS

TAPER SHANK		TAPER SHANK HOLDERS - INCH/METRIC HALTER MIT MORSEKEGEL	263
FLANGED SHANK		FLANGED STRAIGHT SHANK HOLDERS - INCH/METRIC HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE	271
STRAIGHT SHANK		STRAIGHT SHANK HOLDERS - INCH HALTER MIT ZYLINDERSCHAFT	278

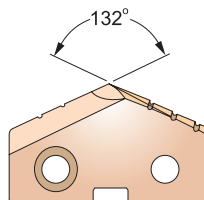
SPADE DRILLS

⊙ : Excellent
○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)	~HB110
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SPADE DRILL INSERTS - HSS M4
EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.
- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	S1405045	S1410045	S1415045
		18.00	.7087"		S1455180	S1460180	S1465180
	23/32"	18.26	.7188"		S1405046	S1410046	S1415046
		18.50	.7283"		S1455185	S1460185	S1465185
	47/64"	18.65	.7344"		S1405047	S1410047	S1415047
		19.00	.7480"		S1455190	S1460190	S1465190
	3/4"	19.05	.7500"		S1405048	S1410048	S1415048
	49/64"	19.45	.7656"		S1405049	S1410049	S1415049
		19.50	.7677"		S1455195	S1460195	S1465195
	25/32"	19.84	.7813"		S1405050	S1410050	S1415050
		20.00	.7874"		S1455200	S1460200	S1465200
	51/64"	20.24	.7969"		S1405051	S1410051	S1415051
		20.50	.8071"		S1455205	S1460205	S1465205
	13/16"	20.64	.8125"		S1405052	S1410052	S1415052
		21.00	.8268"		S1455210	S1460210	S1465210
	27/32"	21.43	.8438"		S1405054	S1410054	S1415054
	55/64"	21.83	.8594"		S1405055	S1410055	S1415055
		22.00	.8661"		S1455220	S1460220	S1465220
7/8"	22.23	.8750"	S1405056	S1410056	S1415056		
57/64"	22.62	.8906"	S1405057	S1410057	S1415057		
	23.00	.9055"	S1455230	S1460230	S1465230		
29/32"	23.02	.9063"	S1405058	S1410058	S1415058		
59/64"	23.42	.9219"	S1405059	S1410059	S1415059		
15/16"	23.81	.9375"	S1405060	S1410060	S1415060		
	24.00	.9449"	S1455240	S1460240	S1465240		
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	S1405062	S1410062	S1415062
	63/64"	25.00	.9843"		S1405063	S1410063	S1415063
	1"	25.40	1.0000"		S1405100	S1410100	S1415100
	1-1/64"	25.80	1.0156"		S1405101	S1410101	S1415101
		26.00	1.0236"		S1455260	S1460260	S1465260
	1-1/32"	26.19	1.0313"		S1405102	S1410102	S1415102
	1-3/64"	26.59	1.0469"		S1405103	S1410103	S1415103
	1-1/16"	26.99	1.0625"		S1405104	S1410104	S1415104
		27.00	1.0630"		S1455270	S1460270	S1465270

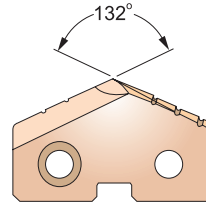
◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)		HRc13~ (HB200~)	~HRc28 (~HB275)		
	○	○	○	○		○		○	○		◎	◎	○	◎	◎

SPADE DRILL INSERTS - HSS M4 EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	1-3/32"	27.78	1.0938"	4.8 (3/16")	S1405106	S1410106	S1415106
		28.00	1.1024"		S1455280	S1460280	S1465280
	1-7/64"	28.18	1.1094"		S1405107	S1410107	S1415107
	1-1/8"	28.58	1.1250"		S1405108	S1410108	S1415108
		29.00	1.1417"		S1455290	S1460290	S1465290
	1-5/32"	29.37	1.1563"		S1405110	S1410110	S1415110
		30.00	1.1811"		S1455300	S1460300	S1465300
	1-3/16"	30.16	1.1875"		S1405112	S1410112	S1415112
	1-7/32"	30.96	1.2188"		S1405114	S1410114	S1415114
		31.00	1.2205"		S1455310	S1460310	S1465310
	1-1/4"	31.75	1.2500"		S1405116	S1410116	S1415116
		32.00	1.2598"		S1455320	S1460320	S1465320
	1-9/32"	32.54	1.2813"		S1405118	S1410118	S1415118
		33.00	1.2992"		S1455330	S1460330	S1465330
	1-5/16"	33.34	1.3125"		S1405120	S1410120	S1415120
		34.00	1.3386"		S1455340	S1460340	S1465340
1-11/32"	34.13	1.3438"	S1405122	S1410122	S1415122		
1-3/8"	34.93	1.3750"	S1405124	S1410124	S1415124		
	35.00	1.3780"	S1455350	S1460350	S1465350		
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1405126	S1410126	S1415126
		36.00	1.4173"		S1455360	S1460360	S1465360
	1-7/16"	36.51	1.4375"		S1405128	S1410128	S1415128
		37.00	1.4567"		S1455370	S1460370	S1465370
	1-15/32"	37.31	1.4688"		S1405130	S1410130	S1415130
		38.00	1.4961"		S1455380	S1460380	S1465380
	1-1/2"	38.10	1.5000"		S1405132	S1410132	S1415132
	1-17/32"	38.89	1.5313"		S1405134	S1410134	S1415134
		39.00	1.5354"		S1455390	S1460390	S1465390
	1-9/16"	39.69	1.5625"		S1405136	S1410136	S1415136
		40.00	1.5748"		S1455400	S1460400	S1465400
	1-19/32"	40.48	1.5938"		S1405138	S1410138	S1415138
		41.00	1.6142"		S1455410	S1460410	S1465410
	1-5/8"	41.28	1.6250"		S1405140	S1410140	S1415140
		42.00	1.6535"		S1455420	S1460420	S1465420

◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)	HRc13~ (-HB200)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (-HB220)	-HRc8 (-HB180)
○	○	○	○		○		○	○			◎	◎	○	◎	◎

SPADE DRILL INSERTS - HSS M4
EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.
- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
3 34.37 (1.353") to 47.80 (1.882")	1-21/32"	42.07	1.6563"	6.4 (1/4")	S1405142	S1410142	S1415142
	1-11/16"	42.86	1.6875"		S1405144	S1410144	S1415144
		43.00	1.6929"		S1455430	S1460430	S1465430
	1-23/32"	43.66	1.7188"		S1405146	S1410146	S1415146
		44.00	1.7323"		S1455440	S1460440	S1465440
	1-3/4"	44.45	1.7500"		S1405148	S1410148	S1415148
		45.00	1.7717"		S1455450	S1460450	S1465450
	1-25/32"	45.24	1.7813"		S1405150	S1410150	S1415150
		46.00	1.8110"		S1455460	S1460460	S1465460
	1-13/16"	46.04	1.8125"		S1405152	S1410152	S1415152
	1-27/32"	46.83	1.8438"		S1405154	S1410154	S1415154
		47.00	1.8504"		S1455470	S1460470	S1465470
4 46.99 (1.850") to 65.28 (2.570")	1-7/8"	47.63	1.8750"	7.9 (5/16")	S1405156	S1410156	S1415156
		48.00	1.8898"		S1455480	S1460480	S1465480
	1-29/32"	48.42	1.9063"		S1405158	S1410158	S1415158
		49.00	1.9291"		S1455490	S1460490	S1465490
	1-15/16"	49.21	1.9375"		S1405160	S1410160	S1415160
		50.00	1.9685"		S1455500	S1460500	S1465500
	1-31/32"	50.01	1.9688"		S1405162	S1410162	S1415162
	2"	50.80	2.0000"		S1405200	S1410200	S1415200
		51.00	2.0079"		S1455510	S1460510	S1465510
	2-1/32"	51.59	2.0313"		S1405202	S1410202	S1415202
	2-3/64"	52.00	2.0472"		S1405203	S1410203	S1415203
	2-1/16"	52.39	2.0625"		S1405204	S1410204	S1415204
		53.00	2.0866"		S1455530	S1460530	S1465530
	2-3/32"	53.18	2.0938"		S1405206	S1410206	S1415206
	2-1/8"	53.98	2.1250"		S1405208	S1410208	S1415208
		54.00	2.1260"		S1455540	S1460540	S1465540
	2-5/32"	54.79	2.1563"		S1405210	S1410210	S1415210
		55.00	2.1654"		S1455550	S1460550	S1465550
2-3/16"	55.56	2.1875"	S1405212	S1410212	S1415212		
	56.00	2.2047"	S1455560	S1460560	S1465560		
2-7/32"	56.36	2.2188"	S1405214	S1410214	S1415214		
	57.00	2.2441"	S1455570	S1460570	S1465570		

◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275-)	-HRc28 (-HB275)	HRc28~ (HB275-)	-HRc37 (-HB350)	HRc37~ (HB350-)	-HRc24 (-HB250)	HRc24~ (HB250-)	-HRc13 (-HB200)		HRc13~ (HB200-)	-HRc28 (-HB275)		
	○	○	○	○		○		○	○		◎	◎	○	◎	◎



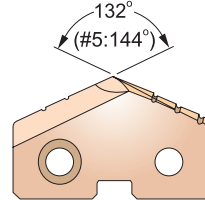
SPADE DRILLS

SERIES 4,5

SPADE DRILL INSERTS - HSS M4 EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
4 46.99 (1.850") to 65.28 (2.570")	2-1/4"	57.15	2.2500"	7.9 (5/16")	S1405216	S1410216	S1415216
	2-9/32"	57.94	2.2813"		S1405218	S1410218	S1415218
		58.00	2.2835"		S1455580	S1460580	S1465580
	2-5/16"	58.74	2.3125"		S1405220	S1410220	S1415220
		59.00	2.3228"		S1455590	S1460590	S1465590
	2-11/32"	59.53	2.3438"		S1405222	S1410222	S1415222
		60.00	2.3622"		S1455600	S1460600	S1465600
	2-3/8"	60.33	2.3750"		S1405224	S1410224	S1415224
		61.00	2.4016"		S1455610	S1460610	S1465610
	2-13/32"	61.12	2.4063"		S1405226	S1410226	S1415226
	2-7/16"	61.91	2.4375"		S1405228	S1410228	S1415228
		62.00	2.4409"		S1455620	S1460620	S1465620
	2-15/32"	62.71	2.4688"		S1405230	S1410230	S1415230
		63.00	2.4803"		S1455630	S1460630	S1465630
2-1/2"	63.50	2.5000"	S1405232	S1410232	S1415232		
	64.00	2.5197"	S1455640	S1460640	S1465640		
2-17/32"	64.29	2.5313"	S1405234	S1410234	S1415234		
	65.00	2.5591"	S1455650	S1460650	S1465650		
2-9/16"	65.09	2.5625"	S1405236	S1410236	S1415236		
5 62.38 (2.456") to 76.20 (3.000")	2-1/2"	63.50	2.5000"	11.1 (7/16")	S14052D2	S14102D2	S14152D2
		64.00	2.5197"		S145564A	S146064A	S146564A
	2-17/32"	64.29	2.5313"		S14052D4	S14102D4	S14152D4
	2-9/16"	65.09	2.5625"		S14052D6	S14102D6	S14152D6
	2-19/32"	65.88	2.5938"		S1405238	S1410238	S1415238
		66.00	2.5984"		S1455660	S1460660	S1465660
	2-5/8"	66.68	2.6250"		S1405240	S1410240	S1415240
	2-21/32"	67.47	2.6563"		S1405242	S1410242	S1415242
		68.00	2.6772"		S1455680	S1460680	S1465680
	2-11/16"	68.26	2.6875"		S1405244	S1410244	S1415244
	2-23/32"	69.05	2.7188"		S1405246	S1410246	S1415246
		69.85	2.7500"		S1405248	S1410248	S1415248
	2-3/4"	69.85	2.7500"		S1455700	S1460700	S1465700
	2-25/32"	70.64	2.7813"		S1405250	S1410250	S1415250
2-13/16"	71.44	2.8125"	S1405252	S1410252	S1415252		

◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
○	○	○	○		○		○	○			◎	◎	○	◎	◎

SPADE DRILL INSERTS - HSS M4
EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.
- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
5 62.38 (2.456") to 76.20 (3.000")		72.00	2.8346"	11.1 (7/16")	S1455720	S1460720	S1465720
	2-27/32"	72.23	2.8438"		S1405254	S1410254	S1415254
	2-7/8"	73.03	2.8750"		S1405256	S1410256	S1415256
	2-29/32"	73.82	2.9063"		S1405258	S1410258	S1415258
		74.00	2.9134"		S1455740	S1460740	S1465740
	2-15/16"	74.61	2.9375"		S1405260	S1410260	S1415260
	2-31/32"	75.41	2.9688"		S1405262	S1410262	S1415262
		76.00	2.9921"		S1455760	S1460760	S1465760
	3"	76.20	3.0000"		S1405300	S1410300	S1415300
	6 76.23 (3.001") to 89.08 (3.507")	3-1/32"	76.99		3.0313"	11.1 (7/16")	S1405302
3-1/16"		77.79	3.0625"	S1405304	S1410304		S1415304
		78.00	3.0709"	S1455780	S1460780		S1465780
3-3/32"		78.58	3.0938"	S1405306	S1410306		S1415306
3-1/8"		79.38	3.1250"	S1405308	S1410308		S1415308
		80.00	3.1496"	S1455800	S1460800		S1465800
3-5/32"		80.17	3.1563"	S1405310	S1410310		S1415310
3-3/16"		80.96	3.1875"	S1405312	S1410312		S1415312
3-7/32"		81.76	3.2188"	S1405314	S1410314		S1415314
		82.00	3.2283"	S1455820	S1460820		S1465820
3-1/4"		82.55	3.2500"	S1405316	S1410316		S1415316
3-9/32"		83.34	3.2813"	S1405318	S1410318		S1415318
		84.00	3.3071"	S1455840	S1460840		S1465840
3-5/16"		84.14	3.3125"	S1405320	S1410320		S1415320
3-11/32"		84.93	3.3438"	S1405322	S1410322		S1415322
3-3/8"		85.73	3.3750"	S1405324	S1410324		S1415324
		86.00	3.3858"	S1455860	S1460860		S1465860
3-13/32"		86.52	3.4063"	S1405326	S1410326		S1415326
3-7/16"	87.31	3.4375"	S1405328	S1410328	S1415328		
	88.00	3.4646"	S1455880	S1460880	S1465880		
3-15/32"	88.11	3.4688"	S1405330	S1410330	S1415330		
3-1/2"	88.90	3.5000"	S1405332	S1410332	S1415332		
7	3-17/32"	89.69	3.5313"	11.1 (7/16")	S1405334	S1410334	S1415334
		90.00	3.5433"		S1455900	S1460900	S1465900
	3-9/16"	90.49	3.5625"		S1405336	S1410336	S1415336

◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275)	~HRc28 (~HB275)	HRc28~ (HB275~)	~HRc37 (~HB350)	HRc37~ (HB350~)	~HRc24 (~HB250)	HRc24~ (HB250~)	~HRc13 (~HB200)	HRc13~ (HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (HB220~)	~HRc8 (~HB180)
	○	○	○	○		○	○				◎	◎	○	◎	◎



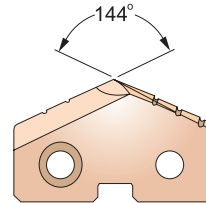
SPADE DRILLS

SERIES 7,8

SPADE DRILL INSERTS - HSS M4 EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		HSS (M4)		
					TiN	TiCN	TiAlN
7 87.76 (3.455") to 101.60 (4.000")	3-19/32"	91.28	3.5938"	11.1 (7/16")	S1405338	S1410338	S1415338
		92.00	3.6221"		S1455920	S1460920	S1465920
	3-5/8"	92.08	3.6250"		S1405340	S1410340	S1415340
	3-21/32"	92.87	3.6563"		S1405342	S1410342	S1415342
	3-11/16"	93.66	3.6875"		S1405344	S1410344	S1415344
		94.00	3.7008"		S1455940	S1460940	S1465940
	3-23/32"	94.46	3.7188"		S1405346	S1410346	S1415346
	3-3/4"	95.25	3.7500"		S1405348	S1410348	S1415348
		96.00	3.7795"		S1455960	S1460960	S1465960
	3-25/32"	96.04	3.7813"		S1405350	S1410350	S1415350
	3-13/16"	96.84	3.8125"		S1405352	S1410352	S1415352
	3-27/32"	97.63	3.8438"		S1405354	S1410354	S1415354
		98.00	3.8583"		S1455980	S1460980	S1465980
	3-7/8"	98.43	3.8750"		S1405356	S1410356	S1415356
	3-29/32"	99.22	3.9063"		S1405358	S1410358	S1415358
	100.00	3.9370"	S1455A00	S1460A00	S1465A00		
	3-15/16"	100.01	3.9375"	S1405360	S1410360	S1415360	
	3-31/32"	100.81	3.9688"	S1405362	S1410362	S1415362	
	4"	101.60	4.0000"	S1405400	S1410400	S1415400	
8 101.63 (4.001") to 114.48 (4.507")	4-1/64"	102.00	4.0157"	11.1 (7/16")	S1405401	S1410401	S1415401
	4-1/16"	103.19	4.0625"		S1405404	S1410404	S1415404
	4-3/32"	104.00	4.0945"		S1405406	S1410406	S1415406
	4-1/8"	104.78	4.1250"		S1405408	S1410408	S1415408
		106.00	4.1732"		S1455A60	S1460A60	S1465A60
	4-3/16"	106.36	4.1875"		S1405412	S1410412	S1415412
	4-1/4"	107.95	4.2500"		S1405416	S1410416	S1415416
		108.00	4.2520"		S1455A80	S1460A80	S1465A80
	4-5/16"	109.54	4.3125"		S1405420	S1410420	S1415420
		110.00	4.3307"		S1455B00	S1460B00	S1465B00
	4-3/8"	111.13	4.3750"		S1405424	S1410424	S1415424
		112.00	4.4094"		S1455B20	S1460B20	S1465B20
	4-7/16"	112.71	4.4375"		S1405428	S1410428	S1415428
		114.00	4.4882"		S1455B40	S1460B40	S1465B40
	4-1/2"	114.30	4.5000"		S1405432	S1410432	S1415432

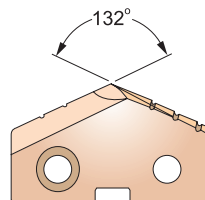
◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
○	○	○	○		○		○	○			◎	◎	○	◎	◎

SPADE DRILL INSERTS - SUPER HSS T15
EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS (T15)		
					TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1155095	S1160095	S1165095
		9.53	.3750"		S1105024	S1110024	S1115024
	25/64"	9.80	.3860"		S1155098	S1160098	S1165098
		9.92	.3906"		S1105025	S1110025	S1115025
	13/32"	10.00	.3937"		S1155100	S1160100	S1165100
		10.20	.4016"		S1155102	S1160102	S1165102
	27/64"	10.32	.4063"		S1105026	S1110026	S1115026
		10.50	.4134"		S1155105	S1160105	S1165105
	11.07 (.436")	10.72	.4219"		S1105027	S1110027	S1115027
			10.80		.4252"	S1155108	S1160108
Z 11.11(.437") to 12.95(.510")	7/16"	11.00	.4331"	2.4 (3/32")	S1155110	S1160110	S1165110
		11.11	.4375"		S1105028	S1110028	S1115028
	29/64"	11.50	.4528"		S1155115	S1160115	S1165115
		11.51	.4531"		S1105029	S1110029	S1115029
	15/32"	11.91	.4688"		S1105030	S1110030	S1115030
		12.00	.4724"		S1155120	S1160120	S1165120
	31/64"	12.30	.4844"		S1105031	S1110031	S1115031
		12.50	.4921"		S1155125	S1160125	S1165125
	1/2"	12.70	.5000"		S1105032	S1110032	S1115032
		13.00	.5118"		S1155130	S1160130	S1165130
0 12.98 (.511") to 17.65 (.695")	33/64"	13.10	.5156"	3.2 (1/8")	S1105033	S1110033	S1115033
		17/32"	13.49		.5313"	S1105034	S1110034
	35/64"	13.50	.5315"		S1155135	S1160135	S1165135
		13.89	.5469"		S1105035	S1110035	S1115035
	9/16"	14.00	.5512"		S1155140	S1160140	S1165140
		14.29	.5625"		S1105036	S1110036	S1115036
	37/64"	14.50	.5709"		S1155145	S1160145	S1165145
		14.68	.5781"		S1105037	S1110037	S1115037
	17.65 (.695")	15.00	.5906"		S1155150	S1160150	S1165150
			15.08		.5938"	S1105038	S1110038
5/8"	15.48	.6094"	S1105039	S1110039	S1115039		
	15.50	.6102"	S1155155	S1160155	S1165155		
16.00	15.88	.6250"	S1105040	S1110040	S1115040		
		16.00	.6299"	S1155160	S1160160	S1165160	

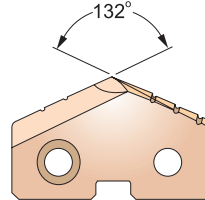
◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (HB275~)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
◎	◎	◎	◎	○	○	○	◎	◎	○	○	○	○	◎	○	○

SPADE DRILL INSERTS - SUPER HSS T15 EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. SUPER HSS (T15)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	S1105041	S1110041	S1115041
		16.50	.6496"		S1155165	S1160165	S1165165
	21/32"	16.67	.6563"		S1105042	S1110042	S1115042
		17.00	.6693"		S1155170	S1160170	S1165170
	43/64"	17.07	.6719"		S1105043	S1110043	S1115043
	11/16"	17.46	.6875"		S1105044	S1110044	S1115044
1 17.53 (.690") to 24.38 (.960")		17.50	.6890"	4.0 (5/32")	S1155175	S1160175	S1165175
	45/64"	17.86	.7031"		S1105045	S1110045	S1115045
		18.00	.7087"		S1155180	S1160180	S1165180
	23/32"	18.26	.7188"		S1105046	S1110046	S1115046
		18.50	.7283"		S1155185	S1160185	S1165185
	47/64"	18.65	.7344"		S1105047	S1110047	S1115047
		19.00	.7480"		S1155190	S1160190	S1165190
	3/4"	19.05	.7500"		S1105048	S1110048	S1115048
	49/64"	19.45	.7656"		S1105049	S1110049	S1115049
		19.50	.7677"		S1155195	S1160195	S1165195
	25/32"	19.84	.7813"		S1105050	S1110050	S1115050
		20.00	.7874"		S1155200	S1160200	S1165200
	51/64"	20.24	.7969"		S1105051	S1110051	S1115051
		20.50	.8071"		S1155205	S1160205	S1165205
	13/16"	20.64	.8125"		S1105052	S1110052	S1115052
		21.00	.8268"		S1155210	S1160210	S1165210
	27/32"	21.43	.8438"		S1105054	S1110054	S1115054
	55/64"	21.83	.8594"		S1105055	S1110055	S1115055
		22.00	.8661"		S1155220	S1160220	S1165220
	7/8"	22.23	.8750"		S1105056	S1110056	S1115056
57/64"	22.62	.8906"	S1105057	S1110057	S1115057		
	23.00	.9055"	S1155230	S1160230	S1165230		
29/32"	23.02	.9063"	S1105058	S1110058	S1115058		
59/64"	23.42	.9219"	S1105059	S1110059	S1115059		
15/16"	23.81	.9375"	S1105060	S1110060	S1115060		
	24.00	.9449"	S1155240	S1160240	S1165240		

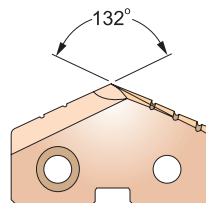
◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275~)	-HRc28 (-HB275)	HRc28~ (-HB275~)	-HRc37 (-HB350)	HRc37~ (-HB350~)	-HRc24 (-HB250)	HRc24~ (-HB250~)	-HRc13 (-HB200)	HRc13~ (-HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (-HB220~)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	○	○	○	◎	◎	○	○	○	○	○	◎	○	○

SPADE DRILL INSERTS - SUPER HSS T15
EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. SUPER HSS (T15)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	S1105062	S1110062	S1115062
	63/64"	25.00	.9843"		S1105063	S1110063	S1115063
	1"	25.40	1.0000"		S1105100	S1110100	S1115100
	1-1/64"	25.80	1.0156"		S1105101	S1110101	S1115101
		26.00	1.0236"		S1155260	S1160260	S1165260
	1-1/32"	26.19	1.0313"		S1105102	S1110102	S1115102
	1-3/64"	26.59	1.0469"		S1105103	S1110103	S1115103
	1-1/16"	26.99	1.0625"		S1105104	S1110104	S1115104
		27.00	1.0630"		S1155270	S1160270	S1165270
	1-3/32"	27.78	1.0938"		S1105106	S1110106	S1115106
		28.00	1.1024"		S1155280	S1160280	S1165280
	1-7/64"	28.18	1.1094"		S1105107	S1110107	S1115107
	1-1/8"	28.58	1.1250"		S1105108	S1110108	S1115108
		29.00	1.1417"		S1155290	S1160290	S1165290
	1-5/32"	29.37	1.1563"		S1105110	S1110110	S1115110
		30.00	1.1811"		S1155300	S1160300	S1165300
	1-3/16"	30.16	1.1875"		S1105112	S1110112	S1115112
	1-7/32"	30.96	1.2188"		S1105114	S1110114	S1115114
		31.00	1.2205"		S1155310	S1160310	S1165310
	1-1/4"	31.75	1.2500"		S1105116	S1110116	S1115116
	32.00	1.2598"	S1155320	S1160320	S1165320		
1-9/32"	32.54	1.2813"	S1105118	S1110118	S1115118		
1-5/16"	33.00	1.2992"	S1155330	S1160330	S1165330		
	33.34	1.3125"	S1105120	S1110120	S1115120		
	1-	34.00	1.3386"	S1155340	S1160340	S1165340	
	11/32"	34.13	1.3438"	S1105122	S1110122	S1115122	
	1-3/8"	34.93	1.3750"	S1105124	S1110124	S1115124	
		35.00	1.3780"	S1155350	S1160350	S1165350	
3 34.37(1.353") to 47.80(1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1105126	S1110126	S1115126
		36.00	1.4173"		S1155360	S1160360	S1165360
	1-7/16"	36.51	1.4375"		S1105128	S1110128	S1115128
		37.00	1.4567"		S1155370	S1160370	S1165370
	1-15/32"	37.31	1.4688"		S1105130	S1110130	S1115130
		38.00	1.4961"		S1155380	S1160380	S1165380

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)		HRc13~ (-HB200)	-HRc28 (-HB275)		
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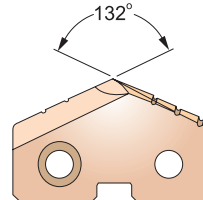
SPADE DRILLS

SERIES 3,4

SPADE DRILL INSERTS - SUPER HSS T15 EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS (T15)		
					TiN	TiCN	TiAlN
3 34.37 (1.353") to 47.80 (1.882")	1-1/2"	38.10	1.5000"	6.4 (1/4")	S1105132	S1110132	S1115132
	1-17/32"	38.89	1.5313"		S1105134	S1110134	S1115134
		39.00	1.5354"		S1155390	S1160390	S1165390
	1-9/16"	39.69	1.5625"		S1105136	S1110136	S1115136
		40.00	1.5748"		S1155400	S1160400	S1165400
	1-19/32"	40.48	1.5938"		S1105138	S1110138	S1115138
		41.00	1.6142"		S1155410	S1160410	S1165410
	1-5/8"	41.28	1.6250"		S1105140	S1110140	S1115140
		42.00	1.6535"		S1155420	S1160420	S1165420
	1-21/32"	42.07	1.6563"		S1105142	S1110142	S1115142
	1-11/16"	42.86	1.6875"		S1105144	S1110144	S1115144
		43.00	1.6929"		S1155430	S1160430	S1165430
	1-23/32"	43.66	1.7188"		S1105146	S1110146	S1115146
		44.00	1.7323"		S1155440	S1160440	S1165440
	1-3/4"	44.45	1.7500"		S1105148	S1110148	S1115148
		45.00	1.7717"		S1155450	S1160450	S1165450
4 46.99 (1.850") to 65.28 (2.570")	1-25/32"	45.24	1.7813"	7.9 (5/16")	S1105150	S1110150	S1115150
		46.00	1.8110"		S1155460	S1160460	S1165460
	1-13/16"	46.04	1.8125"		S1105152	S1110152	S1115152
	1-27/32"	46.83	1.8438"		S1105154	S1110154	S1115154
		47.00	1.8504"		S1155470	S1160470	S1165470
	1-7/8"	47.63	1.8750"		S1105156	S1110156	S1115156
		48.00	1.8898"		S1155480	S1160480	S1165480
	1-29/32"	48.42	1.9063"		S1105158	S1110158	S1115158
		49.00	1.9291"		S1155490	S1160490	S1165490
	1-15/16"	49.21	1.9375"		S1105160	S1110160	S1115160
		50.00	1.9685"		S1155500	S1160500	S1165500
	1-31/32"	50.01	1.9688"		S1105162	S1110162	S1115162
	2"	50.80	2.0000"		S1105200	S1110200	S1115200
		51.00	2.0079"		S1155510	S1160510	S1165510
	2-1/32"	51.59	2.0313"		S1105202	S1110202	S1115202
	2-3/64"	52.00	2.0472"		S1105203	S1110203	S1115203
2-1/16"	52.39	2.0625"	S1105204	S1110204	S1115204		
	53.00	2.0866"	S1155530	S1160530	S1165530		

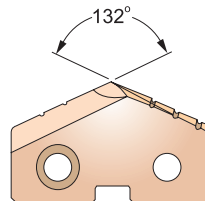
◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)	HRc13~ (-HB200)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (-HB220)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	○	○	○	◎	◎	○	○	○	○	○	◎	○	○

SPADE DRILL INSERTS - SUPER HSS T15
EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS (T15)		
					TiN	TiCN	TiAlN
4 46.99 (1.850") to 65.28 (2.570")	2-3/32"	53.18	2.0938"	7.9 (5/16")	S1105206	S1110206	S1115206
	2-1/8"	53.98	2.1250"		S1105208	S1110208	S1115208
		54.00	2.1260"		S1155540	S1160540	S1165540
	2-5/32"	54.79	2.1563"		S1105210	S1110210	S1115210
		55.00	2.1654"		S1155550	S1160550	S1165550
	2-3/16"	55.56	2.1875"		S1105212	S1110212	S1115212
		56.00	2.2047"		S1155560	S1160560	S1165560
	2-7/32"	56.36	2.2188"		S1105214	S1110214	S1115214
		57.00	2.2441"		S1155570	S1160570	S1165570
	2-1/4"	57.15	2.2500"		S1105216	S1110216	S1115216
	2-9/32"	57.94	2.2813"		S1105218	S1110218	S1115218
		58.00	2.2835"		S1155580	S1160580	S1165580
	2-5/16"	58.74	2.3125"		S1105220	S1110220	S1115220
		59.00	2.3228"		S1155590	S1160590	S1165590
	2-11/32"	59.53	2.3438"		S1105222	S1110222	S1115222
		60.00	2.3622"		S1155600	S1160600	S1165600
	2-3/8"	60.33	2.3750"		S1105224	S1110224	S1115224
		61.00	2.4016"		S1155610	S1160610	S1165610
	2-13/32"	61.12	2.4063"		S1105226	S1110226	S1115226
	2-7/16"	61.91	2.4375"		S1105228	S1110228	S1115228
	62.00	2.4409"	S1155620	S1160620	S1165620		
2-15/32"	62.71	2.4688"	S1105230	S1110230	S1115230		
	63.00	2.4803"	S1155630	S1160630	S1165630		
2-1/2"	63.50	2.5000"	S1105232	S1110232	S1115232		
	64.00	2.5197"	S1155640	S1160640	S1165640		
2-17/32"	64.29	2.5313"	S1105234	S1110234	S1115234		
	65.00	2.5591"	S1155650	S1160650	S1165650		
2-9/16"	65.09	2.5625"	S1105236	S1110236	S1115236		

◎ : Excellent ○ : Good

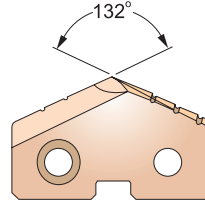
Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)		HRc13~ (~HB200~)	~HRc28 (~HB275)		
◎	◎	◎	◎	◎	○	○	◎	◎	○	○	○	○	◎	○	○

SPADE DRILL INSERTS - PREMIUM HSS M48

EINWEG BOHREINSATZ - PREMIUM HSS M48

- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350 - 500 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)		
					TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1555095	S1560095	S1565095
		9.53	.3750"		S1505024	S1510024	S1515024
	25/64"	9.80	.3860"		S1555098	S1560098	S1565098
		9.92	.3906"		S1505025	S1510025	S1515025
	13/32"	10.00	.3937"		S1555100	S1560100	S1565100
		10.20	.4016"		S1555102	S1560102	S1565102
	27/64"	10.32	.4063"		S1505026	S1510026	S1515026
		10.50	.4134"		S1555105	S1560105	S1565105
	11.00	10.72	.4219"		S1505027	S1510027	S1515027
		10.80	.4252"		S1555108	S1560108	S1565108
Z 11.11(.437") to 12.95(.510")	7/16"	11.00	.4331"	2.4 (3/32")	S1555110	S1560110	S1565110
		11.11	.4375"		S1505028	S1510028	S1515028
	29/64"	11.50	.4528"		S1555115	S1560115	S1565115
		11.51	.4531"		S1505029	S1510029	S1515029
	15/32"	11.91	.4688"		S1505030	S1510030	S1515030
		12.00	.4724"		S1555120	S1560120	S1565120
31/64"	12.30	.4844"	S1505031	S1510031	S1515031		
	12.50	.4921"	S1555125	S1560125	S1565125		
1/2"	12.70	.5000"	S1505032	S1510032	S1515032		
	13.00	.5118"	S1555130	S1560130	S1565130		
0 12.98 (.511") to 17.65 (.695")	33/64"	13.10	.5156"	3.2 (1/8")	S1505033	S1510033	S1515033
		13.49	.5313"		S1505034	S1510034	S1515034
	17/32"	13.50	.5315"		S1555135	S1560135	S1565135
		13.89	.5469"		S1505035	S1510035	S1515035
	35/64"	14.00	.5512"		S1555140	S1560140	S1565140
		14.29	.5625"		S1505036	S1510036	S1515036
	9/16"	14.50	.5709"		S1555145	S1560145	S1565145
		14.68	.5781"		S1505037	S1510037	S1515037
	37/64"	15.00	.5906"		S1555150	S1560150	S1565150
		15.08	.5938"		S1505038	S1510038	S1515038
	19/32"	15.48	.6094"		S1505039	S1510039	S1515039
		15.50	.6102"		S1555155	S1560155	S1565155
	39/64"	15.88	.6250"		S1505040	S1510040	S1515040
		16.00	.6299"		S1555160	S1560160	S1565160

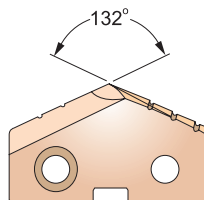
◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	○	○

SPADE DRILL INSERTS - PREMIUM HSS M48
EINWEG BOHREINSATZ - PREMIUM HSS M48

- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350 - 500 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)		
					TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	S1505041	S1510041	S1515041
		16.50	.6496"		S1555165	S1560165	S1565165
	21/32"	16.67	.6563"		S1505042	S1510042	S1515042
		17.00	.6693"		S1555170	S1560170	S1565170
	43/64"	17.07	.6719"		S1505043	S1510043	S1515043
	11/16"	17.46	.6875"		S1505044	S1510044	S1515044
		17.50	.6890"		S1555175	S1560175	S1565175
	45/64"	17.86	.7031"		S1505045	S1510045	S1515045
		18.00	.7087"		S1555180	S1560180	S1565180
	23/32"	18.26	.7188"		S1505046	S1510046	S1515046
	18.50	.7283"	S1555185	S1560185	S1565185		
47/64"	18.65	.7344"	S1505047	S1510047	S1515047		
	19.00	.7480"	S1555190	S1560190	S1565190		
3/4"	19.05	.7500"	S1505048	S1510048	S1515048		
49/64"	19.45	.7656"	S1505049	S1510049	S1515049		
	19.50	.7677"	S1555195	S1560195	S1565195		
1 17.53 (.690") to 24.38 (.960")	25/32"	19.84	.7813"	4.0 (5/32")	S1505050	S1510050	S1515050
		20.00	.7874"		S1555200	S1560200	S1565200
	51/64"	20.24	.7969"		S1505051	S1510051	S1515051
		20.50	.8071"		S1555205	S1560205	S1565205
	13/16"	20.64	.8125"		S1505052	S1510052	S1515052
		21.00	.8268"		S1555210	S1560210	S1565210
	27/32"	21.43	.8438"		S1505054	S1510054	S1515054
	55/64"	21.83	.8594"		S1505055	S1510055	S1515055
		22.00	.8661"		S1555220	S1560220	S1565220
	7/8"	22.23	.8750"		S1505056	S1510056	S1515056
	57/64"	22.62	.8906"		S1505057	S1510057	S1515057
		23.00	.9055"		S1555230	S1560230	S1565230
	29/32"	23.02	.9063"		S1505058	S1510058	S1515058
	59/64"	23.42	.9219"		S1505059	S1510059	S1515059
15/16"	23.81	.9375"	S1505060	S1510060	S1515060		
	24.00	.9449"	S1555240	S1560240	S1565240		

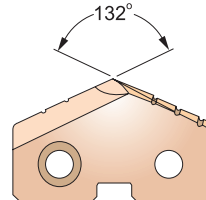
◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)		HRc13~ (-HB200)	-HRc28 (-HB275)		
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○

SPADE DRILL INSERTS - PREMIUM HSS M48 EINWEG BOHREINSATZ - PREMIUM HSS M48

- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350 - 500 Brinell
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	S1505062	S1510062	S1515062
	63/64"	25.00	.9843"		S1505063	S1510063	S1515063
	1"	25.40	1.0000"		S1505100	S1510100	S1515100
	1-1/64"	25.80	1.0156"		S1505101	S1510101	S1515101
		26.00	1.0236"		S1555260	S1560260	S1565260
	1-1/32"	26.19	1.0313"		S1505102	S1510102	S1515102
	1-3/64"	26.59	1.0469"		S1505103	S1510103	S1515103
	1-1/16"	26.99	1.0625"		S1505104	S1510104	S1515104
		27.00	1.0630"		S1555270	S1560270	S1565270
	1-3/32"	27.78	1.0938"		S1505106	S1510106	S1515106
		28.00	1.1024"		S1555280	S1560280	S1565280
	1-7/64"	28.18	1.1094"		S1505107	S1510107	S1515107
	1-1/8"	28.58	1.1250"		S1505108	S1510108	S1515108
		29.00	1.1417"		S1555290	S1560290	S1565290
	1-5/32"	29.37	1.1563"		S1505110	S1510110	S1515110
		30.00	1.1811"		S1555300	S1560300	S1565300
	1-3/16"	30.16	1.1875"		S1505112	S1510112	S1515112
	1-7/32"	30.96	1.2188"		S1505114	S1510114	S1515114
		31.00	1.2205"		S1555310	S1560310	S1565310
	1-1/4"	31.75	1.2500"		S1505116	S1510116	S1515116
		32.00	1.2598"		S1555320	S1560320	S1565320
	1-9/32"	32.54	1.2813"		S1505118	S1510118	S1515118
		33.00	1.2992"		S1555330	S1560330	S1565330
	1-5/16"	33.34	1.3125"		S1505120	S1510120	S1515120
	34.00	1.3386"	S1555340	S1560340	S1565340		
1-11/32"	34.13	1.3438"	S1505122	S1510122	S1515122		
1-3/8"	34.93	1.3750"	S1505124	S1510124	S1515124		
	35.00	1.3780"	S1555350	S1560350	S1565350		

◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○

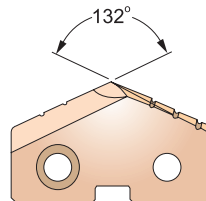
Y/G SPADE DRILLS

SERIES **Y,Z,0**

SPADE DRILL INSERTS FOR CAST IRON - CARBIDE(K10) EINWEG BOHREINSATZ - VOLLHARTMETALL(K10)

- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (K10)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1655095	S1660095	S1665095
		9.53	.3750"		S1605024	S1610024	S1615024
	25/64"	9.80	.3860"		S1655098	S1660098	S1665098
		9.92	.3906"		S1605025	S1610025	S1615025
	13/32"	10.00	.3937"		S1655100	S1660100	S1665100
		10.20	.4016"		S1655102	S1660102	S1665102
		10.32	.4063"		S1605026	S1610026	S1615026
		10.50	.4134"		S1655105	S1660105	S1665105
		10.72	.4219"		S1605027	S1610027	S1615027
		10.80	.4252"		S1655108	S1660108	S1665108
Z 11.11(.437") to 12.95(.510")	7/16"	11.00	.4331"	2.4 (3/32")	S1655110	S1660110	S1665110
		11.11	.4375"		S1605028	S1610028	S1615028
	29/64"	11.50	.4528"		S1655115	S1660115	S1665115
		11.51	.4531"		S1605029	S1610029	S1615029
	15/32"	11.91	.4688"		S1605030	S1610030	S1615030
		12.00	.4724"		S1655120	S1660120	S1665120
	31/64"	12.30	.4844"		S1605031	S1610031	S1615031
		12.50	.4921"		S1655125	S1660125	S1665125
	1/2"	12.70	.5000"		S1605032	S1610032	S1615032
		13.00	.5118"		S1655130	S1660130	S1665130
0 12.98 (.511") to 17.65 (.695")	33/64"	13.10	.5156"	3.2 (1/8")	S1605033	S1610033	S1615033
		13.49	.5313"		S1605034	S1610034	S1615034
	17/32"	13.50	.5315"		S1655135	S1660135	S1665135
		13.89	.5469"		S1605035	S1610035	S1615035
	35/64"	14.00	.5512"		S1655140	S1660140	S1665140
		14.29	.5625"		S1605036	S1610036	S1615036
	9/16"	14.50	.5709"		S1655145	S1660145	S1665145
		14.68	.5781"		S1605037	S1610037	S1615037
	37/64"	15.00	.5906"		S1655150	S1660150	S1665150
		15.08	.5938"		S1605038	S1610038	S1615038
	19/32"	15.48	.6094"		S1605039	S1610039	S1615039
		15.50	.6102"		S1655155	S1660155	S1665155
	39/64"	15.88	.6250"		S1605040	S1610040	S1615040
		16.00	.6299"		S1655160	S1660160	S1665160

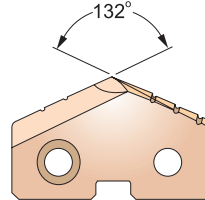
◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)		HRc13~ (HB200~)	-HRc28 (-HB275)		
												◎	◎		

SPADE DRILL INSERTS FOR CAST IRON - CARBIDE(K10) EINWEG BOHREINSATZ - VOLLHARTMETALL(K10)

- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (K10)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	S1605041	S1610041	S1615041
		16.50	.6496"		S1655165	S1660165	S1665165
	21/32"	16.67	.6563"		S1605042	S1610042	S1615042
		17.00	.6693"		S1655170	S1660170	S1665170
	43/64"	17.07	.6719"		S1605043	S1610043	S1615043
	11/16"	17.46	.6875"		S1605044	S1610044	S1615044
1 17.53 (.690") to 24.38 (.960")		17.50	.6890"	4.0 (5/32")	S1655175	S1660175	S1665175
	45/64"	17.86	.7031"		S1605045	S1610045	S1615045
		18.00	.7087"		S1655180	S1660180	S1665180
	23/32	18.26	.7188"		S1605046	S1610046	S1615046
		18.50	.7283"		S1655185	S1660185	S1665185
	47/64"	18.65	.7344"		S1605047	S1610047	S1615047
		19.00	.7480"		S1655190	S1660190	S1665190
	3/4"	19.05	.7500"		S1605048	S1610048	S1615048
	49/64"	19.45	.7656"		S1605049	S1610049	S1615049
		19.50	.7677"		S1655195	S1660195	S1665195
	25/32"	19.84	.7813"		S1605050	S1610050	S1615050
		20.00	.7874"		S1655200	S1660200	S1665200
	51/64"	20.24	.7969"		S1605051	S1610051	S1615051
		20.50	.8071"		S1655205	S1660205	S1665205
	13/16"	20.64	.8125"		S1605052	S1610052	S1615052
		21.00	.8268"		S1655210	S1660210	S1665210
	27/32"	21.43	.8438"		S1605054	S1610054	S1615054
	55/64"	21.83	.8594"		S1605055	S1610055	S1615055
		22.00	.8661"		S1655220	S1660220	S1665220
	7/8"	22.23	.8750"		S1605056	S1610056	S1615056
57/64"	22.62	.8906"	S1605057	S1610057	S1615057		
	23.00	.9055"	S1655230	S1660230	S1665230		
29/32"	23.02	.9063"	S1605058	S1610058	S1615058		
59/64"	23.42	.9219"	S1605059	S1610059	S1615059		
15/16"	23.81	.9375"	S1605060	S1610060	S1615060		
	24.00	.9449"	S1655240	S1660240	S1665240		

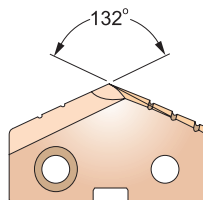
◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)		HRc13~ (HB200~)	-HRc28 (-HB275)		
												◎	◎		

SPADE DRILL INSERTS FOR CAST IRON - CARBIDE(K10)
EINWEG BOHREINSATZ - VOLLHARTMETALL(K10)

- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K10)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	S1605062	S1610062	S1615062
	63/64"	25.00	.9843"		S1605063	S1610063	S1615063
	1"	25.40	1.0000"		S1605100	S1610100	S1615100
	1-1/64"	25.80	1.0156"		S1605101	S1610101	S1615101
		26.00	1.0236"		S1655260	S1660260	S1665260
	1-1/32"	26.19	1.0313"		S1605102	S1610102	S1615102
	1-3/64"	26.59	1.0469"		S1605103	S1610103	S1615103
	1-1/16"	26.99	1.0625"		S1605104	S1610104	S1615104
		27.00	1.0630"		S1655270	S1660270	S1665270
	1-3/32"	27.78	1.0938"		S1605106	S1610106	S1615106
		28.00	1.1024"		S1655280	S1660280	S1665280
	1-7/64"	28.18	1.1094"		S1605107	S1610107	S1615107
	1-1/8"	28.58	1.1250"		S1605108	S1610108	S1615108
		29.00	1.1417"		S1655290	S1660290	S1665290
	1-5/32"	29.37	1.1563"		S1605110	S1610110	S1615110
		30.00	1.1811"		S1655300	S1660300	S1665300
	1-3/16"	30.16	1.1875"		S1605112	S1610112	S1615112
	1-7/32"	30.96	1.2188"		S1605114	S1610114	S1615114
		31.00	1.2205"		S1655310	S1660310	S1665310
	1-1/4"	31.75	1.2500"		S1605116	S1610116	S1615116
		32.00	1.2598"		S1655320	S1660320	S1665320
	1-9/32"	32.54	1.2813"		S1605118	S1610118	S1615118
		33.00	1.2992"		S1655330	S1660330	S1665330
1-5/16"	33.34	1.3125"	S1605120	S1610120	S1615120		
	34.00	1.3386"	S1655340	S1660340	S1665340		
1-11/32"	34.13	1.3438"	S1605122	S1610122	S1615122		
1-3/8"	34.93	1.3750"	S1605124	S1610124	S1615124		
	35.00	1.3780"	S1655350	S1660350	S1665350		

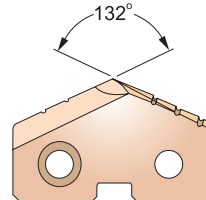
◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)		HRc13~ (~HB200~)	~HRc28 (~HB275)		
												◎	◎		

SPADE DRILL INSERTS - CARBIDE(K20) EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K20)		
					TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1755095	S1760095	S1765095
		9.53	.3750"		S1705024	S1710024	S1715024
	25/64"	9.80	.3860"		S1755098	S1760098	S1765098
		9.92	.3906"		S1705025	S1710025	S1715025
	13/32"	10.00	.3937"		S1755100	S1760100	S1765100
		10.20	.4016"		S1755102	S1760102	S1765102
	27/64"	10.32	.4063"		S1705026	S1710026	S1715026
		10.50	.4134"		S1755105	S1760105	S1765105
	11.00	10.72	.4219"		S1755108	S1760108	S1765108
		10.80	.4252"		S1755110	S1760110	S1765110
Z 11.11(.437") to 12.95(.510")	7/16"	11.11	.4375"	2.4 (3/32")	S1705028	S1710028	S1715028
		11.50	.4528"		S1755115	S1760115	S1765115
	29/64"	11.51	.4531"		S1705029	S1710029	S1715029
		11.91	.4688"		S1705030	S1710030	S1715030
	31/64"	12.00	.4724"		S1755120	S1760120	S1765120
		12.30	.4844"		S1705031	S1710031	S1715031
1/2"	12.50	.4921"	S1755125	S1760125	S1765125		
	12.70	.5000"	S1705032	S1710032	S1715032		
0 12.98 (.511") to 17.65 (.695")	33/64"	13.00	.5118"	3.2 (1/8")	S1755130	S1760130	S1765130
		13.10	.5156"		S1705033	S1710033	S1715033
	17/32"	13.49	.5313"		S1705034	S1710034	S1715034
		13.50	.5315"		S1755135	S1760135	S1765135
	35/64"	13.89	.5469"		S1705035	S1710035	S1715035
		14.00	.5512"		S1755140	S1760140	S1765140
	9/16"	14.29	.5625"		S1705036	S1710036	S1715036
		14.50	.5709"		S1755145	S1760145	S1765145
	37/64"	14.68	.5781"		S1705037	S1710037	S1715037
		15.00	.5906"		S1755150	S1760150	S1765150
	19/32"	15.08	.5938"		S1705038	S1710038	S1715038
		15.48	.6094"		S1705039	S1710039	S1715039
5/8"	15.50	.6102"	S1755155	S1760155	S1765155		
	15.88	.6250"	S1705040	S1710040	S1715040		
	16.00	.6299"	S1755160	S1760160	S1765160		

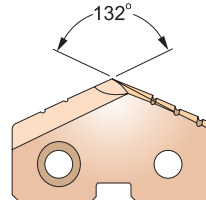
◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎	◎

SPADE DRILL INSERTS - CARBIDE(K20)
EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (K20)				
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN		
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	S1705041	S1710041	S1715041		
		16.50	.6496"		S1755165	S1760165	S1765165		
	21/32"	16.67	.6563"		S1705042	S1710042	S1715042		
		17.00	.6693"		S1755170	S1760170	S1765170		
	43/64"	17.07	.6719"		S1705043	S1710043	S1715043		
		17.46	.6875"		S1705044	S1710044	S1715044		
	11/16"	17.50	.6890"		S1755175	S1760175	S1765175		
		17.86	.7031"		S1705045	S1710045	S1715045		
	1 17.53 (.690") to 24.38 (.960")	45/64"	18.00		.7087"	4.0 (5/32")	S1755180	S1760180	S1765180
			18.26		.7188"		S1705046	S1710046	S1715046
23/32"		18.50	.7283"	S1755185	S1760185		S1765185		
		18.65	.7344"	S1705047	S1710047		S1715047		
47/64"		19.00	.7480"	S1755190	S1760190		S1765190		
		19.05	.7500"	S1705048	S1710048		S1715048		
3/4"		19.45	.7656"	S1705049	S1710049		S1715049		
		19.50	.7677"	S1755195	S1760195		S1765195		
25/32"		19.84	.7813"	S1705050	S1710050		S1715050		
		20.00	.7874"	S1755200	S1760200		S1765200		
51/64"		20.24	.7969"	S1705051	S1710051		S1715051		
		20.50	.8071"	S1755205	S1760205		S1765205		
13/16"		20.64	.8125"	S1705052	S1710052		S1715052		
		21.00	.8268"	S1755210	S1760210		S1765210		
27/32"		21.43	.8438"	S1705054	S1710054		S1715054		
		21.83	.8594"	S1705055	S1710055		S1715055		
55/64"		22.00	.8661"	S1755220	S1760220		S1765220		
		22.23	.8750"	S1705056	S1710056		S1715056		
7/8"		22.62	.8906"	S1705057	S1710057		S1715057		
		23.00	.9055"	S1755230	S1760230		S1765230		
29/32"	23.02	.9063"	S1705058	S1710058	S1715058				
	23.42	.9219"	S1705059	S1710059	S1715059				
59/64"	23.81	.9375"	S1705060	S1710060	S1715060				
	24.00	.9449"	S1755240	S1760240	S1765240				

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275~)	-HRc28 (-HB275)	HRc28~ (-HB275~)	-HRc37 (-HB350)	HRc37~ (-HB350~)	-HRc24 (-HB250)	HRc24~ (-HB250~)	-HRc13 (-HB200)		HRc13~ (-HB200~)	-HRc28 (-HB275)		
○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎	◎



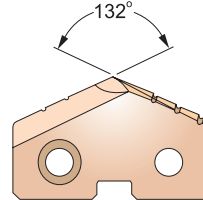
SPADE DRILLS

SERIES 2

SPADE DRILL INSERTS - CARBIDE(K20) EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K20)		
2 24.41 (.961") to 35.05 (1.380")				4.8 (3/16")	TiN	TiCN	TiAlN
	31/32"	24.61	.9688"		S1705062	S1710062	S1715062
	63/64"	25.00	.9843"		S1705063	S1710063	S1715063
	1"	25.40	1.0000"		S1705100	S1710100	S1715100
	1-1/64"	25.80	1.0156"		S1705101	S1710101	S1715101
		26.00	1.0236"		S1755260	S1760260	S1765260
	1-1/32"	26.19	1.0313"		S1705102	S1710102	S1715102
	1-3/64"	26.59	1.0469"		S1705103	S1710103	S1715103
	1-1/16"	26.99	1.0625"		S1705104	S1710104	S1715104
		27.00	1.0630"		S1755270	S1760270	S1765270
	1-3/32"	27.78	1.0938"		S1705106	S1710106	S1715106
		28.00	1.1024"		S1755280	S1760280	S1765280
	1-7/64"	28.18	1.1094"		S1705107	S1710107	S1715107
	1-1/8"	28.58	1.1250"		S1705108	S1710108	S1715108
		29.00	1.1417"		S1755290	S1760290	S1765290
	1-5/32"	29.37	1.1563"		S1705110	S1710110	S1715110
		30.00	1.1811"		S1755300	S1760300	S1765300
	1-3/16"	30.16	1.1875"		S1705112	S1710112	S1715112
	1-7/32"	30.96	1.2188"		S1705114	S1710114	S1715114
		31.00	1.2205"		S1755310	S1760310	S1765310
	1-1/4"	31.75	1.2500"		S1705116	S1710116	S1715116
		32.00	1.2598"		S1755320	S1760320	S1765320
	1-9/32"	32.54	1.2813"		S1705118	S1710118	S1715118
		33.00	1.2992"		S1755330	S1760330	S1765330
1-5/16"	33.34	1.3125"	S1705120	S1710120	S1715120		
	34.00	1.3386"	S1755340	S1760340	S1765340		
1-11/32"	34.13	1.3438"	S1705122	S1710122	S1715122		
1-3/8"	34.93	1.3750"	S1705124	S1710124	S1715124		
	35.00	1.3780"	S1755350	S1760350	S1765350		

◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (HB275~)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎	◎

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

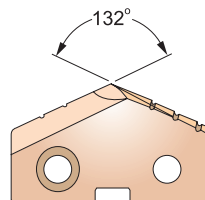
SPADE DRILLS

TECHNICAL DATA

SPADE DRILL INSERTS - CARBIDE(K20)
EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K20)		
3 34.37 (1.353") to 47.80 (1.882")				6.4 (1/4")	TiN	TiCN	TiAlN
	1-13/32"	35.72	1.4063"		S1705126	S1710126	S1715126
		36.00	1.4173"		S1755360	S1760360	S1765360
	1-7/16"	36.51	1.4375"		S1705128	S1710128	S1715128
		37.00	1.4567"		S1755370	S1760370	S1765370
	1-15/32"	37.31	1.4688"		S1705130	S1710130	S1715130
		38.00	1.4961"		S1755380	S1760380	S1765380
	1-1/2"	38.10	1.5000"		S1705132	S1710132	S1715132
	1-17/32"	38.89	1.5313"		S1705134	S1710134	S1715134
		39.00	1.5354"		S1755390	S1760390	S1765390
	1-9/16"	39.69	1.5625"		S1705136	S1710136	S1715136
		40.00	1.5748"		S1755400	S1760400	S1765400
	1-19/32"	40.48	1.5938"		S1705138	S1710138	S1715138
		41.00	1.6142"		S1755410	S1760410	S1765410
	1-5/8"	41.28	1.6250"		S1705140	S1710140	S1715140
		42.00	1.6535"		S1755420	S1760420	S1765420
	1-21/32"	42.07	1.6563"		S1705142	S1710142	S1715142
	1-11/16"	42.86	1.6875"		S1705144	S1710144	S1715144
		43.00	1.6929"		S1755430	S1760430	S1765430
	1-23/32"	43.66	1.7188"		S1705146	S1710146	S1715146
	44.00	1.7323"	S1755440	S1760440	S1765440		
1-3/4"	44.45	1.7500"	S1705148	S1710148	S1715148		
	45.00	1.7717"	S1755450	S1760450	S1765450		
1-25/32"	45.24	1.7813"	S1705150	S1710150	S1715150		
	46.00	1.8110"	S1755460	S1760460	S1765460		
1-13/16"	46.04	1.8125"	S1705152	S1710152	S1715152		
1-27/32"	46.83	1.8438"	S1705154	S1710154	S1715154		
	47.00	1.8504"	S1755470	S1760470	S1765470		
1-7/8"	47.63	1.8750"	S1705156	S1710156	S1715156		

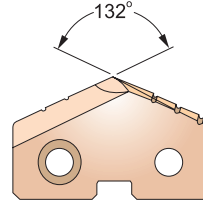
◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)		HRc13~ (~HB200~)	~HRc28 (~HB275)		
	○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎

SPADE DRILL INSERTS - CARBIDE(P40) EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloy steels.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (P40)			
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN	
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	S1855095	S1860095	S1865095	
		9.53	.3750"		S1805024	S1810024	S1815024	
	25/64"	9.80	.3860"		S1855098	S1860098	S1865098	
		9.92	.3906"		S1805025	S1810025	S1815025	
	13/32"	10.00	.3937"		S1855100	S1860100	S1865100	
		10.20	.4016"		S1855102	S1860102	S1865102	
		10.32	.4063"		S1805026	S1810026	S1815026	
		10.50	.4134"		S1855105	S1860105	S1865105	
		27/64"	10.72		.4219"	S1805027	S1810027	S1815027
		10.80	.4252"		S1855108	S1860108	S1865108	
		11.00	.4331"		S1855110	S1860110	S1865110	
Z 11.11(.437") to 12.95(.510")	7/16"	11.11	.4375"	S1805028	S1810028	S1815028		
	29/64"	11.50	.4528"	S1855115	S1860115	S1865115		
		11.51	.4531"	S1805029	S1810029	S1815029		
	15/32"	11.91	.4688"	S1805030	S1810030	S1815030		
	31/64"	12.00	.4724"	S1855120	S1860120	S1865120		
		12.30	.4844"	S1805031	S1810031	S1815031		
1/2"	12.50	.4921"	S1855125	S1860125	S1865125			
0 12.98 (.511") to 17.65 (.695")	33/64"	12.70	.5000"	S1805032	S1810032	S1815032		
		13.00	.5118"	S1855130	S1860130	S1865130		
	17/32"	13.10	.5156"	S1805033	S1810033	S1815033		
		13.49	.5313"	S1805034	S1810034	S1815034		
	35/64"	13.50	.5315"	S1855135	S1860135	S1865135		
		13.89	.5469"	S1805035	S1810035	S1815035		
	9/16"	14.00	.5512"	S1855140	S1860140	S1865140		
		14.29	.5625"	S1805036	S1810036	S1815036		
	37/64"	14.50	.5709"	S1855145	S1860145	S1865145		
		14.68	.5781"	S1805037	S1810037	S1815037		
	19/32"	15.00	.5906"	S1855150	S1860150	S1865150		
		15.08	.5938"	S1805038	S1810038	S1815038		
	39/64"	15.48	.6094"	S1805039	S1810039	S1815039		
15.50		.6102"	S1855155	S1860155	S1865155			
5/8"	15.88	.6250"	S1805040	S1810040	S1815040			
	16.00	.6299"	S1855160	S1860160	S1865160			

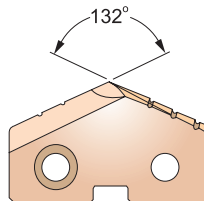
◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

SPADE DRILL INSERTS - CARBIDE(P40)
EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloy steels.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (P40)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	S1805041	S1810041	S1815041
		16.50	.6496"		S1855165	S1860165	S1865165
	21/32"	16.67	.6563"		S1805042	S1810042	S1815042
		17.00	.6693"		S1855170	S1860170	S1865170
	43/64"	17.07	.6719"		S1805043	S1810043	S1815043
	11/16"	17.46	.6875"		S1805044	S1810044	S1815044
		17.50	.6890"		S1855175	S1860175	S1865175
	45/64"	17.86	.7031"		S1805045	S1810045	S1815045
		18.00	.7087"		S1855180	S1860180	S1865180
	23/32"	18.26	.7188"		S1805046	S1810046	S1815046
	18.50	.7283"	S1855185	S1860185	S1865185		
47/64"	18.65	.7344"	S1805047	S1810047	S1815047		
	19.00	.7480"	S1855190	S1860190	S1865190		
3/4"	19.05	.7500"	S1805048	S1810048	S1815048		
49/64"	19.45	.7656"	S1805049	S1810049	S1815049		
	19.50	.7677"	S1855195	S1860195	S1865195		
1 17.53 (.690") to 24.38 (.960")	25/32"	19.84	.7813"	4.0 (5/32")	S1805050	S1810050	S1815050
		20.00	.7874"		S1855200	S1860200	S1865200
	51/64"	20.24	.7969"		S1805051	S1810051	S1815051
		20.50	.8071"		S1855205	S1860205	S1865205
	13/16"	20.64	.8125"		S1805052	S1810052	S1815052
		21.00	.8268"		S1855210	S1860210	S1865210
	27/32"	21.43	.8438"		S1805054	S1810054	S1815054
	55/64"	21.83	.8594"		S1805055	S1810055	S1815055
		22.00	.8661"		S1855220	S1860220	S1865220
	7/8"	22.23	.8750"		S1805056	S1810056	S1815056
	57/64"	22.62	.8906"		S1805057	S1810057	S1815057
		23.00	.9055"		S1855230	S1860230	S1865230
	29/32"	23.02	.9063"		S1805058	S1810058	S1815058
	59/64"	23.42	.9219"		S1805059	S1810059	S1815059
15/16"	23.81	.9375"	S1805060	S1810060	S1815060		
	24.00	.9449"	S1855240	S1860240	S1865240		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (HB275~)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)		HRc13~ (HB200~)	-HRc28 (-HB275)		
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○



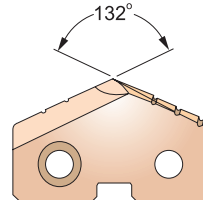
SPADE DRILLS

SERIES 2

SPADE DRILL INSERTS - CARBIDE(P40) EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloy steels.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	S1805062	S1810062	S1815062
	63/64"	25.00	.9843"		S1805063	S1810063	S1815063
	1"	25.40	1.0000"		S1805100	S1810100	S1815100
	1-1/64"	25.80	1.0156"		S1805101	S1810101	S1815101
		26.00	1.0236"		S1855260	S1860260	S1865260
	1-1/32"	26.19	1.0313"		S1805102	S1810102	S1815102
	1-3/64"	26.59	1.0469"		S1805103	S1810103	S1815103
	1-1/16"	26.99	1.0625"		S1805104	S1810104	S1815104
		27.00	1.0630"		S1855270	S1860270	S1865270
	1-3/32"	27.78	1.0938"		S1805106	S1810106	S1815106
		28.00	1.1024"		S1855280	S1860280	S1865280
	1-7/64"	28.18	1.1094"		S1805107	S1810107	S1815107
	1-1/8"	28.58	1.1250"		S1805108	S1810108	S1815108
		29.00	1.1417"		S1855290	S1860290	S1865290
	1-5/32"	29.37	1.1563"		S1805110	S1810110	S1815110
		30.00	1.1811"		S1855300	S1860300	S1865300
	1-3/16"	30.16	1.1875"		S1805112	S1810112	S1815112
	1-7/32"	30.96	1.2188"		S1805114	S1810114	S1815114
		31.00	1.2205"		S1855310	S1860310	S1865310
	1-1/4"	31.75	1.2500"		S1805116	S1810116	S1815116
		32.00	1.2598"		S1855320	S1860320	S1865320
	1-9/32"	32.54	1.2813"		S1805118	S1810118	S1815118
		33.00	1.2992"		S1855330	S1860330	S1865330
	1-5/16"	33.34	1.3125"		S1805120	S1810120	S1815120
	34.00	1.3386"	S1855340	S1860340	S1865340		
1-11/32"	34.13	1.3438"	S1805122	S1810122	S1815122		
1-3/8"	34.93	1.3750"	S1805124	S1810124	S1815124		
	35.00	1.3780"	S1855350	S1860350	S1865350		

◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (HB275~)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

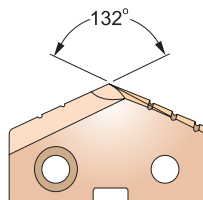
CENTER DRILLS

SPADE DRILLS

TECHNICAL DATA

SPADE DRILL INSERTS - CARBIDE(P40)
EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloy steels.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.
- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (P40)		
					TiN	TiCN	TiAlN
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4063"	6.4 (1/4")	S1805126	S1810126	S1815126
		36.00	1.4173"		S1855360	S1860360	S1865360
	1-7/16"	36.51	1.4375"		S1805128	S1810128	S1815128
		37.00	1.4567"		S1855370	S1860370	S1865370
	1-15/32"	37.31	1.4688"		S1805130	S1810130	S1815130
		38.00	1.4961"		S1855380	S1860380	S1865380
	1-1/2"	38.10	1.5000"		S1805132	S1810132	S1815132
	1-17/32"	38.89	1.5313"		S1805134	S1810134	S1815134
		39.00	1.5354"		S1855390	S1860390	S1865390
	1-9/16"	39.69	1.5625"		S1805136	S1810136	S1815136
		40.00	1.5748"		S1855400	S1860400	S1865400
	1-19/32"	40.48	1.5938"		S1805138	S1810138	S1815138
		41.00	1.6142"		S1855410	S1860410	S1865410
	1-5/8"	41.28	1.6250"		S1805140	S1810140	S1815140
		42.00	1.6535"		S1855420	S1860420	S1865420
	1-21/32"	42.07	1.6563"		S1805142	S1810142	S1815142
	1-11/16"	42.86	1.6875"		S1805144	S1810144	S1815144
		43.00	1.6929"		S1855430	S1860430	S1865430
	1-23/32"	43.66	1.7188"		S1805146	S1810146	S1815146
		44.00	1.7323"		S1855440	S1860440	S1865440
1-3/4"	44.45	1.7500"	S1805148	S1810148	S1815148		
	45.00	1.7717"	S1855450	S1860450	S1865450		
1-25/32"	45.24	1.7813"	S1805150	S1810150	S1815150		
	46.00	1.8110"	S1855460	S1860460	S1865460		
1-13/16"	46.04	1.8125"	S1805152	S1810152	S1815152		
1-27/32"	46.83	1.8438"	S1805154	S1810154	S1815154		
	47.00	1.8504"	S1855470	S1860470	S1865470		
1-7/8"	47.63	1.8750"	S1805156	S1810156	S1815156		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)		HRc13~ (~HB200~)	~HRc28 (~HB275)		
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○



Special features of SM-Point Spade Drill

This new “Hybrid Point” combines the strength of the standard point with additional “Web Thinning”.

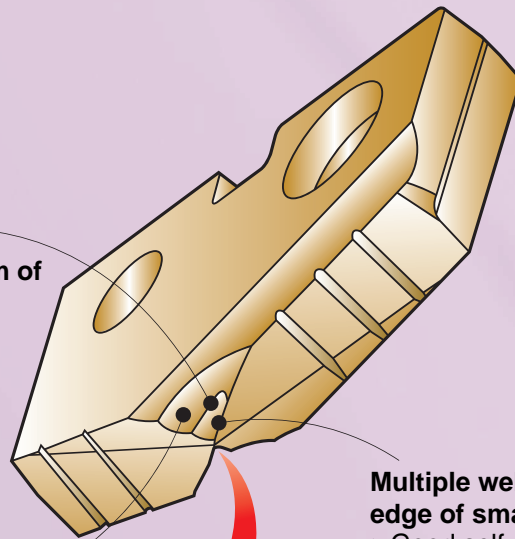
This new point increases stability, reduces thrust, improves centering and allows increased speeds and feeds.

Multiple thinning form at the bottom of the large thinning.

- ▶ The optimum thinning for the difference from the cutting speed, the cutting quantity and the cutting load according to the distance from the drill point to the cutting edge.

Radius back face

- ▶ Wide chip space

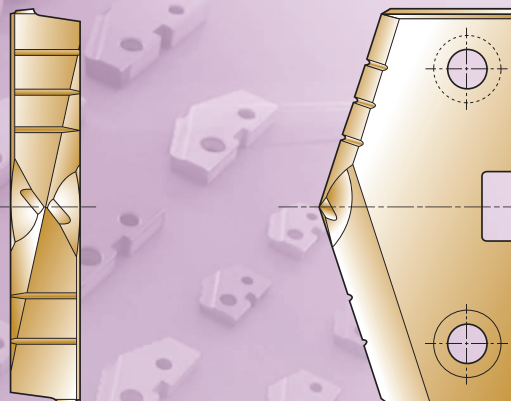
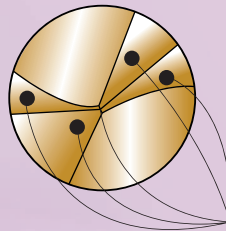


Multiple web thinning with the cutting edge of small web thinning.

- ▶ Good self-centering
- ▶ Less tool lead off
- ▶ Reduction in bell mouching, thrust
- ▶ Increased stability

Four-facet point

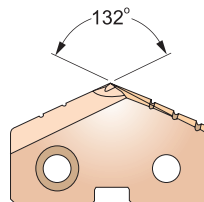
- ▶ Self-centering
- ▶ Less thrust force



SM-POINT SPADE DRILL INSERTS - HSS M4
SM-POINT EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittsgeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
1 17.53 (.690") to 24.38 (.960")	45/64"	17.86	.7031"	4.0 (5/32")	SM405045	SM410045	SM415045
		18.00	.7087"		SM455180	SM460180	SM465180
	23/32"	18.26	.7188"		SM405046	SM410046	SM415046
		18.50	.7283"		SM455185	SM460185	SM465185
	47/64"	18.65	.7344"		SM405047	SM410047	SM415047
		19.00	.7480"		SM455190	SM460190	SM465190
	3/4"	19.05	.7500"		SM405048	SM410048	SM415048
	49/64"	19.45	.7656"		SM405049	SM410049	SM415049
		19.50	.7677"		SM455195	SM460195	SM465195
	25/32"	19.84	.7812"		SM405050	SM410050	SM415050
		20.00	.7874"		SM455200	SM460200	SM465200
	51/64"	20.24	.7969"		SM405051	SM410051	SM415051
		20.50	.8071"		SM455205	SM460205	SM465205
	13/16"	20.64	.8125"		SM405052	SM410052	SM415052
		21.00	.8268"		SM455210	SM460210	SM465210
	27/32"	21.43	.8438"		SM405054	SM410054	SM415054
	55/64"	21.83	.8594"		SM405055	SM410055	SM415055
		22.00	.8661"		SM455220	SM460220	SM465220
	7/8"	22.23	.8750"		SM405056	SM410056	SM415056
	57/64"	22.62	.8906"		SM405057	SM410057	SM415057
	23.00	.9055"	SM455230	SM460230	SM465230		
29/32"	23.02	.9062"	SM405058	SM410058	SM415058		
59/64"	23.42	.9219"	SM405059	SM410059	SM415059		
15/16"	23.81	.9375"	SM405060	SM410060	SM415060		
	24.00	.9449"	SM455240	SM460240	SM465240		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)
	○	○	○	○		○	○	○	○		◎	◎	○	◎	◎



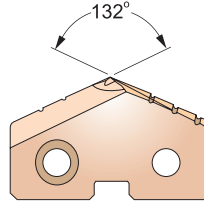
SPADE DRILLS

SERIES 2

SM-POINT SPADE DRILL INSERTS - HSS M4 SM-POINT EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	SM405062	SM410062	SM415062
	63/64"	25.00	.9843"		SM405063	SM410063	SM415063
	1"	25.40	1.0000"		SM405100	SM410100	SM415100
	1-1/64"	25.80	1.0156"		SM405101	SM410101	SM415101
		26.00	1.0236"		SM455260	SM460260	SM465260
	1-1/32"	26.19	1.0312"		SM405102	SM410102	SM415102
	1-3/64"	26.59	1.0469"		SM405103	SM410103	SM415103
	1-1/16"	26.99	1.0625"		SM405104	SM410104	SM415104
		27.00	1.0630"		SM455270	SM460270	SM465270
	1-3/32"	27.78	1.0938"		SM405106	SM410106	SM415106
		28.00	1.1024"		SM455280	SM460280	SM465280
	1-7/64"	28.18	1.1094"		SM405107	SM410107	SM415107
	1-1/8"	28.58	1.1250"		SM405108	SM410108	SM415108
		29.00	1.1417"		SM455290	SM460290	SM465290
	1-5/32"	29.37	1.1562"		SM405110	SM410110	SM415110
		30.00	1.1811"		SM455300	SM460300	SM465300
	1-3/16"	30.16	1.1875"		SM405112	SM410112	SM415112
	1-7/32"	30.96	1.2188"		SM405114	SM410114	SM415114
		31.00	1.2205"		SM455310	SM460310	SM465310
	1-1/4"	31.75	1.2500"		SM405116	SM410116	SM415116
		32.00	1.2598"		SM455320	SM460320	SM465320
	1-9/32"	32.54	1.2812"		SM405118	SM410118	SM415118
		33.00	1.2992"		SM455330	SM460330	SM465330
	1-5/16"	33.34	1.3125"		SM405120	SM410120	SM415120
	34.00	1.3386"	SM455340	SM460340	SM465340		
1-11/32"	34.13	1.3438"	SM405122	SM410122	SM415122		
1-3/8"	34.93	1.3750"	SM405124	SM410124	SM415124		
	35.00	1.3780"	SM455350	SM460350	SM465350		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (-HB275)	+HRc28 (-HB275)	HRc28~ (-HB275)	+HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)	HRc13~ (-HB200)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (-HB220)	-HRc8 (-HB180)
○	○	○	○		○		○	○			◎	◎	○	◎	◎

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

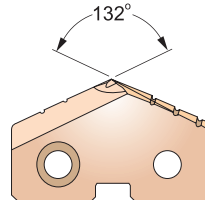
SPADE DRILLS

TECHNICAL DATA

SM-POINT SPADE DRILL INSERTS - HSS M4
SM-POINT EINWEG BOHREINSATZ - HSS M4

- ▶ For general use in steels and cast irons.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Stahl und Gusseisen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittsgeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. HSS (M4)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4062"	6.4 (1/4")	SM405126	SM410126	SM415126
		36.00	1.4173"		SM455360	SM460360	SM465360
	1-7/16"	36.51	1.4375"		SM405128	SM410128	SM415128
		37.00	1.4567"		SM455370	SM460370	SM465370
	1-15/32"	37.31	1.4688"		SM405130	SM410130	SM415130
		38.00	1.4961"		SM455380	SM460380	SM465380
	1-1/2"	38.10	1.5000"		SM405132	SM410132	SM415132
	1-17/32"	38.89	1.5312"		SM405134	SM410134	SM415134
		39.00	1.5354"		SM455390	SM460390	SM465390
	1-9/16"	39.69	1.5625"		SM405136	SM410136	SM415136
		40.00	1.5748"		SM455400	SM460400	SM465400
	1-19/32"	40.48	1.5938"		SM405138	SM410138	SM415138
		41.00	1.6142"		SM455410	SM460410	SM465410
	1-5/8"	41.28	1.6250"		SM405140	SM410140	SM415140
		42.00	1.6535"		SM455420	SM460420	SM465420
	1-21/32"	42.07	1.6562"		SM405142	SM410142	SM415142
	1-11/16"	42.86	1.6875"		SM405144	SM410144	SM415144
		43.00	1.6929"		SM455430	SM460430	SM465430
	1-23/32"	43.66	1.7188"		SM405146	SM410146	SM415146
		44.00	1.7323"		SM455440	SM460440	SM465440
1-3/4"	44.45	1.7500"	SM405148	SM410148	SM415148		
	45.00	1.7717"	SM455450	SM460450	SM465450		
1-25/32"	45.24	1.7812"	SM405150	SM410150	SM415150		
	46.00	1.8110"	SM455460	SM460460	SM465460		
1-13/16"	46.04	1.8125"	SM405152	SM410152	SM415152		
1-27/32"	46.83	1.8438"	SM405154	SM410154	SM415154		
	47.00	1.8504"	SM455470	SM460470	SM465470		
1-7/8"	47.63	1.8750"	SM405156	SM410156	SM415156		

◎ : Excellent ○ : Good

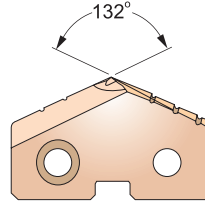
Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)		HRc13~ (~HB200~)	~HRc28 (~HB275)		
	○	○	○	○	○	○	○	○	○	○	◎	◎	○	◎	◎

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15

SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Katalogs lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS (T15)		
					TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	SM155095	SM160095	SM165095
		9.53	.3750"		SM105024	SM110024	SM115024
	25/64"	9.80	.3858"		SM155098	SM160098	SM165098
		9.92	.3906"		SM105025	SM110025	SM115025
	13/32"	10.00	.3937"		SM155100	SM160100	SM165100
		10.20	.4016"		SM155102	SM160102	SM165102
		10.32	.4062"		SM105026	SM110026	SM115026
		10.50	.4134"		SM155105	SM160105	SM165105
		10.72	.4219"		SM105027	SM110027	SM115027
		10.80	.4252"		SM155108	SM160108	SM165108
Z 11.11(.437") to 12.95(.510")	7/16"	11.00	.4331"	2.4 (3/32")	SM155110	SM160110	SM165110
		11.11	.4375"		SM105028	SM110028	SM115028
	29/64"	11.50	.4528"		SM155115	SM160115	SM165115
		11.51	.4531"		SM105029	SM110029	SM115029
	15/32"	11.91	.4688"		SM105030	SM110030	SM115030
		12.00	.4724"		SM155120	SM160120	SM165120
		12.30	.4844"		SM105031	SM110031	SM115031
0 12.98 (.511") to 17.65 (.695")	31/64"	12.50	.4921"	3.2 (1/8")	SM155125	SM160125	SM165125
		12.70	.5000"		SM105032	SM110032	SM115032
	13.00	.5118"	SM155130		SM160130	SM165130	
		13.10	.5156"		SM105033	SM110033	SM115033
	17/32"	13.49	.5312"		SM105034	SM110034	SM115034
		13.50	.5315"		SM155135	SM160135	SM165135
	35/64"	13.89	.5469"		SM105035	SM110035	SM115035
		14.00	.5512"		SM155140	SM160140	SM165140
	9/16"	14.29	.5625"		SM105036	SM110036	SM115036
		14.50	.5709"		SM155145	SM160145	SM165145
37/64"	14.68	.5781"	SM105037	SM110037	SM115037		
	15.00	.5906"	SM155150	SM160150	SM165150		
19/32"	15.08	.5938"	SM105038	SM110038	SM115038		
	15.48	.6094"	SM105039	SM110039	SM115039		
39/64"	15.50	.6102"	SM155155	SM160155	SM165155		
	15.88	.6250"	SM105040	SM110040	SM115040		
5/8"	15.88	.6250"	SM155160	SM160160	SM165160		
	16.00	.6299"					

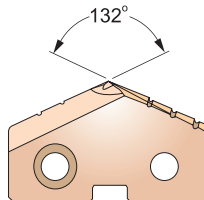
◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)	HRc13~ (-HB200)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (-HB220)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	○	○	○	◎	◎	○	○	○	○	○	◎	○	○

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15
SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittsgeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.				
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS (T15)				
					TiN	TiCN	TiAlN		
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	SM105041	SM110041	SM115041		
		16.50	.6496"		SM155165	SM160165	SM165165		
	21/32"	16.67	.6562"		SM105042	SM110042	SM115042		
		17.00	.6693"		SM155170	SM160170	SM165170		
	43/64"	17.07	.6719"		SM105043	SM110043	SM115043		
		17.46	.6875"		SM105044	SM110044	SM115044		
		17.50	.6890"		SM155175	SM160175	SM165175		
	1 17.53 (.690") to 24.38 (.960")	45/64"	17.86		.7031"	4.0 (5/32")	SM105045	SM110045	SM115045
			18.00		.7087"		SM155180	SM160180	SM165180
		23/32"	18.26		.7188"		SM105046	SM110046	SM115046
18.50			.7283"	SM155185	SM160185		SM165185		
47/64"		18.65	.7344"	SM105047	SM110047		SM115047		
		19.00	.7480"	SM155190	SM160190		SM165190		
3/4"		19.05	.7500"	SM105048	SM110048		SM115048		
		19.45	.7656"	SM105049	SM110049		SM115049		
		19.50	.7677"	SM155195	SM160195		SM165195		
		25/32"	19.84	.7812"	4.0 (5/32")		SM105050	SM110050	SM115050
	20.00		.7874"	SM155200		SM160200	SM165200		
	51/64"	20.24	.7969"	SM105051		SM110051	SM115051		
		20.50	.8071"	SM155205		SM160205	SM165205		
	13/16"	20.64	.8125"	SM105052		SM110052	SM115052		
		21.00	.8268"	SM155210		SM160210	SM165210		
	27/32"	21.43	.8438"	SM105054		SM110054	SM115054		
		21.83	.8594"	SM105055		SM110055	SM115055		
		22.00	.8661"	SM155220		SM160220	SM165220		
	7/8"	22.23	.8750"	SM105056		SM110056	SM115056		
22.62		.8906"	SM105057	SM110057	SM115057				
	57/64"	23.00	.9055"	4.0 (5/32")	SM155230	SM160230	SM165230		
		23.02	.9062"		SM105058	SM110058	SM115058		
	29/32"	23.42	.9219"		SM105059	SM110059	SM115059		
		23.81	.9375"		SM105060	SM110060	SM115060		
	59/64"	24.00	.9449"		SM155240	SM160240	SM165240		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)	HRc13~ (-HB200)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (-HB220)	-HRc8 (-HB180)
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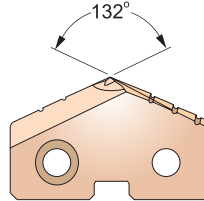
SPADE DRILLS

SERIES 2

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15 SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Katalogs lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS (T15)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	SM105062	SM110062	SM115062
	63/64"	25.00	.9843"		SM105063	SM110063	SM115063
	1"	25.40	1.0000"		SM105100	SM110100	SM115100
	1-1/64"	25.80	1.0156"		SM105101	SM110101	SM115101
		26.00	1.0236"		SM155260	SM160260	SM165260
	1-1/32"	26.19	1.0312"		SM105102	SM110102	SM115102
	1-3/64"	26.59	1.0469"		SM105103	SM110103	SM115103
	1-1/16"	26.99	1.0625"		SM105104	SM110104	SM115104
		27.00	1.0630"		SM155270	SM160270	SM165270
	1-3/32"	27.78	1.0938"		SM105106	SM110106	SM115106
		28.00	1.1024"		SM155280	SM160280	SM165280
	1-7/64"	28.18	1.1094"		SM105107	SM110107	SM115107
	1-1/8"	28.58	1.1250"		SM105108	SM110108	SM115108
		29.00	1.1417"		SM155290	SM160290	SM165290
	1-5/32"	29.37	1.1562"		SM105110	SM110110	SM115110
		30.00	1.1811"		SM155300	SM160300	SM165300
	1-3/16"	30.16	1.1875"		SM105112	SM110112	SM115112
	1-7/32"	30.96	1.2188"		SM105114	SM110114	SM115114
		31.00	1.2205"		SM155310	SM160310	SM165310
	1-1/4"	31.75	1.2500"		SM105116	SM110116	SM115116
		32.00	1.2598"		SM155320	SM160320	SM165320
	1-9/32"	32.54	1.2812"		SM105118	SM110118	SM115118
		33.00	1.2992"		SM155330	SM160330	SM165330
1-5/16"	33.34	1.3125"	SM105120	SM110120	SM115120		
	34.00	1.3386"	SM155340	SM160340	SM165340		
1-11/32"	34.13	1.3438"	SM105122	SM110122	SM115122		
1-3/8"	34.93	1.3750"	SM105124	SM110124	SM115124		
	35.00	1.3780"	SM155350	SM160350	SM165350		

◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	○	○	○	◎	◎	○	○	○	○	○	◎	○	○

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

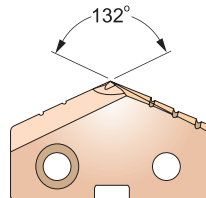
SPADE DRILLS

TECHNICAL DATA

SM-POINT SPADE DRILL INSERTS - SUPER HSS T15
SM-POINT EINWEG BOHREINSATZ - SUPER HSS T15

- ▶ For use in high nickel alloys and materials over 280 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei legierten Stählen mit hohem Nickelanteil und Werkstoffen über 280 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittsgeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		SUPER HSS (T15)		
					TiN	TiCN	TiAlN
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4062"	6.4 (1/4")	SM105126	SM110126	SM115126
		36.00	1.4173"		SM155360	SM160360	SM165360
	1-7/16"	36.51	1.4375"		SM105128	SM110128	SM115128
		37.00	1.4567"		SM155370	SM160370	SM165370
	1-15/32"	37.31	1.4688"		SM105130	SM110130	SM115130
		38.00	1.4961"		SM155380	SM160380	SM165380
	1-1/2"	38.10	1.5000"		SM105132	SM110132	SM115132
	1-17/32"	38.89	1.5312"		SM105134	SM110134	SM115134
		39.00	1.5354"		SM155390	SM160390	SM165390
	1-9/16"	39.69	1.5625"		SM105136	SM110136	SM115136
		40.00	1.5748"		SM155400	SM160400	SM165400
	1-19/32"	40.48	1.5938"		SM105138	SM110138	SM115138
		41.00	1.6142"		SM155410	SM160410	SM165410
	1-5/8"	41.28	1.6250"		SM105140	SM110140	SM115140
		42.00	1.6535"		SM155420	SM160420	SM165420
	1-21/32"	42.07	1.6562"		SM105142	SM110142	SM115142
		42.86	1.6875"		SM105144	SM110144	SM115144
	1-11/16"	43.00	1.6929"		SM155430	SM660430	SM165430
		43.66	1.7188"		SM105146	SM110146	SM115146
		44.00	1.7323"		SM155440	SM160440	SM165440
44.45		1.7500"	SM105148	SM110148	SM115148		
1-3/4"	45.00	1.7717"	SM155450	SM160450	SM165450		
	45.24	1.7812"	SM105150	SM110150	SM115150		
	46.00	1.8110"	SM155460	SM160460	SM165460		
	46.04	1.8125"	SM105152	SM110152	SM115152		
1-13/16"	46.83	1.8438"	SM105154	SM110154	SM115154		
	47.00	1.8504"	SM155470	SM160470	SM165470		
1-7/8"	47.00	1.8504"	SM105156	SM110156	SM115156		
	47.63	1.8750"					

◎ : Excellent ○ : Good

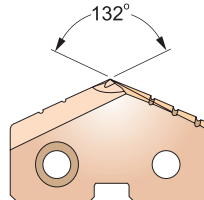
Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)		HRc13~ (~HB200~)	~HRc28 (~HB275)		
◎	◎	◎	◎	◎	○	○	◎	◎	○	○	○	○	◎	○	○

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48

SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48

- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350 - 500 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.			
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)			
					TiN	TiCN	TiAlN	
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	SM555095	SM560095	SM565095	
		9.53	.3750"		SM505024	SM510024	SM515024	
	25/64"	9.80	.3858"		SM555098	SM560098	SM565098	
		9.92	.3906"		SM505025	SM510025	SM515025	
	13/32"	10.00	.3937"		SM555100	SM560100	SM565100	
		10.20	.4016"		SM555102	SM560102	SM565102	
		10.32	.4062"		SM505026	SM510026	SM515026	
		10.50	.4134"		SM555105	SM560105	SM565105	
		27/64"	10.72		.4219"	SM505027	SM510027	SM515027
		10.80	.4252"		SM555108	SM560108	SM565108	
Z 11.11(.437") to 12.95(.510")	7/16"	11.00	.4331"	2.4 (3/32")	SM555110	SM560110	SM565110	
		11.11	.4375"		SM505028	SM510028	SM515028	
	29/64"	11.50	.4528"		SM555115	SM560115	SM565115	
		11.51	.4531"		SM505029	SM510029	SM515029	
	15/32"	11.91	.4688"		SM505030	SM510030	SM515030	
		12.00	.4724"		SM555120	SM560120	SM565120	
		12.30	.4844"		SM505031	SM510031	SM515031	
31/64"	12.50	.4921"	SM555125	SM560125	SM565125			
	12.70	.5000"	SM505032	SM510032	SM515032			
0 12.98 (.511") to 17.65 (.695")	1/2"	13.00	.5118"	3.2 (1/8")	SM555130	SM560130	SM565130	
		33/64"	13.10		.5156"	SM505033	SM510033	SM515033
	17/32"	13.49	.5312"		SM505034	SM510034	SM515034	
	35/64"	13.50	.5315"		SM555135	SM560135	SM565135	
		13.89	.5469"		SM505035	SM510035	SM515035	
	9/16"	14.00	.5512"		SM555140	SM560140	SM565140	
		14.29	.5625"		SM505036	SM510036	SM515036	
	37/64"	14.50	.5709"		SM555145	SM560145	SM565145	
		14.68	.5781"		SM505037	SM510037	SM515037	
	19/32"	15.00	.5906"		SM555150	SM560150	SM565150	
		15.08	.5938"		SM505038	SM510038	SM515038	
	39/64"	15.48	.6094"		SM505039	SM510039	SM515039	
		15.50	.6102"		SM555155	SM560155	SM565155	
5/8"	15.88	.6250"	SM505040	SM510040	SM515040			
	16.00	.6299"	SM555160	SM560160	SM565160			

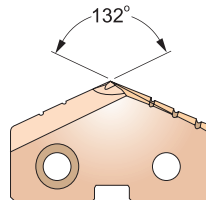
◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48
SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48

- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350 - 500 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)		
					TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	SM505041	SM510041	SM515041
		16.50	.6496"		SM555165	SM560165	SM565165
	21/32"	16.67	.6562"		SM505042	SM510042	SM515042
		17.00	.6693"		SM555170	SM560170	SM565170
	43/64"	17.07	.6719"		SM505043	SM510043	SM515043
		17.46	.6875"		SM505044	SM510044	SM515044
	11/16"	17.50	.6890"		SM555175	SM560175	SM565175
		17.86	.7031"		SM505045	SM510045	SM515045
	45/64"	18.00	.7087"		SM555180	SM560180	SM565180
		18.26	.7188"		SM505046	SM510046	SM515046
23/32"	18.50	.7283"	SM555185	SM560185	SM565185		
	18.65	.7344"	SM505047	SM510047	SM515047		
47/64"	19.00	.7480"	SM555190	SM560190	SM565190		
	19.05	.7500"	SM505048	SM510048	SM515048		
3/4"	19.45	.7656"	SM505049	SM510049	SM515049		
	19.50	.7677"	SM555195	SM560195	SM565195		
1 17.53 (.690") to 24.38 (.960")	25/32"	19.84	.7812"	4.0 (5/32")	SM505050	SM510050	SM515050
		20.00	.7874"		SM555200	SM560200	SM565200
	51/64"	20.24	.7969"		SM505051	SM510051	SM515051
		20.50	.8071"		SM555205	SM560205	SM565205
	13/16"	20.64	.8125"		SM505052	SM510052	SM515052
		21.00	.8268"		SM555210	SM560210	SM565210
	27/32"	21.43	.8438"		SM505054	SM510054	SM515054
		21.83	.8594"		SM505055	SM510055	SM565055
	55/64"	22.00	.8661"		SM555220	SM560220	SM565220
		22.23	.8750"		SM505056	SM510056	SM515056
7/8"	22.62	.8906"	SM505057	SM510057	SM515057		
	23.00	.9055"	SM555230	SM560230	SM565230		
29/32"	23.02	.9062"	SM505058	SM510058	SM515058		
	23.42	.9219"	SM505059	SM510059	SM515059		
59/64"	23.81	.9375"	SM505060	SM510060	SM515060		
	24.00	.9449"	SM555240	SM560240	SM565240		

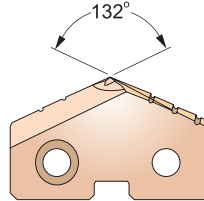
◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)		HRc13~ (-HB200)	-HRc28 (-HB275)		
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48 SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48

- ▶ For use in high temperature alloys and materials with 350-500 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350 - 500 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.283

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	SM505062	SM510062	SM515062
	63/64"	25.00	.9843"		SM505063	SM510063	SM515063
	1"	25.40	1.0000"		SM505100	SM510100	SM515100
	1-1/64"	25.80	1.0156"		SM505101	SM510101	SM515101
		26.00	1.0236"		SM555260	SM560260	SM565260
	1-1/32"	26.19	1.0312"		SM505102	SM510102	SM515102
	1-3/64"	26.59	1.0469"		SM505103	SM510103	SM515103
	1-1/16"	26.99	1.0625"		SM505104	SM510104	SM515104
		27.00	1.0630"		SM555270	SM560270	SM565270
	1-3/32"	27.78	1.0938"		SM505106	SM510106	SM515106
		28.00	1.1024"		SM555280	SM560280	SM565280
	1-7/64"	28.18	1.1094"		SM505107	SM510107	SM515107
	1-1/8"	28.58	1.1250"		SM505108	SM510108	SM515108
		29.00	1.1417"		SM555290	SM560290	SM565290
	1-5/32"	29.37	1.1562"		SM505110	SM510110	SM515110
		30.00	1.1811"		SM555300	SM560300	SM565300
	1-3/16"	30.16	1.1875"		SM505112	SM510112	SM515112
	1-7/32"	30.96	1.2188"		SM505114	SM510114	SM515114
		31.00	1.2205"		SM555310	SM560310	SM565310
	1-1/4"	31.75	1.2500"		SM505116	SM510116	SM515116
		32.00	1.2598"		SM555320	SM560320	SM565320
	1-9/32"	32.54	1.2812"		SM505118	SM510118	SM515118
		33.00	1.2992"		SM555330	SM560330	SM565330
1-5/16"	33.34	1.3125"	SM505120	SM510120	SM515120		
	34.00	1.3386"	SM555340	SM560340	SM565340		
1-11/32"	34.13	1.3438"	SM505122	SM510122	SM515122		
1-3/8"	34.93	1.3750"	SM505124	SM510124	SM515124		
	35.00	1.3780"	SM555350	SM560350	SM565350		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
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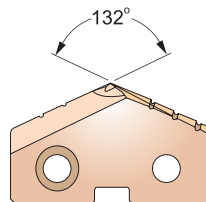
Y/G SPADE DRILLS

SERIES **Y,Z,0**

SM-POINT SPADE DRILL INSERTS FOR CAST IRON - CARBIDE(K10) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(K10)

- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K10)		
					TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")	3/8"	9.50	.3740"	2.4 (3/32")	SM655095	SM660095	SM665095
		9.53	.3750"		SM605024	SM610024	SM615024
	25/64"	9.80	.3858"		SM655098	SM660098	SM665098
		9.92	.3906"		SM605025	SM610025	SM615025
	13/32"	10.00	.3937"		SM655100	SM660100	SM665100
		10.20	.4016"		SM655102	SM660102	SM665102
	27/64"	10.32	.4062"		SM605026	SM610026	SM615026
		10.50	.4134"		SM655105	SM660105	SM665105
	11.07	10.72	.4219"		SM605027	SM610027	SM615027
		10.80	.4252"		SM655108	SM660108	SM665108
Z 11.11(.437") to 12.95(.510")	7/16"	11.00	.4331"	2.4 (3/32")	SM655110	SM660110	SM665110
		11.11	.4375"		SM605028	SM610028	SM615028
	29/64"	11.50	.4528"		SM655115	SM660115	SM665115
		11.51	.4531"		SM605029	SM610029	SM615029
	15/32"	11.91	.4688"		SM655120	SM660120	SM665120
		12.00	.4724"		SM605030	SM610030	SM615030
	31/64"	12.30	.4844"		SM655125	SM660125	SM665125
		12.50	.4921"		SM605031	SM610031	SM615031
	1/2"	12.70	.5000"		SM655125	SM660125	SM665125
		12.95	.5100"		SM605032	SM610032	SM615032
0 12.98 (.511") to 17.65 (.695")	33/64"	13.00	.5118"	3.2 (1/8")	SM655130	SM660130	SM665130
		13.10	.5156"		SM605033	SM610033	SM615033
	17/32"	13.49	.5312"		SM655135	SM660135	SM665135
		13.50	.5315"		SM605034	SM610034	SM615034
	35/64"	13.89	.5469"		SM655135	SM660135	SM665135
		14.00	.5512"		SM605035	SM610035	SM615035
	9/16"	14.29	.5625"		SM655140	SM660140	SM665140
		14.50	.5709"		SM605036	SM610036	SM615036
	37/64"	14.68	.5781"		SM655145	SM660145	SM665145
		15.00	.5906"		SM605037	SM610037	SM615037
19/32"	15.08	.5938"	SM655150	SM660150	SM665150		
	15.08	.5938"	SM605038	SM610038	SM615038		
39/64"	15.48	.6094"	SM655155	SM660155	SM665155		
	15.50	.6102"	SM605039	SM610039	SM615039		
5/8"	15.88	.6250"	SM655155	SM660155	SM665155		
	16.00	.6299"	SM605040	SM610040	SM615040		
					SM655160	SM660160	SM665160

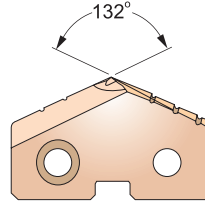
◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)		HRc13~ (HB200~)	-HRc28 (-HB275)		
												◎	◎		

SM-POINT SPADE DRILL INSERTS FOR CAST IRON - CARBIDE(K10) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(K10)

- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittdengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (K10)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	SM605041	SM610041	SM615041
		16.50	.6496"		SM655165	SM660165	SM665165
	21/32"	16.67	.6562"		SM605042	SM610042	SM615042
		17.00	.6693"		SM655170	SM660170	SM665170
	43/64"	17.07	.6719"		SM605043	SM610043	SM615043
	11/16"	17.46	.6875"		SM605044	SM610044	SM615044
		17.50	.6890"		SM655175	SM660175	SM665175
	45/64"	17.86	.7031"		SM605045	SM610045	SM615045
		18.00	.7087"		SM655180	SM660180	SM665180
	23/32"	18.26	.7188"		SM605046	SM610046	SM615046
	18.50	.7283"	SM655185	SM660185	SM665185		
47/64"	18.65	.7344"	SM605047	SM610047	SM615047		
	19.00	.7480"	SM655190	SM660190	SM665190		
3/4"	19.05	.7500"	SM605048	SM610048	SM615048		
49/64"	19.45	.7656"	SM605049	SM610049	SM615049		
	19.50	.7677"	SM655195	SM660195	SM665195		
1 17.53 (.690") to 24.38 (.960")	25/32"	19.84	.7812"	4.0 (5/32")	SM605050	SM610050	SM615050
		20.00	.7874"		SM655200	SM660200	SM665200
	51/64"	20.24	.7969"		SM605051	SM610051	SM615051
		20.50	.8071"		SM655205	SM660205	SM665205
	13/16"	20.64	.8125"		SM605052	SM610052	SM615052
		21.00	.8268"		SM655210	SM660210	SM665210
	27/32"	21.43	.8438"		SM605054	SM610054	SM615054
	55/64"	21.83	.8594"		SM605055	SM610055	SM615055
		22.00	.8661"		SM655220	SM660220	SM665220
	7/8"	22.23	.8750"		SM605056	SM610056	SM615056
	57/64"	22.62	.8906"		SM605057	SM610057	SM615057
		23.00	.9055"		SM655230	SM660230	SM665230
	29/32"	23.02	.9062"		SM605058	SM610058	SM615058
	59/64"	23.42	.9219"		SM605059	SM610059	SM615059
	15/16"	23.81	.9375"		SM605060	SM610060	SM615060
	24.00	.9449"	SM655240	SM660240	SM665240		

◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
												◎	◎		

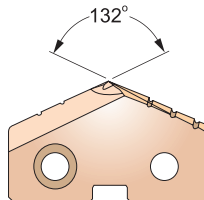
YG SPADE DRILLS

SERIES 2

SM-POINT SPADE DRILL INSERTS FOR CAST IRON - CARBIDE(K10) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(K10)

- ▶ High performance on Gray cast iron over 220 Brinell, malleable cast iron with short chips, silicon aluminum and copper alloys.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Beste Leistung in Grauguss über 220 Brinell, kurzspanendem Kugelgraphitguss, Si-Aluminium und Kupferlegierungen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K10)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	SM605062	SM610062	SM615062
	63/64"	25.00	.9843"		SM605063	SM610063	SM615063
	1"	25.40	1.0000"		SM605100	SM610100	SM615100
	1-1/64"	25.80	1.0156"		SM605101	SM610101	SM615101
		26.00	1.0236"		SM655260	SM660260	SM665260
	1-1/32"	26.19	1.0312"		SM605102	SM610102	SM615102
	1-3/64"	26.59	1.0469"		SM605103	SM610103	SM615103
	1-1/16"	26.99	1.0625"		SM605104	SM610104	SM615104
		27.00	1.0630"		SM655270	SM660270	SM665270
	1-3/32"	27.78	1.0938"		SM605106	SM610106	SM615106
		28.00	1.1024"		SM655280	SM660280	SM665280
	1-7/64"	28.18	1.1094"		SM605107	SM610107	SM615107
	1-1/8"	28.58	1.1250"		SM605108	SM610108	SM615108
		29.00	1.1417"		SM655290	SM660290	SM665290
	1-5/32"	29.37	1.1562"		SM605110	SM610110	SM615110
		30.00	1.1811"		SM655300	SM660300	SM665300
	1-3/16"	30.16	1.1875"		SM605112	SM610112	SM615112
	1-7/32"	30.96	1.2188"		SM605114	SM610114	SM615114
		31.00	1.2205"		SM655310	SM660310	SM665310
	1-1/4"	31.75	1.2500"		SM605116	SM610116	SM615116
	32.00	1.2598"	SM655320	SM660320	SM665320		
1-9/32"	32.54	1.2812"	SM605118	SM610118	SM615118		
	33.00	1.2992"	SM655330	SM660330	SM665330		
1-5/16"	33.34	1.3125"	SM605120	SM610120	SM615120		
	34.00	1.3386"	SM655340	SM660340	SM665340		
1-11/32"	34.13	1.3438"	SM605122	SM610122	SM615122		
1-3/8"	34.93	1.3750"	SM605124	SM610124	SM615124		
	35.00	1.3780"	SM655350	SM660350	SM665350		

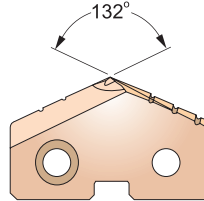
◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)		HRc13~ (~HB200~)	~HRc28 (~HB275)		
												◎	◎		

SM-POINT SPADE DRILL INSERTS - CARBIDE(K20) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (K20)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")		9.50	.3740"	2.4 (3/32")	SM755095	SM760095	SM765095
	3/8"	9.53	.3750"		SM705024	SM710024	SM715024
		9.80	.3858"		SM755098	SM760098	SM765098
	25/64"	9.92	.3906"		SM705025	SM710025	SM715025
		10.00	.3937"		SM755100	SM760100	SM765100
		10.20	.4016"		SM755102	SM760102	SM765102
	13/32"	10.32	.4062"		SM705026	SM710026	SM715026
		10.50	.4134"		SM755105	SM760105	SM765105
	27/64"	10.72	.4219"		SM705027	SM710027	SM715027
		10.80	.4252"		SM755108	SM760108	SM765108
Z 11.11(.437") to 12.95(.510")		11.00	.4331"	2.4 (3/32")	SM755110	SM760110	SM765110
	7/16"	11.11	.4375"		SM705028	SM710028	SM715028
		11.50	.4528"		SM755115	SM760115	SM765115
	29/64"	11.51	.4531"		SM705029	SM710029	SM715029
	15/32"	11.91	.4688"		SM705030	SM710030	SM715030
		12.00	.4724"		SM755120	SM760120	SM765120
	31/64"	12.30	.4844"		SM705031	SM710031	SM715031
		12.50	.4921"		SM755125	SM760125	SM765125
	1/2"	12.70	.5000"		SM705032	SM710032	SM715032
		13.00	.5118"		SM755130	SM760130	SM765130
0 12.98 (.511") to 17.65 (.695")		13.10	.5156"	3.2 (1/8")	SM705033	SM710033	SM715033
	33/64"	13.10	.5156"		SM705034	SM710034	SM715034
	17/32"	13.49	.5312"		SM755135	SM760135	SM765135
		13.50	.5315"		SM705035	SM710035	SM715035
	35/64"	13.89	.5469"		SM755140	SM760140	SM765140
		14.00	.5512"		SM705036	SM710036	SM715036
	9/16"	14.29	.5625"		SM755145	SM760145	SM765145
		14.50	.5709"		SM705037	SM710037	SM715037
	37/64"	14.68	.5781"		SM755150	SM760150	SM765150
		15.00	.5906"		SM705038	SM710038	SM715038
	19/32"	15.08	.5938"		SM705039	SM710039	SM715039
	39/64"	15.48	.6094"		SM755155	SM760155	SM765155
		15.50	.6102"		SM705040	SM710040	SM715040
	5/8"	15.88	.6250"		SM755160	SM760160	SM765160
	16.00	.6299"					

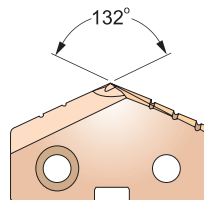
◎ : Excellent ○ : Good

Non- alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎	◎

SM-POINT SPADE DRILL INSERTS - CARBIDE(K20)
SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnittsgeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (K20)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	SM705041	SM710041	SM715041
		16.50	.6496"		SM755165	SM760165	SM765165
	21/32"	16.67	.6562"		SM705042	SM710042	SM715042
		17.00	.6693"		SM755170	SM760170	SM765170
	43/64"	17.07	.6719"		SM705043	SM710043	SM715043
	11/16"	17.46	.6875"		SM705044	SM710044	SM715044
		17.50	.6890"		SM755175	SM760175	SM765175
	45/64"	17.86	.7031"		SM705045	SM710045	SM715045
		18.00	.7087"		SM755180	SM760180	SM765180
	23/32"	18.26	.7188"		SM705046	SM710046	SM715046
	18.50	.7283"	SM755185	SM760185	SM765185		
47/64"	18.65	.7344"	SM705047	SM710047	SM715047		
	19.00	.7480"	SM755190	SM760190	SM765190		
3/4"	19.05	.7500"	SM705048	SM710048	SM715048		
49/64"	19.45	.7656"	SM705049	SM710049	SM715049		
	19.50	.7677"	SM755195	SM760195	SM765195		
1 17.53 (.690") to 24.38 (.960")	25/32"	19.84	.7812"	4.0 (5/32")	SM705050	SM710050	SM715050
		20.00	.7874"		SM755200	SM760200	SM765200
	51/64"	20.24	.7969"		SM705051	SM710051	SM715051
		20.50	.8071"		SM755205	SM760205	SM765205
	13/16"	20.64	.8125"		SM705052	SM710052	SM715052
		21.00	.8268"		SM755210	SM760210	SM765210
	27/32"	21.43	.8438"		SM705054	SM710054	SM715054
	55/64"	21.83	.8594"		SM705055	SM710055	SM715055
		22.00	.8661"		SM755220	SM760220	SM765220
	7/8"	22.23	.8750"		SM705056	SM710056	SM715056
	57/64"	22.62	.8906"		SM705057	SM710057	SM715057
		23.00	.9055"		SM755230	SM760230	SM765230
	29/32"	23.02	.9062"		SM705058	SM710058	SM715058
	59/64"	23.42	.9219"		SM705059	SM710059	SM715059
	15/16"	23.81	.9375"		SM705060	SM710060	SM715060
	24.00	.9449"	SM755240	SM760240	SM765240		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc28 (-HB275)	HRc28~ (-HB275)	-HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)		HRc13~ (-HB200)	-HRc28 (-HB275)		
○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎	◎



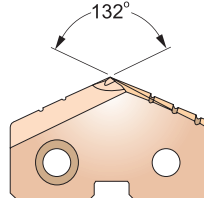
SPADE DRILLS

SERIES 2

SM-POINT SPADE DRILL INSERTS - CARBIDE(K20) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschneidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K20)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	SM705062	SM710062	SM715062
	63/64"	25.00	.9843"		SM705063	SM710063	SM715063
	1"	25.40	1.0000"		SM705100	SM710100	SM715100
	1-1/64"	25.80	1.0156"		SM705101	SM710101	SM715101
		26.00	1.0236"		SM755260	SM760260	SM765260
	1-1/32"	26.19	1.0312"		SM705102	SM710102	SM715102
	1-3/64"	26.59	1.0469"		SM705103	SM710103	SM715103
	1-1/16"	26.99	1.0625"		SM705104	SM710104	SM715104
		27.00	1.0630"		SM755270	SM760270	SM765270
	1-3/32"	27.78	1.0938"		SM705106	SM710106	SM715106
		28.00	1.1024"		SM755280	SM760280	SM765280
	1-7/64"	28.18	1.1094"		SM705107	SM710107	SM715107
	1-1/8"	28.58	1.1250"		SM705108	SM710108	SM715108
		29.00	1.1417"		SM755290	SM760290	SM765290
	1-5/32"	29.37	1.1562"		SM705110	SM710110	SM715110
		30.00	1.1811"		SM755300	SM760300	SM765300
	1-3/16"	30.16	1.1875"		SM705112	SM710112	SM715112
	1-7/32"	30.96	1.2188"		SM705114	SM710114	SM715114
		31.00	1.2205"		SM755310	SM760310	SM765310
	1-1/4"	31.75	1.2500"		SM705116	SM710116	SM715116
		32.00	1.2598"		SM755320	SM760320	SM765320
	1-9/32"	32.54	1.2812"		SM705118	SM710118	SM715118
		33.00	1.2992"		SM755330	SM760330	SM765330
	1-5/16"	33.34	1.3125"		SM705120	SM710120	SM715120
	34.00	1.3386"	SM755340	SM760340	SM765340		
1-11/32"	34.13	1.3438"	SM705122	SM710122	SM715122		
1-3/8"	34.93	1.3750"	SM705124	SM710124	SM715124		
	35.00	1.3780"	SM755350	SM760350	SM765350		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)	-HB110
○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	○	◎	◎

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

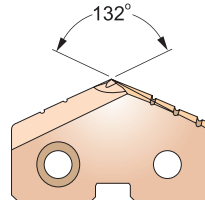
SPADE DRILLS

TECHNICAL DATA

SM-POINT SPADE DRILL INSERTS - CARBIDE(K20)
SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(K20)

- ▶ For use in Gray cast iron up to 220 Brinell, nonferrous metals, copper, brass and aluminum.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung in Grauguss bis 220 Brinell, Nichteisen - Metallen, Kupfer, Messing und Aluminium
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (K20)		
					TiN	TiCN	TiAlN
3 34.37 (1.353") to 47.80 (1.882")	1-13/32"	35.72	1.4062"	6.4 (1/4")	SM705126	SM710126	SM715126
		36.00	1.4173"		SM755360	SM760360	SM765360
	1-7/16"	36.51	1.4375"		SM705128	SM710128	SM715128
		37.00	1.4567"		SM755370	SM760370	SM765370
	1-15/32"	37.31	1.4688"		SM705130	SM710130	SM715130
		38.00	1.4961"		SM755380	SM760380	SM765380
	1-1/2"	38.10	1.5000"		SM705132	SM710132	SM715132
	1-17/32"	38.89	1.5312"		SM705134	SM710134	SM715134
		39.00	1.5354"		SM755390	SM760390	SM765390
	1-9/16"	39.69	1.5625"		SM705136	SM710136	SM715136
		40.00	1.5748"		SM755400	SM760400	SM765400
	1-19/32"	40.48	1.5938"		SM705138	SM710138	SM715138
		41.00	1.6142"		SM755410	SM760410	SM765410
	1-5/8"	41.28	1.6250"		SM705140	SM710140	SM715140
		42.00	1.6535"		SM755420	SM760420	SM765420
	1-21/32"	42.07	1.6562"		SM705142	SM710142	SM715142
	1-11/16"	42.86	1.6875"		SM705144	SM710144	SM715144
		43.00	1.6929"		SM755430	SM760430	SM765430
	1-23/32"	43.66	1.7188"		SM705146	SM710146	SM715146
		44.00	1.7323"		SM755440	SM760440	SM765440
1-3/4"	44.45	1.7500"	SM705148	SM710148	SM715148		
	45.00	1.7717"	SM755450	SM760450	SM765450		
1-25/32"	45.24	1.7812"	SM705150	SM710150	SM715150		
	46.00	1.8110"	SM755460	SM760460	SM765460		
1-13/16"	46.04	1.8125"	SM705152	SM710152	SM715152		
1-27/32"	46.83	1.8438"	SM705154	SM710154	SM715154		
	47.00	1.8504"	SM755470	SM760470	SM765470		
1-7/8"	47.63	1.8750"	SM705156	SM710156	SM715156		

◎ : Excellent ○ : Good

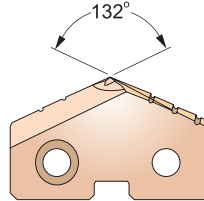
Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)	~HB110
	○	○	○	○	○	◎	◎	○	○	○	○	◎	○	○	◎	◎

SM-POINT SPADE DRILL INSERTS - CARBIDE(P40)

SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloys steels.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (P40)		
					TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")		9.50	.3740"	2.4 (3/32")	SM855095	SM860095	SM865095
	3/8"	9.53	.3750"		SM805024	SM810024	SM815024
		9.80	.3858"		SM855098	SM860098	SM865098
	25/64"	9.92	.3906"		SM805025	SM810025	SM815025
		10.00	.3937"		SM855100	SM860100	SM865100
		10.20	.4016"		SM855102	SM860102	SM865102
	13/32"	10.32	.4062"		SM805026	SM810026	SM815026
		10.50	.4134"		SM855105	SM860105	SM865105
	27/64"	10.72	.4219"		SM805027	SM810027	SM815027
		10.80	.4252"		SM855108	SM860108	SM865108
Z 11.11(.437") to 12.95(.510")		11.00	.4331"	2.4 (3/32")	SM855110	SM860110	SM865110
	7/16"	11.11	.4375"		SM805028	SM810028	SM815028
		11.50	.4528"		SM855115	SM860115	SM865115
	29/64"	11.51	.4531"		SM805029	SM810029	SM815029
	15/32"	11.91	.4688"		SM805030	SM810030	SM815030
		12.00	.4724"		SM855120	SM860120	SM865120
	31/64"	12.30	.4844"		SM805031	SM810031	SM815031
		12.50	.4921"		SM855125	SM860125	SM865125
	1/2"	12.70	.5000"		SM805032	SM810032	SM815032
		13.00	.5118"		SM855130	SM860130	SM865130
0 12.98 (.511") to 17.65 (.695")		13.10	.5156"	3.2 (1/8")	SM805033	SM810033	SM815033
	33/64"	13.49	.5312"		SM805034	SM810034	SM815034
	17/32"	13.50	.5315"		SM855135	SM860135	SM865135
		13.89	.5469"		SM805035	SM810035	SM815035
	35/64"	14.00	.5512"		SM855140	SM860140	SM865140
		14.29	.5625"		SM805036	SM810036	SM815036
	9/16"	14.50	.5709"		SM855145	SM860145	SM865145
		14.68	.5781"		SM805037	SM810037	SM815037
	37/64"	15.00	.5906"		SM855150	SM860150	SM865150
		15.08	.5938"		SM805038	SM810038	SM815038
	19/32"	15.48	.6094"		SM805039	SM810039	SM815039
	39/64"	15.50	.6102"		SM855155	SM860155	SM865155
		15.88	.6250"		SM805040	SM810040	SM815040
	5/8"	16.00	.6299"		SM855160	SM860160	SM865160

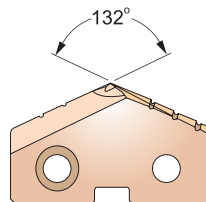
◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

SM-POINT SPADE DRILL INSERTS - CARBIDE(P40) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloys steels.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnidegeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No. CARBIDE (P40)		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN	TiAlN
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	SM805041	SM810041	SM815041
		16.50	.6496"		SM855165	SM860165	SM865165
	21/32"	16.67	.6562"		SM805042	SM810042	SM815042
		17.00	.6693"		SM855170	SM860170	SM865170
	43/64"	17.07	.6719"		SM805043	SM810043	SM815043
		17.46	.6875"		SM805044	SM810044	SM815044
	45/64"	17.50	.6890"		SM855175	SM860175	SM815175
		17.86	.7031"		SM805045	SM810045	SM815045
	23/32"	18.00	.7087"		SM855180	SM860180	SM865180
		18.26	.7188"		SM805046	SM810046	SM815046
47/64"	18.50	.7283"	SM855185	SM860185	SM865185		
	18.65	.7344"	SM805047	SM810047	SM815047		
3/4"	19.00	.7480"	SM855190	SM860190	SM865190		
	19.05	.7500"	SM805048	SM810048	SM815048		
49/64"	19.45	.7656"	SM805049	SM810049	SM815049		
	19.50	.7677"	SM855195	SM860195	SM865195		
1 17.53 (.690") to 24.38 (.960")	25/32"	19.84	.7812"	4.0 (5/32")	SM805050	SM810050	SM815050
		20.00	.7874"		SM855200	SM860200	SM865200
	51/64"	20.24	.7969"		SM805051	SM810051	SM815051
		20.50	.8071"		SM855205	SM860205	SM865205
	13/16"	20.64	.8125"		SM805052	SM810052	SM815052
		21.00	.8268"		SM855210	SM860210	SM865210
	27/32"	21.43	.8438"		SM805054	SM810054	SM815054
		21.83	.8594"		SM805055	SM810055	SM815055
	55/64"	22.00	.8661"		SM855220	SM860220	SM865220
		22.23	.8750"		SM805056	SM810056	SM815056
	7/8"	22.62	.8906"		SM805057	SM810057	SM815057
		23.00	.9055"		SM855230	SM860230	SM865230
	29/32"	23.02	.9062"		SM805058	SM810058	SM815058
		23.42	.9219"		SM805059	SM810059	SM815059
	59/64"	23.81	.9375"		SM805060	SM810060	SM815060
		24.00	.9449"		SM855240	SM860240	SM865240

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	-HRc24 (-HB250)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc28 (-HB275)	HRc28~ (HB275~)	-HRc37 (-HB350)	HRc37~ (HB350~)	-HRc24 (-HB250)	HRc24~ (HB250~)	-HRc13 (-HB200)	HRc13~ (HB200~)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (HB220~)	-HRc8 (-HB180)
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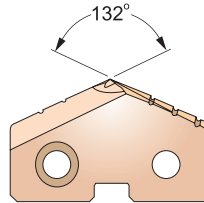
SPADE DRILLS

SERIES 2

SM-POINT SPADE DRILL INSERTS - CARBIDE(P40) SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloys steels.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Katalogs lieferbar



cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		TiN	TiCN CARBIDE (P40)	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	SM805062	SM810062	SM815062
	63/64"	25.00	.9843"		SM805063	SM810063	SM815063
	1"	25.40	1.0000"		SM805100	SM810100	SM815100
	1-1/64"	25.80	1.0156"		SM805101	SM810101	SM815101
		26.00	1.0236"		SM855260	SM860260	SM865260
	1-1/32"	26.19	1.0312"		SM805102	SM810102	SM815102
	1-3/64"	26.59	1.0469"		SM805103	SM810103	SM815103
	1-1/16"	26.99	1.0625"		SM805104	SM810104	SM815104
		27.00	1.0630"		SM855270	SM860270	SM865270
	1-3/32"	27.78	1.0938"		SM805106	SM810106	SM815106
		28.00	1.1024"		SM855280	SM860280	SM865280
	1-7/64"	28.18	1.1094"		SM805107	SM810107	SM815107
	1-1/8"	28.58	1.1250"		SM805108	SM810108	SM815108
		29.00	1.1417"		SM855290	SM860290	SM865290
	1-5/32"	29.37	1.1562"		SM805110	SM810110	SM815110
		30.00	1.1811"		SM855300	SM860300	SM865300
	1-3/16"	30.16	1.1875"		SM805112	SM810112	SM815112
	1-7/32"	30.96	1.2188"		SM805114	SM810114	SM815114
		31.00	1.2205"		SM855310	SM860310	SM865310
	1-1/4"	31.75	1.2500"		SM805116	SM810116	SM815116
	32.00	1.2598"	SM855320	SM860320	SM865320		
1-9/32"	32.54	1.2812"	SM805118	SM810118	SM815118		
	33.00	1.2992"	SM855330	SM860330	SM865330		
1-5/16"	33.34	1.3125"	SM805120	SM810120	SM815120		
	34.00	1.3386"	SM855340	SM860340	SM865340		
1-11/32"	34.13	1.3438"	SM805122	SM810122	SM815122		
1-3/8"	34.93	1.3750"	SM805124	SM810124	SM815124		
	35.00	1.3780"	SM855350	SM860350	SM865350		

◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys	
	-HRc24 (-HB250)	+HRc28 (-HB275)	HRc28~ (-HB275)	+HRc28 (-HB275)	HRc28~ (-HB275)	+HRc37 (-HB350)	HRc37~ (-HB350)	-HRc24 (-HB250)	HRc24~ (-HB250)	-HRc13 (-HB200)	HRc13~ (-HB200)	-HRc28 (-HB275)	-HRc19 (-HB220)	HRc19~ (-HB220)	-HRc8 (-HB180)	-HB110
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

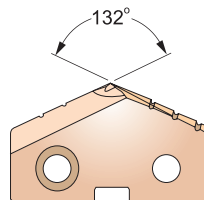
SPADE DRILLS

TECHNICAL DATA

SM-POINT SPADE DRILL INSERTS - CARBIDE(P40)
SM-POINT EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloys steels.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



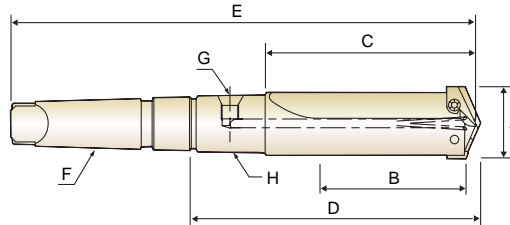
cutting conditions : p.284

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (P40)		
3 34.37 (1.353") to 47.80 (1.882")				6.4 (1/4")	TiN	TiCN	TiAlN
	1-13/32"	35.72	1.4062"		SM805126	SM810126	SM815126
		36.00	1.4173"		SM855360	SM860360	SM865360
	1-7/16"	36.51	1.4375"		SM805128	SM810128	SM815128
		37.00	1.4567"		SM855370	SM860370	SM865370
	1-15/32"	37.31	1.4688"		SM805130	SM810130	SM815130
		38.00	1.4961"		SM855380	SM860380	SM865380
	1-1/2"	38.10	1.5000"		SM805132	SM810132	SM815132
	1-17/32"	38.89	1.5312"		SM805134	SM810134	SM815134
		39.00	1.5354"		SM855390	SM860390	SM865390
	1-9/16"	39.69	1.5625"		SM805136	SM810136	SM815136
		40.00	1.5748"		SM855400	SM860400	SM865400
	1-19/32"	40.48	1.5938"		SM805138	SM810138	SM815138
		41.00	1.6142"		SM855410	SM860410	SM865410
	1-5/8"	41.28	1.6250"		SM805140	SM810140	SM815140
		42.00	1.6535"		SM855420	SM860420	SM865420
	1-21/32"	42.07	1.6562"		SM805142	SM810142	SM815142
	1-11/16"	42.86	1.6875"		SM805144	SM810144	SM815144
		43.00	1.6929"		SM855430	SM860430	SM865430
	1-23/32"	43.66	1.7188"		SM805146	SM810146	SM815146
	44.00	1.7323"	SM855440	SM860440	SM865440		
1-3/4"	44.45	1.7500"	SM805148	SM810148	SM815148		
	45.00	1.7717"	SM855450	SM860450	SM865450		
1-25/32"	45.24	1.7812"	SM805150	SM810150	SM815150		
	46.00	1.8110"	SM855460	SM860460	SM865460		
1-13/16"	46.04	1.8125"	SM805152	SM810152	SM815152		
1-27/32"	46.83	1.8438"	SM805154	SM810154	SM815154		
	47.00	1.8504"	SM855470	SM860470	SM865470		
1-7/8"	47.63	1.8750"	SM805156	SM810156	SM815156		

◎ : Excellent ○ : Good

Non-alloyed Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○

TAPER SHANK HOLDERS HALTER MIT MORSEKEGEL

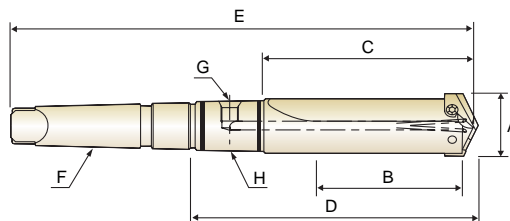
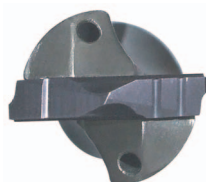


SHORT LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTBO24027620	3/8" ~ 27/64"	1-1/4"	2-1/32"	3-15/32"	6-5/16"	#2	1/16"	PR110048
Z	KTBO28032620	7/16" ~ 1/2"	1-1/4"	2-1/32"	3-15/32"	6-5/16"	#2	1/16"	PR110048
0	KTBO33044630	33/64" ~ 11/16"	1-3/8"	2-3/16"	3-41/64"	6-15/32"	#2	1/16"	PR110048
0.5	KTBO39044630	39/64" ~ 11/16"	1-3/8"	2-3/16"	3-41/64"	6-15/32"	#2	1/16"	PR110048
1	KTBO45060910	45/64" ~ 15/16"	2-3/4"	3-7/8"	5-39/64"	9-5/32"	#3	1/8"	PR110100
	KTBO45060A10	45/64" ~ 15/16"	2-3/4"	3-7/8"	5-43/64"	10-5/32"	#4	1/8"	PR110100
1.5	KTBO55060910	55/64" ~ 15/16"	2-3/4"	3-7/8"	5-39/64"	9-5/32"	#3	1/8"	PR110100
	KTBO55060A10	55/64" ~ 15/16"	2-3/4"	3-7/8"	5-43/64"	10-5/32"	#4	1/8"	PR110100
2	KTBO62124950	31/32" ~ 1-3/8"	3-3/8"	4-1/2"	6-15/64"	9-25/32"	#3	1/8"	PR110100
	KTBO62124A50	31/32" ~ 1-3/8"	3-3/8"	4-1/2"	6-19/64"	10-25/32"	#4	1/8"	PR110100
2.5	KTBO112124950	1-3/16" ~ 1-3/8"	3-3/8"	4-1/2"	6-15/64"	9-25/32"	#3	1/8"	PR110100
	KTBO112124B04	1-3/16" ~ 1-3/8"	3-3/8"	4-1/2"	6-37/64"	11-1/16"	#4	1/4"	PR110116
3	KTBO126156C36	1-13/32" ~ 1-7/8"	4-3/4"	6"	8-1/8"	12-9/16"	#4	1/4"	PR110116
	KTBO126156D52	1-13/32" ~ 1-7/8"	4-3/4"	6"	8-1/8"	13-13/16"	#5	1/4"	PR110148
4	KTBO158236D04	1-29/32" ~ 2-9/16"	5-1/8"	6-1/2"	8-5/8"	13-1/16"	#4	1/4"	PR110116
	KTBO158236E20	1-29/32" ~ 2-9/16"	5-1/8"	6-1/2"	8-5/8"	14-5/16"	#5	1/4"	PR110148
5	KTBO232332G60	2-1/2" ~ 3-1/2"	6-3/4"	8-1/2"	11-5/16"	16-15/16"	#5	1/2"	PR110216
7	KTBO334432H20	3-17/32" ~ 4-1/2"	6-3/4"	8-7/8"	11-11/16"	17-5/16"	#5	1/2"	PR110216

► You can also apply **RCA**(Rotary Coolant Adapter) for internal cooling. (See page 282)

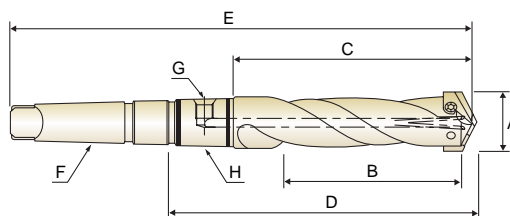
**TAPER SHANK HOLDERS
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INTERMEDIATE LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
1	KTG045060B10	45/64" ~ 15/16"	4-3/4"	5-7/8"	7-39/64"	11-5/32"	#3	1/8"	PR110100
1.5	KTG055060B10	55/64" ~ 15/16"	4-3/4"	5-7/8"	7-39/64"	11-5/32"	#3	1/8"	PR110100
2	KTG062124C50	31/32" ~ 1-3/8"	5-3/8"	6-1/2"	8-19/64"	12-25/32"	#4	1/8"	PR110100
2.5	KTG112124D04	1-3/16" ~ 1-3/8"	5-3/8"	6-1/2"	8-37/64"	13-1/16"	#4	1/4"	PR110116
3	KTG126156E20	1-13/32" ~ 1-7/8"	6-1/2"	7-3/4"	9-7/8"	14-5/16"	#4	1/4"	PR110116

► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)

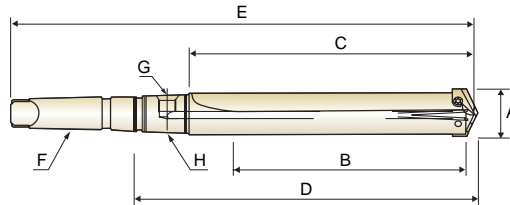
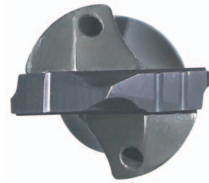


INTERMEDIATE LENGTH - Spiral Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
1	KTC045060B10	45/64" ~ 15/16"	4-3/4"	5-7/8"	7-39/64"	11-5/32"	#3	1/8"	PR110100
1.5	KTC055060B10	55/64" ~ 15/16"	4-3/4"	5-7/8"	7-39/64"	11-5/32"	#3	1/8"	PR110100
2	KTC062124C50	31/32" ~ 1-3/8"	5-3/8"	6-1/2"	8-19/64"	12-25/32"	#4	1/8"	PR110100
2.5	KTC112124D04	1-3/16" ~ 1-3/8"	5-3/8"	6-1/2"	8-37/64"	13-1/16"	#4	1/4"	PR110116

► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)

TAPER SHANK HOLDERS HALTER MIT MORSEKEGEL

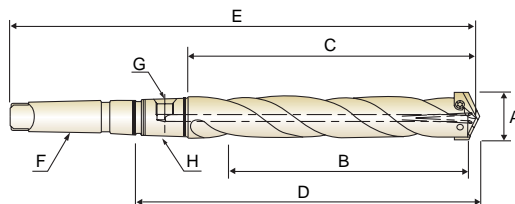


STANDARD LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTH024027728	3/8" ~ 27/64"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	PR110048
Z	KTH028032728	7/16" ~ 1/2"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	PR110048
0	KTH033044738	33/64" ~ 11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	#2	1/16"	PR110048
0.5	KTH039044738	39/64" ~ 11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	#2	1/16"	PR110048
1	KTH045060D10	45/64" ~ 15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	#3	1/8"	PR110100
	KTH045060E10	45/64" ~ 15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	#4	1/8"	PR110100
1.5	KTH055060D10	55/64" ~ 15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	#3	1/8"	PR110100
	KTH055060E10	55/64" ~ 15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	#4	1/8"	PR110100
2	KTH062124D50	31/32" ~ 1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	#3	1/8"	PR110100
	KTH062124E50	31/32" ~ 1-3/8"	7-3/8"	8-1/2"	10-19/64"	14-25/32"	#4	1/8"	PR110100
2.5	KTH112124D50	1-3/16" ~ 1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	#3	1/8"	PR110100
	KTH112124F04	1-3/16" ~ 1-3/8"	7-3/8"	8-1/2"	10-37/64"	15-1/16"	#4	1/4"	PR110116
3	KTH126156G04	1-13/32" ~ 1-7/8"	8-1/4"	9-1/2"	11-5/8"	16-1/16"	#4	1/4"	PR110116
	KTH126156H20	1-13/32" ~ 1-7/8"	8-1/4"	9-1/2"	11-5/8"	17-5/16"	#5	1/4"	PR110148
4	KTH158236H04	1-29/32" ~ 2-9/16"	9-1/8"	10-1/2"	12-5/8"	17-1/16"	#4	1/4"	PR110116
	KTH158236I20	1-29/32" ~ 2-9/16"	9-1/8"	10-1/2"	12-5/8"	18-5/16"	#5	1/4"	PR110148
5	KTH232332K60	2-1/2" ~ 3-1/2"	10-3/4"	12-1/2"	15-5/16"	20-15/16"	#5	1/2"	PR110216
7	KTH334432L20	3-17/32" ~ 4-1/2"	10-3/4"	12-7/8"	15-11/16"	21-5/16"	#5	1/2"	PR110216

► You can also apply RCA (Rotary Coolant Adapter) for internal cooling. (See page 282)

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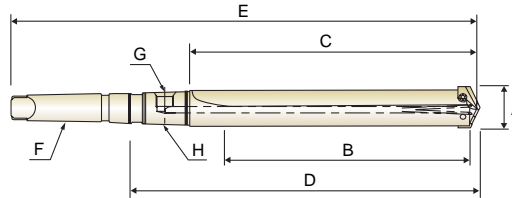
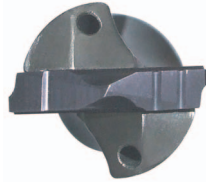
STANDARD LENGTH - Spiral Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTD024027728	3/8" ~27/64"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	PR110048
Z	KTD028032728	7/16" ~1/2"	2-3/8"	3-5/32"	4-19/32"	7-7/16"	#2	1/16"	PR110048
0	KTD033044738	33/64" ~11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	#2	1/16"	PR110048
0.5	KTD039044738	39/64" ~11/16"	2-1/2"	3-5/16"	4-49/64"	7-19/32"	#2	1/16"	PR110048
1	KTD045060D10	45/64" ~15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	#3	1/8"	PR110100
	KTD045060E10	45/64" ~15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	#4	1/8"	PR110100
1.5	KTD055060D10	55/64" ~15/16"	6-3/4"	7-7/8"	9-39/64"	13-5/32"	#3	1/8"	PR110100
	KTD055060E10	55/64" ~15/16"	6-3/4"	7-7/8"	9-43/64"	14-5/32"	#4	1/8"	PR110100
2	KTD062124D50	31/32" ~1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	#3	1/8"	PR110100
	KTD062124E50	31/32" ~1-3/8"	7-3/8"	8-1/2"	10-19/64"	14-25/32"	#4	1/8"	PR110100
2.5	KTD112124D50	1-3/16" ~1-3/8"	7-3/8"	8-1/2"	10-15/64"	13-25/32"	#3	1/8"	PR110100
	KTD112124F04	1-3/16" ~1-3/8"	7-3/8"	8-1/2"	10-37/64"	15-1/16"	#4	1/4"	PR110116

► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)

TAPER SHANK HOLDERS

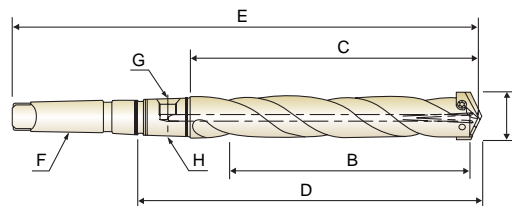
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EXTENDED LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTF024027928	3/8" ~ 27/64"	4-3/8"	5-5/32"	6-19/32"	9-7/16"	#2	1/16"	PR110048
Z	KTF028032928	7/16" ~ 1/2"	4-3/8"	5-5/32"	6-19/32"	9-7/16"	#2	1/16"	PR110048
0	KTF033044938	33/64" ~ 11/16"	4-1/2"	5-5/16"	6-49/64"	9-19/32"	#2	1/16"	PR110048
0.5	KTF039044938	39/64" ~ 11/16"	4-1/2"	5-5/16"	6-49/64"	9-19/32"	#2	1/16"	PR110048
1	KTF045060H10	45/64" ~ 15/16"	10-3/4"	11-7/8"	13-39/64"	17-5/32"	#3	1/8"	PR110100
1.5	KTF055060H10	55/64" ~ 15/16"	10-3/4"	11-7/8"	13-39/64"	17-5/32"	#3	1/8"	PR110100
2	KTF062124I50	31/32" ~ 1-3/8"	11-3/8"	12-1/2"	14-15/64"	18-25/32"	#4	1/8"	PR110100
2.5	KTF112124J04	1-3/16" ~ 1-3/8"	11-3/8"	12-1/2"	14-37/64"	19-1/16"	#4	1/4"	PR110116
3	KTF126156L36	1-13/32" ~ 1-7/8"	13-3/4"	15"	17-1/8"	21-9/16"	#4	1/4"	PR110116
4	KTF158236P52	1-29/32" ~ 2-9/16"	16-5/8"	18"	20-1/8"	25-13/16"	#5	1/4"	PR110148
5	KTF232332S28	2-1/2" ~ 3-1/2"	18-1/4"	20"	22-13/16"	28-7/16"	#5	1/2"	PR110216
7	KTF334432W28	3-17/32" ~ 4-1/2"	21-7/8"	24"	26-13/16"	32-7/16"	#5	1/2"	PR110216

► You can also apply RCA (Rotary Coolant Adapter) for internal cooling. (See page 282)

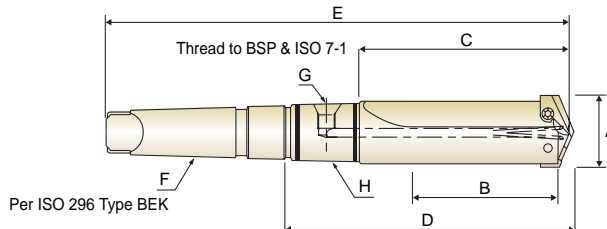


EXTENDED LENGTH - Spiral Flute (Inch)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTE024027928	3/8" ~ 27/64"	4-3/8"	5-5/32"	6-19/32"	9-7/16"	#2	1/16"	PR110048
Z	KTE028032928	7/16" ~ 1/2"	4-3/8"	5-5/32"	6-19/32"	9-7/16"	#2	1/16"	PR110048
0	KTE033044938	33/64" ~ 11/16"	4-1/2"	5-5/16"	6-49/64"	9-19/32"	#2	1/16"	PR110048
0.5	KTE039044938	39/64" ~ 11/16"	4-1/2"	5-5/16"	6-49/64"	9-19/32"	#2	1/16"	PR110048
1	KTE045060H10	45/64" ~ 15/16"	10-3/4"	11-7/8"	13-39/64"	17-5/32"	#3	1/8"	PR110100
1.5	KTE055060H10	55/64" ~ 15/16"	10-3/4"	11-7/8"	13-39/64"	17-5/32"	#3	1/8"	PR110100
2	KTE062124I50	31/32" ~ 1-3/8"	11-3/8"	12-1/2"	14-15/64"	18-25/32"	#4	1/8"	PR110100
2.5	KTE112124J04	1-3/16" ~ 1-3/8"	11-3/8"	12-1/2"	14-37/64"	19-1/16"	#4	1/4"	PR110116

► You can also apply RCA (Rotary Coolant Adapter) for internal cooling. (See page 282)

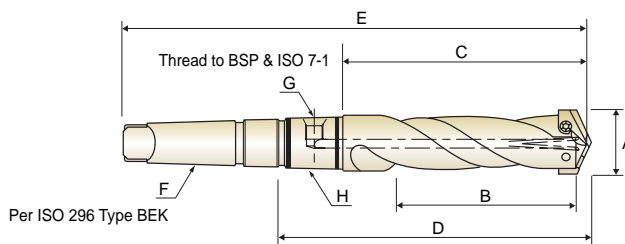
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SHORT LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTA095110160	9.5 ~ 11.0	31.7	51.5	88.0	160.3	#2	1/16"	PR120190
Z	KTA115125160	11.5 ~ 12.5	31.7	51.5	88.0	160.3	#2	1/16"	PR120190
O	KTA130175164	13.0 ~ 17.5	34.9	55.5	92.4	164.3	#2	1/16"	PR120190
0.5	KTA155175164	15.5 ~ 17.5	34.9	55.5	92.4	164.3	#2	1/16"	PR120190
1	KTA180240232	18.0 ~ 24.0	69.8	98.4	142.5	232.5	#3	1/8"	PR120254
1.5	KTA220240232	22.0 ~ 24.0	69.8	98.4	142.5	232.5	#3	1/8"	PR120254
2	KTA250350273	25.0 ~ 35.0	85.7	114.3	160.4	273.8	#4	1/8"	PR120254
2.5	KTA300350281	30.0 ~ 35.0	85.7	114.3	167.6	281.0	#4	1/4"	PR120317
3	KTA360470319	36.0 ~ 47.0	120.6	152.4	206.4	319.1	#4	1/4"	PR120317
4	KTA480650363	48.0 ~ 65.0	130.1	165.1	219.1	363.5	#5	1/4"	PR120444
5	KTA640880430	64.0 ~ 88.0	171.1	215.9	287.3	430.2	#5	1/2"	PR120571
7	KTA900MAX439	90.0 ~ 114.0	171.1	225.4	296.8	439.7	#5	1/2"	PR120571

► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)



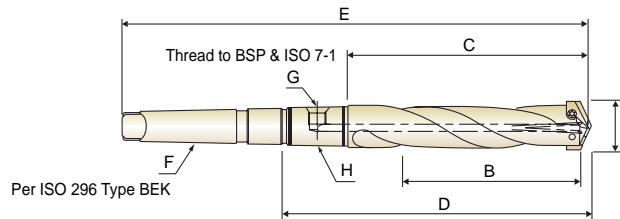
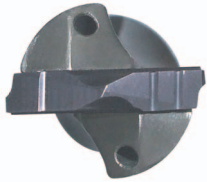
INTERMEDIATE LENGTH - Spiral Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
1	KTB180240283	18.0 ~ 24.0	120.7	149.2	193.3	283.3	#3	1/8"	PR120254
1.5	KTB220240283	22.0 ~ 24.0	120.7	149.2	193.3	283.3	#3	1/8"	PR120254
2	KTB250350324	25.0 ~ 35.0	136.5	165.1	211.2	324.6	#4	1/8"	PR120254
2.5	KTB300350331	30.0 ~ 35.0	136.5	165.1	218.4	331.8	#4	1/4"	PR120317
3	KTB360470363	36.0 ~ 47.0	165.1	196.9	250.9	363.6	#4	1/4"	PR120317

► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)



TAPER SHANK HOLDERS HALTER MIT MORSEKEGEL

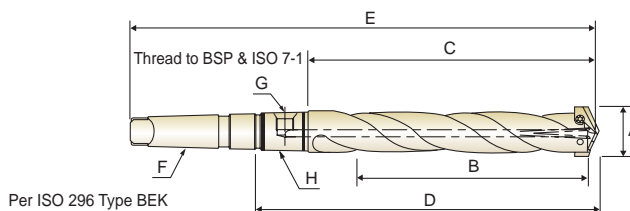


STANDARD LENGTH - Spiral Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTC095110188	9.5 ~ 11.0	60.3	80.2	116.7	188.9	#2	1/16"	PR120190
Z	KTC115125188	11.5 ~ 12.5	60.3	80.2	116.7	188.9	#2	1/16"	PR120190
0	KTC130175192	13.0 ~ 17.5	63.5	84.1	121.0	192.9	#2	1/16"	PR120190
0.5	KTC155175192	15.5 ~ 17.5	63.5	84.1	121.0	192.9	#2	1/16"	PR120190
1	KTC180240334	18.0 ~ 24.0	171.5	200.0	244.1	334.2	#3	1/8"	PR120254
1.5	KTC220240334	22.0 ~ 24.0	171.5	200.0	244.1	334.2	#3	1/8"	PR120254
2	KTC250350375	25.0 ~ 35.0	187.3	215.9	262.0	375.4	#4	1/8"	PR120254
2.5	KTC300350382	30.0 ~ 35.0	187.3	215.9	269.2	382.6	#4	1/4"	PR120317
3	KTC360470408	36.0 ~ 47.0	209.5	241.3	295.3	408.0	#4	1/4"	PR120317
4	KTC480650465	48.0 ~ 65.0	231.8	266.7	320.7	465.1	#5	1/4"	PR120444
5	KTC640880531	64.0 ~ 88.0	273.1	317.5	388.9	531.8	#5	1/2"	PR120571
7	KTC900MAX541	90.0 ~ 114.0	273.1	327.0	398.5	541.3	#5	1/2"	PR120571

► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)

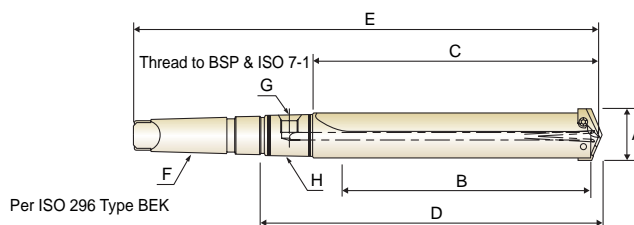
**TAPER SHANK HOLDERS
HALTER MIT MORSEKEGEL**



EXTENDED LENGTH - Spiral Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
Y	KTD095110239	9.5 ~ 11.0	111.1	130.9	167.4	239.7	#2	1/16"	PR120190
Z	KTD115125239	11.5 ~ 12.5	111.1	130.9	167.4	239.7	#2	1/16"	PR120190
O	KTD130175243	13.0 ~ 17.5	114.3	135.0	171.8	243.7	#2	1/16"	PR120190
0.5	KTD155175243	15.5 ~ 17.5	114.3	135.0	171.8	243.7	#2	1/16"	PR120190
1	KTD180240435	18.0 ~ 24.0	273.1	301.6	345.7	435.8	#3	1/8"	PR120254
1.5	KTD220240435	22.0 ~ 24.0	273.1	301.6	345.7	435.8	#3	1/8"	PR120254
2	KTD250350477	25.0 ~ 35.0	289.0	317.5	363.6	477.0	#4	1/8"	PR120254
2.5	KTD300350484	30.0 ~ 35.0	289.0	317.5	370.8	484.2	#4	1/4"	PR120317

► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)

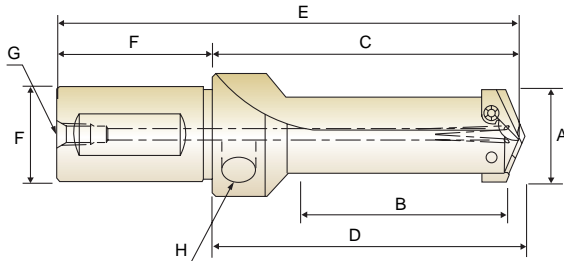


EXTENDED LENGTH - Straight Flute (Metric)

Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	MT	Pipe Tap	RCA
		A	B	C	D	E	F	G	H
3	KTE360470547	36.0 ~ 47.0	349.3	381.0	435.0	547.7	#4	1/4"	PR120317
4	KTE480650655	48.0 ~ 65.0	422.3	457.2	511.2	655.6	#5	1/4"	PR120444
5	KTE640880722	64.0 ~ 88.0	463.6	508.0	579.4	722.3	#5	1/2"	PR120571
7	KTE900MAX823	90.0 ~ 114.0	555.6	609.6	681.1	823.9	#5	1/2"	PR120571

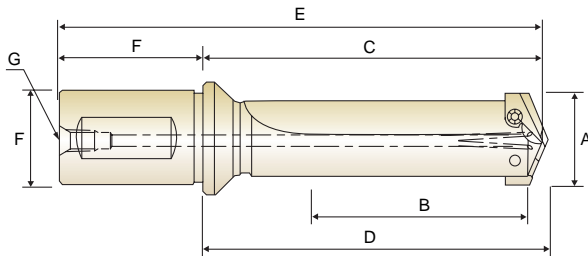
► You can also apply RCA(Rotary Coolant Adapter) for internal cooling. (See page 282)

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE



STUB LENGTH - Straight Flute (Inch)

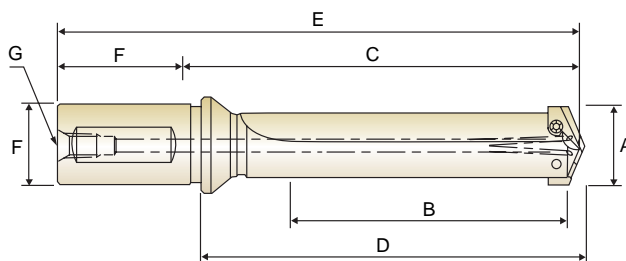
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap	
							Dia. F	Length F	Rear G	Side H
Y	KSA024027348	3/8" ~ 27/64"	3/4"	1-7/8"	1-31/32"	3-3/4"	5/8"	1-7/8"	1/16"	1/8"
Z	KSA028032343	7/16" ~ 1/2"	3/4"	1-51/64"	1-57/64"	3-43/64"	5/8"	1-7/8"	1/16"	1/8"
0	KSA033044358	33/64" ~ 11/16"	7/8"	1-7/8"	1-63/64"	3-29/32"	3/4"	2-1/32"	1/8"	1/8"
0.5	KSA039044358	39/64" ~ 11/16"	7/8"	1-7/8"	1-63/64"	3-29/32"	3/4"	2-1/32"	1/8"	1/8"
1	KSA045060517	45/64" ~ 15/16"	1-7/8"	2-63/64"	3-1/8"	5-17/64"	1"	2-9/32"	1/8"	1/8"
1.5	KSA055060549	55/64" ~ 15/16"	2-1/4"	3-31/64"	3-5/8"	5-49/64"	1"	2-9/32"	1/8"	1/8"
2	KSA062124549	31/32" ~ 1-3/8"	2-1/4"	3-31/64"	3-5/8"	5-49/64"	1-1/4"	2-9/32"	1/4"	1/8"
2.5	KSA112124709	1-3/16" ~ 1-3/8"	3-5/8"	4-55/64"	5"	7-9/64"	1-1/4"	2-9/32"	1/4"	1/8"
3	KSA126156739	1-13/32" ~ 1-7/8"	3"	4-59/64"	5-7/64"	7-39/64"	1-1/2"	2-11/16"	1/4"	1/4"



SHORT LENGTH - Straight Flute (Inch)

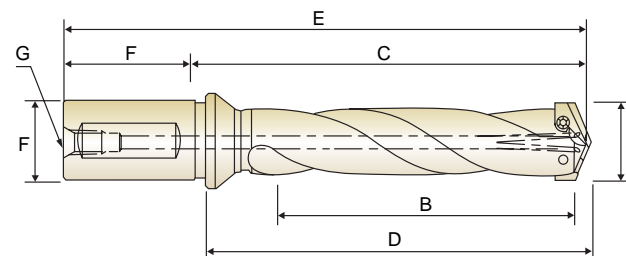
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap
							Dia. F	Length F	G
Y	KSB024027428	3/8" ~ 27/64"	1-1/4"	2-13/32"	2-1/2"	4-7/16"	3/4"	2-1/32"	1/8"
Z	KSB028032428	7/16" ~ 1/2"	1-1/4"	2-13/32"	2-1/2"	4-7/16"	3/4"	2-1/32"	1/8"
0	KSB033044434	33/64" ~ 11/16"	1-3/8"	2-1/2"	2-39/64"	4-17/32"	3/4"	2-1/32"	1/8"
0.5	KSB039044434	39/64" ~ 11/16"	1-3/8"	2-1/2"	2-39/64"	4-17/32"	3/4"	2-1/32"	1/8"
1	KSB045060632	45/64" ~ 15/16"	2-5/8"	4-7/32"	4-23/64"	6-1/2"	1"	2-9/32"	1/8"
1.5	KSB055060632	55/64" ~ 15/16"	2-5/8"	4-7/32"	4-23/64"	6-1/2"	1"	2-9/32"	1/8"
2	KSB062124722	31/32" ~ 1-3/8"	3-3/8"	5-1/16"	5-13/64"	7-11/32"	1-1/4"	2-9/32"	1/4"
2.5	KSB112124722	1-3/16" ~ 1-3/8"	3-3/8"	5-1/16"	5-13/64"	7-11/32"	1-1/4"	2-9/32"	1/4"
3	KSB126156932	1-13/32" ~ 1-7/8"	4-3/4"	6-13/16"	7"	9-1/2"	1-1/2"	2-11/16"	1/4"
4	KSB158236948	1-29/32" ~ 2-9/16"	5-1/8"	7-1/16"	7-1/4"	9-3/4"	1-1/2"	2-11/16"	1/4"

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE



INTERMEDIATE LENGTH - Straight Flute (Inch)

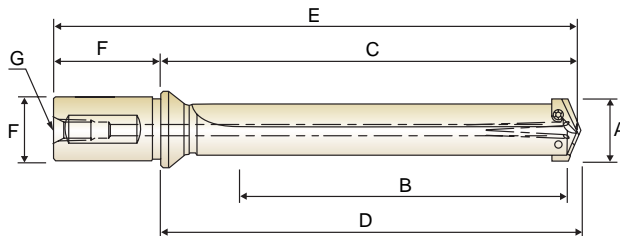
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
1	KSG045060824	45/64" ~ 15/16"	4-5/8"	6-3/32"	6-15/64"	8-3/8"	1"	2-9/32"	1/8"
1.5	KSG055060824	55/64" ~ 15/16"	4-5/8"	6-3/32"	6-15/64"	8-3/8"	1"	2-9/32"	1/8"
2	KSG062124922	31/32" ~ 1-3/8"	5-3/8"	7-1/16"	7-13/64"	9-11/32"	1-1/4"	2-9/32"	1/4"
2.5	KSG112124922	1-3/16" ~ 1-3/8"	5-3/8"	7-1/16"	7-13/64"	9-11/32"	1-1/4"	2-9/32"	1/4"
3	KSG126156B16	1-13/32" ~ 1-7/8"	6-1/2"	8-9/16"	8-3/4"	11-1/4"	1-1/2"	2-11/32"	1/4"



INTERMEDIATE LENGTH - Spiral Flute (Inch)

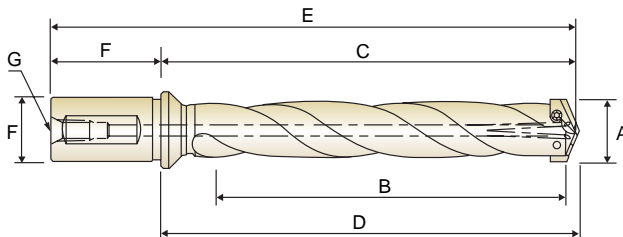
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
1	KSC045060824	45/64" ~ 15/16"	4-5/8"	6-3/32"	6-15/64"	8-3/8"	1"	2-9/32"	1/8"
1.5	KSC055060824	55/64" ~ 15/16"	4-5/8"	6-3/32"	6-15/64"	8-3/8"	1"	2-9/32"	1/8"
2	KSC062124922	31/32" ~ 1-3/8"	5-3/8"	7-1/16"	7-13/64"	9-11/32"	1-1/4"	2-9/32"	1/4"
2.5	KSC112124922	1-3/16" ~ 1-3/8"	5-3/8"	7-1/16"	7-13/64"	9-11/32"	1-1/4"	2-9/32"	1/4"
3	KSC126156B16	1-13/32" ~ 1-7/8"	6-1/2"	8-9/16"	8-3/4"	11-1/4"	1-1/2"	2-11/32"	1/4"

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE



STANDARD LENGTH - Straight Flute (Inch)

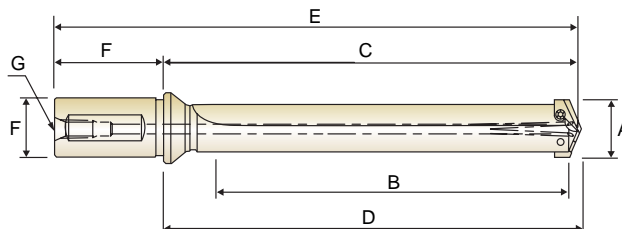
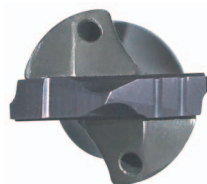
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	KSH024027536	3/8" ~ 27/64"	2-3/8"	3-17/32"	3-5/8"	5-9/16"	3/4"	2-1/32"	1/8"
Z	KSH028032536	7/16" ~ 1/2"	2-3/8"	3-17/32"	3-5/8"	5-9/16"	3/4"	2-1/32"	1/8"
O	KSH033044542	33/64" ~ 11/16"	2-1/2"	3-5/8"	3-47/64"	5-21/32"	3/4"	2-1/32"	1/8"
0.5	KSH039044542	39/64" ~ 11/16"	2-1/2"	3-5/8"	3-47/64"	5-21/32"	3/4"	2-1/32"	1/8"
1	KSH045060A24	45/64" ~ 15/16"	6-5/8"	8-3/32"	8-15/64"	10-3/8"	1"	2-9/32"	1/8"
1.5	KSH055060A24	55/64" ~ 15/16"	6-5/8"	8-3/32"	8-15/64"	10-3/8"	1"	2-9/32"	1/8"
2	KSH062124B22	31/32" ~ 1-3/8"	7-3/8"	9-1/16"	9-13/64"	11-11/32"	1-1/4"	2-9/32"	1/4"
2.5	KSH112124B22	1-3/16" ~ 1-3/8"	7-3/8"	9-1/16"	9-13/64"	11-11/32"	1-1/4"	2-9/32"	1/4"
3	KSH126156D00	1-13/32" ~ 1-7/8"	8-1/4"	10-5/16"	10-1/2"	13"	1-1/2"	2-11/16"	1/4"
4	KSH158236D48	1-29/32" ~ 2-9/16"	9-1/8"	11-1/16"	11-1/4"	13-3/4"	1-1/2"	2-11/16"	1/4"



STANDARD LENGTH - Spiral Flute (Inch)

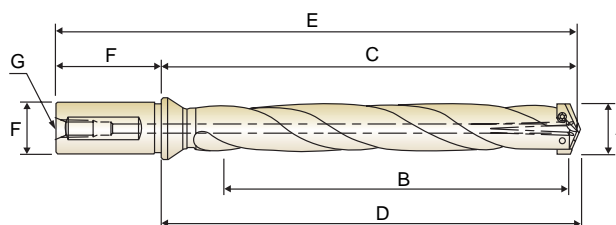
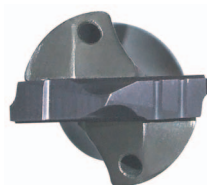
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F		G
Y	KSD024027536	3/8" ~ 27/64"	2-3/8"	3-17/32"	3-5/8"	5-9/16"	3/4"	2-1/32"	1/8"
Z	KSD028032536	7/16" ~ 1/2"	2-3/8"	3-17/32"	3-5/8"	5-9/16"	3/4"	2-1/32"	1/8"
O	KSD033044542	33/64" ~ 11/16"	2-1/2"	3-5/8"	3-47/64"	5-21/32"	3/4"	2-1/32"	1/8"
0.5	KSD039044542	39/64" ~ 11/16"	2-1/2"	3-5/8"	3-47/64"	5-21/32"	3/4"	2-1/32"	1/8"
1	KSD045060A24	45/64" ~ 15/16"	6-5/8"	8-3/32"	8-15/64"	10-3/8"	1"	2-9/32"	1/8"
1.5	KSD055060A24	55/64" ~ 15/16"	6-5/8"	8-3/32"	8-15/64"	10-3/8"	1"	2-9/32"	1/8"
2	KSD062124B22	31/32" ~ 1-3/8"	7-3/8"	9-1/16"	9-13/64"	11-11/32"	1-1/4"	2-9/32"	1/4"
2.5	KSD112124B22	1-3/16" ~ 1-3/8"	7-3/8"	9-1/16"	9-13/64"	11-11/32"	1-1/4"	2-9/32"	1/4"
3	KSD126156D00	1-13/32" ~ 1-7/8"	8-1/4"	10-5/16"	10-1/2"	13"	1-1/2"	2-11/16"	1/4"
4	KSD158236D48	1-29/32" ~ 2-9/16"	9-1/8"	11-1/16"	11-1/4"	13-3/4"	1-1/2"	2-11/16"	1/4"

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE



EXTENDED LENGTH - Straight Flute (Inch)

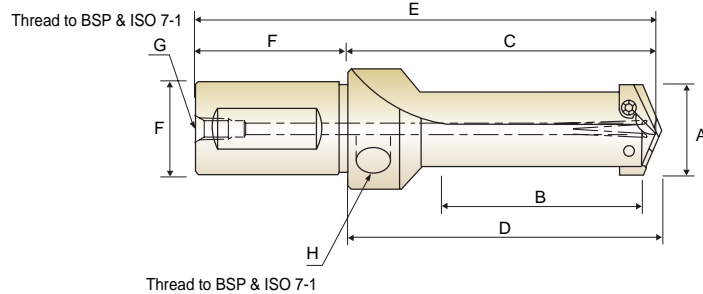
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	KSF024027736	3/8" ~ 27/64"	4-3/8"	5-17/32"	5-5/8"	7-9/16"	3/4"	2-1/32"	1/8"
Z	KSF028032736	7/16" ~ 1/2"	4-3/8"	5-17/32"	5-5/8"	7-9/16"	3/4"	2-1/32"	1/8"
O	KSF033044742	33/64" ~ 11/16"	4-1/2"	5-5/8"	5-47/64"	7-21/32"	3/4"	2-1/32"	1/8"
0.5	KSF039044742	39/64" ~ 11/16"	4-1/2"	5-5/8"	5-47/64"	7-21/32"	3/4"	2-1/32"	1/8"
1	KSF045060E24	45/64" ~ 15/16"	10-5/8"	12-3/32"	12-15/64"	14-3/8"	1"	2-9/32"	1/8"
1.5	KSF055060E24	55/64" ~ 15/16"	10-5/8"	12-3/32"	12-15/64"	14-3/8"	1"	2-9/32"	1/8"
2	KSF062124F22	31/32" ~ 1-3/8"	11-3/8"	13-1/16"	13-13/64"	15-11/32"	1-1/4"	2-9/32"	1/4"
2.5	KSF112124F22	1-3/16" ~ 1-3/8"	11-3/8"	13-1/16"	13-13/64"	15-11/32"	1-1/4"	2-9/32"	1/4"



EXTENDED LENGTH - Spiral Flute (Inch)

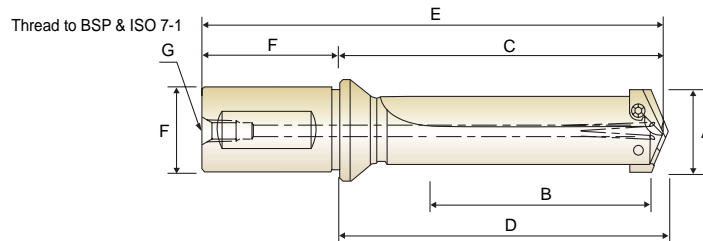
Series	EDP No.	Drill Insert Range	Max. Drill Depth	Body Length	Ref. Length	Overall Length	Shank		Pipe Tap
							Dia.	Length	
		A	B	C	D	E	F	G	
Y	KSE024027736	3/8" ~ 27/64"	4-3/8"	5-17/32"	5-5/8"	7-9/16"	3/4"	2-1/32"	1/8"
Z	KSE028032736	7/16" ~ 1/2"	4-3/8"	5-17/32"	5-5/8"	7-9/16"	3/4"	2-1/32"	1/8"
O	KSE033044742	33/64" ~ 11/16"	4-1/2"	5-5/8"	5-47/64"	7-21/32"	3/4"	2-1/32"	1/8"
0.5	KSE039044742	39/64" ~ 11/16"	4-1/2"	5-5/8"	5-47/64"	7-21/32"	3/4"	2-1/32"	1/8"
1	KSE045060E24	45/64" ~ 15/16"	10-5/8"	12-3/32"	12-15/64"	14-3/8"	1"	2-9/32"	1/8"
1.5	KSE055060E24	55/64" ~ 15/16"	10-5/8"	12-3/32"	12-15/64"	14-3/8"	1"	2-9/32"	1/8"
2	KSE062124F22	31/32" ~ 1-3/8"	11-3/8"	13-1/16"	13-13/64"	15-11/32"	1-1/4"	2-9/32"	1/4"
2.5	KSE112124F22	1-3/16" ~ 1-3/8"	11-3/8"	13-1/16"	13-13/64"	15-11/32"	1-1/4"	2-9/32"	1/4"

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE



STUB LENGTH - Straight Flute (Metric)

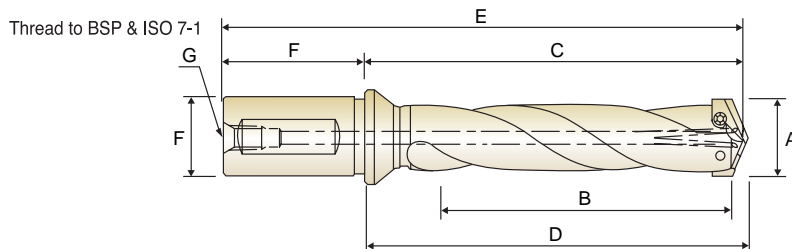
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap	
							Dia. F	Length F	Rear G	Side H
Y	KSA095110090	9.5 ~ 11.0	19.1	47.6	50.0	89.5	16.0	41.9	1/16"	1/8"
Z	KSA115125090	11.5 ~ 12.5	19.1	47.6	50.0	89.5	16.0	41.9	1/16"	1/8"
O	KSA130175090	13.0 ~ 17.5	22.2	47.6	50.4	89.5	20.0	41.9	1/8"	1/8"
0.5	KSA155175090	15.5 ~ 17.5	22.2	47.6	50.4	89.5	20.0	41.9	1/8"	1/8"
1	KSA180240129	18.0 ~ 24.0	47.6	75.8	79.4	128.9	25.0	53.1	1/8"	1/8"
1.5	KSA220240142	22.0 ~ 24.0	57.2	88.5	92.1	141.6	25.0	53.1	1/8"	1/8"
2	KSA250350146	25.0 ~ 35.0	57.2	88.5	92.1	146.4	32.0	57.9	1/4"	1/8"



SHORT LENGTH - Straight Flute (Metric)

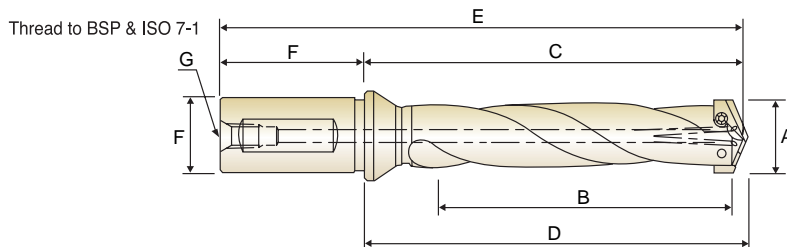
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap
							Dia. F	Length F	G
Y	KSB095110103	9.5 ~ 11.0	31.8	61.1	63.5	103.0	20.0	41.9	1/8"
Z	KSB115125103	11.5 ~ 12.5	31.8	61.1	63.5	103.0	20.0	41.9	1/8"
O	KSB130175105	13.0 ~ 17.5	34.9	63.5	66.3	105.4	20.0	41.9	1/8"
0.5	KSB155175105	15.5 ~ 17.5	34.9	63.5	66.3	105.4	20.0	41.9	1/8"
1	KSB180240160	18.0 ~ 24.0	66.7	107.2	110.7	160.2	25.0	53.1	1/8"
1.5	KSB220240160	22.0 ~ 24.0	66.7	107.2	110.7	160.2	25.0	53.1	1/8"
2	KSB250350187	25.0 ~ 35.0	85.7	128.6	132.2	186.5	32.0	57.9	1/4"
2.5	KSB300350187	30.0 ~ 35.0	85.7	128.6	132.2	186.5	32.0	57.9	1/4"
3	KSB360470243	36.0 ~ 47.0	120.7	173.0	177.8	243.1	40.0	70.1	1/4"
4	KSB480650250	48.0 ~ 65.0	130.2	179.4	184.2	249.5	40.0	70.1	1/4"

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE



INTERMEDIATE LENGTH - Spiral Flute (Metric)

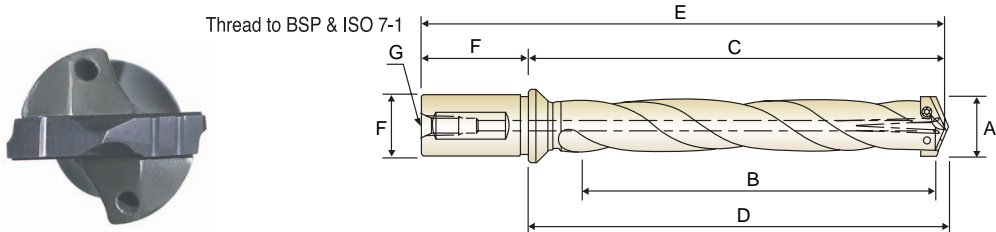
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
1	KSC180240208	18.0 ~ 24.0	117.5	154.8	158.4	207.9	25.0	53.1	1/8"
1.5	KSC220240208	22.0 ~ 24.0	117.5	154.8	158.4	207.9	25.0	53.1	1/8"
2	KSC250350237	25.0 ~ 35.0	136.5	179.4	183.0	237.3	32.0	57.9	1/4"
2.5	KSC300350237	30.0 ~ 35.0	136.5	179.4	183.0	237.3	32.0	57.9	1/4"
3	KSC360470288A	36.0 ~ 47.0	165.1	217.5	222.3	287.6	40.0	70.1	1/4"



STANDARD LENGTH - Spiral Flute (Metric)

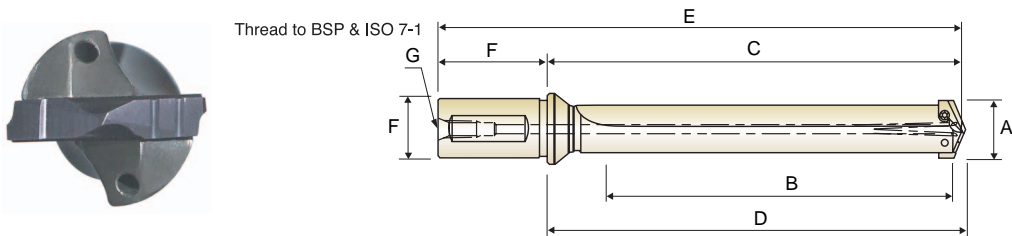
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
Y	KSD095110132	9.5 ~ 11.0	60.3	89.7	92.1	131.6	20.0	41.9	1/8"
Z	KSD115125132	11.5 ~ 12.5	60.3	89.7	92.1	131.6	20.0	41.9	1/8"
0	KSD130175134	13.0 ~ 17.5	63.5	92.1	94.9	134.0	20.0	41.9	1/8"
0.5	KSD155175134	15.5 ~ 17.5	63.5	92.1	94.9	134.0	20.0	41.9	1/8"
1	KSD180240259	18.0 ~ 24.0	168.3	205.6	209.2	258.7	25.0	53.1	1/8"
1.5	KSD220240259	22.0 ~ 24.0	168.3	205.6	209.2	258.7	25.0	53.1	1/8"
2	KSD250350288	25.0 ~ 35.0	187.3	230.2	233.8	288.1	32.0	57.9	1/4"
2.5	KSD300350288	30.0 ~ 35.0	187.3	230.2	233.8	288.1	32.0	57.9	1/4"
3	KSD360470332A	36.0 ~ 47.0	209.6	261.9	266.7	332.0	40.0	70.1	1/4"
4	KSD480650351A	48.0 ~ 65.0	231.8	281.0	285.8	351.1	40.0	70.1	1/4"

FLANGED STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT UND SPANNFLÄCHE



EXTENDED LENGTH - Spiral Flute (Metric)

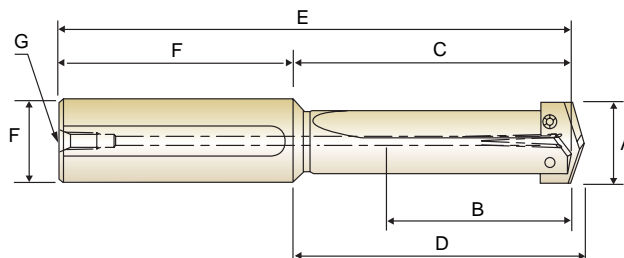
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length F	
Y	KSE095110182	9.5 ~ 11.0	111.1	140.5	142.9	182.4	20.0	41.9	1/8"
Z	KSE115125182	11.5 ~ 12.5	111.1	140.5	142.9	182.4	20.0	41.9	1/8"
O	KSE130175185	13.0 ~ 17.5	114.3	142.9	145.7	184.8	20.0	41.9	1/8"
0.5	KSE155175185	15.5 ~ 17.5	114.3	142.9	145.7	184.8	20.0	41.9	1/8"
1	KSE180240360	18.0 ~ 24.0	269.9	307.2	310.8	360.3	25.0	53.1	1/8"
1.5	KSE220240360	22.0 ~ 24.0	269.9	307.2	310.8	360.3	25.0	53.1	1/8"
2	KSE250350390	25.0 ~ 35.0	288.9	331.8	335.4	389.7	32.0	57.9	1/4"
2.5	KSE300350390	30.0 ~ 35.0	288.9	331.8	335.4	389.7	32.0	57.9	1/4"



EXTENDED LENGTH - Straight Flute (Metric)

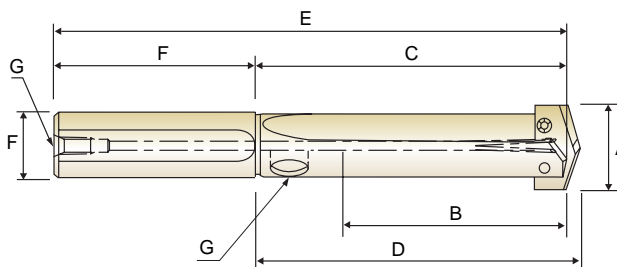
Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia. F	Length F	
3	KSF360470471A	36.0 ~ 47.0	349.3	401.6	406.4	471.7	40.0	70.1	1/4"
4	KSF480650541A	48.0 ~ 65.0	422.3	471.5	476.3	541.6	40.0	70.1	1/4"

**STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT**



SHORT LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
Y	KSB024027426	3/8" ~ 27/64"	1-1/4"	2-1/32"	2-1/8"	4-13/32"	3/4"	2-3/8"	1/8"
Z	KSB028032426	7/16" ~ 1/2"	1-1/4"	2-1/32"	2-1/8"	4-13/32"	3/4"	2-3/8"	1/8"
O	KSB033044436	33/64" ~ 11/16"	1-3/8"	2-3/16"	2-19/64"	4-9/16"	3/4"	2-3/8"	1/8"
O.5	KSB039044436	39/64" ~ 11/16"	1-3/8"	2-3/16"	2-19/64"	4-9/16"	3/4"	2-3/8"	1/8"

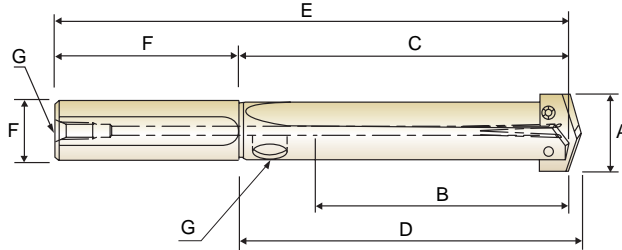
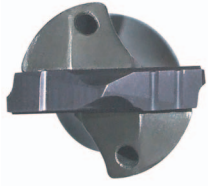


SHORT LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
1	KSB045060656	45/64" ~ 15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	3/4"	3"	1/8"
	KSB04506065A	45/64" ~ 15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	1"	3"	1/8"
1.5	KSB055060656	55/64" ~ 15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	3/4"	3"	1/8"
	KSB05506065A	55/64" ~ 15/16"	2-5/8"	3-7/8"	4-1/64"	6-7/8"	1"	3"	1/8"
2	KSB062124800	31/32" ~ 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1"	3-1/2"	1/8"
	KSB06212480A	31/32" ~ 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1-1/4"	3-1/2"	1/8"
2.5	KSB112124800	1-3/16" ~ 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1"	3-1/2"	1/8"
	KSB11212480A	1-3/16" ~ 1-3/8"	3-3/8"	4-1/2"	4-41/64"	8"	1-1/4"	3-1/2"	1/8"
3	KSB126156A00	1-13/32" ~ 1-7/8"	4-3/4"	6"	6-3/16"	10"	1-1/4"	4"	1/4"
	KSB126156A0A	1-13/32" ~ 1-7/8"	4-3/4"	6"	6-3/16"	10"	1-1/2"	4"	1/4"
4	KSB158236A32	1-29/32" ~ 2-9/16"	5-1/8"	6-1/2"	6-11/16"	10-1/2"	1-1/2"	4"	1/4"
	KSB158236A3A	1-29/32" ~ 2-9/16"	5-1/8"	6-1/2"	6-11/16"	10-1/2"	1-3/4"	4"	1/4"
5	KSB232332C32	2-1/2" ~ 3-1/2"	6-3/4"	8-1/2"	8-3/4"	12-1/2"	2"	4"	1/2"
7	KSB334432D56	3-17/32" ~ 4-1/2"	6-3/4"	8-7/8"	9-1/8"	13-7/8"	3"	5"	1/2"



STRAIGHT SHANK HOLDERS HALTER MIT ZYLINDERSCHAFT



INTERMEDIATE LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
1	KSG045060856	45/64" ~ 15/16"	4-5/8"	5-7/8"	6-1/64"	8-7/8"	1"	3"	1/8"
1.5	KSG055060856	55/64" ~ 15/16"	4-5/8"	5-7/8"	6-1/64"	8-7/8"	1"	3"	1/8"
2	KSG062124A00	31/32" ~ 1-3/8"	5-3/8"	6-1/2"	6-41/64"	10"	1-1/4"	3-1/2"	1/8"
2.5	KSG112124A00	1-3/16" ~ 1-3/8"	5-3/8"	6-1/2"	6-41/64"	10"	1-1/4"	3-1/2"	1/8"
3	KSG126156B48	1-13/32" ~ 1-7/8"	6-1/2"	7-3/4"	7-15/16"	11-3/4"	1-1/2"	4"	1/4"

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

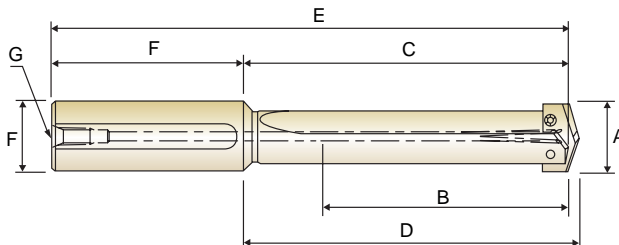
NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

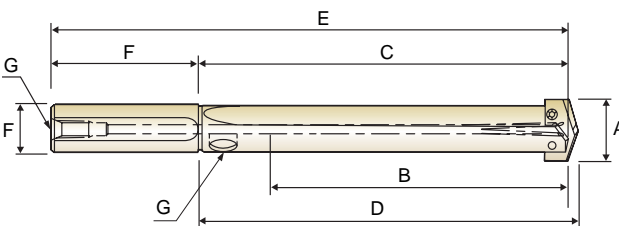
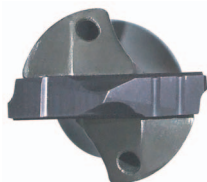
TECHNICAL DATA

**STRAIGHT SHANK HOLDERS
HALTER MIT ZYLINDERSCHAFT**



STANDARD LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
Y	KSH024027534	3/8" ~ 27/64"	2-3/8"	3-5/32"	3-1/4"	5-17/32"	3/4"	2-3/8"	1/8"
Z	KSH028032534	7/16" ~ 1/2"	2-3/8"	3-5/32"	3-1/4"	5-17/32"	3/4"	2-3/8"	1/8"
O	KSH033044544	33/64" ~ 11/16"	2-1/2"	3-5/16"	3-27/64"	5-11/16"	3/4"	2-3/8"	1/8"
O.5	KSH039044544	39/64" ~ 11/16"	2-1/2"	3-5/16"	3-27/64"	5-11/16"	3/4"	2-3/8"	1/8"

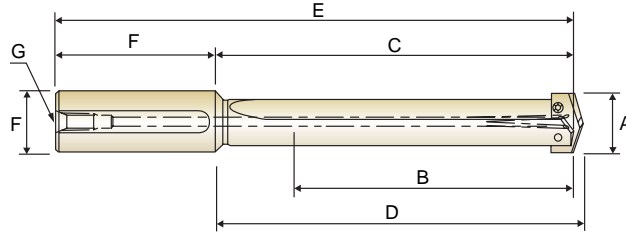


STANDARD LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
1	KSH045060A56	45/64" ~ 15/16"	6-5/8"	7-7/8"	8-1/64"	10-7/8"	3/4"	3"	1/8"
	KSH045060A5A	45/64" ~ 15/16"	6-5/8"	7-7/8"	8-1/64"	10-7/8"	1"	3"	1/8"
1.5	KSH055060A56	55/64" ~ 15/16"	6-5/8"	7-7/8"	8-1/64"	10-7/8"	3/4"	3"	1/8"
	KSH055060A5A	55/64" ~ 15/16"	6-5/8"	7-7/8"	8-1/64"	10-7/8"	1"	3"	1/8"
2	KSH062124C00	31/32" ~ 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1"	3-1/2"	1/8"
	KSH062124C0A	31/32" ~ 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1-1/4"	3-1/2"	1/8"
2.5	KSH112124C00	1-3/16" ~ 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1"	3-1/2"	1/8"
	KSH112124C0A	1-3/16" ~ 1-3/8"	7-3/8"	8-1/2"	8-41/64"	12"	1-1/4"	3-1/2"	1/8"
3	KSH126156D32	1-13/32" ~ 1-7/8"	8-1/4"	9-1/2"	9-11/16"	13-1/2"	1-1/4"	4"	1/4"
	KSH126156D3A	1-13/32" ~ 1-7/8"	8-1/4"	9-1/2"	9-11/16"	13-1/2"	1-1/2"	4"	1/4"
4	KSH158236E32	1-29/32" ~ 2-9/16"	9-1/8"	10-1/2"	10-11/16"	14-1/2"	1-1/2"	4"	1/4"
	KSH158236E3A	1-29/32" ~ 2-9/16"	9-1/8"	10-1/2"	10-11/16"	14-1/2"	1-3/4"	4"	1/4"
5	KSH232332G32	2-1/2" ~ 3-1/2"	10-3/4"	12-1/2"	12-3/4"	16-1/2"	2"	4"	1/2"
	KSH334432H56	3-17/32" ~ 4-1/2"	10-3/4"	12-7/8"	13-1/8"	17-7/8"	3"	5"	1/2"

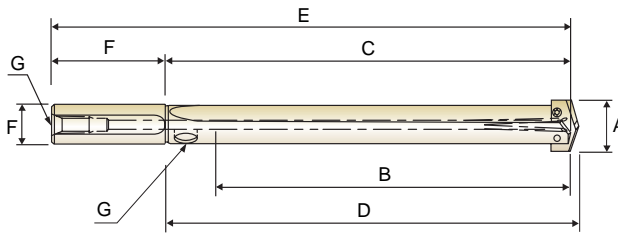


STRAIGHT SHANK HOLDERS HALTER MIT ZYLINDERSCHAFT



EXTENDED LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
Y	KSF024027734	3/8" ~ 27/64"	4-3/8"	5-5/32"	5-1/4"	7-17/32"	3/4"	2-3/8"	1/8"
Z	KSF028032734	7/16" ~ 1/2"	4-3/8"	5-5/32"	5-1/4"	7-17/32"	3/4"	2-3/8"	1/8"
O	KSF033044744	33/64" ~ 11/16"	4-1/2"	5-5/16"	5-27/64"	7-11/16"	3/4"	2-3/8"	1/8"
0.5	KSF039044744	39/64" ~ 11/16"	4-1/2"	5-5/16"	5-27/64"	7-11/16"	3/4"	2-3/8"	1/8"



EXTENDED LENGTH - Straight Flute (Inch)

Series	EDP No.	Drill Insert Range A	Max. Drill Depth B	Body Length C	Ref. Length D	Overall Length E	Shank		Pipe Tap G
							Dia.	Length F	
1	KSF045060E56	45/64" ~ 15/16"	10-5/8"	11-7/8"	12-1/64"	14-7/8"	1"	3"	1/8"
1.5	KSF055060E56	55/64" ~ 15/16"	10-5/8"	11-7/8"	12-1/64"	14-7/8"	1"	3"	1/8"
2	KSF062124G00	31/32" ~ 1-3/8"	11-3/8"	12-1/2"	12-41/64"	16"	1-1/4"	3-1/2"	1/8"
2.5	KSF112124G00	1-3/16" ~ 1-3/8"	11-3/8"	12-1/2"	12-41/64"	16"	1-1/4"	3-1/2"	1/8"
3	KSF126156J00	1-13/32" ~ 1-7/8"	13-3/4"	15"	15-3/16"	19"	1-1/4"	4"	1/4"
4	KSF158236M00	1-29/32" ~ 2-9/16"	16-5/8"	18"	18-3/16"	22"	1-1/2"	4"	1/4"
5	KSF232332O00	2-1/2" ~ 3-1/2"	18-1/4"	20"	20-1/4"	24"	2"	4"	1/2"
7	KSF334432T00	3-17/32" ~ 4-1/2"	21-7/8"	24"	24-1/4"	29"	3"	5"	1/2"

CARBIDE

HSS

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

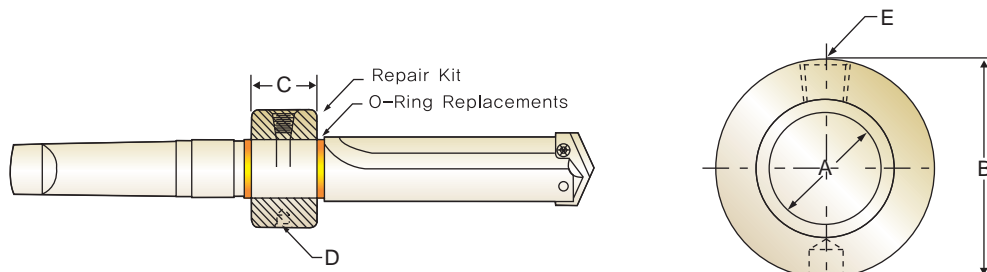
SPADE DRILLS

TECHNICAL DATA



HOLDER ACCESSORIES

ROTARY COOLANT ADAPTER (RCA) AND ACCESSORIES



Inch

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B					
PR110048	3/4"	1-3/4"	7/8"	5/16"-NC	◆1/8"	PR210048	PR310048
PR110100	1"	2-1/8"	1-1/8"	5/16"-NC	◆1/8"	PR210100	PR310100
PR110116	1-1/4"	2-1/2"	1-3/8"	3/8"-NC	◆1/4"	PR210116	PR310116
PR110148	1-3/4"	3"	1-3/8"	3/8"-NC	◆1/4"	PR210148	PR310148
PR110216	2-1/4"	3-3/4"	1-3/4"	1/2"-NC	◆1/2"	PR210216	PR310216

Metric

Item No.	I.D.	O.D.	Length	Thread for Driving Rod	Pipe Tap	RCA Repair Kit Item No.	RCA O-Ring Replacements Item No.
	A	B					
PR120190	19.05	44.45	22.23	M8 × 1.25	◆1/8"	PR220190	PR320190
PR120254	25.40	53.97	28.57	M8 × 1.25	◆1/8"	PR220254	PR320254
PR120317	31.75	63.50	34.92	M10 × 1.5	◆1/4"	PR220317	PR320317
PR120444	44.45	76.20	34.92	M10 × 1.5	◆1/4"	PR220444	PR320444
PR120571	57.15	95.27	44.45	M12 × 1.75	◆1/2"	PR220571	PR320571

◆ Thread to BSP & ISO 7-1

TORX SCREWS

Holder Series	Item No.	TORX Hand Driver	Drill Range Used With	
			Inch	Metric
Y	J07Y0010	J05Y0070	3/8" ~ 27/64"	9.5 mm ~ 11.0 mm
Z	J07Z0110		7/16" ~ 1/2"	11.5 mm ~ 12.5 mm
0	J0800210	J0500080	33/64" ~ 11/16"	13.0 mm ~ 17.5 mm
0.5	J0805310		39/64" ~ 11/16"	15.5 mm ~ 17.5 mm
1	J0910410	J0510090	45/64" ~ 15/16"	18.0 mm ~ 24.0 mm
1.5	J0915510		55/64" ~ 15/16"	22.0 mm ~ 24.0 mm
2	J1520610	J0520150	31/32" ~ 1-3/8"	25.0 mm ~ 35.0 mm
2.5	J1525710		1-3/16" ~ 1-3/8"	30.0 mm ~ 35.0 mm
3,4	J2030810		1-13/32" ~ 2-9/16"	36.0 mm ~ 65.0 mm
5 ~ 8	J2550910	J0550250	2-1/2" ~ 4-1/2"	64.0 mm ~ 114.0 mm

** Note : Replacement screws sold in packages(10 screws per package)



DRILL INSERT (METRIC) - HSS BOHREINSATZ (METRISCH) - HSS

I-DREAM
DRILLSDREAM
DRILLS
-GENERALDREAM
DRILLS
-INOXDREAM
DRILLS
-MQL TYPEDREAM
DRILLS
for HARDENED
STEELSGENERAL
CARBIDE
DRILLSNC-SPOTTING
DRILLSMULTI-1
DRILLS

HPD DRILLS

GOLD-P
DRILLSWORM
PATTERN
DRILLSSTRAIGHT
SHANK
DRILLSTAPER
SHANK
DRILLSNC-SPOTTING
DRILLSCENTER
DRILLSSPADE
DRILLSTECHNICAL
DATA

Material	Material Hardness		* HSS Grade	Speed (M/min)			Feed (mm/rev)						
	(Bhn)	(HRc)		TiN	TiCN	TiAlN	Ø9.5 ~12.5	Ø13 ~17.5	Ø18 ~24	Ø25 ~35	Ø36 ~47	Ø48 ~65	Ø66 ~114
Free machining Steels 9SMn36, 9SMnPb28 10SPb20 etc	100 - 150	0	HSS	63	79	84	0.16	0.23	0.31	0.40	0.48	0.55	0.67
	150 - 200	0 - 13	HSS	58	70	81	0.16	0.23	0.31	0.40	0.48	0.55	0.67
	200 - 250	13 - 24	HSS	51	66	72	0.14	0.23	0.31	0.38	0.48	0.57	0.69
Low Carbon Steels C10, C15, C22, C25 etc	85 - 125	0	HSS	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	125 - 175	0 - 7	HSS	51	63	72	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	175 - 225	7 - 20	HSS	49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
Medium Carbon Steels C35, C40, C45 etc	225 - 275	20 - 28	HSS	45	56	66	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	125 - 175	0 - 7	HSS	52	63	75	0.14	0.22	0.28	0.35	0.45	0.55	0.65
	175 - 225	7 - 20	HSS	48	59	69	0.13	0.19	0.23	0.34	0.43	0.50	0.58
Structural Steels St33, St37-2, St44-2 St52, St60 etc	225 - 275	20 - 28	HSS	45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	275 - 325	28 - 34	SH, PH	42	52	58	0.10	0.17	0.21	0.28	0.38	0.45	0.55
	100 - 150	0	HSS	44	56	63	0.14	0.23	0.29	0.35	0.44	0.50	0.63
Cast Iron / S,G Iron GG10, 20, 25, 35, 40 GGG50, 70 GTW35, GTS70 etc	150 - 250	0 - 24	HSS	39	47	55	0.13	0.22	0.24	0.28	0.38	0.46	0.59
	250 - 350	24 - 37	SH, PH	32	41	45	0.10	0.20	0.22	0.24	0.34	0.40	0.48
	120 - 150	0	HSS	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
Alloy Steels 45CrMo4, 42CrMo4 16MnCr5, Ck75 35CrMo4, 16MnCr5 etc	150 - 200	0 - 13	HSS	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	200 - 220	13 - 19	HSS	42	53	58	0.14	0.23	0.30	0.41	0.46	0.52	0.60
	220 - 260	19 - 26	SH, PH	35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
Tool Steels 102Cr6, 105WCr6, C75W etc	260 - 320	26 - 34	SH, PH	29	35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	125 - 175	0 - 7	HSS	48	58	63	0.15	0.20	0.24	0.36	0.43	0.47	0.53
	175 - 225	7 - 20	HSS	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
High Temp. Alloy Hastelloy B, Inconel etc	225 - 275	20 - 28	HSS	41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	275 - 325	28 - 34	SH, PH	39	47	53	0.09	0.15	0.22	0.28	0.38	0.41	0.50
	325 - 375	34 - 40	SH, PH	36	43	46	0.08	0.15	0.21	0.27	0.38	0.40	0.51
High Strength Alloy 36CrNiMo4, 34CrNiMo8 40NiCrMo73 etc	150 - 200	0 - 13	SH	25	34	36	0.09	0.15	0.19	0.25	0.28	0.36	0.41
	200 - 250	13 - 24	SH, PH	19	27	29	0.09	0.15	0.19	0.25	0.28	0.36	0.41
Aluminum AlCuSiMn, AlMgSi0.5, AlZnMgCu1.5 etc	140 - 220	0 - 19	SH, PH	9	11	12	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	220 - 310	19 - 33	PH	8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
Stainless Steels X7Cr13, X10CrA118, X5CrNi189, X5CrNiMo18 10 etc	225 - 300	0 - 32	SH, PH	25	34	35	0.13	0.18	0.23	0.24	0.36	0.43	0.50
	300 - 350	32 - 37	SH, PH	19	26	27	0.10	0.18	0.23	0.24	0.36	0.43	0.50
Aluminum AlCuSiMn, AlMgSi0.5, AlZnMgCu1.5 etc	350 - 400	37 - 43	PH	16	21	22	0.08	0.15	0.20	0.22	0.30	0.48	0.46
	30	0	HSS	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.62
Stainless Steels X7Cr13, X10CrA118, X5CrNi189, X5CrNiMo18 10 etc	180	0 - 8	HSS	92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.62
	135 - 185	0 - 9	HSS	24	29	34	0.14	0.20	0.23	0.26	0.36	0.41	0.50
	185 - 275	9 - 28	HSS	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46

RPM= revolution per minute (rev/min)

* Formulas :

M/min= surface meter per minute(M/min)

$$\text{M/min} = \frac{(\text{RPM}) \cdot (\pi) \cdot (\text{DIA.})}{1000}$$

DIA= diameter of drill (mm)

$$\text{mm/min} = (\text{RPM}) \cdot (\text{mm/rev})$$

mm/rev = feed rate(mm/rev)

$$\text{RPM} = \frac{(\text{M/min}) \cdot (1000)}{(\pi) \cdot (\text{DIA.})}$$

* HSS Grade : HSS = HSS M4, SH = Super HSS T15, PH = Premium HSS M48

The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.



DRILL INSERT (METRIC) - CARBIDE BOHREINSATZ (METRISCH) - VOLLHARTMETALL

Material	Material Hardness		CARBIDE Grade	Speed (M/min)			Feed (mm/rev)				
	(Bhn)	(HRc)		TiN	TiCN	TiAlN	Ø 9.5 ~12.5	Ø 13 ~17.5	Ø 18 ~24	Ø 25 ~35	Ø 36 ~47
Free machining Steels 9SMn36, 9SMnPb28 10SPb20 etc	100 - 150	0	P40	101	113	125	0.18	0.28	0.36	0.44	0.50
	150 - 200	0 - 13	P40	88	99	110	0.16	0.26	0.33	0.39	0.45
	200 - 250	13 - 24	P40	82	88	101	0.14	0.23	0.31	0.41	0.42
Low Carbon Steels C10, C15, C22, C25 etc	85 - 125	0	P40	94	110	119	0.20	0.24	0.31	0.42	0.46
	125 - 175	0 - 7	P40	82	88	107	0.18	0.24	0.31	0.39	0.43
	175 - 225	7 - 20	P40	76	82	96	0.15	0.22	0.29	0.36	0.40
Medium Carbon Steels C35, C40, C45 etc	225 - 275	20 - 28	P40	62	73	84	0.13	0.22	0.29	0.36	0.40
	125 - 175	0 - 7	P40	82	88	102	0.17	0.24	0.31	0.37	0.42
	175 - 225	7 - 20	P40	75	84	93	0.15	0.22	0.28	0.36	0.40
Structural Steels St33, St37-2, St44-2 St52, St60 etc	225 - 275	20 - 28	P40	66	70	84	0.15	0.22	0.28	0.36	0.40
	275 - 325	28 - 34	P40	56	64	67	0.13	0.19	0.26	0.33	0.37
	100 - 150	0	P40	75	82	91	0.19	0.26	0.34	0.39	0.43
Cast Iron / S,G Iron GG10, 20, 25, 35, 40 GGG50, 70 GTW35, GTS70 etc	150 - 250	0 - 24	P40	62	70	75	0.15	0.24	0.29	0.33	0.37
	250 - 350	24 - 37	P40	55	64	73	0.13	0.23	0.27	0.29	0.33
	120 - 150	0	K20,K10	98	125	137	0.18	0.30	0.37	0.46	0.56
	150 - 200	0 - 13	K20,K10	95	101	125	0.17	0.26	0.32	0.42	0.53
	200 - 220	13 - 19	K20,K10	75	91	111	0.14	0.23	0.30	0.38	0.45
Alloy Steels 45CrNiMo4, 42CrNiMo4 16MnCr5, Ck75 35CrMo4, 16MnCr5 etc	220 - 260	19 - 26	K20,K10	66	81	93	0.13	0.15	0.28	0.33	0.37
	260 - 320	26 - 34	K20,K10	56	70	79	0.13	0.18	0.23	0.28	0.33
	125 - 175	0 - 7	P40	79	85	98	0.18	0.25	0.32	0.40	0.45
	175 - 225	7 - 20	P40	73	81	88	0.15	0.23	0.29	0.38	0.42
Tool Steels 102Cr6, 105WCr6, C75W etc	225 - 275	20 - 28	P40	66	73	81	0.15	0.21	0.28	0.37	0.41
	275 - 325	28 - 34	P40	62	70	78	0.12	0.20	0.27	0.33	0.40
	325 - 375	34 - 40	P40	53	58	64	0.10	0.18	0.23	0.30	0.38
High Temp. Alloy Hastelloy B, Inconel etc	150 - 200	0 - 13	P40	50	56	67	0.09	0.18	0.22	0.28	0.31
	200 - 250	13 - 24	P40	37	46	50	0.09	0.18	0.22	0.28	0.31
High Strength Alloy 36CrNiMo4, 34CrNiMo8 40NiCrMo73 etc	140 - 220	0 - 19	K20	26	27	30	0.10	0.17	0.23	0.27	0.33
	220 - 310	19 - 33	K20	20	23	24	0.10	0.14	0.20	0.24	0.30
Aluminum AlCuSiMn, AlMgSi0.5, AlZnMgCu1.5 etc	225 - 300	0 - 32	P40	49	55	62	0.15	0.23	0.25	0.29	0.38
	300 - 350	32 - 37	P40	43	49	55	0.12	0.20	0.23	0.27	0.35
	350 - 400	37 - 43	P40	38	43	47	0.10	0.18	0.20	0.24	0.30
Stainless Steels X7Cr13, X10CrAl18, X5CrNi189, X5CrNiMo18 10 etc	30	0	K20	366	396	427	0.24	0.38	0.45	0.50	0.53
	180	0 - 8	K20	244	290	291	0.22	0.33	0.40	0.45	0.48
Stainless Steels X7Cr13, X10CrAl18, X5CrNi189, X5CrNiMo18 10 etc	135 - 185	0 - 9	K20	50	55	62	0.19	0.19	0.21	0.24	0.30
	185 - 275	9 - 28	K20	38	44	46	0.15	0.17	0.20	0.21	0.25

RPM= revolution per minute (rev/min)

M/min= surface meter per minute(M/min)

DIA= diameter of drill (mm)

mm/rev = feed rate(mm/rev)

* Formulas :

$$M/min = \frac{(RPM) \cdot (\pi) \cdot (DIA.)}{1000}$$

$$mm/min = (RPM) \cdot (mm/rev)$$

$$RPM = \frac{(M/min) \cdot (1000)}{(\pi) \cdot (DIA.)}$$

The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

DRILLS



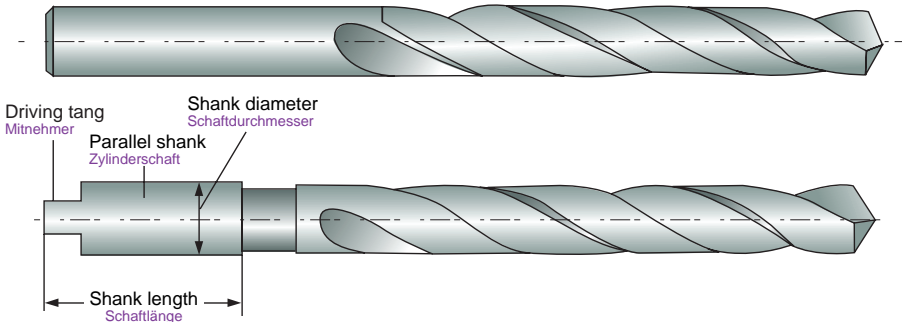
Being the best through innovation



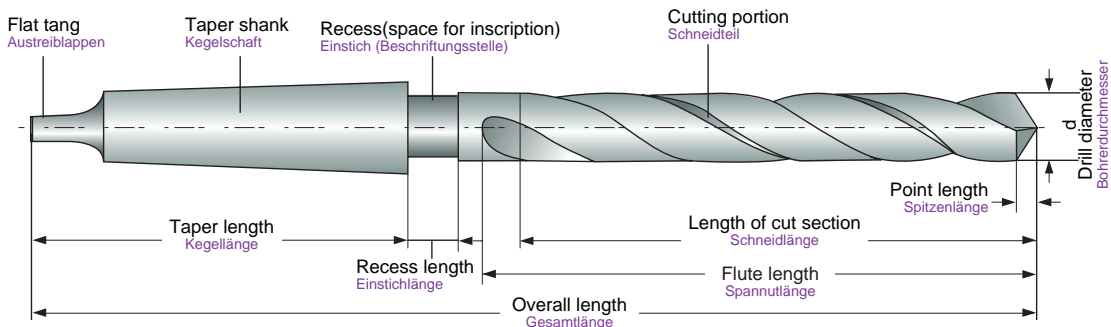
TECHNICAL DATA

TECHNISCHE DATEN

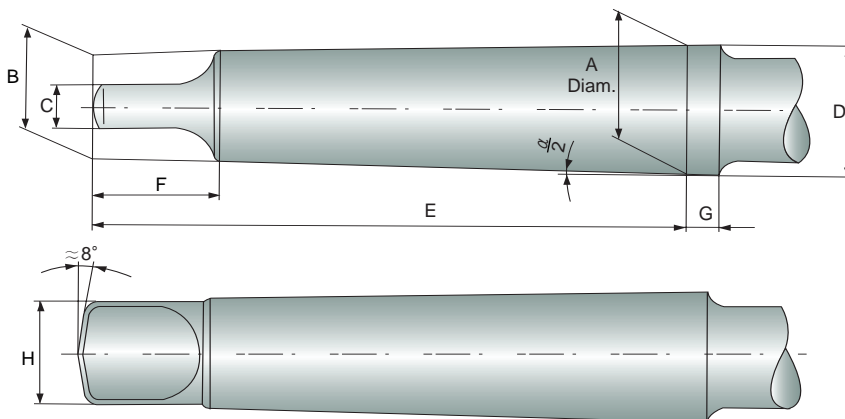
1 Twist Drill with parallel shank
Spiralbohrer mit Zylinderschaft



2 Twist Drill with taper shank
Spiralbohrer mit kegelschaft

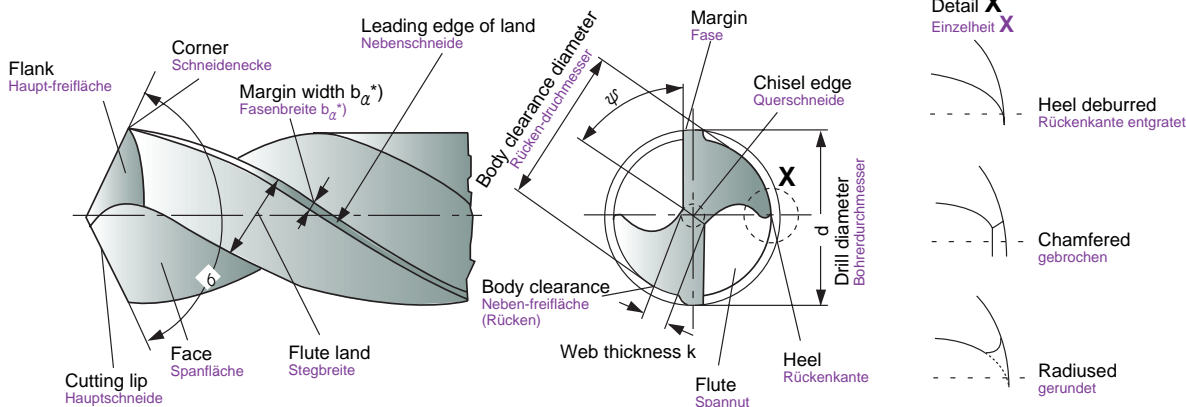


3 General dimensions of morse taper shanks
Toleranzen des kegelschaftes



Morse Taper Shank Morsekegelschaft	A mm	B mm	C(h13) mm	D mm	E mm	F(max.) mm	G mm	H(max.) mm	$\alpha/2$
No.1	12.065	9	5.2	12.2	62	13.5	3.5	8.7	1°25'43"
No.2	17.780	14	6.3	18.0	75	16	5	13.5	1°25'50"
No.3	23.825	19.1	7.9	24.1	94	20	5	18.5	1°26'16"
No.4	31.267	25.2	11.9	31.6	117.5	24	6.5	24.5	1°29'15"
No.5	44.399	36.5	15.9	44.7	149.5	29	6.5	35.7	1°30'26"
No.6	63.348	52.4	19	63.8	210	40	8	51	1°29'36"

4 Cutting portion Schneidteil



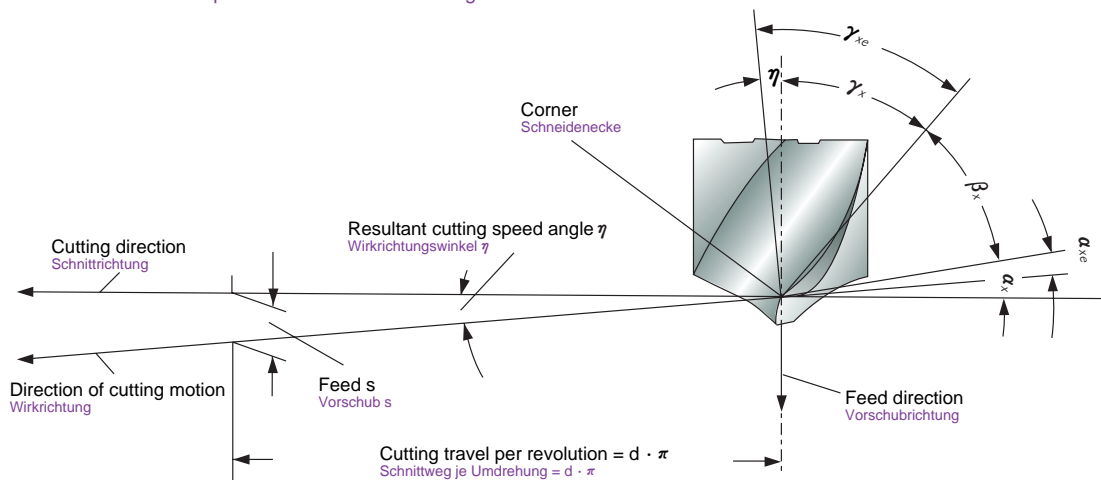
σ = Point angle (sigma) Spitzenwinkel (Sigma)

ψ = Chisel edge angle (psi) Querschneidenwinkel (Psi)

* In the context of cutting technology, land width b_{α} is the body clearance land width which is to be by $b_{f_{2n}}$, see DIN 6581. Die Fasenbreite b_{α} ist bei zerspangentechnischen Betrachtungen die Fasenbreite der Nebenfreesfläche und mit $b_{f_{2n}}$ zu bezeichnen, siehe DIN 6581.

5 Angle at the cutting edges Winkel an den Schneiden

The corner has been adopted as the observed edge point. Als betrachteter Schneideneckpunkt ist die Schneidenebene gewählt.



α_x = Side clearance angle (alpha) Seitenfreiwinkel (Alpa)

α_{xe} = Effective side clearance angle Wirk-Seitenfreiwinkel

β_x = Side wedge angle (beta) Seitenkeilwinkel (Beta)

γ_x = Front rake angle (gamma) Seitenspanwinkel (Gamma)

γ_{xe} = Working front rake angle Wirk-Seitenspanwinkel

η = Resultant cutting speed angle (eta) Wirkrichtungswinkel (Eta)

Clearance angle α , wedge angle β and rake angle γ are measured in the tool orthogonal plane. For details, see DIN 6581, definitions of metal-cutting technology; geometry at the tool edge.

Freiwinkel α , keilwinkel β und Spanwinkel γ werden in der keilmeßebebene gemessen.

Einzelheiten siehe DIN 6581, Begriffe der Zerspantechnik; Geometrie am Schneidkeil des Werkzeuges.



Web thickness k
kerndicke k

Test values : The web thickness according to Fig. 1 shall not be less than the minimum value k_{min} indicated in Fig. 2.

Prüfwerte : Die kerndicke nach Bild 1 soll den Bild 2 angegebenen Mindestwert k_{min} nicht unterschreiten.

Test point : At the point of the drill. **Prüfstelle :** An der Bohrspitze

Testing equipment : Slide gauge with measuring points. **Prüfmittel :** Meßschieber (Schieblehre) mit Messerspitzen

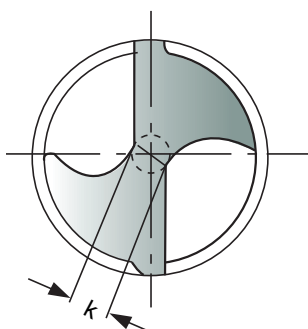


Figure 1. Web thickness k
Bild 1. kerndicke k

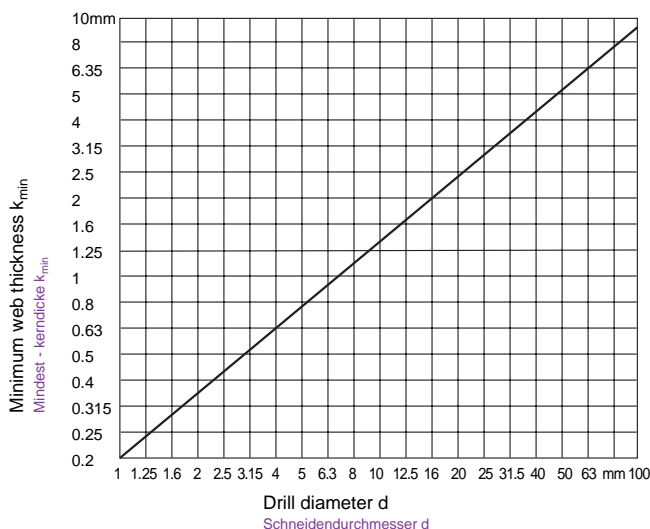


Figure 2. Web thickness k_{min}
Bild 2. Kerndicke k_{min}



Margin width b_α
Fasenbreite b_α

Test values : The land width as in Fig. 3 shall lie within the limiting values indicated in Fig. 4.

Prüfwerte : Die Fasenbreite nach Bild 3 soll im Bereich der Grenzwerte liegen, die im Bild 4 angegeben sind.

Test point : 5mm behind the corner **Prüfstell :** 5mm hinter der Schneidenecke

Testing equipment : Slide gauge **Prüfmittel :** Meßschieber

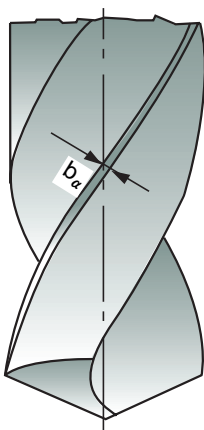


Figure 3. Margin width b_α
Bild 3. Fasenbreite b_α

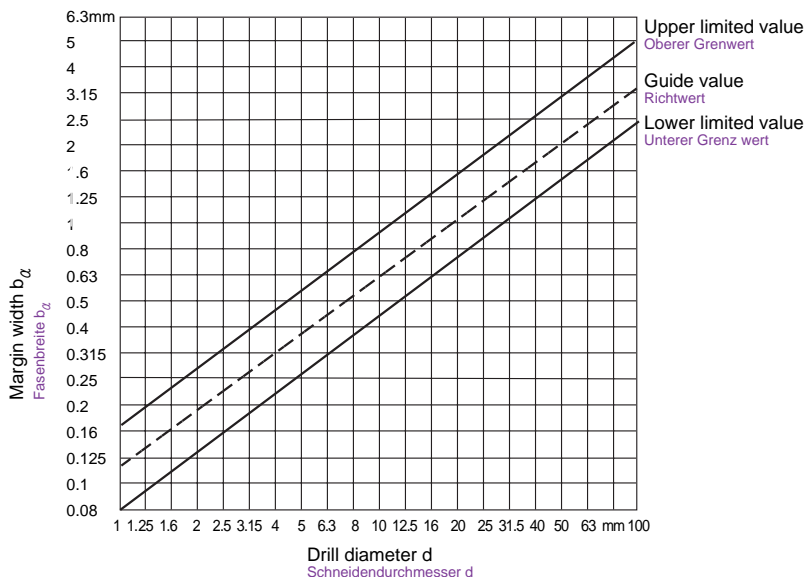


Figure 4. Margin width b_α
Bild 4. Fasenbreite b_α



Angle on Twist Drills Winkel an Spiralbohrern

(1) Side rake angle γ_f (Helix angle)

Seitenspanwinkel (Spiralwinkel) γ_f

Recommended test value : Recommended ranges depending on the tool types N,H and W according to DIN 1836 and the diameter of the drill included in Fig. 5.

Empfohlene Prüfwerte : Empfohlene Bereiche in Abhängigkeit der Werkzeugtypen N, H und W nach DIN 1836 und des Schneidendurchmessers sind in Bild 5.

Test point : At the corner, see Fig. 6.

Prüfstell : An der Schneidenecke, siehe Bild 6

Testing equipment : According to VDI Guideline 3331 Part 1, Section Margin width b_α

Prüfmittel : Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite b_α

Note : The side rake angle γ_f is measured in place of the orthogonal rake angle γ_o found in the wedge measuring plane (see DIN 6581), as this changes along the cutting edge (becoming smaller towards the point of the drill).

Anmerkung : Der Seitenspanwinkel γ_f wird an Stelle des in der Keilmeße Ebene befindlichen Orthogonal-Spanwinkels γ_o (Siehe DIN 6581) gemessen, da sich dieser entlang der Hauptschneide verändert (er wird zur Bohrspitze hin kleiner)

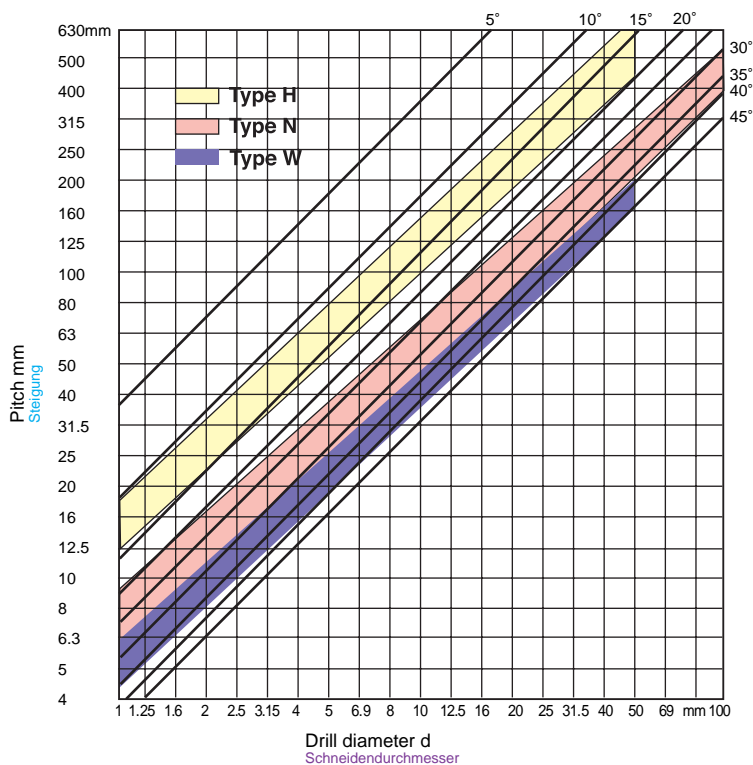


Figure 6. Side rake angle γ_f
Build 6. Seitenspanwinkel γ_f

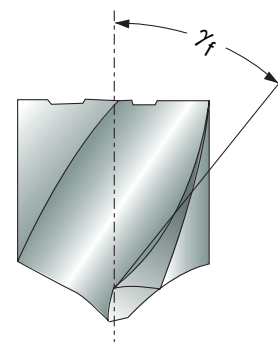


Figure 5. Side rake angle γ_f
Build 5. Seitenspanwinkel γ_f



(2) Point angle σ

Spitzenwinkel σ

Test value : Usual executin for tool types N and H : $\sigma=118^\circ$,
for tool type W : $\sigma=130^\circ$

Prüfwerte : Regelausführung bei Werkzeugtyp N und H : $\sigma=118^\circ$
bei Werkzeugtyp W : $\sigma=130^\circ$

Test point : At the cutting , see Fig. 7.

Prüfstelle : An den Hauptschneiden, siehe Bild 7.

Testing equipment : According to VDI Guideline 3331 Part 1,
Section Margin width b_α .

Prüfmittel : Nach der VDI-Richtlinie 3331 Blatt 1, Abschnitt Fasenbreite b_α .

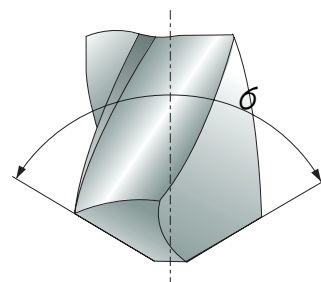


Figure 7. Point angle σ
Bild 7. Spitzenwinkel σ



Resharping Twist Drills Nachschleifen von Spiralbohrern

(1) Drills are worn off irregularly. It should be sharpened prior to developing into excessive wear.

Unregelmäßiger Verschleiß von Bohrern. Bohrer soll vor übermäßigern Verschleiß nachgeschliffen werden.

(2) Resharping (Nachschleifen)

- ① Grind the correct point angle to suit your application.(figure 8)
Den für Ihre Anwendung passenden korrekten Spitzwinkel schleifen (Bild 8)
- ② Check that both cutting lips have the same angle. On a 130° point, each lip should be 65° toward the axis. The point must be on center, i.e., the chisel edge must produce cutting lips of equal length.(figure 8)
Überprüfen, dass beide Hauptschneiden den gleichen Winkel haben. Bei einem 130° Spitzwinkel, sollte jede Hauptschneide 65° haben (Bild 8)
- ③ Grind Primary relief and Secondary clearance.(figure 9)
Primärer Hinterschliff und Sekundärer Freiwinkel (Bild 9)
- ④ Grind web thinning. (figure 10)
Den ausgespitzten Kern schleifen (Bild 10)

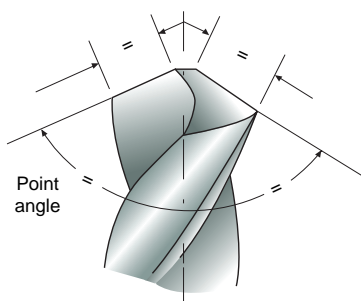


Figure 8
Bild 8

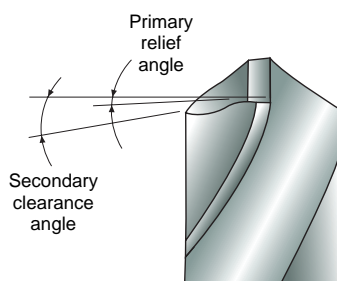


Figure 9
Bild 9

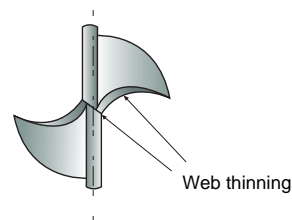


Figure 10
Bild 10



Web thinning Kegelmantelschliff

(1) Without thinning

Normalanschliff

Suitable for drill of general purpose.

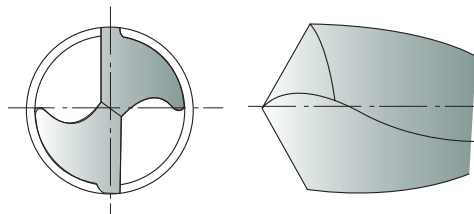
Thanks to thin web thickness, web thinning is not need.

This without web thinning type is applied to design of drills for mild steels, alloy steels, cast iron, stainless steels, titanium, inconel, etc. and conventional cutting conditons.

Zum Bohren für allgemeine Zwecke.

Dank dünner Kerndicke, ist Kegelmantelschliff nicht nötig.

Geeignet für Stahl, Stahl-Legierungen, Gusseisen, Edeistahl, Tian, Inconel usw., und für konventionelle Schneidbedingungen



(2) Type C thinning (DIN1412 FORM C, SPLIT POINT)

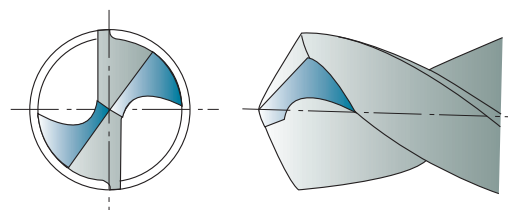
DiN 1412 Form C kegelmantelschliff mit Kreuzanschliff

Because Split point enables good centering when drilling and breaks the chips, chip removals are easy.

Suitable for drill design in high hardened tough materials, i.e, heat treated steels, titanium alloys, stainless steels, incoroy inconel, nimonic, etc.

Da Kreuzanschliff gute Zentrierung und Spanbruch während des Bohrens ermöglicht, wird die Spanentfernung erleichtert.

Geeignet für zähe Werkstücke oder Werkstücke mit hoher Härte, z.B. hitzebehandelten Stahl, Titan-Legierungen, Edelstahl, Incoroy Inconel, Nimonic usw.

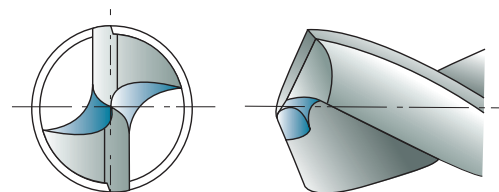


(3) Type R thinning (HELICAL THINNING)

Form R Kegelmantelschliff (Spiralanschliff)

Helical thinning ensures to frequent chip breaking and removal. The different direction force of cutting edges and helical thinning parts enable that chips curl, break and remove through the flutes. In addition, helical thinning makes the chip room up to center, remove the chisel and enables good centering

Häufiger Spanbruch und Spanentfernung durch Spiralanschliff, es wird ausreichend Raum für Späne geschaffen, und gute Zentrierung ist möglich.



(4) Type A thinning (DIN1412 FORM A)

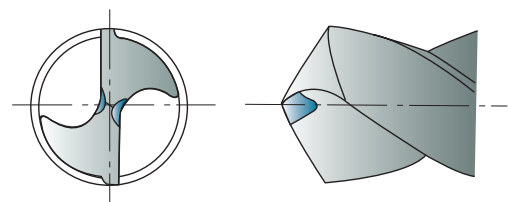
DIN 1412 Form A Kegelmantelschliff mit ausgespitzer Querschneide

A type thinning makes thin chisel, good chip removal and favorable centering.

This type is the easiest type to grind the thinning. In narrow web and wide fluted drills, keeping of the rigidity and smooth chip removal are possible.

Diese Form hat eine dünne Querschneide, dadurch ist gute Spanentfernung und Zentrierung möglich.

Der Kegelmantelschliff ist bei dieser Form am einfachsten nachzuschleifen, Ein enger Kern und breite Schneiden erhalten die Stabilität.



i-DREAM
DRILLS

DREAM
DRILLS
-GENERAL

DREAM
DRILLS
-INOX

DREAM
DRILLS
-MQL TYPE

DREAM
DRILLS
for HARDENED
STEELS

GENERAL
CARBIDE
DRILLS

NC-SPOTTING
DRILLS

MULTI-1
DRILLS

HPD DRILLS

GOLD-P
DRILLS

WORM
PATTERN
DRILLS

STRAIGHT
SHANK
DRILLS

TAPER
SHANK
DRILLS

NC-SPOTTING
DRILLS

CENTER
DRILLS

SPADE
DRILLS

TECHNICAL
DATA



(5) Type B thinning (DIN1412 FORM B)

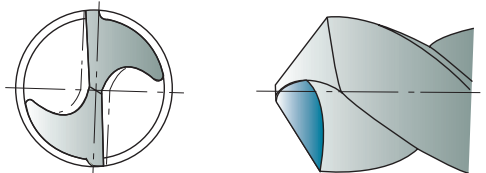
DIN 1412 Form B Kegelmantelschliff mit ausgespitzer Querschneide

In case of work materials with low cutting resistance and good chip removal, i.e., cast iron, aluminum, plastic etc., B type thinning is suitable.

Especially when drills for high hardened steels are designed, this type is applied to decrease rake angle and avoid chipping of cutting lips.

Geeignet für Werkstücke mit geringem Schneidwiderstand und guter Spanentfernung, z.B. Gusseisen, Aluminium, Plastik usw.

Diese Form wird besonders dann angewendet, wenn der Bohrer für Stähle mit hoher Härte produziert wurde, da dadurch der Seitenspanwinkel verkleinert wird und Brüche an der Schneidkante vermieden werden.



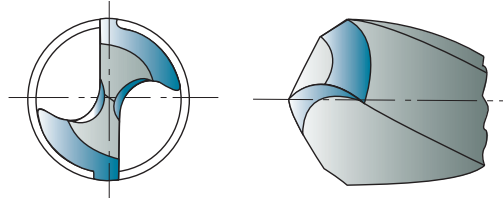
(6) Type D thinning (DIN1412 FORM D)

DIN 1412 Form D Kegelmantelschliff mit ausgespitzern Kern

Grey cast iron thinning; bevelling of external edges strengthens the cutting edge.

Used for medium to high grey cast iron hardness and for abrasives.

GG-Anschliff; Fasen auf dem Steg verstärken die Schneidkante. Geeignet für medium bis hohe Härte GG und für abrasive Materialien.



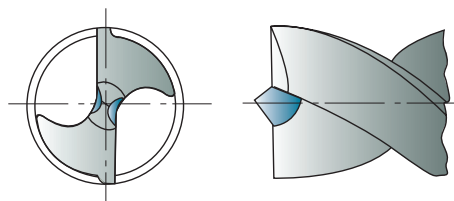
(7) Type E thinning (DIN1412 FORM E)

DIN 1412 Form E Zentrums Spitze

Center drill bit thinning; ensures optimal center drilling and does not leave burrs in through holes.

As the bit and cutting edges are delicate, this bit should be used far drilling thin sheet metal.

Zentrisches Bohren, Niedrige Gratbildung, Geeignet zum Bohren von dünnen Blechen und Rohren.



Surface Finishes for high speed steels Twist Drills Oberflächenbeschaffenheit von HSS-Spiralbohrern

(1) Bright Finish Helle Beschaffenheit

Drills with a bright finish are without surface treatment and ground condition.

Especially bright finished drills are used in machining of non ferrous materials.

Ohne Oberflächenbehandlung, geeignet zum Bearbeiten von Nichteisen Materialien.

(2) Coloring (Gold color) Farbe (Bernstein)

The coloring is a thin oxide layer formed on the tool surfaces. Dies ist eine dünne Oxidschicht.

This is often applied to cobalt high speed steels twist drills. Geeignet für Kobalt-HSS-Spiralbohrer.

(3) Steam Tempered (black oxide finish) Dampf oxidierte Ausführung

This is a black oxide layer 1-2 μ m formed on the tool surfaces.

Steam Tempered treated drill is the result of a steam tempering operation. Because the oxide layer retains some coolant on the tool surface, and aids chip flow, helps to dissipate heat, steam homo treated drills are recommended for ferrous applications.

Eine schwarze Oxidschicht 1-2 μ m.

Da die Oxidschicht Kühlmitelegenschaften auf der Werkzeugoberfläche beinhaltet und den Spanfluss verbessert und die Hitze verteilt, sind diese Bohrer für die Bearbeitung von Metal-Werkstücken empfohlen.



Coating Beschichtungen

The use of coated cutting tools reduce production costs.

For example

- Avoidance of machine downtime due to premature tool wear.
- Higher cutting capabilities to reduce actual machining times.
- Reproducible tool life.
- Improvement of component surface quality.

Durch den Gebrauch von beschichteten Werkzeugen werden Produktionskosten reduziert, z.B.

- Vermeidung von Maschinen-Ausfallzeiten wegen frühzeitigem Verschleiß des Bohrers.
- Höhere Bohrleistung, dadurch Verminderung von Arbeitszeit.
- Längere Standzeit.
- Verbesserte Oberflächengüte des Werkstücks.

(1) TiN (Titanium Nitride) coating TiN (Titan-Nitrid) Beschichtung

Titanium Nitride gives the tool a higher performance in comparison to traditional non-coated drills.

TiN coating, with good all-around properties, is recommended for the general application, i.e., attack by abrasive, adhesive and chemical wear in equal proportions.

Bessere Leistung im Vergleich zu unbeschichteten Werkzeugen

TiN-Beschichtung wird für allgemeine Anwendungen empfohlen guten.

(2) TiCN (Titanium Carbon Nitride) coating TiCN(Titan karbon Nitrid) Beschichtung

TiCN coating should be employed when severe thermodynamic stress is expected, for example when drilling in high hardened steels or in mild steels with high speed and feed.

Diese Beschichtung soll bei extremen thermodynamischen Bedingungen verwendet werden, z.B. bei Bohren von Stählen mit hoher Härte und Stähle mit hoher Geschwindigkeit und Vorschub.

(3) TiAlN (Titanium Aluminium Nitride) coating TiAlN(Titan Aluminium Nitrid) Beschichtung

The addition of Aluminium to the Titanium Nitride produces an increase in hardness and an exceptional increase in resistance to oxidation at high temperature.

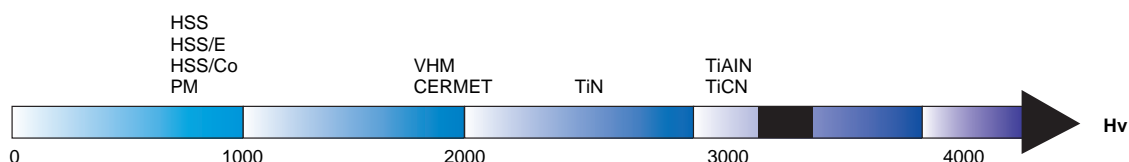
TiAlN coating is applied to drilling with severe thermal stress on cutting edges when continuous non-step feed, dry cutting or high speed cutting.

Der Zusatz von Aluminium zum Titan-Nitrid ermöglicht eine höhere Härte und einen auß erordentlich guten Widerstand gegen Oxidation und hohe Temperaturen.

Geeignet zum Bohren unter extremen thermischen Bedingungen auf der Hauptschneide bei kontinuierlichem Vorschub, Trockenschnitt oder Hochgeschwindigkeitsbohren.

(4) Properties of coating Beschichtungs-Eigenschaften

Properties	TiN	TiCN	TiAlN
Coating color Beschichtungsfarbe	gold - yellow	blue - grey	violet - grey
Hardness (Hv 0.05) härtegrad (Hv 0.05)	2300	3000	3000
Coating thickness(μm) Beschichtungsdicke (μm)	1 ~ 4	1 ~ 4	1 ~ 5
Max. working temperature (°C) Max. Arbeitstemperatur (°C)	600	400	800
Coefficient of friction against steels(dry) Reibungskoeffizient für stahl (trocken)	0.4	0.4	0.4



(5) Selection of coating **Verschiedene Beschichtungen**

Work-material	HSS TWIST DRILLS	CARBIDE DRILLS
Unalloyed steels Unlegierter Stahl	TiCN, TiAlN	TiCN, TiAlN
Steels < 1000 N/mm² Stahls < 1000 N/mm²	TiCN, TiAlN	TiCN, TiAlN
Steels > 1000 N/mm² Stahls > 1000 N/mm²	TiCN, TiAlN	TiCN, TiAlN
Stainless steels Edelstähle	TiCN, TiAlN	TiCN, TiAlN
Cast iron Gusseisen	TiCN, TiAlN	TiAlN
Al-wrought alloys Al-Knetlegierungen	TiN	TiN
Al-cast alloys Al-Gusslegierungen	TiCN	TiCN
Copper (pure) Kupfer (pur)	CrN	CrN
Brass Messing	TiCN	TiCN
Bronze Bronze	TiCN	TiCN


Drill sizes before Tapping
Durchmesser für Bohrwerkzeuge für Gewidekernlöcher
(1) Metric - ISO threads coarse pitch **Metrisch - ISO Gewinde, grobverzahnt**

Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter	Nominal diameter	Drill diameter
		M3	2.5	M11	9.5	M30	26.5
M1	0.75	M3.5	2.9	M12	10.2	M33	29.5
M1.2	0.95	M4	3.3	M14	12.0	M36	32.0
M1.4	1.1	M5	4.2	M16	14.0	M39	35.0
M1.6	1.25	M6	5.0	M18	15.5	M42	37.5
M1.8	1.45	M7	6.0	M20	17.5	M45	40.5
M2	1.6	M8	6.8	M22	19.5	M48	43.0
M2.2	1.75	M9	7.8	M24	21.0	M52	47.0
M2.5	2.05	M10	8.5	M27	24.0	M56	50.5

(2) Metric ISO threads fine pitch
Metrisch - ISO Gewinde, feinverzahnt

Nominal diameter	Tap Pitch	Drill diameter	Nominal diameter	Tap Pitch	Drill diameter
2.5	0.35	2.15	7	0.75	6.2
3	0.35	2.65	8	0.75	7.2
3.5	0.35	3.15	8	1	7
4	0.5	3.5	9	0.75	8.2
4.5	0.5	4	9	1	8
5	0.5	4.5	10	0.75	9.2
5.5	0.5	5	10	1	9
6	0.75	5.2	10	1.25	8.8

Nominal diameter	Tap Pitch	Drill diameter
11	0.75	10.2
11	1	10
12	1	11
12	1.25	10.8
12	1.5	10.5
14	1	13
14	1.25	12.8
14	1.5	12.5
15	1	14
15	1.5	13.5
16	1	15
16	1.5	14.5
17	1	16
17	1.5	15.5
18	1	17
18	1.5	16.5
18	2	16
20	1	19
20	1.5	18.5
20	2	18
22	1	21
22	1.5	20.5
22	2	20
24	1	23
24	1.5	22.5
24	2	22
25	1	24
25	1.5	23.5
25	2	23
26	1.5	24.5
27	1	26
27	1.5	25.5
27	2	25
28	1	27
28	1.5	26.5
28	2	26

Nominal diameter	Tap Pitch	Drill diameter
30	1	29
30	1.5	28.5
30	2	28
30	3	27
32	1.5	30.5
32	2	30
33	1.5	31.5
33	2	31
33	3	30
35	1.5	33.5
36	1.5	34.5
36	2	34
36	3	33
38	1.5	36.5
39	1.5	37.5
39	2	37
39	3	36
40	1.5	38.5
40	2	38
40	3	37
42	1.5	40.5
42	2	40
42	3	39
45	1.5	43.5
45	2	43
45	3	42
48	1.5	46.5
48	2	46
48	3	45
50	1.5	48.5
50	2	48
50	3	47
52	1.5	50.5
52	2	50
52	3	49

(3) WITHWORTH pipe threads (BSP)
WITHWORTH Rohrgewinde (BSP)

Nominal size	Drill diameter	Nominal size	Drill diameter
inches	mm	inches	mm
G1/8	8.8	G1 * 1/4	39.5
G1/4	11.8	G1 * 3/8	42.0
G3/8	15.25	G1 * 1/2	45.0
G1/2	19.0	G1 * 3/4	51.0
G5/8	21.0	G2	57.0
G3/4	24.5	G2 * 1/4	63.0
G7/8	28.25	G2 * 1/2	73.0
G1	30.75	G2 * 3/4	79.0
G1 1/8	35.5	G3	85.0

i-DREAM DRILLS

DREAM DRILLS -GENERAL

DREAM DRILLS -INOX

DREAM DRILLS -MQL TYPE

DREAM DRILLS for HARDENED STEELS

GENERAL CARBIDE DRILLS

NC-SPOTTING DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

WORM PATTERN DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

(4) American unified coarse threads Amerikanischer Standard, Grobverzahnung

UNC	Drill diameter		UNC	Drill diameter	
	inches	mm		inches	mm
No. 1	53	1.51	7/16	U	9.35
No. 2	50	1.78	1/2	27/64	10.71
No. 3	47	1.99	9/16	31/64	12.30
No. 4	43	2.26	5/8	17/32	13.49
No. 5	38	2.58	3/4	21/32	16.67
No. 6	36	2.71	7/8	49/64	19.44
No. 8	29	3.45	1	7/8	22.22
No. 10	25	3.8	1 * 1/8	63/64	25.00
No. 12	16	4.5	1 * 1/4	1 * 7/64	28.18
1/4	7	5.11	1 * 3/8	1 * 7/32	30.95
5/16	F	6.53	1 * 1/2	1 * 11/32	34.13
3/8	5/16	7.94			

(5) American unified fine threads Amerikanischer Standard, Feinverzahnung

NF	Drill diameter		NF	Drill diameter	
	inches	mm		inches	mm
No. 0	3/64	1.19	3/8	Q	8.43
No. 1	53	1.51	7/16	25/64	9.92
No. 2	50	1.78	1/2	29/64	11.51
No. 3	45	2.08	9/16	33/64	13.10
No. 4	42	2.37	5/8	37/64	14.86
No. 5	37	2.64	3/4	11/16	17.46
No. 6	33	2.87	7/8	13/16	20.64
No. 8	29	3.45	1	59/64	23.42
No. 10	21	4.04	1 * 1/8	1 * 3/64	26.59
No. 12	14	4.62	1 * 1/4	1 * 11/32	29.76
1/4	3	5.41	1 * 3/8	1 * 19/32	32.94
5/16	1	6.91	1 * 1/2	1 * 27/64	36.11

14 ISO Tolerance
ISO Toleranz

 $\mu\text{m} = 1/1000\text{mm}$

Diameter (mm)	1 - 3 from to	3 - 6 over to	6 - 10 over to	10 - 18 over to	18 - 30 over to	30 - 50 over to
Tolerance range in μm / Toleranzwerte in μm						
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16
h7	0 - 10	0 - 12	0 - 15	0 - 18	0 - 21	0 - 25
h8	0 - 14	0 - 18	0 - 22	0 - 27	0 - 33	0 - 39
m7	+ 12 + 2	+ 16 + 4	+ 21 + 6	+ 25 + 7	+ 29 + 8	+ 34 + 9



Trouble Shooting in Drilling Probleme und Abhilfe

Occurrence of trouble	Cause of trouble	Countermeasures
Drill will not enter work Bohrer dringt nicht durch werkstück	<ol style="list-style-type: none"> 1. Drill is dull. 2. Lip relief too small. 3. Too thick a web. 	<ol style="list-style-type: none"> 1. Grind lip relief sufficiently. 2. Grind web thinning. 3. Choose a drill with narrow web.
Margin chipping Fasenbruch	<ol style="list-style-type: none"> 1. Oversized jig bushing. 	<ol style="list-style-type: none"> 1. Choose the suitable jig bushing for drill diameter
Cutting lip breaks Bruch der Hauptschneide	<ol style="list-style-type: none"> 1. Lip relief too much. 2. Feed too heavy. 	<ol style="list-style-type: none"> 1. Grind lip relief sufficiently. 2. Decrease feed rate.
Tang breaks Bruch der Austrieblappen am kagelschaft	<ol style="list-style-type: none"> 1. Imperfect fit between taper shank and socket. 2. Burred or Badly worn sockets. 	<ol style="list-style-type: none"> 1. Clean the dirt or chips in sockets. 2. Change the worn sockets to new ones.
Drill breaks in brass Bohrer bricht in Messing	<ol style="list-style-type: none"> 1. Unsuitable drill 2. Flutes clogged with chips 	<ol style="list-style-type: none"> 1. Choose the suitable drill for work material.
Chipping of drill center Brüche auf der Querschneide	<ol style="list-style-type: none"> 1. Lip relief too much. 2. Feed too heavy. 	<ol style="list-style-type: none"> 1. Grind lip relief sufficiently. 2. Decrease feed rate.
Hole oversize Übergröße des Lochs	<ol style="list-style-type: none"> 1. Unequal angle or length of cutting edges. 2. Loosen spindle. 	<ol style="list-style-type: none"> 1. Resharpener point, choose correct drills. 2. Tighten spindle sufficiently.
Outer corners broken down. Brüche in der Schneidenecke	<ol style="list-style-type: none"> 1. Cutting speed too high. 2. Hard spots in work material. 3. Flutes clogged with chips. 4. Too wear of drills. 	<ol style="list-style-type: none"> 1. Grind point to suit work material. 2. Decrease the feed rates. 3. Resharpener early before too wear.
Large chip of one flute and small chip of other flute Ungleiche Späne auf den Schneiden	<ol style="list-style-type: none"> 1. Improperly ground point. 2. Only one lip doing all the cutting 	<ol style="list-style-type: none"> 1. Properly grind point. 2. Grind point with same point angle and length of lip 3. Grind with small lip height.
Hole rough Grobes Loch	<ol style="list-style-type: none"> 1. Improperly ground point. 2. Unenough coolant supply 3. Too much feed. 4. Fixture not rigid. 	<ol style="list-style-type: none"> 1. Properly grind point. 2. Supply coolant enough. 3. Decrease the feed rate. 4. Tighten the fixture or replace.



Characteristic of DREAM DRILLS Merkmale von DREAM BOHRER

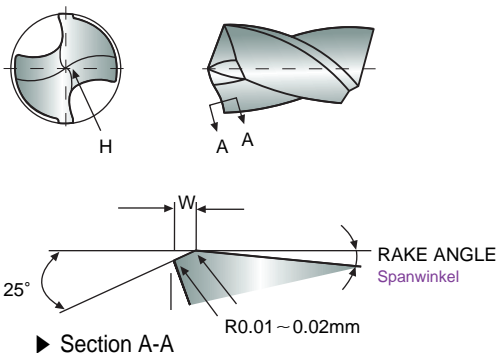
- YG-1's Dream Drill Series are suitable for high speed and accurate drilling operations by special design and high quality.
YG-1's DREAM Bohrer Serien sind durch ihre spezielle konstruktion und höchste Genauigkeit geeignet zum Hochgeschwindigkeitsbohren und für genaue Bohrvorgänge.
- Good performance for Steels, Cast Irons, Tool steels, Alloy steels and Stainless steels.
Gute Leistung bei Stählen, Grauguss, Werkzeugstählen, Stahllegierungen sowie bei Rost- und Säurebeständigen Stählen.
- Rapid chip evacuation and excellent chip breaking can be achieved by special designed cutting edges on point and chip breakers on leading edges.
Schnelle Spanabfuhr und hervorragender Spanbruch durch speziell entwickelte Schneidengeometrien und Spanbrechern.
- High accuracy and stability.
Hohe Genauigkeit und Stabilität.
- Longer tool life with TiAlN coating.
Höhere Standzeiten mit TiAlN-Beschichtungen.
- Self-centering
Selbstzentrierend



Honing Guide of DREAM DRILLS Hinweis zum Honen von DREAM BOHRER

Dimension of Honing

Abmessung beim Honen



Scraper

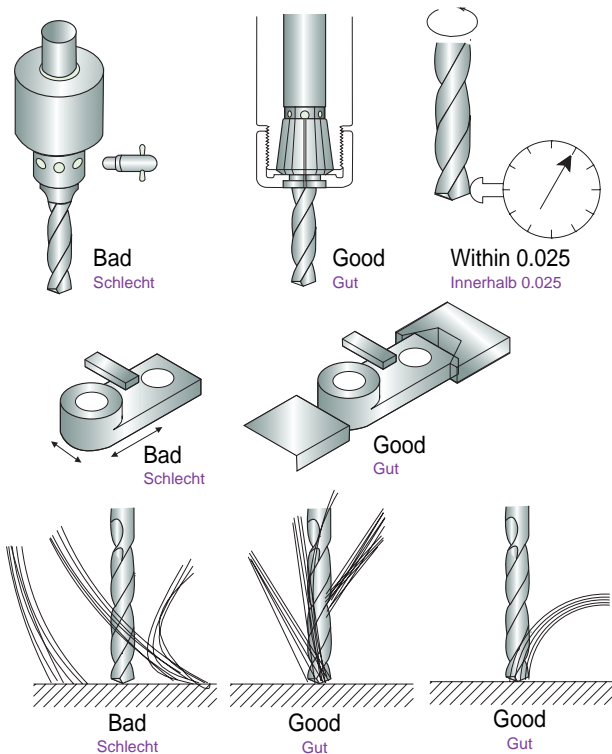
Schaben



Work Material	Alloy Steels	Mild Steels	Cast Iron
W(mm)	0.15~0.2	0.1~0.15	0.03

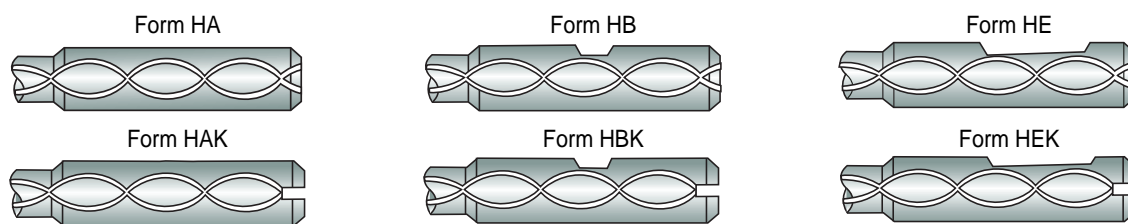
- ▶ The dimension W of stocked products is 0.1~0.15.
Das Maß w ist bei lagerhaltigen Produkten 0.1~0.15.

18 Use of DREAM DRILLS
Verwendung von DREAM BOHRER

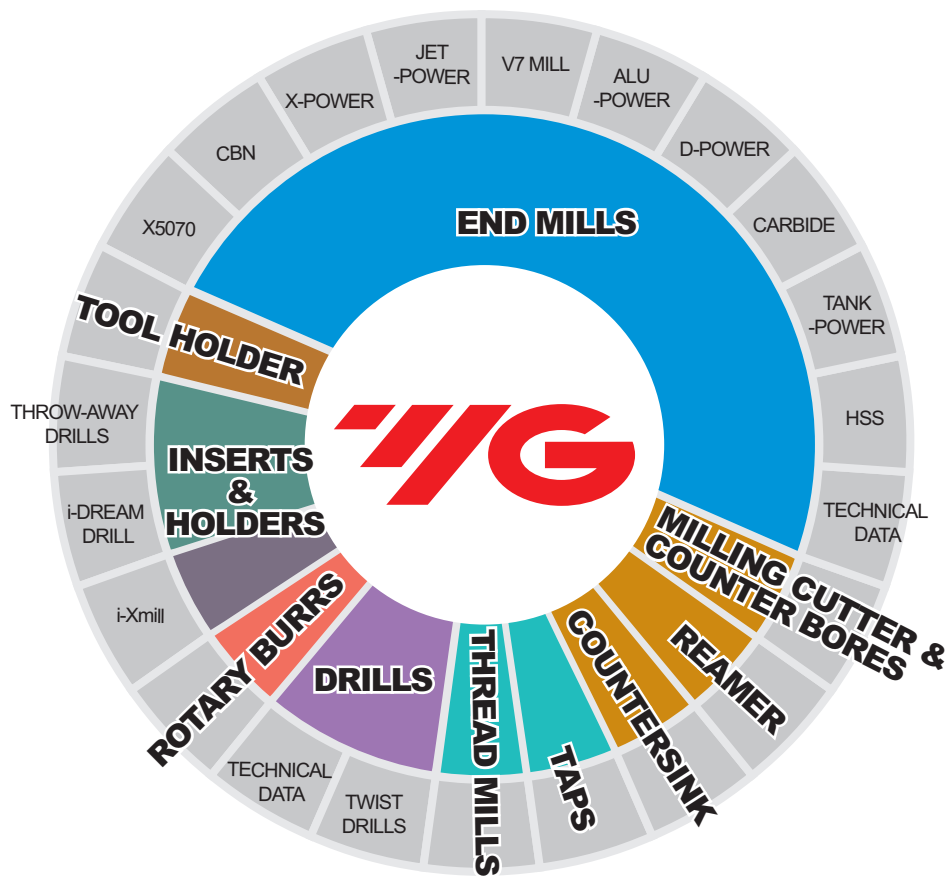


- ▶ Chucking with spring collet correctly.
Richtiges Spannen mit Spannzangen.
- ▶ Radial run out at cutting lip must not exceed 0.025 mm.
Radialer Rundlauf und der Schneidlippe darf nicht 0.025 überschreiten.
- ▶ Tighten clamp of work piece.
Sicheres Spannen des Werkstückes
- ▶ Supply coolant enough to the entrance of hole.
Ausreichend Kühlmittelzufluss am Bohrloch.
- ▶ When using Dream Drills with Coolant holes, Supply high pressure coolant.
Beim Verwenden von DREAM BOHRER mit Kühlkanal wird Hochdruckkühlung benötigt.

19 Shank Type DREAM DRILLS with Coolant Holes
Schaftausführung DREAM BOHRER mit Kühlkanal



- ▶ Shank Type of stocked products is Form HA.
Schaftausführung von lagerhaltigen Produkten ist HA.
- ▶ If you need other Shank Type, we can supply them.
Andere Schaftausführungen können geliefert werden.



Challenge toward a Global Leader-
YG-1 Leads the World Market.

THREADING TOOLS

■ HSS THREADING TOOLS

COMBO TAPS
(Spiral Point & Spiral Flute)

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

SCREW THREAD INSERT TAPS

HAND TAPS

PIPE TAPS

■ CARBIDE THREADING TOOLS

SOLID CARBIDE TAPS

SOLID CARBIDE THREAD MILLS
(with & without coolant Holes)

Contents

THREADING TOOLS

HSS MACHINE TAPS

HSS HAND TAPS

HSS PIPE TAPS

SOLID CARBIDE MACHINE TAPS

SOLID CARBIDE THREAD MILLS

TECHNICAL DATA

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COMBO TAPS (Spiral point & Spiral Flute)

Multi Purpose Tapping, YG-1's Patent, HSS-E

COMBO
TAPS

SPIRAL POINT TAPS

Tapping Through Holes, HSS-E & HSS-PM

SPIRAL
POINT TAPS

SPIRAL FLUTE TAPS

Tapping Blind Holes, HSS-E & HSS-PM

SPIRAL
FLUTE TAPS

STRAIGHT FLUTE TAPS

Tapping Shallow Holes of Cast Iron, Mild Steels and Brass. HSS-E

STRAIGHT
FLUTE TAPS

COLD FORMING TAPS

Tapping by Forming Soft Materials, HSS-E & HSS-PM

COLD
FORMING
TAPS

NUT TAPS

Nut Tapping Machines, HSS-E

NUT TAPS

SCREW THREAD INSERT TAPS

Tapping STI Threads of Soft Materials, HSS-E

STI TAPS

HAND TAPS

General Tapping, HSS & HSS-E

HAND TAPS

PIPE TAPS

Tapping Whitworth Pipe threads. HSS & HSS-E

PIPE TAPS

SOLID CARBIDE TAPS

Tapping Cast Iron and High Silicon Aluminium, Mass Production, High Productivity

CARBIDE
TAPS

SOLID CARBIDE THREAD MILLS (with & without coolant Holes)

Threading Most of Materials and Big Sizes in High Quality, Available with Chamfer

THREAD
MILLS

TECHNICAL DATA









TECHNICAL
DATA





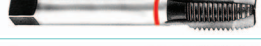
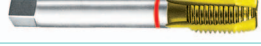



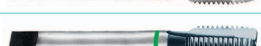
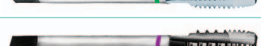

THREADING TOOLS INDEX

COMBO TAPS

● SPIRAL POINT TAP ● SPIRAL FLUTE TAP



















EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
● TC814		HSS-E	M	MU	DIN 371/376	ISO 6H	B	Bright	327
● TC854		HSS-E	MF	MU	DIN 374	ISO 6H	B	Bright	328
● TC834		HSS-E	UNC	MU	DIN 371/376	2B	B	Bright	330
● TC874		HSS-E	UNF	MU	DIN 371/374	2B	B	Bright	331
● TC804		HSS-E	M	MU	DIN 371/376	ISO 6H	C	Bright	332
● TC844		HSS-E	MF	MU	DIN 374	ISO 6H	C	Bright	333
● TC824		HSS-E	UNC	MU	DIN 371/376	2B	C	Bright	335
● TC864		HSS-E	UNF	MU	DIN 371/374	2B	C	Bright	336

SPIRAL POINT TAPS











EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC122		HSS-E	M	GS	DIN 352	ISO 2/6H	B	Bright	340
TC127		HSS-E	M	GS	DIN 371	ISO 2/6H	B	Bright	341
TC227		HSS-E	M	GS	DIN 376	ISO 2/6H	B	Bright	342
TD127		HSS-E	M	GS	DIN 371	ISO 2/6H	B	TiN	343
TD227		HSS-E	M	GS	DIN 376	ISO 2/6H	B	TiN	344
TQ863		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	B	vap	345
TR863		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	B	Bright	346
TC422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	Bright	347
TE422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	NI	348
TD422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	TiN	349
TY422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	TiAlN	350
TQ853		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	B	vap	351
TR853		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	B	Bright	352
TC283		HSS-E	M	HR	DIN 371/376	ISO 2/6H	B	Bright	353
TY283		HSS-E	M	HR	DIN 371/376	ISO 2/6H	B	TiAlN	354
TB623		HSS-E	M	VA NW	DIN 371/376	ISO 2X/6HX	B	vap	355
TCH23		HSS-E	M	VA NW	DIN 371/376	ISO 2X/6HX	B	Hardslick	356
TM293		HSS-PM	M-Az	Ti	DIN 371/376	ISO 2/6H	B	Bright	357
TZ293		HSS-PM	M-Az	Ti	DIN 371/376	ISO 2/6H	B	TiAlN	358
TQ873		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	B	vap	359

THREADING TOOLS INDEX

SPIRAL POINT TAPS



EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TR873		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	B	Bright	360
TM923		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	B	Bright	361
TZ923		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	B	TiAlN	362
TE943		HSS-E	M	Al	DIN 371/376	ISO 2/6H	B	NI	363
TC622		HSS-E	M-Az	Al	DIN 371/376	ISO 2/6H	B	Bright	364
TC222		HSS-E	MF	GS	DIN 374	ISO 2/6H	B	Bright	365
TD222		HSS-E	MF	GS	DIN 374	ISO 2/6H	B	TiN	367
TC263		HSS-E	MF	VG	DIN 374	ISO 2/6H	B	Bright	369
TD263		HSS-E	MF	VG	DIN 374	ISO 2/6H	B	TiN	370
TB123		HSS-E	MF	VA NW	DIN 374	ISO 2X/6HX	B	vap	371
TC214		HSS-E	UNC	GS	DIN 371/376	2B	B	Bright	372
TC244		HSS-E	UNC	VG	DIN 371/376	2B	B	Bright	373
TD244		HSS-E	UNC	VG	DIN 371/376	2B	B	TiN	374
TB264		HSS-E	UNC	VA NW	DIN 371/376	2B	B	vap	375
TC234		HSS-E	UNF	GS	DIN 371/374	2B	B	Bright	376
TC254		HSS-E	UNF	VG	DIN 371/374	2B	B	Bright	377
TB274		HSS-E	UNF	VA NW	DIN 371/374	2B	B	vap	378
TC224		HSS-E	BSW	GS	DIN 2182/2183	-	B	Bright	379

SPIRAL FLUTE TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC612		HSS-E	M	GS	DIN 352	ISO 2/6H	C	Bright	384
TC211		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	385
TC517		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	386
TC711		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	387
TD711		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	TiN	388
TQ823		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	C	vap	389
TR823		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	C	Bright	390
TB312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	vap	391
TB913		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	vap	392
TC312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	Bright	393





THREADING TOOLS INDEX

SPIRAL FLUTE TAPS








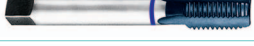


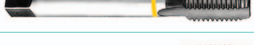


EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TD312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	TiN	394
TY312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	TiAlN	395
TQ813		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	C	vap	396
TR813		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	C	Bright	397
TB313		HSS-E	M	HR	DIN 371/376	ISO 2/6H	C	vap	398
TC313		HSS-E	M	HR	DIN 371/376	ISO 2/6H	C	Bright	399
TY313		HSS-E	M	HR	DIN 371/376	ISO 2/6H	C	TiAlN	400
TB914		HSS-E	M	VA NW	DIN 371/376	ISO 2/6H	C	vap	401
TCH14		HSS-E	M	VA NW	DIN 371/376	ISO 2/6H	C	Hardslick	402
TB711		HSS-E	M	NW	DIN 371/376	ISO 2/6H	C	vap	403
TM903		HSS-PM	M	Ti	DIN 371/376	ISO 2/6H	C	Bright	404
TZ903		HSS-PM	M	Ti	DIN 371/376	ISO 2/6H	C	TiAlN	405
TQ833		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	C	vap	406
TR833		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	C	Bright	407
TM933		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	C	Bright	408
TZ933		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	C	TiAlN	409
TC163		HSS-E	M	Al	DIN 371/376	ISO 2/6H	C	Bright	410
TE953		HSS-E	M	Al	DIN 371/376	ISO 2/6H	C	NI	411
TC411		HSS-E	MF	GS	DIN 374	ISO 2/6H	C	Bright	412
TD411		HSS-E	MF	GS	DIN 374	ISO 2/6H	C	TiN	414
TC413		HSS-E	MF	VG	DIN 374	ISO 2/6H	C	Bright	416
TD413		HSS-E	MF	VG	DIN 374	ISO 2/6H	C	TiN	417
TB183		HSS-E	MF	VA NW	DIN 374	ISO 2/6H	C	vap	418
TC963		HSS-E	MF	Al	DIN 374	ISO 2/6H	C	Bright	419
TC144		HSS-E	UNC	GS	DIN 371/376	2B	C	Bright	420
TC174		HSS-E	UNC	VG	DIN 371/376	2B	C	Bright	421
TD174		HSS-E	UNC	VG	DIN 371/376	2B	C	TiN	422
TB904		HSS-E	UNC	VA NW	DIN 371/376	2B	C	vap	423
TC169		HSS-E	UNC	Al	DIN 371/376	2B	C	Bright	424
TC124		HSS-E	UNF	GS	DIN 371/374	2B	C	Bright	425

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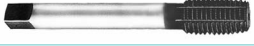
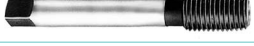
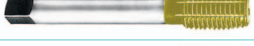
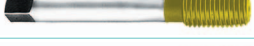
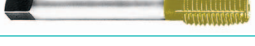
SPIRAL FLUTE TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC184		HSS-E	UNF	VG	DIN 371/374	2B	C	Bright	426
TB924		HSS-E	UNF	VA NW	DIN 371/374	2B	C	vap	427
TC170		HSS-E	UNF	AI	DIN 371/374	2B	C	Bright	428
TC134		HSS-E	BSW	GS	DIN 2182/2183	-	C	Bright	429

STRAIGHT FLUTE TAPS





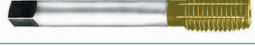
EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC463		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	433
TE821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	NI	434
TD821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	TiN	435
TY821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	TiAlN	436
TI821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	TiCN	437
TC433		HSS-E	M	Ms	DIN 371/376	ISO 2/6H	C	Bright	438
TE443		HSS-E	M	Ms	DIN 371/376	ISO 2X/6HX	C	NI	439
TY433		HSS-E	M	Ms	DIN 371/376	ISO 2/6H	C	TiAlN	440
TC473		HSS-E	MF	GS	DIN 374	ISO 2/6H	C	Bright	441
TE403		HSS-E	MF	GG	DIN 374	ISO 2X/6HX	C	NI	442
TC424		HSS-E	UNC	GS	DIN 371/376	2B	C	Bright	443
TE434		HSS-E	UNC	GG	DIN 371/376	2BX	C	NI	444
TE454		HSS-E	UNF	GG	DIN 371/374	2BX	C	NI	445

COLD FORMING TAPS


EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TQ703		HSS-PM	M	GV	DIN 371/376	ISO 2X/6HX	C	vap	449
TQ723		HSS-PM	M	GV	DIN 371/376	ISO 2X/6HX	C	vap	450
TE703		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	NI	451
TE713		HSS-E	M	GV	DIN 371/376	ISO 3X/6GX	C	NI	452
TE723		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	NI	453
TD713		HSS-E	M	GV	DIN 371/376	ISO 3X/6GX	C	TiN	454
TD723		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	TiN	455
TD703		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	TiN	456

THREADING TOOLS INDEX





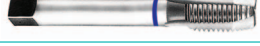
COLD FORMING TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TY703		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	TiAlN	457
TE733		HSS-E	MF	GV	DIN 374	ISO 2X/6HX	C	NI	458
TD733		HSS-E	MF	GV	DIN 374	ISO 2X/6HX	C	TiN	459
TE704		HSS-E	UNC	GV	DIN 371/376	2BX	C	NI	460
TD704		HSS-E	UNC	GV	DIN 371/376	2BX	C	TiN	461









NUT TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC803		HSS-E	M	GS	DIN 357	ISO 2/6H	LONG	Bright	464

SCREW THREAD INSERT TAPS






EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC973		HSS-E	EG-M	AI	DIN 371/376	6H Mod.	B	Bright	467
TC909		HSS-E	EG-M	AI	DIN 371/376	6H Mod.	C	Bright	468
TC934		HSS-E	EG-UNC	AI	DIN 371/376	2B	B	Bright	469
TC944		HSS-E	EG-UNC	AI	DIN 371/376	2B	C	Bright	470
TC954		HSS-E	EG-UNF	AI	DIN 371/374	2B	B	Bright	471

HAND TAPS


EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
T7109		HSS	M	GS	DIN 352	ISO 2/6H	I / II / III	Bright	475
T7343		HSS	M-LH	GS	DIN 352	ISO 2/6H	I / II / III	Bright	476
TC353		HSS-E	M	VG	DIN 352	ISO 2/6H	I / II / III	Bright	477
TB373		HSS-E	M	VA	DIN 352	ISO 2X/6HX	I / II / III	vap	478
T7309		HSS	MF	GS	DIN 2181	ISO 2/6H	I / III	Bright	479
T7363		HSS	UNC	GS	DIN 351	2B	I / II / III	Bright	481
T7509		HSS	UNF	GS	DIN 2181	2B	I / III	Bright	482
T7609		HSS	BSW	GS	DIN 351	-	I / II / III	Bright	483

THREADING TOOLS INDEX

PIPE TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
T7709		HSS	G(BSP)	GS	DIN 5157	-	I / III	Bright	487
TC727		HSS-E	G(BSP)	GS	DIN 5156	-	B	Bright	488
TC728		HSS-E	G(BSP)	GS	DIN 5156	-	C	Bright	489
TC729		HSS-E	G(BSP)	VG	DIN 5156	-	C	Bright	490
TB514		HSS-E	G(BSP)	VA NW	DIN 5156	-	C	vap	491

SOLID CARBIDE TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
T0993		CARBIDE	M	GG	DIN 371/376	ISO 2X/6HX	C	Bright	494

SOLID CARBIDE THREAD MILL

EDP No.	MODEL	Type	Standard	Description	PAGE
L1111 L1211		without Coolant Hole	M	Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13	497
L1112 L1212			MF	Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13	498
L1113 L1213			UNC	Solid Carbide Thread Mill for UNC Internal Thread - ANSI B 1.1	499
L1114 L1214			UNF	Solid Carbide Thread Mill for UNF Internal Thread - ANSI B 1.1	500
L4111 L4211		with Coolant Hole	M	Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13	501
L4112 L4212			MF	Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13	502
L4171 L4271		with Coolant Hole & Chamfer	M	Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13	503
L4172 L4272			MF	Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13	504
L4173 L4273			UNC	Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNC Internal Thread - ANSI B 1.1	505
L4174 L4274			UNF	Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNF Internal Thread - ANSI B 1.1	506
L4176 L4276			NPT	Solid Carbide Thread Mill with Coolant Hole & Chamfer for NPT Thread - ANSI B 1.20.1	507



MACHINE TAPS

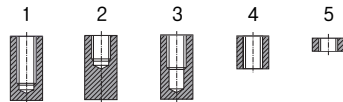
RECOMMENDATION TABLE



USE

◎ = EXCELLENT

○ = GOOD



MATERIAL GROUPS			MU	MU	GS
DIN 371/376	M	EDP No. (Page)	TC804 (p.332)	TC814 (p.327)	TC127 (p.341)
DIN 371/376	EG-M	EDP No. (Page)			
DIN 352	M	EDP No. (Page)			TC122 (p.340)
DIN 374	MF	EDP No. (Page)	TC844 (p.333)	TC854 (p.328)	TC222 (p.365)
DIN 371/376	UNC	EDP No. (Page)	TC824 (p.335)	TC834 (p.330)	TC214 (p.372)
DIN 371/376	EG-UNC	EDP No. (Page)			
DIN 371/374	UNF	EDP No. (Page)	TC864 (p.336)	TC874 (p.331)	TC234 (p.376)
DIN 371/376	EG-UNF	EDP No. (Page)			
DIN 2182/2183	BSW	EDP No. (Page)			TC224 (p.379)
DIN 357/5156	M/G(BSP)	EDP No. (Page)			TC727 (p.488)
SURFACE TREATMENT / COATING			Bright	Bright	Bright
SPIRAL FLUTE ANGLE			R40		
CHAMFER LEAD ACC. DIN 2197			C	B	B
HOLE TYPE			1-2-3	4-5	4-5

COOLANT

- A = Cutting Oil
- T = Oil Emulsion
- X = Cutting Oil/Oil Emulsion
- S = Dry
- Z = Dry/Oil Emulsion

HARDNESS	TENSILE STRENGTH	CHIP	CUTTING SPEED	COOLANT	TAP IMAGES		
					1	2	3
HB	Rm N/mm ²		Vc m/min				

MATERIAL GROUPS		LIST OF MATERIALS	HB	Rm N/mm ²	CHIP	Vc m/min	COOLANT	1	2	3
10. STEELS	11 Steel < 400	Magnetic soft steels	< 120	< 400	Extra long	25-20	T	◎	◎	◎
	12 Steel < 700	Structure steels	< 200	< 700	Medium/long	15-20	T	◎	◎	◎
	13 Steel < 850	Plain carbon steels	< 250	< 850	Long	12-18	T	◎	◎	◎
	14 St. Alloy < 850	Alloy steels	< 250	< 850	Long	10-15	X	◎	◎	◎
	15 St. Alloy ≤ 1,200	Alloy steels, Hardened steels	< 350	≤ 1,200	Long	6-10	X	◎	◎	◎
	16 St. Alloy > 1,200	Alloy steels, Hardened steels	> 350	> 1,200	Long	3-5	A			
20. STAINLESS STEELS	21 INOX Free < 850	Free machining	< 250	< 850	Medium	7-10	A	◎	◎	
	22 INOX Aust.< 850	Austenitic	< 250	< 850	Long	5-8	A	◎	◎	
	23 INOX < 1,100	Ferritic, Ferritic+Austenitic, Martensitic	< 300	< 1,100	Long	4-6	A	◎	◎	
30. CAST IRON	31 GG Cast < 500	Grey cast iron	< 150	< 500	Extra short	10-15	X	◎	◎	
	32 GG Cast < 1,000	Grey cast iron	< 300	< 1,000	Extra short	5-8	T	◎	◎	
	33 GGG Cast < 700	Nodular graphite, Malleable cast iron	< 200	< 700	Short	10-15	X	◎	◎	◎
	34 GGG Cast < 1,000	Nodular graphite, Malleable cast iron	< 300	< 1,000	Short	5-8	X	◎	◎	◎
40. TITANIUM	41 Ti < 700	Titanium, unalloyed	< 200	< 700	Extra long	10-15	T	◎	◎	◎
	42 Ti Alloy < 900	Titanium, alloyed	< 270	< 900	Medium/Short	8-12	A	○	○	
	43 Ti Alloy ≤ 1,300	Titanium, alloyed	< 350	≤ 1,300	Medium/Short	4-6	A			
50. NICKEL	51 Ni < 500	Nickel, unalloyed	< 150	< 500	Extra long	8-12	A	◎	◎	◎
	52 Ni Alloy < 900	Nickel, alloyed	< 270	< 900	Long	10-15	A	○	○	
	53 Ni Alloy ≤ 1,400	Nickel, alloyed	< 410	≤ 1,400	Long	2-4	A			
60. COPPER, BRASS BRONZE	61 Cu < 350	Copper, unalloyed	< 100	< 350	Extra long	8-12	T	◎	◎	◎
	62 Cu Alloy (Short)	Short chip Brass, Bronze, Copper	< 200	< 700	Medium/Short	25-35	T	◎	◎	
	63 Cu Alloy (Long)	Long chip Brass, Bronze, Copper	< 200	< 700	Long	15-20	T	◎	◎	◎
	64 Cu-Al-Fe < 1,500	Cu-Al-Fe alloys	< 470	< 1,500	Short	3-5	A			
70. ALUMINUM	71 Al/Mg < 350	Aluminum, Magnesium, unalloyed	< 100	< 350	Extra long	10-15	T			○
	72 Al Wrought	Aluminum, alloyed Si < 0.5%	< 150	< 500	Medium	25-35	T	◎	◎	◎
	73 Al (Si ≤ 10%)	Aluminum, alloyed, Si ≤ 10%	< 120	< 400	Medium/Short	15-20	T	◎	◎	◎
	74 Al (Si > 10%)	Aluminum, alloyed, Si > 10%	< 120	< 400	Short	10-15	T	◎	◎	◎
80. PLASTICS	81 Thermosoft.	Thermoplastics			Extra long	20-30	T			○
	82 Thermoset.	Thermosetting Plastics			Short	8-12	Z			
	83 FRP	Fiber Reinforced Plastics			Extra sh	5-7	Z			

GS	GS	GS	GS	GS	GS	GS	GS	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG
TC227 (p.342)	TD127 (p.343)	TD227 (p.344)	TC463 (p.433)	TC211 (p.385)	TC517 (p.386)	TC711 (p.387)	TD711 (p.388)	TQ863 (p.345)	TR863 (p.346)	TC422 (p.347)	TE422 (p.348)	TD422 (p.349)	TY422 (p.350)	TQ823 (p.389)	TR823 (p.390)	TC312 (p.393)	TB312 (p.391)	TD312 (p.394)	TY312 (p.395)	TB913 (p.392)
					TC612 (p.384)															
	TD222 (p.367)		TC473 (p.441)			TC411 (p.412)	TD411 (p.414)			TC263 (p.369)		TD263 (p.370)				TC413 (p.416)		TD413 (p.417)		
			TC424 (p.443)			TC144 (p.420)				TC244 (p.373)		TD244 (p.374)				TC174 (p.421)		TD174 (p.422)		
						TC124 (p.425)				TC254 (p.377)						TC184 (p.426)				
			TC134 (p.429)																	
			TC803 (p.464)			TC728 (p.489)				TC729 (p.490)										
Bright	TiN	TiN	Bright	Bright	Bright	Bright	TiN	vap	Bright	Bright	Ni	TiN	TiAIN	vap	Bright	Bright	vap	TiN	TiAIN	vap
				L20	R20	R40	R40							R40	R40	R40	R40	R40	R40	R40
B	B	B	C/Long	C	C	C	C	B	B	B	B	B	B	C	C	C	C	C	C	C
4-5	4-5	4-5	1-2-3 4-5	4-5	2-3	1-2-3	1-2-3	4-5	4-5	4-5	4-5	4-5	4-5	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3
			○																	
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MACHINE TAPS

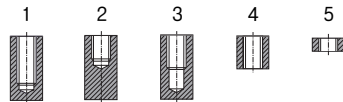
RECOMMENDATION TABLE



USE

⊙ = EXCELLENT

○ = GOOD



MATERIAL GROUPS

MATERIAL GROUPS			HR	HR	HR
DIN 371/376	M	EDP No. (Page)	TC283 (p.353)	TY283 (p.354)	TC313 (p.399)
DIN 371/376	EG-M	EDP No. (Page)			
DIN 352	M	EDP No. (Page)			
DIN 374	MF	EDP No. (Page)			
DIN 371/376	UNC	EDP No. (Page)			
DIN 371/376	EG-UNC	EDP No. (Page)			
DIN 371/374	UNF	EDP No. (Page)			
DIN 371/376	EG-UNF	EDP No. (Page)			
DIN 2182/2183	BSW	EDP No. (Page)			
DIN 357/5156	M/G(BSP)	EDP No. (Page)			
SURFACE TREATMENT / COATING			Bright	TiAlN	Bright
SPIRAL FLUTE ANGLE					R40
CHAMFER LEAD ACC. DIN 2197			B	B	C
HOLE TYPE			4-5	4-5	1-2-3

COOLANT

- A = Cutting Oil
- T = Oil Emulsion
- X = Cutting Oil/Oil Emulsion
- S = Dry
- Z = Dry/Oil Emulsion

HARDNESS	TENSILE STRENGTH	CHIP	CUTTING SPEED	COOLANT	COOLANT		
					1	2	3
HB	Rm N/mm ²		Vc m/min				

MATERIAL GROUPS		LIST OF MATERIALS	HB	Rm N/mm ²	CHIP	Vc m/min	COOLANT	1	2	3
10. STEELS	11 Steel < 400	Magnetic soft steels	< 120	< 400	Extra long	25-20	T			
	12 Steel < 700	Structure steels	< 200	< 700	Medium/long	15-20	T			
	13 Steel < 850	Plain carbon steels	< 250	< 850	Long	12-18	T			
	14 St. Alloy < 850	Alloy steels	< 250	< 850	Long	10-15	X			
	15 St. Alloy ≤ 1,200	Alloy steels, Hardened steels	< 350	≤ 1,200	Long	6-10	X	○	○	○
	16 St. Alloy > 1,200	Alloy steels, Hardened steels	> 350	> 1,200	Long	3-5	A	⊙	⊙	⊙
20. STAINLESS STEELS	21 INOX Free < 850	Free machining	< 250	< 850	Medium	7-10	A			
	22 INOX Aust.< 850	Austenitic	< 250	< 850	Long	5-8	A			
	23 INOX < 1,100	Ferritic, Ferritic+Austenitic, Martensitic	< 300	< 1,100	Long	4-6	A	○	○	○
30. CAST IRON	31 GG Cast < 500	Grey cast iron	< 150	< 500	Extra short	10-15	X			
	32 GG Cast < 1,000	Grey cast iron	< 300	< 1,000	Extra short	5-8	T			
	33 GGG Cast < 700	Nodular graphite, Malleable cast iron	< 200	< 700	Short	10-15	X			
	34 GGG Cast < 1,000	Nodular graphite, Malleable cast iron	< 300	< 1,000	Short	5-8	X			
40. TITANIUM	41 Ti < 700	Titanium, unalloyed	< 200	< 700	Extra long	10-15	T			
	42 Ti Alloy < 900	Titanium, alloyed	< 270	< 900	Medium/Short	8-12	A			
	43 Ti Alloy ≤ 1,300	Titanium, alloyed	< 350	≤ 1,300	Medium/Short	4-6	A			
50. NICKEL	51 Ni < 500	Nickel, unalloyed	< 150	< 500	Extra long	8-12	A			
	52 Ni Alloy < 900	Nickel, alloyed	< 270	< 900	Long	10-15	A			
	53 Ni Alloy ≤ 1,400	Nickel, alloyed	< 410	≤ 1,400	Long	2-4	A			
60. COPPER, BRASS BRONZE	61 Cu < 350	Copper, unalloyed	< 100	< 350	Extra long	8-12	T			
	62 Cu Alloy (Short)	Short chip Brass, Bronze, Copper	< 200	< 700	Medium/Short	25-35	T	○	○	○
	63 Cu Alloy (Long)	Long chip Brass, Bronze, Copper	< 200	< 700	Long	15-20	T			
	64 Cu-Al-Fe < 1,500	Cu-Al-Fe alloys	< 470	< 1,500	Short	3-5	A	⊙	⊙	⊙
70. ALUMINUM	71 Al/Mg < 350	Aluminum, Magnesium, unalloyed	< 100	< 350	Extra long	10-15	T			
	72 Al Wrought	Aluminum, alloyed Si < 0.5%	< 150	< 500	Medium	25-35	T			
	73 Al (Si ≤ 10%)	Aluminum, alloyed, Si ≤ 10%	< 120	< 400	Medium/Short	15-20	T			
	74 Al (Si > 10%)	Aluminum, alloyed, Si > 10%	< 120	< 400	Short	10-15	T			
80. PLASTICS	81 Thermosoft.	Thermoplastics			Extra long	20-30	T			
	82 Thermoset.	Thermosetting Plastics			Short	8-12	Z	○	○	○
	83 FRP	Fiber Reinforced Plastics			Extra sh	5-7	Z	○	○	○

HR	HR	VA	VA	VA NW	VA NW	VA	VA	VA NW	VA NW	NW	Ti	Ti	Ti	Ti	Ti Ni	Ti Ni	Ni	Ni	Ti Ni	Ti Ni
TB313 (p.398)	TY313 (p.400)	TQ853 (p.351)	TR853 (p.352)	TB623 (p.355)	TCH23 (p.356)	TQ813 (p.396)	TR813 (p.397)	TB914 (p.401)	TCH14 (p.402)	TB711 (p.403)	TM293 (p.357)	TZ293 (p.358)	TM903 (p.404)	TZ903 (p.405)	TQ873 (p.359)	TR873 (p.360)	TM923 (p.361)	TZ923 (p.362)	TQ833 (p.406)	TR833 (p.407)
				TB123 (p.371)				TB183 (p.418)												
				TB264 (p.375)				TB904 (p.423)												
				TB274 (p.378)				TB924 (p.427)												
								TB514 (p.491)												
vap	TiAlN	vap	Bright	vap	Hardslick	vap	Bright	vap	Hardslick	vap	Bright	TiAlN	Bright	TiAlN	vap	Bright	Bright	TiAlN	vap	Bright
R40	R40					R40	R40	R40	R40	R40			R25	R25					R40	R40
C	C	B	B	B	B	C	C	C	C	C	B	B	C	C	B	B	B	B	C	C
1-2-3	1-2-3	4-5	4-5	4-5	4-5	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3	4-5	4-5	1-2-3	1-2-3	4-5	4-5	4-5	4-5	1-2-3	1-2-3
		○	○	○	○	○	○	○	○	○										
		○	○	○	○	○	○	○	○	○										
○	○										○	○	○	○	○	○	○	○	○	○
○	○														○	○	○	○	○	○
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MACHINE TAPS

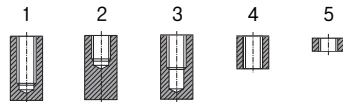
RECOMMENDATION TABLE



USE

◎ = EXCELLENT

○ = GOOD



MATERIAL GROUPS

Ni **Ni** **GV**






















DIN 371/376	M	EDP No. (Page)	TM933 (p.408)	TZ933 (p.409)	TQ703 (p.449)
DIN 371/376	EG-M	EDP No. (Page)			
DIN 352	M	EDP No. (Page)			
DIN 374	MF	EDP No. (Page)			
DIN 371/376	UNC	EDP No. (Page)			
DIN 371/376	EG-UNC	EDP No. (Page)			
DIN 371/374	UNF	EDP No. (Page)			
DIN 371/376	EG-UNF	EDP No. (Page)			
DIN 2182/2183	BSW	EDP No. (Page)			
DIN 357/5156	M/G(BSP)	EDP No. (Page)			
SURFACE TREATMENT / COATING			Bright	TiAlN	vap
SPIRAL FLUTE ANGLE			R25	R25	
CHAMFER LEAD ACC. DIN 2197			C	C	C
HOLE TYPE			1-2-3	1-2-3	1-2-3 4-5

COOLANT

- A = Cutting Oil
- T = Oil Emulsion
- X = Cutting Oil/Oil Emulsion
- S = Dry
- Z = Dry/Oil Emulsion

HARDNESS	TENSILE STRENGTH	CHIP	CUTTING SPEED	COOLANT	COOLANT		
HB	Rm N/mm ²		Vc m/min				

MATERIAL GROUPS		LIST OF MATERIALS	HB	Rm N/mm ²	CHIP	Vc m/min	COOLANT			
10. STEELS	11 Steel < 400	Magnetic soft steels	< 120	< 400	Extra long	25-20	T			◎
	12 Steel < 700	Structure steels	< 200	< 700	Medium/long	15-20	T			◎
	13 Steel < 850	Plain carbon steels	< 250	< 850	Long	12-18	T			◎
	14 St. Alloy < 850	Alloy steels	< 250	< 850	Long	10-15	X			◎
	15 St. Alloy ≤ 1,200	Alloy steels, Hardened steels	< 350	≤ 1,200	Long	6-10	X	◎	◎	
	16 St. Alloy > 1,200	Alloy steels, Hardened steels	> 350	> 1,200	Long	3-5	A	◎	◎	
20. STAINLESS STEELS	21 INOX Free < 850	Free machining	< 250	< 850	Medium	7-10	A			○
	22 INOX Aust.< 850	Austenitic	< 250	< 850	Long	5-8	A			○
	23 INOX < 1,100	Ferritic, Ferritic+Austenitic, Martensitic	< 300	< 1,100	Long	4-6	A			
30. CAST IRON	31 GG Cast < 500	Grey cast iron	< 150	< 500	Extra short	10-15	X			
	32 GG Cast < 1,000	Grey cast iron	< 300	< 1,000	Extra short	5-8	T			
	33 GGG Cast < 700	Nodular graphite, Malleable cast iron	< 200	< 700	Short	10-15	X			
	34 GGG Cast < 1,000	Nodular graphite, Malleable cast iron	< 300	< 1,000	Short	5-8	X			
40. TITANIUM	41 Ti < 700	Titanium, unalloyed	< 200	< 700	Extra long	10-15	T			○
	42 Ti Alloy < 900	Titanium, alloyed	< 270	< 900	Medium/Short	8-12	A			
	43 Ti Alloy ≤ 1,300	Titanium, alloyed	< 350	≤ 1,300	Medium/Short	4-6	A	○	○	
50. NICKEL	51 Ni < 500	Nickel, unalloyed	< 150	< 500	Extra long	8-12	A			◎
	52 Ni Alloy < 900	Nickel, alloyed	< 270	< 900	Long	10-15	A	◎	◎	
	53 Ni Alloy ≤ 1,400	Nickel, alloyed	< 410	≤ 1,400	Long	2-4	A	◎	◎	
60. COPPER, BRASS BRONZE	61 Cu < 350	Copper, unalloyed	< 100	< 350	Extra long	8-12	T			○
	62 Cu Alloy (Short)	Short chip Brass, Bronze, Copper	< 200	< 700	Medium/Short	25-35	T			
	63 Cu Alloy (Long)	Long chip Brass, Bronze, Copper	< 200	< 700	Long	15-20	T			○
	64 Cu-Al-Fe < 1,500	Cu-Al-Fe alloys	< 470	< 1,500	Short	3-5	A	○	○	
70. ALUMINUM	71 Al/Mg < 350	Aluminum, Magnesium, unalloyed	< 100	< 350	Extra long	10-15	T			◎
	72 Al Wrought	Aluminum, alloyed Si < 0.5%	< 150	< 500	Medium	25-35	T			
	73 Al (Si ≤ 10%)	Aluminum, alloyed, Si ≤ 10%	< 120	< 400	Medium/Short	15-20	T			○
	74 Al (Si > 10%)	Aluminum, alloyed, Si > 10%	< 120	< 400	Short	10-15	T			
80. PLASTICS	81 Thermosoft.	Thermoplastics			Extra long	20-30	T			
	82 Thermoset.	Thermosetting Plastics			Short	8-12	Z			
	83 FRP	Fiber Reinforced Plastics			Extra sh	5-7	Z			

GV	GV	GV	GV	GV	GV	GV	GV	AI	AI	AI	AI	AI	GG	GG	GG	GG	GG	Ms	Ms	Ms
TE703 (p.451)	TE713 (p.452)	TD703 (p.456)	TD713 (p.454)	TY703 (p.457)	TQ723 (p.450)	TE723 (p.453)	TD723 (p.455)	TC622 (p.364)		TE943 (p.363)	TC163 (p.410)	TE953 (p.411)	TE821 (p.434)	TD821 (p.435)	Tl821 (p.437)	TY821 (p.436)	T0993 (p.494)	TC433 (p.438)	TE443 (p.439)	TY433 (p.440)
									TC973 (p.467)			TC909 (p.468)								
TE733 (p.458)		TD733 (p.459)										TC963 (p.419)	TE403 (p.442)							
TE704 (p.460)		TD704 (p.461)										TC169 (p.424)	TE434 (p.444)							
									TC934 (p.469)			TC944 (p.470)								
												TC170 (p.428)	TE454 (p.445)							
									TC954 (p.471)											
NI	NI	TiN	TiN	TiAlN	vap	NI	TiN	Bright	Bright	NI	Bright	NI	NI	TiN	TiCN	TiAlN	Bright	Bright	NI	TiAlN
C	C	C	C	C	C	C	C	B	B	NI	R45/40	R40	C	C	C	C	C	C	C	C
1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	4-5	4-5	4-5	1-2-3	1-2-3	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5	1-2-3 4-5
																				
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CUTTING SPEED TABLE

CUTTING SPEED TABLE **SCHNITTGESCHWINDIGKEITSTABELLE** Cutting Speeds m/min. into revolutions per minute

TOOL R.P.M.(rev/min)																
Tool Dia.	Cutting Speed (m/min)															
	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
1	318	637	955	1274	1592	1910	2548	3185	3822	4777	6396	7962	9554	12739	15924	19108
2	159	318	478	637	796	955	1274	1592	1911	2388	3185	3981	4777	6369	7962	9554
3	106	212	318	425	531	637	849	1062	1274	1592	2123	2654	3185	4246	5308	6369
4	80	159	239	318	398	478	637	796	955	1194	1592	1990	2389	3185	3981	4777
5	64	127	191	255	318	382	510	637	764	955	1274	1592	1911	2548	3185	3822
6	53	106	159	212	265	318	425	531	637	796	1062	1327	1592	2123	2653	3185
8	40	80	119	159	199	239	318	398	478	597	796	955	1194	1592	1990	2388
10	31	64	96	127	159	191	255	318	382	478	637	796	955	1274	1592	1911
12	26	53	80	106	133	159	212	265	318	398	531	663	796	1062	1327	1592
14	23	45	68	91	114	136	182	227	273	341	455	569	682	910	1137	1365
16	20	40	60	80	100	119	159	199	239	299	398	498	597	796	995	1194
18	18	35	53	71	88	106	142	177	212	265	354	442	531	708	885	1062
20	16	32	48	64	80	96	127	159	191	239	318	398	478	637	796	955
25	13	25	38	51	64	76	102	127	153	191	255	318	382	510	637	764
30	11	21	32	42	53	64	85	106	127	159	212	265	318	425	531	637
35	9	18	27	36	45	55	73	91	109	136	182	227	273	364	455	546
40	8	16	24	32	40	48	64	80	96	119	159	199	239	118	398	478

RPM = rev/min

V = m/min

D = Dia.(mm)

$$V = \frac{RPM \cdot \pi \cdot D}{1000}$$

$$RPM = \frac{1000 \cdot V}{\pi \cdot D}$$

SURFACE TREATMENT AND COATING

The High Speed Steels we use grant a good wear resistance and toughness. Therefore we normally deliver our taps with bright, untreated surface. In machining certain materials, various surface treatments are of advantage.

STEAM TEMPERED - vap

The Steam Tempered is a Fe_3O_4 -oxyd-coating which reduces the friction between tool and workpiece and prevents cold welding.

NITRIDING - NI

We recommend this surface treatment for machining materials which effect a hard wear / abrasion, such as grey cast iron, alu-alloys with high Si-percentage more than 10%.

These are surface finishes of good value and suitable for many application. We do these surface treatments within our own company.

Further surface finishes are the various coatings.

TiN-COATING - TiN

The TiN-coating has a hardness of approx. **2,300 HV** and is temperature-resistant up to approx. **600°C**. This is an excellent all-round coating for normal applications.
Colour : **Golden** Coefficient of friction against steel : 0.4

TiCN-COATING - TiCN

TiCN takes place of TiN when the conditions require the coating to have a different hardness and toughness.
The TiCN brings advantage in machining very difficult steels or cutting interrupted bores.
The TiCN-coating has a hardness of approx. **3,000 HV**, but is temperature-resistant up to approx. **400°C** only. That means TiCN needs an excellent cooling for long service life.
Colour : **Blue-Grey** Coefficient of friction against steel : 0.4

TiAlN-COATING - TiAlN

This is a special coating for machining abrasive materials such as : grey cast iron, alu-alloys with silicon, fiber reinforced plastics, etc., or machining under high temperatures, which means with insufficient cooling, or high speeds $\geq 600\text{m/min}$. The TiAlN has a hardness of approx. **3,000 HV** and is temperature resistant up to approx. **800°C**.
Colour : **Violet-Grey** Coefficient of friction against steel : 0.4

Hardslick-COATING - Hardslick

Hardslick combines in a novel way the advantages of an extremely hard, thermally stable TiAlN-coating with the sliding and lubricating properties of an outer WC/C(Tungsten carbide/carbon)-coating. The Hardslick coating has a hardness of approx. **3,000 HV** and is temperature-resistant up to approx. **800°C**.
Colour : **Violet-Grey** Coefficient of friction against steel : 0.2

EXAMPLES FOR APPLICATION MATERIAL GROUPS

11 Magnetic Soft Steels $< 400 \text{ N/mm}^2$ 1.1013 RFe 100 1.1014 RFe 80 1.1015 RFe 60 1.0718 9 S MnPb 28	12 Structure/Case Carburizing Steels $< 700 \text{ N/mm}^2$ 1.0037 St 37-2 1.0050 St 50-2 1.0060 St 60-2 1.0070 St 70-2 1.0401 C 15 1.1141 Ck 15	13 Plain Carbon Steels $< 850 \text{ N/mm}^2$ 1.0501 C 35 1.0503 C 45 1.0535 C 55 1.0601 C 60 1.1181 Ck 35 1.1191 Ck 45	14 Alloy Steels $< 850 \text{ N/mm}^2$ 1.2080 X210Cr12 1.2363 X100CrMoV5-1 1.3243 S 6-5-2-5 1.3343 S 6-5-2 1.7218 25CrMo4 1.7220 34CrMo4
15 Alloy, Hardened & Tempered Steels $< 1,200 \text{ N/mm}^2$ 1.2581 X30WCrV9 3 1.2622 X60WCrMoV9 1.2550 60WCrV7 1.6580 30CrNiMo8 1.7361 32CrMo12 1.8515 31CrMo12	16 Alloy, Hardened & Tempered Steels $> 1,200 \text{ N/mm}^2$ To this group belong most of the materials of group 15, but present a higher tensile strength.	21 Free machining stainless Steels $< 850 \text{ N/mm}^2$ 1.4005 X12CrS13 1.4006 X10Cr13 1.4016 X6Cr17 1.4104 X12CrMoS17 1.4305 X10CrNiS18 9	22 Austenitic stainless Steels $< 850 \text{ N/mm}^2$ 1.4301 X5CrNi18 10 1.4406 X2CrNiMoN17 12 2 1.4435 X2CrNiMo18 14 3 1.4541 X6CrNiTi18 10 1.4571 X6CrNiMoTi17 12 2 1.4828 X15CrNiSi20 12
23 Martensitic/Ferritic/Fer.-Aus. Stainless Steels $< 1,000 \text{ N/mm}^2$ 1.4112 X90CrMoV18 1.4125 X105CrMo17 1.4002 X6CrAl13 1.4512 X6CrTi12 1.4582 X4CrNiMoNb25 7 1.4821 X20CrNiSi25 4	31 Grey graphite cast irons $< 500 \text{ N/mm}^2$ 0.6015 GG-15 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	32 Grey graphite cast irons $< 1,000 \text{ N/mm}^2$ 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	33 Nodular graphite, Malleable cast irons $< 700 \text{ N/mm}^2$ 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.8040 GTW-40 0.8065 GTW-65
34 Nodular graphite, Malleable cast irons $< 1,000 \text{ N/mm}^2$ 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.7070 GGG-70 0.7080 GGG-80	41 Titanium unalloys $< 700 \text{ N/mm}^2$ 3.7024 Ti99.5 3.7034 Ti99.7 3.7035 Ti2 3.7055 Ti99.4 3.7064 Ti99.2 3.7065 Ti4	42 Titanium alloys $< 900 \text{ N/mm}^2$ TiA14Mn4 3.7114 TiA15Sn2 3.7124 TiCu2 3.7164 TiA16V4 3.7174 TiA16V6Sn2	43 Titanium alloys $< 1,300 \text{ N/mm}^2$ 3.7124 TiCu2 3.7144 TiA16Sn2Zr4Mo2 3.7154 TiAl6Zr5 3.7164 TiA16V4 3.7174 TiA16V6Sn2 3.7184 TiAl4Mo4Sn2
51 Nickel unalloys $< 500 \text{ N/mm}^2$ 2.1504 NiAlBz 2.4042 Ni99CSi 2.4060 Ni99.6 2.4062 Ni99.4Fe	52 Heat resisting Nickel alloys $< 900 \text{ N/mm}^2$ 2.4360 Monel 400 2.4374 Monel 500 2.4665 Hastelloy X 2.4812 Hastelloy C 2.4816 Inconel 600 1.4876 Incoloy 800	53 Heat resisting Nickel alloys $< 1,400 \text{ N/mm}^2$ 2.4631 Nimonic80A 2.4632 Nimonic90 2.4634 Nimonic105 2.4662 Nimonic901 2.4668 Inconel 718 2.4669 Inconel X-750	61 Copper unalloys $< 350 \text{ N/mm}^2$ 2.0060 E-Cu57 2.0070 SE-Cu 2.0090 SF-Cu 2.1356 CuMn3 2.1522 CuSi2Mn
62 Short chip Brass, Bronze copper alloys $< 700 \text{ N/mm}^2$ 2.0360 CuZn40 (Ms60) 2.0380 CuZn39Pb2 (Ms58) 2.0410 CuZn44Pb2 2.0580 CuZn40Mn1Pb 2.1086 G-CuSn10Zn 2.1096 G-CuSn5ZnPb	63 Long chip Brass, Bronze copper alloys $< 700 \text{ N/mm}^2$ 2.0250 CuZn20 2.0321 CuZn37 2.1020 CuSn6 2.1080 CuSn6Zn6 2.1245 CuBel.7 2.1293 CuCrZr	64 Cu-Al-Fe alloys $< 1,500 \text{ N/mm}^2$	71 Aluminum-Magnesium unalloys $< 350 \text{ N/mm}^2$ 3.0250 Al99.5H 3.0280 Al99.8H 3.0305 Al99.9 3.3308 Al99.9Mg0.5
72 Aluminum alloys, $\text{Si} < 0.5\% < 600 \text{ N/mm}^2$ 3.0515 AlMn1 3.0525 AlMn1Mg0.5 3.1325 AlCuMg1 3.3315 AlMg1 3.3241 G-AlMg3Si 3.3292 GD-AlMg9	73 Aluminum alloys, 0.5-10% $\text{Si} < 600 \text{ N/mm}^2$ 3.2134 G-AISi5Cu1Mg 3.2152 GD-AISi6Cu4 3.2162 GD-AISi8Cu3 3.2373 G-AISi9Mg	74 Aluminum alloys, $\text{Si} > 10\% < 600 \text{ N/mm}^2$ 3.2381 G-AISi10Mg 3.2383 G-AISi10Mg(Cu) 3.2581 G-AISi12 3.2583 G-AISi12(Cu) 3.5662 G-MgA16 3.5812 G-MgA18Zn1	81 Thermoplastics Delrin(POM) Teflon Nylon
82 Thermosetting plastics Bakelit Novopan	83 Reinforced plastics materials Glass fiber reinforced Thermo and Duroplastics	Reference: DIN	

MATERIAL GROUP STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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10 - STEEL

11 - Magnetic soft steels - Hardness < 120 HB 30 - Tensile strength < 400 N/mm²

1.1013	RFe 100		OSOA12	EN2	
1.1014	RFe 80				
1.1015	RFe 60		230Mo7	EN1	
1.0718	9 S MnPb 28				

12 - Structural steels - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

12.1 - Structural steels

1.0034	RSt 34-2	A34-2 EN	1449 34/20 HR		
1.0035	St 33	A33	Fe 310-0		
1.0036	St 37-2		060A35	EN3A,4,5,6,7,8	
1.0037	RSt 37-2				
1.0044	St 44-2				
1.0050	St 50-2		4360-50B	EN 207	
1.0060	St 60-2				
1.0070	St 70-2				
1.0116	St 37-3				
1.0144	St 44-3				

12.2 - Case carburizing steels

1.0301	C 10	AF 34 C 10	040 A 10		M 1010
1.0401	C 15	AF 37 C 12	080 A 15		M 1015
1.1121	Ck 10	XC 10	040 A 10		1010
1.1141	Ck 15	XC 12	040 A 15		1015
1.5732	14 Ni Cr 10	14 NC 11			3415
1.7015	15 Cr 3	12 C 3	523 M 15		5015
1.7131	16 Mn Cr 5	16 MC 4	527 M 17	EN 32	5115
1.7147	20 Mn Cr 5	20 MC 5			5120

12.3 - Free machining steels

1.0710	15 S 10				
1.0715	9 S Mn 28	S 250	230 M 07		1213
1.0718	9 S Mn Pb 28	S 250 Pb			12 L 13
1.0721	10 S 20	10 F1	210 M 15		1108 1109
1.0722	10 S Pb 20	10 Pb F 2			11 L 08
1.0723	15 S 20	210 A 15		
1.0726	35 S 20	35 MF 6	212 M 36		1140
1.0727	45 S 20	45 MF 4			1146
1.0736	9 S Mn 36	S 300			1215
1.0737	9 S Mn Pb 36	S 300 Pb			12 L 14

12.4 - Cast structural steels

1.0416	GS - 38				
1.0446	GS - 45				
1.0552	GS - 52				
1.0553	GS - 60	E 36 - 3			
1.0554	GS - 70				

13 - Plain carbon steels - tempered

13.1 - Steels, tempered - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²

1.0402	C 22	1 C 22	070 M 20		M 1023
1.0501	C 35	1 C 35	080 A 32		1035
1.0503	C 45	1 C 45	060 A 47		1045
1.0535	C 55	1 C 55	070 M 55		1055
1.0601	C 60	1 C 60	060 A 62	EN 43	1060
1.1157	40 Mn 4	35 M 5	150 M 36		1035 1041
1.1151	Ck 22	2 C 22	055 M 15		1020 1023
1.1181	Ck 35	2 C 35	080 A 35		1035 1038
1.1191	Ck 45	2 C 45	080 M 46	EN 9, 10	1045
1.1203	Ck 55	2 C 55	060 A 57		1055
1.1221	Ck 60	2 C 60	060 A 62		1060 1064

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W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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14 - Alloy steels - Hardness < 250 HB 30, < 25 HRC - Tensile strength < 850 N/mm²

14.1 - Cold work tool steels

1.2056	90 Cr 3				
1.2067	100 Cr 6	Y 100 C 6	BL 3		L 1 L 3
1.2080	X 210 Cr 12	Z 200 C 12	BD 3		D3
1.2083	X 42 Cr 13	Z 40 C 14			420
1.2363	X 100 CrMoV5 1	Z 100 CDV 5	BA 2		A 2
1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	BD 2		D 2
1.2510	100 MnCrW 4	90 MWCV 5	BO 1		O1
1.2550	60 WCrV 7	55WC 20	BS 1		S1
1.2823	70 Si 7				
1.2826	60 Mn Si Cr 4				
1.2842	90 MnCrV 8	90 MV 8	BO 2		O 2

14.2 - High speed steels

1.3202	S 12-4-4-5	Z 130 WKCV 12-05-04-04	BT 15		T 15
1.3207	S 10-4-3-10	Z130 WKCDV10-10-04-04-03	BT 42		T 42
1.3243	S 6-5-2-5	Z85 WDKCV 06-05-05-04-02	BM 35		M 35
1.3247	S 2-10-1-8	Z110 DKCWV 09-08-04-02-01	BM 42		M 42
1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2		M 2
1.3344	S 6-5-3	Z 120 WDCV 06-05-04-03			M 3 / 2
1.3348	S 2-9-2	Z 100 DCWV 09-04-02-02			M 7
ASP 23	(S 6-5-3)				
ASP 30					
ASP 60					

14.3 - Alloy cast irons

1.5919	GS-15Cr Ni 6	16 NC 6			3115
1.7218	GS-25Cr Mo 4	25 C D 4	70 8A 25		4130
1.7220	GS-34Cr Mo 4	35 C D 4	70 8A 37		4135 4137
1.7379	GS-18 Cr Mo 9 10				

14.4 - Tempered steels

1.0503	C 45	1 C 45	060 A 47		1045
1.7220	34 Cr Mo 4	34 Cr Mo 4	708 A 37		4135, 4137
1.7225	42 Cr Mo 4	42 CD 4	708 A 42	EN 16, 17, 19	4140, 4142
1.7228	50 Cr Mo 4	50 Cr Mo 4	708 A 47		4150

14.5 - Nitriding steels

1.7779	20 Cr Mo V 13.5				
1.8504	34 Cr Al 6				
1.8506	34 Cr Al S 5				
1.8507	34 Cr Al Mo 5	30 CAD 6.12			A 355 Cl.D
1.8509	41 Cr Al Mo 7	40 CAD 6.12	905 M 39		A 355 Cl.A
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		

15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm²

15.1 - Alloy steels for tools

1.2311	40 Cr Mn Mo 7				
1.2312	40 Cr Mn Mo S 86				
1.2436	X 210 Cr W 12	Z 200 CW 12			
1.2711	54 Ni Cr Mo V 6				
1.2713	55 Ni Cr Mo V 6	55 NCDV 7	826 M 40	S 95, S 97, S 98	L 6
1.2714	56 Ni Cr Mo V 7				
1.2743	60 Ni Cr Mo V 12 4				
1.2766	35 Ni Cr Mo 16				

15.2 - Alloy steels for hot work

1.2343	X 38 Cr Mo V 5 1	Z 38 CDV 5	BH 11		H 11
1.2344	X 40 Cr Mo V 5 1	Z 40 CDV 5	BH 13		H 13
1.2365	X 32 Cr Mo V 3 3	32 DCV 28	BH 10		H 10
1.2367	X 40 Cr Mo V 5 3	Z 38 CDV 5.3			
1.2581	X 30 W Cr V 9 3	Z 30 WCV 9.3	BH 21		H 21
1.2622	X 60 W Cr Mo V 9				
1.2678	X 45 CoCrWV 5 5 5				
1.2550	60 WCr V 7	55 WC 20	BS 1		S 1
1.2567	X 30 W Cr V 5 3	Z 32 WCV 5			

MATERIAL GROUP STANDARDS

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15.3 - Hardened tempered steels - Hardness may be different according to presentation and dimensions of material

1.5864	35 Ni Cr 18				
1.6580	30 Cr Ni Mo 8	30 Cr Ni Mo 8			
1.7361	32 Cr Mo 12	30 CD 12	722 M 24		
1.7707	30 Cr Mo V 9				
1.8161	58 Cr V 4				

15.4 - Nitriding steels

1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
1.8519	31 Cr Mo V 9		830 M 31		
1.8523	39 Cr Mo V 13 9		897 M 39		
1.8550	34 Cr Al Ni 7		826 M 40		

16 - Alloy steels / Hardened tempered steels - Hardness > 38 HRC - Tensile strength > 1,200 N/mm²

To this group belong most of the materials of group 15, but present a higher tensile strength

20 - STAINLESS STEELS

21 - Free machining stainless steels - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²

1.4104	X 12 Cr Mo S 17	Z 13 CF 17	416 S 37	EN 56	430 F
1.4305	X 10 Cr Ni S 18 09	Z 8 CNF 18-09	303 S 21	EN 60	303

22 - Austenitic stainless steels - Hardness < 250 HB 30 - Tensile strength < 850 N/mm²

1.4300	X 12 Cr Ni 18 8		320 S 12		
1.4301	X 5 Cr Ni 18 10	Z 6 CN 18-09	304 S 15	EN 80, EN 58 + C	304
1.4311	X 2 CrNiN 18 10	Z 3 CN 18-07 Az	304 S 61		304 LN
1.4406	X 2 CrNiMoN 17 12 2	Z 3 CND 17 11 02	316 S 61		316 LN
1.4433	X 2 CrNiMo 18 15		316 S		
1.4435	X 2 CrNiMo 18 14 3	Z3 CND 17-12-03	316 S 11		316 L
1.4539	X 1 CrNiMoCu 25 20 5	Z 1 NCDU 25-20	321 S 17		UNS N08904
1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18 10	321 S 18	EN 58 J, 316	321
1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNDT 17 12	320 S 18		316 Ti
1.4573	X 10 CrNiMoTi 18 12		320 S 33		
1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20-12	309 S 24		309

22.1 - Cast austenitic stainless steels

1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M	304 C 15(LT196)		CF-8
1.4313	G-X 5 CrNi 13 4	Z 8 CD 17-01	425 C 12		CA 6 -NM
1.4408	G-X 6 CrNiMo 18 10		316 C 16(LT196)		CF-8M
1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12M	318 C 17		

23 - Martensitic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²

1.4021	X 20 Cr 13	Z 20 C 13	420 S 37		420
1.4034	X 46 Cr 13	Z 44 C 14	(420 S 45)		
1.4057	X 20 CrNi 17 2	Z 15 CN 16-02	431 S 29		431
1.4112	X 90 CrMoV 18				
1.4116	X 45 CrMoV 15			EN 58, b.e.j.t	
1.4125	X 105 CrMo 17	Z 100 CD 17		Duplex alloys	440 C
1.4718	X 45 CrSi 9 3	Z 45 CS 9	401 S 45		HNV 3
1.4747	X 80 CrNiSi 20	Z 80 CSN 20-02	443 S 65		HNV 6
1.4086	G-X 120 Cr 29				
1.4106	G-X 10 CrMo 13				
1.4138	G-X 120 CrMo 29 2				

24 - Ferritic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²

1.4002	X 6 Cr Al 13	Z 8 CA 12	405 S 17		405
1.4006	X 10 Cr 13	Z 10 C 13	410 C 21		410
1.4016	X 6 Cr 17	Z 8 C 17	430 S 17		430
1.4510	X 6 Cr Ti 17	Z 8 CT 17			430 Ti
1.4512	X 6 Cr Ti 12	Z 6 CT 12	409 S 19		409

25 - Ferritic-Austenitic stainless steels - Hardness < 320 HB 30 - Tensile strength < 1,100 N/mm²

1.4460	X 8 CrNiMo 27 5	Z 5 CND 27-05 Az			329
1.4582	X 4 CrNiMoNb 25 7				
1.4821	X 20 CrNiSi 25 4				

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
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30 - CAST IRONS

31 - Grey graphite cast irons - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²

0.6010	GG-10	Ft 10 D			A 48-20 B
0.6015	GG-15	Ft 20 D	Grade 150	Grey cast iron soft	A 48-25 B
0.6020	GG-20	Ft 25 D	Grade 220		A 48-30 B
0.6025	GG-25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG-30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG-35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG-40	Ft 40 D	Grade 400		A 48-60 B

31.1 - Meehanite - Hardness < 150 HB 30 - Tensile strength < 500 N/mm²

.....	GF - 150				
.....	GD - 260				

32 - Grey graphite cast irons - Hardness 150 - 300 HB 30 - Tensile strength 500 - 1,000 N/mm²

0.6020	GG - 20	Ft 25 D	Grade 220	Grey cast iron hard	A 48-30 B
0.6025	GG - 25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG - 30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG - 35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG - 40	Ft 40 D	Grade 400		A 48-60 B

32.1 - Meehanite - Hardness 150-300 HB 30 - Tensile strength 500-1,000 N/mm²

.....	GF - 150				
.....	GD - 260				

33 - Nodular graphite, malleable cast irons - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

0.7033	GGG-35.3				
0.7040	GGG-40	FGS 400-12	420 / 12		60-40-18
0.7043	GGG-40.3	FGS 370-17	370 / 17		
0.7050	GGG-50	FGS 500-7	500 / 7		65-45-12
0.7060	GGG-60	FGS 600-3	600 / 3	S.G.iron, Meehanite	80-55-06
0.8035	GTW-35		700/2,30g/72	Black & White Heart	
0.8040	GTW-40				
0.8045	GTW-45				
0.8065	GTW-65				
0.8135	GTS-35				
0.8145	GTS-45				
0.8155	GTS-55				
0.8165	GTS-65				

33.1 - Meehanite - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

	SF 400				
	SPF 600				

34 - Nodular graphite, tempered malleable cast irons - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm²

0.7070	GGG-70	FGS 700-2	700 / 2	S.G.iron, Meehanite	100-70-03
0.7080	GGG-80	FGS 800-2	800 / 2	Black & White Heart	120-90-02

And materials from group 33 tempered

34.1 - Meehanite - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm²

	SH 800		420/12, P 440/7		
	SH 1000				

40 - TITANIUM

41 - Titanium, unalloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²

3.7024.1LN	Ti 99.5				
3.7034.1LN	Ti 99.7				
3.7035	Ti 2				
3.7055	Ti 99.4		TA 1-9	Ti 99.0	
3.7064.1LN	Ti 99.2				
3.7065	Ti 4				
3.7255	Ti 3 Pd				

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
42 - Titanium, alloys - Hardness < 270 HB 30 - Tensile strength < 900 N/mm²					
	Ti Al 4 Mn 4				
3.7144 LN	Ti Al 5 Sn 2				
3.7124 LN	Ti Cu 2		TA 10-14, TA 17	Ti - 2AL	
3.7164 LN	Ti Al 6 V 4		TA 18		
3.7174 LN	Ti Al 6 V 6 Sn 2				
43 - Titanium, alloys - Hardness 270-300 HB 30 - Tensile strength 900-1,300 N/mm²					
3.7124 LN	Ti Cu 2				
3.7144 LN	Ti Al 6 Sn 2 Zr4 Mo2			Ti AL	
3.7154 LN	Ti Al 6 Zr 5		TA 10-13, TA 28	3.7174LN, 3.7148LN	
3.7164 LN	Ti Al 6 V 4				
3.7174 LN	Ti Al 6 V Sn 2				
3.7184 LN	Ti Al 4 Mo 4 Sn 2				
50 - NICKEL					
51 - Nickel, unalloys - Hardness < 150 HB 30 - Tensile strength < 500 N/mm^{2a}					
2.1504 LN	Ni Al Bz				
2.4042	Ni 99 CSi		NA 11, NA 12	Nickel 200	
2.4060	Ni 99.6			Nickel 270	
2.4062	Ni 99.4 Fe				
52 - Heat resisting nickel alloys - Hardness < 270 HB 30 - Tensile strength < 900 N/mm²					
2.4360 LN	Monel 400				
2.4374 LN	Monel 500				
2.4617	Hastelloy B 2			Nimonic 75	
2.4665	Hastelloy X		HR 203		
2.4812	Hastelloy C		3027-76	Hastelloy C	
2.4816	Inconel 600			Haynes Alloys 263	
1.4876	Incoloy 800				
2.4983	Udimet 500				
53 - Heat resisting nickel alloys - Hardness 270-410 HB 30 - Tensile strength 900-1,400 N/mm²					
2.4631	Nimonic 80 A			Nimonic 80	
2.4632	Nimonic 90				
2.4634	Nimonic 105				
2.4662	Nimonic 901		HR 8		
2.4668	Inconel 718		HR 401, 601	Rene 41	
2.4669	Inconel X-750				
2.4670 LN	Nimocast 713				
2.4674 LN	Nimocast PK 24				
2.4856	Inconel 625				
2.6554 LN	Waspaloy				
60 - COPPER					
61 - Copper, unalloys - Hardness < 100 HB 30 - Tensile strength < 350 N/mm²					
2.0060	E - Cu 57				
2.0070	SE - Cu			Commerially Pure	
2.0090	SF - Cu		C 101		
2.1356	Cu Mn 3				
2.1522	Cu Si 2 Mn				
62 - Short chip copper alloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²					
62.1 - Brass					
2.0360	Cu Zn 40(MS 60)				
2.0380	Cu Zn 39 Pb 2 (MS 58)		CZ120, CZ109		
2.0410	Cu Zn 44 Pb 2		PB104		
2.0561	Cu Zn 40 Al 1			2.1030, 2.1080	
2.0580	Cu Zn 40 Mn 1 Pb				
2.0771	Cu Ni 7 Zn 39 Mn 5 Pb3				
62.2 - Bronzes					
2.1086	G-Cu Sn 10 Zn				
2.1093	G-Cu Sn 6 Zn Ni				
2.1096	G-Cu Sn 5 Zn Pb				

MATERIAL GROUP

STANDARDS

W.Nr	GERMANY DIN	FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
63 - Long chip copper alloys - Hardness < 200 HB 30 - Tensile strength < 700 N/mm²					
63.1 - Brass					
2.0250	Cu Zn 20				
2.0265	Cu Zn 30				
2.0321	Cu Zn 37		CZ108, CZ106		
2.0335	Cu Zn 36 (Ms 63)				
63.2 - Bronzes					
2.1020	Cu Sn 6				
2.1030	Cu Sn 8				
2.1080	Cu Sn 6 Zn 6				
63.3 - Copper alloys tempered by forging					
2.1245	Cu Be 1.7				
2.1247	Cu Be 2				
2.1293	Cu Cr Zr				
64 - Cu - Al - Fe alloys Hardness < 440 HB 30 - Tensile strength < 1,500 N/mm²					
70 - ALUMINIUM - MAGNESIUM					
71 - Aluminum - Magnesium, unalloys - Hardness < 100 HB 30 - Tensile strength < 350 N/mm²					
3.0250	Al 99.5 H				
3.0280	Al 99.8 H				
3.0305	Al 99.9				
3.3308	Al 99.9 Mg 0.5				
72 - Aluminum alloys, Si < 0.5% - Hardness < 180 HB 30 - Tensile strength < 600 N/mm²					
72.1 - Forging aluminum alloys					
3.0515	Al Mn 1				
3.0516	S-Al Mn				
3.0525	Al Mn 1 Mg 0.5				
3.0615	Al Mg Si Pb				
3.1325	Al Cu Mg 1				
3.1355	Al Cu Mg 2				
3.3315	Al Mg 1				
3.3535	Al Mg 3				
3.4365	Al Zn Mg Cu 1.5				
72.2 - Cast aluminum alloys					
3.1841	G - Al Cu 4 Ti				
3.3241	G - Al Mg 3 Si				
3.3292	GD - Al Mg 9				
73 - Aluminum alloys, 0.5-10% Si - Hardness < 180 HB 30 - Tensile strength < 600 N/mm²					
73.1 - Cast aluminum alloys					
3.2134	G - Al Si 5 Cu 1 Mg				
3.2152	GD - Al Si 6 Cu 4				
3.2162	GD - Al Si 8 Cu 3				
3.2373	G - Al Si 9 Mg				
74 - Aluminum alloys, Si > 10% - Hardness < 180 HB 30 - Tensile strength < 600 N/mm²					
74.1 - Cast aluminum alloys					
3.2381	G - Al Si 10 Mg				
3.2383	G - Al Si 10 Mg (Cu)				
3.2581	G - Al Si 12				
3.2583	G - Al Si 12 (Cu)				
3.2982	GD - Al Si 12 (Cu)				
74.2 - Cast aluminum - magnesium alloys					
3.5106	G - Mg Ag 3 SE 2 Zr 1				
3.5662	G - Mg Al 6				
3.5812	G - Mg Al 8 Zn 1				
3.5912	G - Mg Al 9 Zn 1				

HSS



Being the best through innovation



COMBO TAPS

COMBO GEWINDEBOHRER

- Spiral Point, Spiral Flute Type
Multi Purpose tapping, YG-1's Patent
- gerade- und drallgenutet
Mehrzweckgewindebohrer. YG-1 Patent









SELECTION GUIDE

COMBO TAPS (Spiral Point & Spiral Flute)

Multi Purpose tapping, YG-1's Patent

COMBO TAPS

● SPIRAL POINT TAP ● SPIRAL FLUTE TAP

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
● TC814		HSS-E	M	MU	DIN 371/376	ISO 6H	B	Bright	327
● TC854		HSS-E	MF	MU	DIN 374	ISO 6H	B	Bright	328
● TC834		HSS-E	UNC	MU	DIN 371/376	2B	B	Bright	330
● TC874		HSS-E	UNF	MU	DIN 371/374	2B	B	Bright	331
● TC804		HSS-E	M	MU	DIN 371/376	ISO 6H	C	Bright	332
● TC844		HSS-E	MF	MU	DIN 374	ISO 6H	C	Bright	333
● TC824		HSS-E	UNC	MU	DIN 371/376	2B	C	Bright	335
● TC864		HSS-E	UNF	MU	DIN 371/374	2B	C	Bright	336

M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

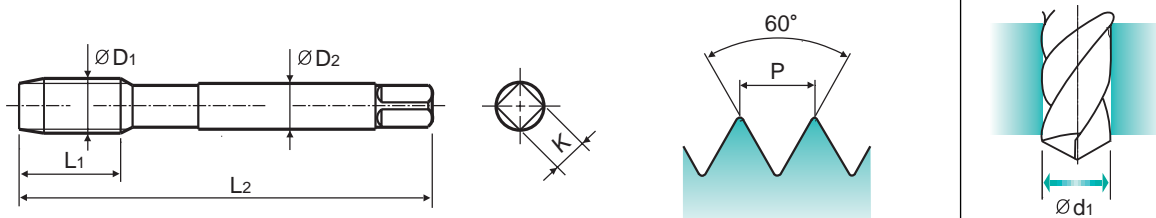
► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



Material groups **MU** HSS-E DIN 371/376 6H 60° B Bright

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC814136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC814156	8	45	2.8	2.1	1.75
M2.3	× 0.4	TC814196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC814176	9	50	2.8	2.1	2.05
M2.6	× 0.45	TC814496	9	50	2.8	2.1	2.1
M3	× 0.5	TC814206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TC814226	12	56	4	3	2.9
M4	× 0.7	TC814246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TC814266	14	70	6	4.9	3.7
M5	× 0.8	TC814286	15	70	6	4.9	4.2
M6	× 1.0	TC814316	17	80	6	4.9	5
M7	× 1.0	TC814346	17	80	7	5.5	6
M8	× 1.25	TC814366	20	90	8	6.2	6.8
M9	× 1.25	TC814396	20	90	9	7	7.8
M10	× 1.5	TC814426	22	100	10	8	8.5
M11	× 1.5	TC814466	22	100	8	6.2	9.5
M12	× 1.75	TC814506	24	110	9	7	10.2
M14	× 2.0	TC814546	26	110	11	9	12
M16	× 2.0	TC814606	27	110	12	9	14
M18	× 2.5	TC814656	30	125	14	11	15.5
M20	× 2.5	TC814706	32	140	16	12	17.5
M22	× 2.5	TC814746	32	140	18	14.5	18.5
M24	× 3.0	TC814786	34	160	18	14.5	21
M27	× 3.0	TC814866	36	160	20	16	24
M30	× 3.5	TC814946	40	180	22	18	26.5

► DIN371 (M2~M10) and DIN376 (M11~M30)
 ► Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm² ◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
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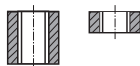
- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

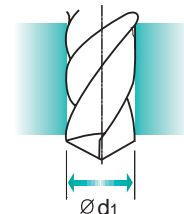
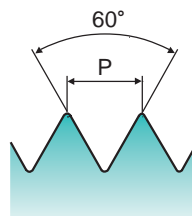
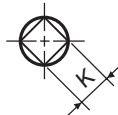
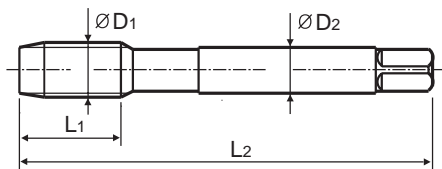
MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type

DIN 374
MU
HSS-E
DIN 374
6H

Bright
Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TC854256	10	63	2.8	2.1	3.5
M5	× 0.5	TC854296	11	70	3.5	2.7	4.5
M6	× 0.75	TC854326	13	80	4.5	3.4	5.2
M6	× 0.5	TC854336	13	80	4.5	3.4	5.5
M7	× 0.75	TC854356	14	80	5.5	4.3	6.2
M8	× 1.0	TC854376	17	90	6	4.9	7
M8	× 0.75	TC854386	14	80	6	4.9	7.2
M10	× 1.25	TC854436	22	100	7	5.5	8.8
M10	× 1.0	TC854446	18	90	7	5.5	9
M10	× 0.75	TC854456	18	90	7	5.5	9.2
M12	× 1.5	TC854516	22	100	9	7	10.5
M12	× 1.25	TC854526	22	100	9	7	10.8
M12	× 1.0	TC854536	18	100	9	7	11
M14	× 1.5	TC854556	22	100	11	9	12.5
M14	× 1.25	TC854566	22	100	11	9	12.8
M14	× 1.0	TC854576	18	100	11	9	13

► Coating(TIN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type



DIN 374

Material groups
MU

HSS-E

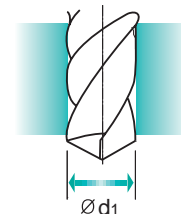
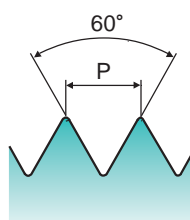
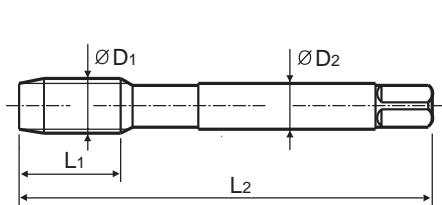
DIN 374

6H



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M16	× 1.5	TC854616	22	100	12	9	14.5
M16	× 1.0	TC854626	18	100	12	9	15
M18	× 1.5	TC854676	25	110	14	11	16.5
M18	× 1.0	TC854686	20	110	14	11	17
M20	× 1.5	TC854726	25	125	16	12	18.5
M20	× 1.0	TC854736	20	125	16	12	19
M22	× 1.5	TC854766	25	125	18	14.5	20.5
M22	× 1.0	TC854776	20	125	18	14.5	21
M24	× 2.0	TC854796	27	140	18	14.5	22
M24	× 1.5	TC854806	27	140	18	14.5	22.5
M26	× 1.5	TC854856	28	140	18	14.5	24.5
M27	× 2.0	TC854876	28	140	20	16	25
M27	× 1.5	TC854886	28	140	20	16	25.5
M28	× 1.5	TC854916	28	140	20	16	26.5
M30	× 2.0	TC854966	30	150	22	18	28
M30	× 1.5	TC854976	30	150	22	18	28.5

► Coating(TIN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

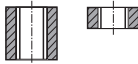
UNC

Unified coarse threads

Unified Grobgewinde

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type


DIN 371



DIN 376

MU

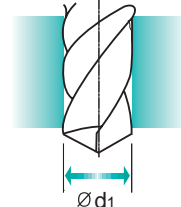
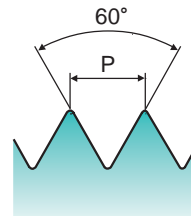
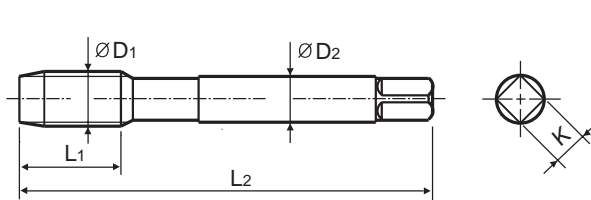
HSS-E

DIN
371/376

2B



Bright

Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40 UNC	TC834162	11	56	3.5	2.7	2.3
#5	- 40 UNC	TC834202	11	56	3.5	2.7	2.6
#6	- 32 UNC	TC834242	12	56	4	3	2.85
#8	- 32 UNC	TC834282	13	63	4.5	3.4	3.5
#10	- 24 UNC	TC834322	15	70	6	4.9	3.9
#12	- 24 UNC	TC834362	16	80	6	4.9	4.5
1/4"	- 20 UNC	TC834402	17	80	7	5.5	5.2
5/16"	- 18 UNC	TC834442	20	90	8	6.2	6.6
3/8"	- 16 UNC	TC834482	22	100	9	7	8
7/16"	- 14 UNC	TC834522	22	100	8	6.2	9.4
1/2"	- 13 UNC	TC834562	25	110	9	7	10.75
9/16"	- 12 UNC	TC834602	26	110	11	9	12.25
5/8"	- 11 UNC	TC834642	27	110	12	9	13.5
3/4"	- 10 UNC	TC834702	30	125	14	11	16.5
7/8"	- 9 UNC	TC834742	32	140	18	14.5	19.5
1"	- 8 UNC	TC834782	36	160	20	16	22.25

► DIN371 (#4~3/8") and DIN376 (7/16"~1")

► Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm²

◎ : Excellent ○ : Good

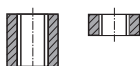
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

UNF Unified fine threads

Unified Feingewinde

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type


DIN 371



DIN 374

MU

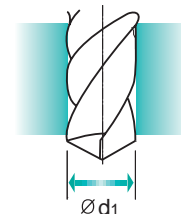
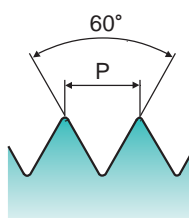
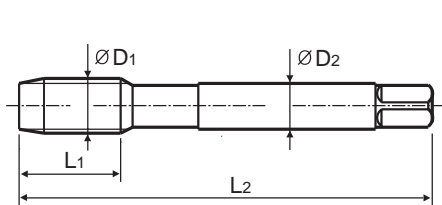
HSS-E

DIN 371/374

2B

60°

Bright

 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48UNF	TC874182	11	56	3.5	2.7	2.4
#5	- 44UNF	TC874222	11	56	3.5	2.7	2.7
#6	- 40UNF	TC874262	12	56	4	3	3
#8	- 36UNF	TC874302	13	63	4.5	3.4	3.5
#10	- 32UNF	TC874342	15	70	6	4.9	4.1
#12	- 28UNF	TC874382	16	80	6	4.9	4.7
1/4"	- 28UNF	TC874422	17	80	7	5.5	5.5
5/16"	- 24UNF	TC874462	17	90	8	6.2	6.9
3/8"	- 24UNF	TC874502	18	100	9	7	8.5
7/16"	- 20UNF	TC874542	22	100	8	6.2	9.9
1/2"	- 20UNF	TC874582	22	100	9	7	11.5
9/16"	- 18UNF	TC874622	22	100	11	9	12.9
5/8"	- 18UNF	TC874662	22	100	12	9	14.5
3/4"	- 16UNF	TC874722	25	110	14	11	17.5
7/8"	- 14UNF	TC874762	26	125	18	14.5	20.5
1"	- 12UNF	TC874802	28	140	20	16	23.25

► DIN371 (#4~3/8") and DIN374 (7/16"~1")

► Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

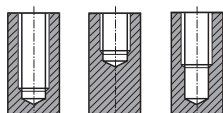
M ISO Metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type



DIN 371



DIN 376



HSS-E

DIN 371/376

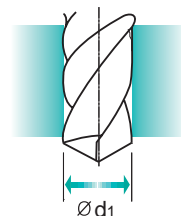
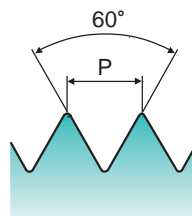
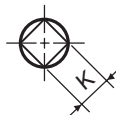
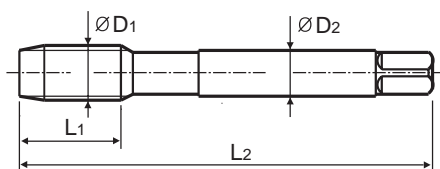
6H



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC804136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC804156	8	45	2.8	2.1	1.75
M2.3	× 0.4	TC804196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC804176	9	50	2.8	2.1	2.05
M2.6	× 0.45	TC804496	9	50	2.8	2.1	2.1
M3	× 0.5	TC804206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TC804226	7	56	4	3	2.9
M4	× 0.7	TC804246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TC804266	8	70	6	4.9	3.7
M5	× 0.8	TC804286	8	70	6	4.9	4.2
M6	× 1.0	TC804316	10	80	6	4.9	5
M7	× 1.0	TC804346	10	80	7	5.5	6
M8	× 1.25	TC804366	13	90	8	6.2	6.8
M9	× 1.25	TC804396	13	90	9	7	7.8
M10	× 1.5	TC804426	15	100	10	8	8.5
M11	× 1.5	TC804466	17	100	8	6.2	9.5
M12	× 1.75	TC804506	18	110	9	7	10.2
M14	× 2.0	TC804546	20	110	11	9	12
M16	× 2.0	TC804606	20	110	12	9	14
M18	× 2.5	TC804656	25	125	14	11	15.5
M20	× 2.5	TC804706	25	140	16	12	17.5
M22	× 2.5	TC804746	25	140	18	14.5	19.5
M24	× 3.0	TC804786	30	160	18	14.5	21
M27	× 3.0	TC804866	30	160	20	16	24
M30	× 3.5	TC804946	35	180	22	18	26.5

► DIN371 (M2~M10) and DIN376 (M11~M30)

► Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

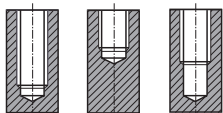
MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type

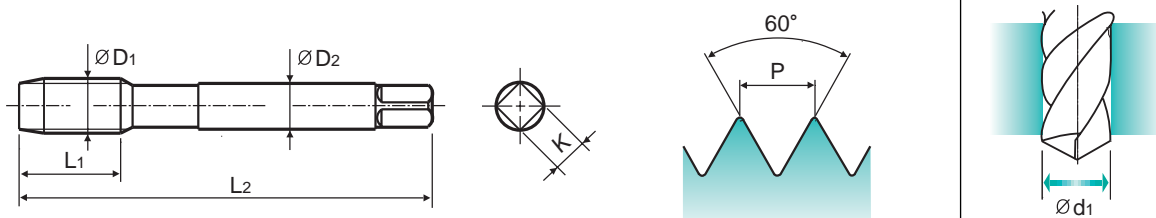


DIN 374

Material groups
MU

HSS-E
DIN 374
6H
60°
C
Bright
R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TC844256	5	63	2.8	2.1	3.5
M5	× 0.5	TC844296	5	70	3.5	2.7	4.5
M6	× 0.75	TC844326	8	80	4.5	3.4	5.2
M6	× 0.5	TC844336	5	80	4.5	3.4	5.5
M7	× 0.75	TC844356	10	80	5.5	4.3	6.2
M8	× 1.0	TC844376	10	90	6	4.9	7
M8	× 0.75	TC844386	8	80	6	4.9	7.2
M10	× 1.25	TC844436	16	100	7	5.5	8.8
M10	× 1.0	TC844446	10	90	7	5.5	9
M10	× 0.75	TC844456	10	90	7	5.5	9.2
M12	× 1.5	TC844516	15	100	9	7	10.5
M12	× 1.25	TC844526	15	100	9	7	10.8
M12	× 1.0	TC844536	11	100	9	7	11
M14	× 1.5	TC844556	15	100	11	9	12.5
M14	× 1.25	TC844566	15	100	11	9	12.8
M14	× 1.0	TC844576	11	100	11	9	13

Unit : mm

► Coating(TIN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm²

◎ : Excellent ○ : Good

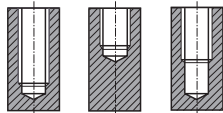
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type


DIN 374



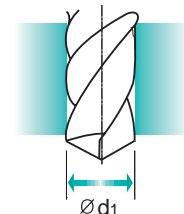
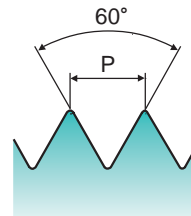
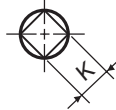
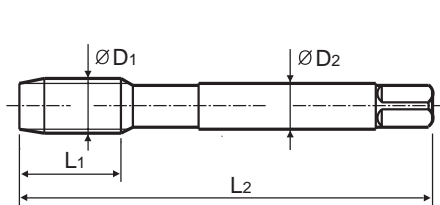
HSS-E

DIN 374

6H



Bright


 Machine taps
 Maschinengewindebohrer


Unit : mm

SIZE	Pitch		EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
	ØD1	P		L1	L2	ØD2	K	Ød1
M16	× 1.5		TC844616	15	100	12	9	14.5
M16	× 1.0		TC844626	12	100	12	9	15
M18	× 1.5		TC844676	17	110	14	11	16.5
M18	× 1.0		TC844686	13	110	14	11	17
M20	× 1.5		TC844726	17	125	16	12	18.5
M20	× 1.0		TC844736	14	125	16	12	19
M22	× 1.5		TC844766	17	125	18	14.5	20.5
M22	× 1.0		TC844776	14	125	18	14.5	21
M24	× 2.0		TC844796	20	140	18	14.5	22
M24	× 1.5		TC844806	20	140	18	14.5	22.5
M26	× 1.5		TC844856	20	140	18	14.5	24.5
M27	× 2.0		TC844876	20	140	20	16	25
M27	× 1.5		TC844886	20	140	20	16	25.5
M28	× 1.5		TC844916	20	140	20	16	26.5
M30	× 2.0		TC844966	22	150	22	18	28
M30	× 1.5		TC844976	22	150	22	18	28.5

► Coating(TIN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

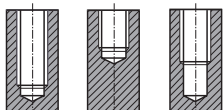
UNC Unified coarse threads

Unified Grobgewinde

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type



Material groups
MU

HSS-E

DIN 371/376

2B

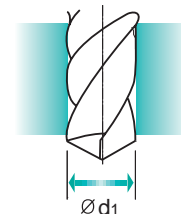
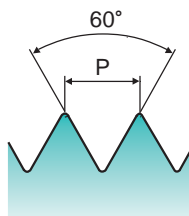
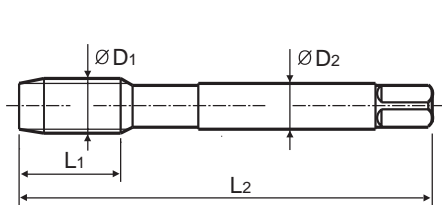
60°

C

Bright

R40

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE ØD1	TPI	EDP No.	Thread Length L1	Overall Length L2	Shank Diameter ØD2	Square Size K	Tapping drill diameter Ød1
#4	- 40 UNC	TC824162	6	56	3.5	2.7	2.3
#5	- 40 UNC	TC824202	7	56	3.5	2.7	2.6
#6	- 32 UNC	TC824242	7	56	4	3	2.85
#8	- 32 UNC	TC824282	8	63	4.5	3.4	3.5
#10	- 24 UNC	TC824322	10	70	6	4.9	3.9
#12	- 24 UNC	TC824362	10	80	6	4.9	4.5
1/4"	- 20 UNC	TC824402	13	80	7	5.5	5.2
5/16"	- 18 UNC	TC824442	14	90	8	6.2	6.6
3/8"	- 16 UNC	TC824482	16	100	9	7	8
7/16"	- 14 UNC	TC824522	17	100	8	6.2	9.4
1/2"	- 13 UNC	TC824562	20	110	9	7	10.75
9/16"	- 12 UNC	TC824602	20	110	11	9	12.25
5/8"	- 11 UNC	TC824642	22	110	12	9	13.5
3/4"	- 10 UNC	TC824702	25	125	14	11	16.5
7/8"	- 9 UNC	TC824742	27	140	18	14.5	19.5
1"	- 8 UNC	TC824782	30	160	20	16	22.25

► DIN371 (#4~3/8") and DIN376 (7/16"~1")

► Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm²

◎ : Excellent ○ : Good

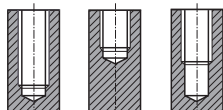
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

UNF Unified fine threads
Unified Feingewinde

► For using multi-purpose, and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

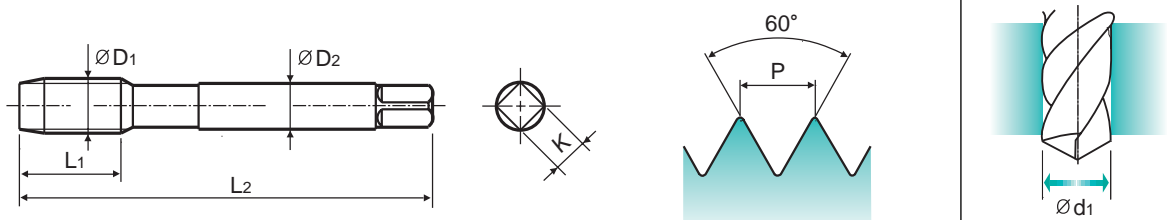
► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type



HSS-E
DIN 371/374
2B
60°
C
Bright
R40

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48UNF	TC864182	6	56	3.5	2.7	2.4
#5	- 44UNF	TC864222	7	56	3.5	2.7	2.7
#6	- 40UNF	TC864262	7	56	4	3	3
#8	- 36UNF	TC864302	8	63	4.5	3.4	3.5
#10	- 32UNF	TC864342	10	70	6	4.9	4.1
#12	- 28UNF	TC864382	10	80	6	4.9	4.7
1/4"	- 28UNF	TC864422	10	80	7	5.5	5.5
5/16"	- 24UNF	TC864462	10	90	8	6.2	6.9
3/8"	- 24UNF	TC864502	10	100	9	7	8.5
7/16"	- 20UNF	TC864542	13	100	8	6.2	9.9
1/2"	- 20UNF	TC864582	13	100	9	7	11.5
9/16"	- 18UNF	TC864622	15	100	11	9	12.9
5/8"	- 18UNF	TC864662	15	100	12	9	14.5
3/4"	- 16UNF	TC864722	17	110	14	11	17.5
7/8"	- 14UNF	TC864762	17	125	18	14.5	20.5
1"	- 12UNF	TC864802	20	140	20	16	23.25

► DIN371 (#4~3/8") and DIN374 (7/16"~1")

► Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS



Being the best through innovation



SPIRAL POINT TAPS

GEWINDEBOHRER MIT SCHALANSCHNITT


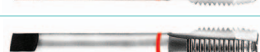

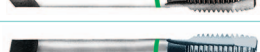

- Tapping Through Holes, HSS-E & HSS-PM
- Für Durchgangslöcher. HSS-E und HSS-PM

SELECTION GUIDE





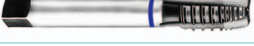





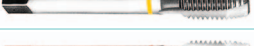







SPIRAL POINT TAPS

Tapping Through Holes, HSS-E & HSS-PM

SPIRAL POINT TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC122		HSS-E	M	GS	DIN 352	ISO 2/6H	B	Bright	340
TC127		HSS-E	M	GS	DIN 371	ISO 2/6H	B	Bright	341
TC227		HSS-E	M	GS	DIN 376	ISO 2/6H	B	Bright	342
TD127		HSS-E	M	GS	DIN 371	ISO 2/6H	B	TiN	343
TD227		HSS-E	M	GS	DIN 376	ISO 2/6H	B	TiN	344
TQ863		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	B	vap	345
TR863		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	B	Bright	346
TC422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	Bright	347
TE422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	NI	348
TD422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	TiN	349
TY422		HSS-E	M	VG	DIN 371/376	ISO 2/6H	B	TiAlN	350
TQ853		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	B	vap	351
TR853		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	B	Bright	352
TC283		HSS-E	M	HR	DIN 371/376	ISO 2/6H	B	Bright	353
TY283		HSS-E	M	HR	DIN 371/376	ISO 2/6H	B	TiAlN	354
TB623		HSS-E	M	VA NW	DIN 371/376	ISO 2X/6HX	B	vap	355
TCH23		HSS-E	M	VA NW	DIN 371/376	ISO 2X/6HX	B	Hardslick	356
TM293		HSS-PM	M-Az	Ti	DIN 371/376	ISO 2/6H	B	Bright	357
TZ293		HSS-PM	M-Az	Ti	DIN 371/376	ISO 2/6H	B	TiAlN	358
TQ873		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	B	vap	359

SPIRAL POINT TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TR873		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	B	Bright	360
TM923		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	B	Bright	361
TZ923		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	B	TiAlN	362
TE943		HSS-E	M	Al	DIN 371/376	ISO 2/6H	B	NI	363
TC622		HSS-E	M-Az	Al	DIN 371/376	ISO 2/6H	B	Bright	364
TC222		HSS-E	MF	GS	DIN 374	ISO 2/6H	B	Bright	365
TD222		HSS-E	MF	GS	DIN 374	ISO 2/6H	B	TiN	367
TC263		HSS-E	MF	VG	DIN 374	ISO 2/6H	B	Bright	369
TD263		HSS-E	MF	VG	DIN 374	ISO 2/6H	B	TiN	370
TB123		HSS-E	MF	VA NW	DIN 374	ISO 2X/6HX	B	vap	371
TC214		HSS-E	UNC	GS	DIN 371/376	2B	B	Bright	372
TC244		HSS-E	UNC	VG	DIN 371/376	2B	B	Bright	373
TD244		HSS-E	UNC	VG	DIN 371/376	2B	B	TiN	374
TB264		HSS-E	UNC	VA NW	DIN 371/376	2B	B	vap	375
TC234		HSS-E	UNF	GS	DIN 371/374	2B	B	Bright	376
TC254		HSS-E	UNF	VG	DIN 371/374	2B	B	Bright	377
TB274		HSS-E	UNF	VA NW	DIN 371/374	2B	B	vap	378
TC224		HSS-E	BSW	GS	DIN 2182/2183	-	B	Bright	379



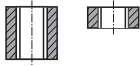
SPIRAL POINT TAPS

TC122 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type


DIN 352

GS

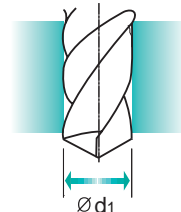
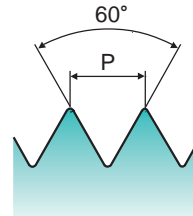
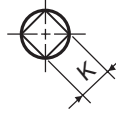
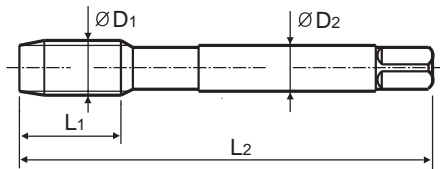
HSS-E

DIN 352

6H



Bright

 Short machine taps
Maschinengewindebohrer
kurz


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC122136	8	36	2.8	2.1	1.6
M2.5	× 0.45	TC122176	9	40	2.8	2.1	2.05
M3	× 0.5	TC122206	11	40	3.5	2.7	2.5
M4	× 0.7	TC122246	13	45	4.5	3.4	3.3
M5	× 0.8	TC122286	16	52	6	4.9	4.2
M6	× 1	TC122316	18	56	6	4.9	5
M8	× 1.25	TC122366	20	63	6	4.9	6.8
M10	× 1.5	TC122426	22	70	7	5.5	8.5
M12	× 1.75	TC122506	24	80	9	7	10.2
M14	× 2	TC122546	26	80	11	9	12
M16	× 2	TC122606	27	80	12	9	14

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
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SPIRAL POINT TAPS

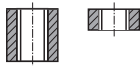
TC127 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 371

Material groups **GS**

HSS-E

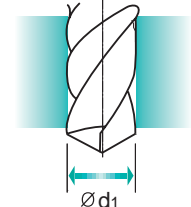
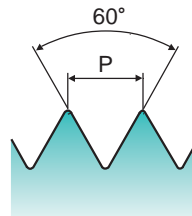
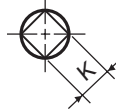
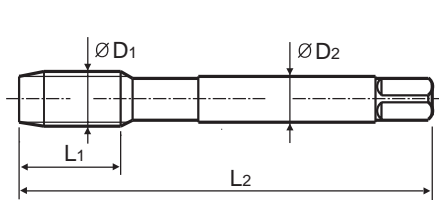
DIN 371

6H



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC127136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC127156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC127196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC127176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC127496	9	50	2.8	2.1	2.1
M3	× 0.5	TC127206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TC127226	12	56	4	3	2.9
M4	× 0.7	TC127246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TC127266	14	70	6	4.9	3.7
M5	× 0.8	TC127286	15	70	6	4.9	4.2
M6	× 1	TC127316	17	80	6	4.9	5
M7	× 1	TC127346	17	80	7	5.5	6
M8	× 1.25	TC127366	20	90	8	6.2	6.8
M9	× 1.25	TC127396	20	90	9	7	7.8
M10	× 1.5	TC127426	22	100	10	8	8.5
M11	× 1.5	TC127466	22	100	11	9	9.5
M12	× 1.75	TC127506	24	110	12	9	10.2

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	○	◎	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

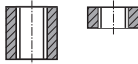
M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

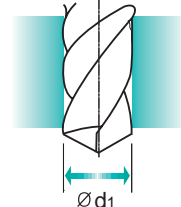
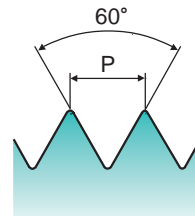
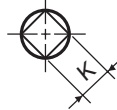
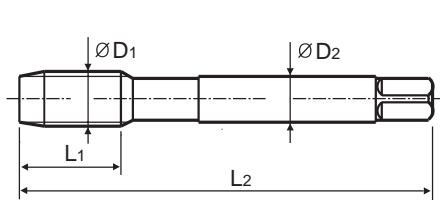
► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 376

Material groups **GS** **HSS-E** **DIN 376** **6H** **60°** **B** **Bright** Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M3	× 0.5	TC227206	11	56	2.2	1.8	2.5
M3.5	× 0.6	TC227226	12	56	2.5	2.1	2.9
M4	× 0.7	TC227246	13	63	2.8	2.1	3.3
M4.5	× 0.75	TC227266	14	70	3.5	2.7	3.7
M5	× 0.8	TC227286	15	70	3.5	2.7	4.2
M6	× 1	TC227316	17	80	4.5	3.4	5
M7	× 1	TC227346	17	80	5.5	4.3	6
M8	× 1.25	TC227366	20	90	6	4.9	6.8
M9	× 1.25	TC227396	20	90	7	5.5	7.8
M10	× 1.5	TC227426	22	100	7	5.5	8.5
M11	× 1.5	TC227466	22	100	8	6.2	9.5
M12	× 1.75	TC227506	24	110	9	7	10.2
M14	× 2	TC227546	26	110	11	9	12
M16	× 2	TC227606	27	110	12	9	14
M18	× 2.5	TC227656	30	125	14	11	15.5
M20	× 2.5	TC227706	32	140	16	12	17.5
M22	× 2.5	TC227746	32	140	18	14.5	19.5
M24	× 3	TC227786	34	160	18	14.5	21
M27	× 3	TC227866	36	160	20	16	24
M30	3.5	TC227946	40	180	22	18	26.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
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SPIRAL POINT TAPS

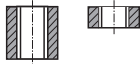
TD127 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 371

Material groups **GS**

HSS-E

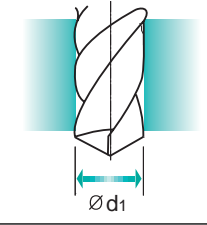
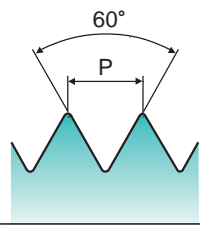
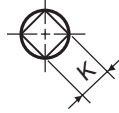
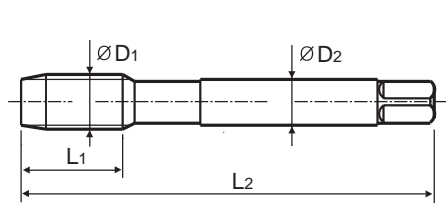
DIN 371

6H



TiN

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD127136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TD127156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TD127196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TD127176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TD127496	9	50	2.8	2.1	2.1
M3	× 0.5	TD127206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TD127226	12	56	4	3	2.9
M4	× 0.7	TD127246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TD127266	14	70	6	4.9	3.7
M5	× 0.8	TD127286	15	70	6	4.9	4.2
M6	× 1	TD127316	17	80	6	4.9	5
M7	× 1	TD127346	17	80	7	5.5	6
M8	× 1.25	TD127366	20	90	8	6.2	6.8
M9	× 1.25	TD127396	20	90	9	7	7.8
M10	× 1.5	TD127426	22	100	10	8	8.5
M11	× 1.5	TD127466	22	100	11	9	9.5
M12	× 1.75	TD127506	24	110	12	9	10.2

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	○	◎	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

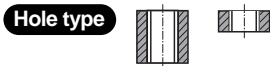
TECHNICAL DATA

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

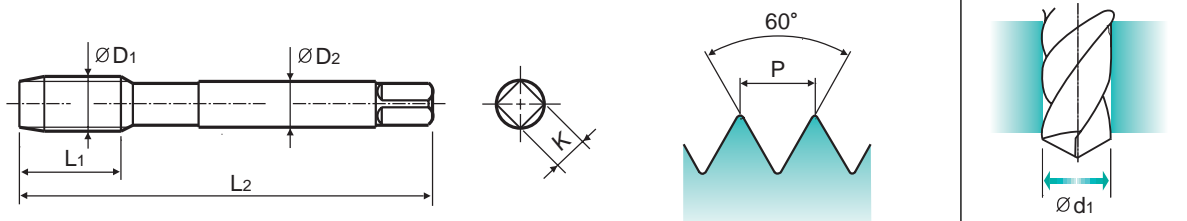
► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups **GS** **HSS-E** **DIN 376** **6H** **60°** **B** **TiN**

Machine taps
Maschinengewindebohrer



SIZE	Pitch		EDP No.	Thread Length		Shank Diameter	Square Size	Tapping drill diameter
	ØD1	P		L1	L2			
M3	× 0.5	TD227206	11	56	2.2	1.8	2.5	
M3.5	× 0.6	TD227226	12	56	2.5	2.1	2.9	
M4	× 0.7	TD227246	13	63	2.8	2.1	3.3	
M4.5	× 0.75	TD227266	14	70	3.5	2.7	3.7	
M5	× 0.8	TD227286	15	70	3.5	2.7	4.2	
M6	× 1	TD227316	17	80	4.5	3.4	5	
M7	× 1	TD227346	17	80	5.5	4.3	6	
M8	× 1.25	TD227366	20	90	6	4.9	6.8	
M9	× 1.25	TD227396	20	90	7	5.5	7.8	
M10	× 1.5	TD227426	22	100	7	5.5	8.5	
M11	× 1.5	TD227466	22	100	8	6.2	9.5	
M12	× 1.75	TD227506	24	110	9	7	10.2	
M14	× 2	TD227546	26	110	11	9	12	
M16	× 2	TD227606	27	110	12	9	14	
M18	× 2.5	TD227656	30	125	14	11	15.5	
M20	× 2.5	TD227706	32	140	16	12	17.5	
M22	× 2.5	TD227746	32	140	18	14.5	19.5	
M24	× 3	TD227786	34	160	18	14.5	21	
M27	× 3	TD227866	36	160	20	16	24	
M30	× 3.5	TD227946	40	180	22	18	26.5	

Unit : mm

Unit : N/mm²

◎ : Excellent ○ : Good

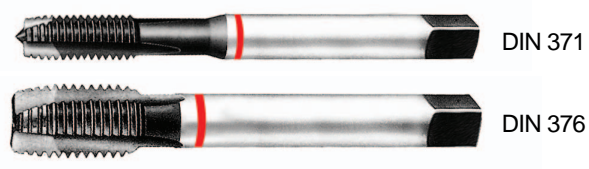
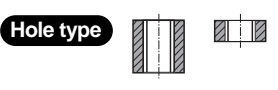
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

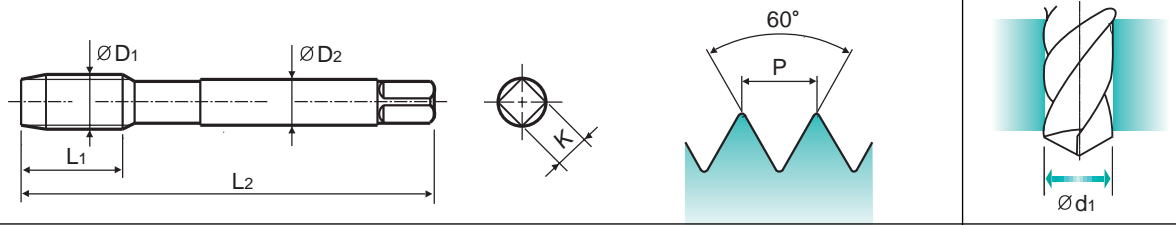
► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups **VG**

HSS-PM DIN 371/376 6H 60° B Vap

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length		Overall Length		Shank Diameter	Square Size	Tapping drill diameter
			L1	L2	ØD2	K			
M2	× 0.4	TQ863136	8	45	2.8	2.1	1.6		
M2.2	× 0.45	TQ863156	8	45	2.8	2.1	1.75		
M2.5	× 0.45	TQ863176	9	50	2.8	2.1	2.05		
M3	× 0.5	TQ863206	11	56	3.5	2.7	2.5		
M3.5	× 0.6	TQ863226	12	56	4	3	2.9		
M4	× 0.7	TQ863246	13	63	4.5	3.4	3.3		
M4.5	× 0.75	TQ863266	14	70	6	4.9	3.7		
M5	× 0.8	TQ863286	15	70	6	4.9	4.2		
M6	× 1	TQ863316	17	80	6	4.9	5		
M7	× 1	TQ863346	17	80	7	5.5	6		
M8	× 1.25	TQ863366	20	90	8	6.2	6.8		
M10	× 1.5	TQ863426	22	100	10	8	8.5		
M12	× 1.75	TQ863506	24	110	9	7	10.2		

Unit : mm

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	○				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

SPIRAL
POINT TAPS

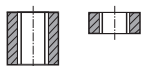
TR863 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

Hole type



DIN 371



DIN 376



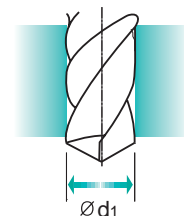
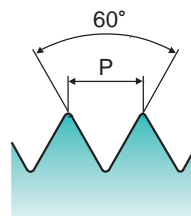
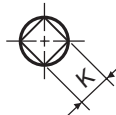
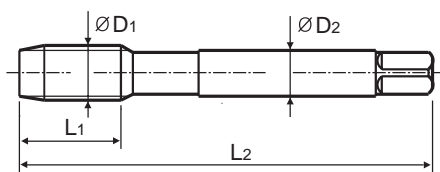
HSS-PM

DIN
371/376

6H



Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TR863136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TR863156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TR863176	9	50	2.8	2.1	2.05
M3	× 0.5	TR863206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TR863226	12	56	4	3	2.9
M4	× 0.7	TR863246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TR863266	14	70	6	4.9	3.7
M5	× 0.8	TR863286	15	70	6	4.9	4.2
M6	× 1	TR863316	17	80	6	4.9	5
M7	× 1	TR863346	17	80	7	5.5	6
M8	× 1.25	TR863366	20	90	8	6.2	6.8
M10	× 1.5	TR863426	22	100	10	8	8.5
M12	× 1.75	TR863506	24	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

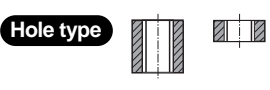
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

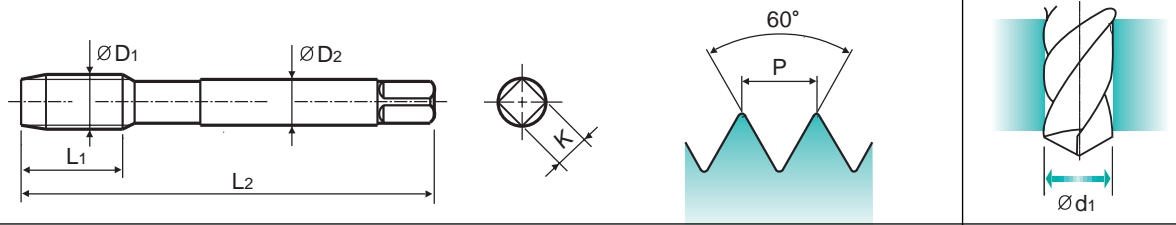
► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups **VG**

HSS-E DIN 371/376 6H 60° B Bright

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC422136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC422156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC422196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC422176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC422496	9	50	2.8	2.1	2.1
M3	× 0.5	TC422206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TC422226	12	56	4	3	2.9
M4	× 0.7	TC422246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TC422266	14	70	6	4.9	3.7
M5	× 0.8	TC422286	15	70	6	4.9	4.2
M6	× 1	TC422316	17	80	6	4.9	5
M7	× 1	TC422346	17	80	7	5.5	6
M8	× 1.25	TC422366	20	90	8	6.2	6.8
M9	× 1.25	TC422396	20	90	9	7	7.8
M10	× 1.5	TC422426	22	100	10	8	8.5
M11	× 1.5	TC422466	22	100	8	6.2	9.5
M12	× 1.75	TC422506	24	110	9	7	10.2
M14	× 2	TC422546	26	110	11	9	12
M16	× 2	TC422606	27	110	12	9	14
M18	× 2.5	TC422656	30	125	14	11	15.5
M20	× 2.5	TC422706	32	140	16	12	17.5
M22	× 2.5	TC422746	32	140	18	14.5	19.5
M24	× 3	TC422786	34	160	18	14.5	21
M27	× 3	TC422866	36	160	20	16	24
M30	× 3.5	TC422946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)
 ► * DIN profile not ISO

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	○				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

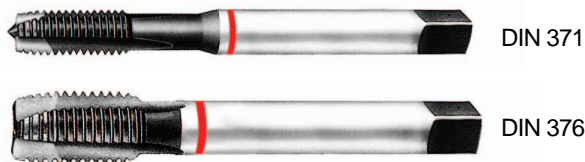
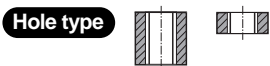
YG SPIRAL POINT TAPS

TE422 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

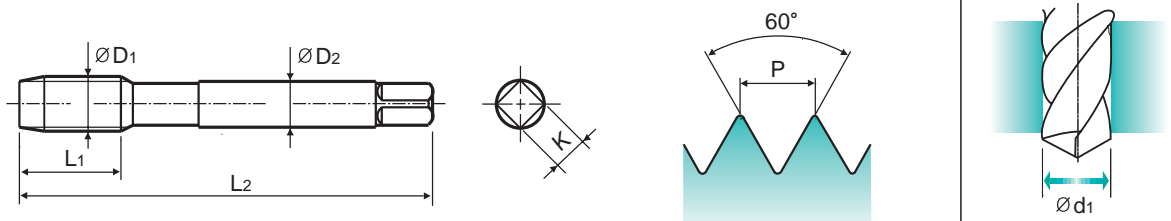
► Recommended for tapping abrasive materials due to nitriding, not suitable for tapping tough or high strength materials.

► Empfohlen für das Gewindeschneiden verschleißfordernder Werkstoffe wegen der Nitrierung; nicht geeignet für das Gewinden zäher oder hochfester Werkstoffe.



Material groups **VG** **HSS-E** **DIN 371/376** **6H** **60°** **B** **NI**

Machine taps
 Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE422136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TE422156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TE422196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TE422176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TE422496	9	50	2.8	2.1	2.1
M3	× 0.5	TE422206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TE422226	12	56	4	3	2.9
M4	× 0.7	TE422246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TE422266	14	70	6	4.9	3.7
M5	× 0.8	TE422286	15	70	6	4.9	4.2
M6	× 1	TE422316	17	80	6	4.9	5
M7	× 1	TE422346	17	80	7	5.5	6
M8	× 1.25	TE422366	20	90	8	6.2	6.8
M9	× 1.25	TE422396	20	90	9	7	7.8
M10	× 1.5	TE422426	22	100	10	8	8.5
M11	× 1.5	TE422466	22	100	8	6.2	9.5
M12	× 1.75	TE422506	24	110	9	7	10.2
M14	× 2	TE422546	26	110	11	9	12
M16	× 2	TE422606	27	110	12	9	14
M18	× 2.5	TE422656	30	125	14	11	15.5
M20	× 2.5	TE422706	32	140	16	12	17.5
M22	× 2.5	TE422746	32	140	18	14.5	19.5
M24	× 3	TE422786	34	160	18	14.5	21
M27	× 3	TE422866	36	160	20	16	24
M30	× 3.5	TE422946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	○				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												



SPIRAL POINT TAPS

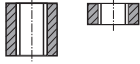
TD422 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



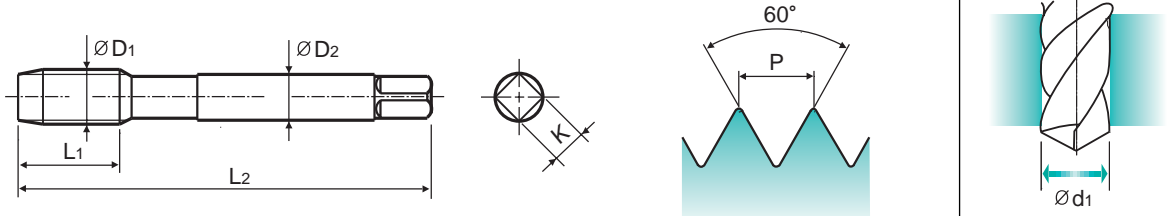
DIN 371

DIN 376



HSS-E
DIN 371/376
6H
60°
B
TiN

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD422136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TD422156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TD422196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TD422176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TD422496	9	50	2.8	2.1	2.1
M3	× 0.5	TD422206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TD422226	12	56	4	3	2.9
M4	× 0.7	TD422246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TD422266	14	70	6	4.9	3.7
M5	× 0.8	TD422286	15	70	6	4.9	4.2
M6	× 1	TD422316	17	80	6	4.9	5
M7	× 1	TD422346	17	80	7	5.5	6
M8	× 1.25	TD422366	20	90	8	6.2	6.8
M9	× 1.25	TD422396	20	90	9	7	7.8
M10	× 1.5	TD422426	22	100	10	8	8.5
M11	× 1.5	TD422466	22	100	8	6.2	9.5
M12	× 1.75	TD422506	24	110	9	7	10.2
M14	× 2	TD422546	26	110	11	9	12
M16	× 2	TD422606	27	110	12	9	14
M18	× 2.5	TD422656	30	125	14	11	15.5
M20	× 2.5	TD422706	32	140	16	12	17.5
M22	× 2.5	TD422746	32	140	18	14.5	19.5
M24	× 3	TD422786	34	160	18	14.5	21
M27	× 3	TD422866	36	160	20	16	24
M30	× 3.5	TD422946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

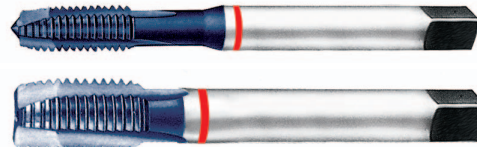
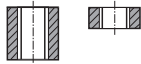
THREAD MILLS

TECHNICAL DATA

**SPIRAL
POINT TAPS****TY422** SERIES**M** ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type

DIN 371

DIN 376



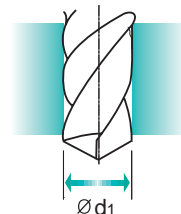
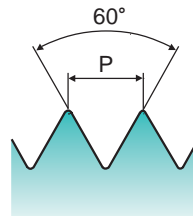
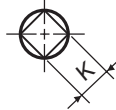
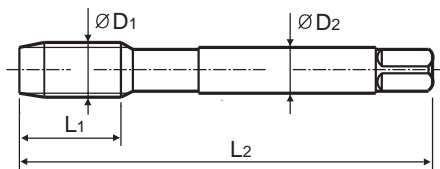
HSS-E

DIN
371/376

6H



TiAlN

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TY422136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TY422156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TY422196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TY422176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TY422496	9	50	2.8	2.1	2.1
M3	× 0.5	TY422206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TY422226	12	56	4	3	2.9
M4	× 0.7	TY422246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TY422266	14	70	6	4.9	3.7
M5	× 0.8	TY422286	15	70	6	4.9	4.2
M6	× 1	TY422316	17	80	6	4.9	5
M7	× 1	TY422346	17	80	7	5.5	6
M8	× 1.25	TY422366	20	90	8	6.2	6.8
M9	× 1.25	TY422396	20	90	9	7	7.8
M10	× 1.5	TY422426	22	100	10	8	8.5
M11	× 1.5	TY422466	22	100	8	6.2	9.5
M12	× 1.75	TY422506	24	110	9	7	10.2
M14	× 2	TY422546	26	110	11	9	12
M16	× 2	TY422606	27	110	12	9	14
M18	× 2.5	TY422656	30	125	14	11	15.5
M20	× 2.5	TY422706	32	140	16	12	17.5
M22	× 2.5	TY422746	32	140	18	14.5	19.5
M24	× 3	TY422786	34	160	18	14.5	21
M27	× 3	TY422866	36	160	20	16	24
M30	× 3.5	TY422946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

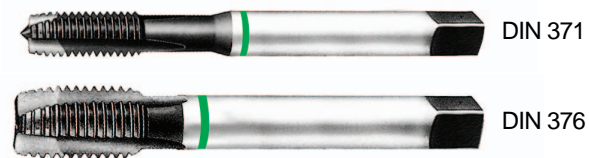
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

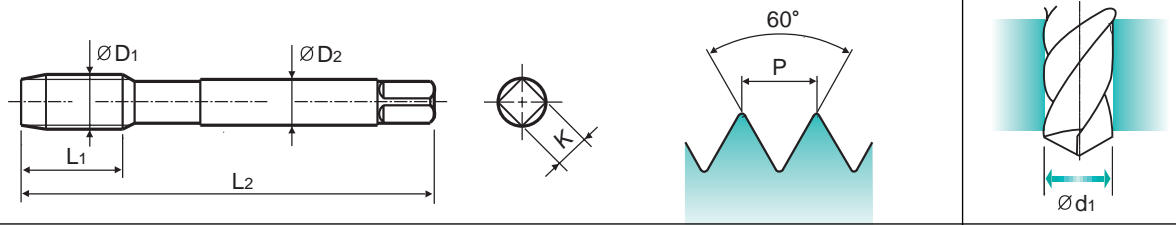
► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups **VA** **HSS-PM** **DIN 371/376** **6H** **60°** **B** **Vap**

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TQ853136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TQ853156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TQ853176	9	50	2.8	2.1	2.05
M3	× 0.5	TQ853206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TQ853226	12	56	4	3	2.9
M4	× 0.7	TQ853246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TQ853266	14	70	6	4.9	3.7
M5	× 0.8	TQ853286	15	70	6	4.9	4.2
M6	× 1	TQ853316	17	80	6	4.9	5
M7	× 1	TQ853346	17	80	7	5.5	6
M8	× 1.25	TQ853366	20	90	8	6.2	6.8
M10	× 1.5	TQ853426	22	100	10	8	8.5
M12	× 1.75	TQ853506	24	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm² © : Excellent ○ : Good

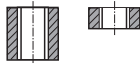
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					○	○	○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

**SPIRAL
POINT TAPS****TR853** SERIES**M** ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

Hole type

DIN 371



DIN 376

Material groups

VA

HSS-PM

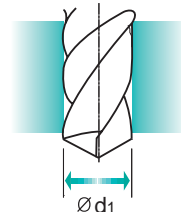
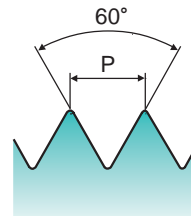
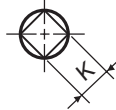
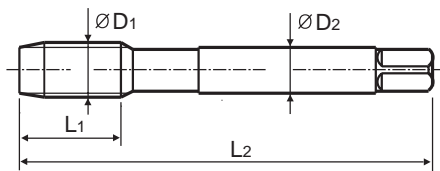
DIN
371/376

6H

60°

B

Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TR853136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TR853156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TR853176	9	50	2.8	2.1	2.05
M3	× 0.5	TR853206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TR853226	12	56	4	3	2.9
M4	× 0.7	TR853246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TR853266	14	70	6	4.9	3.7
M5	× 0.8	TR853286	15	70	6	4.9	4.2
M6	× 1	TR853316	17	80	6	4.9	5
M7	× 1	TR853346	17	80	7	5.5	6
M8	× 1.25	TR853366	20	90	8	6.2	6.8
M10	× 1.5	TR853426	22	100	10	8	8.5
M12	× 1.75	TR853506	24	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

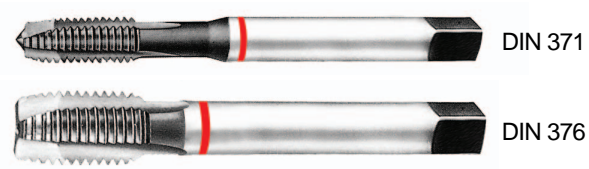
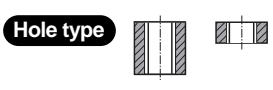
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	◎					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

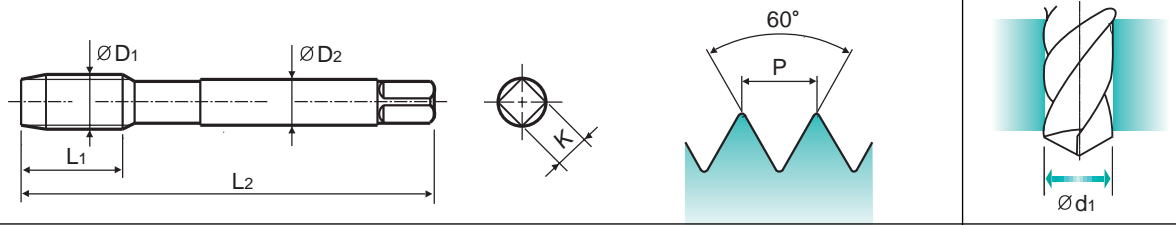
► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups **HR** **HSS-E** **DIN 371/376** **6H** **60°** **B** **Bright**

Machine taps
Maschinengewindebohrer



SIZE		Pitch	EDP No.	Thread Length		Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P	L1		L2	ØD2	K	Ød1		
M2	× 0.4	TC283136	8	45	2.8	2.1	1.6		
M2.2	× 0.45	TC283156	8	45	2.8	2.1	1.75		
* M2.3	× 0.4	TC283196	8	45	2.8	2.1	1.9		
M2.5	× 0.45	TC283176	9	50	2.8	2.1	2.05		
* M2.6	× 0.45	TC283496	9	50	2.8	2.1	2.1		
M3	× 0.5	TC283206	11	56	3.5	2.7	2.5		
M3.5	× 0.6	TC283226	12	56	4	3	2.9		
M4	× 0.7	TC283246	13	63	4.5	3.4	3.3		
M4.5	× 0.75	TC283266	14	70	6	4.9	3.7		
M5	× 0.8	TC283286	15	70	6	4.9	4.2		
M6	× 1	TC283316	17	80	6	4.9	5		
M7	× 1	TC283346	17	80	7	5.5	6		
M8	× 1.25	TC283366	20	90	8	6.2	6.8		
M9	× 1.25	TC283396	20	90	9	7	7.8		
M10	× 1.5	TC283426	22	100	10	8	8.5		
M11	× 1.5	TC283466	22	100	8	6.2	9.5		
M12	× 1.75	TC283506	24	110	9	7	10.2		
M14	× 2	TC283546	26	110	11	9	12		
M16	× 2	TC283606	27	110	12	9	14		
M18	× 2.5	TC283656	30	125	14	11	15.5		
M20	× 2.5	TC283706	32	140	16	12	17.5		
M22	× 2.5	TC283746	32	140	18	14.5	19.5		
M24	× 3	TC283786	34	160	18	14.5	21		
M27	× 3	TC283866	36	160	20	16	24		
M30	× 3.5	TC283946	40	180	22	18	26.5		

► DIN 371(M2~M10) and DIN 376(M11~M30)
 ► * DIN profile not ISO

Unit : N/mm² ◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○	◎			○						
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○		◎						○	○

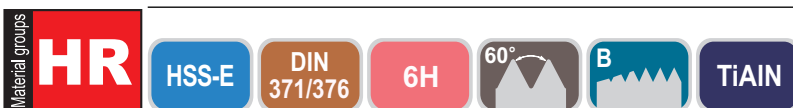
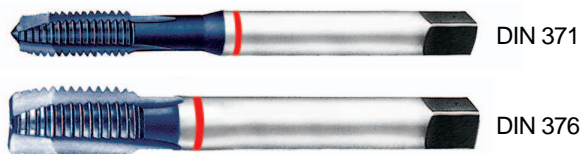
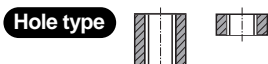
- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

M ISO metric coarse threads DIN 13

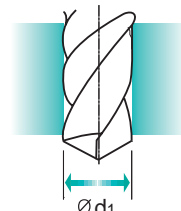
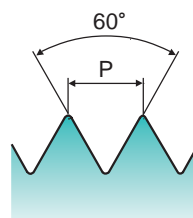
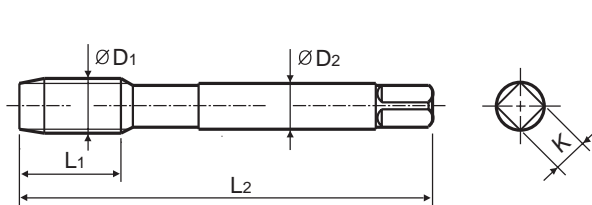
Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TY283136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TY283156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TY283196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TY283176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TY283496	9	50	2.8	2.1	2.1
M3	× 0.5	TY283206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TY283226	12	56	4	3	2.9
M4	× 0.7	TY283246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TY283266	14	70	6	4.9	3.7
M5	× 0.8	TY283286	15	70	6	4.9	4.2
M6	× 1	TY283316	17	80	6	4.9	5
M7	× 1	TY283346	17	80	7	5.5	6
M8	× 1.25	TY283366	20	90	8	6.2	6.8
M9	× 1.25	TY283396	20	90	9	7	7.8
M10	× 1.5	TY283426	22	100	10	8	8.5
M11	× 1.5	TY283466	22	100	8	6.2	9.5
M12	× 1.75	TY283506	24	110	9	7	10.2
M14	× 2	TY283546	26	110	11	9	12
M16	× 2	TY283606	27	110	12	9	14
M18	× 2.5	TY283656	30	125	14	11	15.5
M20	× 2.5	TY283706	32	140	16	12	17.5
M22	× 2.5	TY283746	32	140	18	14.5	19.5
M24	× 3	TY283786	34	160	18	14.5	21
M27	× 3	TY283866	36	160	20	16	24
M30	× 3.5	TY283946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○	◎			○						
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○		◎						○	○



SPIRAL POINT TAPS

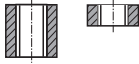
TB623 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type

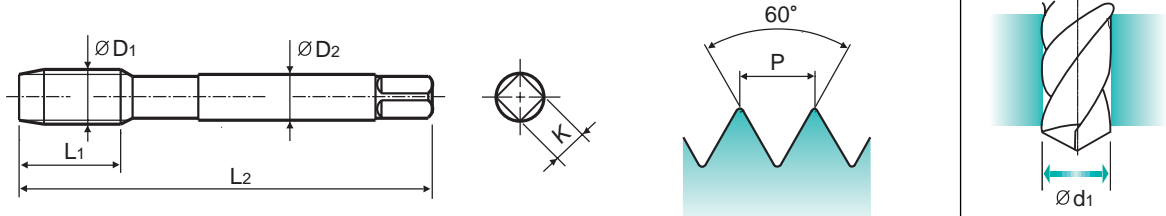


DIN 371

DIN 376



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TB623136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TB623156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TB623196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TB623176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TB623496	9	50	2.8	2.1	2.1
M3	× 0.5	TB623206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TB623226	12	56	4	3	2.9
M4	× 0.7	TB623246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TB623266	14	70	6	4.9	3.7
M5	× 0.8	TB623286	15	70	6	4.9	4.2
M6	× 1	TB623316	17	80	6	4.9	5
M7	× 1	TB623346	17	80	7	5.5	6
M8	× 1.25	TB623366	20	90	8	6.2	6.8
M9	× 1.25	TB623396	20	90	9	7	7.8
M10	× 1.5	TB623426	22	100	10	8	8.5
M11	× 1.5	TB623466	22	100	8	6.2	9.5
M12	× 1.75	TB623506	24	110	9	7	10.2
M14	× 2	TB623546	26	110	11	9	12
M16	× 2	TB623606	27	110	12	9	14
M18	× 2.5	TB623656	30	125	14	11	15.5
M20	× 2.5	TB623706	32	140	16	12	17.5
M22	× 2.5	TB623746	32	140	18	14.5	19.5
M24	× 3	TB623786	34	160	18	14.5	21
M27	× 3	TB623866	36	160	20	16	24
M30	× 3.5	TB623946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

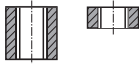
THREAD MILLS

TECHNICAL DATA

**SPIRAL
POINT TAPS****TCH23** SERIES**M** ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type

DIN 371



DIN 376



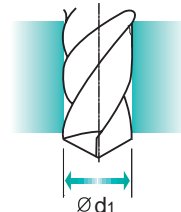
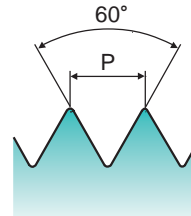
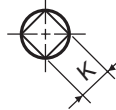
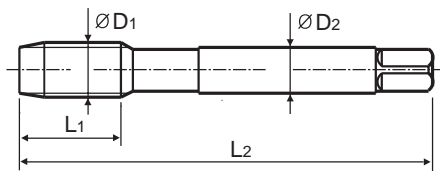
HSS-E

DIN
371/376

6HX



Hardslick

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TCH23136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TCH23156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TCH23196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TCH23176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TCH23496	9	50	2.8	2.1	2.1
M3	× 0.5	TCH23206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TCH23226	12	56	4	3	2.9
M4	× 0.7	TCH23246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TCH23266	14	70	6	4.9	3.7
M5	× 0.8	TCH23286	15	70	6	4.9	4.2
M6	× 1	TCH23316	17	80	6	4.9	5
M7	× 1	TCH23346	17	80	7	5.5	6
M8	× 1.25	TCH23366	20	90	8	6.2	6.8
M9	× 1.25	TCH23396	20	90	9	7	7.8
M10	× 1.5	TCH23426	22	100	10	8	8.5
M11	× 1.5	TCH23466	22	100	8	6.2	9.5
M12	× 1.75	TCH23506	24	110	9	7	10.2
M14	× 2	TCH23546	26	110	11	9	12
M16	× 2	TCH23606	27	110	12	9	14
M18	× 2.5	TCH23656	30	125	14	11	15.5
M20	× 2.5	TCH23706	32	140	16	12	17.5
M22	× 2.5	TCH23746	32	140	18	14.5	19.5
M24	× 3	TCH23786	34	160	18	14.5	21
M27	× 3	TCH23866	36	160	20	16	24
M30	× 3.5	TCH23946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

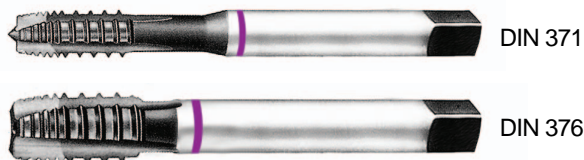
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP

M-Az ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

▶ Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

▶ Gewindebohrer mit ausgesetzten Zähnen um die Kontaktzone mit dem Werkstück und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.



Material groups **Ti**

HSS-PM

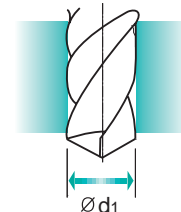
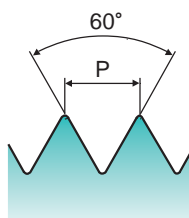
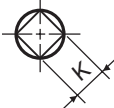
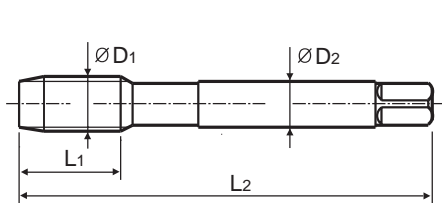
DIN 371/376

6H



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TM293136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TM293156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TM293196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TM293176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TM293496	9	50	2.8	2.1	2.1
M3	× 0.5	TM293206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TM293226	12	56	4	3	2.9
M4	× 0.7	TM293246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TM293266	14	70	6	4.9	3.7
M5	× 0.8	TM293286	15	70	6	4.9	4.2
M6	× 1	TM293316	17	80	6	4.9	5
M7	× 1	TM293346	17	80	7	5.5	6
M8	× 1.25	TM293366	20	90	8	6.2	6.8
M9	× 1.25	TM293396	20	90	9	7	7.8
M10	× 1.5	TM293426	22	100	10	8	8.5
M11	× 1.5	TM293466	22	100	8	6.2	9.5
M12	× 1.75	TM293506	24	110	9	7	10.2
M14	× 2	TM293546	26	110	11	9	12
M16	× 2	TM293606	27	110	12	9	14
M18	× 2.5	TM293656	30	125	14	11	15.5
M20	× 2.5	TM293706	32	140	16	12	17.5
M22	× 2.5	TM293746	32	140	18	14.5	19.5
M24	× 3	TM293786	34	160	18	14.5	21
M27	× 3	TM293866	36	160	20	16	24
M30	× 3.5	TM293946	40	180	22	18	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○									○	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎														

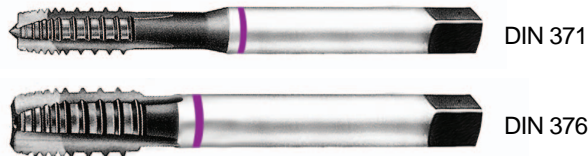
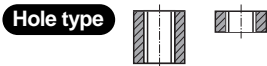
YG SPIRAL POINT TAPS

TZ293 SERIES

M-Az ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

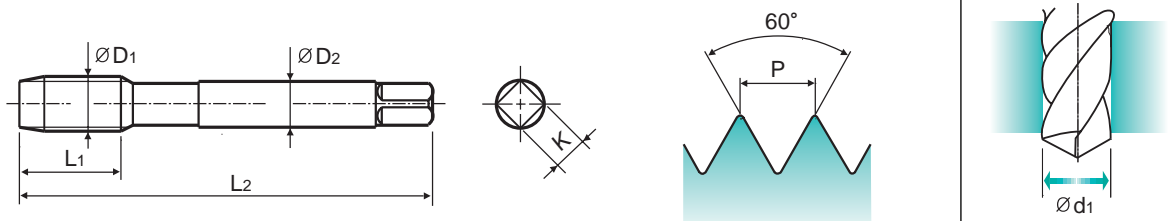
► Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

► Gewindebohrer mit ausgesetzten Zähnen um die Kontaktzone mit dem Werkstück und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.



Material groups **Ti** **HSS-PM** **DIN 371/376** **6H** **60°** **B** **TiAlN**

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length		Shank Diameter	Square Size	Tapping drill diameter
			L1	L2			
ØD1	P				ØD2	K	Ød1
M2	× 0.4	TZ293136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TZ293156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TZ293196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TZ293176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TZ293496	9	50	2.8	2.1	2.1
M3	× 0.5	TZ293206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TZ293226	12	56	4	3	2.9
M4	× 0.7	TZ293246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TZ293266	14	70	6	4.9	3.7
M5	× 0.8	TZ293286	15	70	6	4.9	4.2
M6	× 1	TZ293316	17	80	6	4.9	5
M7	× 1	TZ293346	17	80	7	5.5	6
M8	× 1.25	TZ293366	20	90	8	6.2	6.8
M9	× 1.25	TZ293396	20	90	9	7	7.8
M10	× 1.5	TZ293426	22	100	10	8	8.5
M11	× 1.5	TZ293466	22	100	8	6.2	9.5
M12	× 1.75	TZ293506	24	110	9	7	10.2
M14	× 2	TZ293546	26	110	11	9	12
M16	× 2	TZ293606	27	110	12	9	14
M18	× 2.5	TZ293656	30	125	14	11	15.5
M20	× 2.5	TZ293706	32	140	16	12	17.5
M22	× 2.5	TZ293746	32	140	18	14.5	19.5
M24	× 3	TZ293786	34	160	18	14.5	21
M27	× 3	TZ293866	36	160	20	16	24
M30	× 3.5	TZ293946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○									○	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎														



SPIRAL POINT TAPS

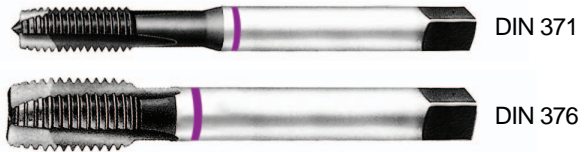
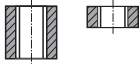
TQ873 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

Hole type

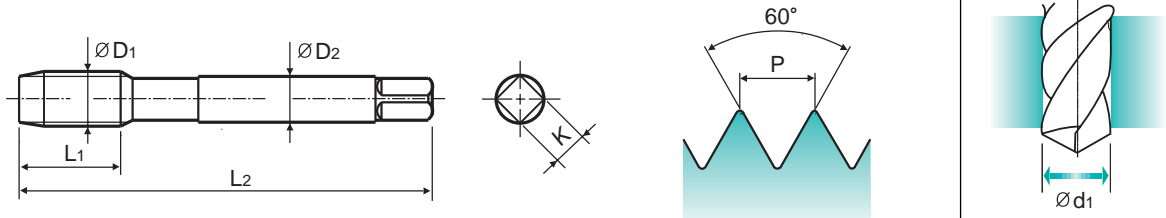


Material groups

Ti Ni

HSS-PM DIN 371/376 6H 60° B Vap

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TQ873136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TQ873156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TQ873176	9	50	2.8	2.1	2.05
M3	× 0.5	TQ873206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TQ873226	12	56	4	3	2.9
M4	× 0.7	TQ873246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TQ873266	14	70	6	4.9	3.7
M5	× 0.8	TQ873286	15	70	6	4.9	4.2
M6	× 1	TQ873316	17	80	6	4.9	5
M7	× 1	TQ873346	17	80	7	5.5	6
M8	× 1.25	TQ873366	20	90	8	6.2	6.8
M10	× 1.5	TQ873426	22	100	10	8	8.5
M12	× 1.75	TQ873506	24	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○	○								○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○		○	○				○							

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

SPIRAL
POINT TAPS

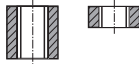
TR873 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.

Hole type



DIN 371



DIN 376

Material groups

Ti
Ni

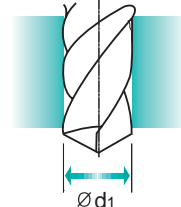
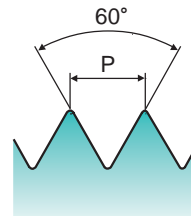
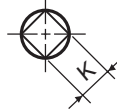
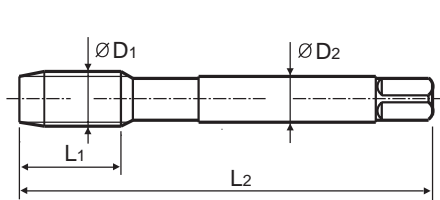
HSS-PM

DIN
371/376

6H



Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TR873136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TR873156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TR873176	9	50	2.8	2.1	2.05
M3	× 0.5	TR873206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TR873226	12	56	4	3	2.9
M4	× 0.7	TR873246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TR873266	14	70	6	4.9	3.7
M5	× 0.8	TR873286	15	70	6	4.9	4.2
M6	× 1	TR873316	17	80	6	4.9	5
M7	× 1	TR873346	17	80	7	5.5	6
M8	× 1.25	TR873366	20	90	8	6.2	6.8
M10	× 1.5	TR873426	22	100	10	8	8.5
M12	× 1.75	TR873506	24	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				◎	◎								○	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎		◎	◎					○						



SPIRAL POINT TAPS

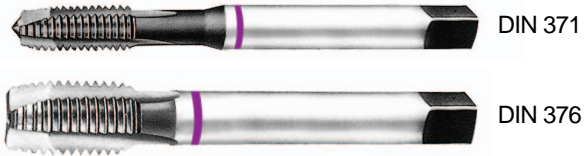
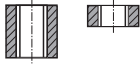
TM923 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

Hole type



DIN 371

DIN 376

Material groups

Ni

HSS-PM

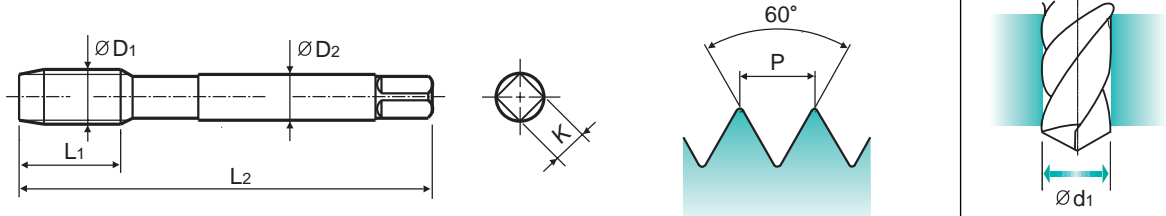
DIN 371/376

6H



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TM923136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TM923156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TM923196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TM923176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TM923496	9	50	2.8	2.1	2.1
M3	× 0.5	TM923206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TM923226	12	56	4	3	2.9
M4	× 0.7	TM923246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TM923266	14	70	6	4.9	3.7
M5	× 0.8	TM923286	15	70	6	4.9	4.2
M6	× 1	TM923316	17	80	6	4.9	5
M7	× 1	TM923346	17	80	7	5.5	6
M8	× 1.25	TM923366	20	90	8	6.2	6.8
M9	× 1.25	TM923396	20	90	9	7	7.8
M10	× 1.5	TM923426	22	100	10	8	8.5
M11	× 1.5	TM923466	22	100	8	6.2	9.5
M12	× 1.75	TM923506	24	110	9	7	10.2
M14	× 2	TM923546	26	110	11	9	12
M16	× 2	TM923606	27	110	12	9	14
M18	× 2.5	TM923656	30	125	14	11	15.5
M20	× 2.5	TM923706	32	140	16	12	17.5
M22	× 2.5	TM923746	32	140	18	14.5	19.5
M24	× 3	TM923786	34	160	18	14.5	21
M27	× 3	TM923866	36	160	20	16	24
M30	× 3.5	TM923946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				◎	◎									
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○		◎	◎				○							

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

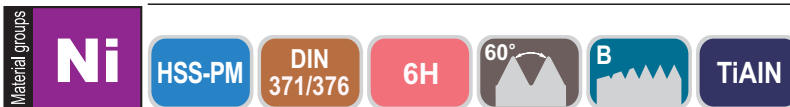
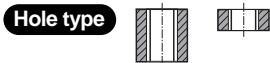
TECHNICAL DATA

M ISO metric coarse threads DIN 13

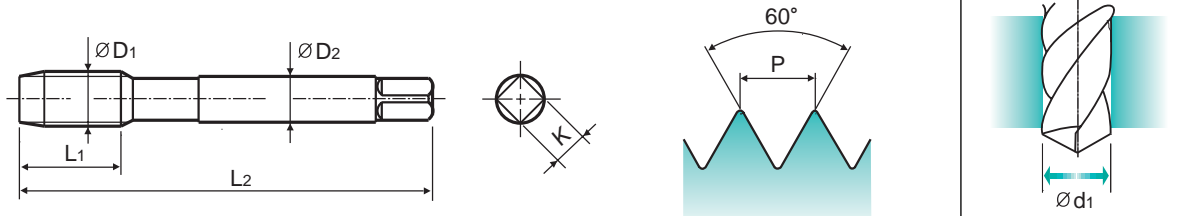
Metrisches ISO-Gewinde DIN 13

► For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TZ923136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TZ923156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TZ923196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TZ923176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TZ923496	9	50	2.8	2.1	2.1
M3	× 0.5	TZ923206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TZ923226	12	56	4	3	2.9
M4	× 0.7	TZ923246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TZ923266	14	70	6	4.9	3.7
M5	× 0.8	TZ923286	15	70	6	4.9	4.2
M6	× 1	TZ923316	17	80	6	4.9	5
M7	× 1	TZ923346	17	80	7	5.5	6
M8	× 1.25	TZ923366	20	90	8	6.2	6.8
M9	× 1.25	TZ923396	20	90	9	7	7.8
M10	× 1.5	TZ923426	22	100	10	8	8.5
M11	× 1.5	TZ923466	22	100	8	6.2	9.5
M12	× 1.75	TZ923506	24	110	9	7	10.2
M14	× 2	TZ923546	26	110	11	9	12
M16	× 2	TZ923606	27	110	12	9	14
M18	× 2.5	TZ923656	30	125	14	11	15.5
M20	× 2.5	TZ923706	32	140	16	12	17.5
M22	× 2.5	TZ923746	32	140	18	14.5	19.5
M24	× 3	TZ923786	34	160	18	14.5	21
M27	× 3	TZ923866	36	160	20	16	24
M30	× 3.5	TZ923946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				◎	◎									
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○		◎	◎				○							



SPIRAL POINT TAPS

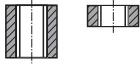
TE943 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 371



DIN 376

Material groups

AI

HSS-E

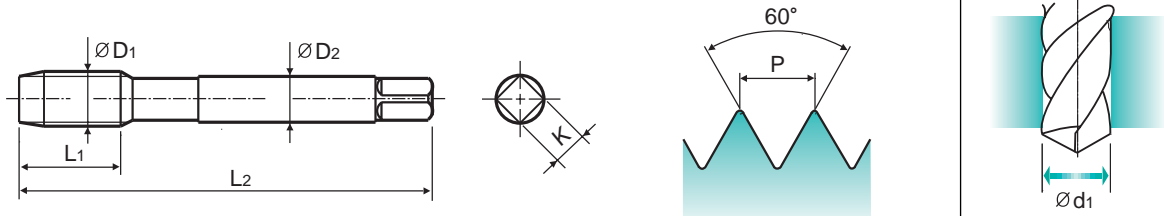
DIN 371/376

6H



NI

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE943136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TE943156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TE943196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TE943176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TE943496	9	50	2.8	2.1	2.1
M3	× 0.5	TE943206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TE943226	12	56	4	3	2.9
M4	× 0.7	TE943246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TE943266	14	70	6	4.9	3.7
M5	× 0.8	TE943286	15	70	6	4.9	4.2
M6	× 1	TE943316	17	80	6	4.9	5
M7	× 1	TE943346	17	80	7	5.5	6
M8	× 1.25	TE943366	20	90	8	6.2	6.8
M9	× 1.25	TE943396	20	90	9	7	7.8
M10	× 1.5	TE943426	22	100	10	8	8.5
M11	× 1.5	TE943466	22	100	8	6.2	9.5
M12	× 1.75	TE943506	24	110	9	7	10.2
M14	× 2	TE943546	26	110	11	9	12
M16	× 2	TE943606	27	110	12	9	14
M18	× 2.5	TE943656	30	125	14	11	15.5
M20	× 2.5	TE943706	32	140	16	12	17.5
M22	× 2.5	TE943746	32	140	18	14.5	19.5
M24	× 3	TE943786	34	160	18	14.5	21
M27	× 3	TE943866	36	160	20	16	24
M30	× 3.5	TE943946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
		○												
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
											◎			

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

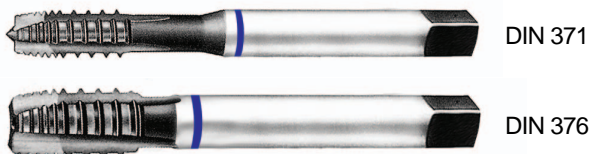
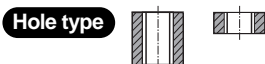
Y/G SPIRAL POINT TAPS

TC622 SERIES

M-Az ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

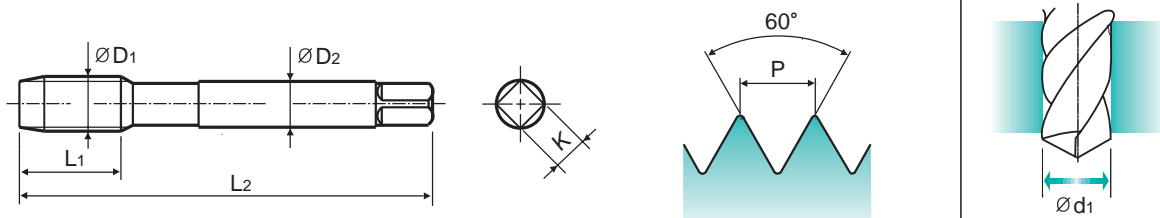
► Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

► Gewindebohrer mit ausgesetzten Zähnen um die Kontaktzone mit dem Werkstück und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.



Material groups **AI** **HSS-E** **DIN 371/376** **6H** **60°** **B** **Bright**

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC622136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC622156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC622196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC622176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC622496	9	50	2.8	2.1	2.1
M3	× 0.5	TC622206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TC622226	12	56	4	3	2.9
M4	× 0.7	TC622246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TC622266	14	70	6	4.9	3.7
M5	× 0.8	TC622286	15	70	6	4.9	4.2
M6	× 1	TC622316	17	80	6	4.9	5
M7	× 1	TC622346	17	80	7	5.5	6
M8	× 1.25	TC622366	20	90	8	6.2	6.8
M9	× 1.25	TC622396	20	90	9	7	7.8
M10	× 1.5	TC622426	22	100	10	8	8.5
M11	× 1.5	TC622466	22	100	8	6.2	9.5
M12	× 1.75	TC622506	24	110	9	7	10.2
M14	× 2	TC622546	26	110	11	9	12
M16	× 2	TC622606	27	110	12	9	14
M18	× 2.5	TC622656	30	125	14	11	15.5
M20	× 2.5	TC622706	32	140	16	12	17.5
M22	× 2.5	TC622746	32	140	18	14.5	19.5
M24	× 3	TC622786	34	160	18	14.5	21
M27	× 3	TC622866	36	160	20	16	24
M30	× 3.5	TC622946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				



SPIRAL POINT TAPS

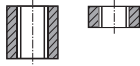
TC222 SERIES

MF ISO metric fine threads DIN 13 Metrisches ISO-Feingewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 374

Material groups **GS**

HSS-E

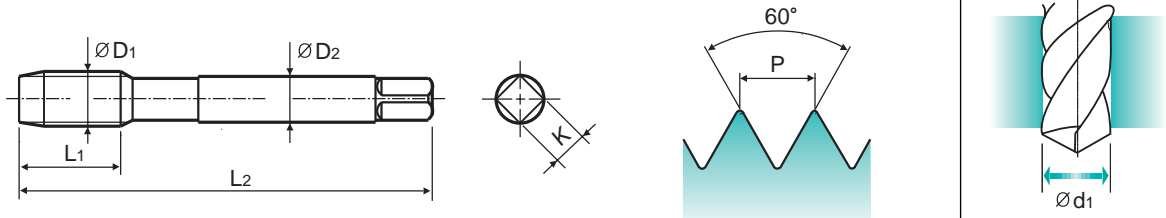
DIN 374

6H



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TD222256	10	63	2.8	2.1	3.5
M5	× 0.5	TD222296	11	70	3.5	2.7	4.5
M6	× 0.75	TD222326	13	80	4.5	3.4	5.2
M6	× 0.5	TD222336	13	80	4.5	3.4	5.5
M7	× 0.75	TD222356	14	80	5.5	4.3	6.2
M8	× 1	TD222376	17	90	6	4.9	7
M8	× 0.75	TD222386	14	80	6	4.9	7.2
M8	× 0.5	TD222936	14	80	6	4.9	7.5
M10	× 1.25	TD222436	22	100	7	5.5	8.8
M10	× 1	TD222446	18	90	7	5.5	9
M10	× 0.75	TD222456	18	90	7	5.5	9.2
M12	× 1.5	TD222516	22	100	9	7	10.5
M12	× 1.25	TD222526	22	100	9	7	10.8
M12	× 1	TD222536	18	100	9	7	11
M14	× 1.5	TD222556	22	100	11	9	12.5
M14	× 1.25	TD222566	22	100	11	9	12.8
M14	× 1	TD222576	18	100	11	9	13

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	○	◎	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

**SPIRAL
POINT TAPS****TC222** SERIES**MF** ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



DIN 374



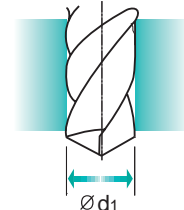
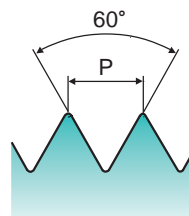
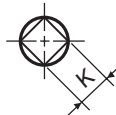
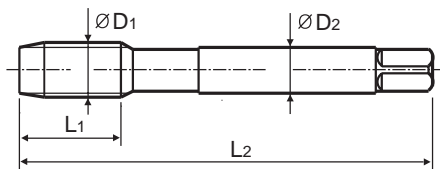
HSS-E

DIN 374

6H



Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M16 × 1.5	1.5	TC222616	22	100	12	9	14.5
M16 × 1	1	TC222626	18	100	12	9	15
M18 × 1.5	1.5	TC222676	25	110	14	11	16.5
M18 × 1	1	TC222686	20	110	14	11	17
M20 × 1.5	1.5	TC222726	25	125	16	12	18.5
M20 × 1	1	TC222736	20	125	16	12	19
M22 × 1.5	1.5	TC222766	25	125	18	14.5	20.5
M22 × 1	1	TC222776	20	125	18	14.5	21
M24 × 2	2	TC222796	27	140	18	14.5	22
M24 × 1.5	1.5	TC222806	27	140	18	14.5	22.5
M26 × 1.5	1.5	TC222856	28	140	18	14.5	24.5
M27 × 2	2	TC222876	28	140	20	16	25
M27 × 1.5	1.5	TC222886	28	140	20	16	25.5
M28 × 1.5	1.5	TC222916	28	140	20	16	26.5
M30 × 2	2	TC222966	30	150	22	18	28
M30 × 1.5	1.5	TC222976	30	150	22	18	28.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	○	◎	○	○	○



SPIRAL POINT TAPS

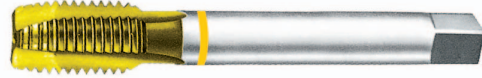
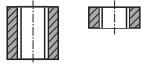
TD222 SERIES

MF ISO metric fine threads DIN 13 Metrisches ISO-Feingewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 374

Material groups **GS**

HSS-E

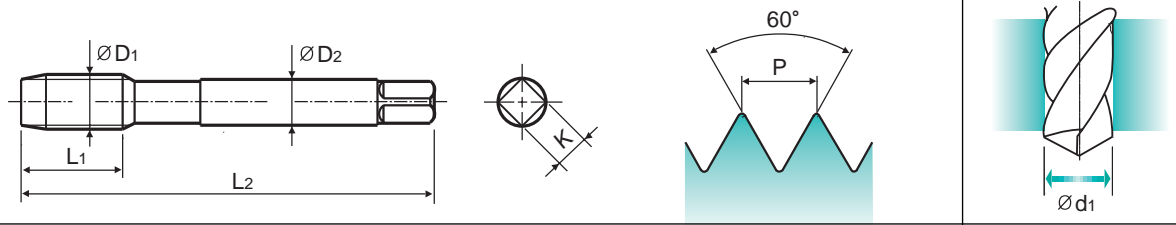
DIN 374

6H



TiN

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TD222256	10	63	2.8	2.1	3.5
M5	× 0.5	TD222296	11	70	3.5	2.7	4.5
M6	× 0.75	TD222326	13	80	4.5	3.4	5.2
M6	× 0.5	TD222336	13	80	4.5	3.4	5.5
M7	× 0.75	TD222356	14	80	5.5	4.3	6.2
M8	× 1	TD222376	17	90	6	4.9	7
M8	× 0.75	TD222386	14	80	6	4.9	7.2
M8	× 0.5	TD222936	14	80	6	4.9	7.5
M10	× 1.25	TD222436	22	100	7	5.5	8.8
M10	× 1	TD222446	18	90	7	5.5	9
M10	× 0.75	TD222456	18	90	7	5.5	9.2
M12	× 1.5	TD222516	22	100	9	7	10.5
M12	× 1.25	TD222526	22	100	9	7	10.8
M12	× 1	TD222536	18	100	9	7	11
M14	× 1.5	TD222556	22	100	11	9	12.5
M14	× 1.25	TD222566	22	100	11	9	12.8
M14	× 1	TD222576	18	100	11	9	13

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	◎	◎	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA



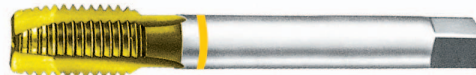
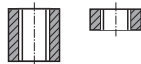
SPIRAL POINT TAPS

TD222 SERIES

MF ISO metric fine threads DIN 13 Metrisches ISO-Feingewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type


DIN 374

GS

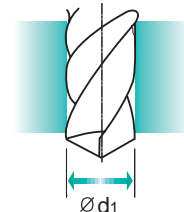
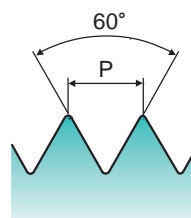
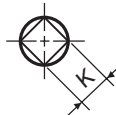
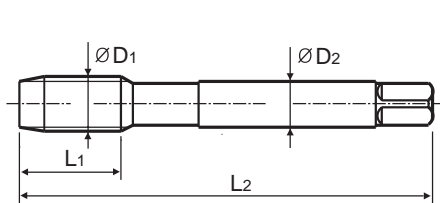
HSS-E

DIN 374

6H



TiN

 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M16 × 1.5		TD222616	22	100	12	9	14.5
M16 × 1		TD222626	18	100	12	9	15
M18 × 1.5		TD222676	25	110	14	11	16.5
M18 × 1		TD222686	20	110	14	11	17
M20 × 1.5		TD222726	25	125	16	12	18.5
M20 × 1		TD222736	20	125	16	12	19
M22 × 1.5		TD222766	25	125	18	14.5	20.5
M22 × 1		TD222776	20	125	18	14.5	21
M24 × 2		TD222796	27	140	18	14.5	22
M24 × 1.5		TD222806	27	140	18	14.5	22.5
M26 × 1.5		TD222856	28	140	18	14.5	24.5
M27 × 2		TD222876	28	140	20	16	25
M27 × 1.5		TD222886	28	140	20	16	25.5
M28 × 1.5		TD222916	28	140	20	16	26.5
M30 × 2		TD222966	30	150	22	18	28
M30 × 1.5		TD222976	30	150	22	18	28.5

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



SPIRAL POINT TAPS

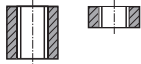
TC263 SERIES

MF ISO metric fine threads DIN 13 Metrisches ISO-Feingewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 374

Material groups

VG

HSS-E

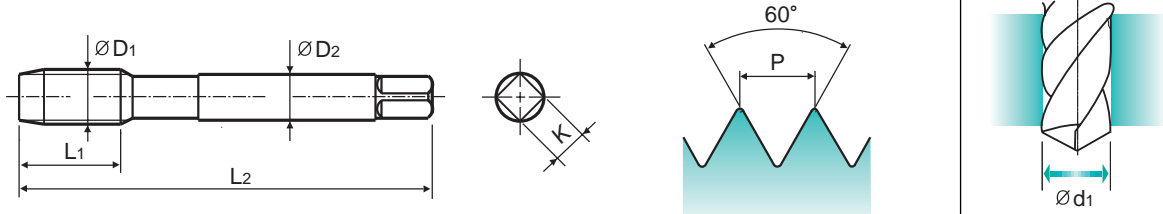
DIN 374

6H



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TC263256	10	63	2.8	2.1	3.5
M5	× 0.5	TC263296	11	70	3.5	2.7	4.5
M6	× 0.75	TC263326	13	80	4.5	3.4	5.2
M6	× 0.5	TC263336	13	80	4.5	3.4	5.5
M7	× 0.75	TC263356	14	80	5.5	4.3	6.2
M8	× 1	TC263376	17	90	6	4.9	7
M8	× 0.75	TC263386	14	80	6	4.9	7.2
M10	× 1.25	TC263436	22	100	7	5.5	8.8
M10	× 1	TC263446	18	90	7	5.5	9
M10	× 0.75	TC263456	18	90	7	5.5	9.2
M12	× 1.5	TC263516	22	100	9	7	10.5
M12	× 1.25	TC263526	22	100	9	7	10.8
M12	× 1	TC263536	18	100	9	7	11
M14	× 1.5	TC263556	22	100	11	9	12.5
M14	× 1.25	TC263566	22	100	11	9	12.8
M16	× 1.5	TC263616	22	100	12	9	14.5
M18	× 1.5	TC263676	25	110	14	11	16.5
M20	× 1.5	TC263726	25	125	16	12	18.5
M22	× 1.5	TC263766	25	125	18	14.5	20.5
M24	× 1.5	TC263806	27	140	18	14.5	22.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

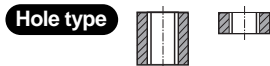
TECHNICAL DATA

MF

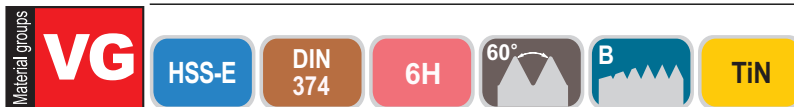
ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

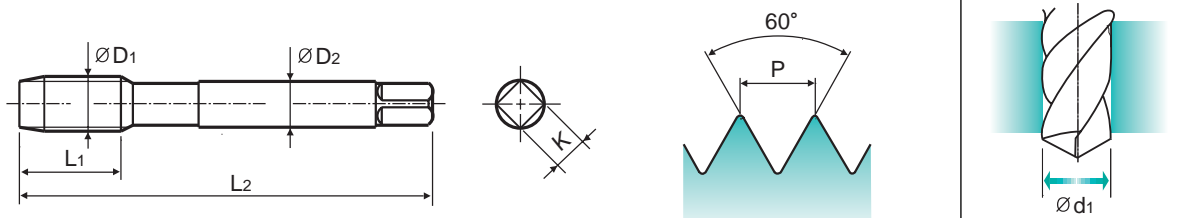
► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



DIN 374



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch		EDP No.	Thread Length		Overall Length	Shank Diameter	Square Size	Tapping drill diameter
	ØD1	P		L1	L2				
M4	×	0.5	TD263256	10	63	2.8	2.1	3.5	
M5	×	0.5	TD263296	11	70	3.5	2.7	4.5	
M6	×	0.75	TD263326	13	80	4.5	3.4	5.2	
M6	×	0.5	TD263336	13	80	4.5	3.4	5.5	
M7	×	0.75	TD263356	14	80	5.5	4.3	6.2	
M8	×	1	TD263376	17	90	6	4.9	7	
M8	×	0.75	TD263386	14	80	6	4.9	7.2	
M10	×	1.25	TD263436	22	100	7	5.5	8.8	
M10	×	1	TD263446	18	90	7	5.5	9	
M10	×	0.75	TD263456	18	90	7	5.5	9.2	
M12	×	1.5	TD263516	22	100	9	7	10.5	
M12	×	1.25	TD263526	22	100	9	7	10.8	
M12	×	1	TD263536	18	100	9	7	11	
M14	×	1.5	TD263556	22	100	11	9	12.5	
M14	×	1.25	TD263566	22	100	11	9	12.8	
M16	×	1.5	TD263616	22	100	12	9	14.5	
M18	×	1.5	TD263676	25	110	14	11	16.5	
M20	×	1.5	TD263726	25	125	16	12	18.5	
M22	×	1.5	TD263766	25	125	18	14.5	20.5	
M24	×	1.5	TD263806	27	140	18	14.5	22.5	

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											

MF ISO metric fine threads DIN 13

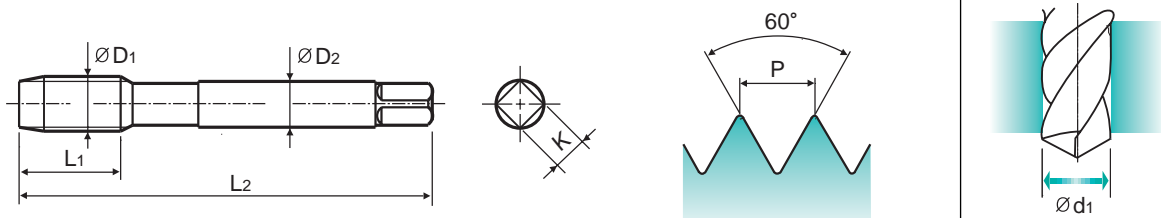
Metrisches ISO-Feingewinde DIN 13

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TB123256	10	63	2.8	2.1	3.5
M5	× 0.5	TB123296	11	70	3.5	2.7	4.5
M6	× 0.75	TB123326	13	80	4.5	3.4	5.2
M6	× 0.5	TB123336	13	80	4.5	3.4	5.5
M7	× 0.75	TB123356	14	80	5.5	4.3	6.2
M8	× 1	TB123376	17	90	6	4.9	7
M8	× 0.75	TB123386	14	80	6	4.9	7.2
M10	× 1.25	TB123436	22	100	7	5.5	8.8
M10	× 1	TB123446	18	90	7	5.5	9
M10	× 0.75	TB123456	18	90	7	5.5	9.2
M12	× 1.5	TB123516	22	100	9	7	10.5
M12	× 1.25	TB123526	22	100	9	7	10.8
M12	× 1	TB123536	18	100	9	7	11
M14	× 1.5	TB123556	22	100	11	9	12.5
M14	× 1.25	TB123566	22	100	11	9	12.8
M16	× 1.5	TB123616	22	100	12	9	14.5
M18	× 1.5	TB123676	25	110	14	11	16.5
M20	× 1.5	TB123726	25	125	16	12	18.5
M22	× 1.5	TB123766	25	125	18	14.5	20.5
M24	× 1.5	TB123806	27	140	18	14.5	22.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											

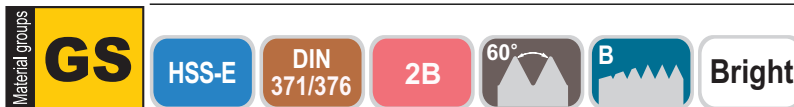
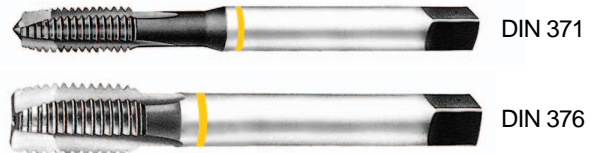
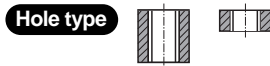

**SPIRAL
POINT TAPS**
TC214 SERIES

UNC

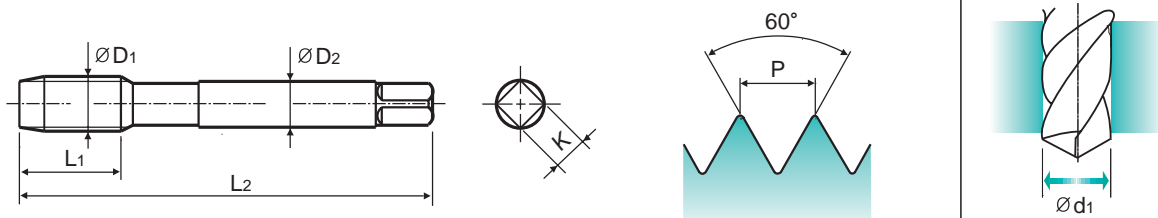
Unified coarse threads
Unified Grobgewinde

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40 UNC	TC214162	11	56	3.5	2.7	2.3
#5	- 40 UNC	TC214202	11	56	3.5	2.7	2.6
#6	- 32 UNC	TC214242	12	56	4	3	2.85
#8	- 32 UNC	TC214282	13	63	4.5	3.4	3.5
#10	- 24 UNC	TC214322	15	70	6	4.9	3.9
#12	- 24 UNC	TC214362	16	80	6	4.9	4.5
1/4"	- 20 UNC	TC214402	17	80	7	5.5	5.2
5/16"	- 18 UNC	TC214442	20	90	8	6.2	6.6
3/8"	- 16 UNC	TC214482	22	100	9	7	8
7/16"	- 14 UNC	TC214522	22	100	8	6.2	9.4
1/2"	- 13 UNC	TC214562	25	110	9	7	10.75
9/16"	- 12 UNC	TC214602	26	110	11	9	12.25
5/8"	- 11 UNC	TC214642	27	110	12	9	13.5
3/4"	- 10 UNC	TC214702	30	125	14	11	16.5
7/8"	- 9 UNC	TC214742	32	140	18	14.5	19.5
1"	- 8 UNC	TC214782	36	160	20	16	22.25
1*1/8"	- 7 UNC	TC214822	40	180	22	18	25

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

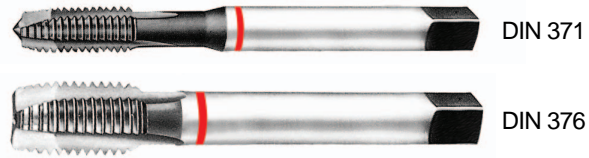
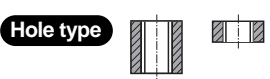
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

UNC Unified coarse threads

Unified Grobgewinde

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups **VG**

HSS-E

DIN 371/376

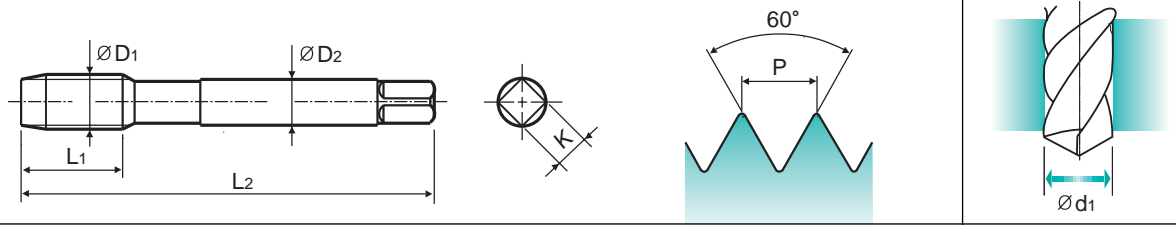
2B

60°

B

Bright

Machine taps
Maschinengewindebohrer



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TC244162	11	56	3.5	2.7	2.3
#5	- 40UNC	TC244202	11	56	3.5	2.7	2.6
#6	- 32UNC	TC244242	12	56	4	3	2.85
#8	- 32UNC	TC244282	13	63	4.5	3.4	3.5
#10	- 24UNC	TC244322	15	70	6	4.9	3.9
#12	- 24UNC	TC244362	16	80	6	4.9	4.5
1/4"	- 20UNC	TC244402	17	80	7	5.5	5.2
5/16"	- 18UNC	TC244442	20	90	8	6.2	6.6
3/8"	- 16UNC	TC244482	22	100	9	7	8
7/16"	- 14UNC	TC244522	22	100	8	6.2	9.4
1/2"	- 13UNC	TC244562	25	110	9	7	10.75
9/16"	- 12UNC	TC244602	26	110	11	9	12.25
5/8"	- 11UNC	TC244642	27	110	12	9	13.5
3/4"	- 10UNC	TC244702	30	125	14	11	16.5
7/8"	- 9UNC	TC244742	32	140	18	14.5	19.5
1"	- 8UNC	TC244782	36	160	20	16	22.25
1*1/8"	- 7UNC	TC244822	40	180	22	18	25

Unit : mm

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

SPIRAL
POINT TAPS

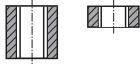
TD244 SERIES

UNC Unified coarse threads
Unified Grobgewinde

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 371



DIN 376



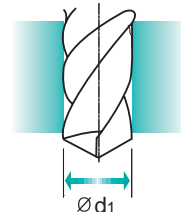
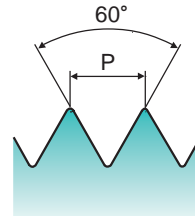
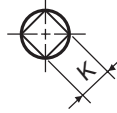
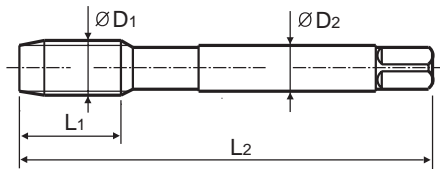
HSS-E

DIN
371/376

2B



TiN

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TD244162	11	56	3.5	2.7	2.3
#5	- 40UNC	TD244202	11	56	3.5	2.7	2.6
#6	- 32UNC	TD244242	12	56	4	3	2.85
#8	- 32UNC	TD244282	13	63	4.5	3.4	3.5
#10	- 24UNC	TD244322	15	70	6	4.9	3.9
#12	- 24UNC	TD244362	16	80	6	4.9	4.5
1/4"	- 20UNC	TD244402	17	80	7	5.5	5.2
5/16"	- 18UNC	TD244442	20	90	8	6.2	6.6
3/8"	- 16UNC	TD244482	22	100	9	7	8
7/16"	- 14UNC	TD244522	22	100	8	6.2	9.4
1/2"	- 13UNC	TD244562	25	110	9	7	10.75
9/16"	- 12UNC	TD244602	26	110	11	9	12.25
5/8"	- 11UNC	TD244642	27	110	12	9	13.5
3/4"	- 10UNC	TD244702	30	125	14	11	16.5
7/8"	- 9UNC	TD244742	32	140	18	14.5	19.5
1"	- 8UNC	TD244782	36	160	20	16	22.25
1*1/8"	- 7UNC	TD244822	40	180	22	18	25

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

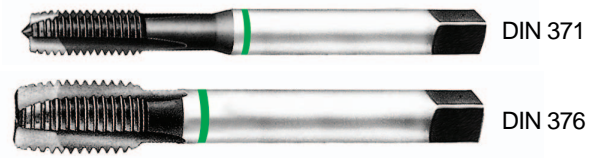
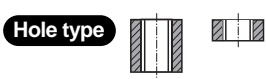
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

UNC Unified coarse threads

Unified Grobgewinde

► Suitable for through hole in more cutting speed than other taps due to thick web.

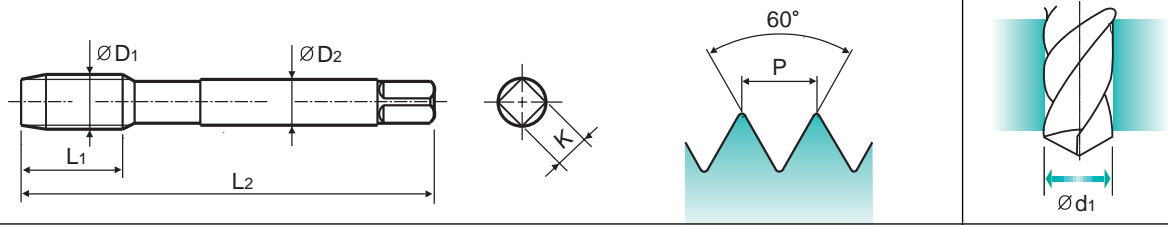
► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups **VANW**

HSS-E DIN 371/376 2B 60° B Vap

Machine taps
Maschinengewindebohrer



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TB264162	11	56	3.5	2.7	2.3
#5	- 40UNC	TB264202	11	56	3.5	2.7	2.6
#6	- 32UNC	TB264242	12	56	4	3	2.85
#8	- 32UNC	TB264282	13	63	4.5	3.4	3.5
#10	- 24UNC	TB264322	15	70	6	4.9	3.9
#12	- 24UNC	TB264362	16	80	6	4.9	4.5
1/4"	- 20UNC	TB264402	17	80	7	5.5	5.2
5/16"	- 18UNC	TB264442	20	90	8	6.2	6.6
3/8"	- 16UNC	TB264482	22	100	9	7	8
7/16"	- 14UNC	TB264522	22	100	8	6.2	9.4
1/2"	- 13UNC	TB264562	25	110	9	7	10.75
9/16"	- 12UNC	TB264602	26	110	11	9	12.25
5/8"	- 11UNC	TB264642	27	110	12	9	13.5
3/4"	- 10UNC	TB264702	30	125	14	11	16.5
7/8"	- 9UNC	TB264742	32	140	18	14.5	19.5
1"	- 8UNC	TB264782	36	160	20	16	22.25
1*1/8"	- 7UNC	TB264822	40	180	22	18	25

Unit : mm

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					○	○	○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

SPIRAL
POINT TAPS

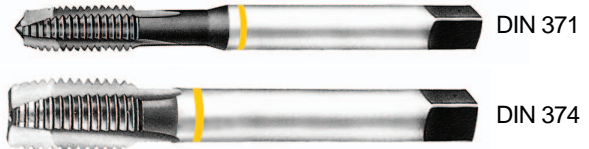
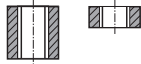
TC234 SERIES

UNF Unified fine threads
Unified Feingewinde

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 371

DIN 374

Material groups

GS

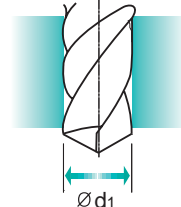
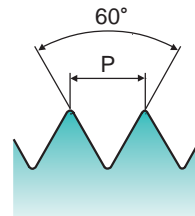
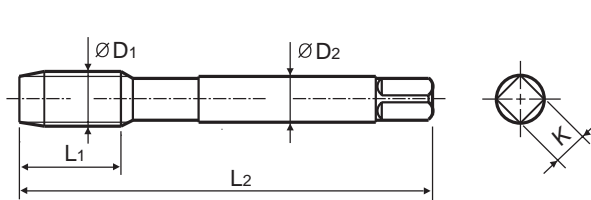
HSS-E

DIN
371/374

2B



Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	TC234182	11	56	3.5	2.7	2.4
#5	- 44 UNF	TC234222	11	56	3.5	2.7	2.7
#6	- 40 UNF	TC234262	12	56	4	3	3
#8	- 36 UNF	TC234302	13	63	4.5	3.4	3.5
#10	- 32 UNF	TC234342	13	70	6	4.9	4.1
#12	- 28 UNF	TC234382	16	80	6	4.9	4.7
1/4"	- 28 UNF	TC234422	17	80	7	5.5	5.5
5/16"	- 24 UNF	TC234462	17	90	8	6.2	6.9
3/8"	- 24 UNF	TC234502	18	100	9	7	8.5
7/16"	- 20 UNF	TC234542	22	100	8	6.2	9.9
1/2"	- 20 UNF	TC234582	22	100	9	7	11.5
9/16"	- 18 UNF	TC234622	22	100	11	9	12.9
5/8"	- 18 UNF	TC234662	22	100	12	9	14.5
3/4"	- 16 UNF	TC234722	25	110	14	11	17.5
7/8"	- 14 UNF	TC234762	26	125	18	14.5	20.5
1"	- 12 UNF	TC234802	28	140	20	16	23.25
1*1/8"	- 12 UNF	TC234842	30	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm²

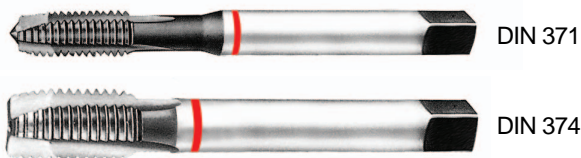
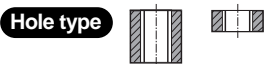
◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

UNF Unified fine threads Unified Feingewinde

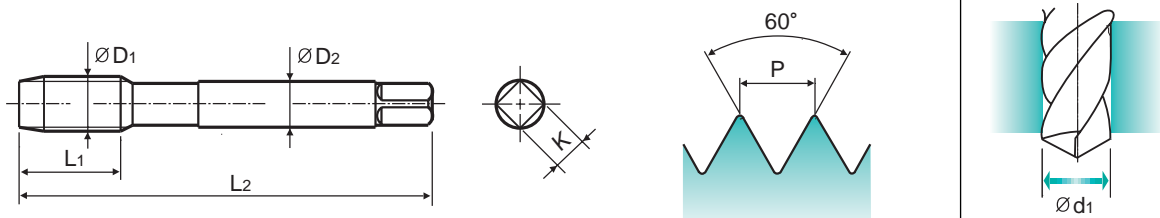
► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



HSS-E
DIN 371/374
2B
60°
B
Bright

Machine taps
Maschinengewindebohrer



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	TC254182	11	56	3.5	2.7	2.4
#5	- 44 UNF	TC254222	11	56	3.5	2.7	2.7
#6	- 40 UNF	TC254262	12	56	4	3	3
#8	- 36 UNF	TC254302	13	63	4.5	3.4	3.5
#10	- 32 UNF	TC254342	13	70	6	4.9	4.1
#12	- 28 UNF	TC254382	16	80	6	4.9	4.7
1/4"	- 28 UNF	TC254422	17	80	7	5.5	5.5
5/16"	- 24 UNF	TC254462	17	90	8	6.2	6.9
3/8"	- 24 UNF	TC254502	18	100	9	7	8.5
7/16"	- 20 UNF	TC254542	22	100	8	6.2	9.9
1/2 "	- 20 UNF	TC254582	22	100	9	7	11.5
9/16"	- 18 UNF	TC254622	22	100	11	9	12.9
5/8"	- 18 UNF	TC254662	22	100	12	9	14.5
3/4"	- 16 UNF	TC254722	25	110	14	11	17.5
7/8"	- 14 UNF	TC254762	26	125	18	14.5	20.5
1"	- 12 UNF	TC254802	28	140	20	16	23.25
1*1/8"	- 12 UNF	TC254842	30	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO
TAPSSPIRAL
POINT TAPSSPIRAL
FLUTE TAPSSTRAIGHT
FLUTE TAPSCOLD
FORMING
TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE
TAPSTHREAD
MILLSTECHNICAL
DATASPIRAL
POINT TAPS

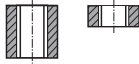
TB274 SERIES

UNF Unified fine threads
Unified Feingewinde

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 371



DIN 374



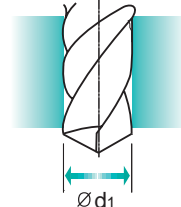
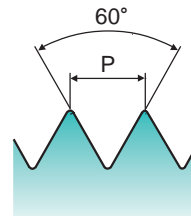
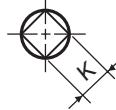
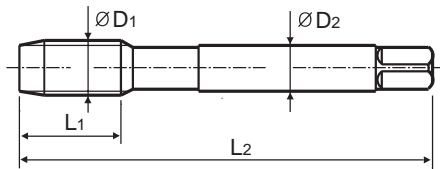
HSS-E

DIN
371/374

2B



Vap

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	TB274182	11	56	3.5	2.7	2.4
#5	- 44 UNF	TB274222	11	56	3.5	2.7	2.7
#6	- 40 UNF	TB274262	12	56	4	3	3
#8	- 36 UNF	TB274302	13	63	4.5	3.4	3.5
#10	- 32 UNF	TB274342	13	70	6	4.9	4.1
#12	- 28 UNF	TB274382	16	80	6	4.9	4.7
1/4"	- 28 UNF	TB274422	17	80	7	5.5	5.5
5/16"	- 24 UNF	TB274462	17	90	8	6.2	6.9
3/8"	- 24 UNF	TB274502	18	100	9	7	8.5
7/16"	- 20 UNF	TB274542	22	100	8	6.2	9.9
1/2"	- 20 UNF	TB274582	22	100	9	7	11.5
9/16"	- 18 UNF	TB274622	22	100	11	9	12.9
5/8"	- 18 UNF	TB274662	22	100	12	9	14.5
3/4"	- 16 UNF	TB274722	25	110	14	11	17.5
7/8"	- 14 UNF	TB274762	26	125	18	14.5	20.5
1"	- 12 UNF	TB274802	28	140	20	16	23.25
1*1/8"	- 12 UNF	TB274842	30	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP



SPIRAL POINT TAPS

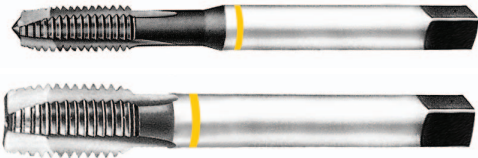
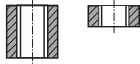
TC224 SERIES

BSW Whitworth threads Whitworth Gewinde

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.

Hole type



DIN 2182

DIN 2183

Material groups

GS

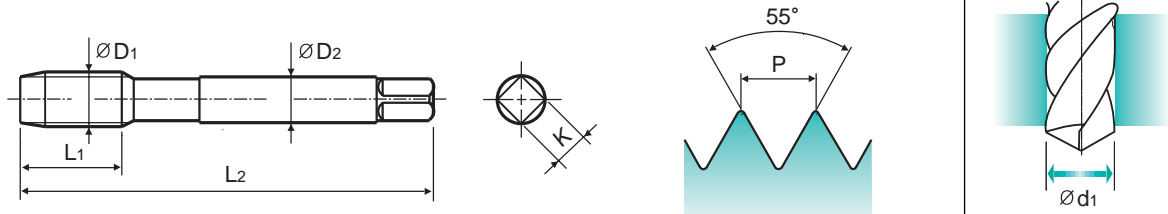
HSS-E

DIN 2182/2183



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
W1/8"	40	TC224200	11	56	3.5	2.7	2.5
W5/32"	32	TC224280	13	63	4.5	3.4	3.1
W3/16"	24	TC224320	15	70	6	4.9	3.6
W7/32"	24	TC224360	16	80	6	4.9	4.4
W1/4"	20	TC224400	17	80	7	5.5	5.1
W5/16"	18	TC224440	20	90	8	6.2	6.5
W3/8"	16	TC224480	22	100	9	7	7.9
W7/16"	14	TC224520	22	100	8	6.2	9.3
W1/2"	12	TC224560	25	110	9	7	10.5
W9/16"	12	TC224600	26	110	11	9	12
W5/8"	11	TC224640	27	110	12	9	13.5
W3/4"	10	TC224700	30	125	14	11	16.5
W7/8"	9	TC224740	32	140	18	14.5	19.25
W1"	8	TC224780	36	160	20	16	22
W1*1/8"	7	TC224820	40	180	22	18	24.75

► DIN 2182(W1/8"~W3/8") and DIN 2183(W7/16"~W1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	○	◎	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

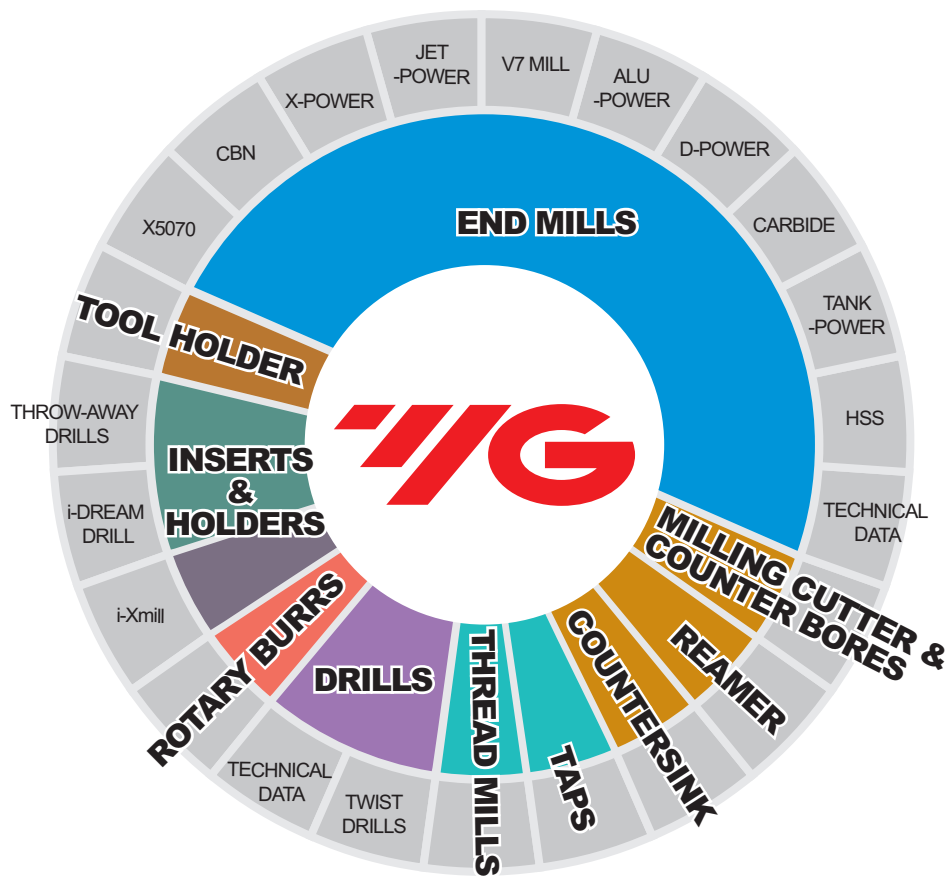
HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA



Challenge toward a Global Leader-

YG-1 Leads the World Market.

HSS



Being the best through innovation



SPIRAL FLUTE TAPS

GEWINDEBOHRER MIT DRALL

- Tapping Blind Holes, HSS-E & HSS-PM
- Für Sacklöcher. HSS-E und HSS-PM

SELECTION GUIDE













SPIRAL FLUTE TAPS

Tapping Blind Holes, HSS-E & HSS-PM

SPIRAL FLUTE TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC612		HSS-E	M	GS	DIN 352	ISO 2/6H	C	Bright	384
TC211		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	385
TC517		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	386
TC711		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	387
TD711		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	TiN	388
TQ823		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	C	vap	389
TR823		HSS-PM	M	VG	DIN 371/376	ISO 2/6H	C	Bright	390
TB312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	vap	391
TB913		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	vap	392
TC312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	Bright	393
TD312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	TiN	394
TY312		HSS-E	M	VG	DIN 371/376	ISO 2/6H	C	TiAlN	395
TQ813		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	C	vap	396
TR813		HSS-PM	M	VA	DIN 371/376	ISO 2/6H	C	Bright	397
TB313		HSS-E	M	HR	DIN 371/376	ISO 2/6H	C	vap	398
TC313		HSS-E	M	HR	DIN 371/376	ISO 2/6H	C	Bright	399
TY313		HSS-E	M	HR	DIN 371/376	ISO 2/6H	C	TiAlN	400
TB914		HSS-E	M	VA NW	DIN 371/376	ISO 2/6H	C	vap	401
TCH14		HSS-E	M	VA NW	DIN 371/376	ISO 2/6H	C	Hardslick	402
TB711		HSS-E	M	NW	DIN 371/376	ISO 2/6H	C	vap	403
TM903		HSS-PM	M	Ti	DIN 371/376	ISO 2/6H	C	Bright	404
TZ903		HSS-PM	M	Ti	DIN 371/376	ISO 2/6H	C	TiAlN	405

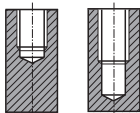
SPIRAL FLUTE TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TQ833		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	C	vap	406
TR833		HSS-PM	M	Ti Ni	DIN 371/376	ISO 2/6H	C	Bright	407
TM933		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	C	Bright	408
TZ933		HSS-PM	M	Ni	DIN 371/376	ISO 2/6H	C	TiAlN	409
TC163		HSS-E	M	Al	DIN 371/376	ISO 2/6H	C	Bright	410
TE953		HSS-E	M	Al	DIN 371/376	ISO 2/6H	C	NI	411
TC411		HSS-E	MF	GS	DIN 374	ISO 2/6H	C	Bright	412
TD411		HSS-E	MF	GS	DIN 374	ISO 2/6H	C	TiN	414
TC413		HSS-E	MF	VG	DIN 374	ISO 2/6H	C	Bright	416
TD413		HSS-E	MF	VG	DIN 374	ISO 2/6H	C	TiN	417
TB183		HSS-E	MF	VA NW	DIN 374	ISO 2/6H	C	vap	418
TC963		HSS-E	MF	Al	DIN 374	ISO 2/6H	C	Bright	419
TC144		HSS-E	UNC	GS	DIN 371/376	2B	C	Bright	420
TC174		HSS-E	UNC	VG	DIN 371/376	2B	C	Bright	421
TD174		HSS-E	UNC	VG	DIN 371/376	2B	C	TiN	422
TB904		HSS-E	UNC	VA NW	DIN 371/376	2B	C	vap	423
TC169		HSS-E	UNC	Al	DIN 371/376	2B	C	Bright	424
TC124		HSS-E	UNF	GS	DIN 371/374	2B	C	Bright	425
TC184		HSS-E	UNF	VG	DIN 371/374	2B	C	Bright	426
TB924		HSS-E	UNF	VA NW	DIN 371/374	2B	C	vap	427
TC170		HSS-E	UNF	Al	DIN 371/374	2B	C	Bright	428
TC134		HSS-E	BSW	GS	DIN 2182/2183	-	C	Bright	429


**SPIRAL
FLUTE TAPS**
TC612 SERIES
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type

DIN 352

Material groups
GS

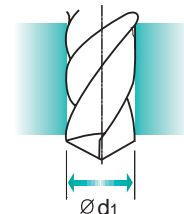
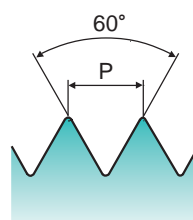
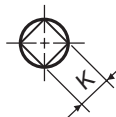
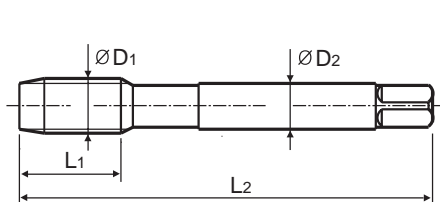
HSS-E

DIN 352

6H



Bright


Short machine taps
Maschinengewindebohrer
kurz


Unit : mm

SIZE	Pitch	EDP No.	Thread Length		Overall Length		Shank Diameter	Square Size	Tapping drill diameter
			L1	L2	ØD2	K			
M3	× 0.5	TC612206	11	40	3.5	2.7	2.5		
M4	× 0.7	TC612246	13	45	4.5	3.4	3.3		
M5	× 0.8	TC612286	16	52	6	4.9	4.2		
M6	× 1	TC612316	18	56	6	4.9	5		
M8	× 1.25	TC612366	20	63	6	4.9	6.8		
M10	× 1.5	TC612426	22	70	7	5.5	8.5		
M12	× 1.75	TC612506	24	80	9	7	10.2		
M14	× 2	TC612546	26	80	11	9	12		
M16	× 2	TC612606	27	80	12	9	14		
M18	× 2.5	TC612656	30	95	14	11	15.5		
M20	× 2.5	TC612706	32	95	16	12	17.5		

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



SPIRAL FLUTE TAPS

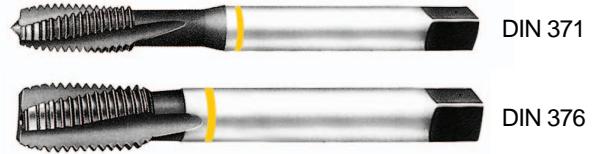
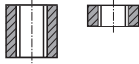
TC211 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

▶ Left spiral flute and right hand cut tap to push chips ahead in powerful than spiral point taps.

▶ Rechtsschneidender Gewindebohrer mit Linksdraht um kraftvoller nach vorne zu entspannen als mit Gewindebohrern mit Rechtsdraht.

Hole type



DIN 371

DIN 376

Material groups

GS

HSS-E

DIN 371/376

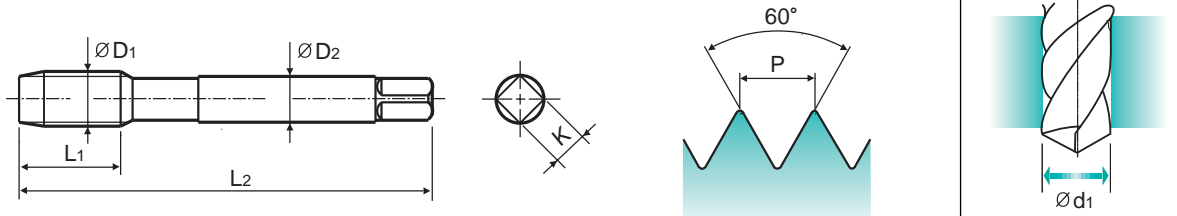
6H



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC211136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC211156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC211196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC211176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC211496	9	50	2.8	2.1	2.1
M3	× 0.5	TC211206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TC211226	12	56	4	3	2.9
M4	× 0.7	TC211246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TC211266	14	70	6	4.9	3.7
M5	× 0.8	TC211286	15	70	6	4.9	4.2
M6	× 1	TC211316	17	80	6	4.9	5
M7	× 1	TC211346	17	80	7	5.5	6
M8	× 1.25	TC211366	20	90	8	6.2	6.8
M9	× 1.25	TC211396	20	90	9	7	7.8
M10	× 1.5	TC211426	22	100	10	8	8.5
M11	× 1.5	TC211466	22	100	8	6.2	9.5
M12	× 1.75	TC211506	24	110	9	7	10.2
M14	× 2	TC211546	26	110	11	9	12
M16	× 2	TC211606	27	110	12	9	14
M18	× 2.5	TC211656	30	125	14	11	15.5
M20	× 2.5	TC211706	32	140	16	12	17.5
M22	× 2.5	TC211746	32	140	18	14.5	19.5
M24	× 3	TC211786	34	160	18	14.5	21
M27	× 3	TC211866	36	160	20	16	24
M30	× 3.5	TC211946	40	180	22	18	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

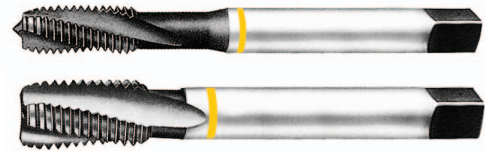
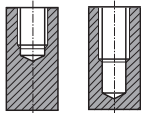
TECHNICAL DATA

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


DIN 371

DIN 376



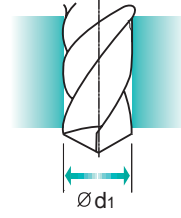
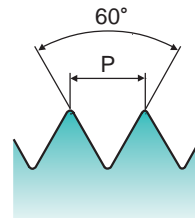
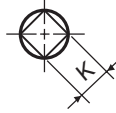
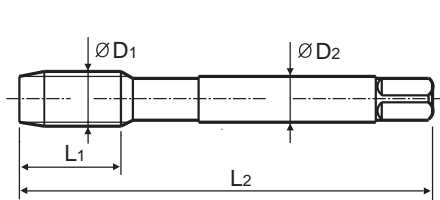
HSS-E

DIN
371/376

6H



Bright


 Machine taps
 Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC517136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC517156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC517196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC517176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC517496	9	50	2.8	2.1	2.1
M3	× 0.5	TC517206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TC517226	7	56	4	3	2.9
M4	× 0.7	TC517246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TC517266	8	70	6	4.9	3.7
M5	× 0.8	TC517286	8	70	6	4.9	4.2
M6	× 1	TC517316	10	80	6	4.9	5
M7	× 1	TC517346	10	80	7	5.5	6
M8	× 1.25	TC517366	13	90	8	6.2	6.8
M9	× 1.25	TC517396	13	90	9	7	7.8
M10	× 1.5	TC517426	15	100	10	8	8.5
M11	× 1.5	TC517466	17	100	8	6.2	9.5
M12	× 1.75	TC517506	18	110	9	7	10.2
M14	× 2	TC517546	20	110	11	9	12
M16	× 2	TC517606	20	110	12	9	14
M18	× 2.5	TC517656	25	125	14	11	15.5
M20	× 2.5	TC517706	25	140	16	12	17.5
M22	× 2.5	TC517746	25	140	18	14.5	19.5
M24	× 3	TC517786	30	160	18	14.5	21
M27	× 3	TC517866	30	160	20	16	24
M30	× 3.5	TC517946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
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SPIRAL FLUTE TAPS

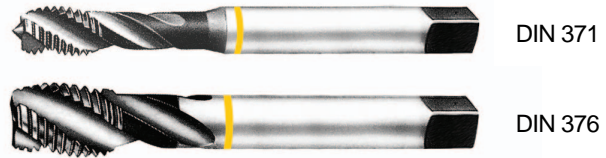
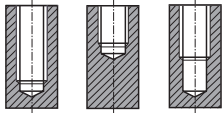
TC711 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



Material groups **GS**

HSS-E

DIN 371/376

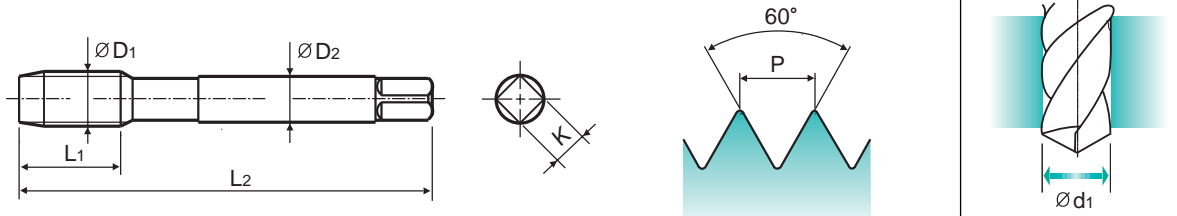
6H



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC711136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC711156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC711196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC711176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC711496	9	50	2.8	2.1	2.1
M3	× 0.5	TC711206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TC711226	7	56	4	3	2.9
M4	× 0.7	TC711246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TC711266	8	70	6	4.9	3.7
M5	× 0.8	TC711286	8	70	6	4.9	4.2
M6	× 1	TC711316	10	80	6	4.9	5
M7	× 1	TC711346	10	80	7	5.5	6
M8	× 1.25	TC711366	13	90	8	6.2	6.8
M9	× 1.25	TC711396	13	90	9	7	7.8
M10	× 1.5	TC711426	15	100	10	8	8.5
M11	× 1.5	TC711466	17	100	8	6.2	9.5
M12	× 1.75	TC711506	18	110	9	7	10.2
M14	× 2	TC711546	20	110	11	9	12
M16	× 2	TC711606	20	110	12	9	14
M18	× 2.5	TC711656	25	125	14	11	15.5
M20	× 2.5	TC711706	25	140	16	12	17.5
M22	× 2.5	TC711746	25	140	18	14.5	19.5
M24	× 3	TC711786	30	160	18	14.5	21
M27	× 3	TC711866	30	160	20	16	24
M30	× 3.5	TC711946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

Y/G SPIRAL FLUTE TAPS

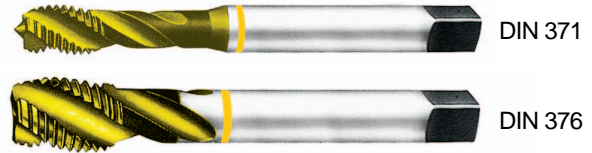
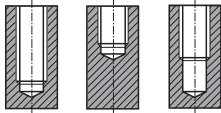
TD711 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

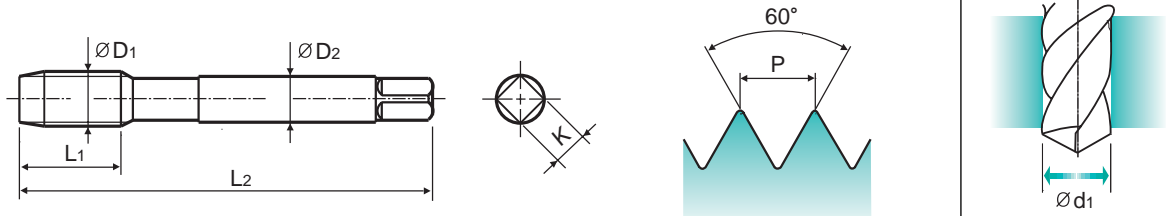
► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



Material groups **GS** **HSS-E** **DIN 371/376** **6H** **60°** **C** **TiN** **R40**

Machine taps
 Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD711136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TD711156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TD711196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TD711176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TD711496	9	50	2.8	2.1	2.1
M3	× 0.5	TD711206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TD711226	7	56	4	3	2.9
M4	× 0.7	TD711246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TD711266	8	70	6	4.9	3.7
M5	× 0.8	TD711286	8	70	6	4.9	4.2
M6	× 1	TD711316	10	80	6	4.9	5
M7	× 1	TD711346	10	80	7	5.5	6
M8	× 1.25	TD711366	13	90	8	6.2	6.8
M9	× 1.25	TD711396	13	90	9	7	7.8
M10	× 1.5	TD711426	15	100	10	8	8.5
M11	× 1.5	TD711466	17	100	8	6.2	9.5
M12	× 1.75	TD711506	18	110	9	7	10.2
M14	× 2	TD711546	20	110	11	9	12
M16	× 2	TD711606	20	110	12	9	14
M18	× 2.5	TD711656	25	125	14	11	15.5
M20	× 2.5	TD711706	25	140	16	12	17.5
M22	× 2.5	TD711746	25	140	18	14.5	19.5
M24	× 3	TD711786	30	160	18	14.5	21
M27	× 3	TD711866	30	160	20	16	24
M30	× 3.5	TD711946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * M profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



SPIRAL FLUTE TAPS

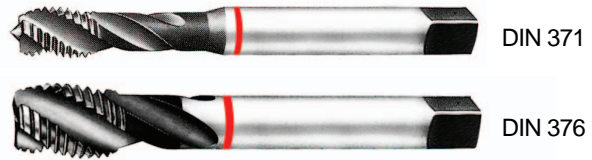
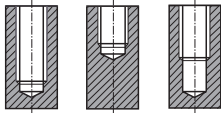
TQ823 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



HSS-PM

DIN 371/376

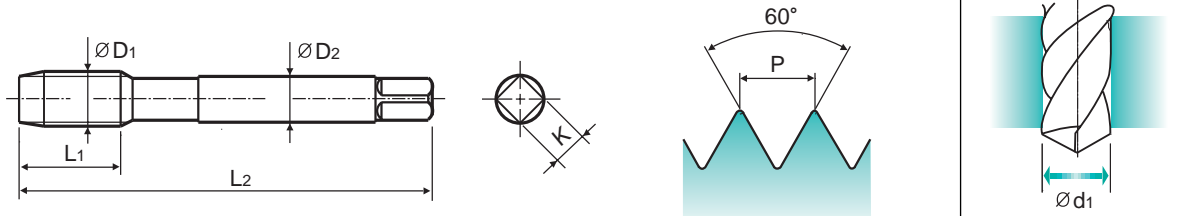
6H



Vap



Machine taps
Maschinengewindebohrer



SIZE ØD1	Pitch P	EDP No.	Thread Length		Overall Length		Shank Diameter ØD2	Square Size K	Tapping drill diameter Ød1
			L1	L2	L1	L2			
M2	× 0.4	TQ823136	8	45	2.8	2.1	1.6		
M2.2	× 0.45	TQ823156	8	45	2.8	2.1	1.75		
M2.5	× 0.45	TQ823176	9	50	2.8	2.1	2.05		
M3	× 0.5	TQ823206	6	56	3.5	2.7	2.5		
M3.5	× 0.6	TQ823226	7	56	4	3	2.9		
M4	× 0.7	TQ823246	7	63	4.5	3.4	3.3		
M4.5	× 0.75	TQ823266	8	70	6	4.9	3.7		
M5	× 0.8	TQ823286	8	70	6	4.9	4.2		
M6	× 1	TQ823316	10	80	6	4.9	5		
M7	× 1	TQ823346	10	80	7	5.5	6		
M8	× 1.25	TQ823366	13	90	8	6.2	6.8		
M10	× 1.5	TQ823426	15	100	10	8	8.5		
M12	× 1.75	TQ823506	18	110	9	7	10.2		

► DIN (M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

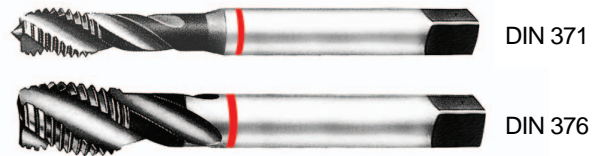
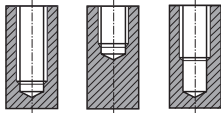
THREAD MILLS

TECHNICAL DATA

**SPIRAL
FLUTE TAPS****TR823** SERIES**M** ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type

HSS-PM

DIN
371/376

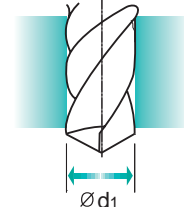
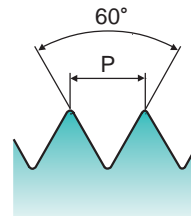
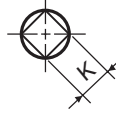
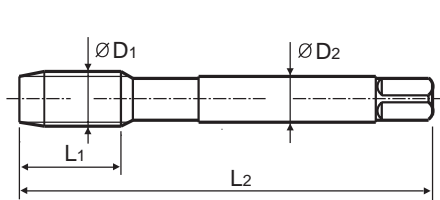
6H

60°

C

Bright

R40

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TR823136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TR823156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TR823176	9	50	2.8	2.1	2.05
M3	× 0.5	TR823206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TR823226	7	56	4	3	2.9
M4	× 0.7	TR823246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TR823266	8	70	6	4.9	3.7
M5	× 0.8	TR823286	8	70	6	4.9	4.2
M6	× 1	TR823316	10	80	6	4.9	5
M7	× 1	TR823346	10	80	7	5.5	6
M8	× 1.25	TR823366	13	90	8	6.2	6.8
M10	× 1.5	TR823426	15	100	10	8	8.5
M12	× 1.75	TR823506	18	110	9	7	10.2

► DIN (M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											



SPIRAL FLUTE TAPS

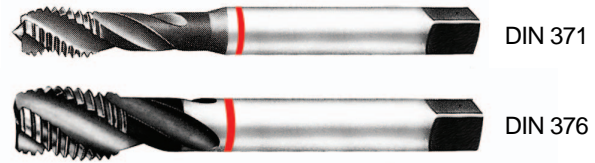
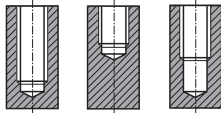
TB312 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for threading blind holes due to excellent chip evacuation of tempered steels or similar work materials.

► Geeignet zum Gewinden von Sacklöchern dank ausgezeichneter Spanabfuhr von angelassenen Stählen oder ähnlichen Werkstoffen.

Hole type



HSS-E

DIN 371/376

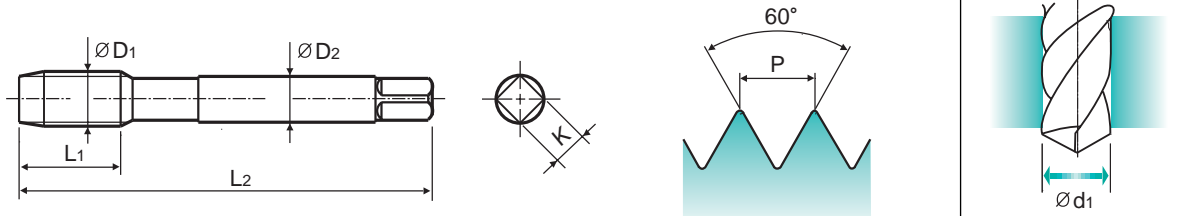
6H



Vap



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TB312136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TB312156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TB312196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TB312176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TB312496	9	50	2.8	2.1	2.1
M3	× 0.5	TB312206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TB312226	7	56	4	3	2.9
M4	× 0.7	TB312246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TB312266	8	70	6	4.9	3.7
M5	× 0.8	TB312286	8	70	6	4.9	4.2
M6	× 1	TB312316	10	80	6	4.9	5
M7	× 1	TB312346	10	80	7	5.5	6
M8	× 1.25	TB312366	13	90	8	6.2	6.8
M9	× 1.25	TB312396	13	90	9	7	7.8
M10	× 1.5	TB312426	15	100	10	8	8.5
M11	× 1.5	TB312466	17	100	8	6.2	9.5
M12	× 1.75	TB312506	18	110	9	7	10.2
M14	× 2	TB312546	20	110	11	9	12
M16	× 2	TB312606	20	110	12	9	14
M18	× 2.5	TB312656	25	125	14	11	15.5
M20	× 2.5	TB312706	25	140	16	12	17.5
M22	× 2.5	TB312746	25	140	18	14.5	19.5
M24	× 3	TB312786	30	160	18	14.5	21
M27	× 3	TB312866	30	160	20	16	24
M30	× 3.5	TB312946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

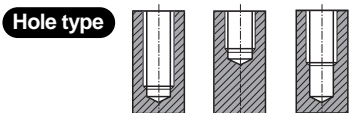
YG SPIRAL FLUTE TAPS

TB913 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

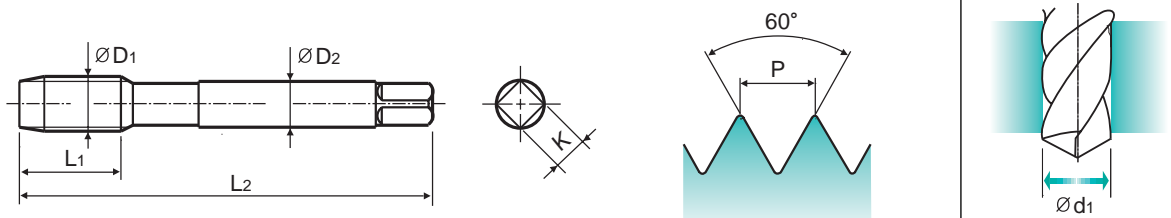
- ▶ With recessed threads for machine tapping of deep blind holes.
- ▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- ▶ Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- ▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups **VG** HSS-E DIN 371/376 6H 60° C Vap R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TB913136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TB913156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TB913196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TB913176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TB913496	9	50	2.8	2.1	2.1
M3	× 0.5	TB913206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TB913226	7	56	4	3	2.9
M4	× 0.7	TB913246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TB913266	8	70	6	4.9	3.7
M5	× 0.8	TB913286	8	70	6	4.9	4.2
M6	× 1	TB913316	10	80	6	4.9	5
M7	× 1	TB913346	10	80	7	5.5	6
M8	× 1.25	TB913366	13	90	8	6.2	6.8
M9	× 1.25	TB913396	13	90	9	7	7.8
M10	× 1.5	TB913426	15	100	10	8	8.5
M11	× 1.5	TB913466	17	100	8	6.2	9.5
M12	× 1.75	TB913506	18	110	9	7	10.2
M14	× 2	TB913546	20	110	11	9	12
M16	× 2	TB913606	20	110	12	9	14
M18	× 2.5	TB913656	25	125	14	11	15.5
M20	× 2.5	TB913706	25	140	16	12	17.5
M22	× 2.5	TB913746	25	140	18	14.5	19.5
M24	× 3	TB913786	30	160	18	14.5	21
M27	× 3	TB913866	30	160	20	16	24
M30	× 3.5	TB913946	35	180	22	18	26.5

- ▶ DIN 371(M2~M10) and DIN 376(M11~M30)
- ▶ * M profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											



SPIRAL FLUTE TAPS

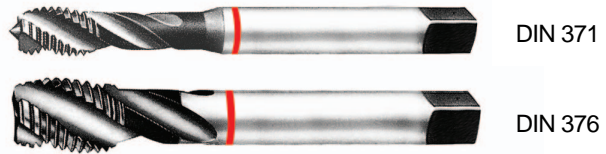
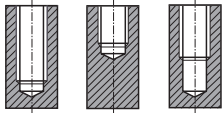
TC312 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 371

DIN 376



HSS-E

DIN 371/376

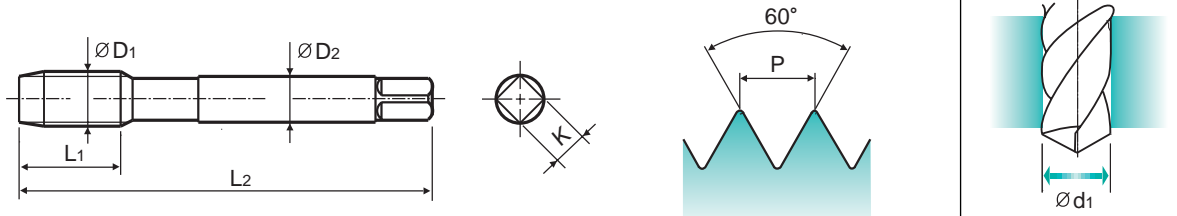
6H



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC312136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC312156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC312196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC312176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC312496	9	50	2.8	2.1	2.1
M3	× 0.5	TC312206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TC312226	7	56	4	3	2.9
M4	× 0.7	TC312246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TC312266	8	70	6	4.9	3.7
M5	× 0.8	TC312286	8	70	6	4.9	4.2
M6	× 1	TC312316	10	80	6	4.9	5
M7	× 1	TC312346	10	80	7	5.5	6
M8	× 1.25	TC312366	13	90	8	6.2	6.8
M9	× 1.25	TC312396	13	90	9	7	7.8
M10	× 1.5	TC312426	15	100	10	8	8.5
M11	× 1.5	TC312466	17	100	8	6.2	9.5
M12	× 1.75	TC312506	18	110	9	7	10.2
M14	× 2	TC312546	20	110	11	9	12
M16	× 2	TC312606	20	110	12	9	14
M18	× 2.5	TC312656	25	125	14	11	15.5
M20	× 2.5	TC312706	25	140	16	12	17.5
M22	× 2.5	TC312746	25	140	18	14.5	19.5
M24	× 3	TC312786	30	160	18	14.5	21
M27	× 3	TC312866	30	160	20	16	24
M30	× 3.5	TC312946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

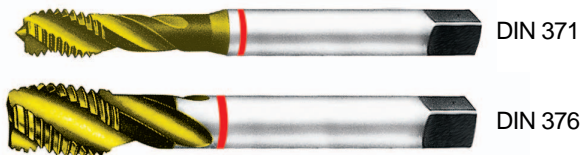
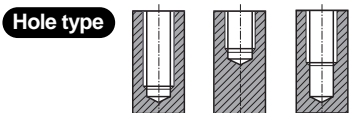
YG SPIRAL FLUTE TAPS

TD312 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

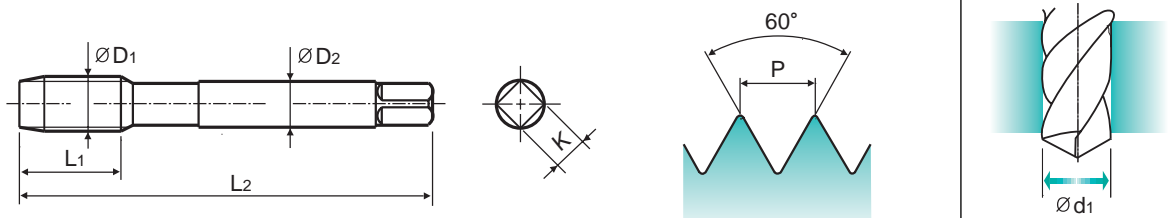
► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups **VG** HSS-E DIN 371/376 6H 60° C TiN R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD312136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TD312156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TD312196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TD312176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TD312496	9	50	2.8	2.1	2.1
M3	× 0.5	TD312206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TD312226	7	56	4	3	2.9
M4	× 0.7	TD312246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TD312266	8	70	6	4.9	3.7
M5	× 0.8	TD312286	8	70	6	4.9	4.2
M6	× 1	TD312316	10	80	6	4.9	5
M7	× 1	TD312346	10	80	7	5.5	6
M8	× 1.25	TD312366	13	90	8	6.2	6.8
M9	× 1.25	TD312396	13	90	9	7	7.8
M10	× 1.5	TD312426	15	100	10	8	8.5
M11	× 1.5	TD312466	17	100	8	6.2	9.5
M12	× 1.75	TD312506	18	110	9	7	10.2
M14	× 2	TD312546	20	110	11	9	12
M16	× 2	TD312606	20	110	12	9	14
M18	× 2.5	TD312656	25	125	14	11	15.5
M20	× 2.5	TD312706	25	140	16	12	17.5
M22	× 2.5	TD312746	25	140	18	14.5	19.5
M24	× 3	TD312786	30	160	18	14.5	21
M27	× 3	TD312866	30	160	20	16	24
M30	× 3.5	TD312946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											



SPIRAL FLUTE TAPS

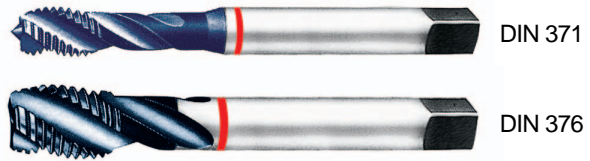
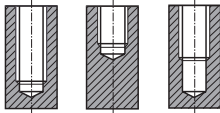
TY312 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 371

DIN 376



HSS-E

DIN 371/376

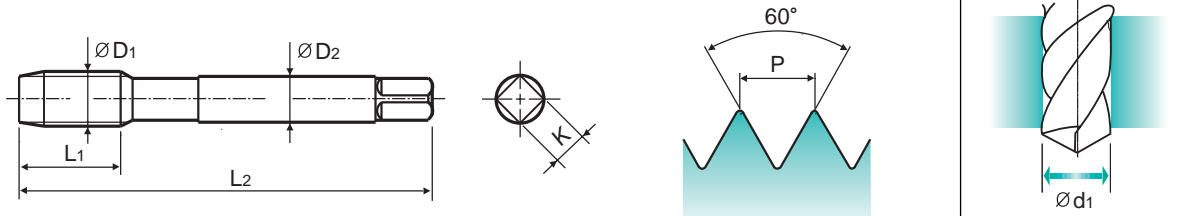
6H



TiAlN



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TY312136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TY312156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TY312196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TY312176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TY312496	9	50	2.8	2.1	2.1
M3	× 0.5	TY312206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TY312226	7	56	4	3	2.9
M4	× 0.7	TY312246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TY312266	8	70	6	4.9	3.7
M5	× 0.8	TY312286	8	70	6	4.9	4.2
M6	× 1	TY312316	10	80	6	4.9	5
M7	× 1	TY312346	10	80	7	5.5	6
M8	× 1.25	TY312366	13	90	8	6.2	6.8
M9	× 1.25	TY312396	13	90	9	7	7.8
M10	× 1.5	TY312426	15	100	10	8	8.5
M11	× 1.5	TY312466	17	100	8	6.2	9.5
M12	× 1.75	TY312506	18	110	9	7	10.2
M14	× 2	TY312546	20	110	11	9	12
M16	× 2	TY312606	20	110	12	9	14
M18	× 2.5	TY312656	25	125	14	11	15.5
M20	× 2.5	TY312706	25	140	16	12	17.5
M22	× 2.5	TY312746	25	140	18	14.5	19.5
M24	× 3	TY312786	30	160	18	14.5	21
M27	× 3	TY312866	30	160	20	16	24
M30	× 3.5	TY312946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA



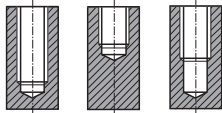
SPIRAL FLUTE TAPS

TQ813 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


DIN 371



DIN 376

Material groups

VA

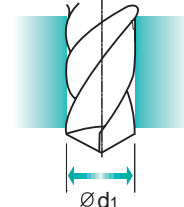
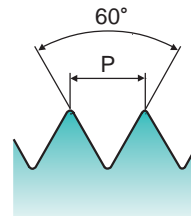
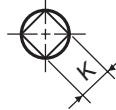
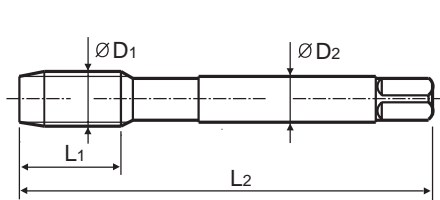
HSS-PM

 DIN
371/376

6H



Vap


 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch		EDP No.	Thread Length		Shank Diameter	Square Size	Tapping drill diameter
	ØD1	P		L1	L2			
M2	× 0.4		TQ813136	8	45	ØD2	K	Ød1
M2.2	× 0.45		TQ813156	8	45			
M2.5	× 0.45		TQ813176	9	50			
M3	× 0.5		TQ813206	6	56			
M3.5	× 0.6		TQ813226	7	56			
M4	× 0.7		TQ813246	7	63			
M4.5	× 0.75		TQ813266	8	70			
M5	× 0.8		TQ813286	8	70			
M6	× 1		TQ813316	10	80			
M7	× 1		TQ813346	10	80			
M8	× 1.25		TQ813366	13	90			
M10	× 1.5		TQ813426	15	100			
M12	× 1.75		TQ813506	18	110			

► DIN 371(M2~M10) and DIN 376(M12)

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	◎					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											



SPIRAL FLUTE TAPS

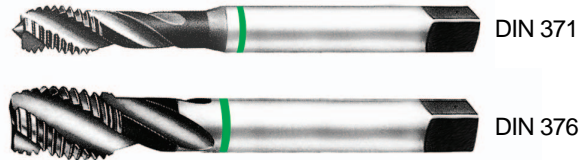
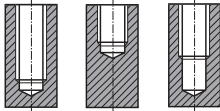
TR813 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 371

DIN 376

Material groups

VA

HSS-PM

DIN 371/376

6H

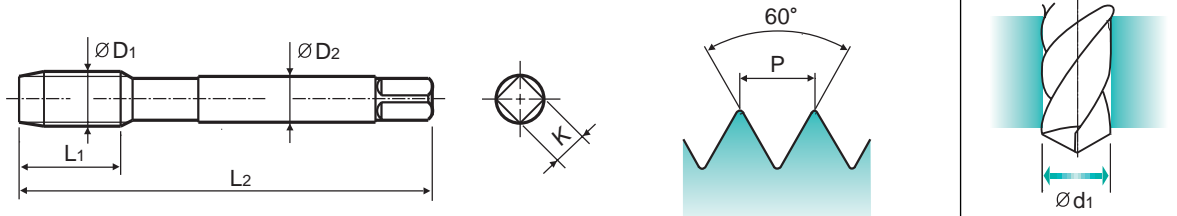
60°

C

Bright

R40

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TR813136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TR813156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TR813176	9	50	2.8	2.1	2.05
M3	× 0.5	TR813206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TR813226	7	56	4	3	2.9
M4	× 0.7	TR813246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TR813266	8	70	6	4.9	3.7
M5	× 0.8	TR813286	8	70	6	4.9	4.2
M6	× 1	TR813316	10	80	6	4.9	5
M7	× 1	TR813346	10	80	7	5.5	6
M8	× 1.25	TR813366	13	90	8	6.2	6.8
M10	× 1.5	TR813426	15	100	10	8	8.5
M12	× 1.75	TR813506	18	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	◎					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

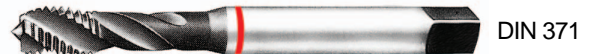
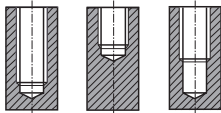
TECHNICAL DATA

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


Material groups

HR

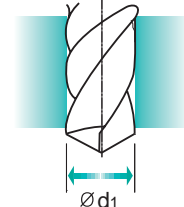
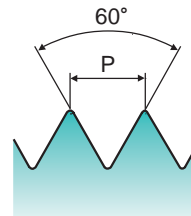
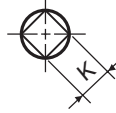
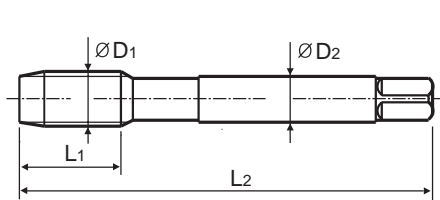
HSS-E

 DIN
371/376

6H



Vap


 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TB313136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TB313156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TB313196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TB313176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TB313496	9	50	2.8	2.1	2.1
M3	× 0.5	TB313206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TB313226	7	56	4	3	2.9
M4	× 0.7	TB313246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TB313266	8	70	6	4.9	3.7
M5	× 0.8	TB313286	8	70	6	4.9	4.2
M6	× 1	TB313316	10	80	6	4.9	5
M7	× 1	TB313346	10	80	7	5.5	6
M8	× 1.25	TB313366	13	90	8	6.2	6.8
M9	× 1.25	TB313396	13	90	9	7	7.8
M10	× 1.5	TB313426	15	100	10	8	8.5
M11	× 1.5	TB313466	17	100	8	6.2	9.5
M12	× 1.75	TB313506	18	110	9	7	10.2
M14	× 2	TB313546	20	110	11	9	12
M16	× 2	TB313606	20	110	12	9	14
M18	× 2.5	TB313656	25	125	14	11	15.5
M20	× 2.5	TB313706	25	140	16	12	17.5
M22	× 2.5	TB313746	25	140	18	14.5	19.5
M24	× 3	TB313786	30	160	18	14.5	21
M27	× 3	TB313866	30	160	20	16	24
M30	× 3.5	TB313946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○	◎			○						
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○		◎						○	○



SPIRAL FLUTE TAPS

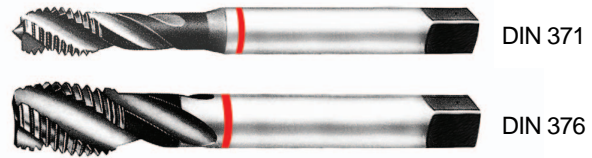
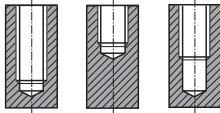
TC313 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



Material groups **HR**

HSS-E

DIN 371/376

6H

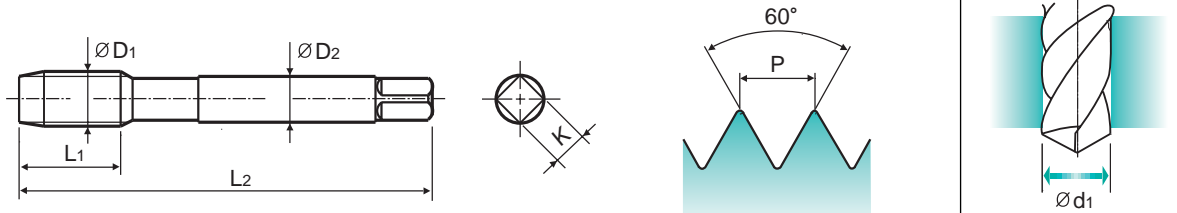
60°

C

Bright

R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch		EDP No.	Thread Length		Overall Length	Shank Diameter	Square Size	Tapping drill diameter
	ØD1	P		L1	L2				
M2	×	0.4	TC313136	8	45	2.8	2.1	1.6	
M2.2	×	0.45	TC313156	8	45	2.8	2.1	1.75	
* M2.3	×	0.4	TC313196	8	45	2.8	2.1	1.9	
M2.5	×	0.45	TC313176	9	50	2.8	2.1	2.05	
* M2.6	×	0.45	TC313496	9	50	2.8	2.1	2.1	
M3	×	0.5	TC313206	6	56	3.5	2.7	2.5	
M3.5	×	0.6	TC313226	7	56	4	3	2.9	
M4	×	0.7	TC313246	7	63	4.5	3.4	3.3	
M4.5	×	0.75	TC313266	8	70	6	4.9	3.7	
M5	×	0.8	TC313286	8	70	6	4.9	4.2	
M6	×	1	TC313316	10	80	6	4.9	5	
M7	×	1	TC313346	10	80	7	5.5	6	
M8	×	1.25	TC313366	13	90	8	6.2	6.8	
M9	×	1.25	TC313396	13	90	9	7	7.8	
M10	×	1.5	TC313426	15	100	10	8	8.5	
M11	×	1.5	TC313466	17	100	8	6.2	9.5	
M12	×	1.75	TC313506	18	110	9	7	10.2	
M14	×	2	TC313546	20	110	11	9	12	
M16	×	2	TC313606	20	110	12	9	14	
M18	×	2.5	TC313656	25	125	14	11	15.5	
M20	×	2.5	TC313706	25	140	16	12	17.5	
M22	×	2.5	TC313746	25	140	18	14.5	19.5	
M24	×	3	TC313786	30	160	18	14.5	21	
M27	×	3	TC313866	30	160	20	16	24	
M30	×	3.5	TC313946	35	180	22	18	26.5	

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○	◎			○						
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○		◎						○	○

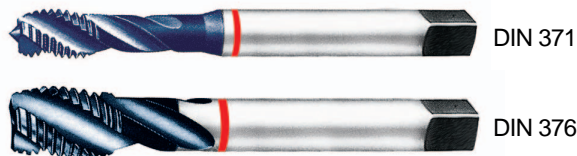
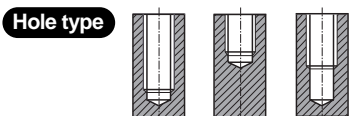
YG SPIRAL FLUTE TAPS

TY313 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

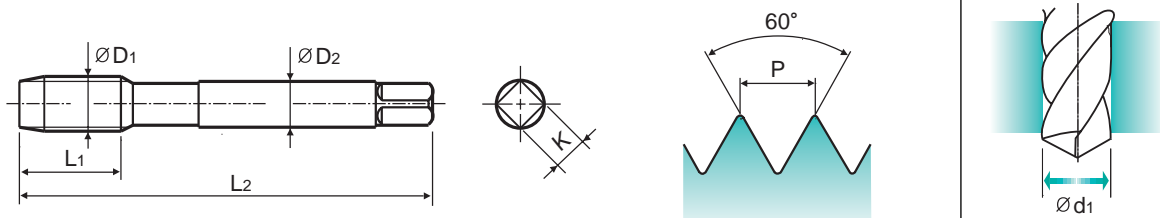
► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups **HR** HSS-E DIN 371/376 6H 60° C TiAlN R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TY313136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TY313156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TY313196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TY313176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TY313496	9	50	2.8	2.1	2.1
M3	× 0.5	TY313206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TY313226	7	56	4	3	2.9
M4	× 0.7	TY313246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TY313266	8	70	6	4.9	3.7
M5	× 0.8	TY313286	8	70	6	4.9	4.2
M6	× 1	TY313316	10	80	6	4.9	5
M7	× 1	TY313346	10	80	7	5.5	6
M8	× 1.25	TY313366	13	90	8	6.2	6.8
M9	× 1.25	TY313396	13	90	9	7	7.8
M10	× 1.5	TY313426	15	100	10	8	8.5
M11	× 1.5	TY313466	17	100	8	6.2	9.5
M12	× 1.75	TY313506	18	110	9	7	10.2
M14	× 2	TY313546	20	110	11	9	12
M16	× 2	TY313606	20	110	12	9	14
M18	× 2.5	TY313656	25	125	14	11	15.5
M20	× 2.5	TY313706	25	140	16	12	17.5
M22	× 2.5	TY313746	25	140	18	14.5	19.5
M24	× 3	TY313786	30	160	18	14.5	21
M27	× 3	TY313866	30	160	20	16	24
M30	× 3.5	TY313946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○	◎			○						
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○		◎						○	○



SPIRAL FLUTE TAPS

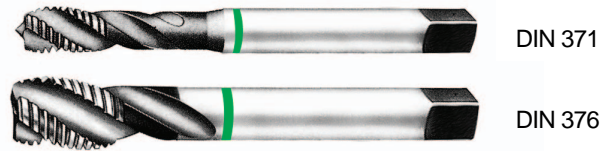
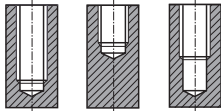
TB914 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

- ▶ With recessed threads for machine tapping of deep blind holes.
- ▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

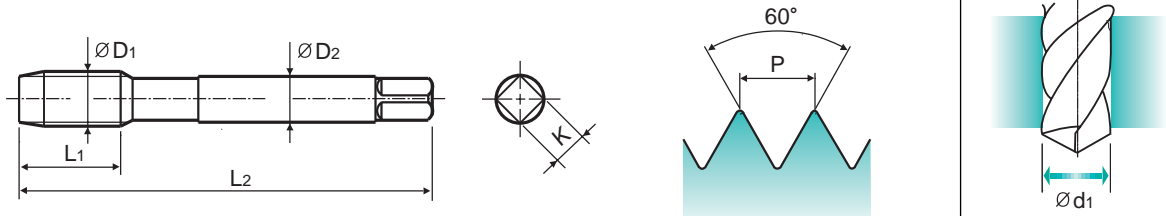
- ▶ Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- ▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



HSS-E
DIN 371/376
6H
60°
C
Vap
R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TB914136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TB914156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TB914196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TB914176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TB914496	9	50	2.8	2.1	2.1
M3	× 0.5	TB914206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TB914226	7	56	4	3	2.9
M4	× 0.7	TB914246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TB914266	8	70	6	4.9	3.7
M5	× 0.8	TB914286	8	70	6	4.9	4.2
M6	× 1	TB914316	10	80	6	4.9	5
M7	× 1	TB914346	10	80	7	5.5	6
M8	× 1.25	TB914366	13	90	8	6.2	6.8
M9	× 1.25	TB914396	13	90	9	7	7.8
M10	× 1.5	TB914426	15	100	10	8	8.5
M11	× 1.5	TB914466	17	100	8	6.2	9.5
M12	× 1.75	TB914506	18	110	9	7	10.2
M14	× 2	TB914546	20	110	11	9	12
M16	× 2	TB914606	20	110	12	9	14
M18	× 2.5	TB914656	25	125	14	11	15.5
M20	× 2.5	TB914706	25	140	16	12	17.5
M22	× 2.5	TB914746	25	140	18	14.5	19.5
M24	× 3	TB914786	30	160	18	14.5	21
M27	× 3	TB914866	30	160	20	16	24
M30	× 3.5	TB914946	35	180	22	18	26.5

- ▶ DIN 371(M2~M10) and DIN 376(M11~M30)
- ▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

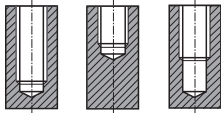
TECHNICAL DATA

M ISO metric coarse threads DIN 13

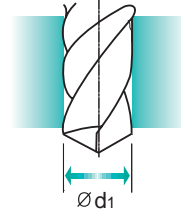
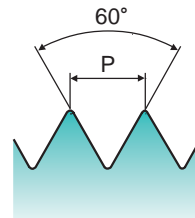
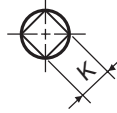
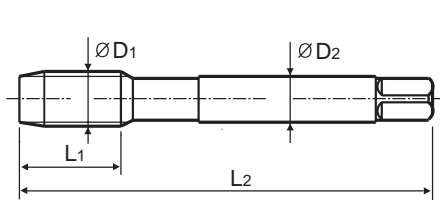
Metrisches ISO-Gewinde DIN 13

- ▶ With recessed threads for machine tapping of deep blind holes.
- ▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- ▶ Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- ▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TCH14136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TCH14156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TCH14196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TCH14176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TCH14496	9	50	2.8	2.1	2.1
M3	× 0.5	TCH14206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TCH14226	7	56	4	3	2.9
M4	× 0.7	TCH14246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TCH14266	8	70	6	4.9	3.7
M5	× 0.8	TCH14286	8	70	6	4.9	4.2
M6	× 1	TCH14316	10	80	6	4.9	5
M7	× 1	TCH14346	10	80	7	5.5	6
M8	× 1.25	TCH14366	13	90	8	6.2	6.8
M9	× 1.25	TCH14396	13	90	9	7	7.8
M10	× 1.5	TCH14426	15	100	10	8	8.5
M11	× 1.5	TCH14466	17	100	8	6.2	9.5
M12	× 1.75	TCH14506	18	110	9	7	10.2
M14	× 2	TCH14546	20	110	11	9	12
M16	× 2	TCH14606	20	110	12	9	14
M18	× 2.5	TCH14656	25	125	14	11	15.5
M20	× 2.5	TCH14706	25	140	16	12	17.5
M22	× 2.5	TCH14746	25	140	18	14.5	19.5
M24	× 3	TCH14786	30	160	18	14.5	21
M27	× 3	TCH14866	30	160	20	16	24
M30	× 3.5	TCH14946	35	180	22	18	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ * M profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP



SPIRAL FLUTE TAPS

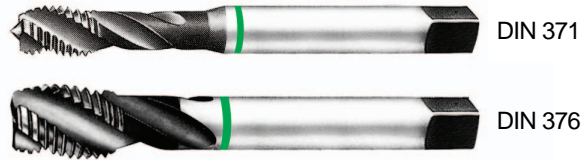
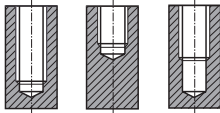
TB711 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

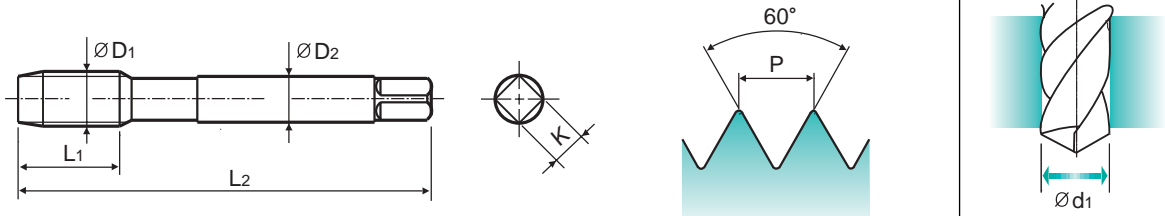
Hole type



Material groups **NW**

HSS-E
DIN 371/376
6H
60°
C
Vap
R40

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TB711136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TB711156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TB711196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TB711176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TB711496	9	50	2.8	2.1	2.1
M3	× 0.5	TB711206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TB711226	7	56	4	3	2.9
M4	× 0.7	TB711246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TB711266	8	70	6	4.9	3.7
M5	× 0.8	TB711286	8	70	6	4.9	4.2
M6	× 1	TB711316	10	80	6	4.9	5
M7	× 1	TB711346	10	80	7	5.5	6
M8	× 1.25	TB711366	13	90	8	6.2	6.8
M9	× 1.25	TB711396	13	90	9	7	7.8
M10	× 1.5	TB711426	15	100	10	8	8.5
M11	× 1.5	TB711466	17	100	8	6.2	9.5
M12	× 1.75	TB711506	18	110	9	7	10.2
M14	× 2	TB711546	20	110	11	9	12
M16	× 2	TB711606	20	110	12	9	14
M18	× 2.5	TB711656	25	125	14	11	15.5
M20	× 2.5	TB711706	25	140	16	12	17.5
M22	× 2.5	TB711746	25	140	18	14.5	19.5
M24	× 3	TB711786	30	160	18	14.5	21
M27	× 3	TB711866	30	160	20	16	24
M30	× 3.5	TB711946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	◎													
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				○				○						

SPIRAL
FLUTE TAPS

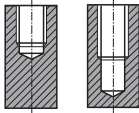
TM903 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 371



DIN 376

Material groups

Ti

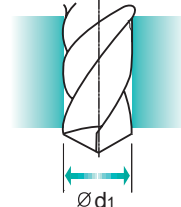
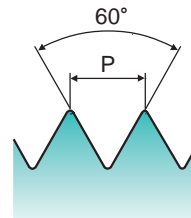
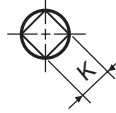
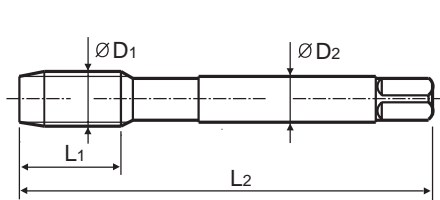
HSS-PM

DIN
371/376

6H



Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TM903136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TM903156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TM903196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TM903176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TM903496	9	50	2.8	2.1	2.1
M3	× 0.5	TM903206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TM903226	7	56	4	3	2.9
M4	× 0.7	TM903246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TM903266	8	70	6	4.9	3.7
M5	× 0.8	TM903286	8	70	6	4.9	4.2
M6	× 1	TM903316	10	80	6	4.9	5
M7	× 1	TM903346	10	80	7	5.5	6
M8	× 1.25	TM903366	13	90	8	6.2	6.8
M9	× 1.25	TM903396	13	90	9	7	7.8
M10	× 1.5	TM903426	15	100	10	8	8.5
M11	× 1.5	TM903466	17	100	8	6.2	9.5
M12	× 1.75	TM903506	18	110	9	7	10.2
M14	× 2	TM903546	20	110	11	9	12
M16	× 2	TM903606	20	110	12	9	14
M18	× 2.5	TM903656	25	125	14	11	15.5
M20	× 2.5	TM903706	25	140	16	12	17.5
M22	× 2.5	TM903746	25	140	18	14.5	19.5
M24	× 3	TM903786	30	160	18	14.5	21
M27	× 3	TM903866	30	160	20	16	24
M30	× 3.5	TM903946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

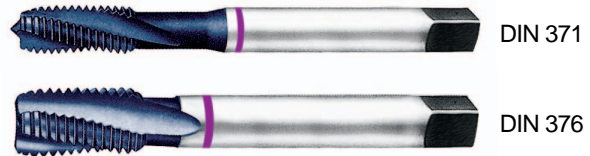
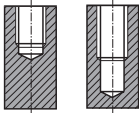
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○									○	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎														

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 371

DIN 376

Material groups

Ti

HSS-PM

DIN 371/376

6H

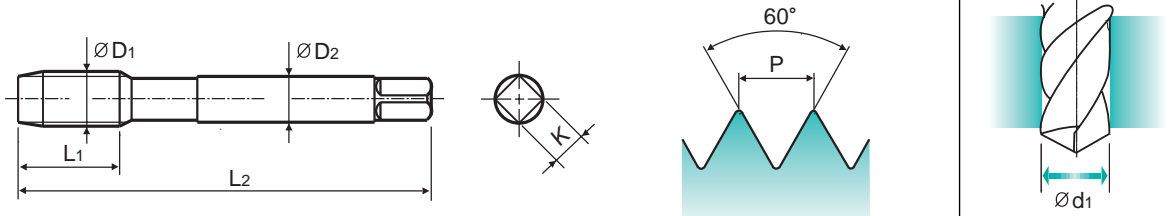
60°

C

TiAlN

R25

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TZ903136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TZ903156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TZ903196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TZ903176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TZ903496	9	50	2.8	2.1	2.1
M3	× 0.5	TZ903206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TZ903226	7	56	4	3	2.9
M4	× 0.7	TZ903246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TZ903266	8	70	6	4.9	3.7
M5	× 0.8	TZ903286	8	70	6	4.9	4.2
M6	× 1	TZ903316	10	80	6	4.9	5
M7	× 1	TZ903346	10	80	7	5.5	6
M8	× 1.25	TZ903366	13	90	8	6.2	6.8
M9	× 1.25	TZ903396	13	90	9	7	7.8
M10	× 1.5	TZ903426	15	100	10	8	8.5
M11	× 1.5	TZ903466	17	100	8	6.2	9.5
M12	× 1.75	TZ903506	18	110	9	7	10.2
M14	× 2	TZ903546	20	110	11	9	12
M16	× 2	TZ903606	20	110	12	9	14
M18	× 2.5	TZ903656	25	125	14	11	15.5
M20	× 2.5	TZ903706	25	140	16	12	17.5
M22	× 2.5	TZ903746	25	140	18	14.5	19.5
M24	× 3	TZ903786	30	160	18	14.5	21
M27	× 3	TZ903866	30	160	20	16	24
M30	× 3.5	TZ903946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○									○	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎														



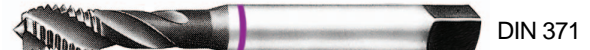
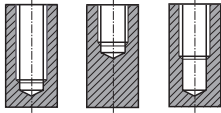
SPIRAL FLUTE TAPS

TQ833 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


DIN 371



DIN 376

Material groups

**Ti
Ni**

HSS-PM

 DIN
371/376

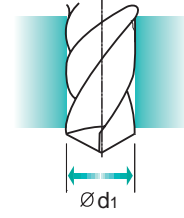
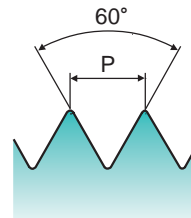
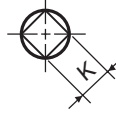
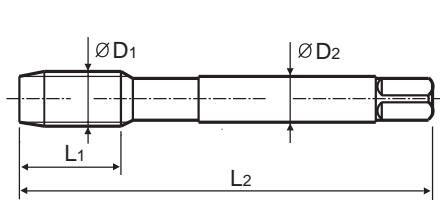
6H

60°

C

Vap

R40

 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TQ833136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TQ833156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TQ833176	9	50	2.8	2.1	2.05
M3	× 0.5	TQ833206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TQ833226	7	56	4	3	2.9
M4	× 0.7	TQ833246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TQ833266	8	70	6	4.9	3.7
M5	× 0.8	TQ833286	8	70	6	4.9	4.2
M6	× 1	TQ833316	10	80	6	4.9	5
M7	× 1	TQ833346	10	80	7	5.5	6
M8	× 1.25	TQ833366	13	90	8	6.2	6.8
M10	× 1.5	TQ833426	15	100	10	8	8.5
M12	× 1.75	TQ833506	18	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				◎	◎								○	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎		◎	◎					○						



SPIRAL FLUTE TAPS

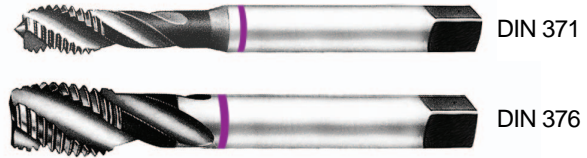
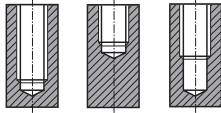
TR833 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



Material groups

Ti Ni

HSS-PM

DIN 371/376

6H

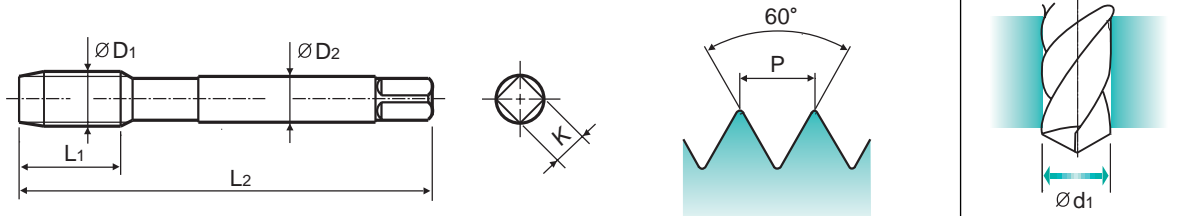
60°

C

Bright

R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length		Shank Diameter	Square Size	Tapping drill diameter
			L1	L2			
ØD1	P				ØD2	K	Ød1
M2	× 0.4	TR833136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TR833156	8	45	2.8	2.1	1.75
M2.5	× 0.45	TR833176	9	50	2.8	2.1	2.05
M3	× 0.5	TR833206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TR833226	7	56	4	3	2.9
M4	× 0.7	TR833246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TR833266	8	70	6	4.9	3.7
M5	× 0.8	TR833286	8	70	6	4.9	4.2
M6	× 1	TR833316	10	80	6	4.9	5
M7	× 1	TR833346	10	80	7	5.5	6
M8	× 1.25	TR833366	13	90	8	6.2	6.8
M10	× 1.5	TR833426	15	100	10	8	8.5
M12	× 1.75	TR833506	18	110	9	7	10.2

► DIN 371(M2~M10) and DIN 376(M12)

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				○	○								○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○		○	○				○							

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

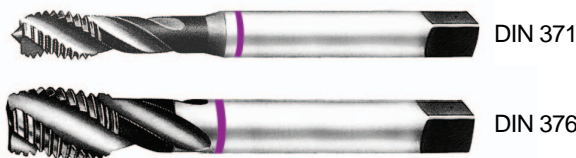
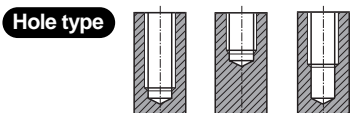
YG SPIRAL FLUTE TAPS

TM933 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

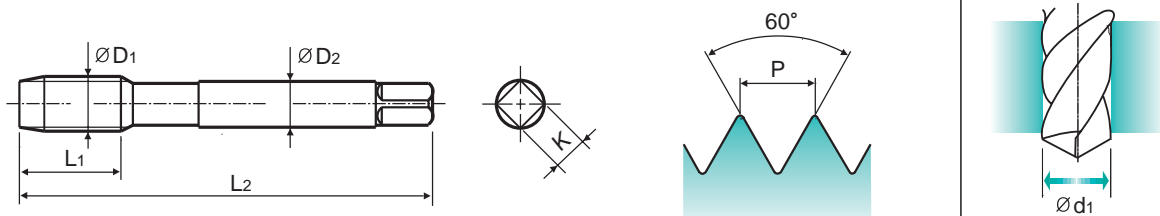
► For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni** (HSS-PM), **DIN 371/376**, **6H**, **60°**, **C**, **Bright**, **R40**

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TM933136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TM933156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TM933196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TM933176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TM933496	9	50	2.8	2.1	2.1
M3	× 0.5	TM933206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TM933226	7	56	4	3	2.9
M4	× 0.7	TM933246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TM933266	8	70	6	4.9	3.7
M5	× 0.8	TM933286	8	70	6	4.9	4.2
M6	× 1	TM933316	10	80	6	4.9	5
M7	× 1	TM933346	10	80	7	5.5	6
M8	× 1.25	TM933366	13	90	8	6.2	6.8
M9	× 1.25	TM933396	13	90	9	7	7.8
M10	× 1.5	TM933426	15	100	10	8	8.5
M11	× 1.5	TM933466	17	100	8	6.2	9.5
M12	× 1.75	TM933506	18	110	9	7	10.2
M14	× 2	TM933546	20	110	11	9	12
M16	× 2	TM933606	20	110	12	9	14
M18	× 2.5	TM933656	25	125	14	11	15.5
M20	× 2.5	TM933706	25	140	16	12	17.5
M22	× 2.5	TM933746	25	140	18	14.5	19.5
M24	× 3	TM933786	30	160	18	14.5	21
M27	× 3	TM933866	30	160	20	16	24
M30	× 3.5	TM933946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * M profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				◎	◎									
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○		◎	◎				○							



SPIRAL FLUTE TAPS

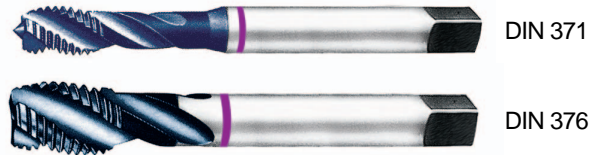
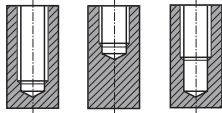
TZ933 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

Hole type



DIN 371

DIN 376

Material groups

Ni

HSS-PM

DIN 371/376

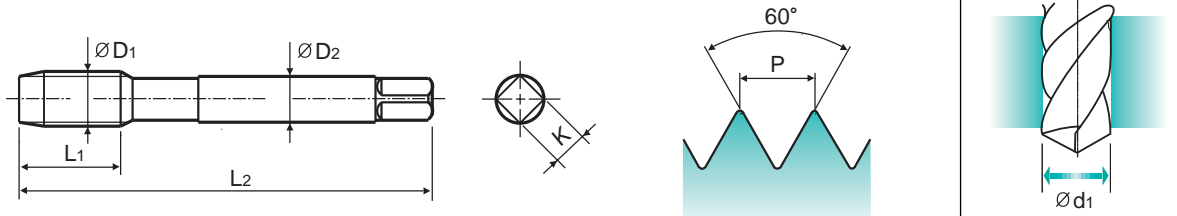
6H



TiAlN



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TZ933136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TZ933156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TZ933196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TZ933176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TZ933496	9	50	2.8	2.1	2.1
M3	× 0.5	TZ933206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TZ933226	7	56	4	3	2.9
M4	× 0.7	TZ933246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TZ933266	8	70	6	4.9	3.7
M5	× 0.8	TZ933286	8	70	6	4.9	4.2
M6	× 1	TZ933316	10	80	6	4.9	5
M7	× 1	TZ933346	10	80	7	5.5	6
M8	× 1.25	TZ933366	13	90	8	6.2	6.8
M9	× 1.25	TZ933396	13	90	9	7	7.8
M10	× 1.5	TZ933426	15	100	10	8	8.5
M11	× 1.5	TZ933466	17	100	8	6.2	9.5
M12	× 1.75	TZ933506	18	110	9	7	10.2
M14	× 2	TZ933546	20	110	11	9	12
M16	× 2	TZ933606	20	110	12	9	14
M18	× 2.5	TZ933656	25	125	14	11	15.5
M20	× 2.5	TZ933706	25	140	16	12	17.5
M22	× 2.5	TZ933746	25	140	18	14.5	19.5
M24	× 3	TZ933786	30	160	18	14.5	21
M27	× 3	TZ933866	30	160	20	16	24
M30	× 3.5	TZ933946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
				◎	◎									
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○		◎	◎											

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

Y/G SPIRAL FLUTE TAPS

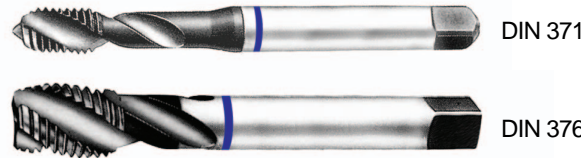
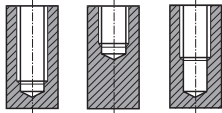
TC163 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

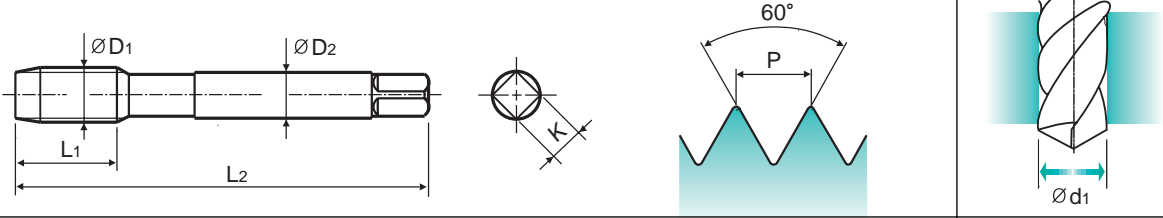
Hole type



Material groups **AI**

HSS-E DIN 371/376 6H 60° C Bright R45

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC163136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC163156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC163196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC163176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC163496	9	50	2.8	2.1	2.1
M3	× 0.5	TC163206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TC163226	7	56	4	3	2.9
M4	× 0.7	TC163246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TC163266	8	70	6	4.9	3.7
M5	× 0.8	TC163286	8	70	6	4.9	4.2
M6	× 1	TC163316	10	80	6	4.9	5
M7	× 1	TC163346	10	80	7	5.5	6
M8	× 1.25	TC163366	13	90	8	6.2	6.8
M9	× 1.25	TC163396	13	90	9	7	7.8
M10	× 1.5	TC163426	15	100	10	8	8.5
M11	× 1.5	TC163466	17	100	8	6.2	9.5
M12	× 1.75	TC163506	18	110	9	7	10.2
M14	× 2	TC163546	20	110	11	9	12
M16	× 2	TC163606	20	110	12	9	14
M18	× 2.5	TC163656	25	125	14	11	15.5
M20	× 2.5	TC163706	25	140	16	12	17.5
M22	× 2.5	TC163746	25	140	18	14.5	19.5
M24	× 3	TC163786	30	160	18	14.5	21
M27	× 3	TC163866	30	160	20	16	24
M30	× 3.5	TC163946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)
► * M profile not ISO

Unit : N/mm² ◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				



SPIRAL FLUTE TAPS

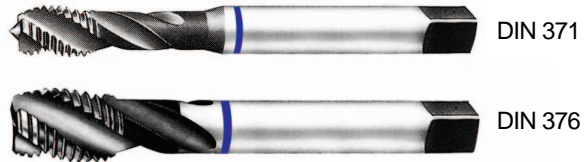
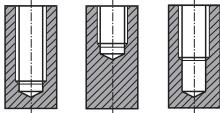
TE953 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



Material groups

AI

HSS-E

DIN 371/376

6H

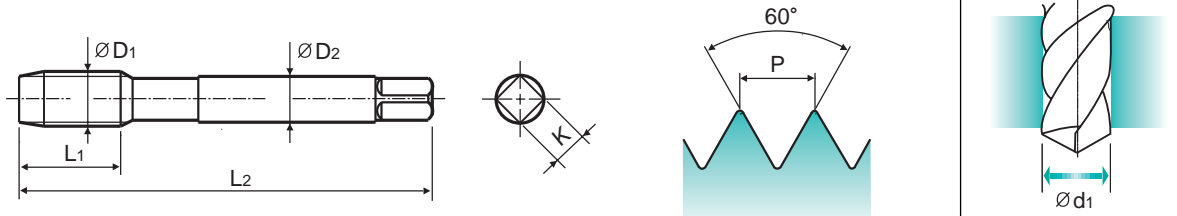
60°

C

NI

R40

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE953136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TE953156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TE953196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TE953176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TE953496	9	50	2.8	2.1	2.1
M3	× 0.5	TE953206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TE953226	7	56	4	3	2.9
M4	× 0.7	TE953246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TE953266	8	70	6	4.9	3.7
M5	× 0.8	TE953286	8	70	6	4.9	4.2
M6	× 1	TE953316	10	80	6	4.9	5
M7	× 1	TE953346	10	80	7	5.5	6
M8	× 1.25	TE953366	13	90	8	6.2	6.8
M9	× 1.25	TE953396	13	90	9	7	7.8
M10	× 1.5	TE953426	15	100	10	8	8.5
M11	× 1.5	TE953466	17	100	8	6.2	9.5
M12	× 1.75	TE953506	18	110	9	7	10.2
M14	× 2	TE953546	20	110	11	9	12
M16	× 2	TE953606	20	110	12	9	14
M18	× 2.5	TE953656	25	125	14	11	15.5
M20	× 2.5	TE953706	25	140	16	12	17.5
M22	× 2.5	TE953746	25	140	18	14.5	19.5
M24	× 3	TE953786	30	160	18	14.5	21
M27	× 3	TE953866	30	160	20	16	24
M30	× 3.5	TE953946	35	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

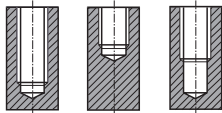
◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP


**SPIRAL
FLUTE TAPS**
TC411 SERIES
MF ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type

DIN 374

Material groups
GS

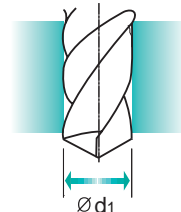
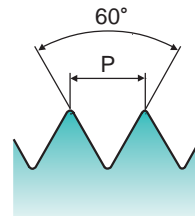
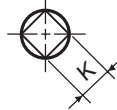
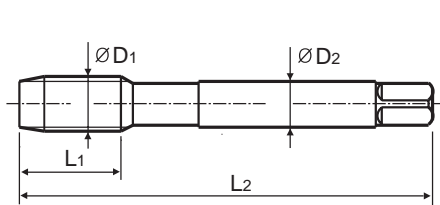
HSS-E

DIN 374

6H



Bright


Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TC411256	5	63	2.8	2.1	3.5
M5	× 0.5	TC411296	5	70	3.5	2.7	4.5
M6	× 0.75	TC411326	8	80	4.5	3.4	5.2
M6	× 0.5	TC411336	5	80	4.5	3.4	5.5
M7	× 0.75	TC411356	10	80	5.5	4.3	6.2
M8	× 1	TC411376	10	90	6	4.9	7
M8	× 0.75	TC411386	8	80	6	4.9	7.2
M8	× 0.5	TC411936	5	80	6	4.9	7.5
M10	× 1.25	TC411436	16	100	7	5.5	8.8
M10	× 1	TC411446	10	90	7	5.5	9
M10	× 0.75	TC411456	10	90	7	5.5	9.2
M12	× 1.5	TC411516	15	100	9	7	10.5
M12	× 1.25	TC411526	15	100	9	7	10.8
M12	× 1	TC411536	11	100	9	7	11
M14	× 1.5	TC411556	15	100	11	9	12.5
M14	× 1.25	TC411566	15	100	11	9	12.8
M14	× 1	TC411576	11	100	11	9	13

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



SPIRAL FLUTE TAPS

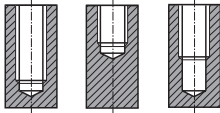
TC411 SERIES

MF ISO metric fine threads DIN 13 Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 374

Material groups **GS**

HSS-E

DIN 374

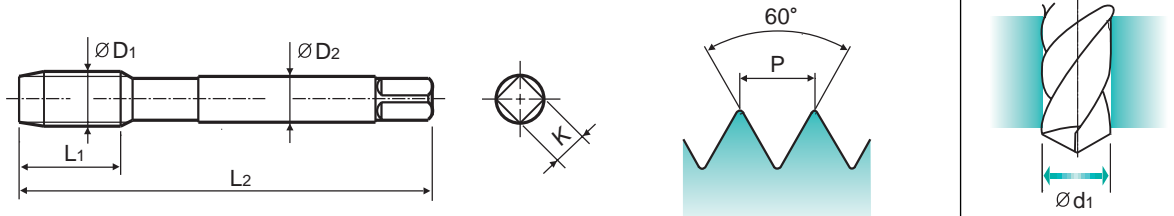
6H



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M16	× 1.5	TC411616	15	100	12	9	14.5
M16	× 1	TC411626	12	100	12	9	15
M18	× 1.5	TC411676	17	110	14	11	16.5
M18	× 1	TC411686	13	110	14	11	17
M20	× 1.5	TC411726	17	125	16	12	18.5
M20	× 1	TC411736	14	125	16	12	19
M22	× 1.5	TC411766	17	125	18	14.5	20.5
M22	× 1	TC411776	14	125	18	14.5	21
M24	× 2	TC411796	20	140	18	14.5	22
M24	× 1.5	TC411806	20	140	18	14.5	22.5
M26	× 1.5	TC411856	20	140	18	14.5	24.5
M27	× 2	TC411876	20	140	20	16	25
M27	× 1.5	TC411886	20	140	20	16	25.5
M28	× 1.5	TC411916	20	140	20	16	26.5
M30	× 2	TC411966	22	150	22	18	28
M30	× 1.5	TC411976	22	150	22	18	28.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

YG SPIRAL FLUTE TAPS

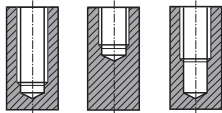
TD411 SERIES

MF ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

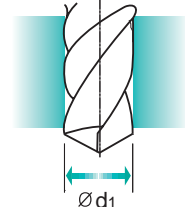
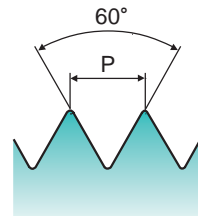
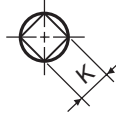
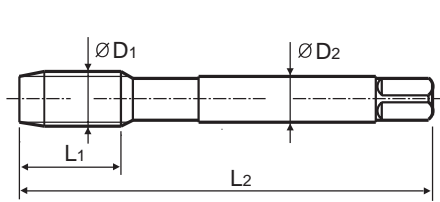
Hole type



DIN 374



Machine taps
 Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TD411256	5	63	2.8	2.1	3.5
M5	× 0.5	TD411296	5	70	3.5	2.7	4.5
M6	× 0.75	TD411326	8	80	4.5	3.4	5.2
M6	× 0.5	TD411336	5	80	4.5	3.4	5.5
M7	× 0.75	TD411356	10	80	5.5	4.3	6.2
M8	× 1	TD411376	10	90	6	4.9	7
M8	× 0.75	TD411386	8	80	6	4.9	7.2
M8	× 0.5	TD411936	5	80	6	4.9	7.5
M10	× 1.25	TD411436	16	100	7	5.5	8.8
M10	× 1	TD411446	10	90	7	5.5	9
M10	× 0.75	TD411456	10	90	7	5.5	9.2
M12	× 1.5	TD411516	15	100	9	7	10.5
M12	× 1.25	TD411526	15	100	9	7	10.8
M12	× 1	TD411536	11	100	9	7	11
M14	× 1.5	TD411556	15	100	11	9	12.5
M14	× 1.25	TD411566	15	100	11	9	12.8
M14	× 1	TD411576	11	100	11	9	13

Unit : N/mm²

◎ : Excellent ○ : Good

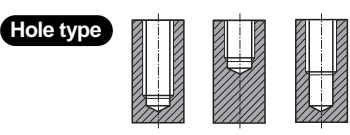
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

MF ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

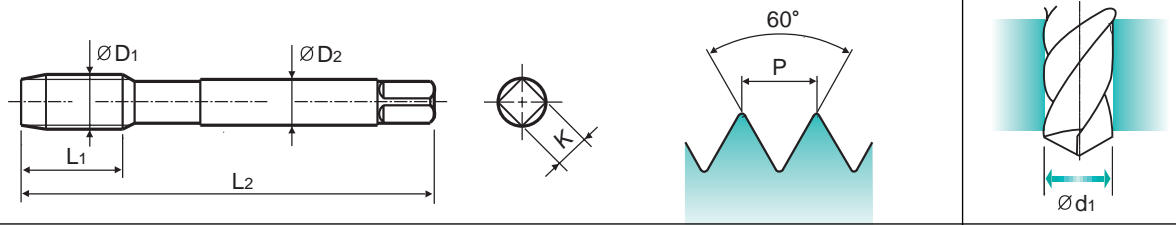
► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups **GS**

HSS-E DIN 374 6H 60° C TiN R40

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
			L1	L2	ØD2	K	Ød1
M16 × 1.5		TD411616	15	100	12	9	14.5
M16 × 1		TD411626	12	100	12	9	15
M18 × 1.5		TD411676	17	110	14	11	16.5
M18 × 1		TD411686	13	110	14	11	17
M20 × 1.5		TD411726	17	125	16	12	18.5
M20 × 1		TD411736	14	125	16	12	19
M22 × 1.5		TD411766	17	125	18	14.5	20.5
M22 × 1		TD411776	14	125	18	14.5	21
M24 × 2		TD411796	20	140	18	14.5	22
M24 × 1.5		TD411806	20	140	18	14.5	22.5
M26 × 1.5		TD411856	20	140	18	14.5	24.5
M27 × 2		TD411876	20	140	20	16	25
M27 × 1.5		TD411886	20	140	20	16	25.5
M28 × 1.5		TD411916	20	140	20	16	26.5
M30 × 2		TD411966	22	150	22	18	28
M30 × 1.5		TD411976	22	150	22	18	28.5

Unit : mm

Unit : N/mm²

◎ : Excellent ○ : Good

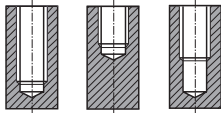
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA


**SPIRAL
FLUTE TAPS**
TC413 SERIES
MF ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type

DIN 374

Material groups
VG

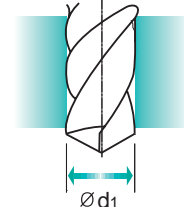
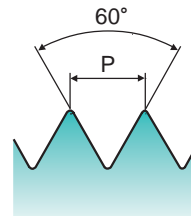
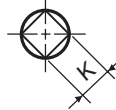
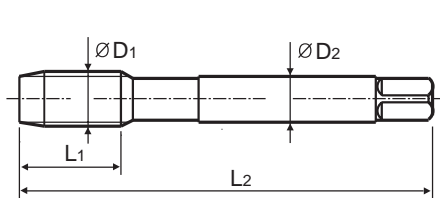
HSS-E

DIN 374

6H



Bright


 Machine taps
 Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TC413256	5	63	2.8	2.1	3.5
M5	× 0.5	TC413296	5	70	3.5	2.7	4.5
M6	× 0.75	TC413326	8	80	4.5	3.4	5.2
M6	× 0.5	TC413336	5	80	4.5	3.4	5.5
M7	× 0.75	TC413356	10	80	5.5	4.3	6.2
M8	× 1	TC413376	10	90	6	4.9	7
M8	× 0.75	TC413386	8	80	6	4.9	7.2
M10	× 1.25	TC413436	16	100	7	5.5	8.8
M10	× 1	TC413446	10	90	7	5.5	9
M10	× 0.75	TC413456	10	90	7	5.5	9.2
M12	× 1.5	TC413516	15	100	9	7	10.5
M12	× 1.25	TC413526	15	100	9	7	10.8
M12	× 1	TC413536	11	100	9	7	11
M14	× 1.5	TC413556	15	100	11	9	12.5
M14	× 1.25	TC413566	15	100	11	9	12.8
M16	× 1.5	TC413616	15	100	12	9	14.5
M18	× 1.5	TC413676	17	110	14	11	16.5
M20	× 1.5	TC413726	17	125	16	12	18.5
M22	× 1.5	TC413766	17	125	18	14.5	20.5
M24	× 1.5	TC413806	20	140	18	14.5	22.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											



SPIRAL FLUTE TAPS

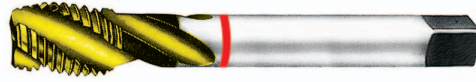
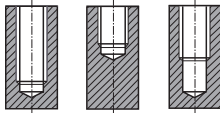
TD413 SERIES

MF ISO metric fine threads DIN 13 Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutgeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 374



HSS-E

DIN 374

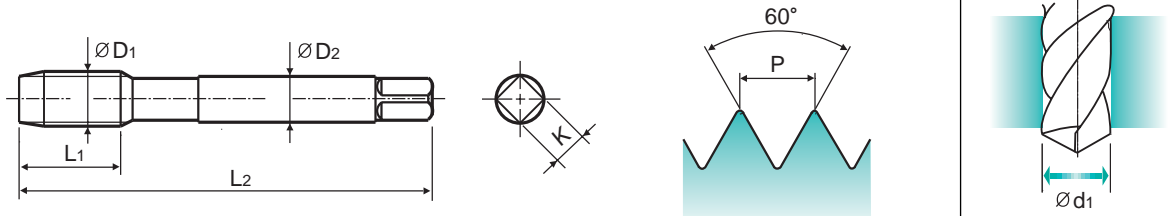
6H



TiN



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TD413256	5	63	2.8	2.1	3.5
M5	× 0.5	TD413296	5	70	3.5	2.7	4.5
M6	× 0.75	TD413326	8	80	4.5	3.4	5.2
M6	× 0.5	TD413336	5	80	4.5	3.4	5.5
M7	× 0.75	TD413356	10	80	5.5	4.3	6.2
M8	× 1	TD413376	10	90	6	4.9	7
M8	× 0.75	TD413386	8	80	6	4.9	7.2
M10	× 1.25	TD413436	16	100	7	5.5	8.8
M10	× 1	TD413446	10	90	7	5.5	9
M10	× 0.75	TD413456	10	90	7	5.5	9.2
M12	× 1.5	TD413516	15	100	9	7	10.5
M12	× 1.25	TD413526	15	100	9	7	10.8
M12	× 1	TD413536	11	100	9	7	11
M14	× 1.5	TD413556	15	100	11	9	12.5
M14	× 1.25	TD413566	15	100	11	9	12.8
M16	× 1.5	TD413616	15	100	12	9	14.5
M18	× 1.5	TD413676	17	110	14	11	16.5
M20	× 1.5	TD413726	17	125	16	12	18.5
M22	× 1.5	TD413766	17	125	18	14.5	20.5
M24	× 1.5	TD413806	20	140	18	14.5	22.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

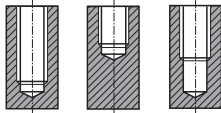
THREAD MILLS

TECHNICAL DATA

**SPIRAL
FLUTE TAPS****TB183** SERIES**MF** ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type

DIN 374



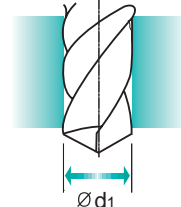
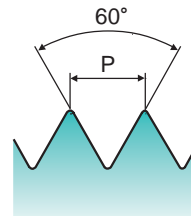
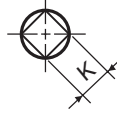
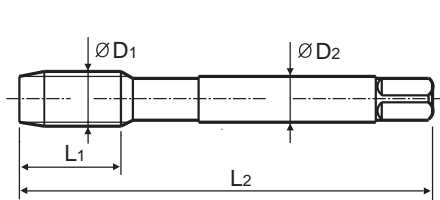
HSS-E

DIN 374

6H



Vap

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TB183256	5	63	2.8	2.1	3.5
M5	× 0.5	TB183296	5	70	3.5	2.7	4.5
M6	× 0.75	TB183326	8	80	4.5	3.4	5.2
M6	× 0.5	TB183336	5	80	4.5	3.4	5.5
M7	× 0.75	TB183356	10	80	5.5	4.3	6.2
M8	× 1	TB183376	10	90	6	4.9	7
M8	× 0.75	TB183386	8	80	6	4.9	7.2
M10	× 1.25	TB183436	16	100	7	5.5	8.8
M10	× 1	TB183446	10	90	7	5.5	9
M10	× 0.75	TB183456	10	90	7	5.5	9.2
M12	× 1.5	TB183516	15	100	9	7	10.5
M12	× 1.25	TB183526	15	100	9	7	10.8
M12	× 1	TB183536	11	100	9	7	11
M14	× 1.5	TB183556	15	100	11	9	12.5
M14	× 1.25	TB183566	15	100	11	9	12.8
M16	× 1.5	TB183616	15	100	12	9	14.5
M18	× 1.5	TB183676	17	110	14	11	16.5
M20	× 1.5	TB183726	17	125	16	12	18.5
M22	× 1.5	TB183766	17	125	18	14.5	20.5
M24	× 1.5	TB183806	20	140	18	14.5	22.5

Unit : N/mm²

◎ : Excellent ○ : Good

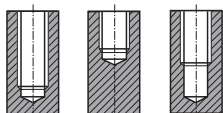
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					○	○	○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP

MF ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


DIN 374

Material groups

AI

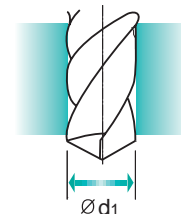
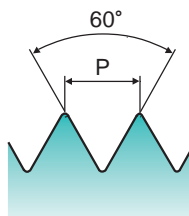
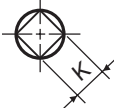
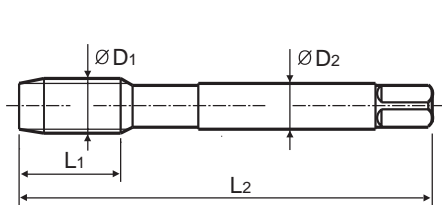
HSS-E

DIN 374

6H

60°

Bright

 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TC963256	5	63	2.8	2.1	3.5
M5	× 0.5	TC963296	5	70	3.5	2.7	4.5
M6	× 0.75	TC963326	8	80	4.5	3.4	5.2
M6	× 0.5	TC963336	5	80	4.5	3.4	5.5
M7	× 0.75	TC963356	10	80	5.5	4.3	6.2
M8	× 1	TC963376	10	90	6	4.9	7
M8	× 0.75	TC963386	8	80	6	4.9	7.2
M10	× 1.25	TC963436	16	100	7	5.5	8.8
M10	× 1	TC963446	10	90	7	5.5	9
M10	× 0.75	TC963456	10	90	7	5.5	9.2
M12	× 1.5	TC963516	15	100	9	7	10.5
M12	× 1.25	TC963526	15	100	9	7	10.8
M12	× 1	TC963536	11	100	9	7	11
M14	× 1.5	TC963556	15	100	11	9	12.5
M14	× 1.25	TC963566	15	100	11	9	12.8
M16	× 1.5	TC963616	15	100	12	9	14.5
M18	× 1.5	TC963676	17	110	14	11	16.5
M20	× 1.5	TC963726	17	125	16	12	18.5
M22	× 1.5	TC963766	17	125	18	14.5	20.5
M24	× 1.5	TC963806	20	140	18	14.5	22.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				○				○	○	○				

Y/G SPIRAL FLUTE TAPS

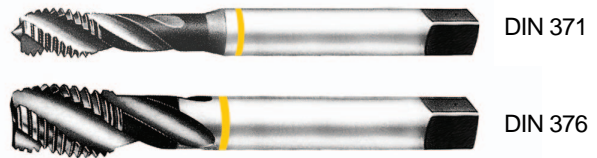
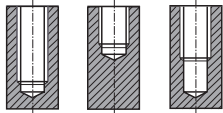
TC144 SERIES

UNC Unified coarse threads
Unified Grobgewinde

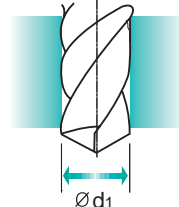
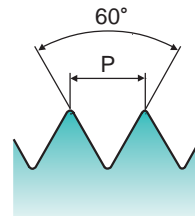
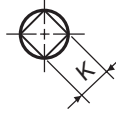
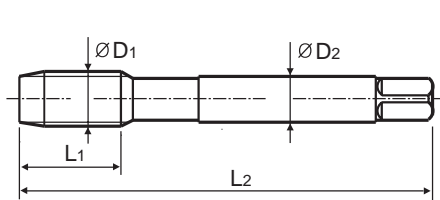
► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TC144162	6	56	3.5	2.7	2.3
#5	- 40UNC	TC144202	7	56	3.5	2.7	2.6
#6	- 32UNC	TC144242	7	56	4	3	2.85
#8	- 32UNC	TC144282	8	63	4.5	3.4	3.5
#10	- 24UNC	TC144322	10	70	6	4.9	3.9
#12	- 24UNC	TC144362	10	80	6	4.9	4.5
1/4"	- 20UNC	TC144402	13	80	7	5.5	5.2
5/16"	- 18UNC	TC144442	14	90	8	6.2	6.6
3/8"	- 16UNC	TC144482	16	100	9	7	8
7/16"	- 14UNC	TC144522	17	100	8	6.2	9.4
1/2"	- 13UNC	TC144562	20	110	9	7	10.75
9/16"	- 12UNC	TC144602	20	110	11	9	12.25
5/8"	- 11UNC	TC144642	22	110	12	9	13.5
3/4"	- 10UNC	TC144702	25	125	14	11	16.5
7/8"	- 9UNC	TC144742	27	140	18	14.5	19.5
1"	- 8UNC	TC144782	30	160	20	16	22.25
1*1/8"	- 7UNC	TC144822	35	180	22	18	25

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



SPIRAL FLUTE TAPS

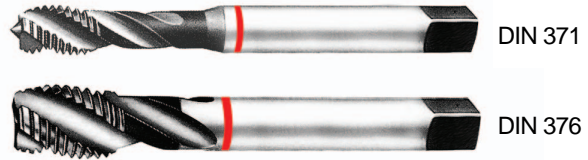
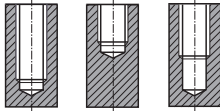
TC174 SERIES

UNC Unified coarse threads Unified Grobgewinde

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



HSS-E

DIN 371/376

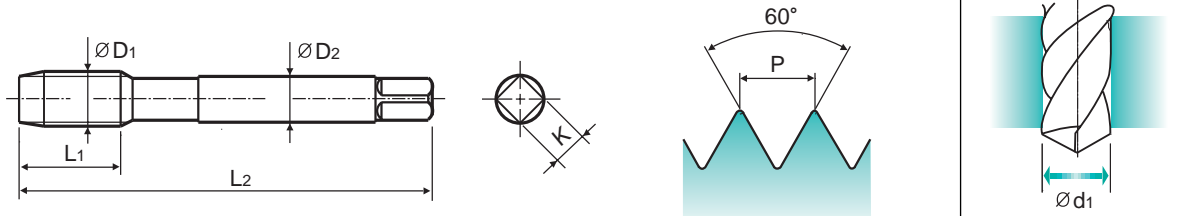
2B



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE ØD1	TPI	EDP No.	Thread Length L1	Overall Length L2	Shank Diameter ØD2	Square Size K	Tapping drill diameter Ød1
#4	40UNC	TC174162	6	56	3.5	2.7	2.3
#5	40UNC	TC174202	7	56	3.5	2.7	2.6
#6	32UNC	TC174242	7	56	4	3	2.85
#8	32UNC	TC174282	8	63	4.5	3.4	3.5
#10	24UNC	TC174322	10	70	6	4.9	3.9
#12	24UNC	TC174362	10	80	6	4.9	4.5
1/4"	20UNC	TC174402	13	80	7	5.5	5.2
5/16"	18UNC	TC174442	14	90	8	6.2	6.6
3/8"	16UNC	TC174482	16	100	9	7	8
7/16"	14UNC	TC174522	17	100	8	6.2	9.4
1/2"	13UNC	TC174562	20	110	9	7	10.75
9/16"	12UNC	TC174602	20	110	11	9	12.25
5/8"	11UNC	TC174642	22	110	12	9	13.5
3/4"	10UNC	TC174702	25	125	14	11	16.5
7/8"	9UNC	TC174742	27	140	18	14.5	19.5
1"	8UNC	TC174782	30	160	20	16	22.25
1*1/8"	7UNC	TC174822	35	180	22	18	25

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

SPIRAL
FLUTE TAPS

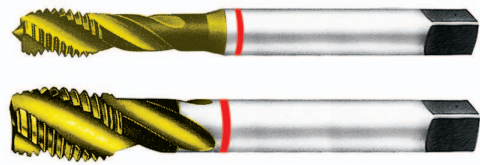
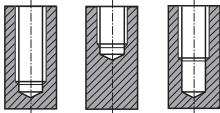
TD174 SERIES

UNC Unified coarse threads
Unified Grobgewinde

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 371

DIN 376



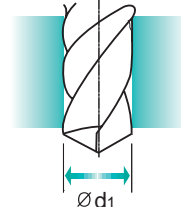
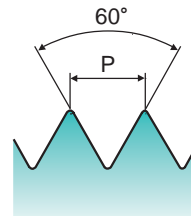
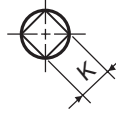
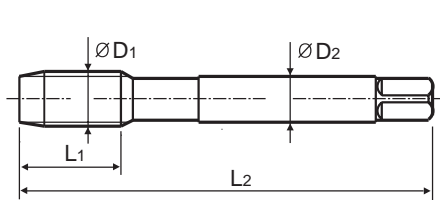
HSS-E

DIN
371/376

2B



TiN

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TD174162	6	56	3.5	2.7	2.3
#5	- 40UNC	TD174202	7	56	3.5	2.7	2.6
#6	- 32UNC	TD174242	7	56	4	3	2.85
#8	- 32UNC	TD174282	8	63	4.5	3.4	3.5
#10	- 24UNC	TD174322	10	70	6	4.9	3.9
#12	- 24UNC	TD174362	10	80	6	4.9	4.5
1/4"	- 20UNC	TD174402	13	80	7	5.5	5.2
5/16"	- 18UNC	TD174442	14	90	8	6.2	6.6
3/8"	- 16UNC	TD174482	16	100	9	7	8
7/16"	- 14UNC	TD174522	17	100	8	6.2	9.4
1/2"	- 13UNC	TD174562	20	110	9	7	10.75
9/16"	- 12UNC	TD174602	20	110	11	9	12.25
5/8"	- 11UNC	TD174642	22	110	12	9	13.5
3/4"	- 10UNC	TD174702	25	125	14	11	16.5
7/8"	- 9UNC	TD174742	27	140	18	14.5	19.5
1"	- 8UNC	TD174782	30	160	20	16	22.25
1*1/8"	- 7UNC	TD174822	35	180	22	18	25

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

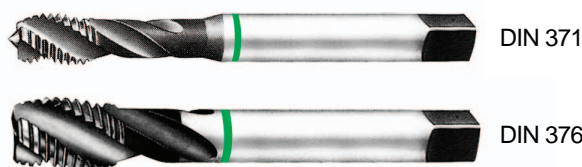
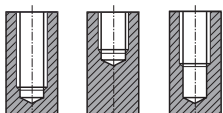
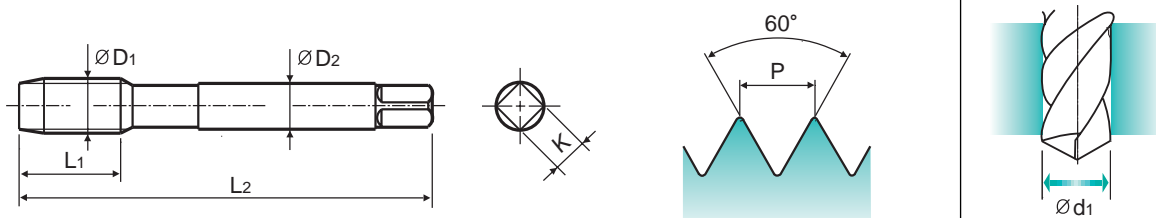
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

UNC Unified coarse threads

Unified Grobgewinde

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutgeometrie und ausgezeichneter Spanabfuhr.

Hole type

 Machine taps
 Maschinengewindebohrer


SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	40UNC	TB904162	6	56	3.5	2.7	2.3
#5	40UNC	TB904202	7	56	3.5	2.7	2.6
#6	32UNC	TB904242	7	56	4	3	2.85
#8	32UNC	TB904282	8	63	4.5	3.4	3.5
#10	24UNC	TB904322	10	70	6	4.9	3.9
#12	24UNC	TB904362	10	80	6	4.9	4.5
1/4"	20UNC	TB904402	13	80	7	5.5	5.2
5/16"	18UNC	TB904442	14	90	8	6.2	6.6
3/8"	16UNC	TB904482	16	100	9	7	8
7/16"	14UNC	TB904522	17	100	8	6.2	9.4
1/2"	13UNC	TB904562	20	110	9	7	10.75
9/16"	12UNC	TB904602	20	110	11	9	12.25
5/8"	11UNC	TB904642	22	110	12	9	13.5
3/4"	10UNC	TB904702	25	125	14	11	16.5
7/8"	9UNC	TB904742	27	140	18	14.5	19.5
1"	8UNC	TB904782	30	160	20	16	22.25
1*1/8"	7UNC	TB904822	35	180	22	18	25

► DIN 371 (#4~3/8") and DIN 376 (7/16"~1*1/8")

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

YG SPIRAL FLUTE TAPS

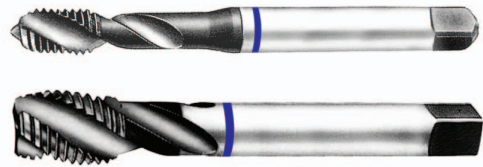
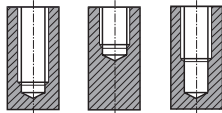
TC169 SERIES

UNC Unified coarse threads
Unified Grobgewinde

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 371

DIN 376

Material groups

AI

HSS-E

DIN 371/376

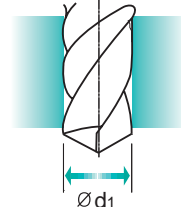
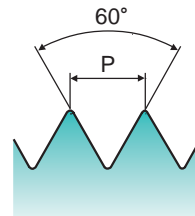
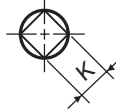
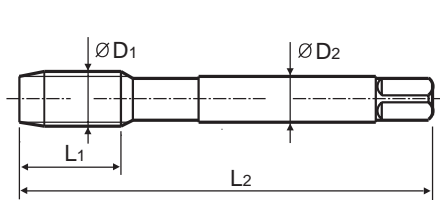
2B



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TC169162	6	56	3.5	2.7	2.3
#5	- 40UNC	TC169202	7	56	3.5	2.7	2.6
#6	- 32UNC	TC169242	7	56	4	3	2.85
#8	- 32UNC	TC169282	8	63	4.5	3.4	3.5
#10	- 24UNC	TC169322	10	70	6	4.9	3.9
#12	- 24UNC	TC169362	10	80	6	4.9	4.5
1/4"	- 20UNC	TC169402	13	80	7	5.5	5.2
5/16"	- 18UNC	TC169442	14	90	8	6.2	6.6
3/8"	- 16UNC	TC169482	16	100	9	7	8
7/16"	- 14UNC	TC169522	17	100	8	6.2	9.4
1/2"	- 13UNC	TC169562	20	110	9	7	10.75
9/16"	- 12UNC	TC169602	20	110	11	9	12.25
5/8"	- 11UNC	TC169642	22	110	12	9	13.5
3/4"	- 10UNC	TC169702	25	125	14	11	16.5
7/8"	- 9UNC	TC169742	27	140	18	14.5	19.5
1"	- 8UNC	TC169782	30	160	20	16	22.25
1*1/8"	- 7UNC	TC169822	35	180	22	18	25

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

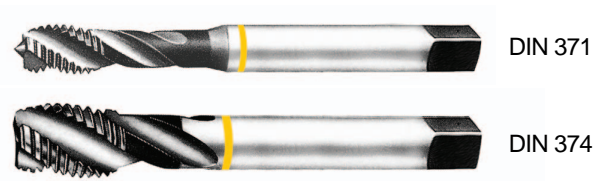
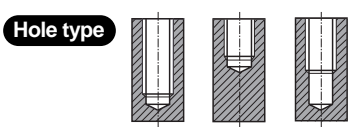
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				

UNF Unified fine threads

Unified Feingewinde

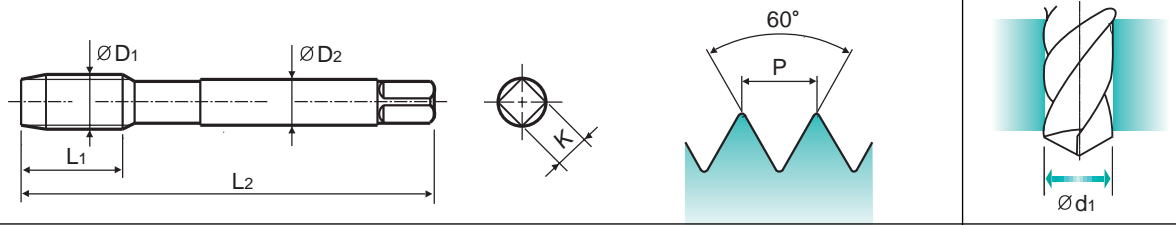
► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutgeometrie und ausgezeichneter Spanabfuhr.



Material groups **GS** HSS-E DIN 371/374 2B 60° C Bright R40

Machine taps
Maschinengewindebohrer



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	TC124182	6	56	3.5	2.7	2.4
#5	- 44 UNF	TC124222	7	56	3.5	2.7	2.7
#6	- 40 UNF	TC124262	7	56	4	3	3
#8	- 36 UNF	TC124302	8	63	4.5	3.4	3.5
#10	- 32 UNF	TC124342	10	70	6	4.9	4.1
#12	- 28 UNF	TC124382	10	80	6	4.9	4.7
1/4"	- 28 UNF	TC124422	10	80	7	5.5	5.5
5/16"	- 24 UNF	TC124462	10	90	8	6.2	6.9
3/8"	- 24 UNF	TC124502	10	100	9	7	8.5
7/16"	- 20 UNF	TC124542	13	100	8	6.2	9.9
1/2"	- 20 UNF	TC124582	13	100	9	7	11.5
9/16"	- 18 UNF	TC124622	15	100	11	9	12.9
5/8"	- 18 UNF	TC124662	15	100	12	9	14.5
3/4"	- 16 UNF	TC124722	17	110	14	11	17.5
7/8"	- 14 UNF	TC124762	17	125	18	14.5	20.5
1"	- 12 UNF	TC124802	20	140	20	16	23.25
1*1/8"	- 12 UNF	TC124842	22	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

YG SPIRAL FLUTE TAPS

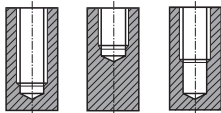
TC184 SERIES

UNF Unified fine threads
Unified Feingewinde

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

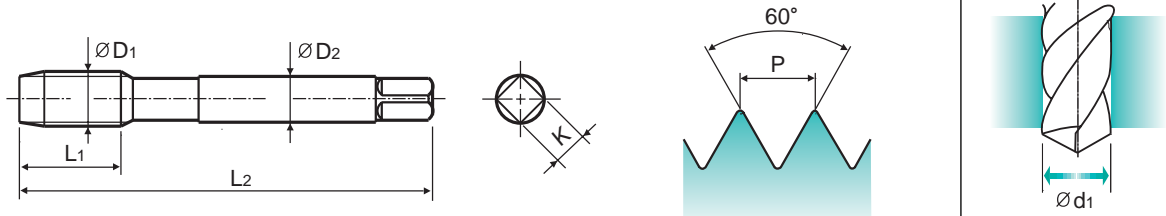
► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



Material groups **VG** HSS-E DIN 371/374 2B 60° C Bright R40

Machine taps
Maschinengewindebohrer



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	48 UNF	TC184182	6	56	3.5	2.7	2.4
#5	44 UNF	TC184222	7	56	3.5	2.7	2.7
#6	40 UNF	TC184262	7	56	4	3	3
#8	36 UNF	TC184302	8	63	4.5	3.4	3.5
#10	32 UNF	TC184342	10	70	6	4.9	4.1
#12	28 UNF	TC184382	10	80	6	4.9	4.7
1/4"	28 UNF	TC184422	10	80	7	5.5	5.5
5/16"	24 UNF	TC184462	10	90	8	6.2	6.9
3/8"	24 UNF	TC184502	10	100	9	7	8.5
7/16"	20 UNF	TC184542	13	100	8	6.2	9.9
1/2"	20 UNF	TC184582	13	100	9	7	11.5
9/16"	18 UNF	TC184622	15	100	11	9	12.9
5/8"	18 UNF	TC184662	15	100	12	9	14.5
3/4"	16 UNF	TC184722	17	110	14	11	17.5
7/8"	14 UNF	TC184762	17	125	18	14.5	20.5
1"	12 UNF	TC184802	20	140	20	16	23.25
1*1/8"	12 UNF	TC184842	22	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm² © : Excellent ○ : Good

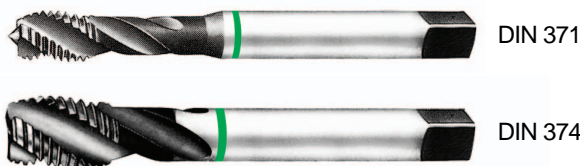
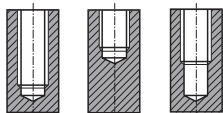
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	○				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
			○											

UNF Unified fine threads Unified Feingewinde

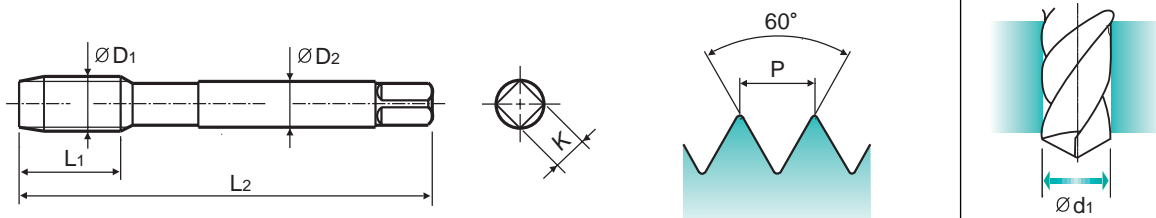
► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutgeometrie und ausgezeichneter Spanabfuhr.

Hole type



Machine taps
Maschinengewindebohrer



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	TB924182	6	56	3.5	2.7	2.4
#5	- 44 UNF	TB924222	7	56	3.5	2.7	2.7
#6	- 40 UNF	TB924262	7	56	4	3	3
#8	- 36 UNF	TB924302	8	63	4.5	3.4	3.5
#10	- 32 UNF	TB924342	10	70	6	4.9	4.1
#12	- 28 UNF	TB924382	10	80	6	4.9	4.7
1/4"	- 28 UNF	TB924422	10	80	7	5.5	5.5
5/16"	- 24 UNF	TB924462	10	90	8	6.2	6.9
3/8"	- 24 UNF	TB924502	10	100	9	7	8.5
7/16"	- 20 UNF	TB924542	13	100	8	6.2	9.9
1/2"	- 20 UNF	TB924582	13	100	9	7	11.5
9/16"	- 18 UNF	TB924622	15	100	11	9	12.9
5/8"	- 18 UNF	TB924662	15	100	12	9	14.5
3/4"	- 16 UNF	TB924722	17	110	14	11	17.5
7/8"	- 14 UNF	TB924762	17	125	18	14.5	20.5
1"	- 12 UNF	TB924802	20	140	20	16	23.25
1*1/8"	- 12 UNF	TB924842	22	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

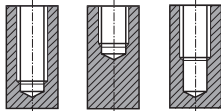

**SPIRAL
FLUTE TAPS**
TC170 SERIES

UNF

**Unified fine threads
Unified Feingewinde**

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type

DIN 371



DIN 374

Material groups

AI

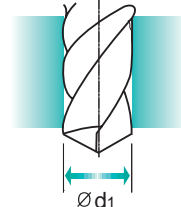
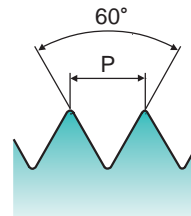
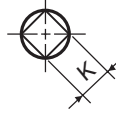
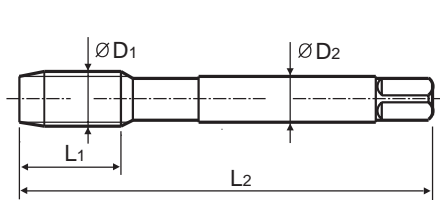
HSS-E

DIN
371/374

2B



Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	TC170182	6	56	3.5	2.7	2.4
#5	- 44 UNF	TC170222	7	56	3.5	2.7	2.7
#6	- 40 UNF	TC170262	7	56	4	3	3
#8	- 36 UNF	TC170302	8	63	4.5	3.4	3.5
#10	- 32 UNF	TC170342	10	70	6	4.9	4.1
#12	- 28 UNF	TC170382	10	80	6	4.9	4.7
1/4"	- 28 UNF	TC170422	10	80	7	5.5	5.5
5/16"	- 24 UNF	TC170462	10	90	8	6.2	6.9
3/8"	- 24 UNF	TC170502	10	100	9	7	8.5
7/16"	- 20 UNF	TC170542	13	100	8	6.2	9.9
1/2"	- 20 UNF	TC170582	13	100	9	7	11.5
9/16"	- 18 UNF	TC170622	15	100	11	9	12.9
5/8"	- 18 UNF	TC170662	15	100	12	9	14.5
3/4"	- 16 UNF	TC170722	17	110	14	11	17.5
7/8"	- 14 UNF	TC170762	17	125	18	14.5	20.5
1"	- 12 UNF	TC170802	20	140	20	16	23.25
1*1/8"	- 12 UNF	TC170842	22	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				

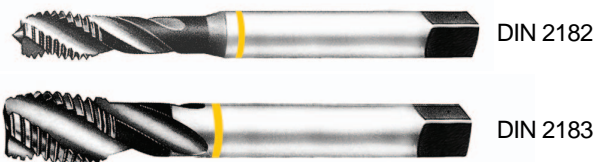
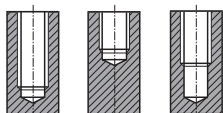
BSW Whitworth threads

Whitworth Gewinde

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type



DIN 2182

DIN 2183



HSS-E

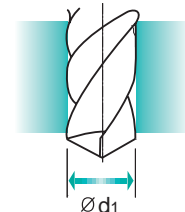
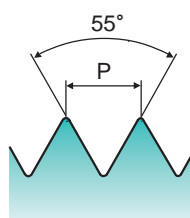
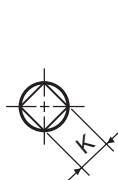
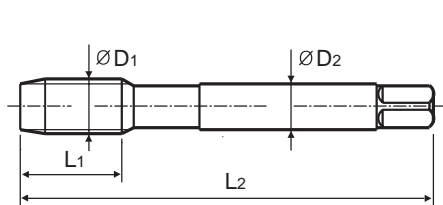
DIN 2182/2183



Bright



Machine taps
Maschinengewindebohrer



Unit : mm

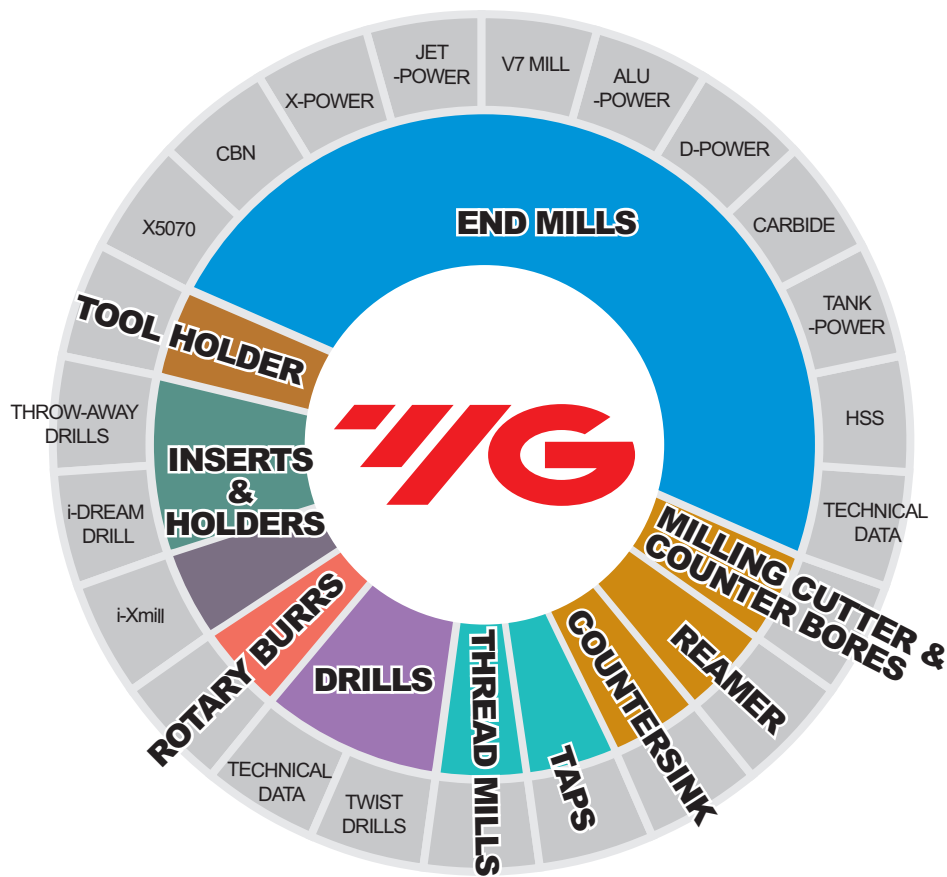
SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
W1/8"	40	TC134200	7	56	3.5	2.7	2.5
W5/32"	32	TC134280	7	63	4.5	3.4	3.1
W3/16"	24	TC134320	10	70	6	4.9	3.6
W7/32"	24	TC134360	10	80	6	4.9	4.4
W1/4"	20	TC134400	13	80	7	5.5	5.1
W5/16"	18	TC134440	14	90	8	6.2	6.5
W3/8"	16	TC134480	16	100	9	7	7.9
W7/16"	14	TC134520	17	100	8	6.2	9.3
W1/2"	12	TC134560	20	110	9	7	10.5
W9/16"	12	TC134600	20	110	11	9	12
W5/8"	11	TC134640	22	110	12	9	13.5
W3/4"	10	TC134700	25	125	14	11	16.5
W7/8"	9	TC134740	27	140	18	14.5	19.25
W1"	8	TC134780	30	160	20	16	22
W1*1/8"	7	TC134820	35	180	22	18	24.75

► DIN 2182(W1/8"~W3/8") and DIN 2183(W7/16"~W1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



STRAIGHT FLUTE TAPS

GEWINDEBOHRER GERADE GENUTET







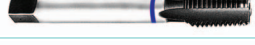
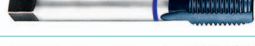





- Tapping Shallow Holes of Cast Iron, Mild Steels and Brass.
- Für flache Bohrungen von Grauguss, Stähle und Messing.

SELECTION GUIDE

STRAIGHT FLUTE TAPS

Tapping Shallow Holes of Cast Iron, Mild Steels and Brass.

STRAIGHT FLUTE TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC463		HSS-E	M	GS	DIN 371/376	ISO 2/6H	C	Bright	433
TE821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	NI	434
TD821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	TiN	435
TY821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	TiAlN	436
TI821		HSS-E	M	GG	DIN 371/376	ISO 2X/6HX	C	TiCN	437
TC433		HSS-E	M	Ms	DIN 371/376	ISO 2/6H	C	Bright	438
TE443		HSS-E	M	Ms	DIN 371/376	ISO 2X/6HX	C	NI	439
TY433		HSS-E	M	Ms	DIN 371/376	ISO 2/6H	C	TiAlN	440
TC473		HSS-E	MF	GS	DIN 374	ISO 2/6H	C	Bright	441
TE403		HSS-E	MF	GG	DIN 374	ISO 2X/6HX	C	NI	442
TC424		HSS-E	UNC	GS	DIN 371/376	2B	C	Bright	443
TE434		HSS-E	UNC	GG	DIN 371/376	2BX	C	NI	444
TE454		HSS-E	UNF	GG	DIN 371/374	2BX	C	NI	445



STRAIGHT FLUTE TAPS

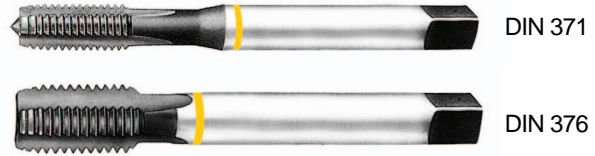
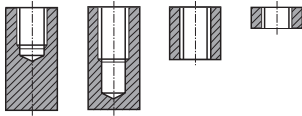
TC463 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for tapping shallow holes and the blind holes having enough chip space at the bottom of holes.

► Geeignet zum Schneiden von kurzem Durchgangsgewinde und in Sacklöchern mit ausreichendem Raum für Späne am Bohrungsgrund.

Hole type



DIN 371

DIN 376

Material groups **GS**

HSS-E

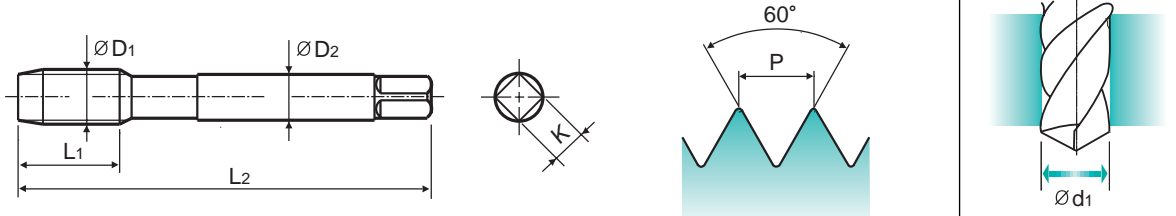
DIN 371/376

6H



Bright

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC463136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC463156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC463196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC463176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC463496	9	50	2.8	2.1	2.1
M3	× 0.5	TC463206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TC463226	12	56	4	3	2.9
M4	× 0.7	TC463246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TC463266	14	70	6	4.9	3.7
M5	× 0.8	TC463286	15	70	6	4.9	4.2
M6	× 1	TC463316	17	80	6	4.9	5
M7	× 1	TC463346	17	80	7	5.5	6
M8	× 1.25	TC463366	20	90	8	6.2	6.8
M9	× 1.25	TC463396	20	90	9	7	7.8
M10	× 1.5	TC463426	22	100	10	8	8.5
M11	× 1.5	TC463466	22	100	8	6.2	9.5
M12	× 1.75	TC463506	24	110	9	7	10.2
M14	× 2	TC463546	26	110	11	9	12
M16	× 2	TC463606	27	110	12	9	14
M18	× 2.5	TC463656	30	125	14	11	15.5
M20	× 2.5	TC463706	32	140	16	12	17.5
M22	× 2.5	TC463746	32	140	18	14.5	19.5
M24	× 3	TC463786	34	160	18	14.5	21
M27	× 3	TC463866	36	160	20	16	24
M30	× 3.5	TC463946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

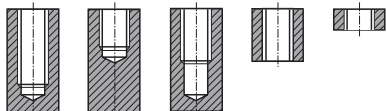
TECHNICAL DATA


**STRAIGHT
FLUTE TAPS**
TE821 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

▶ Suitable for tapping cast iron or similar work materials.

▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen

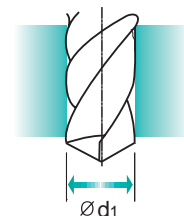
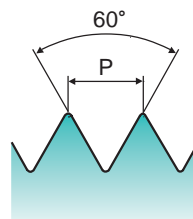
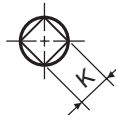
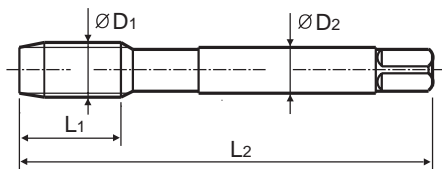
Hole type


DIN 371



DIN 376

Material groups
GG
HSS-E
DIN 371/376
6HX
60°
C
NI

Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE821136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TE821156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TE821196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TE821176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TE821496	9	50	2.8	2.1	2.1
M3	× 0.5	TE821206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TE821226	12	56	4	3	2.9
M4	× 0.7	TE821246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TE821266	14	70	6	4.9	3.7
M5	× 0.8	TE821286	15	70	6	4.9	4.2
M6	× 1	TE821316	17	80	6	4.9	5
M7	× 1	TE821346	17	80	7	5.5	6
M8	× 1.25	TE821366	20	90	8	6.2	6.8
M9	× 1.25	TE821396	20	90	9	7	7.8
M10	× 1.5	TE821426	22	100	10	8	8.5
M11	× 1.5	TE821466	22	100	8	6.2	9.5
M12	× 1.75	TE821506	24	110	9	7	10.2
M14	× 2	TE821546	26	110	11	9	12
M16	× 2	TE821606	27	110	12	9	14
M18	× 2.5	TE821656	30	125	14	11	15.5
M20	× 2.5	TE821706	32	140	16	12	17.5
M22	× 2.5	TE821746	32	140	18	14.5	19.5
M24	× 3	TE821786	34	160	18	14.5	21
M27	× 3	TE821866	36	160	20	16	24
M30	× 3.5	TE821946	40	180	22	18	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

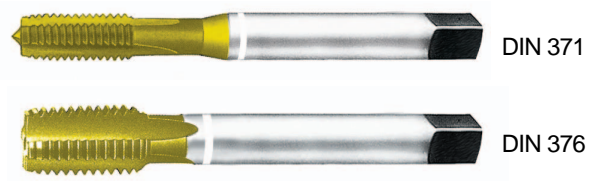
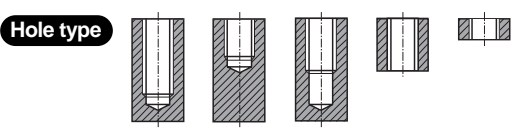
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
									◎	◎				
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○									◎

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► Suitable for tapping cast iron or similar work materials.

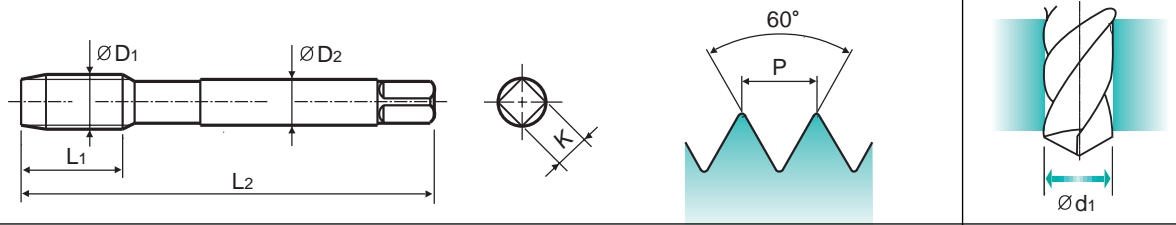
► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups **GG**

HSS-E DIN 371/376 6HX 60° C TiN

Machine taps
Maschinengewindebohrer



SIZE		Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P	L1		L2	ØD2	K	Ød1	
M2	× 0.4	TD821136	8	45	2.8	2.1	1.6	
M2.2	× 0.45	TD821156	8	45	2.8	2.1	1.75	
* M2.3	× 0.4	TD821196	8	45	2.8	2.1	1.9	
M2.5	× 0.45	TD821176	9	50	2.8	2.1	2.05	
* M2.6	× 0.45	TD821496	9	50	2.8	2.1	2.1	
M3	× 0.5	TD821206	11	56	3.5	2.7	2.5	
M3.5	× 0.6	TD821226	12	56	4	3	2.9	
M4	× 0.7	TD821246	13	63	4.5	3.4	3.3	
M4.5	× 0.75	TD821266	14	70	6	4.9	3.7	
M5	× 0.8	TD821286	15	70	6	4.9	4.2	
M6	× 1	TD821316	17	80	6	4.9	5	
M7	× 1	TD821346	17	80	7	5.5	6	
M8	× 1.25	TD821366	20	90	8	6.2	6.8	
M9	× 1.25	TD821396	20	90	9	7	7.8	
M10	× 1.5	TD821426	22	100	10	8	8.5	
M11	× 1.5	TD821466	22	100	8	6.2	9.5	
M12	× 1.75	TD821506	24	110	9	7	10.2	
M14	× 2	TD821546	26	110	11	9	12	
M16	× 2	TD821606	27	110	12	9	14	
M18	× 2.5	TD821656	30	125	14	11	15.5	
M20	× 2.5	TD821706	32	140	16	12	17.5	
M22	× 2.5	TD821746	32	140	18	14.5	19.5	
M24	× 3	TD821786	34	160	18	14.5	21	
M27	× 3	TD821866	36	160	20	16	24	
M30	× 3.5	TD821946	40	180	22	18	26.5	

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP

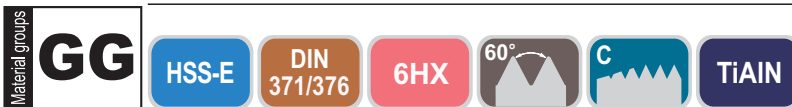
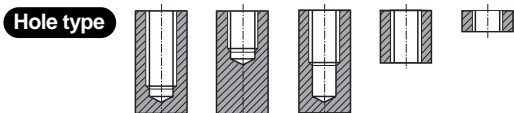
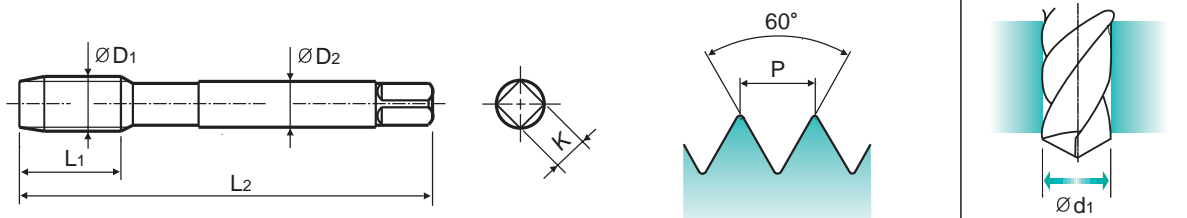
- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA


**STRAIGHT
FLUTE TAPS**
TY821 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

▶ Suitable for tapping cast iron or similar work materials.

▶ Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen


Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TY821136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TY821156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TY821196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TY821176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TY821496	9	50	2.8	2.1	2.1
M3	× 0.5	TY821206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TY821226	12	56	4	3	2.9
M4	× 0.7	TY821246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TY821266	14	70	6	4.9	3.7
M5	× 0.8	TY821286	15	70	6	4.9	4.2
M6	× 1	TY821316	17	80	6	4.9	5
M7	× 1	TY821346	17	80	7	5.5	6
M8	× 1.25	TY821366	20	90	8	6.2	6.8
M9	× 1.25	TY821396	20	90	9	7	7.8
M10	× 1.5	TY821426	22	100	10	8	8.5
M11	× 1.5	TY821466	22	100	8	6.2	9.5
M12	× 1.75	TY821506	24	110	9	7	10.2
M14	× 2	TY821546	26	110	11	9	12
M16	× 2	TY821606	27	110	12	9	14
M18	× 2.5	TY821656	30	125	14	11	15.5
M20	× 2.5	TY821706	32	140	16	12	17.5
M22	× 2.5	TY821746	32	140	18	14.5	19.5
M24	× 3	TY821786	34	160	18	14.5	21
M27	× 3	TY821866	36	160	20	16	24
M30	× 3.5	TY821946	40	180	22	18	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ * DIN profile not ISO

Unit : N/mm²

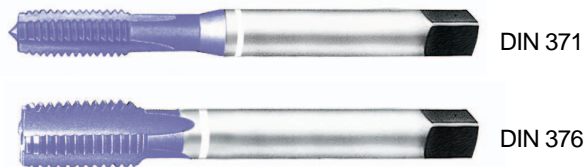
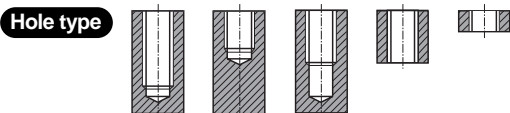
◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
									◎	◎				
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					◎									◎

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

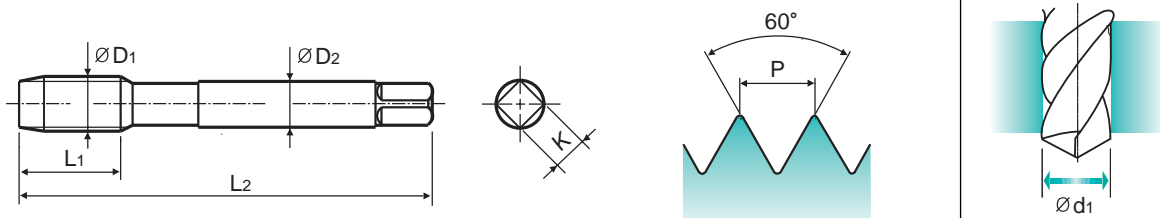
► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups **GG** HSS-E DIN 371/376 6HX 60° C TiCN

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TI821136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TI821156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TI821196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TI821176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TI821496	9	50	2.8	2.1	2.1
M3	× 0.5	TI821206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TI821226	12	56	4	3	2.9
M4	× 0.7	TI821246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TI821266	14	70	6	4.9	3.7
M5	× 0.8	TI821286	15	70	6	4.9	4.2
M6	× 1	TI821316	17	80	6	4.9	5
M7	× 1	TI821346	17	80	7	5.5	6
M8	× 1.25	TI821366	20	90	8	6.2	6.8
M9	× 1.25	TI821396	20	90	9	7	7.8
M10	× 1.5	TI821426	22	100	10	8	8.5
M11	× 1.5	TI821466	22	100	8	6.2	9.5
M12	× 1.75	TI821506	24	110	9	7	10.2
M14	× 2	TI821546	26	110	11	9	12
M16	× 2	TI821606	27	110	12	9	14
M18	× 2.5	TI821656	30	125	14	11	15.5
M20	× 2.5	TI821706	32	140	16	12	17.5
M22	× 2.5	TI821746	32	140	18	14.5	19.5
M24	× 3	TI821786	34	160	18	14.5	21
M27	× 3	TI821866	36	160	20	16	24
M30	× 3.5	TI821946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

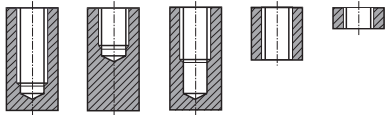
◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP

**STRAIGHT
FLUTE TAPS****TC433** SERIES**M** ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen

Hole type

DIN 371



DIN 376

Material groups

Ms

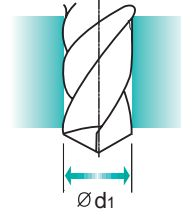
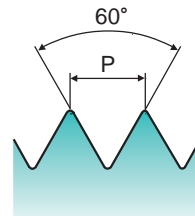
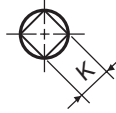
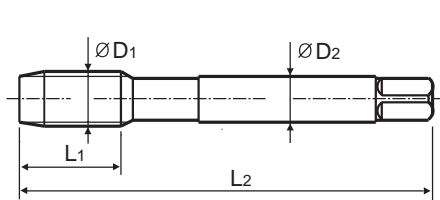
HSS-E

DIN
371/376

6H



Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TC433136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TC433156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TC433196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TC433176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TC433496	9	50	2.8	2.1	2.1
M3	× 0.5	TC433206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TC433226	12	56	4	3	2.9
M4	× 0.7	TC433246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TC433266	14	70	6	4.9	3.7
M5	× 0.8	TC433286	15	70	6	4.9	4.2
M6	× 1	TC433316	17	80	6	4.9	5
M7	× 1	TC433346	17	80	7	5.5	6
M8	× 1.25	TC433366	20	90	8	6.2	6.8
M9	× 1.25	TC433396	20	90	9	7	7.8
M10	× 1.5	TC433426	22	100	10	8	8.5
M11	× 1.5	TC433466	22	100	8	6.2	9.5
M12	× 1.75	TC433506	24	110	9	7	10.2
M14	× 2	TC433546	26	110	11	9	12
M16	× 2	TC433606	27	110	12	9	14
M18	× 2.5	TC433656	30	125	14	11	15.5
M20	× 2.5	TC433706	32	140	16	12	17.5
M22	× 2.5	TC433746	32	140	18	14.5	19.5
M24	× 3	TC433786	34	160	18	14.5	21
M27	× 3	TC433866	36	160	20	16	24
M30	× 3.5	TC433946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP



STRAIGHT FLUTE TAPS

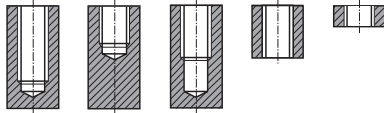
TE443 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen

Hole type



Material groups

Ms

HSS-E

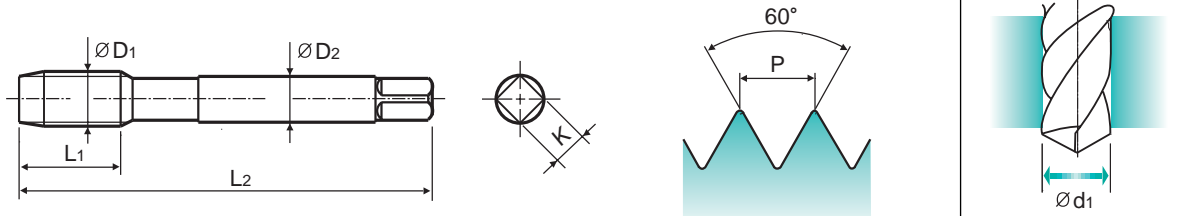
DIN 371/376

6HX



NI

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE443136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TE443156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TE443196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TE443176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TE443496	9	50	2.8	2.1	2.1
M3	× 0.5	TE443206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TE443226	12	56	4	3	2.9
M4	× 0.7	TE443246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TE443266	14	70	6	4.9	3.7
M5	× 0.8	TE443286	15	70	6	4.9	4.2
M6	× 1	TE443316	17	80	6	4.9	5
M7	× 1	TE443346	17	80	7	5.5	6
M8	× 1.25	TE443366	20	90	8	6.2	6.8
M9	× 1.25	TE443396	20	90	9	7	7.8
M10	× 1.5	TE443426	22	100	10	8	8.5
M11	× 1.5	TE443466	22	100	8	6.2	9.5
M12	× 1.75	TE443506	24	110	9	7	10.2
M14	× 2	TE443546	26	110	11	9	12
M16	× 2	TE443606	27	110	12	9	14
M18	× 2.5	TE443656	30	125	14	11	15.5
M20	× 2.5	TE443706	32	140	16	12	17.5
M22	× 2.5	TE443746	32	140	18	14.5	19.5
M24	× 3	TE443786	34	160	18	14.5	21
M27	× 3	TE443866	36	160	20	16	24
M30	× 3.5	TE443946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

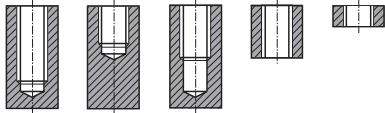
THREAD MILLS

TECHNICAL DATA

**STRAIGHT
FLUTE TAPS****TY433** SERIES**M** ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen

Hole type

DIN 371



DIN 376

Material groups

Ms

HSS-E

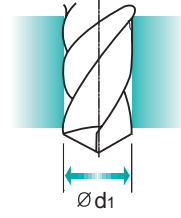
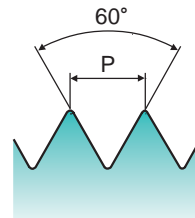
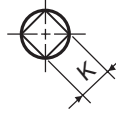
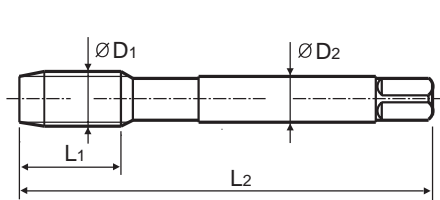
DIN
371/376

6H

60°

C

TiAlN

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TY433136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TY433156	8	45	2.8	2.1	1.75
* M2.3	× 0.4	TY433196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TY433176	9	50	2.8	2.1	2.05
* M2.6	× 0.45	TY433496	9	50	2.8	2.1	2.1
M3	× 0.5	TY433206	11	56	3.5	2.7	2.5
M3.5	× 0.6	TY433226	12	56	4	3	2.9
M4	× 0.7	TY433246	13	63	4.5	3.4	3.3
M4.5	× 0.75	TY433266	14	70	6	4.9	3.7
M5	× 0.8	TY433286	15	70	6	4.9	4.2
M6	× 1	TY433316	17	80	6	4.9	5
M7	× 1	TY433346	17	80	7	5.5	6
M8	× 1.25	TY433366	20	90	8	6.2	6.8
M9	× 1.25	TY433396	20	90	9	7	7.8
M10	× 1.5	TY433426	22	100	10	8	8.5
M11	× 1.5	TY433466	22	100	8	6.2	9.5
M12	× 1.75	TY433506	24	110	9	7	10.2
M14	× 2	TY433546	26	110	11	9	12
M16	× 2	TY433606	27	110	12	9	14
M18	× 2.5	TY433656	30	125	14	11	15.5
M20	× 2.5	TY433706	32	140	16	12	17.5
M22	× 2.5	TY433746	32	140	18	14.5	19.5
M24	× 3	TY433786	34	160	18	14.5	21
M27	× 3	TY433866	36	160	20	16	24
M30	× 3.5	TY433946	40	180	22	18	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

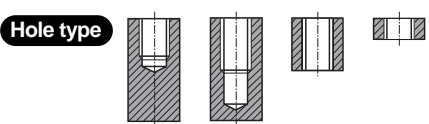
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP

MF ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

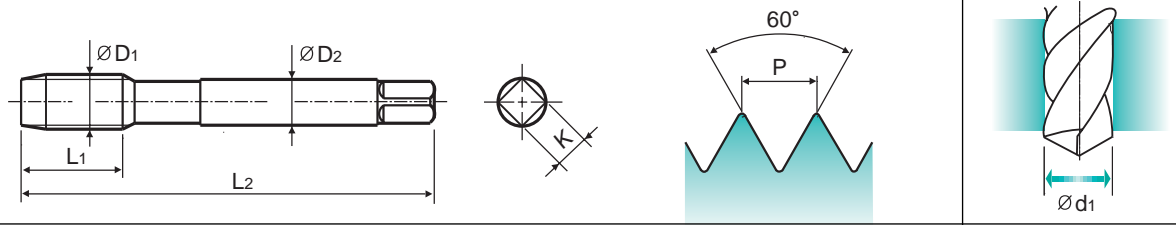
▶ Suitable for tapping shallow holes.

▶ Geeignet zum Gewindeschneiden flacher Sacklöcher.



DIN 374

Material groups **GS** **HSS-E** **DIN 374** **6H** **60°** **C** **Bright**

 Machine taps
Maschinengewindebohrer


SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TC473256	10	63	2.8	2.1	3.5
M5	× 0.5	TC473296	11	70	3.5	2.7	4.5
M6	× 0.75	TC473326	13	80	4.5	3.4	5.2
M6	× 0.5	TC473336	13	80	4.5	3.4	5.5
M7	× 0.75	TC473356	14	80	5.5	4.3	6.2
M8	× 1	TC473376	17	90	6	4.9	7
M8	× 0.75	TC473386	14	80	6	4.9	7.2
M8	× 0.5	TC473936	14	80	6	4.9	7.5
M10	× 1.25	TC473436	22	100	7	5.5	8.8
M10	× 1	TC473446	18	90	7	5.5	9
M10	× 0.75	TC473456	18	90	7	5.5	9.2
M12	× 1.5	TC473516	22	100	9	7	10.5
M12	× 1.25	TC473526	22	100	9	7	10.8
M12	× 1	TC473536	18	100	9	7	11
M14	× 1.5	TC473556	22	100	11	9	12.5
M14	× 1.25	TC473566	22	100	11	9	12.8
M14	× 1	TC473576	18	100	11	9	13
M16	× 1.5	TC473616	22	100	12	9	14.5
M18	× 1.5	TC473676	25	110	14	11	16.5
M20	× 1.5	TC473726	25	125	16	12	18.5
M22	× 1.5	TC473766	25	125	18	14.5	20.5
M24	× 1.5	TC473806	27	140	18	14.5	22.5

Unit : mm

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

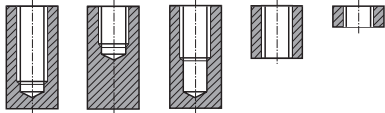
- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

**STRAIGHT
FLUTE TAPS****TE403** SERIES**MF** ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung

Hole type



DIN 374

Material groups
GG

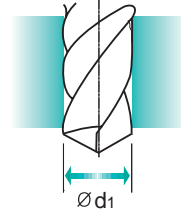
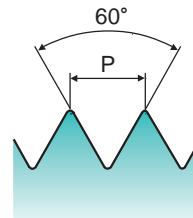
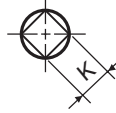
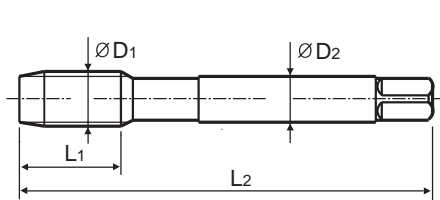
HSS-E

DIN
374

6HX



NI

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch		EDP No.	Thread Length		Shank Diameter	Square Size	Tapping drill diameter
	ØD1	P		L1	L2			
M4	×	0.5	TE403256	10	63	2.8	2.1	3.5
M5	×	0.5	TE403296	11	70	3.5	2.7	4.5
M6	×	0.75	TE403326	13	80	4.5	3.4	5.2
M6	×	0.5	TE403336	13	80	4.5	3.4	5.5
M7	×	0.75	TE403356	14	80	5.5	4.3	6.2
M8	×	1	TE403376	17	90	6	4.9	7
M8	×	0.75	TE403386	14	80	6	4.9	7.2
M10	×	1.25	TE403436	22	100	7	5.5	8.8
M10	×	1	TE403446	18	90	7	5.5	9
M10	×	0.75	TE403456	18	90	7	5.5	9.2
M12	×	1.5	TE403516	22	100	9	7	10.5
M12	×	1.25	TE403526	22	100	9	7	10.8
M12	×	1	TE403536	18	100	9	7	11
M14	×	1.5	TE403556	22	100	11	9	12.5
M14	×	1.25	TE403566	22	100	11	9	12.8
M16	×	1.5	TE403616	22	100	12	9	14.5
M18	×	1.5	TE403676	25	110	14	11	16.5
M20	×	1.5	TE403726	25	125	16	12	18.5
M22	×	1.5	TE403766	25	125	18	14.5	20.5
M24	×	1.5	TE403806	27	140	18	14.5	22.5

Unit : N/mm²

◎ : Excellent ○ : Good

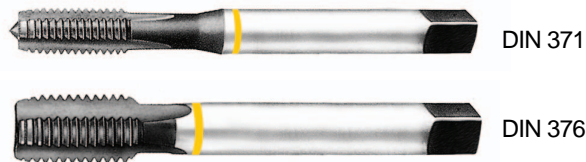
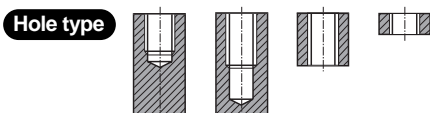
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
									◎	◎				
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
														◎

UNC

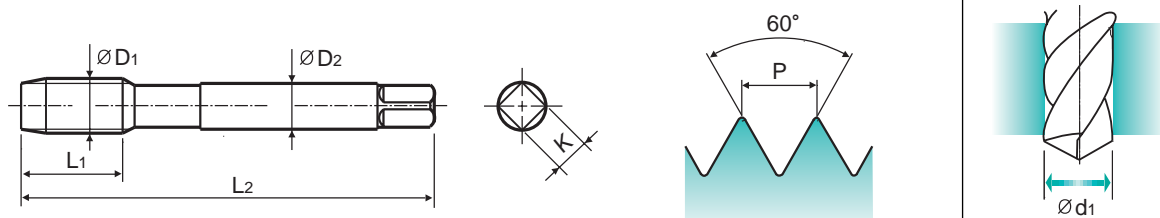
Unified coarse threads
Unified Grobgewinde

▶ Suitable for tapping shallow holes.

▶ Geeignet zum Gewindeschneiden flacher Sacklöcher.



Material groups **GS** **HSS-E** **DIN 371/376** **2B** **60°** **C** **Bright**

 Machine taps
 Maschinengewindebohrer


SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TC424162	11	56	3.5	2.7	2.3
#5	- 40UNC	TC424202	11	56	3.5	2.7	2.6
#6	- 32UNC	TC424242	12	56	4	3	2.85
#8	- 32UNC	TC424282	13	63	4.5	3.4	3.5
#10	- 24UNC	TC424322	15	70	6	4.9	3.9
#12	- 24UNC	TC424362	16	80	6	4.9	4.5
1/4"	- 20UNC	TC424402	17	80	7	5.5	5.2
5/16"	- 18UNC	TC424442	20	90	8	6.2	6.6
3/8"	- 16UNC	TC424482	22	100	9	7	8
7/16"	- 14UNC	TC424522	22	100	8	6.2	9.4
1/2"	- 13UNC	TC424562	25	110	9	7	10.75
9/16"	- 12UNC	TC424602	26	110	11	9	12.25
5/8"	- 11UNC	TC424642	27	110	12	9	13.5
3/4"	- 10UNC	TC424702	30	125	14	11	16.5
7/8"	- 9UNC	TC424742	32	140	18	14.5	19.5
1"	- 8UNC	TC424782	36	160	20	16	22.25
1*1/8"	- 7UNC	TC424822	40	180	22	18	25

▶ DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA



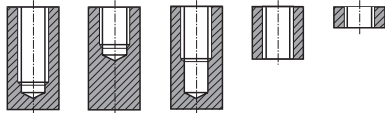
STRAIGHT FLUTE TAPS

TE434 SERIES

UNC Unified coarse threads Unified Grobgewinde

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung

Hole type


DIN 371



DIN 376

Material groups

GG

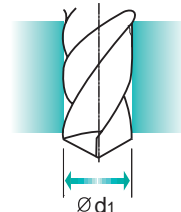
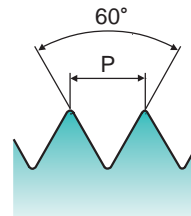
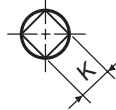
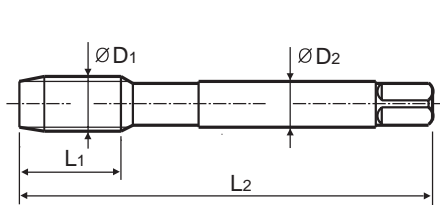
HSS-E

 DIN
371/376

2BX



NI

 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TE434162	11	56	3.5	2.7	2.3
#5	- 40UNC	TE434202	11	56	3.5	2.7	2.6
#6	- 32UNC	TE434242	12	56	4	3	2.85
#8	- 32UNC	TE434282	13	63	4.5	3.4	3.5
#10	- 24UNC	TE434322	15	70	6	4.9	3.9
#12	- 24UNC	TE434362	16	80	6	4.9	4.5
1/4"	- 20UNC	TE434402	17	80	7	5.5	5.2
5/16"	- 18UNC	TE434442	20	90	8	6.2	6.6
3/8"	- 16UNC	TE434482	22	100	9	7	8
7/16"	- 14UNC	TE434522	22	100	8	6.2	9.4
1/2"	- 13UNC	TE434562	25	110	9	7	10.75
9/16"	- 12UNC	TE434602	26	110	11	9	12.25
5/8"	- 11UNC	TE434642	27	110	12	9	13.5
3/4"	- 10UNC	TE434702	30	125	14	11	16.5
7/8"	- 9UNC	TE434742	32	140	18	14.5	19.5
1"	- 8UNC	TE434782	36	160	20	16	22.25
1*1/8"	- 7UNC	TE434822	40	180	22	18	25

► DIN 371(#4~3/8") and DIN 376(7/16"~1*1/8")

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
									◎	◎				
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○									◎

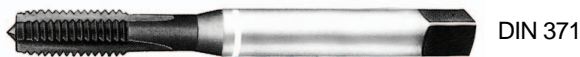
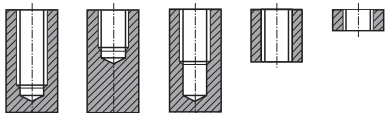
UNF

**Unified fine threads
Unified Feingewinde**

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung

Hole type



Material groups
GG

HSS-E

DIN 371/374

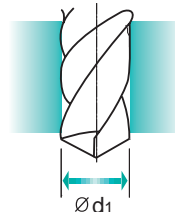
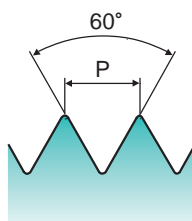
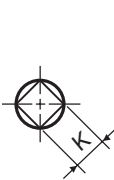
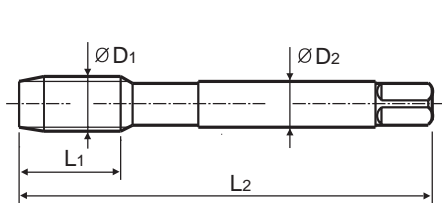
2B

60°

C

NI

Machine taps
Maschinengewindebohrer



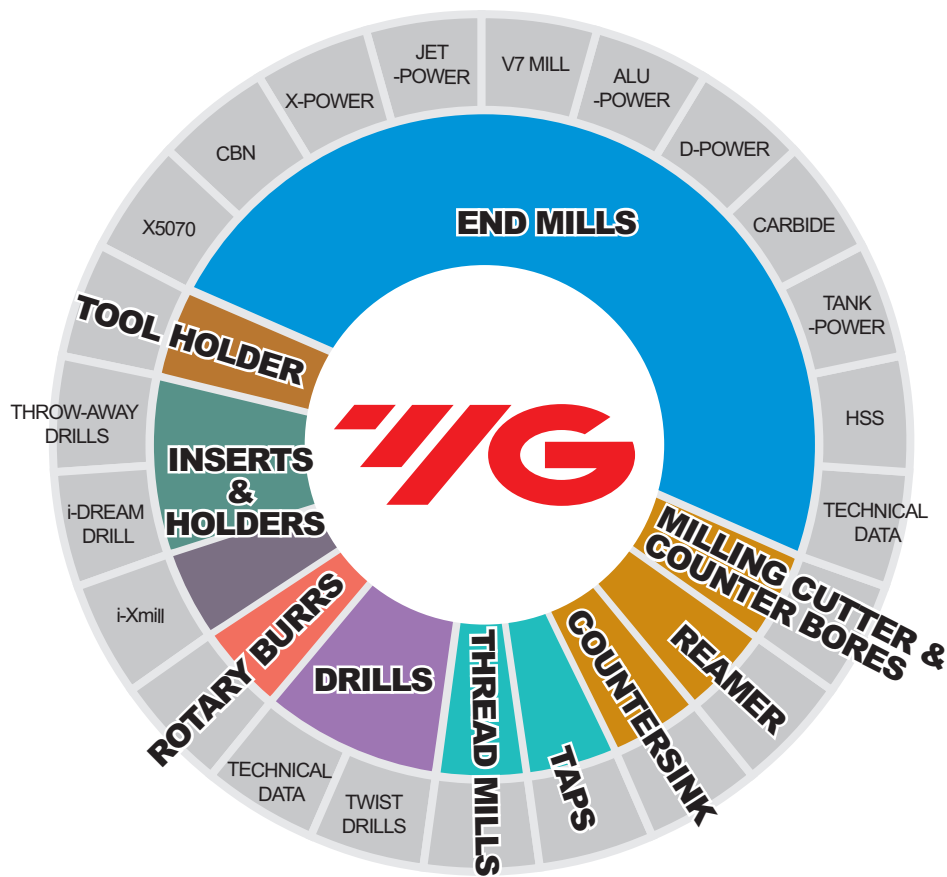
SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	TE454182	11	56	3.5	2.7	2.4
#5	- 44 UNF	TE454222	11	56	3.5	2.7	2.7
#6	- 40 UNF	TE454262	12	56	4	3	3
#8	- 36 UNF	TE454302	13	63	4.5	3.4	3.5
#10	- 32 UNF	TE454342	13	70	6	4.9	4.1
#12	- 28 UNF	TE454382	16	80	6	4.9	4.7
1/4"	- 28 UNF	TE454422	17	80	7	5.5	5.5
5/16"	- 24 UNF	TE454462	17	90	8	6.2	6.9
3/8"	- 24 UNF	TE454502	18	100	9	7	8.5
7/16"	- 20 UNF	TE454542	22	100	8	6.2	9.9
1/2"	- 20 UNF	TE454582	22	100	9	7	11.5
9/16"	- 18 UNF	TE454622	22	100	11	9	12.9
5/8"	- 18 UNF	TE454662	22	100	12	9	14.5
3/4"	- 16 UNF	TE454722	25	110	14	11	17.5
7/8"	- 14 UNF	TE454762	26	125	18	14.5	20.5
1"	- 12 UNF	TE454802	28	140	20	16	23.25
1*1/8"	- 12 UNF	TE454842	30	150	22	18	26.5

► DIN 371(#4~3/8") and DIN 374(7/16"~1*1/8")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
									◎	◎				
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					○									◎



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



COLD FORMING TAPS

INNENGEWINDEFORMER




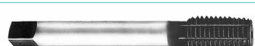



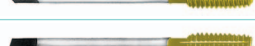

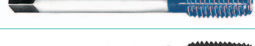

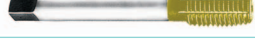

- Tapping by Forming Soft Materials, HSS-E & HSS-PM
- Zum Gewindedrücken in weichen Werkstoffen, HSS-E und HSS-PM

SELECTION GUIDE

COLD FORMING TAPS

Tapping by Forming Soft Materials, HSS-E & HSS-PM

COLD FORMING TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TQ703		HSS-PM	M	GV	DIN 371/376	ISO 2X/6HX	C	vap	449
TQ723		HSS-PM	M	GV	DIN 371/376	ISO 2X/6HX	C	vap	450
TE703		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	NI	451
TE713		HSS-E	M	GV	DIN 371/376	ISO 3X/6GX	C	NI	452
TE723		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	NI	453
TD713		HSS-E	M	GV	DIN 371/376	ISO 3X/6GX	C	TiN	454
TD723		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	TiN	455
TD703		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	TiN	456
TY703		HSS-E	M	GV	DIN 371/376	ISO 2X/6HX	C	TiAlN	457
TE733		HSS-E	MF	GV	DIN 374	ISO 2X/6HX	C	NI	458
TD733		HSS-E	MF	GV	DIN 374	ISO 2X/6HX	C	TiN	459
TE704		HSS-E	UNC	GV	DIN 371/376	2BX	C	NI	460
TD704		HSS-E	UNC	GV	DIN 371/376	2BX	C	TiN	461



COLD FORMING TAPS

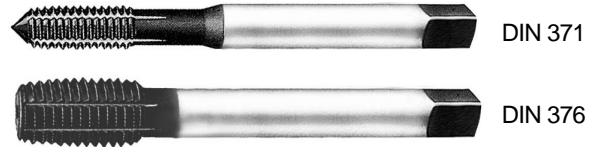
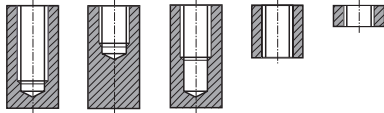
TQ703 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

- ▶ Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type



DIN 371

DIN 376

Material groups

GV

HSS-PM

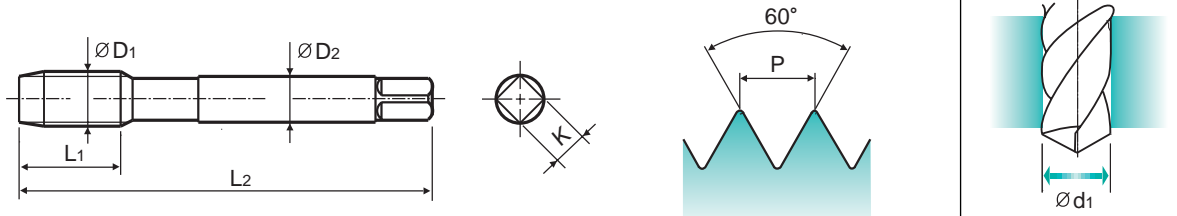
DIN 371/376

6HX



Vap

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TQ703136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TQ703156	8	45	2.8	2.1	2
* M2.3	× 0.4	TQ703196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TQ703176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TQ703496	9	50	2.8	2.1	2.4
M3	× 0.5	TQ703206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TQ703226	12	56	4	3	3.25
M4	× 0.7	TQ703246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TQ703266	14	70	6	4.9	4.15
M5	× 0.8	TQ703286	15	70	6	4.9	4.65
M6	× 1	TQ703316	17	80	6	4.9	5.55
M7	× 1	TQ703346	17	80	7	5.5	6.55
M8	× 1.25	TQ703366	20	90	8	6.2	7.4
M9	× 1.25	TQ703396	20	90	9	7	8.4
M10	× 1.5	TQ703426	22	100	10	8	9.3
M11	× 1.5	TQ703466	22	100	8	6.2	10.3
M12	× 1.75	TQ703506	24	110	9	7	11.2
M14	× 2	TQ703546	26	110	11	9	13
M16	× 2	TQ703606	27	110	12	9	15
M18	× 2.5	TQ703656	30	125	14	11	16.8
M20	× 2.5	TQ703706	32	140	16	12	18.8

- ▶ DIN 371(M2~M10) and DIN 376(M11~M20)
- ▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

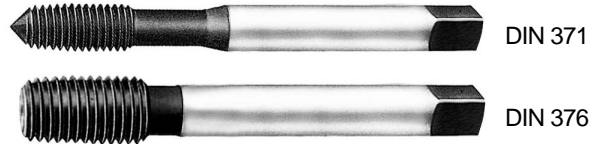
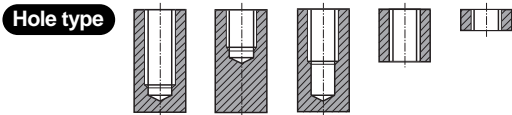
YG COLD FORMING TAPS

TQ723 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

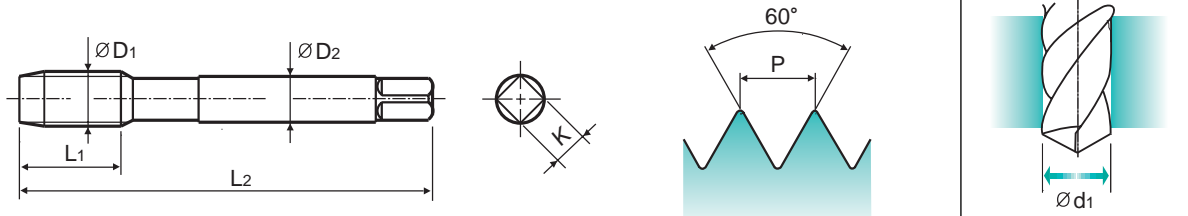
- Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
- The pre-drilling holes are bigger than normal sized holes.

- Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-PM DIN 371/376 6HX 60° C Vap

Cold forming taps
 Gewindeformer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TQ723136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TQ723156	8	45	2.8	2.1	2
* M2.3	× 0.4	TQ723196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TQ723176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TQ723496	9	50	2.8	2.1	2.4
M3	× 0.5	TQ723206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TQ723226	12	56	4	3	3.25
M4	× 0.7	TQ723246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TQ723266	14	70	6	4.9	4.15
M5	× 0.8	TQ723286	15	70	6	4.9	4.65
M6	× 1	TQ723316	17	80	6	4.9	5.55
M7	× 1	TQ723346	17	80	7	5.5	6.55
M8	× 1.25	TQ723366	20	90	8	6.2	7.4
M9	× 1.25	TQ723396	20	90	9	7	8.4
M10	× 1.5	TQ723426	22	100	10	8	9.3
M11	× 1.5	TQ723466	22	100	8	6.2	10.3
M12	× 1.75	TQ723506	24	110	9	7	11.2
M14	× 2	TQ723546	26	110	11	9	13
M16	× 2	TQ723606	27	110	12	9	15
M18	× 2.5	TQ723656	30	125	14	11	16.8
M20	× 2.5	TQ723706	32	140	16	12	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- * DIN profile not ISO

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
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COLD FORMING TAPS

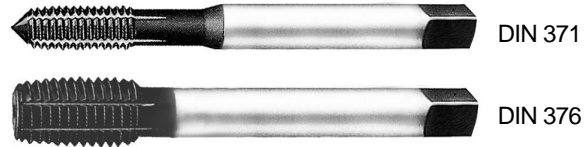
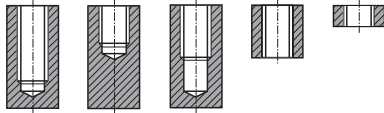
TE703 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type

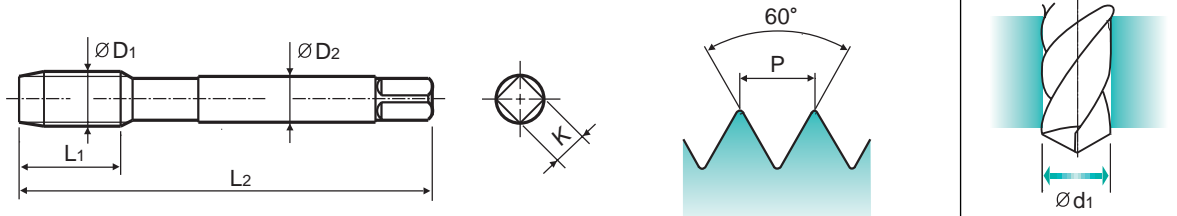


Material groups

GV



Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE703136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TE703156	8	45	2.8	2.1	2
* M2.3	× 0.4	TE703196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TE703176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TE703496	9	50	2.8	2.1	2.4
M3	× 0.5	TE703206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TE703226	12	56	4	3	3.25
M4	× 0.7	TE703246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TE703266	14	70	6	4.9	4.15
M5	× 0.8	TE703286	15	70	6	4.9	4.65
M6	× 1	TE703316	17	80	6	4.9	5.55
M7	× 1	TE703346	17	80	7	5.5	6.55
M8	× 1.25	TE703366	20	90	8	6.2	7.4
M9	× 1.25	TE703396	20	90	9	7	8.4
M10	× 1.5	TE703426	22	100	10	8	9.3
M11	× 1.5	TE703466	22	100	8	6.2	10.3
M12	× 1.75	TE703506	24	110	9	7	11.2
M14	× 2	TE703546	26	110	11	9	13
M16	× 2	TE703606	27	110	12	9	15
M18	× 2.5	TE703656	30	125	14	11	16.8
M20	× 2.5	TE703706	32	140	16	12	18.8

- ▶ DIN 371(M2~M10) and DIN 376(M11~M20)
- ▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

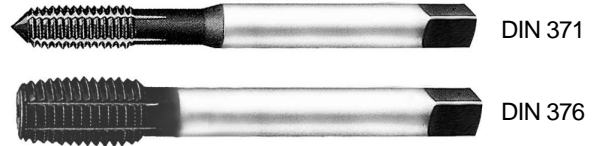
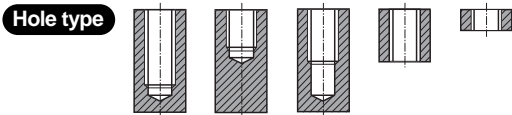
YG COLD FORMING TAPS

TE713 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

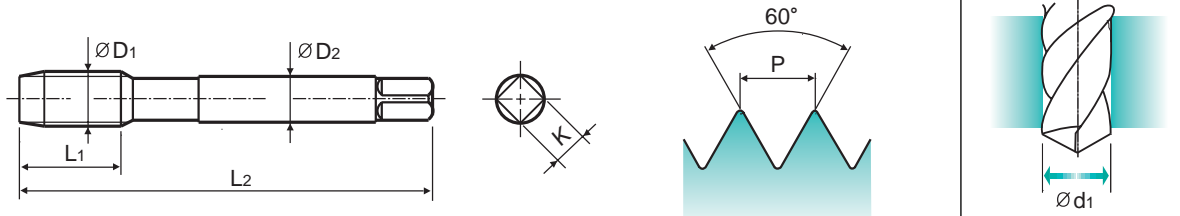
- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** **HSS-E** **DIN 371/376** **6GX** **60°** **C** **NI**

Cold forming taps with oil grooves
 Gewindeformer mit Schmiernuten



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE713136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TE713156	8	45	2.8	2.1	2
* M2.3	× 0.4	TE713196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TE713176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TE713496	9	50	2.8	2.1	2.4
M3	× 0.5	TE713206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TE713226	12	56	4	3	3.25
M4	× 0.7	TE713246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TE713266	14	70	6	4.9	4.15
M5	× 0.8	TE713286	15	70	6	4.9	4.65
M6	× 1	TE713316	17	80	6	4.9	5.55
M7	× 1	TE713346	17	80	7	5.5	6.55
M8	× 1.25	TE713366	20	90	8	6.2	7.4
M9	× 1.25	TE713396	20	90	9	7	8.4
M10	× 1.5	TE713426	22	100	10	8	9.3
M11	× 1.5	TE713466	22	100	8	6.2	10.3
M12	× 1.75	TE713506	24	110	9	7	11.2
M14	× 2	TE713546	26	110	11	9	13
M16	× 2	TE713606	27	110	12	9	15
M18	× 2.5	TE713656	30	125	14	11	16.8
M20	× 2.5	TE713706	32	140	16	12	18.8

- ▶ DIN 371(M2~M10) and DIN 376(M11~M20)
- ▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



COLD FORMING TAPS

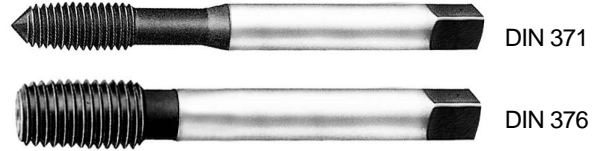
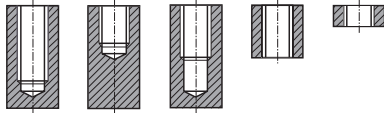
TE723 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type



Material groups

GV

HSS-E

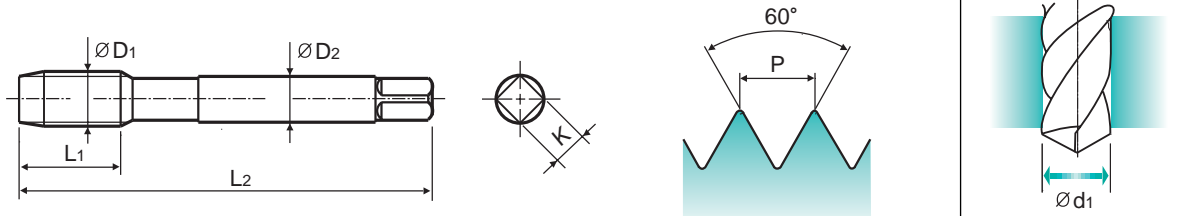
DIN 371/376

6HX



NI

Cold forming taps
Gewindeformer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TE723136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TE723156	8	45	2.8	2.1	2
* M2.3	× 0.4	TE723196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TE723176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TE723496	9	50	2.8	2.1	2.4
M3	× 0.5	TE723206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TE723226	12	56	4	3	3.25
M4	× 0.7	TE723246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TE723266	14	70	6	4.9	4.15
M5	× 0.8	TE723286	15	70	6	4.9	4.65
M6	× 1	TE723316	17	80	6	4.9	5.55
M7	× 1	TE723346	17	80	7	5.5	6.55
M8	× 1.25	TE723366	20	90	8	6.2	7.4
M9	× 1.25	TE723396	20	90	9	7	8.4
M10	× 1.5	TE723426	22	100	10	8	9.3
M11	× 1.5	TE723466	22	100	8	6.2	10.3
M12	× 1.75	TE723506	24	110	9	7	11.2
M14	× 2	TE723546	26	110	11	9	13
M16	× 2	TE723606	27	110	12	9	15
M18	× 2.5	TE723656	30	125	14	11	16.8
M20	× 2.5	TE723706	32	140	16	12	18.8

- ▶ DIN 371(M2~M10) and DIN 376(M11~M20)
- ▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

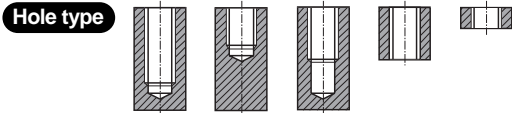
YG COLD FORMING TAPS

TD713 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

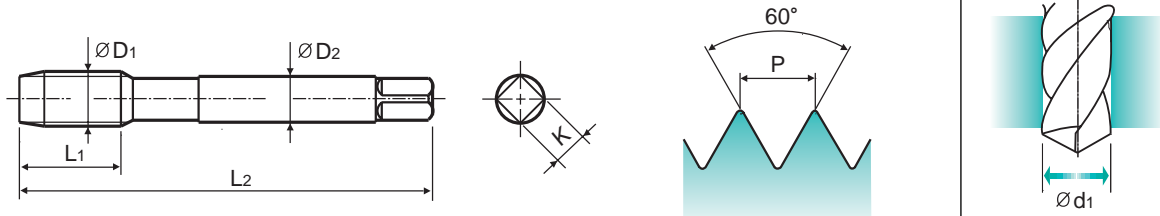
- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6GX 60° C TiN

Cold forming taps with oil grooves
 Gewindeformer mit Schmiernuten



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD713136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TD713156	8	45	2.8	2.1	2
* M2.3	× 0.4	TD713196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TD713176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TD713496	9	50	2.8	2.1	2.4
M3	× 0.5	TD713206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TD713226	12	56	4	3	3.25
M4	× 0.7	TD713246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TD713266	14	70	6	4.9	4.15
M5	× 0.8	TD713286	15	70	6	4.9	4.65
M6	× 1	TD713316	17	80	6	4.9	5.55
M7	× 1	TD713346	17	80	7	5.5	6.55
M8	× 1.25	TD713366	20	90	8	6.2	7.4
M9	× 1.25	TD713396	20	90	9	7	8.4
M10	× 1.5	TD713426	22	100	10	8	9.3
M11	× 1.5	TD713466	22	100	8	6.2	10.3
M12	× 1.75	TD713506	24	110	9	7	11.2
M14	× 2	TD713546	26	110	11	9	13
M16	× 2	TD713606	27	110	12	9	15
M18	× 2.5	TD713656	30	125	14	11	16.8
M20	× 2.5	TD713706	32	140	16	12	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- * DIN profile not ISO

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



COLD FORMING TAPS

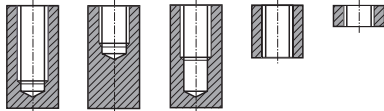
TD723 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type



Material groups

GV

HSS-E

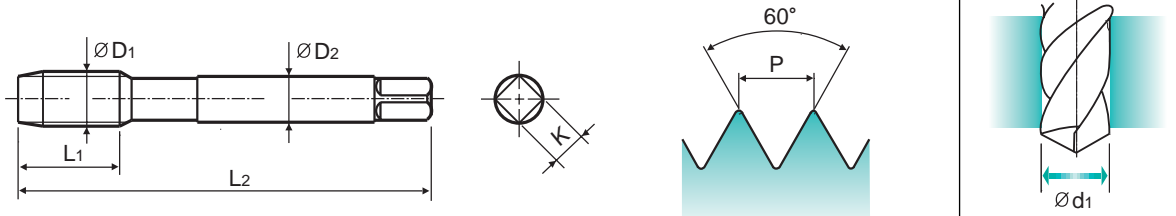
DIN 371/376

6HX



TiN

Cold forming taps
Gewindeformer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD723136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TD723156	8	45	2.8	2.1	2
* M2.3	× 0.4	TD723196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TD723176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TD723496	9	50	2.8	2.1	2.4
M3	× 0.5	TD723206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TD723226	12	56	4	3	3.25
M4	× 0.7	TD723246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TD723266	14	70	6	4.9	4.15
M5	× 0.8	TD723286	15	70	6	4.9	4.65
M6	× 1	TD723316	17	80	6	4.9	5.55
M7	× 1	TD723346	17	80	7	5.5	6.55
M8	× 1.25	TD723366	20	90	8	6.2	7.4
M9	× 1.25	TD723396	20	90	9	7	8.4
M10	× 1.5	TD723426	22	100	10	8	9.3
M11	× 1.5	TD723466	22	100	8	6.2	10.3
M12	× 1.75	TD723506	24	110	9	7	11.2
M14	× 2	TD723546	26	110	11	9	13
M16	× 2	TD723606	27	110	12	9	15
M18	× 2.5	TD723656	30	125	14	11	16.8
M20	× 2.5	TD723706	32	140	16	12	18.8

- ▶ DIN 371(M2~M10) and DIN 376(M11~M20)
- ▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

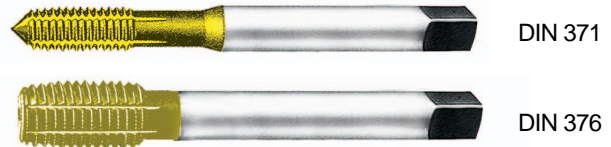
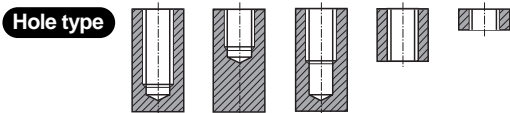
YG COLD FORMING TAPS

TD703 SERIES

M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

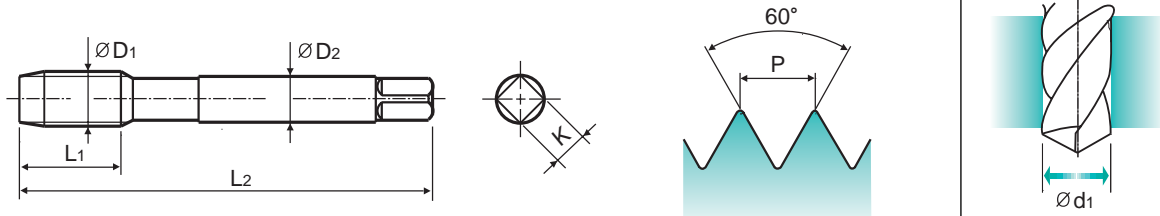
- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** **HSS-E** **DIN 371/376** **6HX** **60°** **C** **TiN**

Cold forming taps with oil grooves
 Gewindeformer mit Schmiernuten



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD703136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TD703156	8	45	2.8	2.1	2
* M2.3	× 0.4	TD703196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TD703176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TD703496	9	50	2.8	2.1	2.4
M3	× 0.5	TD703206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TD703226	12	56	4	3	3.25
M4	× 0.7	TD703246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TD703266	14	70	6	4.9	4.15
M5	× 0.8	TD703286	15	70	6	4.9	4.65
M6	× 1	TD703316	17	80	6	4.9	5.55
M7	× 1	TD703346	17	80	7	5.5	6.55
M8	× 1.25	TD703366	20	90	8	6.2	7.4
M9	× 1.25	TD703396	20	90	9	7	8.4
M10	× 1.5	TD703426	22	100	10	8	9.3
M11	× 1.5	TD703466	22	100	8	6.2	10.3
M12	× 1.75	TD703506	24	110	9	7	11.2
M14	× 2	TD703546	26	110	11	9	13
M16	× 2	TD703606	27	110	12	9	15
M18	× 2.5	TD703656	30	125	14	11	16.8
M20	× 2.5	TD703706	32	140	16	12	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- * DIN profile not ISO

Unit : N/mm² © : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



COLD FORMING TAPS

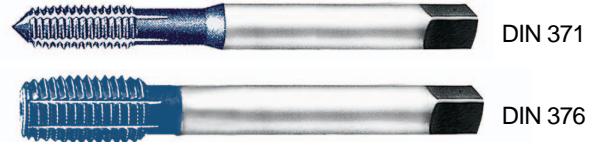
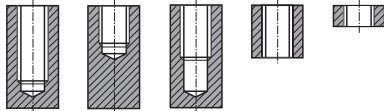
TY703 SERIES

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type

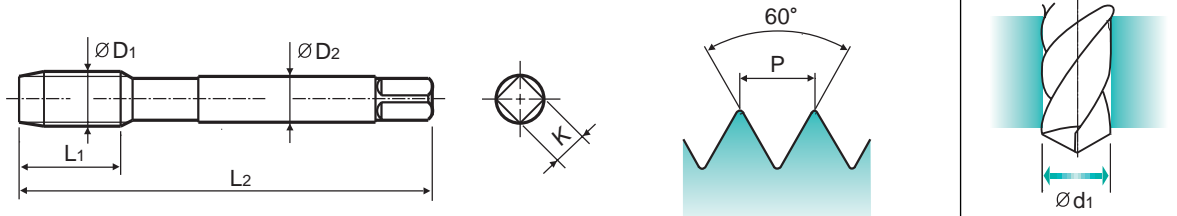


Material groups

GV

HSS-E DIN 371/376 6HX 60° C TiAlN

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TY703136	8	45	2.8	2.1	1.83
M2.2	× 0.45	TY703156	8	45	2.8	2.1	2
* M2.3	× 0.4	TY703196	8	45	2.8	2.1	2.1
M2.5	× 0.45	TY703176	9	50	2.8	2.1	2.3
* M2.6	× 0.45	TY703496	9	50	2.8	2.1	2.4
M3	× 0.5	TY703206	11	56	3.5	2.7	2.8
M3.5	× 0.6	TY703226	12	56	4	3	3.25
M4	× 0.7	TY703246	13	63	4.5	3.4	3.7
M4.5	× 0.75	TY703266	14	70	6	4.9	4.15
M5	× 0.8	TY703286	15	70	6	4.9	4.65
M6	× 1	TY703316	17	80	6	4.9	5.55
M7	× 1	TY703346	17	80	7	5.5	6.55
M8	× 1.25	TY703366	20	90	8	6.2	7.4
M9	× 1.25	TY703396	20	90	9	7	8.4
M10	× 1.5	TY703426	22	100	10	8	9.3
M11	× 1.5	TY703466	22	100	8	6.2	10.3
M12	× 1.75	TY703506	24	110	9	7	11.2
M14	× 2	TY703546	26	110	11	9	13
M16	× 2	TY703606	27	110	12	9	15
M18	× 2.5	TY703656	30	125	14	11	16.8
M20	× 2.5	TY703706	32	140	16	12	18.8

- ▶ DIN 371(M2~M10) and DIN 376(M11~M20)
- ▶ * DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

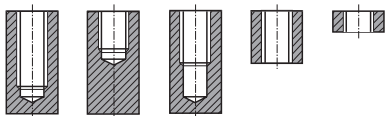
THREAD MILLS

TECHNICAL DATA

**COLD FORMING
TAPS****TE733** SERIES**MF** ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type

DIN 374

Material groups
GV

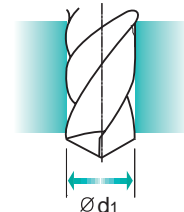
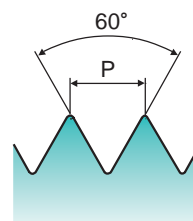
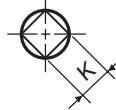
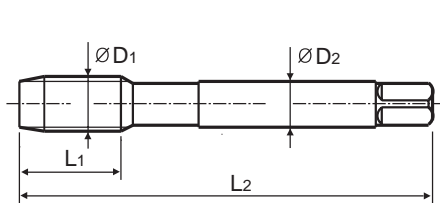
HSS-E

DIN
374

6HX



NI

Cold forming taps with
oil grooves
Gewindeformer mit
Schmiernuten

Unit : mm

SIZE	Pitch		EDP No.	Thread Length		Shank Diameter	Square Size	Tapping drill diameter
	ØD1	P		L1	L2			
M4	×	0.5	TE733256	10	63	2.8	2.1	3.75
M5	×	0.5	TE733296	11	70	3.5	2.7	4.75
M6	×	0.75	TE733326	13	80	4.5	3.4	5.65
M6	×	0.5	TE733336	13	80	4.5	3.4	5.75
M7	×	0.75	TE733356	14	80	5.5	4.3	6.65
M8	×	1	TE733376	17	90	6	4.9	7.50
M8	×	0.75	TE733386	14	80	6	4.9	7.65
M10	×	1.25	TE733436	22	100	7	5.5	9.4
M10	×	1	TE733446	18	90	7	5.5	9.5
M10	×	0.75	TE733456	18	90	7	5.5	9.65
M12	×	1.5	TE733516	22	100	9	7	11.25
M12	×	1.25	TE733526	22	100	9	7	11.4
M12	×	1	TE733536	18	100	9	7	11.5
M14	×	1.5	TE733556	22	100	11	9	13.25
M14	×	1.25	TE733566	22	100	11	9	13.4
M16	×	1.5	TE733616	22	100	12	9	15.25
M18	×	1.5	TE733676	25	110	14	11	17.25
M20	×	1.5	TE733726	25	125	16	12	19.25

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



COLD FORMING TAPS

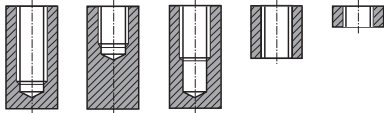
TD733 SERIES

MF ISO metric fine threads DIN 13 Metrisches ISO-Feingewinde DIN 13

- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type

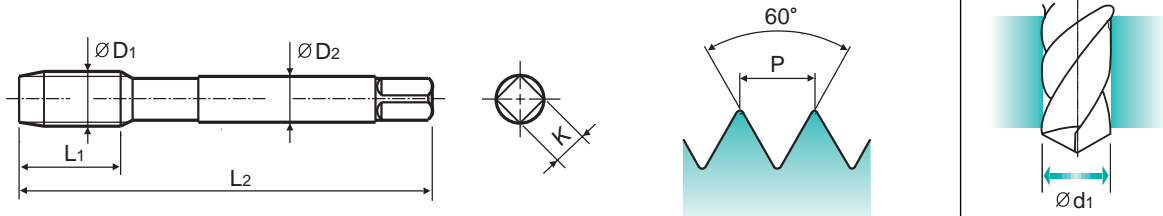


DIN 374

Material groups
GV

HSS-E
DIN 374
6HX
60°
C
TiN

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M4	× 0.5	TD733256	10	63	2.8	2.1	3.75
M5	× 0.5	TD733296	11	70	3.5	2.7	4.75
M6	× 0.75	TD733326	13	80	4.5	3.4	5.65
M6	× 0.5	TD733336	13	80	4.5	3.4	5.75
M7	× 0.75	TD733356	14	80	5.5	4.3	6.65
M8	× 1	TD733376	17	90	6	4.9	7.50
M8	× 0.75	TD733386	14	80	6	4.9	7.65
M10	× 1.25	TD733436	22	100	7	5.5	9.4
M10	× 1	TD733446	18	90	7	5.5	9.5
M10	× 0.75	TD733456	18	90	7	5.5	9.65
M12	× 1.5	TD733516	22	100	9	7	11.25
M12	× 1.25	TD733526	22	100	9	7	11.4
M12	× 1	TD733536	18	100	9	7	11.5
M14	× 1.5	TD733556	22	100	11	9	13.25
M14	× 1.25	TD733566	22	100	11	9	13.4
M16	× 1.5	TD733616	22	100	12	9	15.25
M18	× 1.5	TD733676	25	110	14	11	17.25
M20	× 1.5	TD733726	25	125	16	12	19.25

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

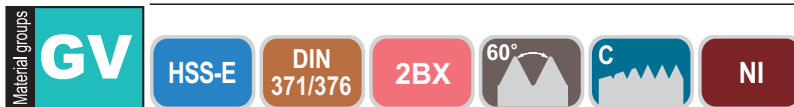
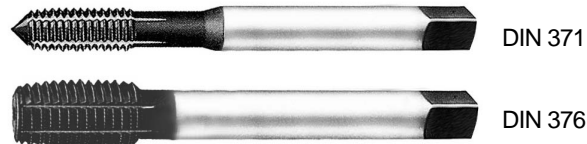
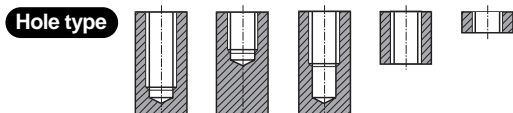
THREAD MILLS

TECHNICAL DATA

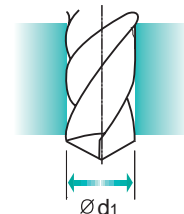
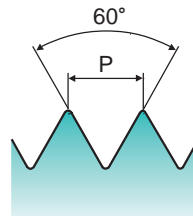
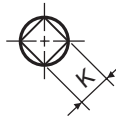
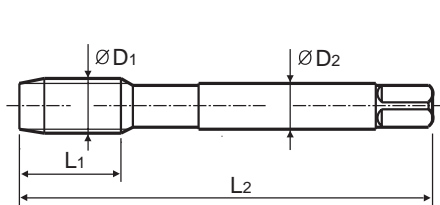
**COLD FORMING
TAPS****TE704** SERIES**UNC** Unified coarse threads
Unified Grobgewinde

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Cold forming taps with
oil grooves
Gewindeformer mit
Schmiernuten



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#5	- 40 UNC	TE704202	11	56	3.5	2.7	2.87
#6	- 32 UNC	TE704242	12	56	4	3	3.1
#8	- 32 UNC	TE704282	13	63	4.5	3.4	3.8
#10	- 24 UNC	TE704322	15	70	6	4.9	4.3
#12	- 24 UNC	TE704362	16	80	6	4.9	4.95
1/4"	- 20 UNC	TE704402	17	80	7	5.5	5.75
5/16"	- 18 UNC	TE704442	20	90	8	6.2	7.25
3/8"	- 16 UNC	TE704482	22	100	9	7	8.75
7/16"	- 14 UNC	TE704522	22	100	8	6.2	10.2
1/2"	- 13 UNC	TE704562	25	110	9	7	11.7
9/16"	- 12 UNC	TE704602	26	110	11	9	13.2
5/8"	- 11 UNC	TE704642	27	110	12	9	14.7
3/4"	- 10 UNC	TE704702	30	125	14	11	17.8

- DIN 371(#4~3/8") and DIN 376(7/16"~3/4")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



COLD FORMING TAPS

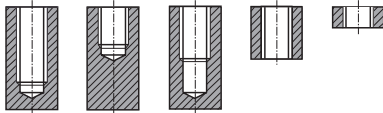
TD704 SERIES

UNC Unified coarse threads Unified Grobgewinde

- ▶ Suitable for threading soft materials with at least 8-10% elongation.
- ▶ The pre-drilling holes are bigger than normal sized holes.

- ▶ Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8 - 10% Dehnung.
- ▶ Die Kernlochbohrungen sind größer als normale Kernlöcher.

Hole type



DIN 371

DIN 376

Material groups

GV

HSS-E

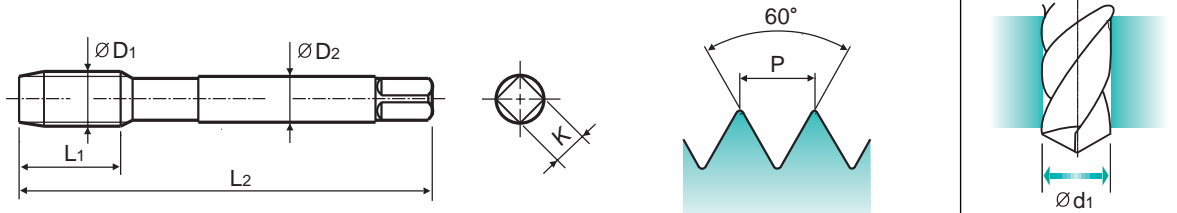
DIN 371/376

2BX



TiN

Cold forming taps with oil grooves
Gewindeformer mit Schmiernuten



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#5	- 40 UNC	TD704202	11	56	3.5	2.7	2.87
#6	- 32 UNC	TD704242	12	56	4	3	3.1
#8	- 32 UNC	TD704282	13	63	4.5	3.4	3.8
#10	- 24 UNC	TD704322	15	70	6	4.9	4.3
#12	- 24 UNC	TD704362	16	80	6	4.9	4.95
1/4"	- 20 UNC	TD704402	17	80	7	5.5	5.75
5/16"	- 18 UNC	TD704442	20	90	8	6.2	7.25
3/8"	- 16 UNC	TD704482	22	100	9	7	8.75
7/16"	- 14 UNC	TD704522	22	100	8	6.2	10.2
1/2"	- 13 UNC	TD704562	25	110	9	7	11.7
9/16"	- 12 UNC	TD704602	26	110	11	9	13.2
5/8"	- 11 UNC	TD704642	27	110	12	9	14.7
3/4"	- 10 UNC	TD704702	30	125	14	11	17.8

▶ DIN 371(#4~3/8") and DIN 376(7/16"~3/4")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

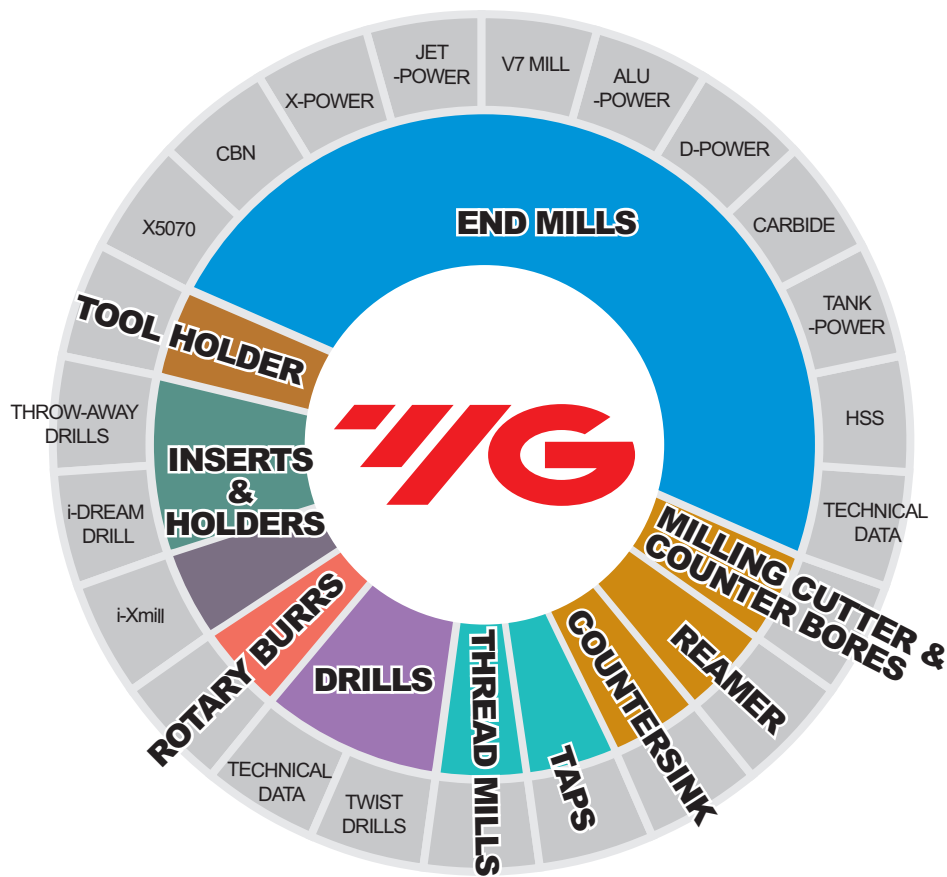
HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



NUT TAPS

MUTTERGEWINDEBOHRER

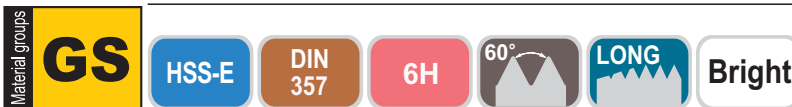
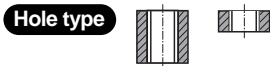
- Nut Tapping Machines
- Zum Gewindeschneiden von Muttern

M ISO metric coarse threads DIN 13

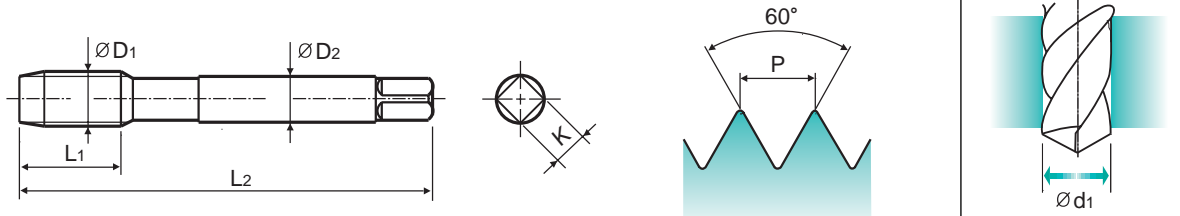
Metrisches ISO-Gewinde DIN 13

- ▶ For making nuts on machines.
- ▶ The work pieces can be taken out from shank side only.

- ▶ Zur Herstellung von Muttern auf Sondermaschinen.
- ▶ Die fertigen Muttern können nur über das Schaftende entnommen werden.



Nut taps
Muttergewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length		Shank Diameter	Square Size	Tapping drill diameter
			L1	L2			
ØD1	P				ØD2	K	Ød1
M4	× 0.7	TC803246	25	90	2.8	2.1	3.3
M5	× 0.8	TC803286	28	100	3.5	2.7	4.2
M6	× 1	TC803316	32	110	4.5	3.4	5
M7	× 1	TC803346	36	110	5.5	4.3	6
M8	× 1.25	TC803366	40	125	6	4.9	6.8
M10	× 1.5	TC803426	45	140	7	5.5	8.5
M12	× 1.75	TC803506	50	180	9	7	10.2
M14	× 2	TC803546	56	200	11	9	12
M16	× 2	TC803606	63	200	12	9	14
M18	× 2.5	TC803656	63	220	14	11	15.5
M20	× 2.5	TC803706	70	250	16	12	17.5

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

HSS



Being the best through innovation



STI TAPS

GEWINDEBOHRER FÜR GEWINDEDRAHTEINSÄTZE






- Tapping STI Threads of Soft Materials
- Zum Gewindeschneiden für Drahteinsätze in weichen Werkstoffen

SELECTION GUIDE

SCREW THREAD INSERT TAPS

Tapping STI Threads of Soft Materials

SCREW THREAD INSERT TAPS

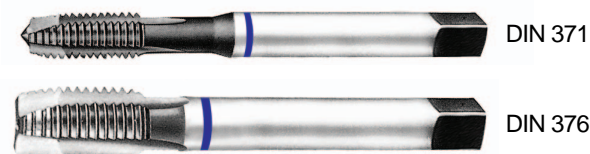
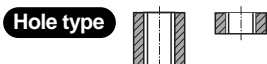
EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
TC973		HSS-E	EG-M	AI	DIN 371/376	6H Mod.	B	Bright	467
TC909		HSS-E	EG-M	AI	DIN 371/376	6H Mod.	C	Bright	468
TC934		HSS-E	EG-UNC	AI	DIN 371/376	2B	B	Bright	469
TC944		HSS-E	EG-UNC	AI	DIN 371/376	2B	C	Bright	470
TC954		HSS-E	EG-UNF	AI	DIN 371/374	2B	B	Bright	471

EG-M ISO metric coarse threads for Screw Thread insert

Metrisches ISO Regelgew.f.Gew. Drahteins

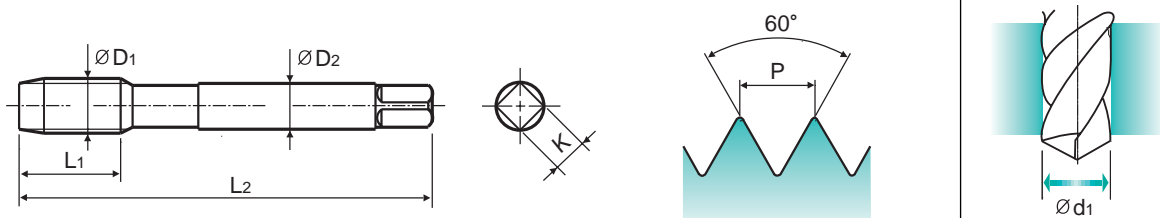
► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups **AI** **HSS-E** **DIN 371/376** **6H Mod.** **60°** **B** **Bright**

Machine taps
Maschinengewindebohrer



SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2.5 × 0.45		TC973176	11	56	3.5	2.7	2.65
M3 × 0.5		TC973206	10	63	4.5	3.4	3.15
M3.5 × 0.6		TC973226	14	70	6	4.9	3.7
M4 × 0.7		TC973246	13	70	6	4.9	4.2
M5 × 0.8		TC973286	13	80	6	4.9	5.25
M6 × 1		TC973316	17	90	8	6.2	6.3
M8 × 1.25		TC973366	18	100	10	8	8.4
M10 × 1.5		TC973426	22	110	9	7	10.4
M12 × 1.75		TC973506	26	110	11	9	12.5
M14 × 2		TC973546	27	110	12	9	14.5
M16 × 2		TC973606	27	125	14	11	16.5
M18 × 2.5		TC973656	32	140	18	14.5	18.75
M20 × 2.5		TC973706	34	160	18	14.5	20.75

Unit : mm

► DIN 371(M2.5~M8) and DIN 376(M10~M20)

Unit : N/mm²

◎ : Excellent ○ : Good

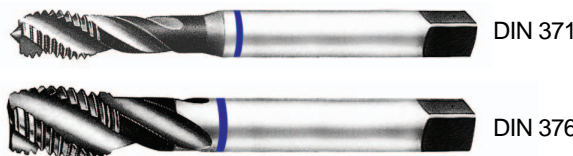
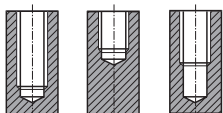
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				○				○	○	○				

EG-M ISO metric coarse threads for Screw Thread insert
Metrisches ISO Regelgew.f.Gew. Drahteins

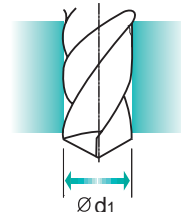
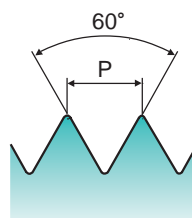
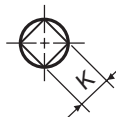
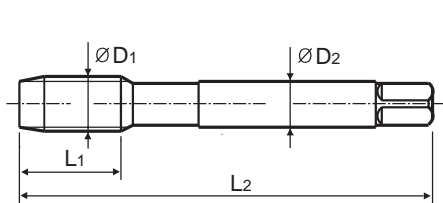
► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.

Hole type



Machine taps
 Maschinengewindebohrer



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2.5 × 0.45		TC909176	6	56	3.5	2.7	2.65
M3 × 0.5		TC909206	5	63	4.5	3.4	3.15
M3.5 × 0.6		TC909226	8	70	6	4.9	3.7
M4 × 0.7		TC909246	8	70	6	4.9	4.2
M5 × 0.8		TC909286	8	80	6	4.9	5.25
M6 × 1		TC909316	10	90	8	6.2	6.3
M8 × 1.25		TC909366	16	100	10	8	8.4
M10 × 1.5		TC909426	15	110	9	7	10.4
M12 × 1.75		TC909506	20	110	11	9	12.5
M14 × 2		TC909546	22	110	12	9	14.5
M16 × 2		TC909606	20	125	14	11	16.5
M18 × 2.5		TC909656	27	140	18	14.5	18.75
M20 × 2.5		TC909706	30	160	18	14.5	20.75

► DIN 371(M2.5~M8) and DIN 376(M10~M20)

Unit : N/mm²

◎ : Excellent ○ : Good

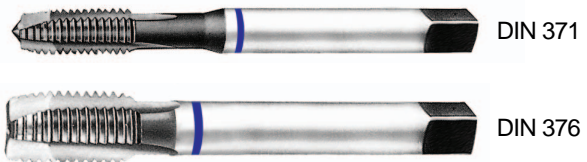
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				

EG-UNC Unified coarse threads for Screw Thread insert

Unified Regelgew.f.Gew.Drahteins

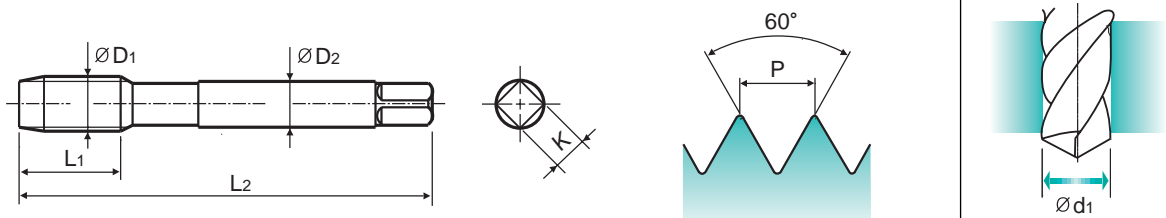
► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups **AI** **HSS-E** **DIN 371/376** **2B** **60°** **B** **Bright**

Machine taps
Maschinengewindebohrer



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40UNC	TC934162	13	63	4.5	3.4	3.1
#5	- 40UNC	TC934202	13	63	4.5	3.4	3.4
#6	- 32UNC	TC934242	14	70	6	4.9	3.8
#8	- 32UNC	TC934282	13	80	6	4.9	4.4
#10	- 24UNC	TC934322	17	80	7	5.5	5.2
#12	- 24UNC	TC934362	17	80	7	5.5	5.8
1/4"	- 20UNC	TC934402	20	90	8	6.2	6.7
5/16"	- 18UNC	TC934442	22	100	10	8	8.4
3/8"	- 16UNC	TC934482	21	110	12	9	10.0
7/16"	- 14UNC	TC934522	26	110	11	9	11.6
1/2"	- 13UNC	TC934562	27	110	12	9	13.3
9/16"	- 12UNC	TC934602	26	125	14	11	15
5/8"	- 11UNC	TC934642	30	125	14	11	16.5
3/4"	- 10UNC	TC934702	32	140	18	14.5	19.75

► DIN 371(#4~3/8") and DIN 376(7/16"~3/4")

Unit : N/mm² ◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				

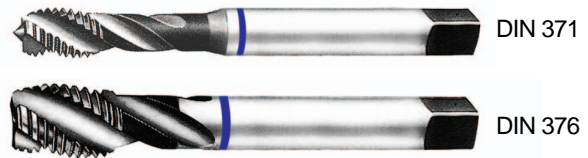
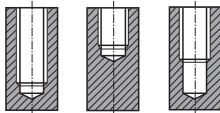
EG-UNC Unified coarse threads for Screw Thread insert

Unified Regelgew.f.Gew.Drahteins

► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.

Hole type



Material groups

AI

HSS-E

DIN 371/376

2B

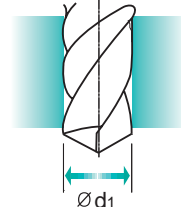
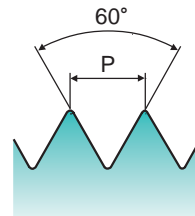
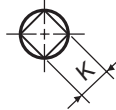
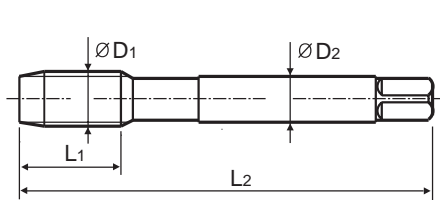
60°

C

Bright

R40

Machine taps
Maschinengewindebohrer



Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 40 UNC	TC944162	7	63	4.5	3.4	3.1
#5	- 40 UNC	TC944202	7	63	4.5	3.4	3.4
#6	- 32 UNC	TC944242	8	70	6	4.9	3.8
#8	- 32 UNC	TC944282	8	80	6	4.9	4.4
#10	- 24 UNC	TC944322	10	80	7	5.5	5.2
#12	- 24 UNC	TC944362	10	80	7	5.5	5.8
1/4"	- 20 UNC	TC944402	14	90	8	6.2	6.7
5/16"	- 18 UNC	TC944442	16	100	10	8	8.4
3/8"	- 16 UNC	TC944482	16	110	12	9	10.0
7/16"	- 14 UNC	TC944522	20	110	11	9	11.6
1/2"	- 13 UNC	TC944562	22	110	12	9	13.3
9/16"	- 12 UNC	TC944602	22	125	14	11	15
5/8"	- 11 UNC	TC944642	25	125	14	11	16.5
3/4"	- 10 UNC	TC944702	27	140	18	14.5	19.75

► DIN 371(#4~3/8") and DIN 376(7/16"~3/4")

Unit : N/mm²

◎ : Excellent ○ : Good

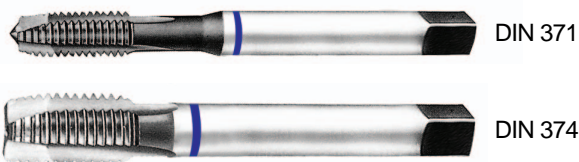
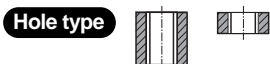
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				

EG-UNF Unified fine threads for Screw Thread insert

Unified Feingew.f.Gew.Drahteins

► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups

AI

HSS-E

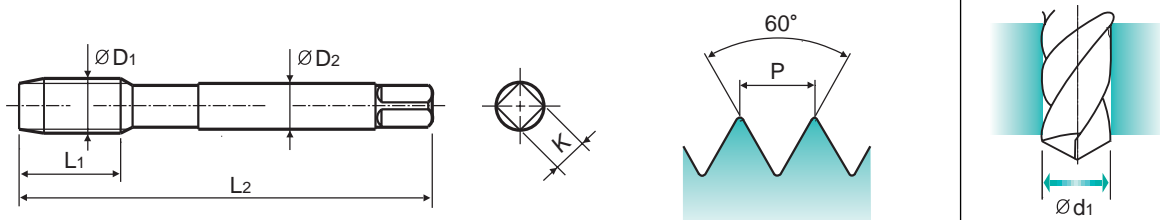
DIN 371/374

2B



Bright

Machine taps
Maschinengewindebohrer



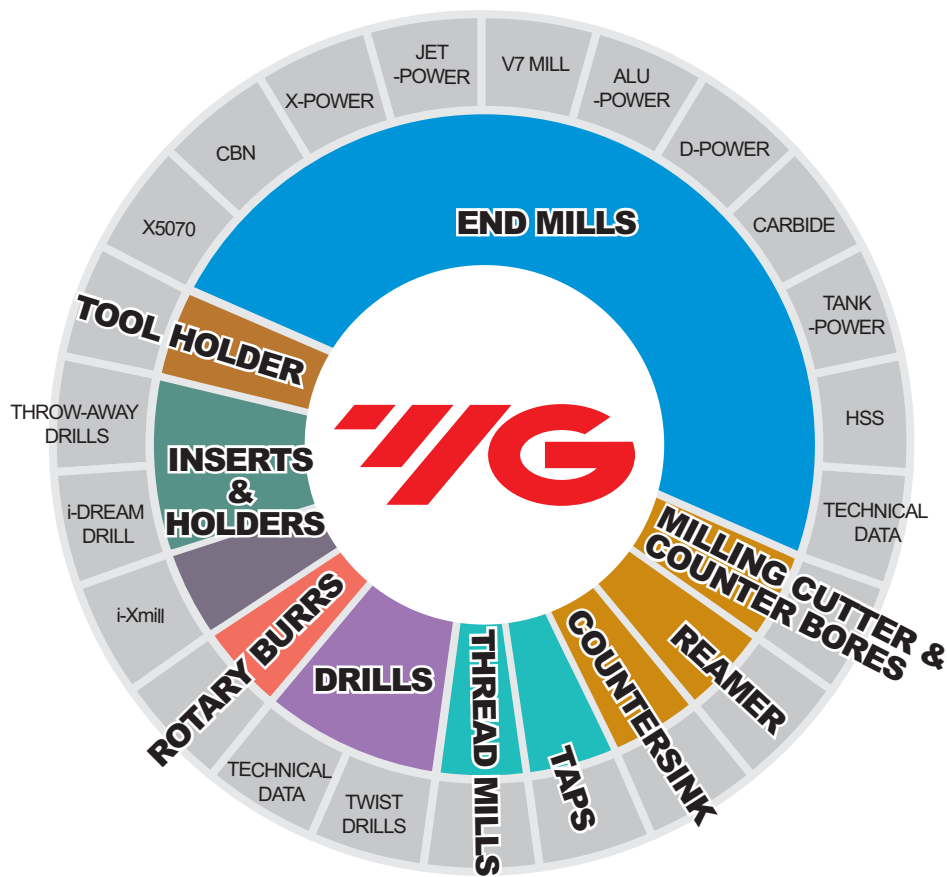
SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	48 UNF	TC954182	12	56	4	3	3.1
#6	40 UNF	TC954262	14	70	6	4.9	3.7
#8	36 UNF	TC954302	13	70	6	4.9	4.4
#10	32 UNF	TC954342	13	80	6	4.9	5.1
1/4"	28 UNF	TC954422	17	90	8	6.2	6.6
5/16"	24 UNF	TC954462	18	100	10	8	8.25
3/8"	24 UNF	TC954502	18	110	12	9	9.8
7/16"	20 UNF	TC954542	22	100	9	7	11.5
1/2"	20 UNF	TC954582	22	100	11	9	13.1
9/16"	18 UNF	TC954622	22	100	12	9	14.75
5/8"	18 UNF	TC954662	25	110	14	11	16.25
3/4"	16 UNF	TC954722	25	125	16	12	19.5

► DIN 371(#4~3/8") and DIN 374(7/16"~3/4")

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○											○	
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
				◎				◎	◎	◎				



Challenge toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



HAND TAPS

HANDGEWINDEBOHRER









- General Tapping, HSS & HSS-E
- Für normales Gewindeschneiden. HSS und HSS-E

SELECTION GUIDE

HAND TAPS

General Tapping, HSS & HSS-E

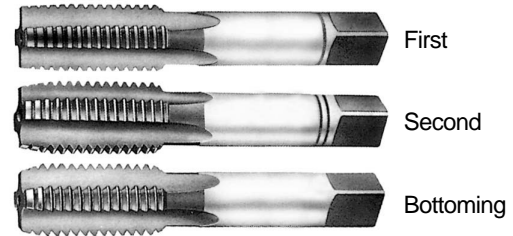
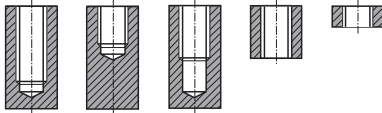
HSS HAND TAPS

EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
T7109		HSS	M	GS	DIN 352	ISO 2/6H	I / II / III	Bright	475
T7343		HSS	M-LH	GS	DIN 352	ISO 2/6H	I / II / III	Bright	476
TC353		HSS-E	M	VG	DIN 352	ISO 2/6H	I / II / III	Bright	477
TB373		HSS-E	M	VA	DIN 352	ISO 2X/6HX	I / II / III	vap	478
T7309		HSS	MF	GS	DIN 2181	ISO 2/6H	I / III	Bright	479
T7363		HSS	UNC	GS	DIN 351	2B	I / II / III	Bright	481
T7509		HSS	UNF	GS	DIN 2181	2B	I / III	Bright	482
T7609		HSS	BSW	GS	DIN 351	-	I / II / III	Bright	483

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

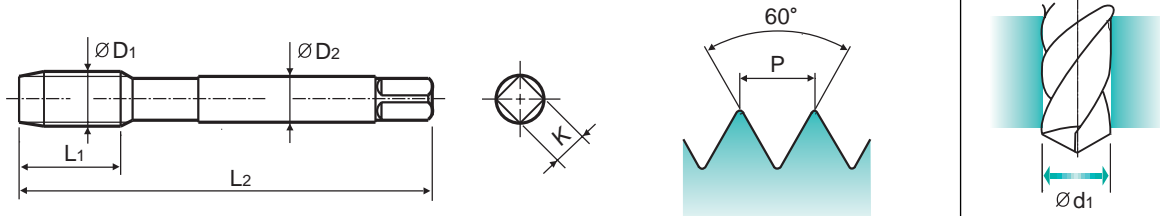
- ▶ This tap is a serial hand tap in set, First, Second and Bottoming.
- ▶ Bottoming tap of set has final internal thread dimensions only.
- ▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type



HSS
DIN 352
6H
60°
Bright

Sets of taps
Gewindebohrer - Satz



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	T7109139	8	36	2.8	2.1	1.6
M2.2	× 0.45	T7109159	9	36	2.8	2.1	1.75
* M2.3	× 0.4	T7109199	9	36	2.8	2.1	1.9
M2.5	× 0.45	T7109179	9	40	2.8	2.1	2.05
* M2.6	× 0.45	T7109499	9	40	2.8	2.1	2.1
M3	× 0.5	T7109209	11	40	3.5	2.7	2.5
M3.5	× 0.6	T7109229	13	45	4	3	2.9
M4	× 0.7	T7109249	13	45	4.5	3.4	3.3
M4.5	× 0.75	T7109269	16	50	6	4.9	3.7
M5	× 0.8	T7109289	16	52	6	4.9	4.2
* M5.5	× 0.9	T7109N69	18	56	6	4.9	4.6
M6	× 1	T7109319	18	56	6	4.9	5
M7	× 1	T7109349	18	56	6	4.9	6
M8	× 1.25	T7109369	20	63	6	4.9	6.8
M9	× 1.25	T7109399	20	63	7	5.5	7.8
M10	× 1.5	T7109429	22	70	7	5.5	8.5
M11	× 1.5	T7109469	22	70	8	6.2	9.5
M12	× 1.75	T7109509	24	80	9	7	10.2
M14	× 2	T7109549	26	80	11	9	12
M16	× 2	T7109609	27	80	12	9	14
M18	× 2.5	T7109659	30	95	14	11	15.5
M20	× 2.5	T7109709	32	95	16	12	17.5
M22	× 2.5	T7109749	32	100	18	14.5	19.5
M24	× 3	T7109789	34	110	18	14.5	21
M27	× 3	T7109869	36	110	20	16	24
M30	× 3.5	T7109949	40	125	22	18	26.5
M33	× 3.5	T7109A49	40	125	25	20	29.5
M36	× 4	T7109B39	50	150	28	22	32
M39	× 4	T7109C09	50	150	32	24	35
M42	× 4.5	T7109C89	56	150	32	24	37.5
M45	× 4.5	T7109D59	58	160	36	29	40.5
M48	× 5	T7109E29	65	180	36	29	43
M52	× 5	T7109F39	65	180	40	32	47

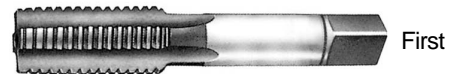
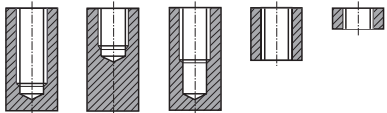
▶ * DIN profile not ISO

M-LH

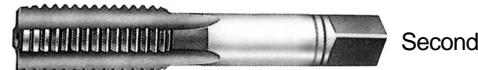
ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

- ▶ This tap is a serial hand tap in set, First, Second and Bottoming.
- ▶ Bottoming tap of set has final internal thread dimensions only.
- ▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type


First



Second



Bottoming

Material groups

GS

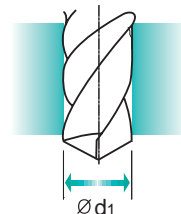
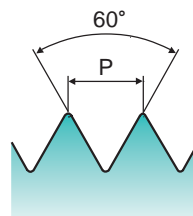
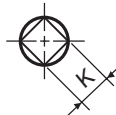
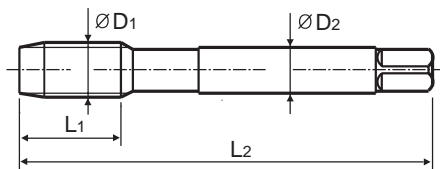
HSS

DIN
352

6H



Bright

 Sets of taps
 Gewindebohrer - Satz


Unit : mm

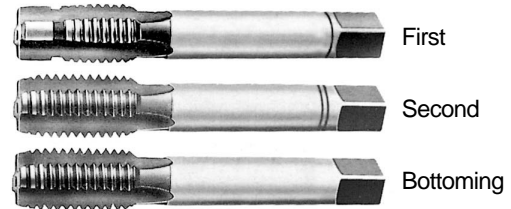
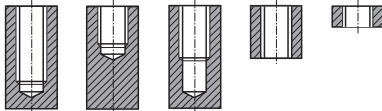
SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M3	× 0.5	T7343209	11	40	3.5	2.7	2.5
M3.5	× 0.6	T7343229	13	45	4	3	2.9
M4	× 0.7	T7343249	13	45	4.5	3.4	3.3
M4.5	× 0.75	T7343269	16	50	6	4.9	3.7
M5	× 0.8	T7343289	16	52	6	4.9	4.2
M6	× 1	T7343319	18	56	6	4.9	5
M8	× 1.25	T7343369	20	63	6	4.9	6.8
M10	× 1.5	T7343429	22	70	7	5.5	8.5
M12	× 1.75	T7343509	24	80	9	7	10.2
M14	× 2	T7343549	26	80	11	9	12
M16	× 2	T7343609	27	80	12	9	14
M18	× 2.5	T7343659	30	95	14	11	15.5
M20	× 2.5	T7343709	32	95	16	12	17.5
M22	× 2.5	T7343749	32	100	18	14.5	19.5
M24	× 3	T7343789	34	110	18	14.5	21
M27	× 3	T7343869	36	110	20	16	24
M30	× 3.5	T7343949	40	125	22	18	26.5

- ▶ LH=Left hand thread

M ISO metric coarse threads DIN 13 Metrisches ISO-Gewinde DIN 13

- ▶ This tap is a serial hand tap in set, First, Second and Bottoming.
- ▶ Bottoming tap of set has final internal thread dimensions only.
- ▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type



HSS-E

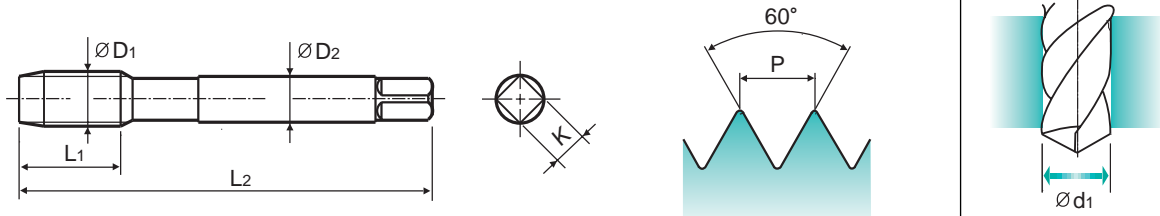
DIN 352

6H



Bright

Sets of taps
Gewindebohrer - Satz



Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M3	× 0.5	TC353209	11	40	3.5	2.7	2.5
M3.5	× 0.6	TC353229	13	45	4	3	2.9
M4	× 0.7	TC353249	13	45	4.5	3.4	3.3
M4.5	× 0.75	TC353269	16	50	6	4.9	3.7
M5	× 0.8	TC353289	16	52	6	4.9	4.2
M6	× 1	TC353319	18	56	6	4.9	5
M8	× 1.25	TC353369	20	63	6	4.9	6.8
M10	× 1.5	TC353429	22	70	7	5.5	8.5
M12	× 1.75	TC353509	24	80	9	7	10.2
M14	× 2	TC353549	26	80	11	9	12
M16	× 2	TC353609	27	80	12	9	14
M18	× 2.5	TC353659	30	95	14	11	15.5
M20	× 2.5	TC353709	32	95	16	12	17.5

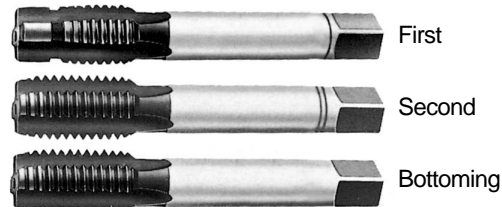
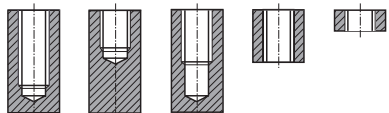
▶ First with pilot guide

M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

- ▶ This tap is a serial hand tap in set, First, Second and Bottoming.
- ▶ Bottoming tap of set has final internal thread dimensions only.
- ▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type



Material groups

VA

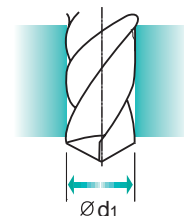
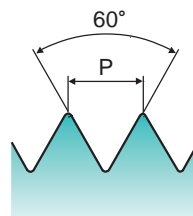
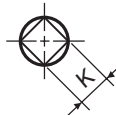
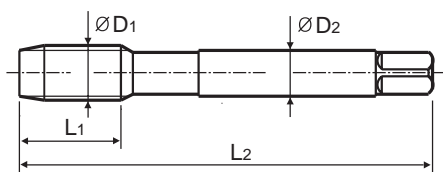
HSS-E

DIN
352

6HX



Vap

Sets of taps
Gewindebohrer - Satz

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M3	× 0.5	TB373209	11	40	3.5	2.7	2.5
M3.5	× 0.6	TB373229	13	45	4	3	2.9
M4	× 0.7	TB373249	13	45	4.5	3.4	3.3
M4.5	× 0.75	TB373269	16	50	6	4.9	3.7
M5	× 0.8	TB373289	16	52	6	4.9	4.2
M6	× 1	TB373319	18	56	6	4.9	5
M8	× 1.25	TB373369	20	63	6	4.9	6.8
M10	× 1.5	TB373429	22	70	7	5.5	8.5
M12	× 1.75	TB373509	24	80	9	7	10.2
M14	× 2	TB373549	26	80	11	9	12
M16	× 2	TB373609	27	80	12	9	14
M18	× 2.5	TB373659	30	95	14	11	15.5
M20	× 2.5	TB373709	32	95	16	12	17.5

- ▶ First with pilot guide

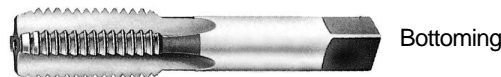
MF ISO metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13

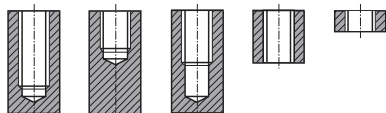
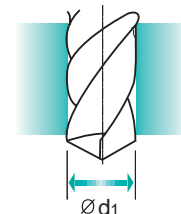
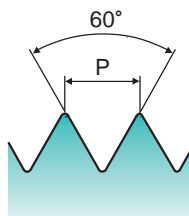
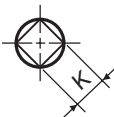
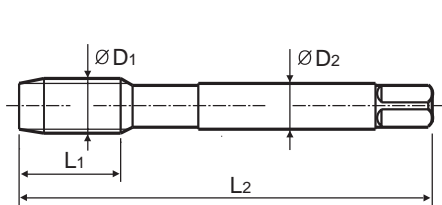
- ▶ Serial hand tap set in First and Bottoming.
- ▶ Bottoming tap of set has final internal thread dimensions only.
- ▶ Handgewindebohrersatz mit Vor- und Fertigschneider.
- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



First



Bottoming

Hole type

 Sets of taps
Gewindebohrer-Satz


Unit : mm

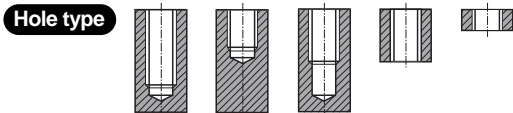
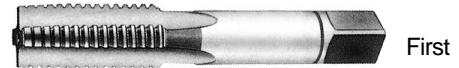
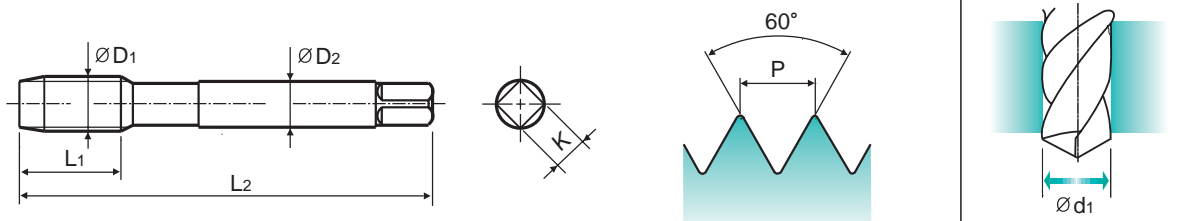
SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M3	× 0.35	T7309219	8	42	3.5	2.7	2.65
M4	× 0.5	T7309259	9	48	4.5	3.4	3.5
M5	× 0.5	T7309299	11	52	6	4.9	4.5
M6	× 0.75	T7309329	12	56	6	4.9	5.2
M6	× 0.5	T7309339	12	56	6	4.9	5.5
M7	× 0.75	T7309359	14	56	6	4.9	6.2
M8	× 1	T7309379	17	63	6	4.9	7
M8	× 0.75	T7309389	14	63	6	4.9	7.2
M8	× 0.5	T7309939	14	63	6	4.9	7.5
M9	× 1	T7309409	17	63	7	5.5	8
M10	× 1.25	T7309439	22	70	7	5.5	8.8
M10	× 1	T7309449	18	63	7	5.5	9
M10	× 0.75	T7309459	18	63	7	5.5	9.2
M11	× 1	T7309479	18	63	8	6.2	10
M12	× 1.5	T7309519	20	70	9	7	10.5
M12	× 1.25	T7309529	20	70	9	7	10.8
M12	× 1	T7309539	18	70	9	7	11
M13	× 1.5	T7309N19	20	70	11	9	11.5
M13	× 1	T7309N29	18	70	11	9	12
M14	× 1.5	T7309559	20	70	11	9	12.5
M14	× 1.25	T7309569	20	70	11	9	12.8
M14	× 1	T7309579	18	70	11	9	13
M15	× 1.5	T7309589	20	70	12	9	13.5
M15	× 1	T7309599	18	70	12	9	14
M16	× 1.5	T7309619	20	70	12	9	14.5
M16	× 1	T7309629	18	70	12	9	15

- HSS
- CARBIDE
- COMBO TAPS
- SPIRAL POINT TAPS
- SPIRAL FLUTE TAPS
- STRAIGHT FLUTE TAPS
- COLD FORMING TAPS
- NUT TAPS
- STI TAPS
- HAND TAPS
- PIPE TAPS
- CARBIDE TAPS
- THREAD MILLS
- TECHNICAL DATA

MF

ISO metric fine threads DIN 13
Metrisches ISO-Feingewinde DIN 13

- ▶ Serial hand tap set in First and Bottoming.
- ▶ Bottoming tap of set has final internal thread dimensions only.
- ▶ Handgewindebohrersatz mit Vor- und Fertigschneider.
- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.


 Sets of taps
 Gewindebohrer-Satz


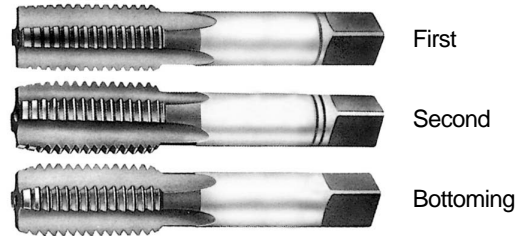
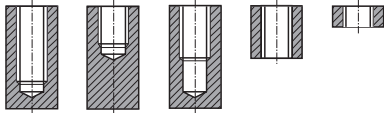
Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
			L1	L2	ØD2	K	Ød1
M18 × 2		T7309669	22	80	14	11	16
M18 × 1.5		T7309679	22	80	14	11	16.5
M18 × 1		T7309689	18	80	14	11	17
M20 × 2		T7309719	22	80	16	12	18
M20 × 1.5		T7309729	22	80	16	12	18.5
M20 × 1		T7309739	18	80	16	12	19
M22 × 2		T7309759	22	80	18	14.5	20
M22 × 1.5		T7309769	22	80	18	14.5	20.5
M22 × 1		T7309779	18	80	18	14.5	21
M24 × 2		T7309799	22	90	18	14.5	22
M24 × 1.5		T7309809	22	90	18	14.5	22.5
M24 × 1		T7309819	18	90	18	14.5	23
M25 × 1.5		T7309839	22	90	18	14.5	23.5
M25 × 1		T7309849	18	90	18	14.5	24
M26 × 1.5		T7309859	22	90	18	14.5	24.5
M26 × 1		T7309N59	18	90	18	14.5	25
M27 × 2		T7309879	22	90	20	16	25
M27 × 1.5		T7309889	22	90	20	16	25.5
M27 × 1		T7309899	18	90	20	16	26
M28 × 2		T7309909	22	90	20	16	26
M28 × 1.5		T7309919	22	90	20	16	26.5
M30 × 2		T7309969	22	90	22	18	28
M30 × 1.5		T7309979	22	90	22	18	28.5
M30 × 1		T7309989	18	90	22	18	29

UNC Unified coarse threads
Unified Grobgewinde

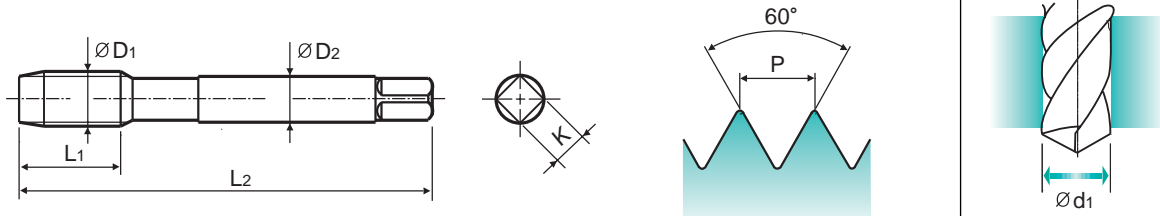
- ▶ This tap is a serial hand tap in set, First, Second and Bottoming.
- ▶ Bottoming tap of set has final internal thread dimensions only.
- ▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.
- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type



HSS
DIN 351
2B
60°
1/II/III
Bright

Sets of taps
Gewindebohrer-Satz

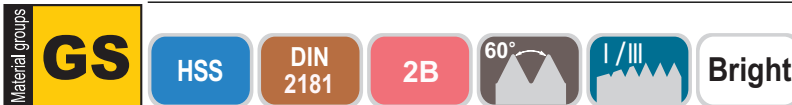
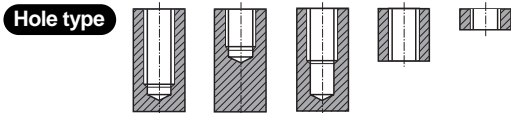
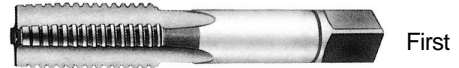


SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#2	56 UNC	T7363089	9	36	2.8	2.1	1.8
#3	48 UNC	T7363129	10	40	2.8	2.1	2.1
#4	40 UNC	T7363169	10	42	3.5	2.7	2.3
#5	40 UNC	T7363209	10	42	3.5	2.7	2.6
#6	32 UNC	T7363249	11	45	4	3	2.85
#8	32 UNC	T7363289	12	48	4.5	3.4	3.5
#10	24 UNC	T7363329	14	52	6	4.9	3.9
#12	24 UNC	T7363369	16	56	6	4.9	4.5
1/4"	20 UNC	T7363409	16	56	6	4.9	5.2
5/16"	18 UNC	T7363449	20	63	6	4.9	6.6
3/8"	16 UNC	T7363489	22	70	7	5.5	8
7/16"	14 UNC	T7363529	22	70	8	6.2	9.4
1/2"	13 UNC	T7363569	25	80	9	7	10.75
9/16"	12 UNC	T7363609	26	80	11	9	12.25
5/8"	11 UNC	T7363649	27	90	12	9	13.5
3/4"	10 UNC	T7363709	32	105	14	11	16.5
7/8"	9 UNC	T7363749	32	110	18	14.5	19.5
1"	8 UNC	T7363789	36	110	20	16	22.25
1*1/8"	7 UNC	T7363829	40	125	22	18	25
1*1/4"	7 UNC	T7363869	40	125	25	20	28.25
1*3/8"	6 UNC	T7363909	50	150	28	22	30.75
1*1/2"	6 UNC	T7363949	50	150	32	24	34
1*3/4"	5 UNC	T7363B89	58	160	36	29	39.5
2"	4 1/2 UNC	T7363D29	65	180	40	32	45.25

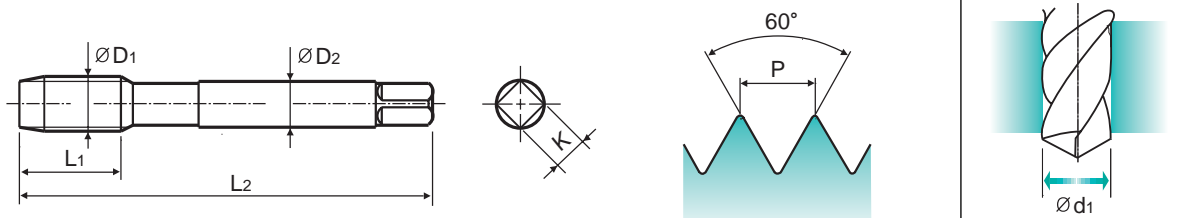
UNF

Unified fine threads
Unified Feingewinde

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Sets of taps
Gewindebohrer-Satz



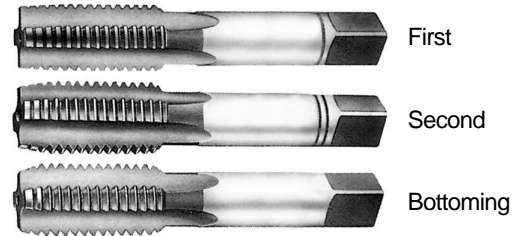
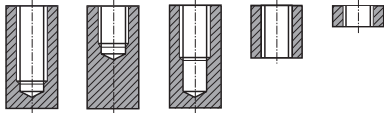
Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
#4	- 48 UNF	T7509189	10	42	3.5	2.7	2.4
#5	- 44 UNF	T7509229	10	42	3.5	2.7	2.7
#6	- 40 UNF	T7509269	11	45	4	3	3
#8	- 36 UNF	T7509309	12	48	4.5	3.4	3.5
#10	- 32 UNF	T7509349	14	52	6	4.9	4.1
#12	- 28 UNF	T7509389	16	56	6	4.9	4.7
1/4"	- 28 UNF	T7509429	16	56	6	4.9	5.5
5/16"	- 24 UNF	T7509469	17	63	6	4.9	6.9
3/8"	- 24 UNF	T7509509	18	63	7	5.5	8.5
7/16"	- 20 UNF	T7509549	20	70	8	6.2	9.9
1/2"	- 20 UNF	T7509589	20	70	9	7	11.5
9/16"	- 18 UNF	T7509629	20	70	11	9	12.9
5/8"	- 18 UNF	T7509669	20	70	12	9	14.5
3/4"	- 16 UNF	T7509729	22	80	14	11	17.5
7/8"	- 14 UNF	T7509769	22	80	18	14.5	20.5
1"	- 12 UNF	T7509809	22	90	18	14.5	23.25
1*1/8"	- 12 UNF	T7509849	22	90	22	18	26.5

BSW Whitworth threads
Whitworth Gewinde

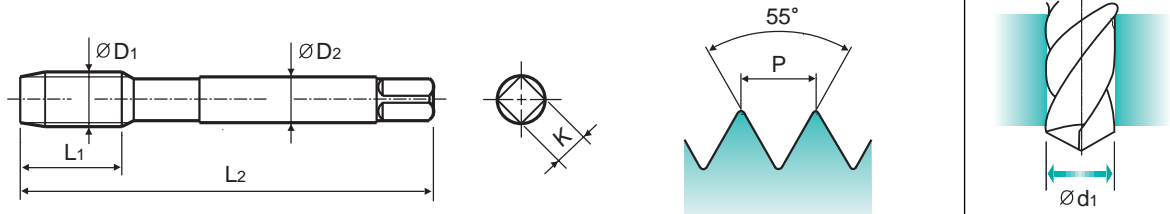
- ▶ This tap is a serial hand tap in set, First, Second and Bottoming.
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- ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.

Hole type

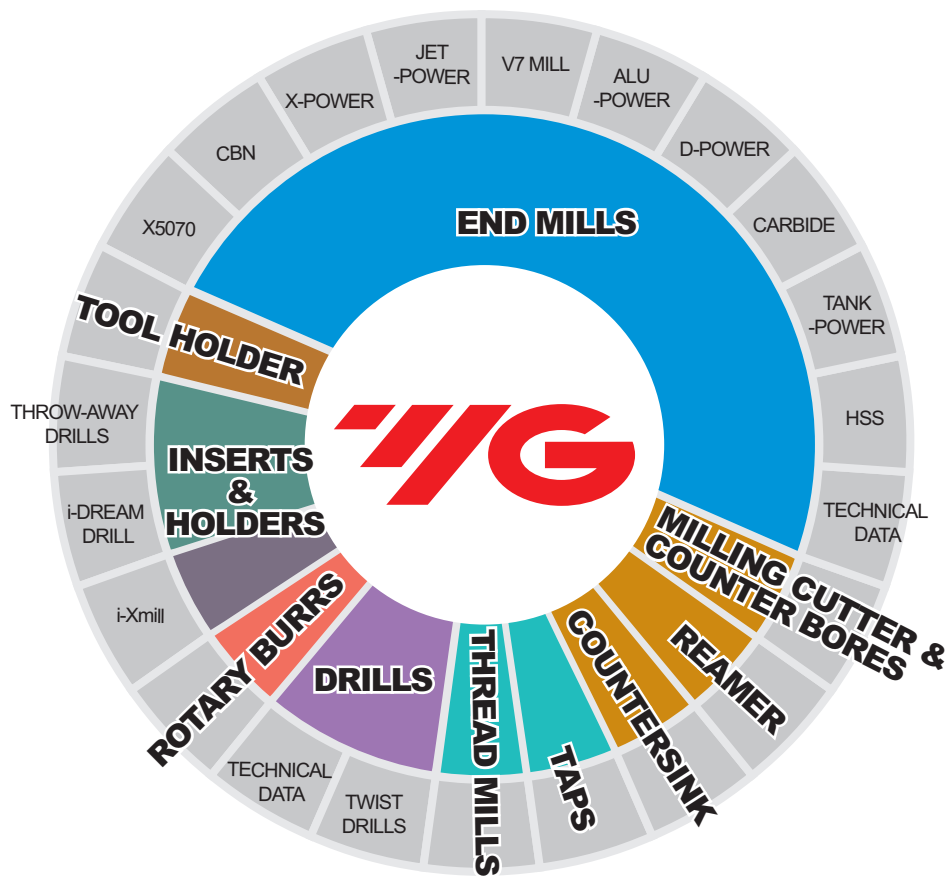


Material groups **GS** HSS DIN 351 55° Bright

Sets of taps
Gewindebohrer-Satz



SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
W3/32"	– 48	T7609129	10	40	2.8	2.1	1.8
W1/8"	– 40	T7609209	10	42	3.5	2.7	2.5
W5/32"	– 32	T7609289	12	48	4.5	3.4	3.1
W3/16"	– 24	T7609329	14	52	6	4.9	3.6
W7/32"	– 24	T7609369	16	56	6	4.9	4.4
W1/4"	– 20	T7609409	16	56	6	4.9	5.1
W5/16"	– 18	T7609449	20	63	6	4.9	6.5
W3/8"	– 16	T7609489	22	70	7	5.5	7.9
W7/16"	– 14	T7609529	22	70	8	6.2	9.3
W1/2"	– 12	T7609569	25	80	9	7	10.5
W9/16"	– 12	T7609609	26	80	11	9	12
W5/8"	– 11	T7609649	27	90	12	9	13.5
W3/4"	– 10	T7609709	32	105	14	11	16.5
W7/8"	– 9	T7609749	32	110	18	14.5	19.25
W1"	– 8	T7609789	36	110	20	16	22
W1*1/8"	– 7	T7609829	40	125	22	18	24.75
W1*1/4"	– 7	T7609869	40	125	25	20	27.75
W1*3/8"	– 6	T7609909	50	150	28	22	30.5
W1*1/2"	– 6	T7609949	50	150	32	24	33.5
W1*5/8"	– 5	T7609B29	56	150	32	24	35.5
W1*3/4"	– 5	T7609B89	58	160	36	29	39
W1*7/8"	– 4 1/2	T7609C69	65	180	36	29	41.5
W2"	– 4 1/2	T7609D29	65	180	40	32	44.5



Challenge toward a Global Leader-

YG-1 Leads the World Market.

HSS



Being the best through innovation



PIPE TAPS

GASGEWINDEBOHRER






- Tapping Whitworth Pipe threads
- Zum Gewindeschneiden von Whitworth - Rohrgewinde

SELECTION GUIDE

PIPE TAPS

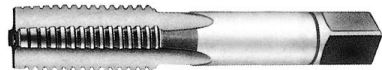
Tapping Whitworth Pipe threads

PIPE TAPS

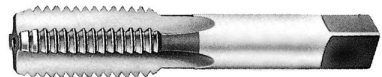
EDP No.	MODEL	Tool Material	Standard	Work Material	Dimensions	Tolerance	Chamfer	Surface Treatment	PAGE
T7709		HSS	G(BSP)	GS	DIN 5157	-	I / III	Bright	487
TC727		HSS-E	G(BSP)	GS	DIN 5156	-	B	Bright	488
TC728		HSS-E	G(BSP)	GS	DIN 5156	-	C	Bright	489
TC729		HSS-E	G(BSP)	VG	DIN 5156	-	C	Bright	490
TB514		HSS-E	G(BSP)	VA NW	DIN 5156	-	C	vap	491

G(BSP) Whitworth Pipe threads DIN ISO 228/1
Whitworth Rohrgewinde DIN ISO 228/1

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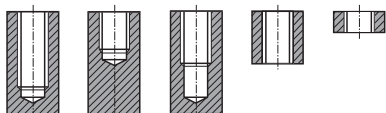


First



Bottoming

Hole type



Material groups **GS**

HSS

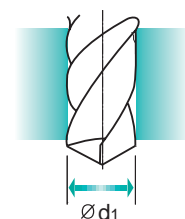
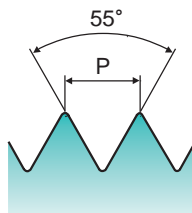
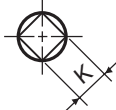
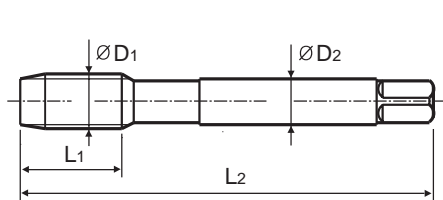
DIN 5157

55°

I / III

Bright

Sets of taps
Gewindebohrer-Satz



Unit : mm

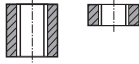
SIZE ØD1	TPI	EDP No.	Thread Length L1	Overall Length L2	Shank Diameter ØD2	Square Size K	Tapping drill diameter Ød1
G1/16"	28	T7709029	17	63	6	4.9	6.8
G1/8"	28	T7709209	18	63	7	5.5	8.8
G1/4"	19	T7709409	20	70	11	9	11.8
G3/8"	19	T7709489	20	70	12	9	15.25
G1/2"	14	T7709569	22	80	16	12	19
G3/4"	14	T7709709	22	90	20	16	24.5
G1"	11	T7709789	25	100	25	20	30.75
G1*1/4"	11	T7709869	30	125	32	24	39.5
G1*1/2"	11	T7709949	30	140	36	29	45.20

G(BSP) Whitworth Pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1

► Suitable for through hole in more cutting speed than other taps due to strong geometry.

► Geeignet für Sacklöcher in höherer Schnittgeschwindigkeit als andere Gewindebohrer dank einer stabilen Bohrergeometrie.

Hole type


DIN 5156

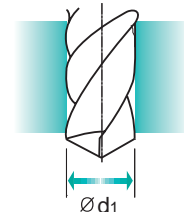
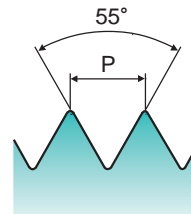
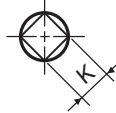
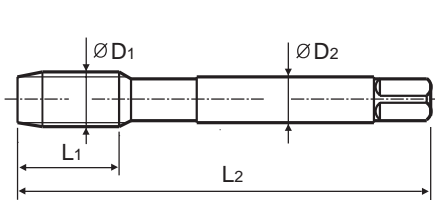
Material groups

GS

HSS-E

 DIN
5156


Bright

 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
G1/8"	28	TC727200	18	90	7	5.5	8.8
G1/4"	19	TC727400	22	100	11	9	11.8
G3/8"	19	TC727480	22	100	12	9	15.25
G1/2"	14	TC727560	25	125	16	12	19
G3/4"	14	TC727700	28	140	20	16	24.5
G1"	11	TC727780	32	160	25	20	30.75

 Unit : N/mm²

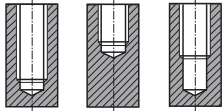
◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	○	◎	○	○	○

G(BSP) Whitworth pipe threads DIN ISO 228/1 Whitworth Rohrgewinde DIN ISO 228/1

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


DIN 5156

Material groups
GS

HSS-E

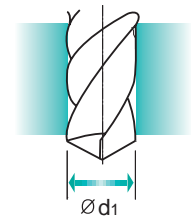
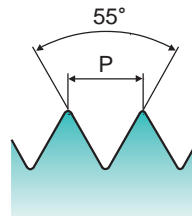
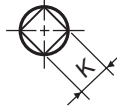
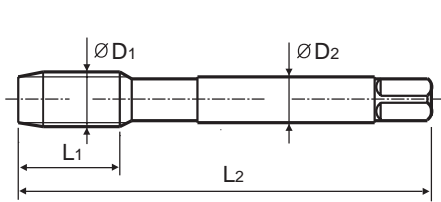
DIN 5156

55°

C

Bright

R40

 Machine taps
 Maschinengewindebohrer


Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
G1/8"	28	TC728200	10	90	7	5.5	8.8
G1/4"	19	TC728400	14	100	11	9	11.8
G3/8"	19	TC728480	15	100	12	9	15.25
G1/2"	14	TC728560	17	125	16	12	19
G3/4"	14	TC728700	20	140	20	16	24.5
G1"	11	TC728780	24	160	25	20	30.75

Unit : N/mm²

◎ : Excellent ○ : Good

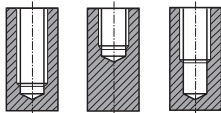
Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○	○	○	○	○	○	○	○	○	○	◎	◎	○	○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
○	○	○	○	○	○	◎	○	○	○	○	◎	○	○	○

G(BSP) Whitworth pipe threads DIN ISO 228/1

Whitworth Rohrgewinde DIN ISO 228/1

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


DIN 5156



HSS-E

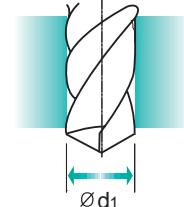
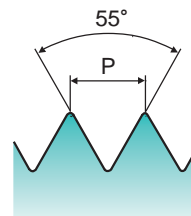
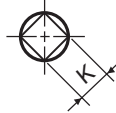
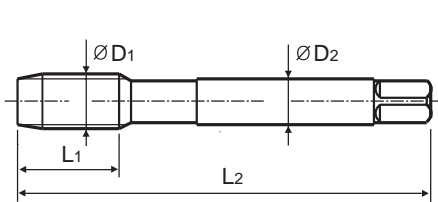
DIN 5156

55°



Bright

R40

 Machine taps
Maschinengewindebohrer


Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
G1/8"	28	TC729200	10	90	7	5.5	8.8
G1/4"	19	TC729400	14	100	11	9	11.8
G3/8"	19	TC729480	15	100	12	9	15.25
G1/2"	14	TC729560	17	125	16	12	19
G3/4"	14	TC729700	20	140	20	16	24.5
G1"	11	TC729780	24	160	25	20	30.75

Unit : N/mm²

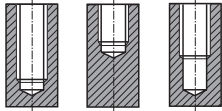
◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

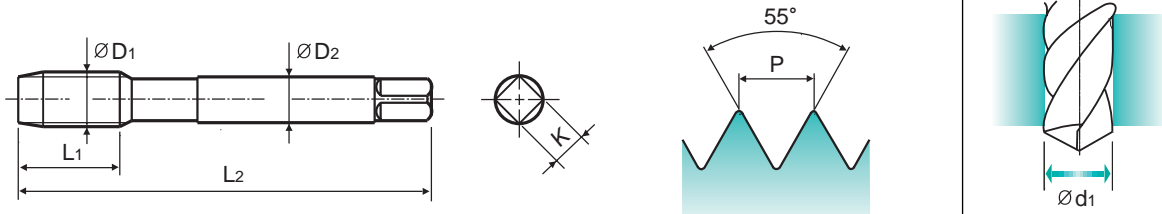
G(BSP) Whitworth pipe threads DIN ISO 228/1 Whitworth Rohrgewinde DIN ISO 228/1

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

Hole type


DIN 5156


 Machine taps
Maschinengewindebohrer


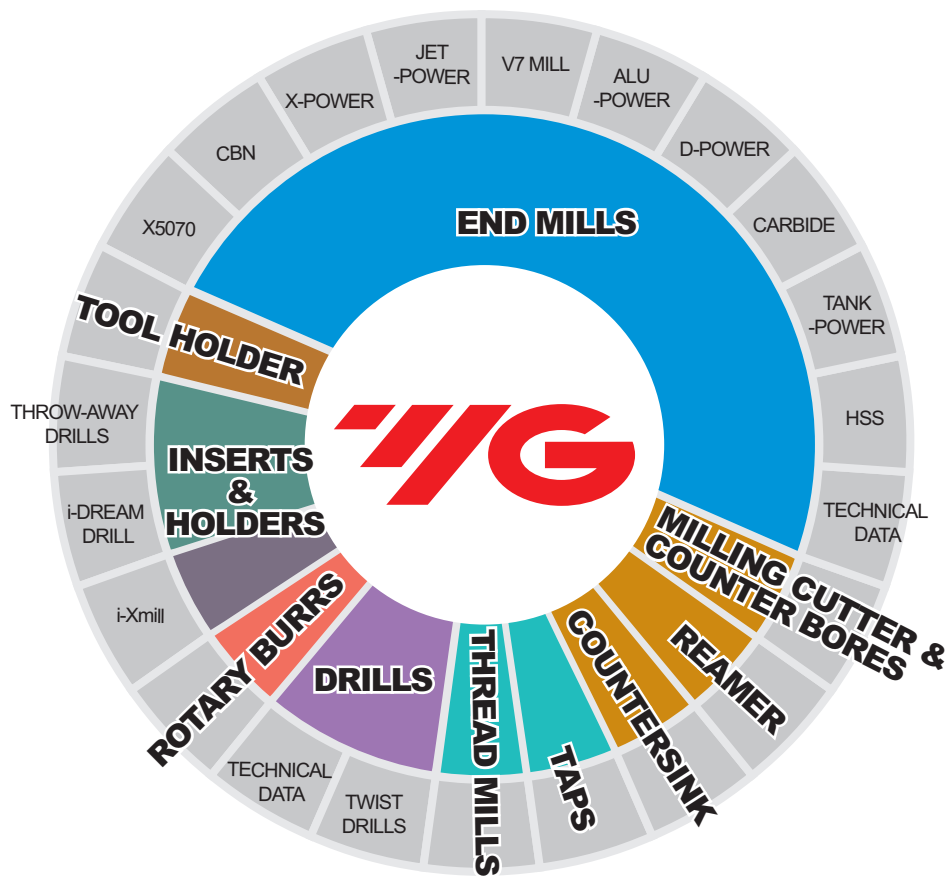
Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1			L1	L2	ØD2	K	Ød1
G1/8"	28	TB514200	10	90	7	5.5	8.8
G1/4"	19	TB514400	14	100	11	9	11.8
G3/8"	19	TB514480	15	100	12	9	15.25
G1/2"	14	TB514560	17	125	16	12	19
G3/4"	14	TB514700	20	140	20	16	24.5
G1"	11	TB514780	24	160	25	20	30.75

 Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
○	○					◎	◎	◎						○
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												



Challenge toward a Global Leader-
YG-1 Leads the World Market.

CARBIDE



Being the best through innovation



CARBIDE TAPS

GEWINDEBOHRER

- Tapping Cast Iron and High Silicon Aluminium, Mass Production, High Productivity
- Zum Gewinden von Guss und Aluminium mit hohem Siliziumanteil; für Großserien, hohe Produktivität

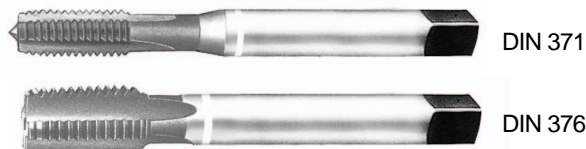
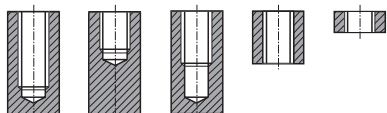
M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

► Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for cast iron and high silicon aluminiums.

► Der VHM-Gewindebohrer kann die Lebensdauer gegenüber HSS-Gewindebohrern erhöhen dank der größeren Härte. Geeignet für Guss und Aluminium mit hohem Siliziumanteil

Hole type



Material groups

GG

HM

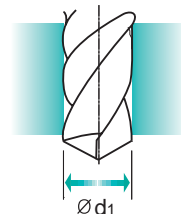
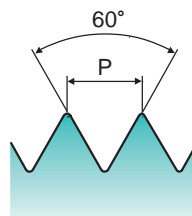
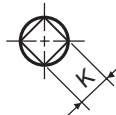
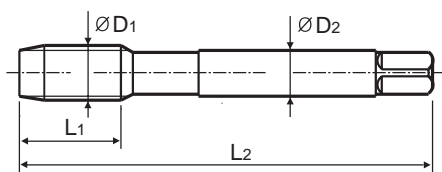
DIN
371/376

6HX

60°

C

Bright

Machine taps
Maschinengewindebohrer

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping drill diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M3	× 0.5	T0993206	11	56	3.5	2.7	2.5
M3.5	× 0.6	T0993226	12	56	4	3	2.9
M4	× 0.7	T0993246	13	63	4.5	3.4	3.3
M5	× 0.8	T0993286	15	70	6	4.9	4.2
M6	× 1	T0993316	17	80	6	4.9	5
M8	× 1.25	T0993366	20	90	8	6.2	6.8
M10	× 1.5	T0993426	22	100	10	8	8.5
M12	× 1.75	T0993506	24	110	9	7	10.2
M14	× 2	T0993546	26	110	11	9	12
M16	× 2	T0993606	27	110	12	9	14
M18	× 2.5	T0993656	30	125	14	11	15.5
M20	× 2.5	T0993706	32	140	16	12	17.5

► DIN 371(M2~M10) and DIN 376(M11~M20)

Unit : N/mm²

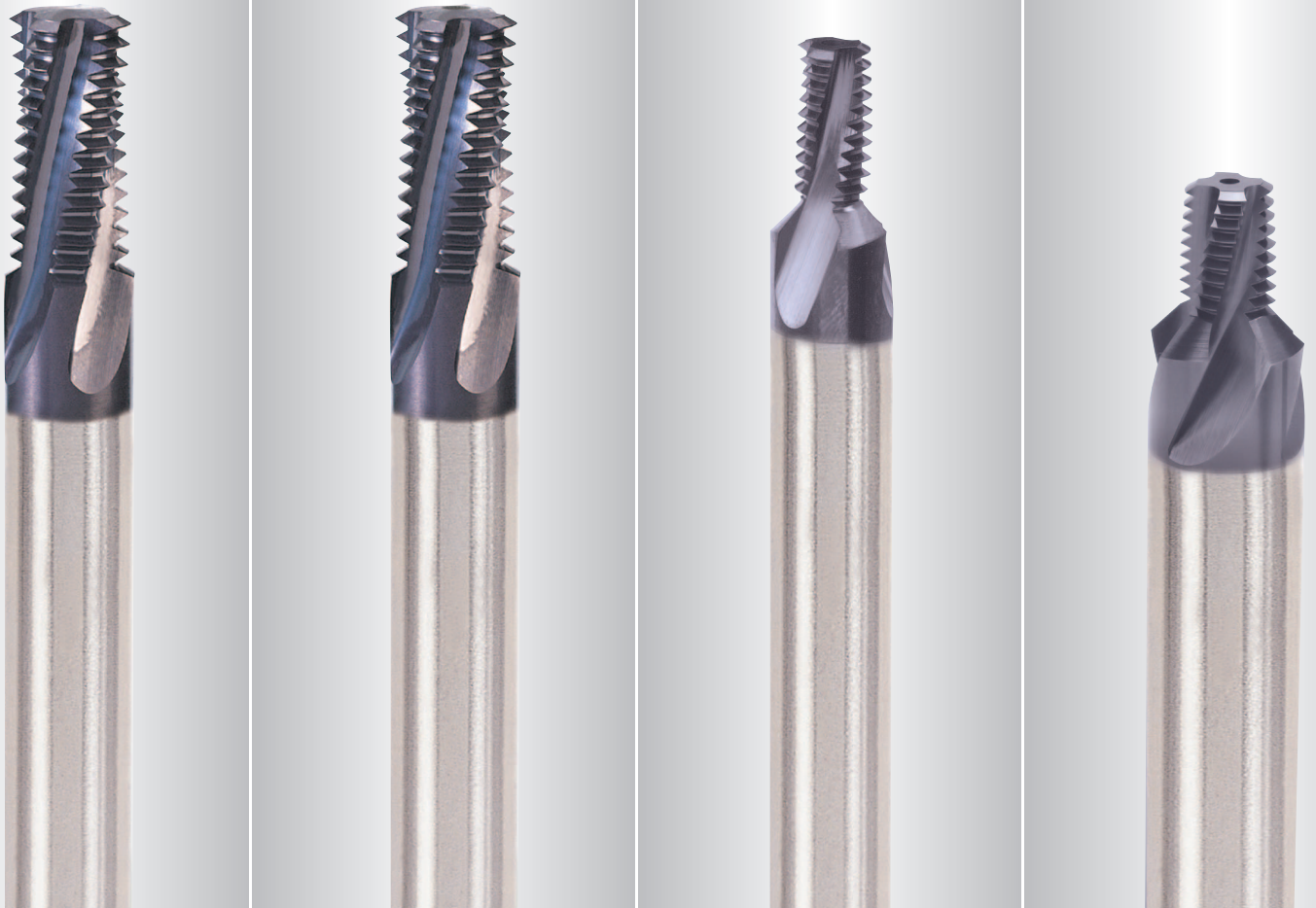
◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
									◎	◎				
Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si ≤ 10%	Al Si > 10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
					◎						◎			◎

CARBIDE



Being the best through innovation



THREAD MILLS












GEWINDEFRÄSER

- With & without coolant Holes
Threading Most of Materials and Big Sizes in High Quality, Available with Chamfer
- Mit und ohne Kühlkanäle
Für die meisten Werkstoffe und große Durchmesser in bester Qualität. Mit Senkstufe lieferbar

SELECTION GUIDE

SOLID CARBIDE THREAD MILLS (with & without coolant Holes)
Threading Most of Materials and Big Sizes in High Quality, Available with Chamfer

SOLID CARBIDE THREAD MILL

EDP No.	MODEL	Description	PAGE
L1111 L1211		SOLID CARBIDE THREAD MILL for ISO METRIC INTERNAL THREAD - DIN 13 VOLLHARTMETALL GEWINDEFÄSER für ISO METRISCHES INNENGEWINDE - DIN 13	497
L1112 L1212		SOLID CARBIDE THREAD MILL for ISO METRIC-FINE INTERNAL THREAD - DIN 13 VOLLHARTMETALL GEWINDEFÄSER für ISO METRISCH - FEIN INNENGEWINDE - DIN 13	498
L1113 L1213		SOLID CARBIDE THREAD MILL for UNC INTERNAL THREAD - ANSI B 1.1 VOLLHARTMETALL GEWINDEFÄSER für UNC INNENGEWINDE, ANSI B 1.1	499
L1114 L1214		SOLID CARBIDE THREAD MILL for UNF INTERNAL THREAD - ANSI B 1.1 VOLLHARTMETALL GEWINDEFÄSER für UNF INNENGEWINDE, ANSI B 1.1	500
L4111 L4211		SOLID CARBIDE THREAD MILL WITH COOLANT HOLE for ISO METRIC INTERNAL THREAD - DIN 13 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL für ISO METRISCHES INNENGEWINDE - DIN 13	501
L4112 L4212		SOLID CARBIDE THREAD MILL WITH COOLANT HOLE for ISO METRIC-FINE INTERNAL THREAD - DIN 13 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL für ISO METRISCH - FEIN INNENGEWINDE - DIN 13	502
L4171 L4271		SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for ISO METRIC INTERNAL THREAD - DIN 13 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für METRISCHES INNENGEWINDE - DIN 13	503
L4172 L4272		SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for ISO METRIC-FINE INTERNAL THREAD - DIN 13 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für METRISCH - FEIN INNENGEWINDE - DIN 13	504
L4173 L4273		SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for UNC INTERNAL THREAD - ANSI B 1.1 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für UNC INNENGEWINDE - ANSI B 1.1	505
L4174 L4274		SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for UNF INTERNAL THREAD - ANSI B 1.1 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für UNF INNENGEWINDE - ANSI B 1.1	506
L4176 L4276		SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for NPT THREAD - ANSI B 1.20.1 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für NPT INNENGEWINDE - ANSI B 1.20.1	507
		PROGRAMMING OF THREAD MILLING PROGRAMMIERUNG BEIM GEWINDEFÄSEN	
		RECOMMENED CUTTING SPEED EMPFOHLENE SCHNEIDKONDITIONEN	

Application Program Available

Programing of Thread Milling

Internal Thread Milling in Machining Center
 Fanuc

English

M - Metric

D = thread diameter (mm) **16.0**

P = pitch (mm) **2.00**

L = thread length (mm) **30.0**

S = safety distance (mm) **0.0**

Steel, Low Carbon, < 0.25% C, < 400 N/mm2

M12120C34.0 2.0P L1111600

Number of passes, axial **1**

Number of passes, radial (max 2) **1**

d = cutter diameter (mm) **12**

l = length of cutting edge (mm) **34**

z = number of flutes **4**

V = cutting speed (m/min) **150**

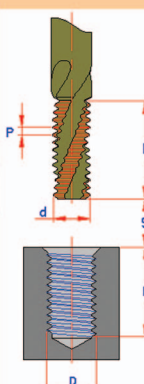
Fz = feed/tooth (mm/tooth) **0.070**

N = spindle speed (rpm) **937.9**

FD = feed at thread diameter (mm/min) **311.4**

Fd = feed in center of mill (mm/min) **279**

T = time to mill the thread (seconds)



CNC program for Fanuc

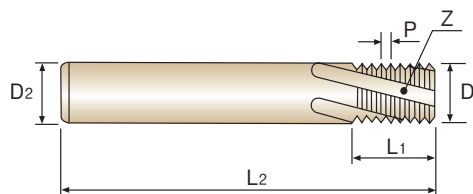
```

G90 G00 G57 X0. Y0.
G43 H10 Z0. M3 S937.9
G91 G00 Z-30.5
G41 D10 X0. Y-7
G03 X8.05 Y7. Z0.5 R7.068 F279
G03 X0. Y0. Z2. I-8.05 J0.
G03 X-8.05 Y7. Z0.5 R7.068
G00 G40 X0. Y-7.
G00 Z27.5
G90 G49 G00 Z200. M5
M30
                    
```

M SOLID CARBIDE THREAD MILL for ISO METRIC INTERNAL THREAD - DIN 13
VOLLHARTMETALL GEWINDEFÄRÄSER für ISO METRISCHES INNENGEWINDE - DIN 13

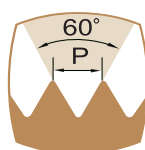
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 2 × D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindelänge : 2xD



Unit : mm

EDP No.		Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	No. of Flute Z
UNCOATED	TiAIN							
L1111200	L1211200	M3	0.5	2.2	6	5	57	3
L1111240	L1211240	M4	0.7	2.9	6	7	57	3
L1111280	L1211280	M5	0.8	3.8	6	8	57	3
L1111310	L1211310	M6	1.0	4.5	6	13	57	3
L1111360	L1211360	M8	1.25	6.0	6	17.5	65	3
L1111420	L1211420	M10	1.5	7.5	8	21	72	4
L1111500	L1211500	M12	1.75	9.5	10	26.25	80	4
L1111540	L1211540	M14	2.0	10.0	10	30	83	4
L1111600	L1211600	M16	2.0	12.0	12	34	92	4
L1111650	L1211650	M18	2.5	14.0	14	37.5	92	5
L1111700	L1211700	M20	2.5	16.0	16	42.5	105	5

* Other coatings are available on your request

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

HSS

CARBIDE



THREAD MILLS

L1112 SERIES

UNCOATED

L1212 SERIES

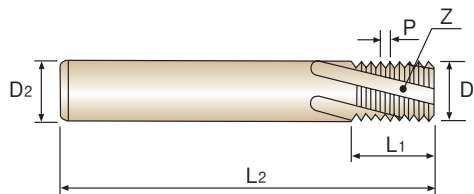
TiAIN

MF

SOLID CARBIDE THREAD MILL for ISO METRIC-FINE INTERNAL THREAD - DIN 13
VOLLHARTMETALL GEWINDEFÄSER für ISO METRISCH - FEIN INNENGEWINDE - DIN 13

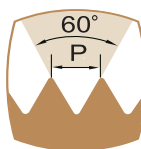
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 1.5 × D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 1.5x D



Unit : mm

EDP No.		Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	No. of Flute Z
UNCOATED	TiAIN							
L1112370	L1212370	M8	1.0	6.0	6	13	57	3
L1112380	L1212380	M8	0.75	6.0	6	12.75	57	3
L1112440	L1212440	M10	1.0	8.0	8	16	63	4
L1112510	L1212510	M12	1.5	9.5	10	19.5	72	4
L1112520	L1212520	M12	1.25	9.5	10	18.75	72	4
L1112530	L1212530	M12	1.0	9.5	10	19	72	4
L1112550	L1212550	M14	1.5	10.0	10	22.5	83	4
L1112570	L1212570	M14	1.0	10.0	10	22	83	4
L1112610	L1212610	M16	1.5	12.0	12	25.5	83	4
L1112620	L1212620	M16	1.0	12.0	12	25	83	4
L1112670	L1212670	M18	1.5	14.0	14	28.5	92	5
L1112680	L1212680	M18	1.0	14.0	14	28	92	5
L1112720	L1212720	M20	1.5	16.0	16	31.5	92	5
L1112730	L1212730	M20	1.0	16.0	16	31	92	5

* Other coatings are available on your request

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

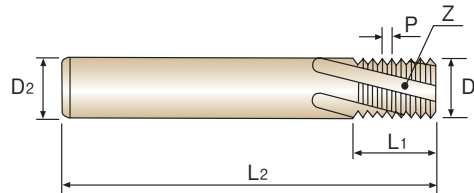
TECHNICAL DATA

UNC SOLID CARBIDE THREAD MILL for UNC INTERNAL THREAD - ANSI B 1.1

VOLLHARTMETALL GEWINDEFÄSER für UNC INNENGEWINDE, ANSI B 1.1

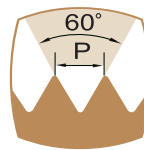
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 2 × D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 2xD



Unit : mm

EDP No.		Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	No. of Flute Z
UNCOATED	TiAIN							
L1113400	L1213400	1/4"	20	4.5	6	14	57	3
L1113440	L1213440	5/16"	18	5.8	6	16.9	65	3
L1113480	L1213480	3/8"	16	7.0	8	20.6	72	4
L1113520	L1213520	7/16"	14	8.0	8	23.6	72	4
L1113560	L1213560	1/2"	13	9.5	10	27.4	80	4
L1113600	L1213600	9/16"	12	10.0	10	31.8	83	4
L1113640	L1213640	5/8"	11	12.0	12	34.6	92	4
L1113700	L1213700	3/4"	10	14.0	14	40.6	104	5

* Other coatings are available on your request

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

HSS

CARBIDE



THREAD MILLS

L1114 SERIES

UNCOATED

L1214 SERIES

TiAIN

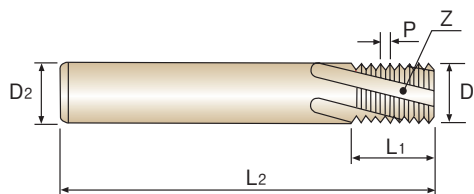
UNF

SOLID CARBIDE THREAD MILL for UNF INTERNAL THREAD - ANSI B 1.1

VOLLHARTMETALL GEWINDEFÄSER für UNF INNENGEWINDE, ANSI B 1.1

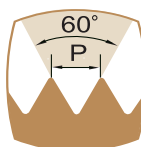
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 2×D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 2xD



Unit : mm

EDP No.		Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	No. of Flute Z
UNCOATED	TiAIN							
L1114420	L1214420	1/4"	28	5.0	6	13.6	57	3
L1114460	L1214460	5/16"	24	6.0	6	16.9	65	3
L1114500	L1214500	3/8"	24	8.0	8	20.1	72	4
L1114540	L1214540	7/16"	20	8.0	8	24.1	72	4
L1114580	L1214580	1/2"	20	10.0	10	26.7	80	4
L1114620	L1214620	9/16"	18	12.0	12	29.6	83	4
L1114660	L1214660	5/8"	18	12.0	12	33.9	92	4
L1114720	L1214720	3/4"	16	14.0	14	39.7	104	5

* Other coatings are available on your request

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

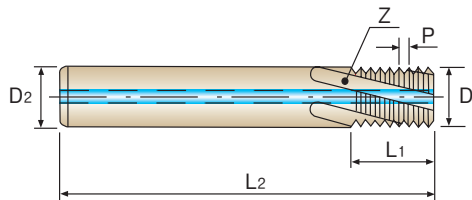
THREAD MILLS

TECHNICAL DATA

M SOLID CARBIDE THREAD MILL WITH COOLANT HOLE for ISO METRIC INTERNAL THREAD - DIN 13
VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL für ISO METRISCHES INNENGEWINDE - DIN 13

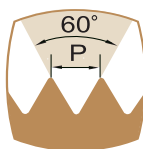
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 2 × D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 2xD



Unit : mm

EDP No.		Nominal Diameter [D]	Pitch P	Cutter Diameter D ₁	Shank Diameter D ₂	Thread Length L ₁	Over All Length L ₂	No. of Flute Z
UNCOATED	TiAlN							
L4111310	L4211310	M6	1.0	4.5	6	13.0	57	3
L4111360	L4211360	M8	1.25	6.0	6	17.5	65	3
L4111420	L4211420	M10	1.5	7.5	8	21.0	72	4
L4111500	L4211500	M12	1.75	9.5	10	26.25	80	4
L4111540	L4211540	M14	2.0	10.0	10	30.0	83	4
L4111600	L4211600	M16	2.0	12.0	12	34.0	92	4
L4111700	L4211700	M20	2.5	16.0	16	42.5	105	5

* Other coatings are available on your request

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA

HSS

CARBIDE



THREAD MILLS

L4112 SERIES

UNCOATED

L4212 SERIES

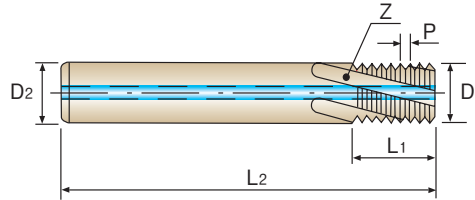
TiAIN

MF

SOLID CARBIDE THREAD MILL WITH COOLANT HOLE for ISO METRIC-FINE INTERNAL THREAD - DIN 13
VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL für ISO METRISCH - FEIN INNENGEWINDE - DIN 13

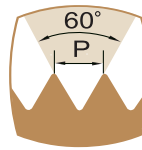
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 1.5×D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 1.5xD



Unit : mm

EDP No.		Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	No. of Flute Z
UNCOATED	TiAIN							
L4112370	L4212370	M8	1.0	6.0	6	13.0	57	3
L4112380	L4212380	M8	0.75	6.0	6	12.75	57	3
L4112440	L4212440	M10	1.0	8.0	8	16.0	63	4
L4112510	L4212510	M12	1.5	9.5	10	19.5	72	4
L4112520	L4212520	M12	1.25	9.5	10	18.75	72	4
L4112530	L4212530	M12	1.0	9.5	10	19.0	72	4
L4112550	L4212550	M14	1.5	10.0	10	22.5	83	4
L4112570	L4212570	M14	1.0	10.0	10	22.0	83	4
L4112610	L4212610	M16	1.5	12.0	12	25.5	83	4
L4112620	L4212620	M16	1.0	12.0	12	25.0	83	4
L4112670	L4212670	M18	1.5	14.0	14	28.5	92	5
L4112680	L4212680	M18	1.0	14.0	14	28.0	92	5
L4112720	L4212720	M20	1.5	16.0	16	31.5	92	5
L4112730	L4212730	M20	1.0	16.0	16	31.0	92	5

* Other coatings are available on your request

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

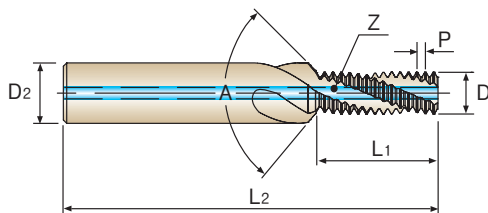
THREAD MILLS

TECHNICAL DATA

M SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for ISO METRIC INTERNAL THREAD - DIN 13
 VOLLHARTMETALL GEWINDEFÄRER mit KÜHLKANAL & FASE für METRISCHES INNENGEWINDE - DIN 13

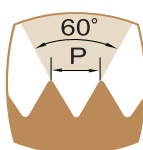
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 2 × D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindelänge : 2xD



Unit : mm

EDP No.		Nominal Diameter [D]	Pitch P	Cutter Diameter D ₁	Shank Diameter D ₂	Thread Length L ₁	Over All Length L ₂	Angle A	No. of Flute Z
UNCOATED	TiAlN								
L4171310	L4271310	M6	1.0	4.8	8	12.4	62	90°	3
L4171360	L4271360	M8	1.25	6.5	10	16.8	74	90°	3
L4171420	L4271420	M10	1.5	8.2	12	20.15	80	90°	4
L4171500	L4271500	M12	1.75	9.9	14	25.25	90	90°	4
L4171540	L4271540	M14	2.0	11.6	16	28.85	100	90°	4
L4171600	L4271600	M16	2.0	13.6	18	32.85	102	90°	4

* Other coatings are available on your request

HSS

CARBIDE



THREAD MILLS

L4172 SERIES

UNCOATED

L4272 SERIES

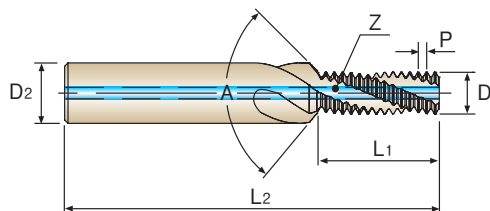
TiAIN

MF

SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for ISO METRIC-FINE INTERNAL THREAD - DIN 13
VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für METRISCH - FEIN INNENGEWINDE - DIN 13

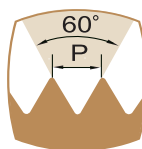
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 1.5×D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 1.5xD



Unit : mm

EDP No.		Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	Angle A	No. of Flute Z
UNCOATED	TiAIN								
L4172370	L4272370	M8	1.0	6.7	10	12.4	74	90°	3
L4172440	L4272440	M10	1.0	8.7	12	15.4	80	90°	4
L4172430	L4272430	M10	1.25	8.3	12	15.9	80	90°	4
L4172530	L4272530	M12	1.0	10.7	14	18.4	90	90°	4
L4172520	L4272520	M12	1.25	10.3	14	18.3	80	90°	4
L4172510	L4272510	M12	1.5	10.0	14	18.65	90	90°	4
L4172550	L4272550	M14	1.5	12.0	16	21.65	100	90°	4
L4172610	L4272610	M16	1.5	14.0	18	24.65	102	90°	5

* Other coatings are available on your request

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

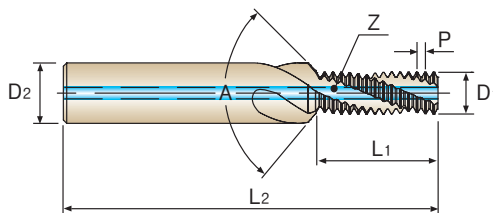
THREAD MILLS

TECHNICAL DATA

UNC SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for UNC INTERNAL THREAD - ANSI B 1.1
 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für UNC INNENGEWINDE - ANSI B 1.1

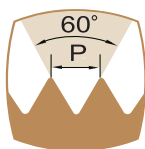
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 2 × D

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 2xD



Unit : mm

EDP No.		Nominal Diameter [D]	T.P.I.	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	Angle A	No. of Flute Z
UNCOATED	TiAIN								
L4173400	L4273400	1/4"	20	4.8	8	13.3	62	90°	3
L4173440	L4273440	5/16"	18	6.2	10	16.18	74	90°	3
L4173480	L4273480	3/8"	16	7.6	12	19.8	80	90°	4
L4173520	L4273520	7/16"	14	8.9	12	22.62	80	90°	4
L4173560	L4273560	1/2"	13	10.3	14	26.32	90	90°	4
L4173600	L4273600	9/16"	12	11.7	16	30.63	100	90°	4
L4173640	L4273640	5/8"	11	13.1	18	33.41	102	90°	4
L4173700	L4273700	3/4"	10	16.0	20	39.29	110	90°	5

* Other coatings are available on your request

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

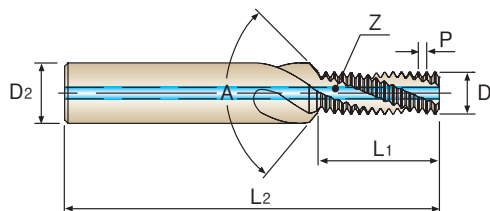
TECHNICAL DATA

UNF

SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for UNF INTERNAL THREAD - ANSI B 1.1
VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL & FASE für UNF INNENGEWINDE - ANSI B 1.1

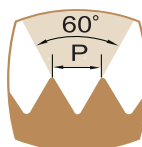
► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



► Material : Solid Carbide
 ► Shank : DIN6535 HA
 ► Spiral Angle : 15°
 ► Thread Length : 2×D

► Material : Vollhartmetall
 ► Schaft : DIN 6535 HA
 ► Drallwinkel : 15°
 ► Gewindeläge : 2xD



Unit : mm

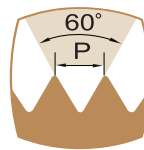
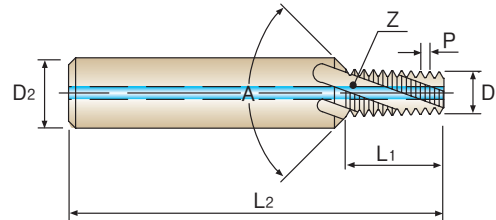
EDP No.		Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	Angle A	No. of Flute Z
UNCOATED	TiAIN								
L4174420	L4274420	1/4"	28	5.1	8	13.21	62	90°	3
L4174460	L4274460	5/16"	24	6.5	10	16.37	74	90°	3
L4174500	L4274500	3/8"	24	8.1	12	19.54	80	90°	4
L4174540	L4274540	7/16"	20	9.4	12	22.19	80	90°	4
L4174580	L4274580	1/2"	20	11.0	14	26	90	90°	4
L4174620	L4274620	9/16"	18	12.4	16	28.88	100	90°	4
L4174660	L4274660	5/8"	18	14.0	18	33.12	102	90°	5
L4174720	L4274720	3/4"	16	17.0	20	38.86	110	90°	5

* Other coatings are available on your request

NPT SOLID CARBIDE THREAD MILL WITH COOLANT HOLE & CHAMFER for NPT THREAD - ANSI B 1.20.1
 VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für NPT INNENGEWINDE - ANSI B 1.20.1

► Easy to cut threads even if exotic materials like Nickel, Titanium or their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



- Material : Solid Carbide
- Shank : DIN6535 HA
- Spiral Angle : 15°
- Thread Length : 9×P

- Material : Vollhartmetall
- Schaft : DIN 6535 HA
- Drallwinkel : 15°
- Gewindeläge : 9xP

Unit : mm

EDP No.		Nominal Diameter [D]	T.P.I.	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Over All Length L2	Angle A	No. of Flute Z
UNCOATED	TiAIN								
L4176020	L4276020	NPT1/16"	27	5.9	10	8.9	64	90°	3
L4176200	L4276200	NPT1/8"	27	7.8	12	8.9	70	90°	4
L4176400	L4276400	NPT1/4"	18	10.05	16	13.4	81	90°	4
L4176480	L4276480	NPT3/8"	18	13.45	18	13.4	81	90°	4

* Other coatings are available on your request

HSS

CARBIDE

COMBO TAPS

SPIRAL POINT TAPS

SPIRAL FLUTE TAPS

STRAIGHT FLUTE TAPS

COLD FORMING TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE TAPS

THREAD MILLS

TECHNICAL DATA



PROGRAMMING OF THREAD MILLING PROGRAMMIERUNG BEIM GEWINDEFRÄSEN

Program Data

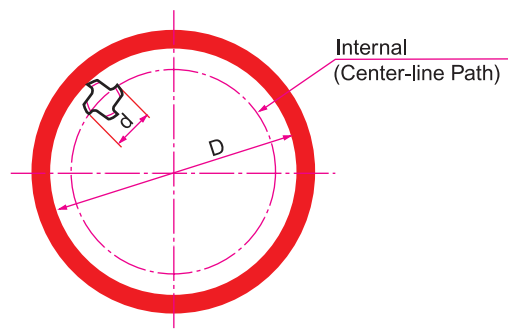
G Codes for Thread Milling

G00	Fast Feed Linear	G90	Absolute Command
G01	Linear Movement	G91	Incremental Command
G02	Circular/Helical Interpolation C.W.	M03	Clockwise Rotation of Spindle
G03	Circular/Helical Interpolation A.C.W.	M05	Spindle Stop
G17	X, Y Plane (Vertical Machining)	M08	Coolant On
G18	Z, X Plane (Horizontal Machining)	X	Horizontal Co-ordinate
G19	Y, Z Plane (Using 90° Head)	Y	Horizontal Co-ordinate
G40	Cutter Radius Compensation Cancel	Z	Vertical Co-ordinate
G41	Cutter Radius Compensation Left	I	X Co-ordinate to Center of Arc Travel
G42	Cutter Radius Compensation Right	J	Y Co-ordinate to Center of Arc Travel
G43	Tool Length Compensation Plus	S	Spindle Speed R.P.M.
G49	Tool Length Compensation Cancel	F	Feed mm/min

CNC Internal Thread Milling

```

G54    G90    G00    X...    Y...    Z2    T1    S...    M03
G91    G00    Z...(A3+2)
G41    G01    D26    X...(A6)  Y...(A5)  F...
G03    X...(A6)  Y...(A6)  Z...(A4)  I...(A6)  J0
G03    X0      Y0      Z...(A2)  I0      J...(A1)
G03    X...(A6)  Y...(A6)  Z...(A4)  I0      J...(A6)
G00    G40    X...(A6)  Y...(A5)
G00    Z...(A7)
G90    G49    G00    Z200    M5
M30
  
```



<Explanation of Parameters>

A1 : 1/2 Nominal Thread Diameter 1/2D

A2 : Thread Pitch

A3 : Thread Depth

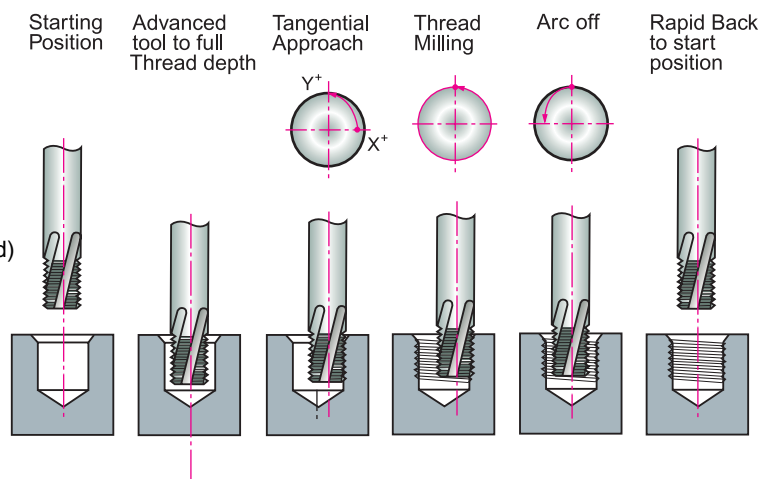
A4 : 1/4P(for climb milling and right-hand thread)

A5 : Beginning of Contour in Y 0.5xP

A6 : Arc Off (A1 - A5)

A7 : A3+2-0.5P

T1 : Cutter radius to be programmed is normally included in the tool memory



RECOMMENDED CUTTING SPEED
EMPFOHLENE SCHNEIDKONDITIONEN

unit : mm

Materials	Cutting Speed (m/min)	Feed per Tooth (fz)	
		Cutter Diameter $\leq \varnothing 8.0$	Cutter Diameter $> \varnothing 8.0$
Low Carbon Steels Medium Carbon Steels	80 - 120	0.02 - 0.04	0.04 - 0.10
High Carbon Steels	80 - 120	0.02 - 0.04	0.04 - 0.10
Alloy Steels	80 - 120	0.02 - 0.04	0.04 - 0.10
Heat Treated Steels	60 - 100	0.02 - 0.04	0.04 - 0.10
Stainless Steels	40 - 80	0.01 - 0.02	0.02 - 0.06
Cast Iron	50 - 100	0.02 - 0.04	0.04 - 0.10
Chrome-Nickel Alloys Titanium Alloys	20 - 60	0.01 - 0.02	0.02 - 0.06
Non Ferrous Materials	100 - 300	0.03 - 0.07	0.05 - 0.10

TO CALCULATE SPEED & FEED RATES
SCHNITTGESCHWINDIGKEIT & VORSCHUB KALKULIEREN
Calculate R.P.M of cutter

$$N = \frac{1000 \times V}{d \times \pi}$$

Calculate Feed per Revolution

$$F_1 = fz \times Z \times N$$

Finally Calculate Feed at Tool Center Line

$$F_2 = \frac{F_1 \times (D - d)}{D}$$

N : R.P.M

V : Recommended Cutting Speed

d : Diameter of Cutter

F₁ : Feed at Cutting Edge

fz : Recommended Feed per Tooth

Z : Number of Teeth

F₂ : Feed at Center Line of CuttingF₁ : Feed at Cutting Edge

D : Major Diameter of Component

COMBO
TAPSSPIRAL
POINT TAPSSPIRAL
FLUTE TAPSSTRAIGHT
FLUTE TAPSCOLD
FORMING
TAPS

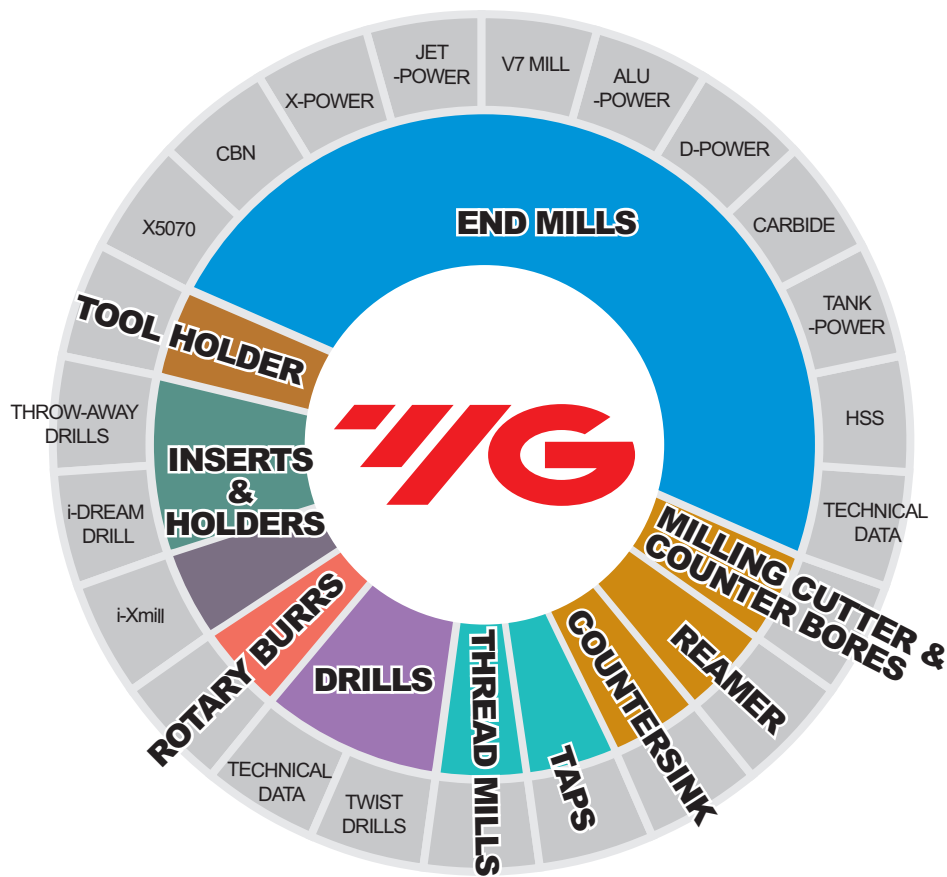
NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE
TAPSTHREAD
MILLSTECHNICAL
DATA



Challenge toward a Global Leader-
YG-1 Leads the World Market.

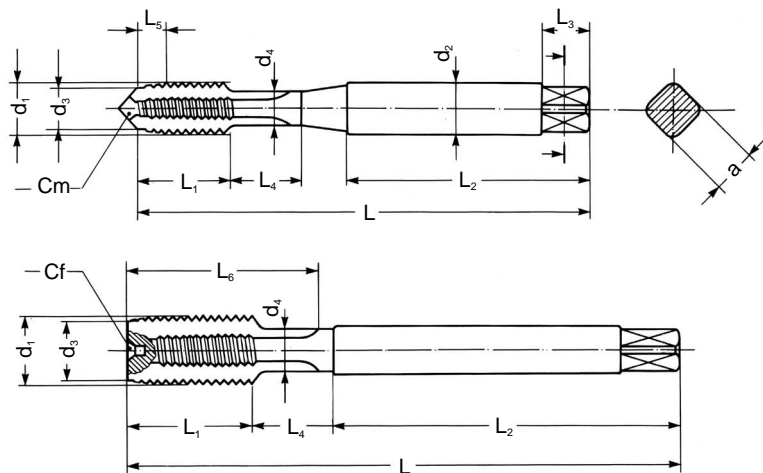
TAPS



Being the best through innovation



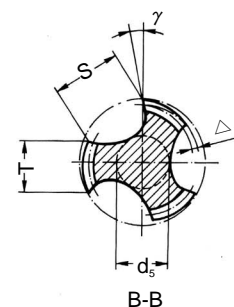
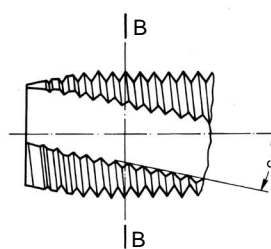
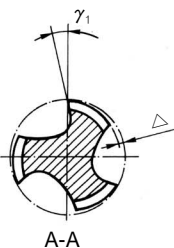
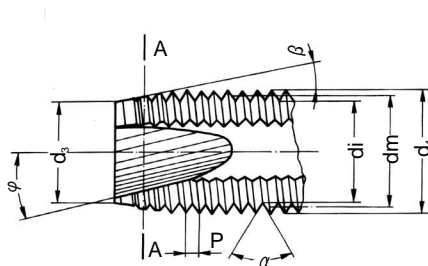
TECHNICAL DATA
TECHNISCHE DATEN


TAPS TERMINOLOGY
FACHAUSDRÜCKE BEI GEWINDEBOHRERN (Terminologie)


d ₁	Major diameter
d ₂	Shank diameter
d ₃	Chamfer diameter
d ₄	Neck diameter
L	Total length
L ₁	Thread length
L ₂	Shank length
L ₃	Square length
L ₄	Neck length
L ₅	Chamfer length
L ₆	Flutes length
a	Square
Cm	Center male
Cf	Center female

d ₁	Nenn Aussendurchmesser
d ₂	Schaftdurchmesser
d ₃	Anschnittdurchmesser
d ₄	Bunddurchmesser
L	Gesamtlänge
L ₁	Gewindelänge
L ₂	Schaftlänge
L ₃	Vierkantlänge
L ₄	Bundlänge
L ₅	Anschnittlänge
L ₆	Nutenlänge
a	Vierkantmaß
Cm	Mittelpunkt des Aussengewindes
Cf	Mittelpunkt des Innengewindes

d ₁	Diamètre externe nominal
d ₂	Diamètre de la queue
d ₃	Diamètre de l'entrée
d ₄	Diamètre de la collerette de dégagement
L	Longueur totale
L ₁	Longueur de la partie filetée
L ₂	Longueur de la queue
L ₃	Longueur du carré
L ₄	Longueur de la collerette de dégagement
L ₅	Longueur de l'entrée
L ₆	Longueur des goujures
a	Carré
Cm	Centre mâle
Cf	Centre femelle



d ₁	Major diameter
dm	Flank diameter
di	Minor diameter
d ₃	Chamfer diameter
P	Pitch
a	Flank angle
beta	Chamfer angle
phi	Gun nose angle
gamma	Gun nose rake angle in front
delta	Chamfer relief
delta1	Pitch diameter relief on the land
gamma	Rake angle
T	Width of land
S	Flute width
d ₅	Web tickness
epsilon	Angle of spiral flute

d ₁	Nenn Aussendurchmesser
dm	Flankendurchmesser
di	Kerndurchmesser
d ₃	Anschnittdurchmesser
P	Steigung
a	Flankenwinkel
beta	Anschnittwinkel
phi	Schälswinkel
gamma	Schälswinkel
gamma1	Schälswinkel
delta	Hinterschliff am Anschnitt
delta1	Flankenhinterschliff auf Zahnbreite
gamma	Spanwinkel
T	Zahnstollenbreite
S	Nutenbreite
d ₅	Seelendicke
epsilon	Spiralwinkel

d ₁	Diamètre externe nominal
dm	Diamètre moyen
di	Diamètre interne
d ₃	Diamètre de l'entrée
P	Pas
a	Angle du filet
beta	Demi-angle du cône d'entrée
phi	Angle de l'entrée GUN
gamma	Angle de coupe sur l'entrée GUN
gamma1	Angle de coupe sur l'entrée GUN
delta	Détalonnage sur l'entrée
delta1	Détalonnage sur le filet
gamma	Angle de coupe frontale
T	Largeur des dents
S	Largeur des goujures
d ₅	Diamètre de l'âme
epsilon	Angle d'hélice des goujures

RECOMMENDED TAP DRILL SIZE
EMPFOHLENE KERNLOCHMASSE

Unit : mm

Metric-ISO threads coarse pitch				Metric-ISO threads fine pitch				Metric-ISO threads fine pitch			
M	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size
1	0.25	0.785	0.75	2.5	0.35	2.221	2.15	25	2.00	23.210	23.00
1.1	0.25	0.885	0.85	3	0.35	2.271	2.65	26	1.50	24.676	24.50
1.2	0.25	0.985	0.95	3.5	0.35	3.221	3.15	27	1.00	26.153	26.00
1.4	0.30	1.160	1.10	4	0.50	3.599	3.50	27	1.50	25.676	25.50
1.6	0.35	1.321	1.25	4.5	0.50	4.099	4.00	27	2.00	25.210	25.00
1.7	0.35	1.346	1.30	5	0.50	4.599	4.50	28	1.00	27.153	27.00
1.8	0.35	1.521	1.45	5.5	0.50	5.099	5.00	28	1.50	26.676	26.50
2	0.40	1.679	1.60	6	0.75	5.378	5.20	28	2.00	26.210	26.00
2.2	0.45	1.838	1.75	7	0.75	6.378	6.20	30	1.00	29.153	29.00
2.3	0.40	1.920	1.90	8	0.75	7.378	7.20	30	1.50	28.676	28.50
2.5	0.45	2.138	2.05	8	1.00	7.153	7.00	30	2.00	28.210	28.00
2.6	0.45	2.176	2.10	9	0.75	8.378	8.20	30	3.00	27.252	27.00
3	0.50	2.599	2.50	9	1.00	8.153	8.00	32	1.50	30.675	30.50
3.5	0.60	3.010	2.90	10	0.75	9.378	9.20	32	2.00	30.210	30.00
4	0.70	3.422	3.30	10	1.00	9.153	9.00	33	1.50	31.676	31.50
4.5	0.75	3.878	3.70	10	1.25	8.912	8.80	33	2.00	31.210	31.00
5	0.80	4.334	4.20	11	0.75	10.378	10.20	33	3.00	30.252	30.00
6	1.00	5.153	5.00	11	1.00	10.153	10.00	35	1.50	33.676	33.50
7	1.00	6.153	6.00	12	1.00	11.153	11.00	36	1.50	34.676	34.50
8	1.25	6.912	6.80	12	1.25	10.912	10.80	36	2.00	34.210	34.00
9	1.25	7.912	7.80	12	1.50	10.676	10.50	36	3.00	33.252	33.00
10	1.50	8.676	8.50	14	1.00	13.153	13.00	38	1.50	36.676	36.50
11	1.50	9.676	9.50	14	1.25	12.912	12.80	39	1.50	37.676	37.50
12	1.75	10.441	10.20	14	1.50	12.676	12.50	39	2.00	37.210	37.00
14	2.00	12.210	12.00	15	1.00	14.153	14.00	39	3.00	36.252	36.00
16	2.00	14.210	14.00	15	1.50	13.676	13.50	40	1.50	38.676	38.50
18	2.50	15.744	15.50	16	1.00	15.153	15.00	40	2.00	38.210	38.00
20	2.50	17.744	17.50	16	1.50	14.676	14.50	40	3.00	37.252	37.00
22	2.50	19.744	19.50	17	1.00	16.153	16.00	42	1.50	40.676	40.50
24	3.00	21.252	21.00	17	1.50	15.676	15.50	42	2.00	40.210	40.00
27	3.00	24.252	24.00	18	1.00	17.153	17.00	42	3.00	39.252	39.00
30	3.50	26.771	26.50	18	1.50	16.676	16.50	45	1.50	43.676	43.50
33	3.50	29.771	29.50	18	2.00	16.210	16.00	45	2.00	43.210	43.00
36	4.00	32.270	32.00	20	1.00	19.153	19.00	45	3.00	42.252	42.00
39	4.00	35.270	35.00	20	1.50	18.676	18.50	48	1.50	46.676	46.50
42	4.50	37.799	37.50	20	2.00	18.210	18.00	48	2.00	46.210	46.00
45	4.50	40.799	40.50	22	1.00	21.153	21.00	48	3.00	45.252	45.00
48	5.00	43.297	43.00	22	1.50	20.676	20.50	50	1.50	48.676	48.50
52	5.00	47.297	47.00	22	2.00	20.210	20.00	50	2.00	48.210	48.00
56	5.50	50.796	50.50	24	1.00	23.153	23.00	50	3.00	47.252	47.00
60	5.50	54.796	54.50	24	1.50	22.676	22.50	52	1.50	50.676	50.50
64	6.00	58.305	58.00	24	2.00	22.210	22.00	52	2.00	50.210	50.00
68	6.00	62.305	62.00	25	1.00	24.153	24.00	52	3.00	49.252	49.00
				25	1.50	23.676	23.50				



Unit : mm

COMBO
TAPSSPIRAL
POINT TAPSSPIRAL
FLUTE TAPSSTRAIGHT
FLUTE TAPSCOLD
FORMING
TAPS

NUT TAPS

STI TAPS

HAND TAPS

PIPE TAPS

CARBIDE
TAPSTHREAD
MILLSTECHNICAL
DATA

American Unified coarse threads			
UNC	T.P.I	Maximum core dia.	Drill size
#1	64	1.585	1.50
#2	56	1.872	1.80
#3	48	2.146	2.10
#4	40	2.385	2.30
#5	40	2.697	2.60
#6	32	2.896	2.85
#8	32	3.528	3.50
#10	24	3.950	3.90
#12	24	4.590	4.50
1/4"	20	5.250	5.20
5/16"	18	6.680	6.60
3/8"	16	8.082	8.00
7/16"	14	9.441	9.40
1/2"	13	10.881	10.75
9/16"	12	12.301	12.25
5/8"	11	13.693	13.50
3/4"	10	16.624	16.50
7/8"	9	19.520	19.50
1"	8	22.344	22.25
1*1/8"	7	25.082	25.00
1*1/4"	7	28.258	28.25
1*3/8"	6	30.851	30.75
1*1/2"	6	34.026	34.00
1*3/4"	5	39.560	39.50
2"	4.5	45.367	45.25

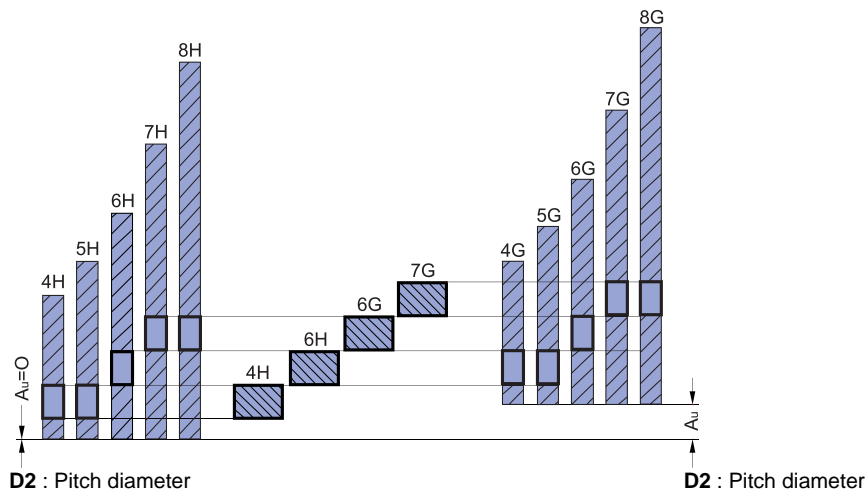
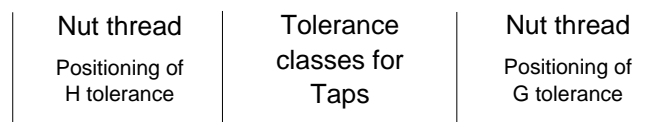
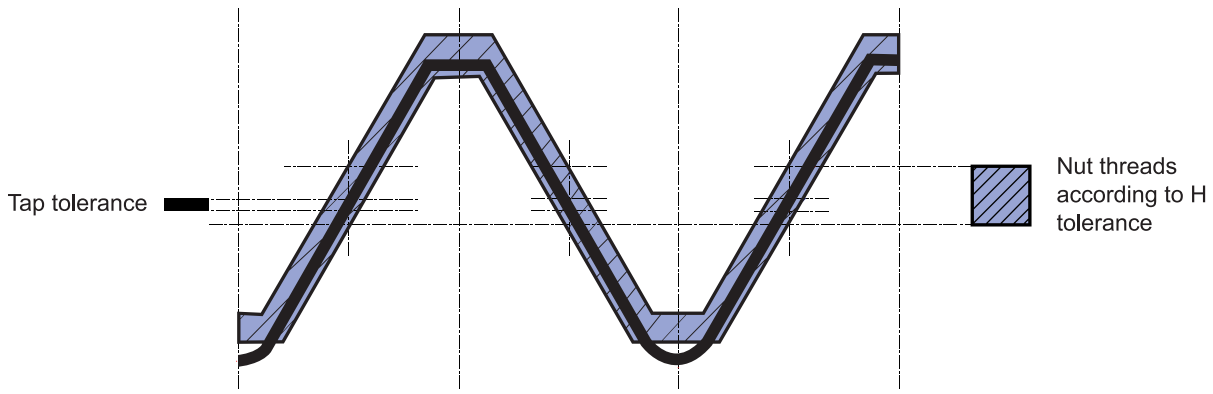
American Unified fine threads			
UNF	T.P.I	Maximum core dia.	Drill size
#0	80	1.306	1.30
#1	72	1.613	1.60
#2	64	1.913	1.90
#3	56	2.197	2.10
#4	48	2.459	2.40
#5	44	2.741	2.70
#6	40	3.012	3.00
#8	36	3.597	3.50
#10	32	4.168	4.10
#12	28	4.717	4.70
1/4"	28	5.563	5.50
5/16"	24	6.995	6.90
3/8"	24	8.565	8.50
7/16"	20	9.947	9.90
1/2"	20	11.524	11.50
9/16"	18	12.969	12.90
5/8"	18	14.554	14.50
3/4"	16	17.546	17.50
7/8"	14	20.493	20.50
1"	12	23.363	23.25
1*1/8"	12	26.538	26.50
1*1/4"	12	29.713	29.50
1*3/8"	12	32.888	32.70
1*1/2"	12	36.063	36.00

Whitworth threads B.S.W.			
BSW	T.P.I	Maximum core dia.	Drill size
3/32"	48	1.910	1.80
1/8"	40	2.590	2.50
5/32"	32	3.211	3.10
3/16"	24	3.743	3.60
7/32"	24	4.538	4.40
1/4"	20	5.224	5.10
5/16"	18	6.661	6.50
3/8"	16	8.052	7.90
7/16"	14	9.379	9.30
1/2"	12	10.610	10.50
9/16"	12	12.176	12.00
5/8"	11	13.598	13.50
3/4"	10	16.538	16.50
7/8"	9	19.411	19.25
1"	8	22.185	22.00
1*1/8"	7	24.879	24.75
1*1/4"	7	28.054	27.75
1*3/8"	6	30.555	30.50
1*1/2"	6	33.730	33.50
1*5/8"	5	35.921	35.50
1*3/4"	5	39.096	39.00
1*7/8"	4.5	41.648	41.50
2"	4.5	44.823	44.50
2*1/4"	4	50.420	50.00
2*1/2"	4	56.770	56.50
2*3/4"	3.5	62.108	62.00
3"	3.5	68.459	68.50

Whitworth pipe thread BSP.PI			
G(BSP)	T.P.I	Maximum core dia.	Drill size
1/8"	28	8.848	8.80
1/4"	19	11.890	11.80
3/8"	19	15.395	15.25
1/2"	14	19.172	19.00
5/8"	14	21.128	21.00
3/4"	14	24.658	24.50
7/8"	14	28.418	28.25
1"	11	30.931	30.75
1*1/8"	11	35.579	35.50
1*1/4"	11	39.592	39.50
1*3/8"	11	42.005	42.00
1*1/2"	11	45.485	45.20
1*5/8"	11	49.670	49.60
1*3/4"	11	51.428	51.40
2"	11	57.296	57.20
2*1/4"	11	63.392	63.30
2*3/8"	11	67.080	67.00
2*1/2"	11	72.866	72.80
2*3/4"	11	79.216	79.10
3"	11	85.566	85.50
3*1/4"	11	91.662	91.50
3*1/2"	11	98.012	98.00
3*3/4"	11	104.362	104.00
4"	11	110.712	110.50

4 TAP TOLERANCES
GEWINDEBOHRER TOLERANZEN

Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO Standard.
Toleranzklassen und Toleranzfelder für Schraubengewinde entsprechen dem metrischen ISO-Standard



Taps tolerances and recommended classes

Tap tolerance ISO	Tap tolerance DIN	Correct class to obtain Nut thread with tolerance				
ISO 1	4H	4H	5H			
ISO 2	6H	4G	5G	6H		
ISO 3	6G			6G	7H	8H
	7G				7G	8G


**METRIC ISO COARSE THREADS
METRISCHES ISO-GEWINDE**

Nominal dimensions UNI 4535-64

Production tolerances on tap pitch diameter for ISO 6H Nut threads

Limit dimensions-Nut threads ISO 6H

Dimensions in mm

$$H = 0.86603P$$

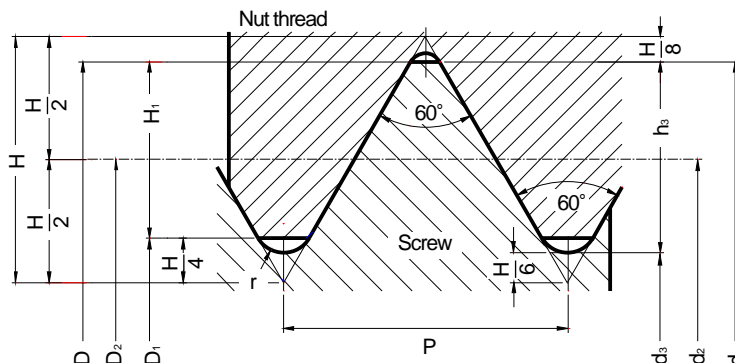
$$H_1 = \frac{5}{8}H = 0.54127P$$

$$h_3 = \frac{17}{24}H = 0.61343P$$

$$d_2 = D_2 = d - H = \frac{3}{4}d - 0.64952P$$

$$d_3 = d - 2h_3 = d - 1.22687P$$

$$r = \frac{H}{6} = 0.14434P$$



Nominal diameter	Pitch	Pitch diameter	Minor diameter		Thread depth		Radius	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw	Nut	Screw	Nut		min.	max.	min.	max.
d = D	P	d ₂ = D ₂	d ₃	D ₁	h ₃	H ₁	r	d ₂			
M 1.6	0.35	1.373	1.171	1.221	0.215	0.189	0.051	1.393	1.407	1.373	1.458
M 1.8	0.35	1.573	1.371	1.421	0.215	0.189	0.051	1.593	1.607	1.573	1.658
M 2	0.4	1.740	1.509	1.567	0.245	0.217	0.058	1.761	1.776	1.740	1.830
M 2.2	0.45	1.908	1.648	1.713	0.276	0.244	0.065	1.931	1.946	1.908	2.003
M 2.5	0.45	2.208	1.948	2.013	0.276	0.244	0.065	2.231	2.246	2.208	2.303
M 3	0.5	2.675	2.387	2.459	0.307	0.271	0.072	2.699	2.715	2.675	2.775
M 3.5	0.6	3.110	2.764	2.850	0.368	0.325	0.087	3.137	3.155	3.110	3.222
M 4	0.7	3.545	3.141	3.242	0.429	0.379	0.101	3.574	3.593	3.545	3.663
M 4.5	0.75	4.013	3.580	3.688	0.460	0.406	0.108	4.042	4.061	4.013	4.131
M 5	0.8	4.480	4.019	4.134	0.491	0.433	0.115	4.510	4.530	4.480	4.605
M 6	1	5.350	4.773	4.917	0.613	0.541	0.144	5.385	5.409	5.350	5.500
M 7	1	6.350	5.773	5.917	0.613	0.541	0.144	6.385	6.409	6.350	6.500
M 8	1.25	7.188	6.466	6.647	0.767	0.677	0.180	7.226	7.251	7.188	7.348
M 9	1.25	8.188	7.466	7.647	0.767	0.677	0.180	8.226	8.251	8.188	8.348
M 10	1.5	9.026	8.160	8.376	0.920	0.812	0.217	9.068	9.096	9.026	9.206
M 11	1.5	10.026	9.160	9.376	0.920	0.812	0.217	10.068	10.096	10.026	10.206
M 12	1.75	10.863	9.853	10.106	1.074	0.947	0.253	10.911	10.943	10.863	11.063
M 14	2	12.701	11.546	11.835	1.227	1.083	0.289	12.752	12.786	12.701	12.913
M 16	2	14.701	13.546	13.835	1.227	1.083	0.289	14.752	14.786	14.701	14.913
M 18	2.5	16.376	14.933	15.294	1.534	1.353	0.361	16.430	16.466	16.376	16.600
M 20	2.5	18.376	16.933	17.294	1.534	1.353	0.361	18.430	18.466	18.376	18.600
M 22	2.5	20.376	18.933	19.294	1.534	1.353	0.361	20.430	20.466	20.376	20.600
M 24	3	22.051	20.319	20.752	1.840	1.624	0.433	22.115	22.157	22.051	22.316
M 27	3	25.051	23.319	23.752	1.840	1.624	0.433	25.115	25.157	25.051	25.316
M 30	3.5	27.727	25.706	26.211	2.147	1.894	0.505	27.794	27.839	27.727	28.007
M 33	3.5	30.727	28.706	29.211	2.147	1.894	0.505	30.794	30.839	30.727	31.007
M 36	4	33.402	31.093	31.670	2.454	2.165	0.577	33.473	33.520	33.402	33.702
M 39	4	36.402	34.093	34.670	2.454	2.165	0.577	36.473	36.520	36.402	36.702
M 42	4.5	39.077	36.479	37.129	2.760	2.436	0.650	39.152	39.202	39.077	39.392
M 45	4.5	42.077	39.479	40.129	2.760	2.436	0.650	42.152	42.202	42.077	42.392
M 48	5	44.752	41.866	42.587	3.067	2.706	0.722	44.832	44.885	44.752	45.087
M 52	5	48.752	45.866	46.587	3.067	2.706	0.722	48.832	48.885	48.752	49.087
M 56	5.5	52.428	49.252	50.046	3.374	2.977	0.794	52.512	52.568	52.428	52.783
M 60	5.5	56.428	53.252	54.046	3.374	2.977	0.794	56.512	56.568	56.428	56.783
M 64	6	60.103	56.639	57.505	3.681	3.248	0.866	60.193	60.253	60.103	60.478
M 68	6	64.103	60.639	61.505	3.681	3.248	0.866	64.193	64.253	64.103	64.478

Metric thread MA(old UNI 159 Profile)
Nut tolerance SH8

M 1.7	0.35	1.473	1.246	1.246	0.227	0.227	0.040	1.493	1.507	1.473	1.529
M 2.3	0.4	2.040	1.780	1.780	0.260	0.260	0.040	2.061	2.076	2.040	2.120
M 2.6	0.45	2.308	2.016	2.016	0.292	0.292	0.050	2.331	2.346	2.308	2.388

4-2 METRIC ISO FINE THREADS METRISCHES ISO-FEINGEWINDE

Nominal dimensions UNI 4535-64
Production tolerances on tap flank diameter for ISO 6H Nut threads
Limit dimensions-Nut threads ISO 6H

Dimensions in mm

$$H = 0.86603P$$

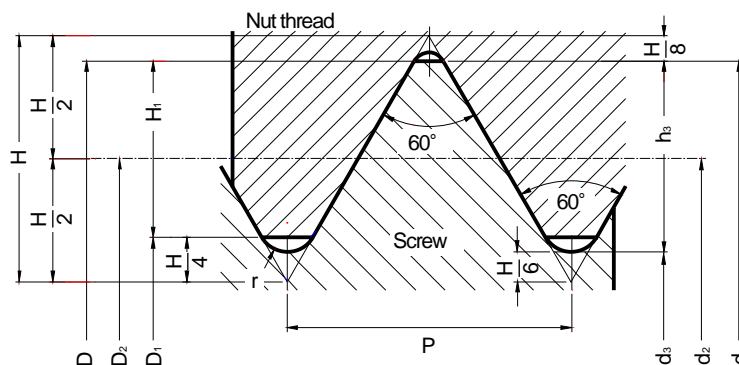
$$H_1 = \frac{5}{8} H = 0.54127P$$

$$h_3 = \frac{17}{24} H = 0.61343P$$

$$d_2 = D_2 = d - \frac{3}{4} H = d - 0.64952P$$

$$d_3 = d - 2h_3 = d - 1.22687P$$

$$r = \frac{H}{6} = 0.14434P$$



Nominal diameter d = D	Pitch P	Flank diameter d2 = D2	Minor diameter		Thread depth		Radius r	Flank diameter Tap tolerance 6H		Flank diameter Nut tolerance 6H	
			Screw d3	Nut D1	Screw h3	Nut H1		min.	max.	min.	max.
M 2	0.25	1.838	1.693	1.729	0.153	0.135	0.036	1.844	1.856	1.838	1.886
M 2.5	0.35	2.273	2.701	2.121	0.215	0.189	0.051	2.293	2.307	2.273	2.358
M 3	0.35	2.773	2.571	2.621	0.215	0.189	0.051	2.794	2.809	2.773	2.863
M 3.5	0.35	3.273	3.071	3.121	0.215	0.189	0.051	3.294	3.309	3.273	3.363
M 4	0.5	3.675	3.387	3.459	0.307	0.271	0.072	3.699	3.715	3.675	3.775
M 4.5	0.5	4.175	3.887	3.959	0.307	0.271	0.072	4.199	4.215	4.175	4.275
M 5	0.5	4.675	4.387	4.459	0.307	0.271	0.072	4.699	4.715	4.675	4.775
M 5.5	0.5	5.175	4.887	4.959	0.307	0.271	0.072	5.199	5.215	5.175	5.275
M 6	0.5	5.675	5.387	5.459	0.307	0.271	0.072	5.702	5.720	5.675	5.787
M 6	0.75	5.513	5.080	5.188	0.460	0.406	0.108	5.545	5.566	5.513	5.645
M 7	0.75	6.513	6.080	6.188	0.460	0.406	0.108	6.545	6.566	6.513	6.645
M 8	0.5	7.675	7.387	7.459	0.307	0.271	0.072	7.702	7.720	7.675	7.787
M 8	0.75	7.513	7.080	7.188	0.460	0.406	0.108	7.545	7.566	7.513	7.645
M 8	1	7.350	6.773	6.917	0.613	0.541	0.144	7.835	7.409	7.350	7.500
M 9	0.75	8.513	8.080	8.188	0.460	0.406	0.108	8.545	8.566	8.513	8.645
M 9	1	8.350	7.773	7.917	0.613	0.541	0.144	8.385	8.409	8.350	8.500
M 10	0.5	9.675	9.387	9.459	0.307	0.271	0.072	9.702	9.720	9.675	9.787
M 10	0.75	9.513	9.080	9.188	0.460	0.406	0.108	9.545	9.566	9.513	9.645
M 10	1	9.350	8.773	8.917	0.613	0.541	0.144	9.385	9.409	9.350	9.500
M 10	1.25	9.188	8.466	8.647	0.767	0.677	0.180	9.226	9.251	9.188	9.348
M 11	0.75	10.513	10.080	10.188	0.460	0.406	0.108	10.545	10.566	10.513	10.645
M 11	1	10.350	9.773	9.917	0.613	0.541	0.144	10.385	10.409	10.350	10.500
M 12	0.75	11.513	11.080	11.188	0.460	0.406	0.108	11.547	11.569	11.513	11.653
M 12	1	11.350	10.773	10.917	0.613	0.541	0.144	11.388	11.413	11.350	11.510
M 12	1.25	11.188	10.466	10.647	0.767	0.677	0.180	11.230	11.258	11.188	11.368
M 12	1.5	11.026	10.160	10.376	0.920	0.812	0.217	11.071	11.101	11.026	11.216
M 13	1	12.350	11.773	11.917	0.613	0.541	0.144	12.388	12.413	12.350	12.510
M 14	1	13.350	12.773	12.917	0.613	0.541	0.144	13.388	13.413	13.350	13.510
M 14	1.25	13.188	12.466	12.647	0.767	0.677	0.180	13.230	13.258	13.188	13.368
M 14	1.5	13.026	12.160	12.376	0.920	0.812	0.217	13.071	13.101	13.026	13.216
M 15	1	14.350	13.773	13.917	0.613	0.541	0.144	14.388	14.413	14.350	14.510
M 15	1.5	14.026	13.160	13.376	0.920	0.812	0.217	14.071	14.101	14.026	14.216
M 16	1	15.350	14.773	14.917	0.613	0.541	0.144	15.388	15.413	15.350	15.510
M 16	1.25	15.188	14.466	14.647	0.767	0.677	0.180	15.230	15.258	15.188	15.368
M 16	1.5	15.026	14.160	14.376	0.920	0.812	0.217	15.071	15.101	15.026	15.216
M 17	1	16.350	15.773	15.917	0.613	0.541	0.144	16.388	16.413	16.350	16.510
M 17	1.5	16.026	15.160	15.376	0.920	0.812	0.217	16.071	16.101	16.026	16.216
M 18	1	17.350	16.773	16.917	0.613	0.541	0.144	17.388	17.413	17.350	17.510
M 18	1.5	17.026	16.160	16.376	0.920	0.812	0.217	17.071	17.101	17.026	17.216
M 18	2	16.701	15.546	15.835	1.227	1.083	0.289	16.752	16.786	16.701	16.913
M 20	1	19.350	18.773	18.917	0.613	0.541	0.144	19.388	19.413	19.350	19.510
M 20	1.5	19.026	18.160	18.376	0.920	0.812	0.217	19.071	19.101	19.026	19.216
M 20	2	18.701	17.546	17.835	1.227	1.083	0.289	18.752	18.786	18.701	18.913
M 22	1	21.350	20.773	20.917	0.613	0.541	0.144	21.388	21.413	21.350	21.510
M 22	1.5	21.026	20.160	20.376	0.920	0.812	0.217	21.071	21.101	21.026	21.216

**COMBO TAPS****SPIRAL POINT TAPS****SPIRAL FLUTE TAPS****STRAIGHT FLUTE TAPS****COLD FORMING TAPS****NUT TAPS****STI TAPS****HAND TAPS****PIPE TAPS****CARBIDE TAPS****THREAD MILLS****TECHNICAL DATA**

	Nominal diameter <i>d</i> = <i>D</i>	Pitch <i>P</i>	Flank diameter <i>d2</i> = <i>D2</i>	Minor diameter		Thread depth		Radius <i>r</i>	Flank diameter Tap tolerance 6H		Flank diameter Nut tolerance 6H	
				Screw <i>d3</i>	Nut <i>D1</i>	Screw <i>h3</i>	Nut <i>H1</i>		min.	max.	min.	max.
M 22	2	20.701	19.546	19.835	1.227	1.083	0.289	20.752	20.786	20.701	20.913	
M 24	1	23.350	22.773	22.917	0.613	0.541	0.144	23.390	23.416	23.350	23.520	
M 24	1.5	23.026	22.160	22.376	0.920	0.812	0.217	23.074	23.106	23.026	23.226	
M 24	2	22.701	21.546	21.835	1.227	1.083	0.289	22.754	22.791	22.701	22.925	
M 25	1	24.350	23.773	23.917	0.613	0.541	0.144	24.390	24.416	24.350	24.520	
M 25	1.5	24.026	23.160	23.376	0.920	0.812	0.217	24.074	24.106	24.026	24.226	
M 25	2	23.701	22.546	22.835	1.227	1.083	0.289	23.754	23.791	23.701	23.925	
M 26	1	25.350	24.773	24.917	0.613	0.541	0.144	25.390	25.416	25.350	25.520	
M 26	1.5	25.026	24.160	24.376	0.920	0.812	0.217	25.074	25.106	25.026	25.226	
M 26	2	24.701	23.546	23.835	1.227	1.083	0.289	24.754	24.791	24.701	24.925	
M 27	1	26.350	25.773	25.917	0.613	0.541	0.144	26.390	26.416	26.350	26.520	
M 27	1.5	26.026	25.160	25.376	0.920	0.812	0.217	26.074	26.106	26.026	26.226	
M 27	2	25.701	24.546	24.835	1.227	1.083	0.289	25.754	25.791	25.701	25.925	
M 28	1	27.350	26.773	26.917	0.613	0.541	0.144	27.390	27.416	27.350	27.520	
M 28	1.5	27.026	26.160	26.376	0.920	0.812	0.217	27.074	27.106	27.026	27.226	
M 28	2	26.701	25.546	25.835	1.227	1.083	0.289	26.754	26.791	26.701	26.925	
M 30	1	29.350	28.773	28.917	0.613	0.541	0.144	29.390	29.416	29.350	29.520	
M 30	1.5	29.026	28.160	28.376	0.920	0.812	0.217	29.074	29.106	29.026	29.226	
M 30	2	28.701	27.546	27.835	1.227	1.083	0.289	28.754	28.791	28.701	28.925	
M 30	3	28.051	26.319	26.752	1.840	1.624	0.433	28.115	28.157	28.051	28.316	
M 32	1.5	31.026	30.160	30.376	0.920	0.812	0.217	31.074	31.106	31.026	31.226	
M 32	2	30.701	29.546	29.835	1.227	1.083	0.289	30.754	30.791	30.701	30.925	
M 33	1.5	32.026	31.160	31.376	0.920	0.812	0.217	32.074	32.106	32.026	32.226	
M 33	2	31.701	30.546	30.835	1.227	1.083	0.289	31.754	31.791	31.701	31.925	
M 33	3	31.051	29.319	29.752	1.840	1.624	0.433	31.115	31.157	31.051	31.316	
M 35	1.5	34.026	33.160	33.376	0.920	0.812	0.217	34.074	34.106	34.026	34.226	
M 35	2	33.701	32.546	32.835	1.227	1.083	0.289	33.754	33.791	33.701	33.925	
M 36	1.5	35.026	34.160	34.376	0.920	0.812	0.217	35.074	35.106	35.026	35.226	
M 36	2	34.701	33.546	33.835	1.227	1.083	0.289	34.754	34.791	34.701	34.925	
M 36	3	34.051	32.319	32.752	1.840	1.624	0.433	34.115	34.157	34.051	34.316	
M 38	1.5	37.026	36.160	36.376	0.920	0.812	0.217	37.074	37.106	37.026	37.226	
M 39	1.5	38.026	37.160	37.376	0.920	0.812	0.217	38.074	38.106	38.026	38.226	
M 39	2	37.701	36.546	36.835	1.227	1.083	0.289	37.754	37.791	37.701	37.925	
M 39	3	37.051	35.319	35.752	1.840	1.624	0.433	37.115	37.157	37.051	37.316	
M 40	1.5	39.026	38.160	38.376	0.920	0.812	0.217	39.074	39.106	39.026	39.226	
M 40	2	38.701	37.546	37.835	1.227	1.083	0.289	38.754	38.791	38.701	38.925	
M 40	3	38.051	36.319	36.752	1.840	1.624	0.433	38.115	38.157	38.051	38.316	
M 42	1.5	41.026	40.160	40.376	0.920	0.812	0.217	41.074	41.106	41.026	41.226	
M 42	2	40.701	39.546	39.835	1.227	1.083	0.289	40.754	40.791	40.701	40.925	
M 42	3	40.051	38.319	38.752	1.840	1.624	0.433	40.115	40.157	40.051	40.316	
M 45	1.5	44.026	43.160	43.376	0.920	0.812	0.217	44.074	44.106	44.026	44.226	
M 45	2	43.701	42.546	42.835	1.227	1.083	0.289	43.754	43.791	43.701	43.925	
M 45	3	43.051	41.319	41.752	1.840	1.624	0.433	43.115	43.157	43.051	43.316	
M 48	1.5	47.026	46.160	46.376	0.920	0.812	0.217	47.077	47.111	47.026	47.238	
M 48	2	46.701	45.546	45.835	1.227	1.083	0.289	46.758	46.796	46.701	46.937	
M 48	3	46.051	44.319	44.752	1.840	1.624	0.433	46.118	46.163	46.051	46.331	
M 50	1.5	49.026	48.160	48.376	0.920	0.812	0.217	49.077	49.111	49.026	49.238	
M 50	2	48.701	47.546	47.835	1.227	1.083	0.289	48.758	48.796	48.701	48.937	
M 50	3	48.051	46.319	46.752	1.840	1.624	0.433	48.118	48.163	48.051	48.331	
M 52	1.5	51.026	50.160	50.376	0.920	0.812	0.217	51.077	51.111	51.026	51.238	
M 52	2	50.701	49.546	49.835	1.227	1.083	0.289	50.758	50.796	50.701	50.937	
M 52	3	50.051	48.319	48.752	1.840	1.624	0.433	50.118	50.163	50.051	50.331	
M 55	1.5	54.026	53.160	53.376	0.920	0.812	0.217	54.077	54.111	54.026	54.238	
M 55	2	53.701	52.546	52.835	1.227	1.083	0.289	53.758	53.796	53.701	53.937	
M 55	3	53.051	51.319	51.752	1.840	1.624	0.433	53.118	53.163	53.051	53.331	
M 56	1.5	55.026	54.160	54.376	0.920	0.812	0.217	55.077	55.111	55.026	55.238	
M 56	2	54.701	53.546	53.835	1.227	1.083	0.289	54.758	54.796	54.701	54.937	
M 56	3	54.051	52.319	52.752	1.840	1.624	0.433	54.118	54.163	54.051	54.331	
M 58	1.5	57.026	56.160	56.376	0.920	0.812	0.217	57.077	57.111	57.026	57.238	
M 58	2	56.701	55.546	55.835	1.227	1.083	0.289	56.758	56.796	56.701	56.937	
M 58	3	56.051	54.319	54.752	1.840	1.624	0.433	56.118	56.163	56.051	56.331	
M 60	1.5	59.026	58.160	58.376	0.920	0.812	0.217	59.077	59.111	59.026	59.238	
M 60	2	58.701	57.546	57.835	1.227	1.083	0.289	58.758	58.796	58.701	58.937	
M 60	3	58.051	56.319	56.752	1.840	1.624	0.433	58.118	58.163	58.051	58.331	

Metric thread MB(old UNI 160 Profile)**Nut tolerance SH8**

M 2,3	0.25	2.138	1.976	1.976	0.162	0.162	0.030	2.144	2.156	2.138	2.194
M 2,6	0.35	2.373	2.146	2.146	0.227	0.227	0.040	2.393	2.407	2.373	2.429

**4-3 UNIFIED COARSE THREADS
UNIFIED GROBGEWINDE**

Nominal dimensions as per ANSI B1.1

Production tolerances on tap flank diameter for 2B class nut threads

Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$$H = 0.86603P$$

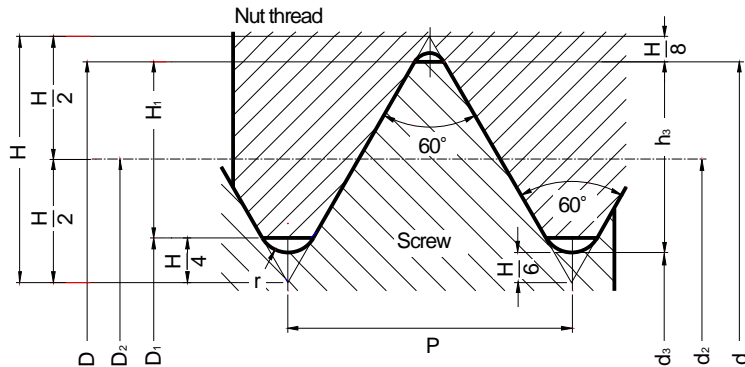
$$H_1 = \frac{5}{8}H = 0.54127P$$

$$h_3 = \frac{17}{24}H = 0.61343P$$

$$d_2 = D_2 = d - \frac{3}{4}H = d - 0.64952P$$

$$d_3 = d - 2h_3 = d - 1.22687P$$

$$r = \frac{H}{6} = 0.14434P$$



Nominal diameter	T.P.I	Pitch P	External diameter d = D	Flank diameter d ₂ = D ₂	Minor diameter		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut D ₁	Screw d ₃	min.	max.	min. 2B/3B	max. 2B	max. 3B
UNC#1	-64	0.397	1.854	1.598	1.425	1.367	1.610	1.623	1.598	1.664	1.646
UNC# 2	-64	0.454	2.184	1.890	1.694	1.628	1.902	1.915	1.890	1.961	1.943
UNC#3	-48	0.529	2.515	2.172	1.941	1.864	2.184	2.197	2.172	2.248	2.228
UNC# 4	-40	0.635	2.845	2.433	2.156	2.065	2.446	2.459	2.433	2.517	2.494
UNC# 5	-40	0.635	3.175	2.764	2.487	2.395	2.776	2.789	2.764	2.847	2.827
UNC# 6	-32	0.794	3.505	2.990	2.647	2.532	3.105	3.028	2.990	3.084	3.058
UNC# 8	-32	0.794	4.166	3.650	3.307	3.193	3.675	3.688	3.650	3.746	3.721
UNC# 10	-24	1.058	4.826	4.138	3.680	3.528	4.163	4.176	4.138	4.247	4.219
UNC# 12	-24	1.058	5.486	4.798	4.341	4.188	4.823	4.836	4.798	4.910	4.882
UNC 1/4"	-20	1.270	6.350	5.524	4.976	4.793	5.575	5.588	5.524	5.646	5.616
UNC 5/16"	-18	1.411	7.938	7.021	6.411	6.205	7.071	7.084	7.021	7.155	7.120
UNC 3/8"	-16	1.588	9.525	8.494	7.805	7.577	8.545	8.557	8.494	8.639	8.603
UNC 7/16"	-14	1.814	11.112	9.934	9.149	8.887	9.985	9.997	9.934	10.089	10.051
UNC 1/2"	-13	1.954	12.700	11.430	10.584	10.302	11.481	11.494	11.430	11.595	11.552
UNC 9/16"	-12	2.117	14.288	12.913	11.996	11.692	12.964	12.977	12.913	13.086	13.043
UNC 5/8"	-11	2.309	15.875	14.376	13.376	13.043	14.427	14.440	14.376	14.559	14.514
UNC 3/4"	-10	2.540	19.050	17.399	16.229	15.933	17.450	17.463	17.399	17.595	17.544
UNC 7/8"	-9	2.822	22.225	20.391	19.169	18.763	20.455	20.467	20.391	20.599	20.546
UNC 1"	-8	3.175	25.400	23.338	21.963	21.504	23.401	23.414	23.338	23.561	23.505
UNC 1*1/8"	-7	3.629	28.575	26.218	24.648	24.122	26.294	26.319	26.218	26.457	26.398
UNC 1*1/4"	-7	3.629	31.750	29.393	27.823	27.297	29.469	29.494	29.393	29.637	29.576
UNC 1*3/8"	-6	4.233	34.925	32.174	30.343	29.731	32.250	32.276	32.174	32.438	32.372
UNC 1*1/2"	-6	4.233	38.100	35.349	33.518	32.906	35.425	35.451	35.349	35.616	35.550
UNC 1*3/4"	-5	5.080	44.450	41.151	38.951	38.217	41.241	41.266	41.151	41.445	41.372
UNC 2"	-4 1/2	5.644	50.800	47.135	44.689	43.876	47.235	47.260	47.135	47.450	47.371
UNC 2*1/4"	-4 1/2	5.644	57.150	53.485	51.039	50.226			53.485	53.805	53.726
UNC 2*1/2"	-4	6.350	63.500	59.375	56.627	55.710			59.375	59.718	59.632
UNC 2*3/4"	-4	6.350	69.850	65.725	62.977	62.060			65.725	66.073	65.987
UNC 3"	-4	6.350	76.200	72.075	69.327	68.410			72.075	72.428	72.339
UNC 3*1/4"	-4	6.350	82.550	78.425	75.677	74.760			78.425	78.783	78.694
UNC 3*1/2"	-4	6.350	88.900	84.775	82.027	81.110			84.775	85.183	85.049
UNC 3*3/4"	-4	6.350	95.250	91.125	88.377	87.460			91.125	91.493	91.402
UNC 4"	-4	6.350	101.600	97.475	94.727	93.810			97.475	97.848	97.757


**UNIFIED FINE THREADS
UNIFIED FEINGEWINDE**

Nominal dimensions as per ANSI B1.1

Production tolerances on tap flank diameter for 2B class nut threads

Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm

$$H = 0.86603P$$

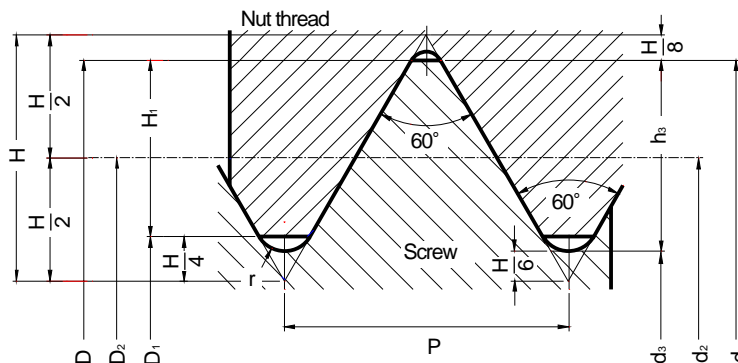
$$H_1 = \frac{5}{8}H = 0.54127P$$

$$h_3 = \frac{17}{24}H = 0.61343P$$

$$d_2 = D_2 = d - \frac{3}{4}H = d - 0.64952P$$

$$d_3 = d - 2h_3 = d - 1.22687P$$

$$r = \frac{H}{6} = 0.14434P$$



Nominal diameter	T.P.I	Pitch P	External diameter d = D	Flank diameter d2 = D2	Minor diameter		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut D1	Screw d3	min.	max.	min. 2B/3B	max. 2B	max. 3B
UNF#0	-80	0.318	1.524	1.318	1.181	1.135	1.331	1.344	1.318	1.377	1.361
UNF#1	-72	0.353	1.854	1.626	1.473	1.422	1.638	1.651	1.626	1.689	1.674
UNF#2	-64	0.397	2.184	1.928	1.755	1.697	1.941	1.953	1.928	1.996	1.979
UNF#3	-56	0.454	2.515	2.220	2.024	1.958	2.233	2.245	2.220	2.291	2.273
UNF#4	-48	0.529	2.845	2.502	2.271	2.195	2.515	2.527	2.502	2.581	2.560
UNF#5	-44	0.577	3.175	2.799	2.550	2.466	2.812	2.824	2.799	2.880	2.860
UNF#6	-40	0.635	3.505	3.094	2.817	2.725	3.108	3.119	3.094	3.180	3.157
UNF#8	-36	0.706	4.166	3.708	3.401	3.299	3.721	3.734	3.708	3.800	3.777
UNF#10	-32	0.794	4.826	4.310	3.967	3.853	4.336	4.348	4.310	4.409	4.384
UNF#12	-28	0.907	5.486	4.897	4.503	4.374	4.923	4.935	4.897	5.004	4.976
UNF 1/4"	-28	0.907	6.350	5.761	5.367	5.237	5.799	5.812	5.761	5.870	5.842
UNF 5/16"	-24	1.058	7.938	7.249	6.792	6.640	7.287	7.300	7.249	7.371	7.341
UNF 3/8"	-24	1.058	9.525	8.837	8.379	8.227	8.875	8.887	8.837	8.961	8.931
UNF 7/16"	-20	1.270	11.112	10.287	9.738	9.555	10.338	10.351	10.287	10.424	10.391
UNF 1/2"	-20	1.270	12.700	11.874	11.326	11.143	11.925	11.938	11.874	12.017	11.981
UNF 9/16"	-18	1.411	14.288	13.371	12.761	12.555	13.421	13.434	13.371	13.520	13.482
UNF 5/8"	-18	1.411	15.875	14.958	14.348	14.143	15.009	15.022	14.958	15.110	15.072
UNF 3/4"	-16	1.588	19.050	18.019	17.330	17.102	18.070	18.082	18.019	18.184	18.143
UNF 7/8"	-14	1.814	22.225	21.046	20.262	20.000	21.110	21.123	21.046	21.224	21.181
UNF 1"	-12	2.117	25.400	24.026	23.109	22.804	24.089	24.102	24.026	24.219	24.171
UNF 1*1/8"	-12	2.117	28.575	27.201	26.284	25.979	27.252	27.277	27.201	27.339	27.351
UNF 1*1/4"	-12	2.117	31.750	30.376	29.459	29.154	30.427	30.452	30.376	30.579	30.528
UNF 1*3/8"	-12	2.117	34.925	33.551	32.634	32.329	33.602	33.627	33.551	33.759	33.706
UNF 1*1/2"	-12	2.117	38.100	36.726	35.809	35.504	36.777	36.802	36.726	36.937	36.886


**WHITWORTH PIPE THREADS
WHITWORTH ROHRGEWINDE**

Nominal dimensions ISO 228/1-UNI 338-66
Production tolerances on tap flank diameter
Limit dimensions for internal threads

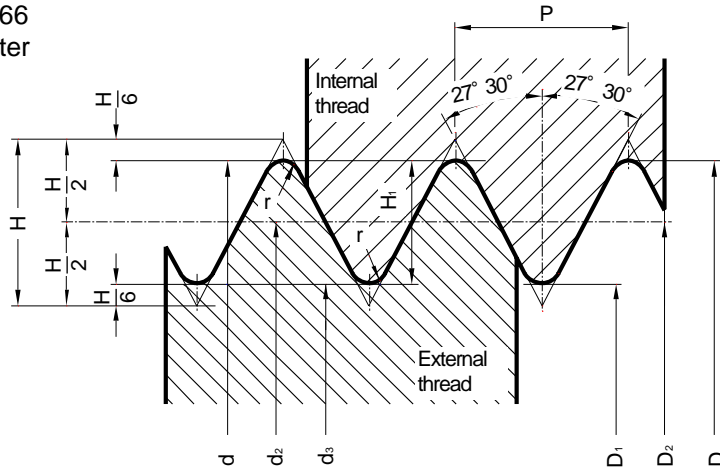
Dimensions in mm

$$P = \frac{25.4}{z}$$

$$H = 0.960491 P$$

$$H_1 = 0.640327 P$$

$$r = 0.137329 P$$



Type (1)	Thread diameter d = D	Pitch P	T.P.I z	Flank diameter d2 = D2	Minor diameter d3 = d1	H1	r	Tap Flank diameter		Internal Thread Flank diameter	
								min.	max.	min.	max.
G 1/8"	9.728	0.907	28	9.147	8.566	0.581	0.125	9.177	9.194	9.147	9.254
G 1/4"	13.147	1.337	19	12.301	11.445	0.856	0.184	12.336	12.356	12.301	12.426
G 3/8"	16.662	1.337	19	15.806	14.950	0.856	0.184	15.841	15.861	15.806	15.933
G 1/2"	20.955	1.814	14	19.793	18.631	1.162	0.249	19.828	19.848	19.793	19.935
G 5/8"	22.911	1.814	14	21.749	20.587	1.162	0.249	21.784	21.804	21.749	21.891
G 3/4"	26.441	1.814	14	25.279	24.117	1.162	0.249	25.314	25.334	25.279	25.421
G 7/8"	32.201	1.814	14	29.039	27.877	1.162	0.249	29.074	29.094	29.039	29.181
G 1"	33.249	2.309	11	31.770	30.291	1.479	0.317	31.815	31.839	31.770	31.950
G 1*1/8"	37.897	2.309	11	36.418	34.939	1.479	0.317	36.463	36.487	36.418	36.598
G 1*1/4"	41.910	2.309	11	40.431	38.952	1.479	0.317	40.476	40.500	40.431	40.611
G 1*3/8"	44.323	2.309	11	42.844	41.365	1.479	0.317	42.889	42.913	42.844	43.024
G 1*1/2"	47.803	2.309	11	46.324	44.845	1.479	0.317	46.374	46.398	46.324	46.504
G 1*3/4"	53.746	2.309	11	52.267	50.788	1.479	0.317	52.327	52.354	52.267	52.447
G 2"	59.614	2.309	11	58.135	56.656	1.479	0.317	58.195	58.222	58.135	58.315
G 2*1/4"	65.710	2.309	11	64.231	62.752	1.479	0.317	64.291	64.318	64.231	64.448
G 2*3/8"	69.398	2.309	11	67.919	66.440	1.479	0.317	67.979	68.006	67.919	68.136
G 2*1/2"	75.184	2.309	11	73.705	72.226	1.479	0.317	73.765	73.792	73.705	73.922
G 2*3/4"	81.534	2.309	11	80.055	78.576	1.479	0.317	80.127	80.157	80.055	80.272
G 3"	87.884	2.309	11	86.405	84.926	1.479	0.317	86.477	86.507	86.405	86.622
G 3*1/4"	93.980	2.309	11	92.501	91.022	1.479	0.317	92.573	92.603	92.501	92.718
G 3*1/2"	100.330	2.309	11	98.851	97.372	1.479	0.317	98.923	98.953	98.851	99.068
G 3*3/4"	106.680	2.309	11	105.201	103.722	1.479	0.317	105.273	105.303	105.201	105.418
G 4"	113.030	2.309	11	111.551	110.072	1.479	0.317	111.623	111.653	111.551	111.768
G 4*1/2"	125.730	2.309	11	124.251	122.772	1.479	0.317				
G 5"	138.430	2.309	11	136.951	135.472	1.479	0.317				
G 5*1/2"	151.130	2.309	11	149.651	148.172	1.479	0.317				
G 6"	163.830	2.309	11	162.351	160.872	1.479	0.317				

(1) - This type is conventional:originally the value in inches was the internal pipe diameter.

**INTERESTING HINTS FOR TAPPING**
HINWEISE ZUM GEWINDESCHNEIDEN

Optimum tapping conditions reduce effective machining times and increase tap life.

Optimale Bedingungen beim Gewindeschneiden reduzieren die Maschinenhauptzeiten und erhöhen die Standzeit.

Selection of the most suitable tap
Auswahl des geeigneten Gewindebohrers

Which types of tap or whether or not a thread former can be used, depends on the type of material to be machined. As a general guide, materials with an extension of at least 10% can be cold-formed.

To determine the most suitable tap, refer to the tap recommendation table on pages 310 to 315.

Welcher Typ Gewindebohrer oder ob ein Gewindeformer eingesetzt werden kann, hängt von dem zu bearbeitenden Werkstoff ab.

Als allgemeiner Leitwert gilt, daß Werkstoffe mit mindestens 10% Dehnung kaltgeformt werden können.

Zur Bestimmung des optimalen Gewindebohrers nutzen Sie die Empfehlungstabelle auf den Seiten 310 bis 315.

Core holes
Kernlöcher

- Core holes should be clean and swarf-free.
- Core holes should be of the prescribed size, see chart extract on page 513-514 of this catalogue, and dependent on the actual application, selected towards the upper diameter limit.
- Kernlöcher sollten sauber und spanfrei sein.
- Kernlöcher sollten die angegebenen Durchmesser haben, siehe Seiten 513 und 514, und abhängig vom aktuellen Einsatzfall, zur größtmöglichen Durchmesserangabe tendieren.

Lubricant in relation to machining centers
Schmiermitteleinsatz auf Bearbeitungszentren

Frequently the coolants used on machining centers are unsatisfactory for tapping because their percentage lubricant content is too low. If it is not possible to increase the percentage of lubricant in the emulsion, the lubrication problem can be solved in other ways, i.e.:

Meistens sind die gebräuchlichen Kühlmittel in Bearbeitungszentren zum Gewindeschneiden nicht geeignet, weil ihr Anteil an Schmierstoffen zu gering ist. Wenn es nicht möglich ist, den Anteil an Schmierstoffen in der Emulsion zu erhöhen, kann das Schmierproblem in anderer Weise gelöst werden, z. B.:

Lubricating with concentrated emulsion **Schmierung mit konzentrierter Emulsion**

A. A lubricating unit, connected to the machine control, delivers at the required instant a specific quantity of concentrated emulsion into the core hole or onto the tap.

B. A pump in a separate tank, controlled by the machine, delivers a specific amount of concentrate into the core hole.

A. Eine Schmiervorrichtung, die mit der Maschinensteuerung verbunden ist, gibt zum gewünschten Zeitpunkt eine bestimmte Menge konzentrierter Emulsion in das Kernloch oder auf den Gewindebohrer ab.

B. Eine Pumpe mit separatem Tank, mit der Maschinensteuerung verbunden, gibt eine bestimmte Menge des Konzentrats in das Kernloch

Tapping in separate operations **Gewindeschneiden als separater Bearbeitungsgang**

This procedure allows the use of the ideal tapping lubricant.

Dies erlaubt den Einsatz des idealen Gewindeschneid Schmiermittels.

Cutting speeds for taps
Schnittgeschwindigkeiten für Gewindebohrer

The cutting speed has a great influence on chip flow and the life of the tap.

It is worthwhile to establish the ideal cutting speed by tapping trials.

Guide values see on the recommendation table page 316. The cutting speed should be in relation to the characteristics of the material, the machine and its equipment.

Die Schnittgeschwindigkeit hat großen Einfluss auf den Spanabgang und die Lebensdauer des Gewindebohrers.

Bei Großserien ist es lohnend, die ideale Schnittgeschwindigkeit durch Versuche zu ermitteln.

Leitwerte finden Sie in der Empfehlungstabelle Seite 316. Die Schnittgeschwindigkeit sollte auf den Werkstoff, die Maschine und das Umfeld abgestimmt sein.

Effects of unsuitable cutting speed **Die Folgen falscher Schnittgeschwindigkeiten**

- forced tapping **Zu hoher Kraftaufwand**
- tap lead chipping caused by overloaded cutting tooth **Beschädigte Steigung durch überlastete Schneide**
- torn threads **Verschnittenes Gewinde**
- unsatisfactory tap-life **Ungenügende Standzeit**
- rejected threads **Ausschuss**

Cold welding Kaltaufschweißung

What are the causes of cold welding? Was sind die Gründe für eine Kaltaufschweißung?

- unsuitable tap selection Ungeeignete Gewindebohrer Auswahl
- tap with incorrect cutting geometry Gewindebohrer mit falscher Schneidengeometrie
- coolant unsuitable for material Kühlmittel ungeeignet für den Werkstoff
- insufficient coolant Unzureichende Kühlung
- axial pressure (pull or push) on the tap Axialer Druck (Zug oder Druck) auf den Gewindebohrer
- core hole too small Kernloch zu klein
- breaks in walls of core hole Risse in der Wand des Kernlochs
- speed too high or too low Schnittgeschwindigkeit zu hoch oder zu klein
- swarf trapped in the hole Verklemmter Span im Kernloch
- incorrect alignment of tap and core hole Achsversatz zwischen Gewindebohrer und Kernloch
- tap eccentricity Gewindebohrer läuft unrun

Effects of cold welding: Die Folgen von Kaltaufschweißungen

- torn threads verschnittene Gewinde
- short tap life kurze Standzeit
- rejected threads Ausschuss
- tap breakage Werkzeugbruch
- scrap workpieces schrottreife Werkstücke

Tap mounting Gewindebohrer einspannen

- The tap must be mounted on the axis of the core hole.
- On non-synchronized machines (feed / speed) we recommend the use of a tapping spindle.
- Die Achsen von Gewindebohrer und Kernloch müssen genau fluchten.
- Auf nicht synchronisierten Maschinen (Vorschub / Schnittgeschwindigkeit) empfehlen wir den Einsatz einer Gewindegewindeschneidspindel.

Tapping heads Gewindeschneidköpfe

With non-synchronized machine spindles (feed / speed) the feed rate should as a rule be programmed approx. 5-10% lower than the thread pitch. In these cases a tapping chuck must be used which will compensate the difference between the feed rate and the thread pitch.

It is important that the tension spring in the axial compensation is set to a light rate to avoid axially loading the tap. The compression spring should be tensioned so that the tap starts to cut by compressing the spring at the most up to one half pitch.

Bei nicht synchronisierten Maschinenspindeln (Vorschub / Schnittgeschwindigkeit) sollte der Vorschub in der Regel 5 – 10% kleiner sein als die Gewindesteigung. In diesen Fällen muss ein Gewindeschneidfutter verwendet werden, das die Differenz zwischen dem Vorschub und der Gewindesteigung ausgleicht.

Es ist wichtig, daß die Spannfeder im axialen Ausgleich locker eingestellt wird, um eine zu große axiale Belastung des Gewindebohrers zu vermeiden.

Die Druckfeder sollte so gespannt sein, daß der Gewindebohrer zu schneiden beginnt, wenn die Feder bei höchstens einer halben Steigung gespannt ist.

Important hints: Wichtige Hinweise :

Ensure that the correct speed is selected.

Ensure that ample lubricating coolant is used when tapping.

Good machine and equipment stability is essential for optimum quality and performance.

Sorgen Sie für die richtige Schnittgeschwindigkeit.

Sorgen Sie dafür, daß reichlich Kühlschmiermittel beim Gewindeschneiden verwendet wird.

Gute Stabilität von Maschine und Vorrichtungen ist die Grundlage für optimale Qualität und Leistung.


**APPLICATION AND USE OF THREADING TAPS
FEHLER UND ABHILFEN BEIM GEWINDESCHNEIDEN**

Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
Tapped hole oversize Gewinde zu groß	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap selected from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Faulty alignment Fehlerhafte Fluchtung	Ensure that the tap is correctly aligned with the core hole axis Dafür sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Cold welding Kaltaufschweißung	Improve lubrication and direction of coolant Adjust cutting speed Schmierung und Ausrichtung des Kühlstrahls verbessern Schnittgeschwindigkeit korrigieren
	Re-ground tap (lead-in is not concentric) Nachgescharfter Gewindebohrer (Anschnitt nicht konzentrisch)	Regrind tap lead correctly on a suitable tap grinding machine Anschnitt fehlerfrei auf geeigneter Schleifmaschine nachschleifen
Stripped threads Gewinde verschnitten	Incorrect tap in use (cutting geometry incorrect for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use a tap from the relevant material group. Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Spindle speed and feed rate not synchronized Spindelgeschwindigkeit und Vorschub sind nicht aufeinander abgestimmt	Check feed rate programming and / or pitch of leading spindle Use a tapping spindle with axial float Vorschub und / oder Steigung der Spindel überprüfen Gewindeschneidspindel mit axialem Ausgleich verwenden
	Insufficient start pressure exerted on tap with peel-cut Unzureichender Startdruck auf einen Gewindebohrer mit Schalanschnitt	Increase start pressure Startdruck erhöhen
Bell mouthed tapped hole Gewinde trichterförmig	Incorrect start pressure applied to tap Falscher Gewindebohrer im Einsatz	Use a tapping spindle with axial float Gewindeschneidspindel mit axialem Ausgleich verwenden
Unsatisfactory thread surface finish Gewinde zu rau	Incorrect tap in use (Cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Select tap from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	The tap is blunt Die Schneiden sind stumpf	Replace or re-grind tap Neuen oder nachgescharften Gewindebohrer einsetzen
	Tap badly re-ground Der Gewindebohrer ist schlecht nachgescharft	Re-grind tap again. Check that cutting geometry is suitable for material Gewindebohrer korrekt nachschleifen Prüfen, ob die Schneidengeometrie für den Werkstoff geeignet ist
	Coolant lacking in lubricating qualities and / or quantity Kühlmittel mit unzureichendem Schmiermittelanteil	Ensure the use of suitable coolant and an ample supply Für qualitativ und quantitativ gute Kühlung und Schmierung sorgen

Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
Partial chipping of tap Gewinde ist unfertig	Swarf jamming Spanestau	Check cutting speed Use alternative tap type Schnittgeschwindigkeit prüfen Andere Gewindebohrer type wahlen
	Tap has jammed against bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Check hole and thread depths Drill core hole deeper Kernlochtiefe und Gewindelänge prüfen Kernloch tiefer bohren
	Tap incorrectly re-ground (lead-in diameter too small therefore too few cutting teeth) Gewindebohrer ist schlecht nachgeschärft (Anschnittdurchmesser zu klein, deshalb zu wenige schneidende Zähne)	Ensure that original values are maintained when regrinding Beim Nachschärfen auf originale Geometrie achten
	Irregular workpiece material structure Materialfehler im Werkstück	Adjust cutting speed Improve lubricating quality of coolant Schnittgeschwindigkeit anpassen Die Schmierfähigkeit des Kühlmittels verbessern
Excessive tap wear Übermäßiger Verschleiß des Gewindebohrers	Incorrect cutting speed Falsche Schnittgeschwindigkeit	Adjust cutting speed to suit workpiece material Schnittgeschwindigkeit dem Werkstoff anpassen
	Coolant lacking in lubricating qualities and / or quantity Kühlmittel mit unzureichender Schmierqualität oder ?menge	Ensure the use of a suitable coolant and an ample supply Für qualitative und quantitative gute Kühlung und Schmierung sorgen Check that coolant is reaching the cutting zone Prüfen, ob das Kühlmittel den Schnittbereich erreicht
	Surface of the core hole is compacted Verfestigte Bohrungswand des Kernlochs	Check core hole drilling conditions (drill carefully to reduce risk of surface compacting) Einsatzwerte beim Kernlochbohren prüfen (vorsichtig bohren um eine Aufhärtung der Bohrungswand zu vermeiden) Check drill cutting edges Bohrerschneiden überprüfen
Tap breakage Bruch des Gewindebohrers	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Centering error Fehlerhafte Fluchtung	Ensure that axes of tap and core hole are aligned Dafür sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Blunt tap Schneiden sind stumpf	Re-grind tap Neuen oder nachgeschärften Gewindebohrer einsetzen Ensure that taps are stored carefully Auf sorgfältige Lagerung der Gewindebohrer achten
	Tap has reached bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Use tapping spindle with axial float and slipping clutch Gewindeschneidspindel mit axialem Ausgleich und Rutschkupplung verwenden
	Core hole too small Kernloch ist zu klein	Select core hole as per chart, pages 513 ~ 514 of this catalogue Kernloch Durchmesser auf der Tabelle Seite 513 u. 514 auswählen


**RESHARPENING
NACHSCHARFEN**

The resharpening on taps is done for regenerating the active hedges worn by the destructive action of cutting and of friction, it has high importance for an economical exploitation of the tool and so far has to be made rationally, keeping away from wrong operations which can heavily compromise the accuracy and the life.

In order to execute the tap resharpener quickly and accurately we recommend the use of proper resharpener machines having all necessary equipments for this operation.

The tap resharpener take place in two steps:

- resharpener of (relieved) chamfer;
- resharpener of flutes. (See picture 1)

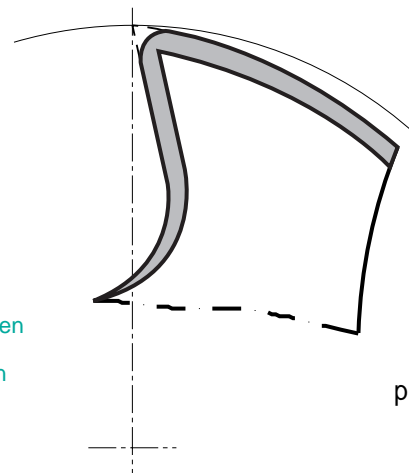
Das Nachscharfen der Gewindebohrer dient der Erneuerung der verschlissenen Schneidkanten.

Es ist wichtig, um das Leistungsvermögen des Werkzeugs voll auszuschnöpfen und muss daher präzise durchgeführt werden, um Fehler zu vermeiden, die die Präzision des Gewindes und die Standzeit beeinträchtigen.

Um das Nachscharfen schnell und präzise durchzuführen, empfehlen wir den Einsatz von geeigneten Schleifmaschinen mit dem notwendigen Zubehör.

Das Nachscharfen der Gewindebohrer erfolgt in zwei Stufen :

- scharfen der Freiflächen im Anschnitt;
- scharfen der Nuten (Spanfläche) (siehe Abb. 1)



pic. 1

RESHARPENING OF (RELIEVED) CHAMFER
RESHARPENING OF (RELIEVED) CHAMFER

The chamfer resharpener must be executed both on specific for taps machines or on conventional resharpener machines equipped with an auxiliary system proper to generate the circular relief on back.

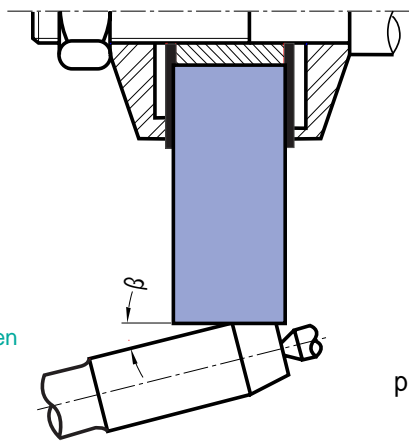
The picture 2 shows the resharpener made with the cylindrical surface of a grinding wheel.

Before resharpener, verify that the tap, fixed between points or on pincer, runs concentric; verify also the angle β which has to be correct in order to keep the same number of threads on chamfer.

Das Scharfen des Anschnitts muss entweder auf besonderen Gewindeschleifmaschinen erfolgen, oder auf konventionellen Schleifmaschinen mit entsprechenden Vorrichtungen für einen genauen Hinterschliff.

Abb. 2 zeigt das Nachscharfen mit einer zylindrischen Schleifscheibe.

Vor dem Schleifen überprüfen, ob der Gewindebohrer, zwischen Spitzen oder in einer Spannzange gehalten, rund läuft; prüfen Sie auch den Winkel β , der korrekt sein muss, um die gleiche Anzahl Gänge im Anschnitt zu haben



pic. 2

RESHARPENING OF FLUTES
NACHSCHARFEN DER NUTEN

This operation must be done on a specific resharpener machine for taps, equipped with: dividing head, lead screw of "barrasinus" for executing the helix and cooling equipment.

The rake angle γ is obtained moving the tap axis, in relation to the resharpener surface, of an amount X to be calculated with the formula: $X = \frac{1}{2} d_1 \sin \gamma$ (see picture 3).

(d_1 =tap major diameter)

Dieser Arbeitsgang muss auf einer speziellen Gewindebohrer ?

Schleifmaschine erfolgen, die ausgerüstet ist mit :

Teilkopf, Leitspindel zum Schleifen entlang gedallter Nuten und

Kühlmittelversorgung. Den Spanwinkel γ bei Gewindebohrern

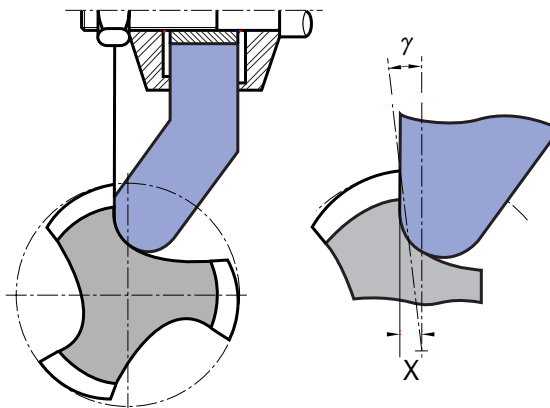
mit geraden Nuten erhält man durch Verstellen der Bohrerachse im

Verhältnis zu der zu schleifenden Oberfläche um den

Einstellwert X, der nach folgender Formel errechnet wird :

$X = \frac{1}{2} d_1 \sin \gamma$ (siehe Abb. 3).

(d_1 = Gewindebohrerdurchmesser)



pic. 3

Example:

Tap $10 \times 1,5$ to cut on steel strength = 600 N/mm²

$d_1 = 10\text{mm}$; $\gamma = 15^\circ$; $\sin \gamma = 0,25882$;

$$X = \frac{0,25882 \times 10}{2} ; X = 1,29\text{mm}$$

On all taps having spiral-flutes, in addition to the trade mark and identification of the dimension and type, it is possible to find also the pitch of the spiral referred to the lead screw necessary for the resharpener.

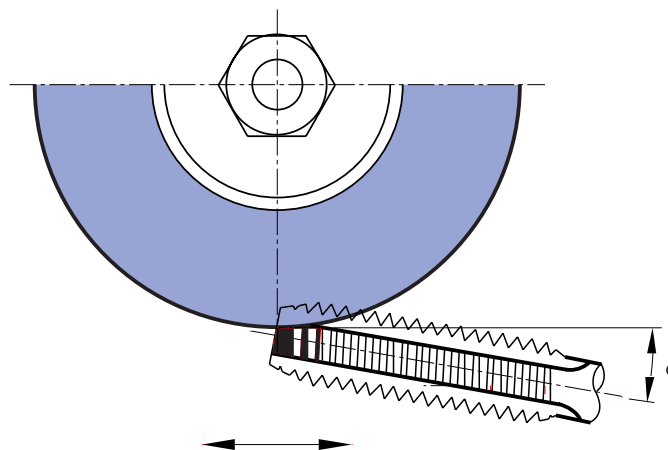
In case of employment of taps equipped with deburring tool **Burr-Bit** it is necessary to extend the flutes following what suggested by the supplier.

Because the wear on a tap is mainly on the chamfer area, on taps having "gun nose" the resharpener of the flutes can be made on the front area only (see picture 4).

Bei allen Gewindebohrern mit gedrahten Nuten werden allgemein spezielle Schleifmaschinen eingesetzt, die die Drallsteigung messen und selbständig einstellen können.

Beim Einsatz von Gewindebohrern mit dem Entgratwerkzeug Burr-Bit ist es notwendig, die Nuten entsprechend den Vorgaben des Herstellers zu verlängern.

Da der Verschleiß eines Gewindebohrers hauptsächlich im Anschnitt und dem erstenvollen Gewindegang liegt, können Gewindebohrer mit Schalanschnitt und gerader Nute auch nur im vorderen Gewindeteil nachgeschliffen werden (siehe Abb. 4).



pic. 4

It is very important to pay attention that, when also the thread flanks are worn (in addition to the active heges) the resharpener as above described is practically useless.

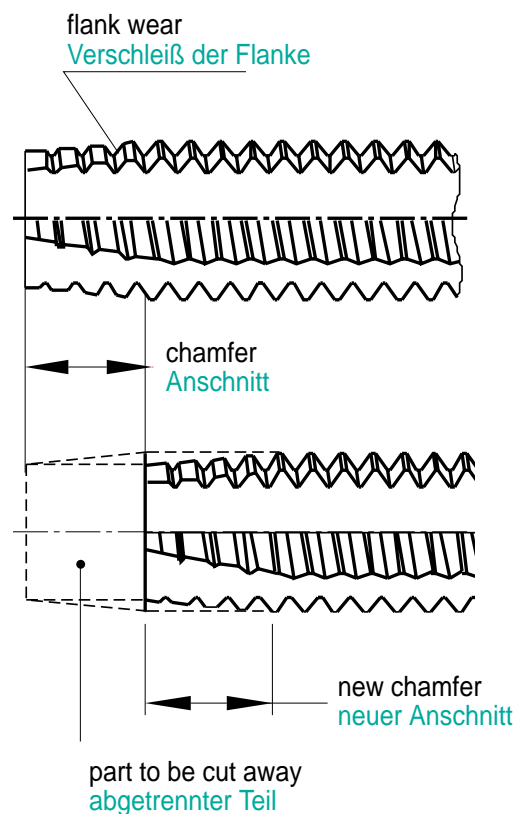
In this case the "regeneration" is made, by means of cutting completely the chamfer away (this means a shorter tap) and reproducing then the chamfer with same angle and relief. (see picture 5)

The regeneration is also advisable on taps with spiral flutes, because that way the flutes grinding is not necessary, in absence of special resharpener machines with lead screw with proper angle.

Es ist wichtig zu wissen, daß beim Verschleiß der Gewindegangflanken (zusätzlich zur Hauptschneidkante) das oben beschriebene Nachschleifen praktisch nutzlos ist!

In diesem Fall wird die "Erneuerung" dadurch erreicht, daß der Anschnitt komplett abgetrennt wird (das bedeutet eine Kürzung des Gewindebohrers und Verlust der entrierung) und neu angeschliffen wird, mit gleichen Winkeln und Hinterschliff (siehe Abb. 5).

Diese "Erneuerung" ist auch für drahtgenutete Gewindebohrer zu empfehlen, weil dann das Nutenschleifen entfällt, wenn keine geeignete Schleifmaschine mit Leitspindel vorhanden ist



pic. 5


**IMPORTANT RECOMMENDATIONS
WICHTIGE EMPFEHLUNGEN**
RESHARPEN TIMELY
RECHTZEITIGES NACHSCHARFEN

It is important to resharpen timely the worn tap. In these conditions in fact defective threads can be produced, risking to brake the tool; in addition the wear is increasing quickly, damaging a wide area of the cutter and rapidly.

Es ist wichtig, den Gewindebohrer rechtzeitig nachzuschleifen.

Stumpfe Gewindebohrer können defekte Gewinde schneiden, die Bruchgefahr ist erhöht; zudem nimmt der Verschleiß schnell zu und zerstört weite Bereiche der Schneiden

PROPER GRINDING WHEELS
RICHTIGE SCHLEIFSCHEIBEN

The structure and grain of grinding wheels must be the right one for the tap to be resharpened. Our technicians are at complete disposal to give the proper recommendations.

Bindung und Korn der Schleifscheiben müssen auf die Gewindebohrer abgestimmt sein.

Unsere Techniker sind bereit, Ihnen die geeignete Empfehlung zu geben

TAPS FOR CAST IRONS
GEWINDEBOHRER FÜR GUSS

On these taps the resharpening is rarely possible because, due to cast iron is abrasive, the tap is wearing on flank of the thread and so far out of tolerance.

Bei diesen Gewindebohrern ist Nachschleifen kaum möglich. Der verschleißfordernde Guss greift die Schneidenflanken an, wodurch die Toleranz verloren geht.

TAPS FOR ALUMINIUM
GEWINDEBOHRER FÜR ALUMINIUM

It is advisable, after resharpening as above described, to remove steel burrs from the grinding wheel action.

This operation, easy with iron brushes, avoid the danger of boring or over tolerance tapping instead of accurate tapping.

Es ist empfehlenswert nach dem oben beschriebenen Nachschleifen

Schleifrate vom Gewindebohrer mit Stahlbursten zu entfernen.

Dadurch wird die Gefahr vermieden, Gewinde zu groß zu schneiden.

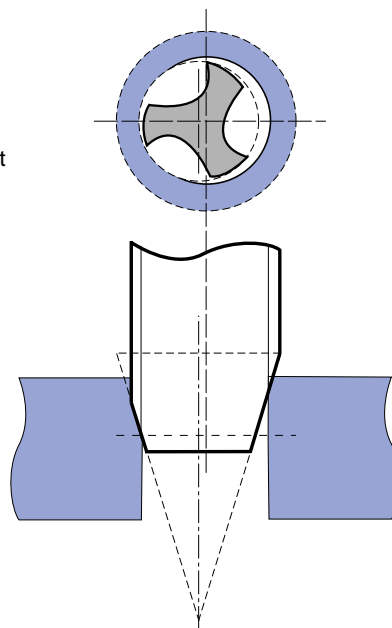
CONTROLS (TESTS)
KONTROLLEN (TESTS)

Once resharpened the tap, it is always better to make some tests to obtain correct threads same as when the tap was new.

- The chamfer must be perfectly on axis to avoid the effects of picture 6.
- The cutters must have correct divisions. The results of a resharpening with a wrong division is shown on picture 7.
- The length and number of threads on chamfer must be rigorously identical to those of the new tap.

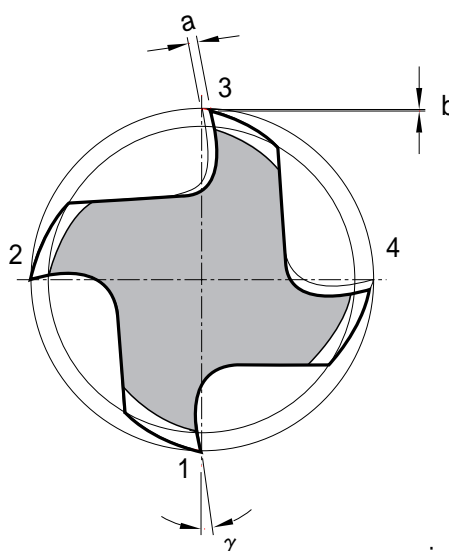
Nach dem Nachschleifen sollte der Gewindebohrer genau kontrolliert werden um sicher zu stellen, daß er genauso gut schneidet, wie ein neuer Bohrer.

- Der Anschnitt muss genau axial sein, um den Effekt wie in Abb. 7 zu vermeiden.
- Die Schneiden müssen eine genaue Teilung haben. Das Ergebnis des Nachschleifens mit falscher Teilung ist in Abb. 7 zu sehen.
- Die Länge und Anzahl der Gewindegänge im Anschnitt muss absolut genau so sein, wie bei einem neuen Gewindebohrer.



pic. 6

chamfer out of center
unrund geschliffener Anschnitt



pic. 7

incorrect division
Teilungsfehler
cutters not concentric
Schneiden nicht konzentrisch



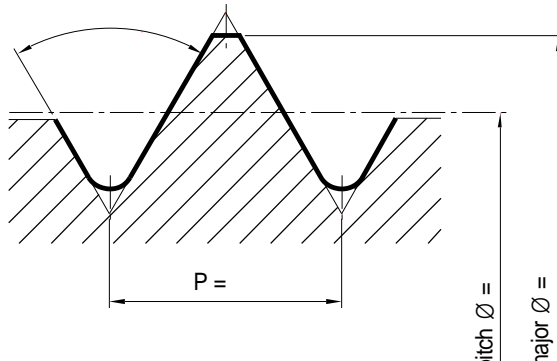
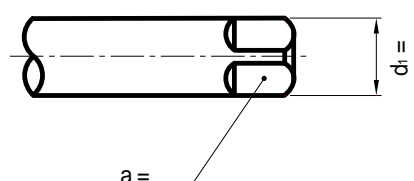
ORDERS / INQUIRIES SPECIAL TAPS
Bestellungen / Anfragen ; SONDERGEWINDEBOHRER

For photocopying

<p>Orders / Inquiries</p> <p>This form may be returned to your local YG-1 distributor or to YG-1.</p>	<p>Company _____</p> <p>Address _____</p> <p>Department _____</p> <p>Phone _____</p>
--	--

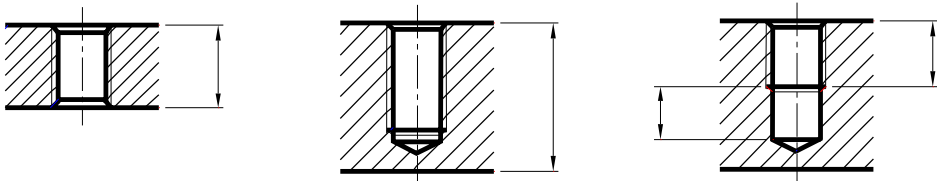
Tool Thread \varnothing and pitch _____

_____ Degrees R.H. L.H.

Tolerance class _____ Overall length _____ mm

Hole



Unusual characteristics of the threaded product or of the tapping method, e.g. counterbore, tapping on an angle, etc. _____

Material to be tapped Material No. or designation _____

Tensile strength _____ N/mm² HB _____ HRc _____

Chip form short long

Annealed steel Hardened steel Heat treated steel

Special requirements : _____

Person to be contacted within the company _____

Date _____ Signature _____



SEND US YOUR TAPPING PROBLEMS

SENDEN SIE UNS IHR GEWINDESCHNEIDPROBLEM

For photocopying

This form may be returned to your local YG-1 distributor or to YG-1.		Company _____
		Address _____
		Department _____
		Phone _____
Tool	Description of the tap being used at present Thread \varnothing and pitch _____ <input type="radio"/> right-hand cutting <input type="radio"/> fluteless <input type="radio"/> straight flutes <input type="radio"/> spiral point Additional information for special pitches or thread forms pitch \varnothing _____ major \varnothing _____ minor \varnothing _____ flank angle _____ degrees	Make _____ Type _____ Class of tolerance _____ <input type="radio"/> left-hand cutting <input type="radio"/> right hand spiral flutes _____ degrees <input type="radio"/> left hand spiral flutes _____ degrees <input type="radio"/> length of chamfer _____ thread chamfer
Hole	Tap drill \varnothing _____ length of hole _____ depth of full thread _____ <input type="radio"/> through hole <input type="radio"/> bottoming hole Special requirements or unusual characteristics of the threaded product _____	
Tapping speed	_____ meters per minute _____ revolutions per minute	
Lubricant	<input type="radio"/> without <input type="radio"/> emulsion _____ % <input type="radio"/> cutting oil <input type="radio"/> other _____ Application <input type="radio"/> under pressure <input type="radio"/> vaporization <input type="radio"/> other _____	
Machine	Type _____ <input type="radio"/> horizontal tapping <input type="radio"/> vertical tapping	
Driving	<input type="radio"/> tap revolves <input type="radio"/> work revolves Number of spindles _____	
Feed	<input type="radio"/> without <input type="radio"/> power <input type="radio"/> CNC _____ %	
Tool holder	<input type="radio"/> rigid <input type="radio"/> floating <input type="radio"/> with safety clutch Make _____ Type _____	
Material to be tapped	Material No. or designation _____ Composition, if possible _____ Tensile strength or hardness _____ N/mm ² _____ HB _____ HRc Chip form <input type="radio"/> short <input type="radio"/> long	
Short description of problem : _____ _____ _____ _____		
Person to be contacted within the company _____ Date _____ Signature _____		

11 MAIN THREAD SYMBOLS
HAUFIGE GEWINDEARTE

AMERICAN STANDARD

Cylindrical threads

UNC	Unified Coarse-Thread Series
UNF	Unified Fine-Thread Series
UNEF	Unified Extra-Fine-Thread Series
UN	Constant Pitch Series-Threads with constant pitch of T.P.I. 4,6,8,12,16, 20,28,32
UNS	Selected combinations-Threads with special dia-pitch combinations
UNJ	Unified threads with constant pitch with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJC	Unified coarse thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJEF	Unified extra fine thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJF	Unified fine threads with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch

Pipe cylindrical threads

NPS	Cylindrical threads for pipe
NPSC	American Standard for pipe coupling
NPSF	American Standard for internal thread on pipe, dryseal
NPSH	American Standard for cylindrical threads for pipe, joints and nipples
NPSI	American Standard for internal cylindrical threads on pipe(dryseal)
NPSL	American Standard for cylindrical threads on pipe for nuts
NPSM	American Standard for cylindrical threads on pipe for mechanical joints
NGO	American National pipe threads for gas exhaust
NGS	American National pipe threads for gas

Taper pipe threads

ANPT	Taper pipe threads for Army, Navy and Airforce
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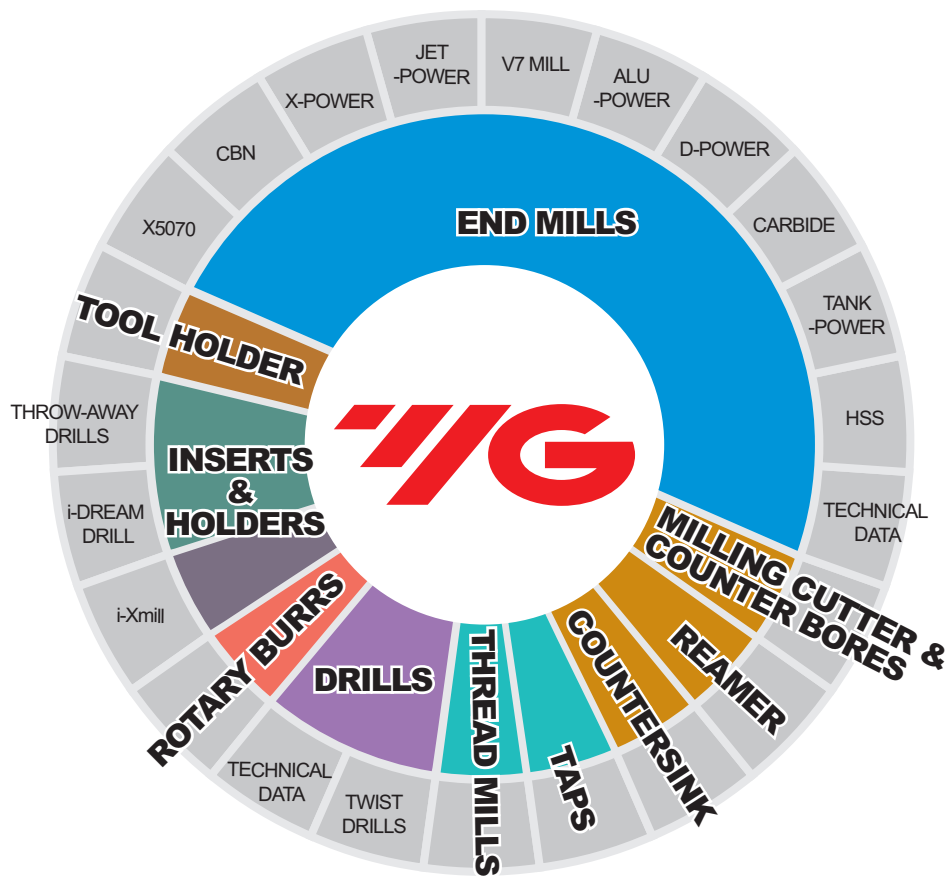
F-PTE	Taper pipe fine threads(dryseal)
NPT	Taper pipe thread
NPTF	Taper pipe thread (dryseal)
NPTR	Taper pipe thread for railways equipments
PTF-SAE SHORT	Taper pipe short thread(dryseal)-SAE
PTF-SPL SHORT	Taper pipe special thread(dryseal)-SAE
PTF-SPL EXTRA SHORT	Extra short special thread(dryseal)-SAE
SPL-PTF	Special taper pipe dryseal thread
NGT	National American taper pipe thread
SGT	Special taper pipe thread
API	American petroleum Institute taper pipe thread

Trapezoidal and saw tooth threads

ACME-C	ACME selfcentering thread
ACME-G	ACME generical application
STUB-ACME	ACME flat thread with reduced thread depth
60° STUB-ACME	ACME flat thread with 60° flank angle
N BUTT	American National Saw tooth thread

BRITISH STANDARD

BSW	Whitworth British Standard coarse pitch
BSF	Whitworth British Standard fine pitch
WHIT	Whitworth Standard special pitch
R	British Standard external threading for taper pipe(dryseal)(already BSP-Tr)
Rc	British Standard internal threading taper thread for pipe(BSP-Tr)
Rp	British Standard cylindrical thread for pipe(already BSP.PI)
BA	British Standard Association thread
BSC	British Standard thread for bicycle
CEI	British Standard for bicycle



Challenge toward a Global Leader-

YG-1 Leads the World Market.

MILLING TOOLS

CBN END MILLS

i-Xmills, CARBIDE INSERT END MILLS

X5070 NANO SOLID CARBIDE END MILLS

X-POWER SOLID CARBIDE END MILLS

JET-POWER SOLID CARBIDE & HSS-PM END MILLS

V7 Mill INOX SOLID CARBIDE END MILLS

V7 Mill STEEL SOLID CARBIDE END MILLS

ALU-POWER SOLID CARBIDE & HSS-PM END MILLS

D-POWER DIAMOND COATED SOLID CARBIDE END MILLS

K-2 SOLID CARBIDE END MILLS

GENERAL SOLID CARBIDE END MILLS

TANK-POWER HSS PM END MILLS

GENERAL HSS (8% Cobalt) END MILLS

HSS-E MILLING CUTTERS

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CBN END MILLS

CARBIDE INSERT END MILLS

SOLID CARBIDE END MILLS

HSS END MILLS

HSS MILLING CUTTERS

TECHNICAL DATA

Contents / MILLING TOOLS

CBN END MILLS

Cubic Boron Nitride, Machining High Hardened Steels up to HRc70, Mirror Finish

CBN
END MILLS

i-Xmills, CARBIDE INSERT END MILLS

Available for General Steels and for Hardened Steels up to HRc70

i-Xmills

X5070 NANO SOLID CARBIDE END MILLS

High Hardened Steels HRc45 to HRc70 in High Speed Machining, Dry Cutting

X5070
END MILLS

X-POWER SOLID CARBIDE END MILLS

Medium Steels to High Hardened Steels up to HRc65

X-POWER
END MILLS

JET-POWER SOLID CARBIDE & HSS-PM END MILLS

Exotic materials like Stainless Steels, Nickel alloys and Titanium

JET-POWER
END MILLS

V7 Mill INOX SOLID CARBIDE END MILLS

Stainless Steels in Heavy and Silent Cutting Materials up to HRc40
Designed as Variable Leads. YG-1's Patent.

V7 Mill INOX
END MILLS

V7 Mill STEEL SOLID CARBIDE END MILLS

Steels in Heavy and Silent Cutting Materials up to HRc40
Designed as Unequal Leads

V7 Mill STEEL
END MILLS

ALU-POWER SOLID CARBIDE & HSS-PM END MILLS

Aluminium Alloys and Silent Cutting

ALU-POWER
END MILLS

D-POWER DIAMOND COATED SOLID CARBIDE END MILLS

D-Power for Graphites, Economy type for Low Silicon Aluminium and Copper Alloys

D-POWER
END MILLS

K-2 SOLID CARBIDE END MILLS

General Purpose as Coating, Conventional or High Speed Milling, Wet or Dry Cutting

K-2 CARBIDE
END MILLS

GENERAL SOLID CARBIDE END MILLS

General Purposes. Non-coated, Any Coating Available

GENERAL
CARBIDE
END MILLS

TANK-POWER HSS-PM END MILLS

Very Good Toughness. Good for Exotic Materials like Stainless Steels, Nickel Alloys and Titanium.
Rough & Finish

TANK-POWER
END MILLS

GENERAL HSS END MILLS

General Purpose. Non-coated, Any Coating Available

GENERAL
HSS
END MILLS

HSS-E MILLING CUTTERS



























General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters
and HSS (8% Cobalt) Corner Rounding, Shell End Mills

MILLING
CUTTERS

TECHNICAL DATA

TECHNICAL
DATA

MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE
						MIN	MAX	
CBN	ESB94		2Flute	30°	Ball	R0.2	R1.5	556
	ESD02		2Flute	0°	Radius	D0.5	D2.0	557
X5070	G8A46		2Flute	30°	Ball for Rib	R0.05	R2.0	574
	G8A54		2Flute	30°	Ball for Rib	R0.25	R6.0	577
	G8A28		2Flute	30°	Ball	R0.05	R1.0	578
	G8A38		2Flute	30°	Stub Ball with Extended Neck	R0.5	R12.5	579
	G8A53		2Flute	30°	Miniature Ball	R0.2	R1.0	580
	G8A59		3Flute	30°	Ball	R1.5	R10.0	581
	G8A60		2Flute	30°	Radius for Rib	D0.5	D12.0	582
	G8A36		2Flute	30°	Stub Radius with Extended Neck	D0.3	D20.0	585
	G8A52		2Flute	30°	Radius for Rib	D0.5	D2.0	587
	G8A50		2Flute	30°	Miniature Radius	D0.3	D2.0	588
	G8A47		4Flute	30°	Radius	D3.0	D12.0	589
	G8A37		4Flute	30°	Stub Radius with Extended Neck	D1.0	D20.0	590
	G8B08		4Flute	30°	Radius with Extended Neck	D6.0	D12.0	591
	G8A39		6Flute	45°	Radius	D6.0	D20.0	592
	G8A45		2Flute	30°	Square for Rib	D0.1	D4.0	593
	G8A01		2Flute	30°	Square	D0.1	D20.0	596
	G8A02		4Flute	30°	Square	D1.0	D20.0	597
	X-POWER	EM810		2Flute	30°	Miniature Square	D0.4	D1.5
EM810 EM820			2Flute	30°	Short Square	D1.0	D25.0	611
EM816 EM826			2Flute	30°	Long Square	D2.0	D25.0	613
EM836 EM846			3Flute	30°	Miniature Square	D1.0	D20.0	614
EM895 EM896			3Flute	38°	Short Square	D1.0	D20.0	615
EM811 EM821			4Flute	30°	Short Square	D2.0	D25.0	616
EM817 EM827			4Flute	30°	Long Square	D2.0	D25.0	618
EM812 EM822			6&8Flute	45°	Long Square	D6.0	D25.0	619
EM834 EM844			6Flute	45°	Extra Long Square	D6.0	D25.0	620
EM876 EM877			2Flute	30°	Short Ball	R0.5	R12.5	621
EM813 EM823			2Flute	30°	Long Ball	R0.5	R12.5	622

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55	HRc55~70							
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE
						MIN	MAX	
X-POWER	EM899 EM900		2Flute	30°	Medium Ball with Neck	R1.5	R12.5	623
	EM838 EM848		2Flute	30°	Long Reach Ball	R1.0	R10.0	624
	EM902 EM904		2Flute	30°	Ball with Taper Neck	R0.5	R6.0	625
	EM878 EM879		2Flute	30°	Stub Ball	R0.5	R12.5	626
	G4953 G4954		2Flute	30°	Stub Ball	R0.5	R12.5	627
	EM865		2Flute	30°	Miniature Ball	R0.3	R1.5	628
	EM669		2Flute	30°	Long Ball	R1.5	R8.0	630
	EM673		4Flute	30°	Long Ball	R2.5	R8.0	631
	EM863		2Flute	30°	Long Ball	R1.5	R8.0	632
	EM864		4Flute	30°	Long Ball	R2.5	R8.0	633
	EM815 EM825		4Flute	30°	Long Ball	R0.5	R12.5	634
	EM832 EM842		3~5Flute	20°	Short Roughing	D6.0	D25.0	635
	EM814 EM824		3~5Flute	20°	Long Roughing	D6.0	D25.0	636
	EM833 EM843		3&4Flute	20°	Long Roughing Ball	R3.0	R10.0	637
	EM818 EM828		2Flute	30°	Long Radius	D3.0	D20.0	638
	EM905		4Flute	45°	Short Radius	D10.0	D22.0	639
	EM819 EM829		4Flute	30°	Long Radius	D3.0	D20.0	640
	EM897 EM898		6Flute	45°	Stub Radius	D6.0	D12.0	641
	EM835 EM845		6Flute	45°	Long Radius	D6.0	D20.0	642
	EM839 EM849		4Flute	30°	Stub Radius	D2.0	D16.0	643
	EM837 EM847		2Flute	30°	Taper	D2.0	D8.0	644
	EM883		2Flute	30°	Square for Rib	D0.4	D6.0	645
	EM886		2Flute	30°	Ball for Rib	R0.2	R3.0	649
	EM889		4Flute	25°	Taper for Rib	D1.0	D2.0	652
EM890		4Flute	25°	Taper Ball for Rib	R0.5	R1.0	654	
JET-POWER	EH911 EH912		2Flute	35°	Short Square	D1.0	D25.0	682
	EH913 EH914		4Flute	35°	Short Square	D2.0	D25.0	683
	EH830 EH840		3&4Flute	50°	Long Square	D6.0	D25.0	684
	EH915 EH916		6&8Flute	45°	Long Square	D6.0	D25.0	685
	EE515		4&6Flute	30°	Short Square	D3.0	D25.0	686

MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE
						MIN	MAX	
JET-POWER	EH852 EH862		3~5Flute	30°	Short Roughing	D6.0	D25.0	687
	EH831 EH841		3~5Flute	30°	Long Roughing	D6.0	D25.0	688
	EH917 EH918		4~6Flute	45°	Short Roughing	D6.0	D20.0	689
	EH919 EH920		3~6Flute	45°	Long Roughing	D4.0	D25.0	690
	EH921 EH942		4~6Flute	45°	Long Reach Roughing	D6.0	D20.0	691
V7 Mill INOX	EMB41 EMB42		4Flute	Sinusoidal	Short Square	D3.0	D20.0	700
	EMB43 EMB44		4Flute	Sinusoidal	Short Radius	D3.0	D20.0	701
	EMB14 EMB39		4Flute	Sinusoidal	Long Square	D3.0	D25.0	702
	EMB15 EMB40		4Flute	Sinusoidal	Long Radius	D3.0	D25.0	703
	EMB74 EMB75		4Flute	Sinusoidal	Long Ball	R1.5	R12.5	704
	EMB72 EMB73		5Flute	Sinusoidal	Long Square	D6.0	D25.0	705
	EMB12 EMB37		4Flute	Sinusoidal	Regular Square	D1/8"	D1"	706
	EMB13 EMB38		4Flute	Sinusoidal	Regular Radius	D1/8"	D1"	707
	EMB78 EMB79		4Flute	Sinusoidal	Regular Ball	R1/16"	R1/2"	708
	EMB76 EMB77		5Flute	Sinusoidal	Regular Square	D1/4"	D1"	709
V7 Mill STEEL	EMD42 EMD43		4Flute	Multiple	Short Square	D3.0	D20.0	716
	EMD44 EMD45		4Flute	Multiple	Short Radius	D3.0	D20.0	717
	EMD38 EMD39		4Flute	Multiple	Long Square	D3.0	D25.0	718
	EMD40 EMD41		4Flute	Multiple	Long Radius	D3.0	D25.0	719
	EMD46 EMD47		4Flute	Multiple	Regular Square	D1/8"	D1"	720
	EMD48 EMD49		4Flute	Multiple	Regular Radius	D1/8"	D1"	721
ALU-POWER	EG930		2Flute	25°	Radius	D2.0	D20.0	726
	E5522 E5521		2Flute	45°	Square	D3.0	D20.0	727
	EG909		2Flute	30°	Radius	D4.0	D20.0	728
	EG910		2Flute	50°	Ball	R3.0	R10.0	729
	EG908		3Flute	40°	Ball	R1.0	R8.0	730
	EP922 EP923		3Flute	42°	Short Roughing	D12.0	D32.0	731
	EP924 EP925		3Flute	42°	Long Roughing	D12.0	D32.0	732
D-POWER	EI997		2Flute	30°	Miniature Ball	R0.1	R3.0	742
	EIB93		2Flute	30°	Miniature Ball	R0.2	R2.0	744

SOLID

◎ : Excellent, ○ : Good






























Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55	HRc55~70							
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE
						MIN	MAX	
D-POWER	EI880		2Flute	30°	Short Ball	R1.0	R6.0	745
	EI451		2Flute	30°	Long Ball	R1.0	R6.0	746
	EI450		2Flute	30°	Long Reach Ball	R1.0	R6.0	747
	EI881		3Flute	30°	Short Ball	R1.0	R6.0	748
	EIB04		2Flute	30°	Long Square	D0.5	D12.0	749
	EIB87		2Flute	30°	Ball with Taper Neck	R0.5	R1.0	750
	EI996		2Flute	30°	Miniature Radius	D0.2	D6.0	751
	EIB86		2Flute	30°	Radius with Taper Neck	D1.0	D2.0	753
	EIB88		4Flute	30°	Radius	D6.0	D12.0	754
	EIA13		3Flute	40°	Short Radius	D2.0	D12.0	755
	EIA14		3Flute	40°	Long Radius	D2.0	D12.0	756
	GEB46		2Flute	30°	Miniature Ball	R0.1	R3.0	757
	GE944		2Flute	30°	Short Ball	R1.0	R6.0	759
	GE945		2Flute	30°	Long Ball	R1.0	R6.0	760
	GE946		2Flute	30°	Long Reach Ball	R1.0	R6.0	761
	GE947		3Flute	30°	Ball	R1.0	R6.0	762
	GE927		2Flute	30°	Long Square	D0.5	D12.0	763
	GEB02		2Flute	30°	Ball with Taper Neck	R0.5	R1.0	764
	GEB45		2Flute	30°	Miniature Radius	D0.2	D6.0	765
	GEB01		2Flute	30°	Radius with Taper Neck	D1.0	D2.0	767
	GEB03		4Flute	30°	Radius	D6.0	D12.0	768
	GE926		2Flute	45°	Square	D1.0	D20.0	769
	GE928		3Flute	40°	Short Radius	D2.0	D12.0	770
	GE929		3Flute	40°	Long Radius	D2.0	D12.0	771
K-2 CARBIDE	G9424		2Flute	30°	Short Square	D1.0	D20.0	784
	G9A68		2Flute	30°	Short Square	D1.0	D20.0	785
	G9444		2Flute	30°	Short Square	D2.0	D20.0	786
	G9527		2Flute	30°	Long Square	D3.5	D20.0	787
	G9445		2Flute	30°	Long Square	D2.0	D20.0	788
	G9452		2Flute	30°	Extra Long Square	D3.0	D20.0	789

MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE	
						MIN	MAX		
K-2 CARBIDE	G9553 G9410		3Flute	30°	Short Throw Away	D0.5	D20.0	790	
	G9425		3Flute	30°	Short Square	D1.0	D20.0	791	
	G9439		3Flute	≅30°	Short Square	D2.0	D20.0	792	
	G9528		3Flute	≅30°	Long Square	D3.5	D20.0	793	
	G9433		3Flute	≅30°	Long Square	D3.0	D20.0	794	
	G9447		3Flute	45°	Long Square	D3.0	D20.0	795	
	G9432		4Flute	30°	Short Square	D1.0	D20.0	796	
	G9A69		4Flute	30°	Short Square	D1.0	D20.0	797	
	G9448		4Flute	≅30°	Short Square	D2.0	D20.0	798	
	G9540		4Flute	≅30°	Long Square	D3.5	D20.0	799	
	G9449		4Flute	≅30°	Long Square	D2.0	D20.0	800	
	G9453		4Flute	30°	Extra Long Square	D3.0	D20.0	801	
	G9624		2Flute	30°	Short Ball	R1.0	R10.0	802	
	G9A70		2Flute	30°	Short Ball	R0.5	R10.0	803	
	G9437		2Flute	≅30°	Short Ball	R1.0	R10.0	804	
	G9438		2Flute	≅30°	Long Ball	R1.0	R10.0	805	
	G9454		2Flute	30°	Long Reach Ball	R1.5	R10.0	806	
	G9455		2Flute	30°	Extra Long Ball	R1.5	R10.0	807	
	G9634		4Flute	30°	Short Ball	R1.0	R10.0	808	
	G9A42		3~5Flute	30°	Long Roughing	D6.0	D25.0	809	
	G9B80		2Flute	30°	Square for Rib	D0.4	D4.0	810	
	G9B81		2Flute	30°	Ball for Rib	R0.2	R2.0	812	
	G9B82		2Flute	30°	Short Radius	D2.0	D12.0	814	
	G9B83		2Flute	30°	Long Reach Radius	D3.0	D12.0	816	
	G9B84		4Flute	30°	Short Radius	D2.0	D12.0	817	
	G9B85		4Flute	30°	Long Reach Radius	D3.0	D12.0	819	
	GENERAL CARBIDE	E5424 E5416		2Flute	30°	Short Square	D1.0 D6.0	D20.0	832
		E5444		2Flute	30°	Short Square	D2.0	D20.0	833
E5445			2Flute	≅30°	Long Square	D2.0	D20.0	834	
E5527			2Flute	≅30°	Long Square	D3.5	D20.0	835	

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40			HRc55~70							
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MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE
						MIN	MAX	
GENERAL CARBIDE	E5452		2Flute	30°	Extra Long Square	D3.0	D20.0	836
	E5553		3Flute	30°	Short Throw Away	D0.5	D20.0	837
	E5425 E5417		3Flute	30°	Short Square	D2.0 D6.0	D20.0	839
	E5439		3Flute	≅30°	Short Square	D2.0	D20.0	840
	E5433		3Flute	≅30°	Long Square	D3.0	D20.0	841
	E5528		3Flute	≅30°	Long Square	D3.5	D20.0	842
	E5882		3Flute	35°	Short Radius	D3.0	D20.0	843
	E5423 E5415		3Flute	45°	Short Square	D3.0	D20.0	844
	E5446		3Flute	45°	Short Square	D1.5	D20.0	845
	E5447		3Flute	45°	Long Square	D3.0	D20.0	846
	E5432 E5595		4Flute	30°	Short Square	D2.0 D6.0	D20.0	847
	E5448		4Flute	≅30°	Short Square	D2.0	D20.0	848
	E5449		4Flute	≅30°	Long Square	D2.0	D20.0	849
	E5540		4Flute	≅30°	Long Square	D3.5	D20.0	850
	E5453		4Flute	30°	Extra Long Square	D3.0	D20.0	851
	E5624 E5650		2Flute	30°	Short Ball	R1.0	R10.0	852
	E5437		2Flute	≅30°	Short Ball	R1.0	R10.0	853
	E5438		2Flute	≅30°	Long Ball	R1.0	R10.0	854
	E5454		2Flute	30°	Long Reach Ball	R1.5	R10.0	855
	E5455		2Flute	30°	Extra Long Ball	R1.5	R10.0	856
	E5634 E5524		4Flute	30°	Short Ball	R1.0	R10.0	857
	E5742 E5711		3Flute	30°	Long Roughing	D6.0	D25.0	858
	E5400		2Flute	30°	Drill Mill	D3.0	D20.0	859
TANK- POWER	E9936 GA936		2Flute	30°	Short Square	D1.0	D25.0	876
	E9A29 GAA29		2Flute	30°	Long Square	D1.0	D25.0	877
	E9942 GA942		3Flute	30°	Stub Square	D1.0	D25.0	878
	E9A30 GAA30		3Flute	30°	Short Square	D1.0	D25.0	879
	E9938 GA938		4Flute	30°	Short Square	D1.0	D25.0	880
	E9A31 GAA31		4Flute	30°	Long Square	D2.0	D25.0	881
	E9940 GA940		2Flute	30°	Short Ball	R0.5	R12.5	882

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE
						MIN	MAX	
TANK-POWER	E9A32 GAA32		2Flute	30°	Long Ball	R1.0	R12.5	883
	E9941 GA941		3~5Flute	30°	Short Roughing	D6.0	D25.0	884
	E9A35 GAA35		3~5Flute	30°	Long Roughing	D6.0	D25.0	885
	E9A26 GAA26		3~6Flute	45°	Short Roughing	D4.0	D25.0	886
	E9A33 GAA33		3~5Flute	30°	Short Roughing	D6.0	D25.0	887
	E9A34 GAA34		3~5Flute	30°	Long Roughing	D6.0	D25.0	888
GENERAL HSS	E2570		2Flute	≅30°	Short Square	D1.0	D40.0	902
	E2571		2Flute	≅30°	Long Square	D1.5	D40.0	905
	E2510		2Flute	30°	Extra Long Square	D2.5	D40.0	907
	E2464		2Flute	42°	Short Square	D1.0	D32.0	908
	E2509		2Flute	42°	Long Square	D2.0	D20.0	910
	EL612		1Flute	≅30°	Square	D3.0	D10.0	911
	EL623		1Flute	≅30°	Square	D3.0	D10.0	912
	E2572		3Flute	≅30°	Stub Square	D1.5	D32.0	913
	E2573		3Flute	≅30°	Short Square	D1.0	D40.0	914
	E2516		3Flute	30°	Long Square	D2.0	D40.0	916
	E2553		3Flute	30°	Short Throw Away	D1.0	D20.0	918
	E2554		3Flute	30°	Long Throw Away	D1.5	D10.0	920
	E2551		3Flute	30°	Short Throw Away	D1.0	D10.0	921
	E2552		3Flute	30°	Long Throw Away	D1.5	D10.0	922
	E2574 E2575		4&6Flute	≅30°	Short Square	D2.0 D21.0	D20.0 D40.0	923
	E2576 E2577		4&6Flute	≅30°	Long Square	D2.0 D22.0	D20.0 D40.0	924
	E2595 E2596		4&6Flute	≅30°	Short Square	D2.0 D22.0	D25.0 D40.0	925
	E2597 E2598		4&6Flute	≅30°	Long Square	D2.0 D22.0	D20.0 D40.0	926
	E2461 E2462 E2463		2~4Flute	50°	Short Square	D2.0 D6.0 D22.0	D5.0 D23.0 D30.0	927
	E2535		2Flute	≅30°	Short Ball	R1.0	R16.0	928
	E2492		2Flute	≅30°	Long Ball	R1.0	R15.0	929
	E2410		4&6Flute	30°	Short Ball	R3.0	R12.5	930
	E2429		4&6Flute	30°	Long Ball	R5.0	R12.5	931
	E2512		3Flute	30°	Short Ball Throw Away	R1.0	R3.0	932

SOLID

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
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▶ NEXT

MILLING TOOLS APPLICATION TABLE

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE (SERIES)		PAGE
						MIN	MAX	
GENERAL HSS ENDMILL	E2751		3~6Flute	30°	Short Roughing	D6.0	D50.0	933
	E2752		3~6Flute	30°	Long Roughing	D6.0	D40.0	935
	E2751 E2764		3Flute	30°	Short Roughing	D6.0 D10.0	D8.0 D40.0	936
	E2752 E2765		3Flute	30°	Long Roughing	D6.0 D10.0	D6.0 D10.0	937
	E2755		3Flute	37°	Short Roughing	D6.0	D30.0	938
	E2756		3Flute	37°	Long Roughing	D10.0	D30.0	939
	E2757		3&4Flute	30°	Short Roughing Ball	R3.0	R20.0	940
	E2761		3~5Flute	30°	Short Roughing	D6.0	D25.0	941
	E2524		3&4Flute	30°	Stub Roughing	D6.0	D20.0	942
	E2606		3&4Flute	30°	Short Roughing Ball	R3.0	R20.0	943
	E2753		3~6Flute	30°	Short Roughing	D6.0	D40.0	944
	E2762		3~6Flute	30°	Long Roughing	D6.0	D40.0	945
	E2754		3~6Flute	30°	Short Roughing & Finishing	D6.0	D40.0	946
	E2768		3~6Flute	30°	Long Roughing & Finishing	D6.0	D45.0	947
	E2766		3Flute	30°	Short Roughing & Finishing	D6.0	D40.0	948
	E2767		3Flute	30°	Long Roughing & Finishing	D6.0	D40.0	949
	E2776		4~8Flute	30°	Short Square	D14.0	D50.0	950
	E2777		4~6Flute	30°	Short Roughing	D14.0	D50.0	951
	E2778		4~6Flute	30°	Short Roughing	D16.0	D50.0	952
	E2779		4~6Flute	30°	Short Roughing & Finishing	D16.0	D50.0	953
	E3570		2Flute	≅30°	Short Square	D2.0	D30.0	954
	E3574 E3575		4&6Flute	≅30°	Short Square	D2.0 D22.0	D20.0 D30.0	955
	E3462 E3463		3&4Flute	60°	Short Square	D6.0 D25.0	D20.0 D30.0	956
	E9410		2Flute	≅30°	Short Square	D2.0	D25.0	957
E9720		4&6Flute	30°	Short Roughing	D6.0	D30.0	958	
i-Xmill	XMB110A		i-Xmill Ball Insert for General Purpose			∅8	∅32	562
	XMB120C		i-Xmill Ball Insert for Hardened Steels			∅8	∅32	562
	XMR110A		i-Xmill Corner Radius Insert for General Purpose			∅8	∅32	565
	XMR120C		i-Xmill Corner Radius Insert for Hardened Steels			∅8	∅32	565

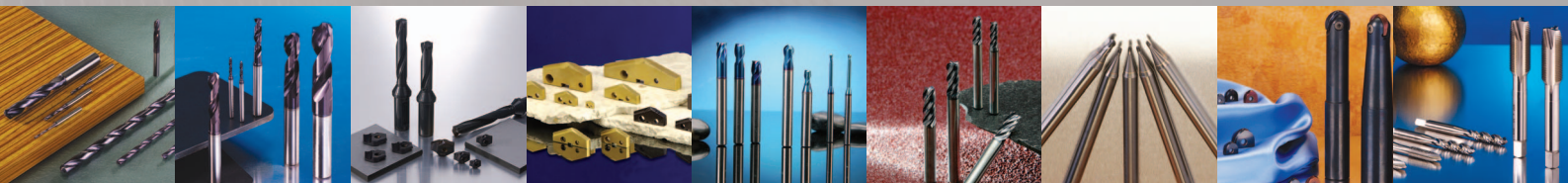
SOLID / INSERT

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum			
~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc50~	~HRc28	~HRc8			
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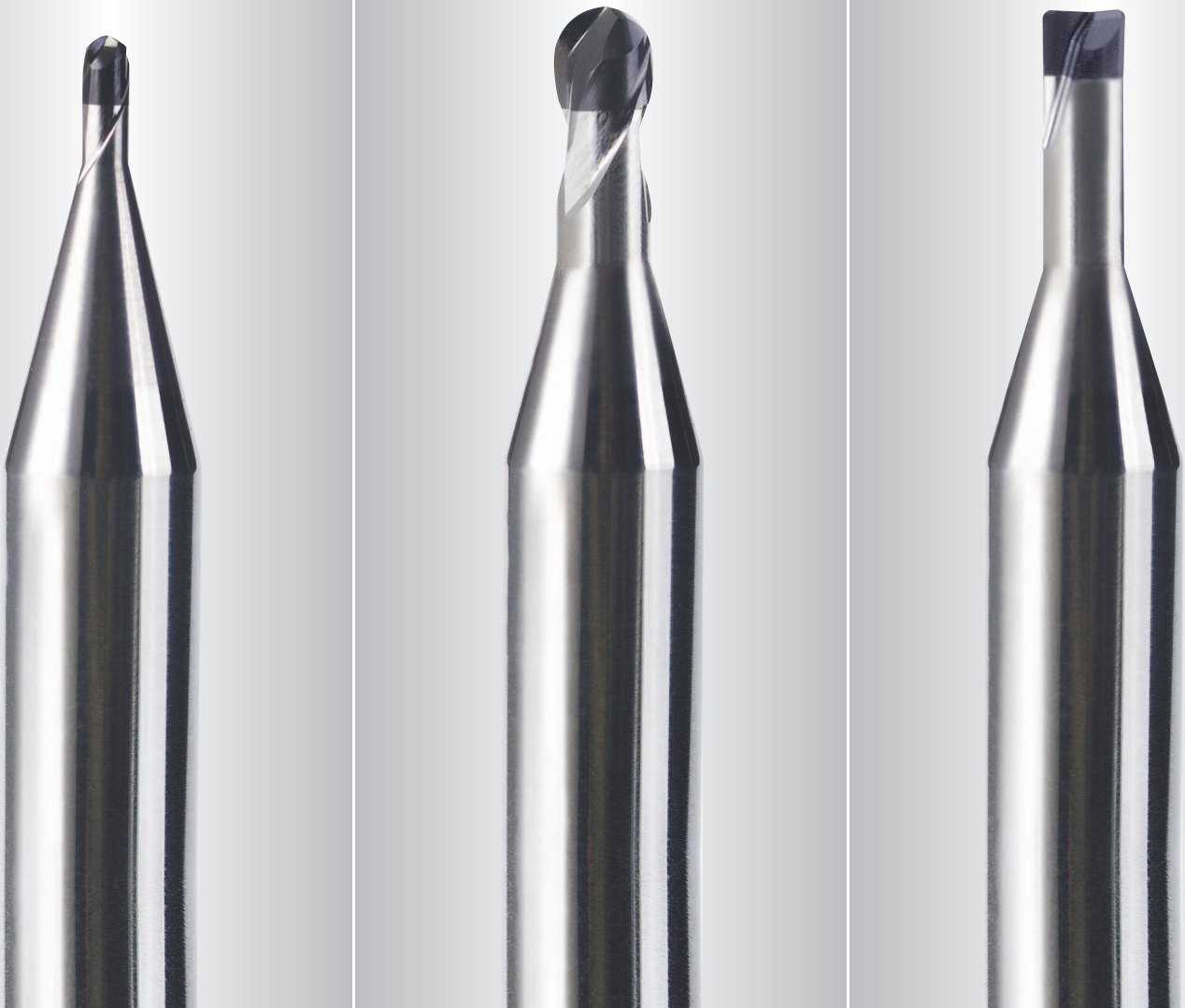
CUTTING TOOLS



CBN



Being the best through innovation





CBN (Cubic Boron Nitride)

CBN FRÄSER

- Cubic Boron Nitride, Machining High Hardened Steels up to HRc70, Mirror Finish
- Kubisches Bornitrid, Zum Fräsen hoch gehärteter Stähle bis HRc70. Spiegelglanz

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
ESB94		CBN, 2 FLUTE BALL NOSE CBN, 2 SCHNEIDEN STIRNRADIUS	R0.2	R1.5	556
ESD02		CBN, 2 FLUTE CORNER RADIUS CBN, 2 SCHNEIDEN ECKENRADIUS	D0.5	D2.0	557
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					558

CBN END MILLS

◎ : Excellent, ○ : Good

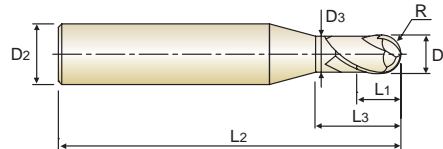
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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CBN, 2 FLUTE BALL NOSE CBN, 2 SCHNEIDEN STIRNRADIUS

- ▶ Achieve stable machining and higher accuracy for the duration.
- ▶ Save the setting time and cost due to reducing of frequent tool change.
- ▶ Improve repeatability in performance.
- ▶ Special designed geometry improves tool rigidity at High Speed Cutting.
- ▶ Tighter Radius Tolerance $\pm 0.005\text{mm}$ higher accuracy and longer tool life.

- ▶ **Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.**
- ▶ **Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.**
- ▶ **Verbessert die Wiederholgenauigkeit.**
- ▶ **Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.**
- ▶ **Engere Radiustoleranz ± 0.005 , höhere Genauigkeit und längere Werkzeuglebenszeit.**



Unit : mm

EDP No.	Radius of Ball Nose R (± 0.005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
ESB94004012	RO.2	0.4	4	0.3	1.2	50	0.37
ESB94005015	RO.25	0.5	4	0.4	1.5	50	0.46
ESB94006015	RO.3	0.6	4	0.5	1.5	50	0.56
ESB94008020	RO.4	0.8	4	0.6	2	50	0.76
ESB94010025	RO.5	1.0	4	0.6	2.5	50	0.95
ESB94010040	RO.5	1.0	4	0.6	4	50	0.95
ESB94010060	RO.5	1.0	4	0.6	6	50	0.95
ESB94012030	RO.6	1.2	4	0.8	3	50	1.15
ESB94015030	RO.75	1.5	4	0.95	3	50	1.45
ESB94015040	RO.75	1.5	4	0.95	4	50	1.45
ESB94015060	RO.75	1.5	4	0.95	6	50	1.45
ESB94020050	R1.0	2.0	4	1.2	5	50	1.95
ESB94020060	R1.0	2.0	4	1.2	6	50	1.95
ESB94030060	R1.5	3.0	4	1.8	6	50	2.85

Radius Tolerance(mm)	Shank Dia. Tolerance
± 0.005	h5

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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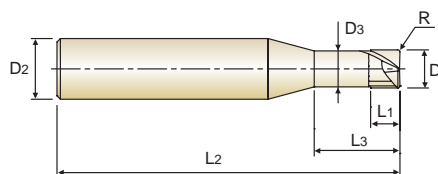
◎ : Excellent ○ : Good

CBN, 2 FLUTE CORNER RADIUS

CBN, 2 SCHNEIDEN ECKENRADIUS

- ▶ Achieve stable machining and higher accuracy for the duration.
- ▶ Save the setting time and cost due to reducing of frequent tool change.
- ▶ Improve repeatability in performance.
- ▶ Special designed geometry improves tool rigidity at High Speed Cutting.
- ▶ Tighter Radius Tolerance $\pm 0.005\text{mm}$ higher accuracy and longer tool life.

- ▶ **Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.**
- ▶ **Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.**
- ▶ **Verbessert die Wiederholgenauigkeit.**
- ▶ **Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.**
- ▶ **Engere Radiustoleranz ± 0.005 , höhere Genauigkeit und längere Werkzeuglebenszeit.**



CBN
2
0°
R ±0.005
PLAIN
P.558

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (± 0.005)	D1	D2	L1	L3	L2	D3
ESD02005052	RO.05	0.5	4	0.3	2	50	0.46
ESD02005053	RO.05	0.5	4	0.3	3	50	0.46
ESD02010053	RO.05	1.0	4	0.7	3	50	0.95
ESD02010055	RO.05	1.0	4	0.7	5	50	0.95
ESD02010103	RO.1	1.0	4	0.7	3	50	0.95
ESD02010105	RO.1	1.0	4	0.7	5	50	0.95
ESD02015105	RO.1	1.5	4	1.0	5	50	1.45
ESD02015108	RO.1	1.5	4	1.0	8	50	1.45
ESD02015205	RO.2	1.5	4	1.0	5	50	1.45
ESD02015208	RO.2	1.5	4	1.0	8	50	1.45
ESD02020106	RO.1	2.0	4	1.2	6	50	1.95
ESD02020100	RO.1	2.0	4	1.2	10	50	1.95
ESD02020206	RO.2	2.0	4	1.2	6	50	1.95
ESD02020200	RO.2	2.0	4	1.2	10	50	1.95

Corner Radius Tolerance(mm)	Shank Dia. Tolerance
± 0.005	h5

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
				◎	◎							


**CBN, 2 FLUTE BALL NOSE
CBN, 2 SCHNEIDEN STIRNRADIUS**
ESB94 SERIES

MATERIAL HARDNESS DIAMETER	HARDENED STEELS		HIGH HARDENED STEELS	
	HRc50 ~ HRc60		HRc60 ~ HRc70	
	RPM	FEED	RPM	FEED
R0.2 × 0.4	50,000	1,200	50,000	1,200
R0.25 × 0.5	50,000	1,500	50,000	1,500
R0.3 × 0.6	50,000	2,000	50,000	2,000
R0.4 × 0.8	50,000	2,000	50,000	2,000
R0.5 × 1.0	50,000	3,000	50,000	3,000
R0.6 × 1.2	50,000	3,000	50,000	3,000
R0.75 × 1.5	50,000	3,000	50,000	3,000
R1.0 × 2.0	40,000	3,200	32,000	2,500
R1.5 × 3.0	26,500	2,100	21,500	1,700

ap : R0.2 ~ R0.4 =0.005
R0.5 ~ R1.5 =0.01
ae : R0.2 ~ R0.4 =0.005
R0.5 ~ R1.5 =0.01



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

**CBN, 2 FLUTE CORNER RADIUS
CBN, 2 SCHNEIDEN ECKENRADIUS**
ESD02 SERIES

MATERIAL HARDNESS DIAMETER	HARDENED STEELS				HIGH HARDENED STEELS			
	HRc50 ~ HRc60				HRc60 ~ HRc70			
	RPM	FEED	DEPTH OF CUT		RPM	FEED	DEPTH OF CUT	
ae[mm]			ap[mm]	ae[mm]			ap[mm]	
0.5	50,000	700	0.10	0.01	50,000	550	0.06	0.005
1.0	43,000	1,000	0.20	0.01	30,000	700	0.10	0.10
1.5	30,000	1,000	0.40	0.02	19,000	700	0.20	0.20
2.0	22,000	900	0.60	0.03	14,000	800	0.30	0.30

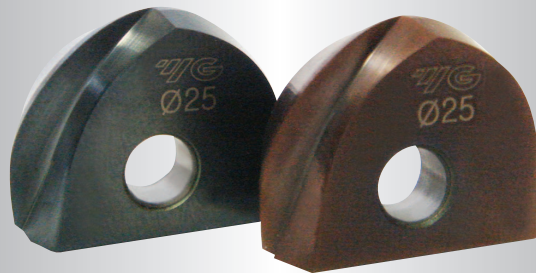


RPM = rev./min.
FEED = mm/min.



CARBIDE INSERT & HOLDER

Being the best through innovation




i-Xmill

i-Xmill

- Available for General Steels and for Hardened Steels up to HRc70
- Lieferbar für normale und gehärtete Stähle bis HRc70

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	PAGE
XMB110A		i-Xmill BALL INSERT for GENERAL PURPOSE i-Xmill WECHSELPLATTE mit RUNDER STIRN für allgemeinen Einsatz	562
XMB120C		i-Xmill BALL INSERT for HARDNESS STEEL i-Xmill WECHSELPLATTE mit RUNDER STIRN für gehärtete Materialien	562
ZBT / ZBS		i-Xmill BALL HOLDERS - STEEL i-Xmill HALTER für WECHSELPLATTE mit RUNDER STIRN - STÄHLE	563
ZBC		i-Xmill BALL HOLDERS - CARBIDE i-Xmill HALTER für WECHSELPLATTE mit RUNDER STIRN - VOLLHARTMETAL	564
XMR110A		i-Xmill CORNER RADIUS INSERTS for GENERAL PURPOSE i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS für allgemeinen Einsatz	565
XMR120C		i-Xmill CORNER RADIUS INSERTS for HARDNESS STEEL i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS für gehärtete Materialien	565
ZRT / ZRS		i-Xmill CORNER RADIUS HOLDERS - STEEL i-Xmill HALTER für WECHSELPLATTE mit GERADER STIRN UND ECKRADIU - STÄHLE	567
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN	568

i-Xmill END MILLS

◎ : Excellent, ○ : Good

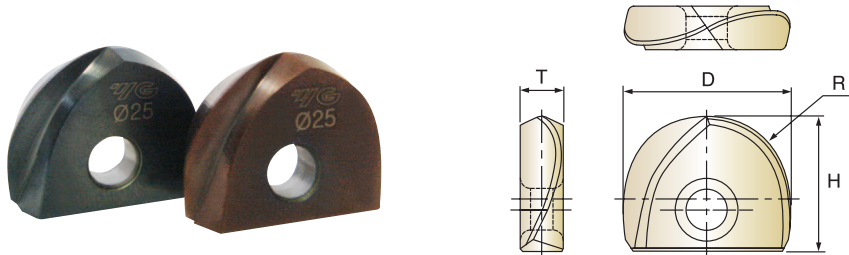
Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum
~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc50~	~HRc28	~HRc8
◎	○	◎	○	◎	○	○		○	○
○	◎	○	◎	○	◎	◎	◎		
◎	○	◎	○	◎	○	○		○	○
○	◎	○	◎	○	◎	◎	◎		



i-Xmill BALL INSERTS

i-Xmill WECHSELPLATTE mit RUNDER STIRN

- ▶ Indexable Ball End Mill for economic use
- ▶ Two Types of Inserts are available - For General Purpose (~HRC50) & For Hardened Material (HRC40~HRC65)
- ▶ Special Geometry and Coating for Excellent Performance
- ▶ Kopierfräser mit Wechselplatte für wirtschaftlichen Einsatz.
- ▶ Zwei Typen Wechselplatten verfügbar - Für allgemeinen Einsatz (HRC50) & Für gehärtete Materialien (HRC40~HRC65).
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Height	Thickness
For General Material	For Hardened Material	R	D	H	T
XMB110A080	XMB120C080	R4.0	8.0	8	2.4
XMB110A100	XMB120C100	R5.0	10.0	9.5	2.7
XMB110A120	XMB120C120	R6.0	12.0	11	3.2
XMB110A160	XMB120C160	R8.0	16.0	13	4.2
XMB110A200	XMB120C200	R10.0	20.0	16	5.2
XMB110A250	XMB120C250	R12.5	25.0	19.5	6.2
XMB110A300	XMB120C300	R15.0	30.0	23.5	7.2
XMB110A320	XMB120C320	R16.0	32.0	24.5	7.2

- The ball radius tolerance is $\pm 0.01\text{mm}$ and the set-up accuracy is $\pm 0.02\text{mm}$

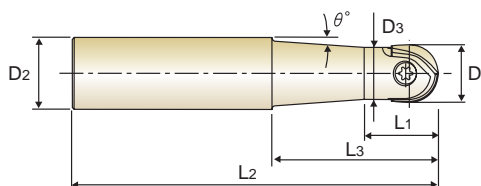
◎ : Excellent ○ : Good

	Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum
	~HRC35	HRC35~	~HRC35	HRC35~	~HRC35	HRC35~	~HRC35	HRC50~	~HRC28	~HRC8
XMB110A	◎	○	◎	○	◎	○	○		○	○
XMB120C	○	◎	○	◎	○	◎	◎	◎		

i-Xmill BALL HOLDERS - STEEL
i-Xmill HALTER für WECHSELPLATTE mit RUNDER STIRN - STÄHLE

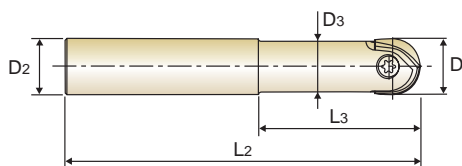
- ▶ Premium alloy steel with excellent strength.
- ▶ Precise shank, Tolerance (h6).
- ▶ Black oxide treated, to prevent corrosion and improve lubricity.

- ▶ Premium legierter Stähle mit großer Festigkeit.
- ▶ Hochgenauer Schaft, Tol h6.
- ▶ Schwarze Oxidschicht verhindert Korrosion und verbessert die Schmierfähigkeit.


TAPER NECK TYPE

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Taper Angle	Length Type	Wrench No.	Screw No.
	D1	D2	L1	L3	L2	D3	θ°			
ZBT0801120	8.0	12	12	35	90	7.2	4° 43'	Short	TWFT07	TX2508T07
ZBT0802120			25	55	110		3° 37'	Regular		
ZBT1001120	10.0	12	15	35	90	9	2° 51'	Short	TWFT08	TX3010T08
ZBT1002120			30	55	110		2° 17'	Regular		
ZBT1201160	12.0	16	17	55	110	10.5	3° 23'	Short	TWFT10	TX3512T10
ZBT1601200	16.0	20	20	65	125	14.5	2° 51'	Short	TWFT15	TX4016T15
ZBT2001250	20.0	25	25	75	145	18	3° 26'	Short	TWBT20	TX5020T20
ZBT2501320	25.0	32	30	90	170	22.5	4° 03'	Short	TWBT25	TX6025T25
ZBT3001320	30.0 32.0	32	40	110	195	27	1° 38'	Short	TWBT30	TX8030T30


STRAIGHT NECK TYPE

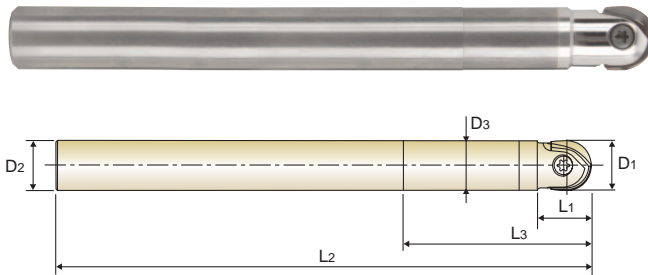
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length Below Shank	Overall Length	Neck Diameter	Length Type	Wrench No.	Screw No.
	D1	D2	L3	L2	D3			
ZBS1201120	12.0	12	35	90	10.5	Short	TWFT10	TX3512T10
ZBS1202120			55	110		Regular		
ZBS1601160	16.0	16	35	95	14.5	Short	TWFT15	TX4016T15
ZBS1602160			65	125		Regular		
ZBS2001200	20.0	20	40	110	18	Short	TWBT20	TX5020T20
ZBS2002200			75	145		Regular		
ZBS2501250	25.0	25	45	125	22.5	Short	TWBT25	TX6025T25
ZBS2502250			90	170		Regular		
ZBS3001320	30.0, 32.0	32	55	140	27	Short	TWBT30	TX8030T30
ZBS3002320			110	195		Regular		

i-Xmill BALL HOLDERS - CARBIDE

i-Xmill HALTER für WECHSELPLATTE mit RUNDER STIRN - VOLLHARTMETAL

- ▶ Equal tool rigidity with solid carbide end mill makes the stable and high finishing machining with the less vibration.
- ▶ The high finishing machining for the deeper part of mold.
- ▶ The tool's life of carbide ball holders is longer than steel holder.
- ▶ Shrink Fit Holding system can be applied.
- ▶ Upon request, the worn holder is able to be fixed.
- ▶ Die Festigkeit des Halters ermöglicht zusammen mit der VHM-Wechselplatte eine stabile Hochgenauigkeitsbearbeitung mit geringster Vibration.
- ▶ Feinbearbeitung auch in tieferen Teilen der Form.
- ▶ Die Lebensdauer von VHM-Haltern für runde Wechselplatten ist länger als die von Stahlaltern.
- ▶ Schrumpffutter können verwendet werden.
- ▶ Auf Anfrage kann ein gebrochener Halter repariert werden.



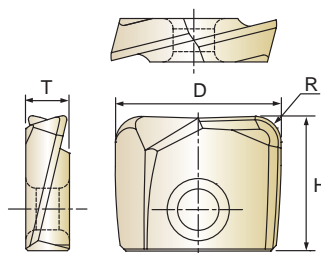
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Length Type	Wrench No.	Screw No.
	D1	D2	L1	L3	L2	D3			
ZBC0801080	8.0	8	12	25	130	7.7	Long	TWFT07	TX2508T07
ZBC1001100	10.0	10	15	30	140	9.7	Long	TWFT08	TX3010T08
ZBC1201120	12.0	12	17	35	150	11.7	Long	TWFT10	TX3512T10
ZBC1601160	16.0	16	20	50	200	15.7	Long	TWFT15	TX4016T15
ZBC2001200	20.0	20	25	60	200	19.7	Long	TWBT20	TX5020T20
ZBC2501250	25.0	25	30	75	200	24.7	Long	TWBT25	TX6025T25
ZBC3001320	30.0 32.0	32	40	90	250	29.7	Long	TWBT30	TX8030T30

i-Xmill CORNER RADIUS INSERTS
i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS

- ▶ The optimum geometry of the tool to achieve the better reliability and less vibration and cutting load.
- ▶ Interchangeability with i-Xmill ball holder, but the precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The various and wide cutting range makes it possible to machine over the roughing and finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.
- ▶ Two Types of Inserts are available - For General Purpose (~HRc50) & For Hardened Material (HRc40~HRc65)

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.
- ▶ Zwei Typen Wechselplatten verfügbar - Für allgemeinen Einsatz (HRc50) & Für gehärtete Materialien (HRc40~HRc65).



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Height	Thickness
For General Material	For Hardened Material	R	D	H	T
XMR110A080 03	XMR120C080 03	R0.3	8.0	8	2.4
XMR110A080 05	XMR120C080 05	R0.5			
XMR110A080 10	XMR120C080 10	R1.0			
XMR110A100 05	XMR120C100 05	R0.5	10.0	9.5	2.7
XMR110A100 10	XMR120C100 10	R1.0			
XMR110A100 20	XMR120C100 20	R2.0			
XMR110A120 05	XMR120C120 05	R0.5	12.0	11	3.2
XMR110A120 10	XMR120C120 10	R1.0			
XMR110A120 20	XMR120C120 20	R2.0			
XMR110A130 05	XMR120C130 05	R0.5	13.0	11.2	3.2
XMR110A130 10	XMR120C130 10	R1.0			
XMR110A130 20	XMR120C130 20	R2.0			
XMR110A160 05	XMR120C160 05	R0.5	16.0	13	4.2
XMR110A160 10	XMR120C160 10	R1.0			
XMR110A160 20	XMR120C160 20	R2.0			
XMR110A170 05	XMR120C170 05	R0.5	17.0	13	4.2
XMR110A170 10	XMR120C170 10	R1.0			
XMR110A170 20	XMR120C170 20	R2.0			

- The other corner radius values are available on request.
- The corner radius tolerance is $\pm 0.015\text{mm}$ and the set-up accuracy is $\pm 0.02\text{mm}$

◎ : Excellent ○ : Good

	Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc50~	~HRc28	~HRc8
XMB110A	◎	○	◎	○	◎	○	○		○	○
XMB120C	○	◎	○	◎	○	◎	◎	◎		

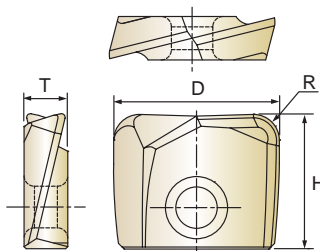


i-Xmill CORNER RADIUS INSERTS

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS

- ▶ The optimum geometry of the tool to achieve the better reliability and less vibration and cutting load.
- ▶ Interchangeability with i-Xmill ball holder, but the precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The various and wide cutting range makes it possible to machine over the roughing and finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.
- ▶ Two Types of Inserts are available - For General Purpose (~HRC50) & For Hardened Material (HRC40~HRC65)

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.
- ▶ Zwei Typen Wechselplatten verfügbar - Für allgemeinen Einsatz (HRC50) & Für gehärtete Materialien (HRC40~HRC65).



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Height	Thickness
For General Material	For Hardened Material	R	D	H	T
XMR110A200 05	XMR120C200 05	R0.5	20.0	16	5.2
XMR110A200 10	XMR120C200 10	R1.0			
XMR110A200 20	XMR120C200 20	R2.0			
XMR110A210 05	XMR120C210 05	R0.5	21.0	16	5.2
XMR110A210 10	XMR120C210 10	R1.0			
XMR110A210 20	XMR120C210 20	R2.0			
XMR110A250 05	XMR120C250 05	R0.5	25.0	19.5	6.2
XMR110A250 10	XMR120C250 10	R1.0			
XMR110A250 20	XMR120C250 20	R2.0			
XMR110A260 05	XMR120C260 05	R0.5	26.0	19.5	6.2
XMR110A260 10	XMR120C260 10	R1.0			
XMR110A260 20	XMR120C260 20	R2.0			
XMR110A300 05	XMR120C300 05	R0.5	30.0	23.5	7.2
XMR110A300 10	XMR120C300 10	R1.0			
XMR110A300 20	XMR120C300 20	R2.0			
XMR110A320 05	XMR120C320 05	R0.5	32.0	23.5	7.2
XMR110A320 10	XMR120C320 10	R1.0			
XMR110A320 20	XMR120C320 20	R2.0			

- The other corner radius values are available on request.
- The corner radius tolerance is ±0.015mm and the set-up accuracy is ±0.02mm

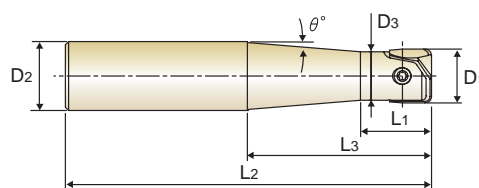
◎ : Excellent ○ : Good

	Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum
	~HRC35	HRC35~	~HRC35	HRC35~	~HRC35	HRC35~				
XMB110A	◎	○	◎	○	◎	○	○	◎	○	○
XMB120C	○	◎	○	◎	○	◎	◎	◎		

i-Xmill CORNER RADIUS HOLDERS - STEEL
i-Xmill HALTER für WECHSELPLATTE mit GERADER STIRN UND ECKRADIU

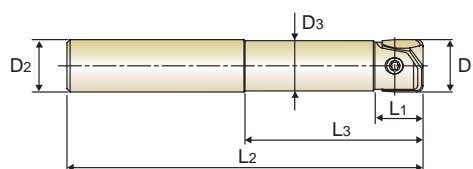
- ▶ Premium alloy steel with excellent strength.
- ▶ Precise shank, Tolerance (h6).
- ▶ Black oxide treated, to prevent corrosion and improve lubricity.

- ▶ Premium legierter Stähle mit großer Festigkeit.
- ▶ Hochgenauer Schaft, Tol h6.
- ▶ Schwarze Oxidschicht verhindert Korrosion und verbessert die Schmierfähigkeit.


TAPER NECK TYPE

Unit : mm

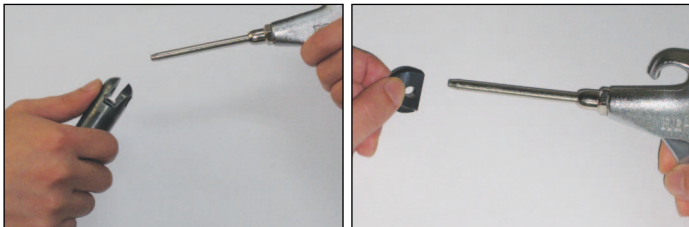
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Taper Angle	Length Type	Wrench No.	Screw No.
	D1	D2	L1	L3	L2	D3	θ°			
ZRT0801120	8.0	12	10	22	100	6.7	9°	Regular	TWFT07	TX2508T07
ZRT0802120				50	130		2° 43'	Long		
ZRT1001120	10.0	12	13	25	100	8.6	4° 45'	Regular	TWFT08	TX3010T08
ZRT1002120				50	150		1° 32'	Long		
ZRT1202160	12.0 13.0	16	15	60	160	10.2	2° 32'	Long	TWFT10	TX3512T10


STRAIGHT NECK TYPE

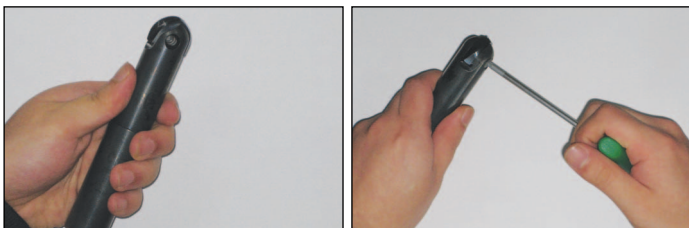
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Length Type	Wrench No.	Screw No.
	D1	D2	L1	L3	L2	D3			
ZRS1201120	12.0, 13.0	12	13	30	110	11	Regular	TWFT10	TX3512T10
ZRS1601160				50	130	15	Regular		
ZRS1602160	16.0, 17.0	16	15	65	165			15	Intermediate
ZRS2001200				20.0, 21.0	20	18	60	140	19
ZRS2002200	80	180	Intermediate						
ZRS2501250	25.0, 26.0	25	23	70	150	24	Regular	TWBT25	TX6025T25
ZRS2502250				90	200		Intermediate		
ZRS3001320	30.0	32	27	80	160	29	Regular	TWBT30	TX8030T30
ZRS3002320				100	220		Intermediate		
ZRS3201320	32.0	32	28	80	160	31	Regular	TWBT30	TX8030T30
ZRS3202320				100	220		Intermediate		

ASSEMBLY OF i-Xmill
MONTAGE DES i-Xmill



◀ Make sure to clean the insert and insert seat.
Wechselplatte und Plattensitz sorgfältig reinigen.

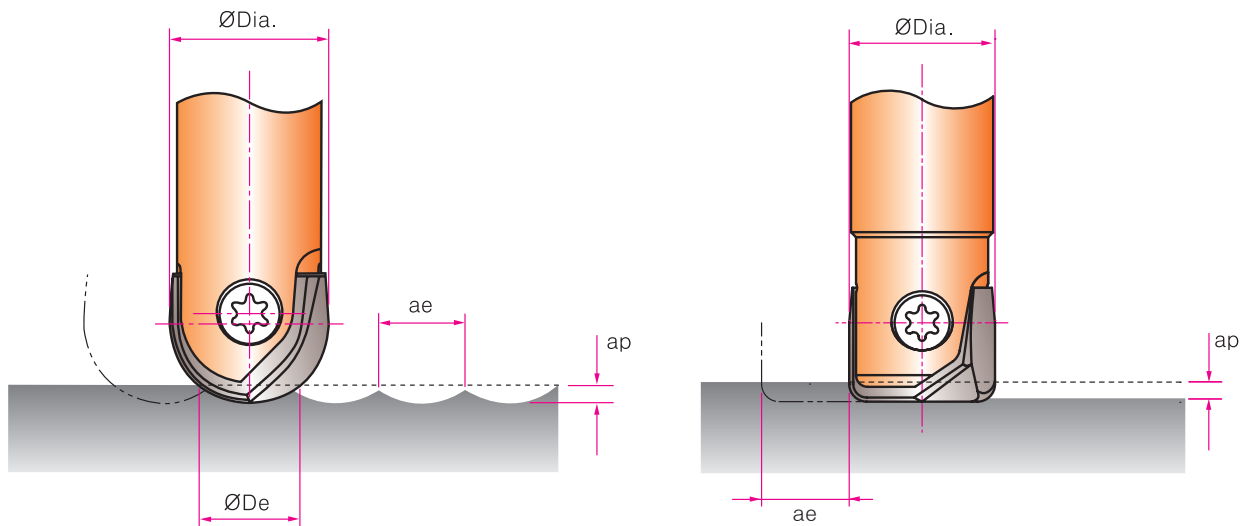


◀ Slide the insert into the slot of the holder.
Tighten the screw using anti-seize compound.
Wechselplatte in den Sitz des Halters einführen.
Die Schraube fest anziehen und dabei Spezialfett verwenden

SIZE (ØD)	CLAMPING TORQUE [N · m]
Ø8	1.0
Ø10	1.5
Ø12, Ø13	2.5
Ø16, Ø17	3.5
Ø20, Ø21	5.0
Ø25, Ø26	6.0
Ø30, Ø32	6.5

- * When the screw is worn out, please change the new screw.
- * Wenn das Schraubengewinde verschlissen ist, bitte neue Schraube verwenden.
- * Please tighten up the screw with recommended torque.
(Please refer to the table)
- * Die Feststellschraube mit dem empfohlenen Anzugsmoment anziehen (siehe Tabelle).
- * Don't press down the insert, when the screw is tightened.
- * Die Wechselplatte nicht nach unten drücken, wenn die Schraube angezogen ist.

CUTTING CONDITION



RPM = revolution per minute (rev/min)
Vc = surface meter per minute (M/min)
Dia. = diameter of insert (mm)
Vf = feed rate (mm/rev)
De = effective tool diameter (mm)
ap = axial depth of cut (mm)
ae = radial depth of cut (mm)

$$Vc [M/min] = \frac{(RPM) \cdot (\pi) \cdot (Dia.)}{1000}$$

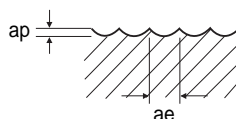
$$Vf [mm/min] = (RPM) \cdot (Feed)$$

$$RPM [rev/min] = \frac{(Vc) \cdot (1000)}{(\pi) \cdot (Dia.)}$$

$$De [mm] = 2 \sqrt{(ap) \cdot (Dia. - ap)}$$

i-Xmill BALL INSERTS
i-Xmill WECHSELPLATTE MIT RUNDER STIRN
XMB110A, XMB120C SERIES

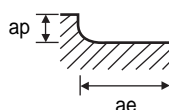
WORK MATERIAL		CARBON & ALLOY STEELS			CARBON & ALLOY STEELS			DIE TOOL STEELS PRE-HARDENED			HARDENED STEELS		
HARDNESS	HB	~280			280~380			380~480			480~740		
	HRc	~30			30~40			40~50			50~65		
<i>i</i> -Xmill TYPE		XMB110A			XMB110A			XMB110A, XMB120C			XMB120C		
CUTTING SPEED Vc [M/min]	ROUGHING	160~260			120~200			100~200			180~230		
	FINISHING	215~400			150~380			150~320			200~250		
CUTTING CONDITION		Feed (Vf) [mm/rev]	ae [mm]	ap [mm]	Feed (Vf) [mm/rev]	ae [mm]	ap [mm]	Feed (Vf) [mm/rev]	ae [mm]	ap [mm]	Feed (Vf) [mm/rev]	ae [mm]	ap [mm]
8.0		0.30~0.50	0.80~0.25	0.20~0.10	0.30~0.50	0.80~0.25	0.20~0.10	0.20~0.30	0.80~0.25	0.20~0.10	0.20~0.30	0.80~0.20	0.20~0.10
10.0		0.30~0.50	1.00~0.25	0.25~0.10	0.30~0.50	1.00~0.25	0.25~0.10	0.25~0.35	1.00~0.25	0.25~0.10	0.25~0.35	1.00~0.20	0.25~0.10
12.0		0.40~0.60	1.20~0.30	0.30~0.10	0.40~0.60	1.20~0.30	0.30~0.10	0.25~0.40	1.20~0.30	0.30~0.10	0.25~0.40	1.20~0.25	0.30~0.10
16.0		0.50~0.70	1.60~0.30	0.80~0.10	0.50~0.70	1.60~0.30	0.80~0.10	0.30~0.50	1.60~0.30	0.80~0.10	0.30~0.50	1.60~0.25	0.80~0.10
20.0		0.50~0.80	2.00~0.40	1.00~0.10	0.50~0.80	2.00~0.40	1.00~0.10	0.35~0.55	2.00~0.40	1.00~0.10	0.35~0.55	2.00~0.35	1.00~0.10
25.0		0.50~1.00	2.50~0.40	1.25~0.10	0.50~1.00	2.50~0.40	1.25~0.10	0.40~0.60	2.50~0.40	1.25~0.10	0.40~0.60	2.50~0.40	1.25~0.10
30.0, 32.0		0.80~1.00	3.00~0.40	1.50~0.10	0.80~1.00	3.00~0.40	1.50~0.10	0.40~0.80	3.00~0.40	1.50~0.10	0.40~0.80	3.00~0.40	1.50~0.10



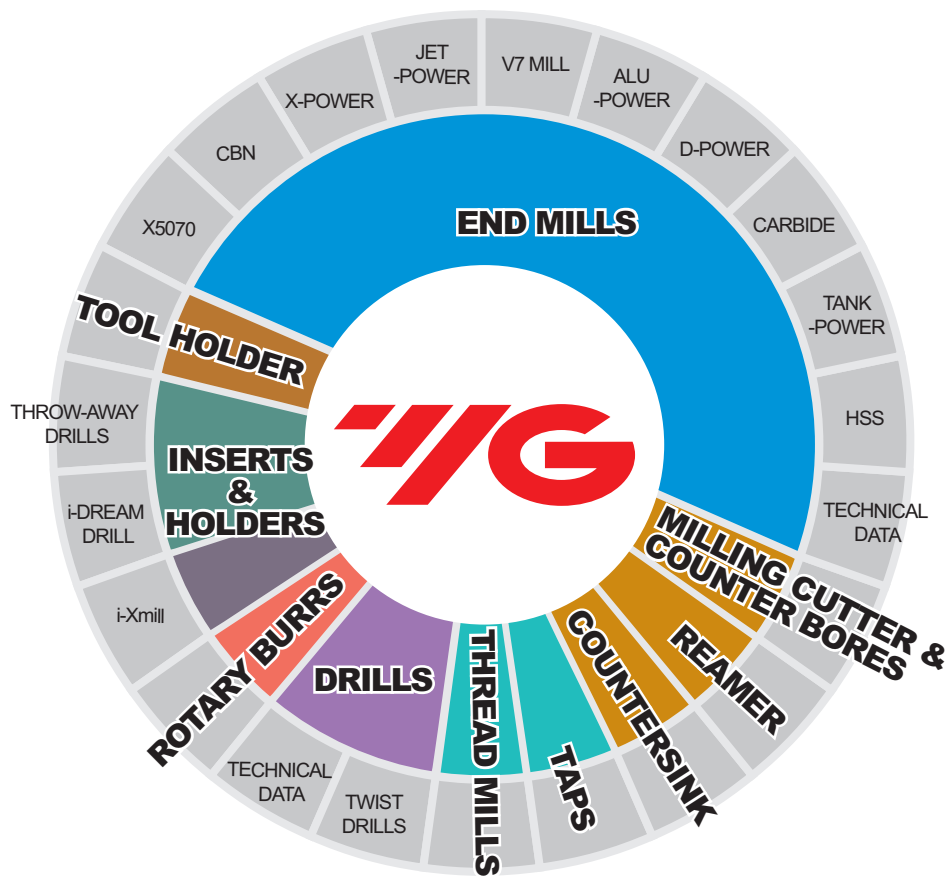
► Recommend to reduce the feed rate to 70 ~ 85% when you use long tools.

i-Xmill CORNER RADIUS INSERTS
i-Xmill WECHSELPLATTE MIT GERADER STIRN UND ECKRADIUS
XMR110A, XMR120C SERIES

WORK MATERIAL		CARBON & ALLOY STEELS			CARBON & ALLOY STEELS			DIE TOOL STEELS PRE-HARDENED			HARDENED STEELS		
HARDNESS	HB	~280			280~380			380~480			480~740		
	HRc	~30			30~40			40~50			50~65		
<i>i</i> -Xmill TYPE		XMR110A			XMR110A			XMR110A, XMR120C			XMR120C		
CUTTING SPEED Vc [M/min]	ROUGHING	160~250			120~240			100~240			80~180		
	FINISHING	200~300			200~280			200~280			150~220		
CUTTING CONDITION		Feed (Vf) [mm/rev]	ae [mm]	ap [mm]	Feed (Vf) [mm/rev]	ae [mm]	ap [mm]	Feed (Vf) [mm/rev]	ae [mm]	ap [mm]	Feed (Vf) [mm/rev]	ae [mm]	ap [mm]
8.0		0.40~0.30	0.80~0.20	0.20~0.10	0.40~0.30	0.80~0.20	0.20~0.10	0.20~0.10	0.80~0.20	0.20~0.10	0.20~0.10	0.80~0.20	0.20~0.10
10.0		0.40~0.30	1.00~0.20	0.20~0.10	0.40~0.30	1.00~0.20	0.20~0.10	0.20~0.10	1.00~0.20	0.20~0.10	0.20~0.10	1.00~0.20	0.20~0.10
12.0, 13.0		0.40~0.30	1.20~0.20	0.30~0.10	0.40~0.30	1.20~0.20	0.30~0.10	0.20~0.10	1.20~0.20	0.30~0.10	0.20~0.10	1.20~0.20	0.30~0.10
16.0, 17.0		0.50~0.40	1.60~0.20	0.80~0.20	0.50~0.40	1.60~0.20	0.80~0.20	0.24~0.12	1.60~0.20	0.80~0.20	0.24~0.12	1.60~0.20	0.80~0.20
20.0, 21.0		0.50~0.40	2.00~0.20	1.00~0.20	0.50~0.40	2.00~0.20	1.00~0.20	0.24~0.12	2.00~0.20	1.00~0.20	0.24~0.12	2.00~0.20	1.00~0.20
25.0, 26.0		0.50~0.40	2.05~0.20	1.30~0.20	0.50~0.40	2.50~0.20	1.30~0.20	0.24~0.12	2.50~0.20	1.30~0.20	0.24~0.12	2.50~0.20	1.30~0.20
30.0, 32.0		0.50~0.40	3.20~0.20	1.60~0.20	0.50~0.40	3.20~0.20	1.60~0.20	0.24~0.12	3.20~0.20	1.60~0.20	0.24~0.12	3.20~0.20	1.60~0.20



► Recommend to reduce the feed rate to 70 ~ 85% when you use long tools.

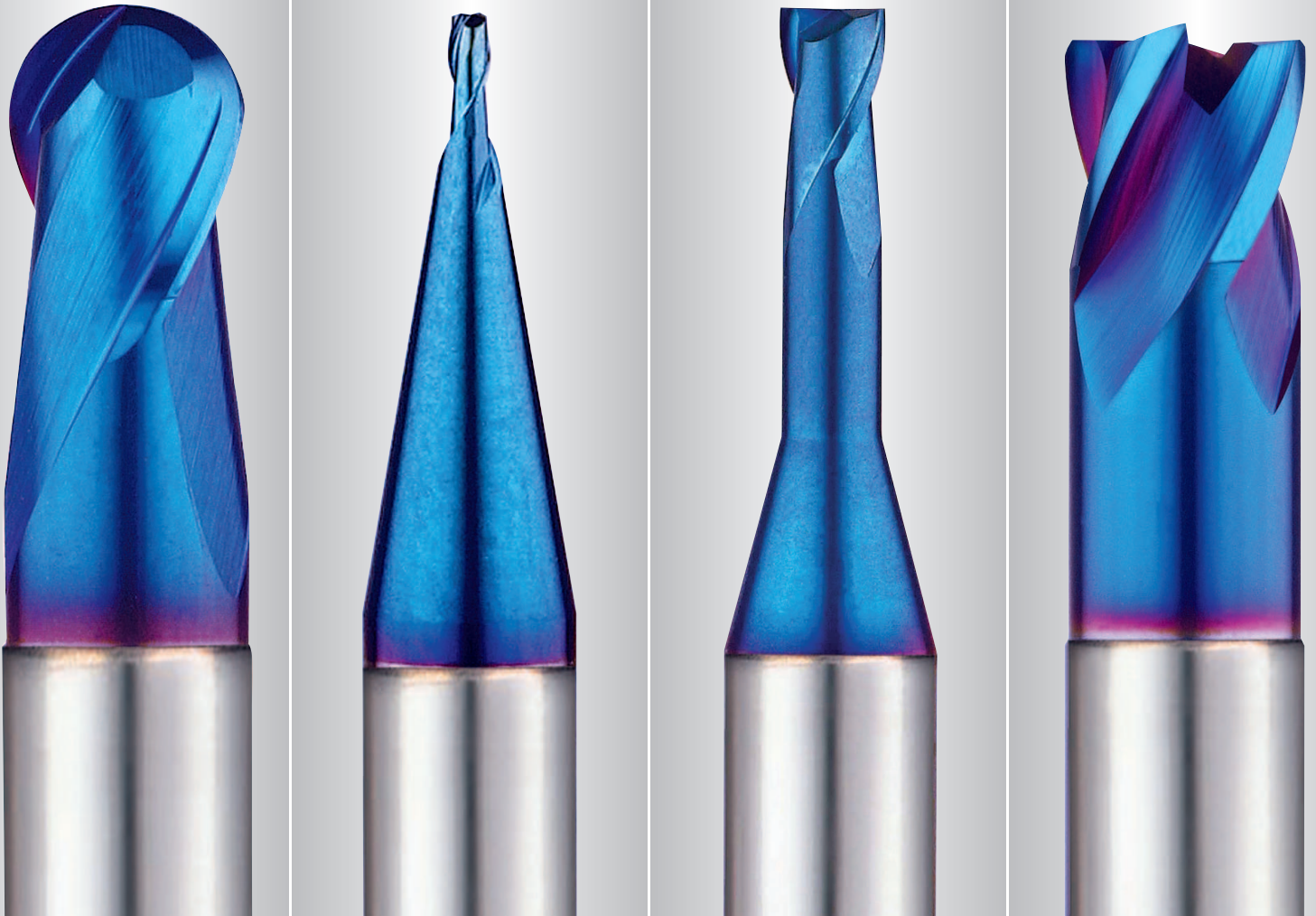


Challenge Toward a Global Leader-
YG-1 Leads the World Market.

CARBIDE



Being the best through innovation




















X5070

X5070 FRÄSER

- High Hardened Steels HRc45 to HRc70, High Speed Machining, Dry Cutting
- Für hoch gehärtete Stähle von Hrc45 bis HRc70. HSC-Technik. Trockenfräsen

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
G8A46		CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN	R0.05	R2.0	574
G8A54		CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN	R0.25	R1.0	577
G8A28		CARBIDE, 2 FLUTE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS	R0.05	R6.0	578
G8A38		CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN EXTER KURZ STIRNRADIUS mit ABGESETZTEM SCHAFTTETL	R0.5	R12.5	579
G8A53		CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS	R0.2	R1.0	580
G8A59		CARBIDE, 3 FLUTE BALL NOSE VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS	R1.5	R10.0	581
G8A60		CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN	D0.5	D12.0	582
G8A36		CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN EXTER KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D0.3	D20.0	585
G8A52		CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN	D0.5	D2.0	587
G8A50		CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS	D0.3	D2.0	588
G8A47		CARBIDE, 4 FLUTE CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS	D3.0	D12.0	589
G8A37		CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D1.0	D20.0	590
G8B08		CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D6.0	D12.0	591
G8A39		CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS	D6.0	D20.0	592
G8A45		CARBIDE, 2 FLUTE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN	D0.1	D4.0	593
G8A01		CARBIDE, 2 FLUTE VOLLHARTMETALL, 2 SCHNEIDEN	D0.1	D20.0	596
G8A02		CARBIDE, 4 FLUTE VOLLHARTMETALL, 4 SCHNEIDEN	D1.0	D20.0	597
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					598

X5070 END MILLS

◎ : Excellent, ○ : Good

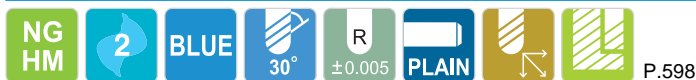
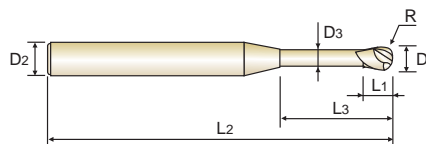
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
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- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



P.598

Unit : mm

EDP No.	Radius of Ball Nose R (±0.005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A46805	RO.05	0.1	4	0.1	0.3	45	0.085
G8A46806	RO.05	0.1	4	0.1	0.5	45	0.085
G8A46002	RO.1	0.2	4	0.2	0.5	45	0.17
G8A46977	RO.1	0.2	4	0.2	1	45	0.17
G8A46958	RO.1	0.2	4	0.2	1.5	45	0.17
G8A46003	RO.15	0.3	4	0.3	1	45	0.27
G8A46959	RO.15	0.3	4	0.3	2	45	0.27
G8A46986	RO.15	0.3	4	0.3	3	45	0.27
G8A46004	RO.2	0.4	4	0.4	1	45	0.37
G8A46960	RO.2	0.4	4	0.4	2	45	0.37
G8A46961	RO.2	0.4	4	0.4	3	45	0.37
G8A46981	RO.2	0.4	4	0.4	4	45	0.37
G8A46987	RO.25	0.5	4	0.4	5	45	0.45
G8A46005	RO.25	0.5	4	0.4	2	45	0.45
G8A46804	RO.25	0.5	4	0.4	2.5	45	0.45
G8A46962	RO.25	0.5	4	0.4	4	45	0.45
G8A46963	RO.3	0.6	4	0.5	6	45	0.55
G8A46964	RO.3	0.6	4	0.5	8	45	0.55
G8A46957	RO.3	0.6	4	0.5	2	45	0.55
G8A46988	RO.3	0.6	4	0.5	3	45	0.55
G8A46915	RO.3	0.6	4	0.5	4	45	0.55
G8A46989	RO.3	0.6	4	0.5	5	45	0.55
G8A46916	RO.3	0.6	4	0.5	6	45	0.55
G8A46917	RO.4	0.8	4	0.6	8	45	0.75
G8A46990	RO.4	0.8	4	0.6	10	45	0.75
G8A46918	RO.4	0.8	4	0.6	2	45	0.75
G8A46919	RO.4	0.8	4	0.6	4	45	0.75
G8A46008	RO.4	0.8	4	0.6	6	45	0.75
G8A46901	RO.4	0.8	4	0.6	8	45	0.75

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.

However, it doesn't effect on performance of tool.

◎ : Excellent ○ : Good

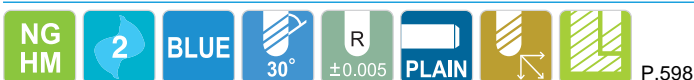
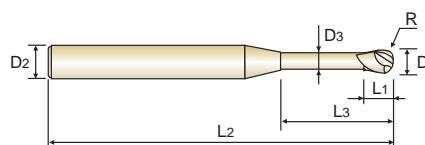
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

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Unit : mm

EDP No.	Radius of Ball Nose R (±0.005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A46965	RO.4	0.8	4	0.6	10	45	0.75
G8A46920	RO.5	1.0	4	0.8	3	45	0.95
G8A46921	RO.5	1.0	4	0.8	4	45	0.95
G8A46923	RO.5	1.0	4	0.8	5	45	0.95
G8A46010	RO.5	1.0	4	0.8	6	45	0.95
G8A46924	RO.5	1.0	4	0.8	7	45	0.95
G8A46902	RO.5	1.0	4	0.8	8	45	0.95
G8A46925	RO.5	1.0	4	0.8	9	45	0.95
G8A46903	RO.5	1.0	4	0.8	10	45	0.95
G8A46904	RO.5	1.0	4	0.8	12	45	0.95
G8A46926	RO.5	1.0	4	0.8	14	50	0.95
G8A46927	RO.5	1.0	4	0.8	16	50	0.95
G8A46966	RO.5	1.0	4	0.8	20	55	0.95
G8A46982	RO.6	1.2	4	1.0	6	45	1.15
G8A46012	RO.6	1.2	4	1.0	8	45	1.15
G8A46983	RO.6	1.2	4	1.0	10	45	1.15
G8A46905	RO.6	1.2	4	1.0	12	45	1.15
G8A46930	RO.75	1.5	4	1.2	6	45	1.45
G8A46015	RO.75	1.5	4	1.2	8	45	1.45
G8A46931	RO.75	1.5	4	1.2	10	45	1.45
G8A46906	RO.75	1.5	4	1.2	12	45	1.45
G8A46992	RO.75	1.5	4	1.2	14	50	1.45
G8A46907	RO.75	1.5	4	1.2	16	50	1.45
G8A46932	RO.75	1.5	4	1.2	20	55	1.45
G8A46939	R1.0	2.0	4	1.6	4	45	1.95
G8A46940	R1.0	2.0	4	1.6	6	45	1.95
G8A46020	R1.0	2.0	4	1.6	8	45	1.95
G8A46941	R1.0	2.0	4	1.6	10	45	1.95
G8A46942	R1.0	2.0	4	1.6	12	50	1.95

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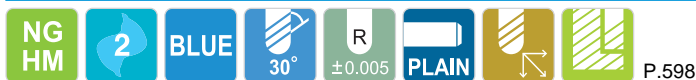
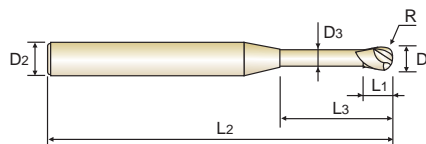
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
	○	○	○	◎	◎							



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VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

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Unit : mm

EDP No.	Radius of Ball Nose R (±0.005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A46943	R1.0	2.0	4	1.6	14	50	1.95
G8A46909	R1.0	2.0	4	1.6	16	50	1.95
G8A46993	R1.0	2.0	4	1.6	18	55	1.95
G8A46910	R1.0	2.0	4	1.6	20	55	1.95
G8A46944	R1.0	2.0	4	1.6	22	60	1.95
G8A46945	R1.0	2.0	4	1.6	25	60	1.95
G8A46967	R1.0	2.0	4	1.6	30	70	1.95
G8A46948	R1.5	3.0	6	2.4	12	50	2.85
G8A46984	R1.5	3.0	6	2.4	14	55	2.85
G8A46030	R1.5	3.0	6	2.4	16	55	2.85
G8A46985	R1.5	3.0	6	2.4	18	60	2.85
G8A46911	R1.5	3.0	6	2.4	20	60	2.85
G8A46968	R1.5	3.0	6	2.4	25	65	2.85
G8A46969	R1.5	3.0	6	2.4	30	70	2.85
G8A46970	R1.5	3.0	6	2.4	35	80	2.85
G8A46950	R2.0	4.0	6	3.2	12	60	3.85
G8A46040	R2.0	4.0	6	3.2	16	60	3.85
G8A46912	R2.0	4.0	6	3.2	20	65	3.85
G8A46913	R2.0	4.0	6	3.2	25	70	3.85
G8A46971	R2.0	4.0	6	3.2	30	70	3.85
G8A46972	R2.0	4.0	6	3.2	35	80	3.85
G8A46973	R2.0	4.0	6	3.2	40	90	3.85
G8A46974	R2.0	4.0	6	3.2	45	90	3.85
G8A46975	R2.0	4.0	6	3.2	50	100	3.85

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Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

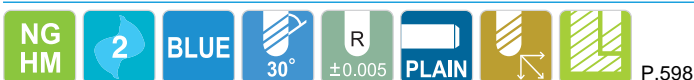
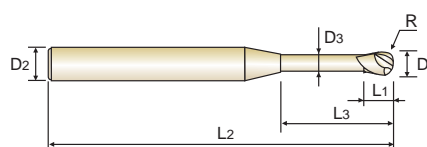
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

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Unit : mm

EDP No.	Radius of Ball Nose R (±0.005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A54005	RO.25	0.5	6	0.5	1.5	50	0.45
G8A54901	RO.25	0.5	6	0.5	3.3	50	0.45
G8A54006	RO.3	0.6	6	0.6	2	50	0.55
G8A54902	RO.3	0.6	6	0.6	4	50	0.55
G8A54008	RO.4	0.8	6	0.8	2.5	50	0.75
G8A54903	RO.4	0.8	6	0.8	5.5	50	0.75
G8A54010	RO.5	1.0	6	1	3.3	50	0.95
G8A54904	RO.5	1.0	6	1	6.7	50	0.95
G8A54905	RO.5	1.0	6	1	12	50	0.95
G8A54012	RO.6	1.2	6	1.2	4.4	50	1.15
G8A54906	RO.6	1.2	6	1.2	8	50	1.15
G8A54015	RO.75	1.5	6	1.5	5	50	1.45
G8A54907	RO.75	1.5	6	1.5	9.7	50	1.45
G8A54908	RO.75	1.5	6	1.5	15	50	1.45
G8A54020	R1.0	2.0	6	2	6	50	1.95
G8A54909	R1.0	2.0	6	2	13	50	1.95
G8A54910	R1.0	2.0	6	2	20	60	1.95

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0~-0.012	h6

◎ : Excellent ○ : Good

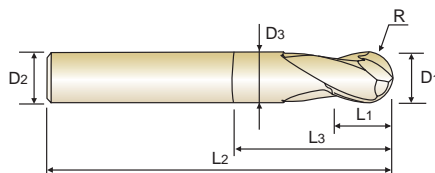
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



NG HM
2
BLUE
30°
R ±0.005
R ±0.010
PLAIN
P.599

R0.05-R3 R4-R6

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A28001	R0.05	0.1	4	0.2	-	40	-
G8A28002	R0.1	0.2	4	0.3	-	40	-
G8A28003	R0.15	0.3	4	0.5	-	40	-
G8A28004	R0.2	0.4	4	0.6	-	40	-
G8A28005	R0.25	0.5	4	0.7	-	40	-
G8A28006	R0.3	0.6	4	0.9	-	40	-
G8A28007	R0.35	0.7	4	1.1	-	40	-
G8A28008	R0.4	0.8	4	1.2	-	40	-
G8A28009	R0.45	0.9	4	1.4	-	40	-
G8A28010	R0.5	1.0	6	1.5	3	50	0.95
G8A28015	R0.75	1.5	6	2	4	50	1.45
G8A28020	R1.0	2.0	6	2.5	5	50	1.95
G8A28025	R1.25	2.5	6	3	7	50	2.4
G8A28030	R1.5	3.0	6	4	10	60	2.85
G8A28035	R1.75	3.5	6	4.5	10	60	3.35
G8A28040	R2.0	4.0	6	5	10	60	3.85
G8A28045	R2.25	4.5	6	5.5	10	60	4.35
G8A28050	R2.5	5.0	6	6	12	60	4.85
G8A28055	R2.75	5.5	6	6.5	12	60	5.35
G8A28060	R3.0	6.0	6	7	15	60	5.85
G8A28903	R3.0	6.0	6	9	30	90	5.85
G8A28901	R4.0	8.0	8	9	15	60	7.7
G8A28080	R4.0	8.0	8	9	15	80	7.7
G8A28904	R4.0	8.0	8	12	30	100	7.7
G8A28902	R5.0	10.0	10	11	25	60	9.7
G8A28100	R5.0	10.0	10	11	25	80	9.7
G8A28905	R5.0	10.0	10	15	30	100	9.7
G8A28120	R6.0	12.0	12	14	25	80	11.7

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

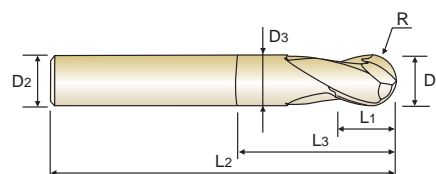
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ STIRNRADIUS mit ABGESETZTEM SCHAFTTEIL

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



R0.05-R3 R3.5-R12.5

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A38010	R0.5	1.0	4	1	2.2	50	0.95
G8A38012	R0.6	1.2	4	1.2	2.6	50	1.15
G8A38015	R0.75	1.5	4	1.5	3	50	1.45
G8A38020	R1.0	2.0	6	2	4	50	1.95
G8A38030	R1.5	3.0	6	3	6	60	2.85
G8A38040	R2.0	4.0	6	4	8	70	3.85
G8A38050	R2.5	5.0	6	5	10	80	4.85
G8A38060	R3.0	6.0	6	6	12	90	5.85
G8A38070	R3.5	7.0	8	7	14	90	6.7
G8A38080	R4.0	8.0	8	8	16	100	7.7
G8A38090	R4.5	9.0	10	9	18	100	8.7
G8A38100	R5.0	10.0	10	10	20	100	9.7
G8A38120	R6.0	12.0	12	12	24	110	11.7
G8A38140	R7.0	14.0	14	14	28	110	13.7
G8A38160	R8.0	16.0	16	16	32	140	15.7
G8A38180	R9.0	18.0	18	18	36	140	17.7
G8A38200	R10.0	20.0	20	20	40	160	19.7
G8A38250	R12.5	25.0	25	25	50	180	24.7

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover. However, it doesn't effect on performance of tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

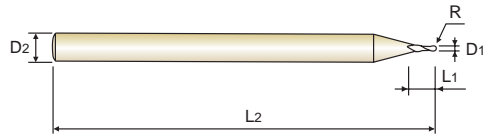
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



P.599

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.005)	D1	D2	L1	L2
G8A53004	RO.2	0.4	6	0.4	50
G8A53005	RO.25	0.5	6	0.5	50
G8A53006	RO.3	0.6	6	0.6	50
G8A53008	RO.4	0.8	6	0.8	50
G8A53010	RO.5	1.0	6	1.0	50
G8A53012	RO.6	1.2	6	1.2	50
G8A53015	RO.75	1.5	6	1.5	50
G8A53020	R1.0	2.0	6	2.0	50

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

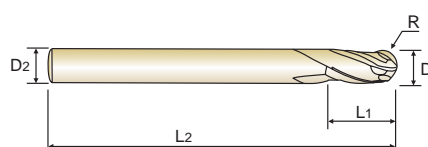
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

◎ : Excellent ○ : Good

CARBIDE, 3 FLUTE BALL NOSE VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



R1.5-R3 R4-R10

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
G8A59030	R1.5	3.0	6	8	60
G8A59040	R2.0	4.0	6	8	70
G8A59050	R2.5	5.0	6	10	80
G8A59060	R3.0	6.0	6	12	90
G8A59080	R4.0	8.0	8	14	100
G8A59100	R5.0	10.0	10	18	100
G8A59120	R6.0	12.0	12	22	110
G8A59160	R8.0	16.0	16	30	140
G8A59200	R10.0	20.0	20	38	160

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

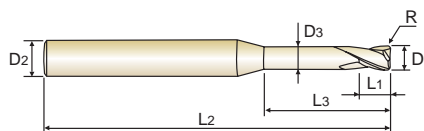
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A60936	RO.05	0.5	4	0.7	1.5	45	0.45
G8A60932	RO.05	0.5	4	0.7	2.5	45	0.45
G8A60935	RO.05	0.5	4	0.7	4	45	0.45
G8A60931	RO.05	0.6	4	0.9	2	45	0.55
G8A60933	RO.05	0.6	4	0.9	3	45	0.55
G8A60934	RO.05	0.6	4	0.9	4	45	0.55
G8A600060102	RO.1	0.6	4	0.9	2	45	0.55
G8A600070104	RO.1	0.7	4	1	4	45	0.65
G8A600080102	RO.1	0.8	4	1.2	2	45	0.75
G8A60008	RO.1	0.8	4	1.2	4	45	0.75
G8A60924	RO.1	0.8	4	1.2	6	45	0.75
G8A60925	RO.1	1.0	6	1.5	4	50	0.95
G8A60926	RO.1	1.0	6	1.5	6	50	0.95
G8A60010	RO.2	1.0	6	1.5	4	50	0.95
G8A60910	RO.2	1.0	6	1.5	6	50	0.95
G8A60911	RO.2	1.0	6	1.5	8	50	0.95
G8A60912	RO.3	1.0	6	1.5	4	50	0.95
G8A60930	RO.3	1.0	6	1.5	6	50	0.95
G8A600100308	RO.3	1.0	6	1.5	8	50	0.95
G8A60015	RO.2	1.5	6	2.5	4	50	1.45
G8A600150206	RO.2	1.5	6	2.5	6	50	1.45
G8A600150208	RO.2	1.5	6	2.5	8	50	1.45
G8A60913	RO.2	1.5	6	2.5	10	50	1.45
G8A60914	RO.2	1.5	6	2.5	12	50	1.45
G8A60915	RO.3	1.5	6	2.5	4	50	1.45
G8A600150306	RO.3	1.5	6	2.5	6	50	1.45
G8A600150308	RO.3	1.5	6	2.5	8	50	1.45
G8A60927	RO.2	2.0	6	3	6	50	1.95
G8A600200208	RO.2	2.0	6	3	8	50	1.95

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.

However, it doesn't effect on performance of tool.

◎ : Excellent ○ : Good

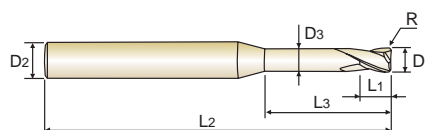
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A600200210	RO.2	2.0	6	3	10	55	1.95
G8A600200212	RO.2	2.0	6	3	12	55	1.95
G8A60916	RO.3	2.0	6	3	6	50	1.95
G8A600200308	RO.3	2.0	6	3	8	50	1.95
G8A600200310	RO.3	2.0	6	3	10	55	1.95
G8A600200312	RO.3	2.0	6	3	12	55	1.95
G8A600200316	RO.3	2.0	6	3	16	55	1.95
G8A60917	RO.5	2.0	6	3	6	50	1.95
G8A60020	RO.5	2.0	6	3	10	55	1.95
G8A60918	RO.5	2.0	6	3	12	55	1.95
G8A600300208	RO.2	3.0	6	4	8	55	2.85
G8A600300210	RO.2	3.0	6	4	10	55	2.85
G8A600300212	RO.2	3.0	6	4	12	55	2.85
G8A600300216	RO.2	3.0	6	4	16	55	2.85
G8A600300308	RO.3	3.0	6	4	8	55	2.85
G8A60919	RO.3	3.0	6	4	10	55	2.85
G8A600300312	RO.3	3.0	6	4	12	55	2.85
G8A600300316	RO.3	3.0	6	4	16	55	2.85
G8A60030	RO.5	3.0	6	4	10	55	2.85
G8A600300512	RO.5	3.0	6	4	12	55	2.85
G8A60901	RO.5	3.0	6	4	16	55	2.85
G8A60902	RO.5	3.0	6	4	20	55	2.85
G8A600400212	RO.2	4.0	6	5	12	55	3.85
G8A600400216	RO.2	4.0	6	5	16	55	3.85
G8A600400220	RO.2	4.0	6	5	20	55	3.85
G8A600400310	RO.3	4.0	6	5	10	55	3.85
G8A60920	RO.3	4.0	6	5	12	55	3.85
G8A600400316	RO.3	4.0	6	5	16	55	3.85
G8A600400320	RO.3	4.0	6	5	20	55	3.85

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.

However, it doesn't effect on performance of tool.

◎ : Excellent ○ : Good

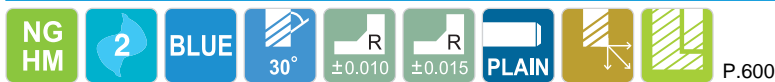
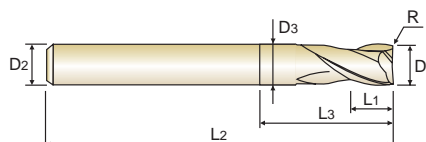
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Ø0.5-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A60040	R0.5	4.0	6	5	12	55	3.85
G8A60903	R0.5	4.0	6	5	16	55	3.85
G8A60904	R0.5	4.0	6	5	20	55	3.85
G8A600401012	R1.0	4.0	6	5	12	55	3.85
G8A600401016	R1.0	4.0	6	5	16	55	3.85
G8A60921	R0.3	6.0	6	7	20	60	5.85
G8A60060	R0.5	6.0	6	7	20	60	5.85
G8A60905	R1.0	6.0	6	7	20	60	5.85
G8A60906	R1.5	6.0	6	7	20	60	5.85
G8A600602020	R2.0	6.0	6	7	20	60	5.85
G8A60922	R0.3	8.0	8	9	25	60	7.7
G8A60929	R0.5	8.0	8	9	25	60	7.7
G8A60080	R1.0	8.0	8	9	25	60	7.7
G8A60907	R1.5	8.0	8	9	25	60	7.7
G8A600802025	R2.0	8.0	8	9	25	60	7.7
G8A60923	R0.3	10.0	10	11	32	70	9.7
G8A601000532	R0.5	10.0	10	11	32	70	9.7
G8A60100	R1.0	10.0	10	11	32	70	9.7
G8A60908	R1.5	10.0	10	11	32	70	9.7
G8A601002032	R2.0	10.0	10	11	32	70	9.7
G8A601200538	R0.5	12.0	12	12	38	80	11.7
G8A60120	R1.0	12.0	12	12	38	80	11.7
G8A60909	R1.5	12.0	12	12	38	80	11.7
G8A601202038	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

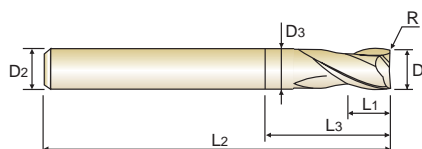
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ EXKENRADIUS mit ABGESETZTEM SCHAFTTEIL

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



P.603

Ø0.3-Ø6 Ø8-Ø20

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A36003	-	0.3	3	0.45	-	40	-
G8A36004	-	0.4	3	0.6	-	40	-
G8A36005	RO.05	0.5	3	0.7	-	40	-
G8A36907	RO.05	0.5	4	1	-	40	-
G8A36006	RO.05	0.6	3	0.9	-	40	-
G8A36908	RO.05	0.6	4	1.2	-	40	-
G8A36909	RO.05	0.7	4	1.4	-	40	-
G8A36008	RO.05	0.8	3	1.2	-	40	-
G8A36910	RO.05	0.8	4	1.6	-	40	-
G8A36911	RO.05	0.9	4	2	-	40	-
G8A36010	RO.1	1.0	3	1.5	-	40	-
G8A36901	RO.1	1.0	4	1.5	-	40	-
G8A36903	RO.1	1.0	6	1.5	-	40	-
G8A36015	RO.1	1.5	3	2.2	-	40	-
G8A36904	RO.1	1.5	6	2.2	-	40	-
G8A36020	RO.1	2.0	3	3	6	40	1.95
G8A36902	RO.1	2.0	4	3	6	40	1.95
G8A36905	RO.1	2.0	6	3	6	40	1.95
G8A36025	RO.1	2.5	3	4	6	40	2.4
G8A36906	RO.1	2.5	6	4	6	40	2.4
G8A36030	RO.1	3.0	6	4	7	45	2.85
G8A36035	RO.1	3.5	6	5	9	45	3.35
G8A36040	RO.1	4.0	6	5	9	45	3.85
G8A36045	RO.1	4.5	6	6	10	45	4.35

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn' t effect on performance of tool.

◎ : Excellent ○ : Good

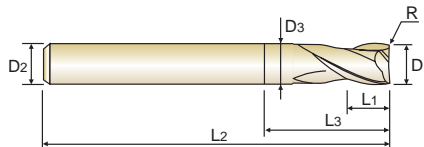
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRC55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ EXKENRADIUS mit ABGESETZTEM SCHAFTTEIL

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



P.603

Ø0.3-Ø6 Ø8-Ø20

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A36050	RO.2	5.0	6	6	11	50	4.85
G8A36060	RO.2	6.0	6	7	14	50	5.85
G8A36080	RO.2	8.0	8	9	18	60	7.7
G8A36100	RO.2	10.0	10	12	25	75	9.7
G8A36120	RO.3	12.0	12	15	30	75	11.7
G8A36160	RO.3	16.0	16	18	38	90	15.7
G8A36200	RO.3	20.0	20	24	45	100	19.7

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
 However, it doesn't effect on performance of tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

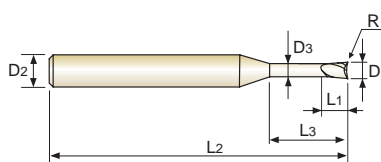
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A52005	RO.05	0.5	6	0.7	1.5	50	0.45
G8A52901	RO.05	0.5	6	0.7	3.3	50	0.45
G8A52006	RO.05	0.6	6	0.9	2	50	0.55
G8A52902	RO.05	0.6	6	0.9	4	50	0.55
G8A52008	RO.05	0.8	6	1.2	2.5	50	0.75
G8A52903	RO.05	0.8	6	1.2	5.5	50	0.75
G8A52010	RO.10	1.0	6	1.5	3.3	50	0.95
G8A52904	RO.10	1.0	6	1.5	6.7	50	0.95
G8A52012	RO.10	1.2	6	1.8	4.4	50	1.15
G8A52905	RO.10	1.2	6	1.8	8	50	1.15
G8A52015	RO.15	1.5	6	2.2	5	50	1.45
G8A52906	RO.15	1.5	6	2.2	9.7	50	1.45
G8A52020	RO.15	2.0	6	2.2	6	50	1.95
G8A52907	RO.15	2.0	6	2.2	13	50	1.95

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

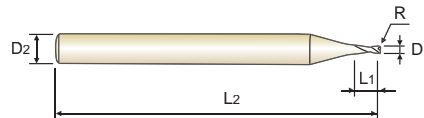
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.010)	D1	D2	L1	L2
G8A50003	-	0.3	6	0.45	50
G8A50004	-	0.4	6	0.6	50
G8A50005	RO.05	0.5	6	0.7	50
G8A50006	RO.05	0.6	6	0.9	50
G8A50008	RO.05	0.8	6	1.2	50
G8A50010	RO.10	1.0	6	1.5	50
G8A50012	RO.10	1.2	6	1.8	50
G8A50015	RO.15	1.5	6	2.2	50
G8A50020	RO.15	2.0	6	2.2	50

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

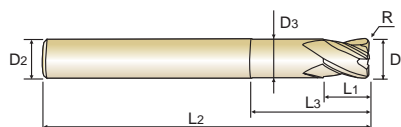
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 4 FLUTE CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Exzellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



P.602

Ø3-Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A47916	RO.3	3.0	6	4	12	55	2.85
G8A47917	RO.3	3.0	6	4	16	55	2.85
G8A47918	RO.3	3.0	6	4	20	55	2.85
G8A47030	RO.5	3.0	6	4	10	55	2.85
G8A47901	RO.5	3.0	6	4	16	55	2.85
G8A47902	RO.5	3.0	6	4	20	55	2.85
G8A47919	RO.3	4.0	6	5	12	55	3.85
G8A47920	RO.3	4.0	6	5	16	55	3.85
G8A47921	RO.3	4.0	6	5	20	55	3.85
G8A47040	RO.5	4.0	6	5	12	55	3.85
G8A47903	RO.5	4.0	6	5	16	55	3.85
G8A47904	RO.5	4.0	6	5	20	55	3.85
G8A47922	R1.0	4.0	6	5	12	55	3.85
G8A47060	RO.5	6.0	6	7	20	60	5.85
G8A47905	R1.0	6.0	6	7	20	60	5.85
G8A47906	R1.5	6.0	6	7	20	60	5.85
G8A47910	RO.5	8.0	8	9	25	60	7.7
G8A47080	R1.0	8.0	8	9	25	60	7.7
G8A47907	R1.5	8.0	8	9	25	60	7.7
G8A47913	R2.0	8.0	8	9	25	60	7.7
G8A47911	RO.5	10.0	10	11	32	70	9.7
G8A47100	R1.0	10.0	10	11	32	70	9.7
G8A47908	R1.5	10.0	10	11	32	70	9.7
G8A47914	R2.0	10.0	10	11	32	70	9.7
G8A47912	RO.5	12.0	12	12	38	80	11.7
G8A47120	R1.0	12.0	12	12	38	80	11.7
G8A47909	R1.5	12.0	12	12	38	80	11.7
G8A47915	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
 However, it doesn' t effect on performance of tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

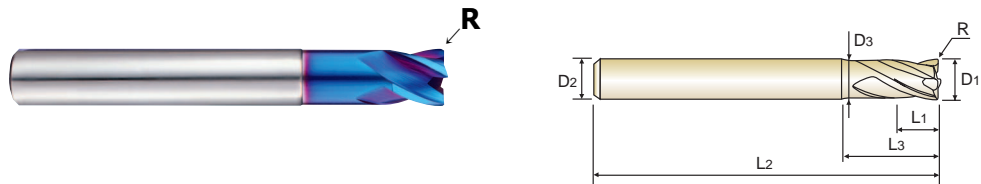
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Ø1-Ø6 Ø8-Ø20

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A37010	RO.1	1.0	3	1.5	-	40	-
G8A37901	RO.1	1.0	6	1.5	-	40	-
G8A37015	RO.1	1.5	3	2.2	-	40	-
G8A37902	RO.1	1.5	6	2.2	-	40	-
G8A37020	RO.1	2.0	3	3	6	40	1.95
G8A37903	RO.1	2.0	6	3	6	40	1.95
G8A37025	RO.1	2.5	3	4	6	40	2.4
G8A37904	RO.1	2.5	6	4	6	40	2.4
G8A37030	RO.1	3.0	6	4	7	45	2.85
G8A37035	RO.1	3.5	6	5	9	45	3.35
G8A37040	RO.1	4.0	6	5	9	45	3.85
G8A37045	RO.1	4.5	6	6	10	45	4.35
G8A37050	RO.2	5.0	6	6	11	50	4.85
G8A37060	RO.2	6.0	6	7	14	50	5.85
G8A37080	RO.2	8.0	8	9	18	60	7.7
G8A37100	RO.2	10.0	10	12	25	75	9.7
G8A37120	RO.3	12.0	12	15	30	75	11.7
G8A37160	RO.3	16.0	16	18	38	90	15.7
G8A37200	RO.3	20.0	20	24	45	100	19.7

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
 However, it doesn't effect on performance of tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

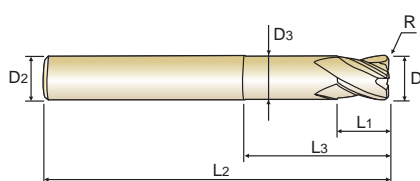
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETEL

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



P.602

Ø6 Ø8-Ø12

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8B0806005090	R0.5	6.0	6	9	20	90	5.85
G8B0806010090	R1.0	6.0	6	9	20	90	5.85
G8B0808005100	R0.5	8.0	8	12	25	100	7.7
G8B0808010100	R1.0	8.0	8	12	25	100	7.7
G8B0810005100	R0.5	10.0	10	15	32	100	9.7
G8B0810010100	R1.0	10.0	10	15	32	100	9.7
G8B0810020100	R2.0	10.0	10	15	32	100	9.7
G8B0812005110	R0.5	12.0	12	18	38	110	11.7
G8B0812010110	R1.0	12.0	12	18	38	110	11.7
G8B0812020110	R2.0	12.0	12	18	38	110	11.7

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

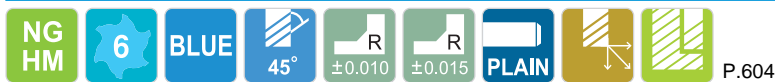
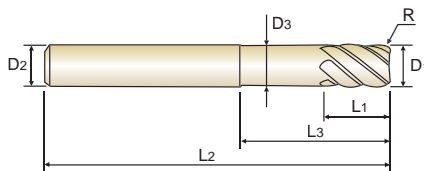
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS

- ▶ Designed to machine high hardened materials
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



Ø6 Ø8-Ø20

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A39916	R0.25	6.0	6	6	14	50	5.85
G8A39060	R0.5	6.0	6	6	14	50	5.85
G8A39901	R0.5	6.0	6	13	-	70	-
G8A39910	R0.5	6.0	* 6	26	-	70	-
G8A39080	R0.5	8.0	8	8	24	60	7.7
G8A39902	R0.5	8.0	8	19	-	90	-
G8A39911	R0.5	8.0	* 8	36	-	90	-
G8A39903	R0.5	10.0	10	22	-	100	-
G8A39100	R1.0	10.0	10	10	30	70	9.7
G8A39904	R1.0	10.0	10	22	-	100	-
G8A39912	R1.0	10.0	* 10	46	-	100	-
G8A39905	R0.5	12.0	12	26	-	110	-
G8A39120	R1.0	12.0	12	12	30	75	11.7
G8A39906	R1.0	12.0	12	26	-	110	-
G8A39913	R1.0	12.0	* 12	56	-	110	-
G8A39160	R1.0	16.0	16	32	-	130	-
G8A39907	R1.5	16.0	16	32	-	130	-
G8A39914	R1.5	16.0	* 16	66	-	130	-
G8A39200	R1.0	20.0	20	38	-	140	-
G8A39908	R1.5	20.0	20	38	-	140	-
G8A39909	R2.0	20.0	20	38	-	140	-
G8A39915	R2.0	20.0	* 20	76	-	140	-

Due to the characteristics of blue decoration layer which might be erased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~0.02	h6
over Ø6	±0.015	(*Extra Long Type: 0~0.03)	

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

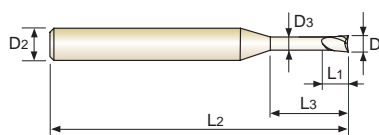
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

- ▶ Designed to machine high hardened materials
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Exzellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45863	0.1	4	0.15	0.3	45	0.085
G8A45864	0.1	4	0.15	0.5	45	0.085
G8A45002	0.2	4	0.3	0.5	45	0.17
G8A45815	0.2	4	0.3	1	45	0.17
G8A45816	0.2	4	0.3	1.5	45	0.17
G8A45003	0.3	4	0.45	1	45	0.27
G8A45844	0.3	4	0.45	1.5	45	0.27
G8A45817	0.3	4	0.45	2	45	0.27
G8A45818	0.3	4	0.45	3	45	0.27
G8A45842	0.3	4	0.45	4	45	0.27
G8A45843	0.4	4	0.6	1	45	0.37
G8A45004	0.4	4	0.6	2	45	0.37
G8A45984	0.4	4	0.6	3	45	0.37
G8A45985	0.4	4	0.6	4	45	0.37
G8A45986	0.4	4	0.6	5	45	0.37
G8A45005	0.5	4	0.7	2	45	0.45
G8A45861	0.5	4	0.7	2.5	45	0.45
G8A45988	0.5	4	0.7	4	45	0.45
G8A45989	0.5	4	0.7	6	45	0.45
G8A45990	0.5	4	0.7	8	45	0.45
G8A45006	0.6	4	0.9	2	45	0.55
G8A45860	0.6	4	0.9	3	45	0.55
G8A45991	0.6	4	0.9	4	45	0.55
G8A45992	0.6	4	0.9	6	45	0.55
G8A45993	0.6	4	0.9	8	45	0.55
G8A45819	0.6	4	0.9	10	45	0.55
G8A45862	0.8	4	1.2	2	45	0.75
G8A45008	0.8	4	1.2	4	45	0.75
G8A45908	0.8	4	1.2	6	45	0.75

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.

However, it doesn't effect on performance of tool.

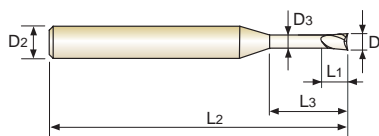
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

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- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
 - ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
 - ▶ Excellente Werkstückoberflächen.
 - ▶ Geeignet für hochpräzises Fräsen.
 - ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45909	0.8	4	1.2	8	45	0.75
G8A45994	0.8	4	1.2	10	45	0.75
G8A45995	0.8	4	1.2	12	45	0.75
G8A45996	1.0	4	1.5	4	45	0.95
G8A45010	1.0	4	1.5	6	45	0.95
G8A45912	1.0	4	1.5	8	45	0.95
G8A45913	1.0	4	1.5	10	45	0.95
G8A45914	1.0	4	1.5	12	45	0.95
G8A45997	1.0	4	1.5	16	50	0.95
G8A45998	1.0	4	1.5	20	55	0.95
G8A45012	1.2	4	1.8	6	45	1.15
G8A45915	1.2	4	1.8	8	45	1.15
G8A45916	1.2	4	1.8	10	45	1.15
G8A45917	1.2	4	1.8	12	45	1.15
G8A45999	1.2	4	1.8	16	50	1.15
G8A45015	1.5	4	2.3	6	45	1.45
G8A45923	1.5	4	2.3	8	45	1.45
G8A45924	1.5	4	2.3	10	45	1.45
G8A45925	1.5	4	2.3	12	45	1.45
G8A45926	1.5	4	2.3	14	50	1.45
G8A45927	1.5	4	2.3	16	50	1.45
G8A45928	1.5	4	2.3	18	55	1.45
G8A45810	1.5	4	2.3	20	55	1.45
G8A45958	2.0	4	3.0	6	45	1.95
G8A45020	2.0	4	3.0	8	45	1.95
G8A45959	2.0	4	3.0	10	45	1.95
G8A45960	2.0	4	3.0	12	45	1.95
G8A45961	2.0	4	3.0	14	50	1.95
G8A45962	2.0	4	3.0	16	50	1.95

Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.
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◎ : Excellent ○ : Good

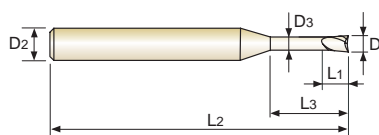
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

- ▶ Designed to machine high hardened materials
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
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- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45963	2.0	4	3.0	18	55	1.95
G8A45964	2.0	4	3.0	20	55	1.95
G8A45966	2.0	4	3.0	25	60	1.95
G8A45814	2.0	4	3.0	30	70	1.95
G8A45975	3.0	6	4.5	10	45	2.85
G8A45976	3.0	6	4.5	12	45	2.85
G8A45977	3.0	6	4.5	14	50	2.85
G8A45978	3.0	6	4.5	16	55	2.85
G8A45979	3.0	6	4.5	18	55	2.85
G8A45980	3.0	6	4.5	20	60	2.85
G8A45981	3.0	6	4.5	25	65	2.85
G8A45832	3.0	6	4.5	30	70	2.85
G8A45833	3.0	6	4.5	35	80	2.85
G8A45983	3.0	6	4.5	40	90	2.85
G8A45040	4.0	6	6	12	50	3.85
G8A45801	4.0	6	6	16	60	3.85
G8A45802	4.0	6	6	20	60	3.85
G8A45803	4.0	6	6	25	70	3.85
G8A45834	4.0	6	6	30	70	3.85
G8A45835	4.0	6	6	35	80	3.85
G8A45836	4.0	6	6	40	90	3.85
G8A45837	4.0	6	6	45	90	3.85
G8A45838	4.0	6	6	50	100	3.85



Due to the characteristics of blue decoration layer which might be erased during short term using, the color layer might not be uniform moreover.

However, it doesn't effect on performance of tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

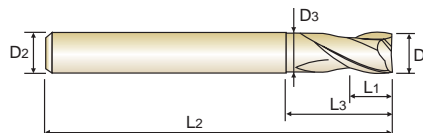
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							



CARBIDE, 2 FLUTE
VOLLHARTMETALL, 2 SCHNEIDEN

- ▶ Designed to machine high hardened materials
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A01001	0.1	4	0.2	-	40	-
G8A01002	0.2	4	0.4	-	40	-
G8A01003	0.3	4	0.6	-	40	-
G8A01004	0.4	4	0.8	-	40	-
G8A01005	0.5	4	1	-	40	-
G8A01006	0.6	4	1.2	-	40	-
G8A01007	0.7	4	1.4	-	40	-
G8A01008	0.8	4	1.6	-	40	-
G8A01009	0.9	4	2	-	40	-
G8A01010	1.0	6	1.5	3	50	0.95
G8A01015	1.5	6	1.7	4	50	1.45
G8A01020	2.0	6	2	5	50	1.95
G8A01025	2.5	6	2.5	6	55	2.4
G8A01030	3.0	6	3	8	55	2.85
G8A01035	3.5	6	3.5	9	55	3.35
G8A01040	4.0	6	4	10	55	3.85
G8A01050	5.0	6	5	13	55	4.85
G8A01060	6.0	6	6	15	55	5.85
G8A01080	8.0	8	8	20	65	7.7
G8A01100	10.0	10	10	25	75	9.7
G8A01120	12.0	12	12	28	85	11.7
G8A01160	16.0	16	16	32	90	15.7
G8A01200	20.0	20	20	40	105	19.7

Due to the characteristics of blue decoration layer which might be erased during short term using, the color layer might not be uniform moreover.
However, it doesn't effect on performance of tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h6
over Ø6	0~-0.015	

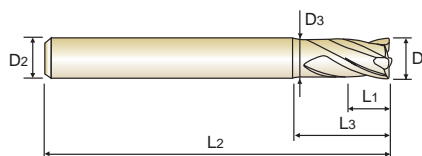
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

**CARBIDE, 4 FLUTE
VOLLHARTMETALL, 4 SCHNEIDEN**

- ▶ Designed to machine high hardened materials
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



P.604

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G8A02010	1.0	6	1.5	3	50	0.95
G8A02020	2.0	6	2	5	50	1.95
G8A02030	3.0	6	3	8	55	2.85
G8A02040	4.0	6	4	10	55	3.85
G8A02050	5.0	6	5	13	55	4.85
G8A02060	6.0	6	6	15	55	5.85
G8A02080	8.0	8	8	20	65	7.7
G8A02100	10.0	10	10	25	75	9.7
G8A02120	12.0	12	12	28	85	11.7
G8A02160	16.0	16	16	32	90	15.7
G8A02200	20.0	20	20	40	105	19.7



Due to the characteristics of blue decoration layer which might be earased during short term using, the color layer might not be uniform moreover.

However, it doesn' t effect on performance of tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h6
over Ø6	0~-0.015	

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	○	○	◎	◎							

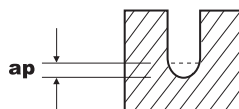


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

G8A46, G8A54 SERIES

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS						COPPER		
	HRc 30 ~ HRc 45			HRc 45 ~ HRc 55			HRc 55 ~ HRc 65					
	DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED
RO.1 × 0.2	50000	300-350	0.006-0.016	50000	265-310	0.005-0.013	50000	225-265	0.005-0.012	50000	455-530	0.010-0.022
RO.15 × 0.3	48000-50000	480-520	0.010-0.017	48000-50000	440-460	0.008-0.014	46000-50000	390-420	0.007-0.013	48000-50000	690-790	0.002-0.023
RO.2 × 0.4	48000-50000	720-790	0.013-0.032	48000-50000	450-550	0.011-0.026	46000-50000	400-460	0.010-0.024	48000-50000	1000-1150	0.019-0.048
RO.25 × 0.5	34100-49500	600-870	0.007-0.028	31900-35200	490-540	0.005-0.023	31900-35200	440-480	0.005-0.021	49000-50000	1100-1400	0.010-0.042
RO.3 × 0.6	28600-40700	590-850	0.007-0.034	26400-29700	480-540	0.006-0.028	26400-29700	400-480	0.006-0.025	42000-50000	1100-1700	0.011-0.050
RO.4 × 0.8	22000-30800	640-890	0.016-0.064	19800-22000	490-550	0.013-0.052	19800-22000	440-500	0.012-0.048	31000-50000	1100-2250	0.024-0.096
RO.5 × 1.0	17600-24200	600-850	0.008-0.080	15400-17600	470-540	0.007-0.065	15400-17600	440-500	0.006-0.060	24000-49500	1100-2200	0.012-0.120
RO.6 × 1.2	14300-18700	590-780	0.024-0.032	12000-14000	480-540	0.020-0.026	12000-14000	420-480	0.018-0.024	28500-38500	1480-1950	0.036-0.048
RO.75 × 1.5	11000-14300	580-760	0.031-0.048	10000-11500	480-540	0.025-0.039	10000-11500	420-480	0.023-0.036	17000-28500	1100-1950	0.046-0.072
R1.0 × 2.0	8500-11000	590-800	0.024-0.160	7900-8800	470-530	0.020-0.130	7900-8800	440-480	0.018-0.120	12600-24000	1100-2150	0.036-0.240
R1.5 × 3.0	5700-8200	730-1000	0.064-0.240	5300-5800	590-650	0.052-0.195	5300-5800	550-620	0.048-0.120	11900-17000	1850-2700	0.096-0.360
R2.0 × 4.0	4300-6200	680-990	0.080-0.320	3950-4400	550-620	0.065-0.026	3850-4400	530-570	0.060-0.240	6600-12500	1260-2500	0.120-0.480

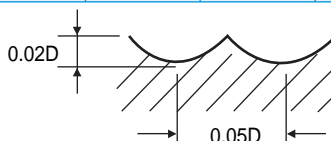


RPM = rev./min.
FEED = mm/min.

3 FLUTE, BALL NOSE
3 SCHNEIDEN, STIRNRADIUS

G8A59 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS							
	HRc 30 ~ HRc 45		HRc 45 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65		HRc 65 ~ HRc 70	
	DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM
R1.5 × 3.0	32000	8600	26840	5800	19840	4280	18680	4040	12780	2760
R2.0 × 4.0	24080	7700	20130	5430	14880	3880	14220	3650	9580	2500
R2.5 × 5.0	20000	7250	16780	5430	12400	3690	11670	3470	8000	2370
R3.0 × 6.0	18000	8570	15200	6220	12200	4500	11100	3830	7590	2460
R4.0 × 8.0	13500	7350	11300	5250	9200	3980	8320	3350	5690	2130
R5.0 × 10.0	10800	6530	9100	4590	7350	3450	6660	2870	4550	1960
R6.0 × 12.0	9050	6100	7590	4260	6130	3190	5530	2400	3800	1640
R8.0 × 16.0	6700	4600	5690	3250	4600	2480	4160	1800	2850	1230
R10.0 × 20.0	5400	3600	4550	2620	3670	1980	3300	1440	2280	980

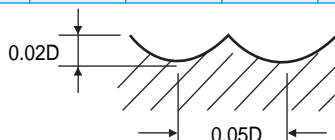


RPM = rev./min.
FEED = mm/min.

CARBIDE, 3 FLUTE BALL NOSE
VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS

G8A28, G8A38, G8A53 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HARDNESS		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65		HRc 65 ~ HRc 70	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.1 × 0.2	50000	1200	50000	1050	45000	960	40000	770	35000	674	31500	570
R0.15 × 0.3	50000	1500	50000	1350	45000	1200	40000	965	35000	840	31500	700
R0.2 × 0.4	50000	1900	50000	1700	45000	1500	40000	1200	35000	1050	31500	890
R0.25 × 0.5	50000	2400	50000	2100	45000	1900	40000	1500	35000	1300	31500	1100
R0.3 × 0.6	50000	2900	50000	2500	45000	2200	40000	1800	35000	1600	31500	1400
R0.4 × 0.8	50000	3900	50000	3300	45000	3000	40000	2400	35000	2100	31500	1800
R0.5 × 1.0	50000	4800	50000	4200	45000	3800	40000	3000	35000	2600	35000	2300
R0.6 × 1.2	50000	5100	48000	4300	43000	3850	38000	3000	34000	2700	30600	2300
R0.75 × 1.5	50000	5400	48000	4500	43000	4000	37000	3100	33000	2700	29700	2300
R1.0 × 2.0	49700	5700	47800	4800	40000	4000	35000	3150	32000	2800	28500	2300
R1.5 × 3.0	33100	6000	31800	5300	26500	4000	23500	3150	21000	2800	19000	2300
R2.0 × 4.0	24900	6000	23900	5300	20000	4000	17500	3150	16000	2800	14500	2300
R2.5 × 5.0	18600	5800	17800	4900	15000	3750	13500	3050	11500	2550	10500	2100
R3.0 × 6.0	13900	4850	13400	4100	11000	3100	10000	2500	8800	2150	8000	1750
R4.0 × 8.0	11100	4200	10700	3500	9000	2700	8000	2150	7000	1850	6500	1550
R5.0 × 10.0	9300	3700	8900	3100	7500	2400	6600	1900	5800	1650	5300	1380
R6.0 × 12.0	6950	2950	6680	2500	5600	1900	5000	1550	4400	1250	4000	1050
R8.0 × 16.0	5570	2650	5350	2200	4500	1700	4000	1350	3500	1000	3200	850
R10.0 × 20.0	4450	2350	4300	1950	3600	1500	3200	1200	2800	800	2550	660



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

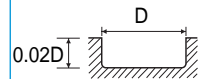
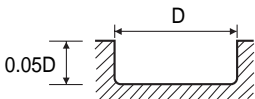


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN - NUTENFRÄSEN

G8A60 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HRc 30 ~ HRc 40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65		HRc 65 ~ HRc 70	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.5	50000	295	45000	225	40000	175	33000	110	25000	65	20000	40
0.6	50000	375	45000	285	40000	225	30000	125	25000	85	20000	50
0.8	50000	480	45000	350	30000	235	25000	145	19000	90	16000	55
1.0	48000	600	38000	456	25500	288	20500	172	16000	108	12500	70
2.0	33300	680	26000	544	17500	336	14500	208	11000	128	9500	92
3.0	21800	680	17300	544	11500	336	9500	208	7500	128	6400	92
4.0	16700	704	13200	560	8800	352	7200	216	5600	136	4750	94
5.0	15700	800	12500	644	8300	400	6400	228	5100	144	4450	106
6.0	13100	760	10350	616	6900	384	5300	224	4200	144	3700	104
8.0	9880	744	7800	576	5200	356	4000	204	3200	132	2800	96
10.0	7800	680	6150	544	4100	332	3200	192	2550	124	2200	90
12.0	6650	680	5250	544	3500	332	2650	192	2100	124	1860	90

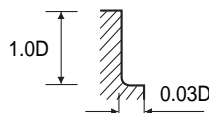


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING - SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN - SEITENFRÄSEN

G8A60 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HRc 30 ~ HRc 40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65		HRc 65 ~ HRc 70	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.5	50000	205	45000	160	40000	125	33000	80	25000	45	20000	30
0.6	50000	265	45000	200	40000	160	30000	90	25000	60	20000	35
0.8	50000	335	40000	245	30000	165	25000	100	19000	65	16000	40
1.0	48000	840	38000	656	25500	408	20500	248	16000	152	12500	100
2.0	33300	960	26000	776	17500	480	14500	296	11000	184	9500	132
3.0	21800	960	17300	776	11500	480	9500	296	7500	184	6400	132
4.0	16700	1000	13200	800	8800	500	7200	308	5600	192	4750	136
5.0	15700	1160	12500	920	8300	568	6400	328	5100	208	4450	152
6.0	13100	1080	10350	880	6900	552	5300	320	4200	204	3700	148
8.0	9880	1056	7800	824	5200	508	4000	292	3200	188	2800	136
10.0	7800	960	6150	776	4100	472	3200	272	2550	176	2200	128
12.0	6650	960	5250	776	3500	472	2650	272	2100	176	1860	128



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

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

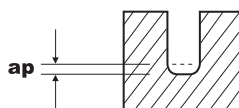
GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

G8A52 SERIES

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS					
	HRc 30 ~ HRc 45			HRc 45 ~ HRc 55			HRc 55 ~ HRc 60		
HARDNESS DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
0.5	25650~33000	370~470	0.0056~0.0350	23750~26000	285~315	0.0040~0.0250	14200~18000	115~130	0.0024~0.0150
0.6	20900~35200	330~560	0.0063~0.0294	19900~22000	260~290	0.0450~0.0210	11900~15500	100~120	0.0027~0.0126
0.8	16150~26400	360~590	0.0084~0.0392	15200~16700	280~310	0.0060~0.0280	9000~11700	110~125	0.0036~0.0168
1.0	12300~18700	350~540	0.0105~0.0280	10500~11500	250~280	0.0075~0.0200	6300~8050	100~115	0.0045~0.0120
1.2	10450~17600	350~590	0.0245~0.0700	9100~10000	250~280	0.0150~0.0420	5400~7000	100~115	0.0090~0.0252
1.5	9100~17600	430~830	0.0161~0.0770	7000~8000	250~280	0.0115~0.0550	4300~5500	100~115	0.0069~0.0330
2.0	6350~10550	340~570	0.0210~0.1400	6100~6700	270~300	0.0150~0.1000	3600~4700	100~120	0.0090~0.0600

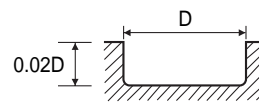
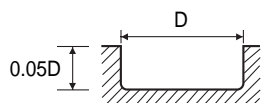


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS - SLOTTING VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS - NUTENFRÄSEN

G8A50 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS							
	HRc 30 ~ HRc 40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.3	50000	190	45000	140	40000	115	33000	70	25000	40
0.4	50000	235	45000	180	40000	140	33000	90	25000	55
0.5	50000	370	45000	280	40000	220	33000	140	25000	85
0.6	50000	470	45000	360	40000	285	30000	160	25000	105
0.8	50000	600	40000	440	30000	295	25000	185	19000	110
1.0	48000	750	38000	570	25500	360	20500	215	16000	135
1.2	42000	790	34000	640	22500	380	20000	250	14500	145
1.5	37000	800	30500	670	21000	410	17000	250	13000	155
2.0	33300	850	26000	680	17500	420	14500	260	11000	160



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

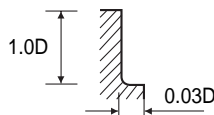


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

G8A47, G8B08 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HRc 30 ~ HRc 40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65		HRc 65 ~ HRc 70	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	48000	1184	38000	840	25500	568	20500	344	16000	216	12500	140
2.0	33300	1400	26000	1000	17500	672	14500	416	11000	256	9500	184
3.0	21800	1400	17300	1000	11500	672	9500	416	7500	256	6400	184
4.0	16700	1440	13200	1040	8800	704	7200	432	5600	268	4750	192
5.0	15700	1600	12500	1200	8300	800	6400	464	5100	296	4450	216
6.0	13100	1560	10350	1120	6900	760	5300	448	4200	280	3700	208
8.0	9880	1504	7800	1080	5200	720	4000	416	3200	264	2800	192
10.0	7800	1400	6150	1008	4100	672	3200	384	2550	248	2200	176
12.0	6650	1400	5250	1008	3500	672	2650	384	2100	240	1860	176
16.0	4900	1200	3900	880	2600	584	2000	336	1600	216	1400	160
20.0	3900	1040	3100	776	2050	520	1600	304	1300	200	1100	144

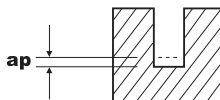


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

G8A45 SERIES

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS						COPPER		
	HRc 30 ~ HRc 45			HRc 45 ~ HRc 55			HRc 55 ~ HRc 65					
HARDNESS DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
0.2	50000	300-350	0.006-0.016	50000	265-310	0.005-0.013	50000	225-265	0.005-0.012	50000	455-530	0.010-0.022
0.3	43000-50000	330-420	0.006-0.015	39900-46200	265-310	0.004-0.011	23900-32300	105-185	0.003-0.007	48000-50000	550-640	0.010-0.025
0.4	31400-50000	350-590	0.005-0.028	30500-35200	295-340	0.003-0.020	18300-24600	120-200	0.002-0.012	48000-50000	790-920	0.008-0.048
0.5	25650-33000	370-470	0.006-0.035	23750-26000	285-315	0.004-0.025	14200-18000	115-130	0.003-0.015	44000-50000	800-1150	0.010-0.060
0.6	20900-35200	330-560	0.007-0.030	19900-22000	260-290	0.005-0.021	11900-15500	100-120	0.003-0.013	37500-50000	770-1250	0.011-0.051
0.8	16150-26400	360-590	0.009-0.040	15200-16700	280-310	0.006-0.028	9000-11700	110-125	0.004-0.017	28500-47000	770-1300	0.015-0.068
1.0	12300-18700	350-540	0.011-0.028	10500-11500	250-280	0.008-0.020	6300-8050	100-115	0.005-0.012	22500-34000	810-1300	0.018-0.048
1.2	10450-17600	350-590	0.025-0.070	9100-10000	250-280	0.015-0.042	5400-7000	100-115	0.009-0.026	22500-31500	950-1350	0.036-0.101
1.5	9100-17600	430-830	0.017-0.077	7000-8000	250-280	0.012-0.055	4300-5500	100-115	0.007-0.033	14500-25000	770-1320	0.028-0.132
2.0	6350-10550	340-570	0.021-0.140	6100-6700	270-300	0.015-0.100	3600-4700	100-120	0.009-0.060	11500-18500	770-1250	0.036-0.240
3.0	4300-7050	550-900	0.056-0.210	3990-4600	445-515	0.040-0.150	2400-3200	105-310	0.024-0.090	9000-13000	1400-2110	0.096-0.360
4.0	3200-5300	400-675	0.074-0.280	3000-3400	335-380	0.053-0.200	1800-2400	75-230	0.032-0.120	6750-9750	1050-1575	0.128-0.480

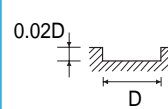
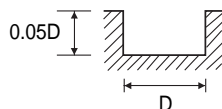


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE - SLOTTING VOLLHARTMETALL, 2 SCHNEIDEN - NUTENFRÄSEN

G8A01, G8A36 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HRC 30 ~ HRC 40		HRC 40 ~ HRC 50		HRC 50 ~ HRC 55		HRC 55 ~ HRC 60		HRC 60 ~ HRC 65		HRC 65 ~ HRC 70	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.2	50000	130	45000	115	40000	95	33000	60	33000	45	26400	30
0.3	50000	190	45000	140	40000	115	33000	70	25000	50	20000	35
0.4	50000	235	45000	180	40000	140	33000	90	25000	55	20000	40
0.5	50000	370	45000	280	40000	220	33000	140	25000	85	20000	60
0.6	50000	470	45000	360	40000	285	30000	160	25000	105	20000	75
0.8	50000	600	40000	440	30000	295	25000	185	19000	110	15200	80
0.9	49000	655	39000	520	27800	330	22700	205	17500	125	14000	90
1.0	48000	750	38000	570	25500	360	20500	215	16000	135	12500	85
2.0	33300	850	26000	680	17500	420	14500	260	11000	160	9500	115
3.0	21800	850	17300	680	11500	420	9500	260	7500	160	6400	115
4.0	16700	880	13200	700	8800	440	7200	270	5600	170	4750	118
5.0	15700	1000	12500	805	8300	500	6400	285	5100	180	4450	132
6.0	13100	950	10350	770	6900	480	5300	280	4200	180	3700	130
8.0	9880	930	7800	720	5200	445	4000	255	3200	165	2800	120
10.0	7800	850	6150	680	4100	415	3200	240	2550	155	2200	112
12.0	6650	850	5250	680	3500	415	2650	240	2100	155	1860	112
16.0	4900	730	3900	580	2600	365	2000	210	1600	135	1400	95
20.0	3900	660	3100	525	2050	335	1600	195	1300	125	1100	85



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

CARBIDE, 2 FLUTE - SIDE CUTTING VOLLHARTMETALL, 2 SCHNEIDEN - SEITENFRÄSEN

G8A01, G8A36 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HRC 30 ~ HRC 40		HRC 40 ~ HRC 50		HRC 50 ~ HRC 55		HRC 55 ~ HRC 60		HRC 60 ~ HRC 65		HRC 65 ~ HRC 70	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	48000	1050	38000	820	25500	510	20500	310	16000	190	12500	125
2.0	33300	1200	26000	970	17500	600	14500	370	11000	230	9500	165
3.0	21800	1200	17300	970	11500	600	9500	370	7500	230	6400	165
4.0	16700	1250	13200	1000	8800	625	7200	385	5600	240	4750	170
5.0	15700	1450	12500	1150	8300	710	6400	410	5100	260	4450	190
6.0	13100	1350	10350	1100	6900	690	5300	400	4200	255	3700	185
8.0	9880	1320	7800	1030	5200	635	4000	365	3200	235	2800	170
10.0	7800	1200	6150	970	4100	590	3200	340	2550	220	2200	160
12.0	6650	1200	5250	970	3500	590	2650	340	2100	220	1860	160
16.0	4900	1050	3900	840	2600	520	2000	300	1600	190	1400	140
20.0	3900	950	3100	750	2050	475	1600	275	1300	175	1100	125


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

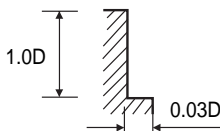


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN - SEITENFRÄSEN

G8A02, G8A37 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HRc 30 ~ HRc 40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65		HRc 65 ~ HRc 70	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	48000	1480	38000	1050	25500	710	20500	430	16000	270	12500	175
2.0	33300	1750	26000	1250	17500	840	14500	520	11000	320	9500	230
3.0	21800	1750	17300	1250	11500	840	9500	520	7500	320	6400	230
4.0	16700	1800	13200	1300	8800	880	7200	540	5600	335	4750	240
5.0	15700	2000	12500	1500	8300	1000	6400	580	5100	370	4450	270
6.0	13100	1950	10350	1400	6900	950	5300	560	4200	350	3700	260
8.0	9880	1880	7800	1350	5200	900	4000	520	3200	330	2800	240
10.0	7800	1750	6150	1260	4100	840	3200	480	2550	310	2200	220
12.0	6650	1750	5250	1260	3500	840	2650	480	2100	300	1860	220
16.0	4900	1500	3900	1100	2600	730	2000	420	1600	270	1400	200
20.0	3900	1300	3100	970	2050	650	1600	380	1300	250	1100	180

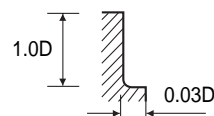
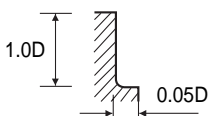


RPM = rev./min.
FEED = mm/min.

CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE, ECKENRADIUS

G8A39 SERIES

MATERIAL	HARDENED STEELS HEAT RESISTANT STEELS		HARDENED STEELS									
	HRc 30 ~ HRc 40		HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65		HRc 65 ~ HRc 70	
HARDNESS DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	24800	5350	23500	4900	16000	4900	13500	3300	10500	2100	8000	1450
8.0	20000	5500	19000	5000	12000	4600	10000	3100	8000	2000	6000	1400
10.0	16000	4900	15500	4500	9500	4100	8000	2900	6400	1800	4800	1300
12.0	13000	4500	12500	4100	8000	3800	6600	2500	5300	1600	4000	1150
16.0	10000	4000	9700	3700	6000	3400	5000	2300	4000	1250	3000	870
20.0	8000	3350	7800	3400	4800	3200	4000	2100	3200	1020	2400	690



※ The Feed, in long & extra long types, should be reduced by around 50%.

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

CARBIDE



Being the best through innovation



X-POWER

X-POWER FRÄSER

- Medium Steels to High Hardened Steels up to HRc65
- Für mittlere und gehärtete Stähle bis HRc65

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
EM810		CARBIDE, 2 FLUTE MINIATURE VOLLHARTMETALL, 2 SCHNEIDEN MINI	D0.4	D1.5	610
EM810 EM820		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0	D25.0	611
EM816 EM826		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D2.0	D25.0	613
EM836 EM846		CARBIDE, 3 FLUTE MINIATURE VOLLHARTMETALL, 3 SCHNEIDEN MINI	D1.0	D20.0	614
EM895 EM896		CARBIDE, 3 FLUTE 38° HELIX SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 38° RECHTSSPIRALE KURZ	D1.0	D20.0	615
EM811 EM821		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0	D25.0	616
EM817 EM827		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D2.0	D25.0	618
EM812 EM822		CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG	D6.0	D25.0	619
EM834 EM844		CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG LENGTH VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG	D6.0	D25.0	620
EM876 EM877		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R0.5	R12.5	621
EM813 EM823		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R0.5	R12.5	622
EM899 EM900		CARBIDE, 2 FLUTE, MEDIUM, BALL NOSE with NECK VOLLHARTMETALL, 2 SCHNEIDEN MEDIUM STIRNRADIUS mit ABGESETZTEM SCHAFTTEIL	R1.5	R12.5	623
EM838 EM848		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS	R1.0	R10.0	624
EM902 EM904		CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	R0.5	R6.0	625
EM878 EM879		CARBIDE, 2 FLUTE STUB LENGTH HIGH PRECISION BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ PRÄZISER STIRNRADIUS	R0.5	R12.5	626
G4953 G4954		CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE for OVER HRc55 VOLLHARTMETALL, 2 SCHNEIDEN, STIRNRADIUS, EXTRA KURZ für ÜBER HRc55	R0.5	R12.5	627
EM865		CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS	R0.3	R1.5	628
EM669		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE-ECONOMIC VERSION VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS-KOSTENGÜNSTIG	R1.5	R8.0	630
EM673		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE-ECONOMIC VERSION VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-KOSTENGÜNSTIG	R2.5	R8.0	631

X-POWER END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
EM863		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE-SPHERE VERSION VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS-KUGELFORM	R1.5	R8.0	632
EM864		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE-SPHERE VERSION VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-KUGELFORM	R2.5	R8.0	633
EM815 EM825		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS	R0.5	R12.5	634
EM832 EM842		CARBIDE, MULTI FLUTE 20° HELIX SHORT LENGTH ROUGHING VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE KURZ SCHRUPPFÄSER	D6.0	D25.0	635
EM814 EM824		CARBIDE, MULTI FLUTE 20° HELIX LONG LENGTH ROUGHING VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFÄSER	D6.0	D25.0	636
EM833 EM843		CARBIDE, 3/4 FLUTE 20° HELIX LONG LENGTH ROUGHING BALL NOSE VOLLHARTMETALL, 3/4 SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFÄSER STIRNRADIUS	R3.0	R10.0	637
EM818 EM828		CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS	D3.0	D20.0	638
EM905		CARBIDE, 4 FLUTE 45° HELIX SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN 45° RECHTSSPIRALE KURZ ECKENRADIUS	D10.0	D22.0	639
EM819 EM829		CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS	D3.0	D20.0	640
EM897 EM898		CARBIDE, 6 FLUTE 45° HELIX STUB LENGTH CORNER RADIUS VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA KURZ ECKENRADIUS	D6.0	D12.0	641
EM835 EM845		CARBIDE, 6 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS	D6.0	D20.0	642
EM839 EM849		CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS	D2.0	D16.0	643
EM837 EM847		CARBIDE, 2 FLUTE TAPER VOLLHARTMETALL, 2 SCHNEIDEN KONISCH	D2.0	D8.0	644
EM883		CARBIDE, 2 FLUTE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN	D0.4	D6.0	645
EM886		CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN	R0.2	R3.0	649
EM889		CARBIDE, 4 FLUTE 25° HELIX TAPER for RIB PROCESSING VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH für SCHMALE RIPPEN	D1.0	D2.0	652
EM890		CARBIDE, 4 FLUTE 25° HELIX TAPER BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH STIRNRADIUS für SCHMALE RIPPEN	R0.5	R1.0	654
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					656

X-POWER END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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CARBIDE, 2 FLUTE MINIATURE VOLLHARTMETALL, 2 SCHNEIDEN MINI

- ▶ High precision milling in medical, optical, electronics and aero space industries.
- ▶ Excellent performance on high hardened steel
- ▶ Hochpräzises Fräsen für Medizintechnik, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN				
EM810004	0.4	3	0.8	40
EM810005	0.5	3	1	40
EM810006	0.6	3	1.2	40
EM810007	0.7	3	1.4	40
EM810008	0.8	3	1.6	40
EM810009	0.9	3	2	40
EM810010	1.0	4	2.5	40
EM810011	1.1	4	2.5	40
EM810012	1.2	4	4	40
EM810013	1.3	4	4	40
EM810014	1.4	4	4	40
EM810015	1.5	4	4	40

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

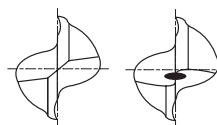
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschübe.



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM810901	EM820901	1.0	6	2.5	40
EM810902	EM820902	1.5	6	4	40
EM810020	—	2.0	4	6	40
EM810903	EM820020	2.0	6	6	40
EM810025	—	2.5	4	8	40
EM810904	EM820903	2.5	6	8	40
EM810030	EM820030	3.0	6	8	45
EM810035	EM820035	3.5	6	10	45
EM810040	EM820040	4.0	6	11	45
EM810045	EM820045	4.5	6	11	45
EM810050	EM820050	5.0	6	13	50
EM810055	EM820055	5.5	6	13	50
EM810060	EM820060	6.0	6	13	50
EM810065	EM820065	6.5	8	16	60
EM810070	EM820070	7.0	8	16	60
EM810075	EM820075	7.5	8	16	60
EM810080	EM820080	8.0	8	19	60
EM810085	EM820085	8.5	10	19	70
EM810090	EM820090	9.0	10	19	70
EM810095	EM820095	9.5	10	19	70
EM810100	EM820100	10.0	10	22	70
EM810105	EM820105	10.5	12	22	75
EM810110	EM820110	11.0	12	22	75
EM810115	EM820115	11.5	12	22	75

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRC55~70							
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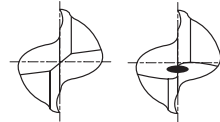


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.
- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschübe.



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM810120	EM820120	12.0	12	26	75
EM810906	EM820906	13.0	12	26	85
EM810140	EM820140	14.0	14	26	85
EM810905	EM820905	14.0	16	26	85
EM810908	EM820908	15.0	16	26	90
EM810160	EM820160	16.0	16	32	100
EM810909	EM820909	17.0	16	32	100
EM810180	EM820180	18.0	18	32	100
EM810911	EM820911	19.0	20	32	100
EM810200	EM820200	20.0	20	38	105
EM810220	EM820220	22.0	20	38	105
EM810240	EM820240	24.0	25	45	120
EM810250	EM820250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

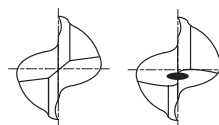
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		

CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Vorschübe.



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM816020	—	2.0	4	8	40
EM816030	EM826030	3.0	6	12	50
EM816040	EM826040	4.0	6	15	50
EM816050	EM826050	5.0	6	20	60
EM816060	EM826060	6.0	6	20	60
EM816080	EM826080	8.0	8	25	70
EM816100	EM826100	10.0	10	30	90
EM816120	EM826120	12.0	12	30	90
EM816140	EM826140	14.0	16	40	110
EM816160	EM826160	16.0	16	50	110
EM816180	EM826180	18.0	20	50	110
EM816200	EM826200	20.0	20	55	110
EM816250	EM826250	25.0	25	75	140

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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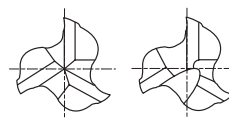
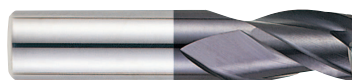
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE MINIATURE VOLLHARTMETALL, 3 SCHNEIDEN MINI

► The MINIATURE END MILL developed by Y.G-1 is universally adopted as the most cost effective system for small milling cutters and possesses the advantage of 2 flute and 4 flute end mill.

► Der von YG-1 entwickelte Miniature-Fräser gilt als eins der wirtschaftlichsten Frässysteme und besitzt die Vorteile von 2 und 4 Schneiden Fräsern.



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM836010	—	1.0	4	2	35
EM836020	—	2.0	4	4	35
EM836030	EM846030	3.0	6	5	36
EM836040	EM846040	4.0	6	7	38
EM836050	EM846050	5.0	6	8	39
EM836060	EM846060	6.0	6	8	39
EM836080	EM846080	8.0	8	11	43
EM836100	EM846100	10.0	10	13	50
EM836120	EM846120	12.0	12	15	55
EM836140	EM846140	14.0	14	15	58
EM836160	EM846160	16.0	16	18	62
EM836180	EM846180	18.0	18	20	70
EM836200	EM846200	20.0	20	22	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

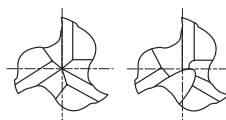
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		

CARBIDE, 3 FLUTE 38° HELIX SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 38° RECHTSSPIRALE KURZ

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ Possesses the advantage of 2 flute and 4 flute end mill.
- ▶ Superior workpiece finishes.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Besitzt die Vorteile von 2 und 4 Schneiden Fräsern
- ▶ Bessere Werkstückoberflächen



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM895010	—	1.0	3	2.5	38
EM895015	—	1.5	4	5	50
EM895025	—	2.5	3	7	38
EM895030	—	3.0	3	10	38
EM895901	EM896901	3.0	6	10	50
EM895035	—	3.5	4	12	50
EM895902	EM896902	3.5	6	12	50
EM895040	—	4.0	4	12	50
EM895903	EM896040	4.0	6	12	50
EM895045	EM896045	4.5	6	14	57
EM895050	—	5.0	5	14	50
EM895904	EM896903	5.0	6	14	57
EM895060	EM896060	6.0	6	16	57
EM895080	EM896080	8.0	8	20	63
EM895100	EM896100	10.0	10	22	72
EM895120	EM896120	12.0	12	25	73
EM895140	EM896140	14.0	14	25	75
EM895160	EM896160	16.0	16	32	82
EM895180	EM896180	18.0	18	32	92
EM895200	EM896200	20.0	20	38	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎	○				○		○		



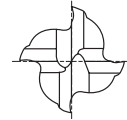
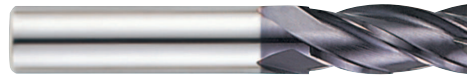
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM811020	—	2.0	4	6	40
EM811901	EM821901	2.0	6	6	40
EM811025	—	2.5	4	8	40
EM811902	EM821902	2.5	6	8	40
EM811030	EM821030	3.0	6	8	45
EM811035	EM821035	3.5	6	10	45
EM811040	EM821040	4.0	6	11	45
EM811045	EM821045	4.5	6	11	45
EM811050	EM821050	5.0	6	13	50
EM811055	EM821055	5.5	6	13	50
EM811060	EM821060	6.0	6	13	50
EM811065	EM821065	6.5	8	16	60
EM811070	EM821070	7.0	8	16	60
EM811075	EM821075	7.5	8	16	60
EM811080	EM821080	8.0	8	19	60
EM811085	EM821085	8.5	10	19	70
EM811090	EM821090	9.0	10	19	70
EM811095	EM821095	9.5	10	19	70
EM811100	EM821100	10.0	10	22	70
EM811105	EM821105	10.5	12	22	75
EM811110	EM821110	11.0	12	22	75
EM811115	EM821115	11.5	12	22	75
EM811120	EM821120	12.0	12	26	75
EM811904	EM821904	13.0	12	26	85

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM811140	EM821140	14.0	14	26	85
EM811905	EM821905	14.0	12	26	85
EM811903	EM821903	14.0	16	26	85
EM811906	EM821906	15.0	16	26	90
EM811160	EM821160	16.0	16	32	100
EM811907	EM821907	17.0	16	32	100
EM811180	EM821180	18.0	18	32	100
EM811908	EM821908	18.0	16	32	100
EM811909	EM821909	19.0	20	32	100
EM811200	EM821200	20.0	20	38	105
EM811220	EM821220	22.0	20	38	105
EM811240	EM821240	24.0	25	45	120
EM811250	EM821250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		



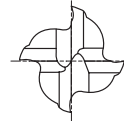
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM817020	—	2.0	4	8	40
EM817030	EM827030	3.0	6	12	50
EM817040	EM827040	4.0	6	15	50
EM817050	EM827050	5.0	6	20	60
EM817060	EM827060	6.0	6	20	60
EM817080	EM827080	8.0	8	25	70
EM817100	EM827100	10.0	10	30	90
EM817120	EM827120	12.0	12	30	90
EM817140	EM827140	14.0	16	40	110
EM817160	EM827160	16.0	16	50	110
EM817180	EM827180	18.0	20	50	110
EM817200	EM827200	20.0	20	55	110
EM817250	EM827250	25.0	25	75	140

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

◎ : Excellent ○ : Good

CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG

- ▶ Designed to machine high hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistant.
- ▶ Suitable for dry milling.

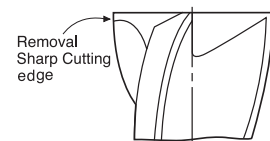
- ▶ Geeignet zum Fräsen von hochgehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT					
EM812060	EM822060	6.0	6	13	57	6
EM812070	EM822070	7.0	8	16	63	6
EM812080	EM822080	8.0	8	19	63	6
EM812090	EM822090	9.0	10	19	72	6
EM812100	EM822100	10.0	10	22	72	6
EM812120	EM822120	12.0	12	26	83	6
EM812140	EM822140	14.0	14	26	83	6
EM812901	EM822901	14.0	16	26	83	6
EM812160	EM822160	16.0	16	32	92	6
EM812180	EM822180	18.0	18	32	92	8
EM812200	EM822200	20.0	20	38	104	8
EM812250	EM822250	25.0	25	44	104	8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○								



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG LENGTH
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG

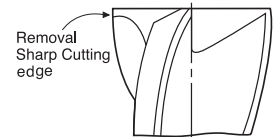
- ▶ Designed to machine high hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistant.
- ▶ Suitable for dry milling.
- ▶ Geeignet zum Fräsen von hochgehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT					
EM834060	EM844060	6.0	6	26	70	6
EM834080	EM844080	8.0	8	36	90	6
EM834100	EM844100	10.0	10	46	100	6
EM834120	EM844120	12.0	12	56	110	6
EM834160	EM844160	16.0	16	66	130	6
EM834200	EM844200	20.0	20	76	140	6
EM834250	EM844250	25.0	25	92	180	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○								

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

- ▶ Economic type with short overall length.
- ▶ Radius tolerance $\pm 0.02\text{mm}$ & short length of cut.

- ▶ Günstige Variante, kurze Gesamtlänge.
- ▶ Radius Toleranz $\pm 0.02\text{mm}$ und kurze Schneidenlänge.



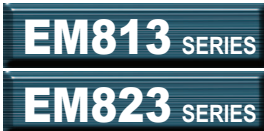
Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (± 0.02)				
EM876010	—	R0.5	1.0	3	3	38
EM876012	—	R0.6	1.2	3	3	38
EM876015	—	R0.75	1.5	3	3	38
EM876020	EM877020	R1.0	2.0	6	3	50
EM876025	EM877025	R1.25	2.5	6	4	50
EM876030	EM877030	R1.5	3.0	6	4	50
EM876040	EM877040	R2.0	4.0	6	5	54
EM876050	EM877050	R2.5	5.0	6	6	54
EM876060	EM877060	R3.0	6.0	6	7	54
EM876070	EM877070	R3.5	7.0	8	8	58
EM876080	EM877080	R4.0	8.0	8	9	58
EM876090	EM877090	R4.5	9.0	10	10	66
EM876100	EM877100	R5.0	10.0	10	11	66
EM876120	EM877120	R6.0	12.0	12	12	73
EM876140	EM877140	R7.0	14.0	14	14	75
EM876160	EM877160	R8.0	16.0	16	16	82
EM876180	EM877180	R9.0	18.0	18	18	84
EM876200	EM877200	R10.0	20.0	20	20	92
EM876250	EM877250	R12.5	25.0	25	25	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○	○			○				



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ For copy - milling machines.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Kopierbearbeitungen.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (±0.02)				
EM813010	—	R0.5	1.0	4	2.5	50
EM813901	EM823901	R0.5	1.0	6	2.5	50
EM813012	—	R0.6	1.2	4	3	50
EM813015	—	R0.75	1.5	4	4	50
EM813902	EM823902	R0.75	1.5	6	4	50
EM813020	EM823020	R1.0	2.0	6	5	50
EM813025	EM823025	R1.25	2.5	6	6	60
EM813030	EM823030	R1.5	3.0	6	8	60
EM813035	EM823035	R1.75	3.5	6	8	70
EM813040	EM823040	R2.0	4.0	6	8	70
EM813050	EM823050	R2.5	5.0	6	10	80
EM813060	EM823060	R3.0	6.0	6	12	90
EM813070	EM823070	R3.5	7.0	8	14	90
EM813080	EM823080	R4.0	8.0	8	14	100
EM813090	EM823090	R4.5	9.0	10	18	100
EM813100	EM823100	R5.0	10.0	10	18	100
EM813120	EM823120	R6.0	12.0	12	22	110
EM813140	EM823140	R7.0	14.0	14	26	110
EM813903	EM823903	R7.0	14.0	16	26	110
EM813160	EM823160	R8.0	16.0	16	30	140
EM813180	EM823180	R9.0	18.0	18	34	140
EM813200	EM823200	R10.0	20.0	20	38	160
EM813250	EM823250	R12.5	25.0	25	50	180

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

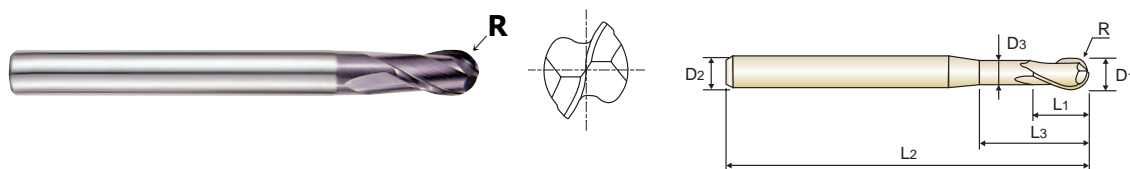
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○	○			○				

CARBIDE, 2 FLUTE MEDIUM BALL NOSE with NECK
VOLLHARTMETALL, 2 SCHNEIDEN MEDIUM STIRNRADIUS mit ABGESETZTEM SCHAFTTEIL

- ▶ Deep slotting milling is possible by reduced neck.
- ▶ High efficiency milling is possible in deep slotting with projection of the end mill being long.

- ▶ Mit abgesetztem Schaftteil ist Tiefnutenfräsen möglich.
- ▶ Effizientes Tiefnutenfräsen von tiefliegenden Bereichen möglich.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R (±0.02)	D1	D2	L1	L3	L2	D3
EM899030	EM900030	R1.5	3.0	6	8	—	70	—
EM899040	EM900040	R2.0	4.0	6	8	—	70	—
EM899050	EM900050	R2.5	5.0	6	12	—	80	—
EM899060	EM900060	R3.0	6.0	6	12	22	80	5.8
EM899070	EM900070	R3.5	7.0	8	14	—	90	—
EM899080	EM900080	R4.0	8.0	8	14	27	90	7.8
EM899100	EM900100	R5.0	10.0	10	18	31	100	9.8
EM899120	EM900120	R6.0	12.0	12	22	35	110	11.8
EM899140	EM900140	R7.0	14.0	12	26	—	120	—
EM899160	EM900160	R8.0	16.0	16	30	50	140	15.8
EM899180	EM900180	R9.0	18.0	16	34	—	140	—
EM899200	EM900200	R10.0	20.0	20	38	58	160	19.8
EM899250	EM900250	R12.5	25.0	25	55	75	180	24.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○	○			○				

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

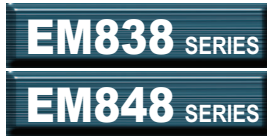
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS

► Longer overall length than EM813, EM823 types and suitable for machining deeply located area.

► Längere Gesamtlänge als bei EM813, EM823 Typen und geeignet für extrem tiefliegende Bohrungen.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (±0.02)				
EM838020	—	R1.0	2.0	3	6	80
EM838030	—	R1.5	3.0	3	8	100
EM838040	—	R2.0	4.0	4	8	100
EM838050	EM848050	R2.5	5.0	6	10	120
EM838060	EM848060	R3.0	6.0	6	10	120
EM838080	EM848080	R4.0	8.0	8	14	140
EM838100	EM848100	R5.0	10.0	10	18	180
EM838120	EM848120	R6.0	12.0	12	22	200
EM838160	EM848160	R8.0	16.0	16	30	250
EM838200	EM848200	R10.0	20.0	20	38	250

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

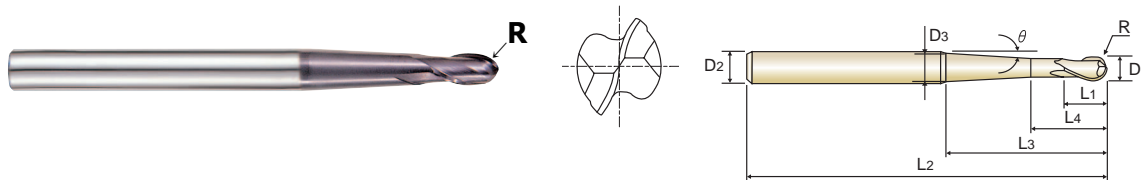
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○	○			○				

CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

► High efficiency milling is possible in deep slotting with projection of the end mill being long

► Effizientes Tiefnutenfräsen von tiefliegenden Bereichen möglich.



P.665

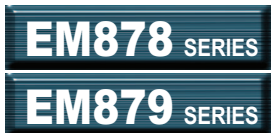
Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Under Neck Parallel Length	Length Below Shank	Overall Length	Neck Diameter	Neck Taper Angle
PLAIN	FLAT	R (±0.01)	D1	D2	L1	L4	L3	L2	D3	θ
EM902010	EM904010	R0.5	1.0	6	2	4	23	60	2	1°30'
EM902901	EM904901	R0.5	1.0	6	2	4	23	60	4.3	5°
EM902902	EM904902	R0.5	1.0	6	2	4	42	80	5	3°
EM902020	EM904020	R1.0	2.0	6	4	6	23	60	2.9	1°30'
EM902903	EM904903	R1.0	2.0	6	4	6	23	60	5	5°
EM902904	EM904904	R1.0	2.0	6	4	6	41	80	5.7	3°
EM902030	EM904030	R1.5	3.0	6	6	8	32	70	5.6	3°
EM902905	EM904905	R1.5	3.0	6	6	8	52	90	5.3	1°30'
EM902040	EM904040	R2.0	4.0	6	8	10	28	70	6	3°
EM902906	EM904906	R2.0	4.0	6	8	10	49	90	6	1°30'
EM902050	EM904050	R2.5	5.0	8	10	12	41	90	8	3°
EM902907	EM904907	R2.5	5.0	8	10	12	61	110	7	1°30'
EM902060	EM904060	R3.0	6.0	8	12	15	34	90	8	3°
EM902908	EM904908	R3.0	6.0	8	12	15	53	110	8	1°30'
EM902080	EM904080	R4.0	8.0	10	14	17	36	100	10	3°
EM902909	EM904909	R4.0	8.0	10	14	17	55	120	10	1°30'
EM902100	EM904100	R5.0	10.0	12	18	21	40	110	12	3°
EM902910	EM904910	R5.0	10.0	12	18	21	59	130	12	1°30'
EM902120	EM904120	R6.0	12.0	16	22	25	63	140	16	3°
EM902911	EM904911	R6.0	12.0	16	22	25	83	160	15	1°30'

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	○	◎	◎	○								

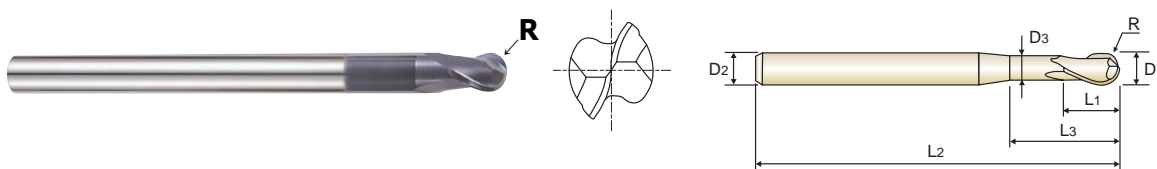


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE STUB LENGTH HIGH PRECISION BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN EXRTA KURZ PRÄZISER STIRNRADIUS

- ▶ Designed for high precision milling operation.
- ▶ Radius toleracne $\pm 0.01\text{mm}$ and improved surface roughness.
- ▶ Geeignet zum Hochpräzisem Fräsen
- ▶ Radius Toleranz $\pm 0.01\text{mm}$ und höhere Oberflächengüte.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R (± 0.01)	D1	D2	L1	L3	L2	D3
EM878010	—	R0.5	1.0	4	1	2.2	50	0.95
EM878901	—	R0.5	1.0	6	1	2.2	50	0.95
EM878012	—	R0.6	1.2	4	1.2	2.6	50	1.1
EM878015	—	R0.75	1.5	4	1.5	3	50	1.4
EM878020	EM879020	R1.0	2.0	6	2	4	50	1.9
EM878025	EM879025	R1.25	2.5	6	2.5	5	60	2.4
EM878030	EM879030	R1.5	3.0	6	3	6	60	2.9
EM878040	EM879040	R2.0	4.0	6	4	8	70	3.9
EM878050	EM879050	R2.5	5.0	6	5	10	80	4.9
EM878060	EM879060	R3.0	6.0	6	6	12	90	5.9
EM878070	EM879070	R3.5	7.0	8	7	14	90	6.9
EM878080	EM879080	R4.0	8.0	8	8	16	100	7.9
EM878090	EM879090	R4.5	9.0	10	9	18	100	8.9
EM878100	EM879100	R5.0	10.0	10	10	20	100	9.9
EM878120	EM879120	R6.0	12.0	12	12	24	110	11.9
EM878140	EM879140	R7.0	14.0	14	14	28	110	13.8
EM878160	EM879160	R8.0	16.0	16	16	32	140	15.8
EM878180	EM879180	R9.0	18.0	18	18	36	140	17.8
EM878200	EM879200	R10.0	20.0	20	20	40	160	19.8
EM878250	EM879250	R12.5	25.0	25	25	50	180	24.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

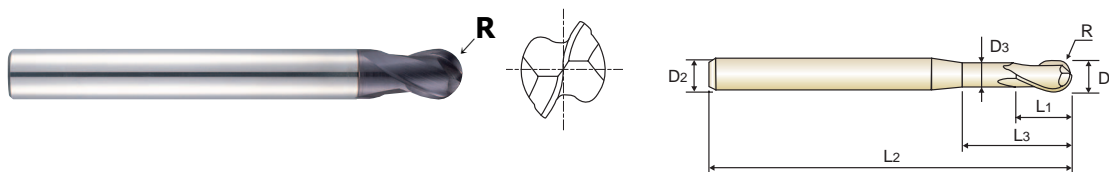
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
	○	◎	◎	○	○			○				

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE for OVER HRc55
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ STIRNRADIUS für ÜBER HRc55

- ▶ Suitable for HRc55~HRc70 high hardened materials.
- ▶ Strong cutting edges and higher tool rigidity.
- ▶ Radius tolerance ± 0.01 mm.

- ▶ Geeignet zum Fräsen von HRc55 – HRc70
- ▶ Robuste Schneidkanten und hohe Werkzeughärte.
- ▶ Radius Toleranz ± 0.01 mm.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R (± 0.01)	D1	D2	L1	L3	L2	D3
G4953010	—	R0.5	1.0	4	1	2.2	50	0.95
G4953012	—	R0.6	1.2	4	1.2	2.6	50	1.1
G4953015	—	R0.75	1.5	4	1.5	3	50	1.4
G4953020	G4954020	R1.0	2.0	6	2	4	50	1.9
G4953030	G4954030	R1.5	3.0	6	3	6	60	2.9
G4953040	G4954040	R2.0	4.0	6	4	8	70	3.9
G4953050	G4954050	R2.5	5.0	6	5	10	80	4.9
G4953060	G4954060	R3.0	6.0	6	6	12	90	5.9
G4953070	G4954070	R3.5	7.0	8	7	14	90	6.9
G4953080	G4954080	R4.0	8.0	8	8	16	100	7.9
G4953090	G4954090	R4.5	9.0	10	9	18	100	8.9
G4953100	G4954100	R5.0	10.0	10	10	20	100	9.9
G4953120	G4954120	R6.0	12.0	12	12	24	110	11.9
G4953140	G4954140	R7.0	14.0	14	14	28	110	13.8
G4953160	G4954160	R8.0	16.0	16	16	32	140	15.8
G4953180	G4954180	R9.0	18.0	18	18	36	140	17.8
G4953200	G4954200	R10.0	20.0	20	20	40	160	19.8
G4953250	G4954250	R12.5	25.0	25	25	50	180	24.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
			○	◎	◎							



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

- ▶ High precision milling in medical, optical, electronics and aerospace industrials.
- ▶ Excellent performance at dry cutting condition.
- ▶ Excellent performance on high hardened steel

- ▶ Hochpräzises Fräsen für Medizintechnik, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der trockenen Schneidbedingung.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.



MG HM 2 30° ±0.01 PLAIN P.657

Unit : mm

EDP No. PLAIN	Radius of Ball Nose R (±0.01)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM865006	RO.3	0.6	3	1.1	40
EM865007	RO.35	0.7	3	1.5	40
EM865008	RO.4	0.8	3	2	40
EM865009	RO.45	0.9	3	2.2	40
EM865010	RO.5	1.0	3	2.5	40
EM865011	RO.55	1.1	3	3	40
EM865012	RO.6	1.2	3	3	40
EM865013	RO.65	1.3	3	3.5	40
EM865014	RO.7	1.4	3	3.5	40
EM865015	RO.75	1.5	3	4	40
EM865020	R1.0	2.0	3	5	40
EM865030	R1.5	3.0	3	8	40

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

◎ : Excellent ○ : Good

X-POWER BALL NOSE END MILLS-MMC

X-POWER STIRNRADIUS FRÄSER-MMC

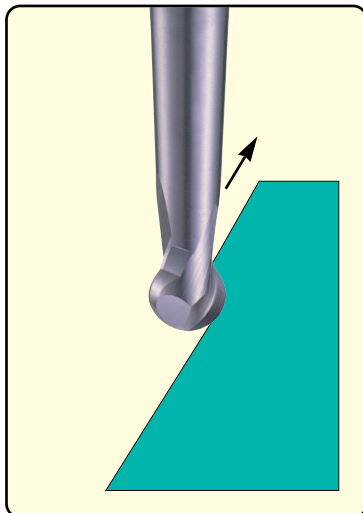
Useful Field Area / Geeignete Anwendungsgebiete

- Die & Mold making, Turbine manufacturing and Aircraft Industry, etc.
Vorrichtungsbau, Turbinenherstellung, Luftfahrtindustrie, etc.
- Difficult 3-D Forms.
Schwierige 3-D Formen.
- Profiling of up to HRc 60 high hardened steels and Alloy steels, Nickelbase alloys, Titanium alloys.
Profilfräsen von bis zu HRc 60 gehärtetem Stahl und Stahllegierungen Nickellegierungen, Titanlegierungen.

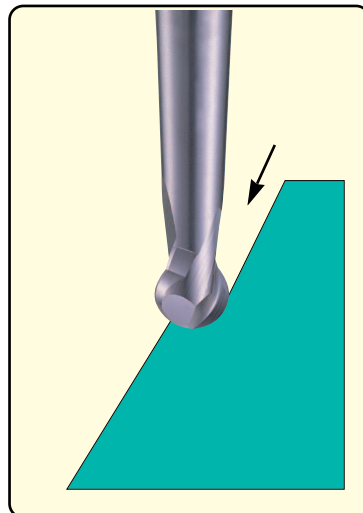
Characteristic / Eigenschaften

- Ultra micro grain carbide which increase both toughness and hardness.
Ultra micro grain Vollhartmetall, erhöht sowohl Zähigkeit wie auch Härte.
- YG-1's unique X-POWER coating suitable for dry cutting and high speed cutting.
YG-1's einzigartige X-POWER-Beschichtung, geeignet zum Trockenfräsen und HSC-Fräsen.
- Outstanding tool geometry and sphere shape ball enables more increased tool life and higher speed and feed operation.
Aussergewöhnliche Werkzeug-Geometrie und Kugelform ergeben eine längere Standzeit sowie eine höhere Geschwindigkeit und Vorschubbewegung.

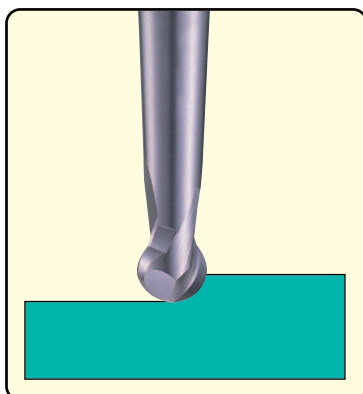
Surpassing Milling Operation / Fräsvorgang



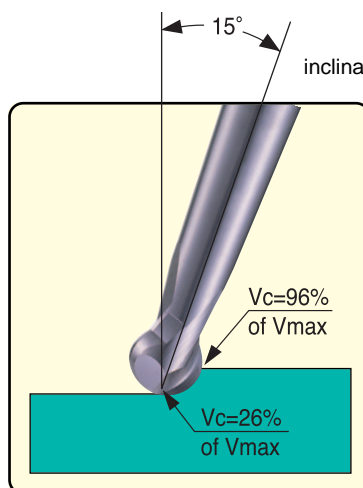
Favorable Back Milling
Vorteilhaftes Rückwärtsfräsen



Unfavorable Drilling
Unvorteilhaftes Fräsen



Unfavorable Profiling
Unvorteilhaftes Profilfräsen



Favorable Profiling
Vovorteilhaftes Profilfräsen

- Operating angle $14^\circ \sim 16^\circ$, higher speed and feed are possible by decreased cutting resistance at the cutting edges contacting the workpiece.

Bearbeitungswinkel $14^\circ \sim 16^\circ$, höhere Geschwindigkeit und Vorschub sind möglich durch geringeren Fräswiderstand an der Schneidkante des Werkstückes.

- Excellent surface finish and faster milling process.

Ausgezeichnete Oberflächengüte und Schnellere Bearbeitung.

- Enable to milling with higher speed and feed when Back Milling.

Ermöglicht Fräsen mit grösserer Geschwindigkeit und höherem Vorschub beim Rückwärtsfräsen.

- When 15° inclination milling operation, more productivity and higher speed and feed are possible.

Beim Fräsvorgang mit 15° Neigung ergibt sich eine höhere Produktivität, sowie eine grössere Geschwindigkeit und ein höherer Vorschub sind möglich.

- Decreased cutting force.

Reduzierte Fräskraft.

- Excellent surface roughness and brightness.

Ausgezeichnete Oberflächengüte und Glanz.

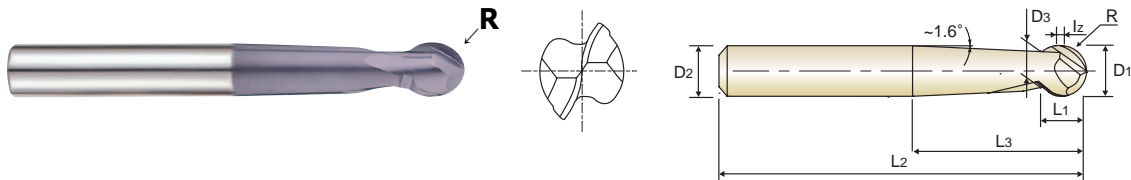


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE-MMC
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15° inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance ±0.01 mm.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15° Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz ±0.01 mm.



● **2 FLUTE LONG LENGTH- ECONOMIC VERSION**
● **2 SCHNEIDEN LANG-KOSTENGÜNSTIG**

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	lz
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3	
EM669030	R1.5	3.0	6	4	30	80	2.5	1.5
EM669040	R2.0	4.0	6	5	30	80	3.3	1.5
EM669050	R2.5	5.0	6	6	43	80	4.1	2
EM669060	R3.0	6.0	6	7	30	100	4.7	2
EM669080	R4.0	8.0	8	9	36	100	6.5	3
EM669100	R5.0	10.0	10	11	43	100	8.2	3
EM669120	R6.0	12.0	12	13	52	100	9.8	3
EM669160	R8.0	16.0	16	15	61	150	13.4	3

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○	○			○				

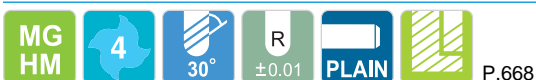
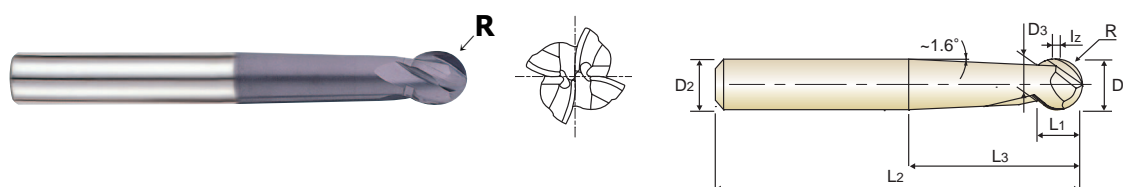
◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE-MMC

VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15° inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance ± 0.01 mm.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15° Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz ± 0.01 mm.



● 4 FLUTE LONG LENGTH- ECONOMIC VERSION

● 4 SCHNEIDEN LANG-KOSTENGÜNSTIG

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	lz
PLAIN	R (± 0.01)	D ₁	D ₂	L ₁	L ₃	L ₂	D ₃	
EM673050	R2.5	5.0	6	6	43	80	4.1	2
EM673060	R3.0	6.0	6	7	30	100	4.7	2
EM673080	R4.0	8.0	8	9	36	100	6.5	3
EM673100	R5.0	10.0	10	11	43	100	8.2	3
EM673120	R6.0	12.0	12	13	52	100	9.8	3
EM673160	R8.0	16.0	16	15	61	150	13.4	3

※ ECONOMIC TYPE HAS MORE ADVANTAGE IN RESHARPENING THAN SPHERE TYPE.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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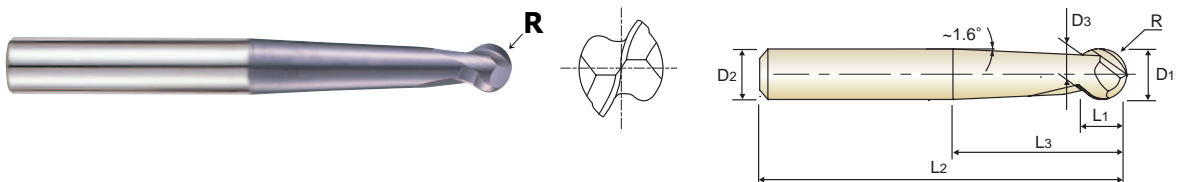


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE-MMC
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRANRADIUS-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15° inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance ±0.01mm.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15° Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz ±0.01 mm.



● **2 FLUTE LONG LENGTH- SPHERE VERSION**
● **2 SCHNEIDEN LANG-KUGELFORM**

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EM863030	R1.5	3.0	6	2.3	30	80	2.5
EM863040	R2.0	4.0	6	3.1	30	80	3.3
EM863050	R2.5	5.0	6	3.9	38	80	4.1
EM863060	R3.0	6.0	6	4.9	28	100	4.7
EM863080	R4.0	8.0	8	6.3	33	100	6.5
EM863100	R5.0	10.0	10	7.9	40	100	8.2
EM863120	R6.0	12.0	12	9.5	49	100	9.8
EM863160	R8.0	16.0	16	12.4	59	150	13.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

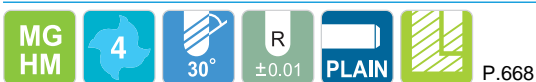
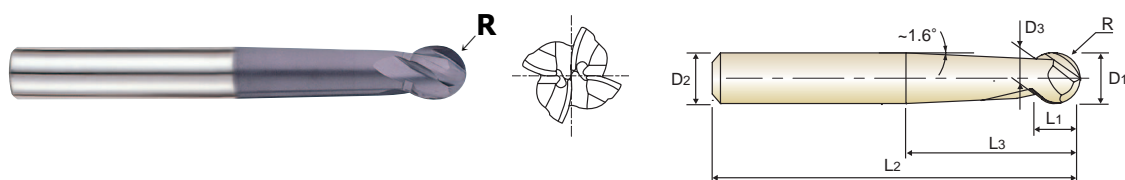
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○	○			○				

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE-MMC
VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15° inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance $\pm 0.01\text{mm}$.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15° Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz $\pm 0.01\text{ mm}$.


● 4 FLUTE LONG LENGTH- SPHERE VERSION
● 4 SCHNEIDEN LANG-KUGELFORM

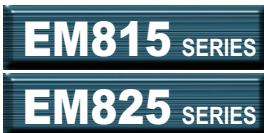
Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (± 0.01)	D ₁	D ₂	L ₁	L ₃	L ₂	D ₃
EM864050	R2.5	5.0	6	3.9	38	80	4.1
EM864060	R3.0	6.0	6	4.9	28	100	4.7
EM864080	R4.0	8.0	8	6.3	33	100	6.5
EM864100	R5.0	10.0	10	7.9	40	100	8.2
EM864120	R6.0	12.0	12	9.5	49	100	9.8
EM864160	R8.0	16.0	16	12.4	59	150	13.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎	○	○			○				



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ For copy - milling machines.
- ▶ 4 Flute design - higher feed than EM813, EM823 series

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Kopierbearbeitungen.
- ▶ 4 Schneiden - Höherer Vorschub als bei EM 813, EM 823 serien.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (±0.01)				
EM815010	—	R0.5	1.0	4	2.5	50
EM815901	EM825901	R0.5	1.0	6	2.5	50
EM815015	—	R0.75	1.5	4	4	50
EM815902	EM825902	R0.75	1.5	6	4	50
EM815020	EM825020	R1.0	2.0	6	5	50
EM815030	EM825030	R1.5	3.0	6	8	60
EM815040	EM825040	R2.0	4.0	6	8	70
EM815050	EM825050	R2.5	5.0	6	10	80
EM815060	EM825060	R3.0	6.0	6	12	90
EM815070	EM825070	R3.5	7.0	8	14	90
EM815080	EM825080	R4.0	8.0	8	14	100
EM815090	EM825090	R4.5	9.0	10	18	100
EM815100	EM825100	R5.0	10.0	10	18	100
EM815120	EM825120	R6.0	12.0	12	22	110
EM815140	EM825140	R7.0	14.0	14	26	110
EM815903	EM825903	R7.0	14.0	16	26	110
EM815160	EM825160	R8.0	16.0	16	30	140
EM815180	EM825180	R9.0	18.0	18	34	140
EM815200	EM825200	R10.0	20.0	20	38	160
EM815250	EM825250	R12.5	25.0	25	50	180

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○	○			○				

CARBIDE, MULTI FLUTE 20° HELIX SHORT LENGTH ROUGHING - FINE
VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ High velocity milling of hardened steels.
- ▶ For dry and wet milling.
- ▶ Fast chip ejection.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- ▶ Für Trocken- und Naßfräsen.
- ▶ Schnelle Spanausfuhr.



Unit : mm

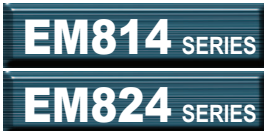
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	h10	h6			
EM832060	EM842060	6.0	6	7	54	3
EM832070	EM842070	7.0	8	8	58	3
EM832080	EM842080	8.0	8	9	58	3
EM832090	EM842090	9.0	10	13	66	4
EM832100	EM842100	10.0	10	14	66	4
EM832120	EM842120	12.0	12	16	73	4
EM832140	EM842140	14.0	14	18	75	4
EM832160	EM842160	16.0	16	22	82	4
EM832180	EM842180	18.0	18	24	84	4
EM832200	EM842200	20.0	20	26	92	4
EM832250	EM842250	25.0	25	25	110	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		



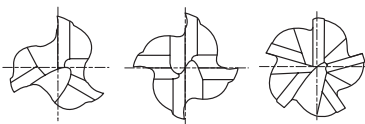
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE 20° HELIX LONG LENGTH ROUGHING- FINE
VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ High velocity milling of hardened steels.
- ▶ For dry and wet milling.
- ▶ Fast chip ejection.
- ▶ Longer flute length than EM832, EM842 series.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- ▶ Für Trocken - und Nabfräsen.
- ▶ Schnelle Spanausfuhr.
- ▶ Längere Schneiden als bei EM832 und EM842 Serien.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	h10	h6			
EM814060	EM824060	6.0	6	16	57	3
EM814070	EM824070	7.0	8	16	63	3
EM814080	EM824080	8.0	8	16	63	3
EM814090	EM824090	9.0	10	19	72	4
EM814100	EM824100	10.0	10	22	72	4
EM814120	EM824120	12.0	12	26	83	4
EM814140	EM824140	14.0	14	26	83	4
EM814901	EM824901	14.0	16	26	83	4
EM814160	EM824160	16.0	16	32	92	4
EM814180	EM824180	18.0	18	32	92	4
EM814200	EM824200	20.0	20	38	104	4
EM814250	EM824250	25.0	25	45	121	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

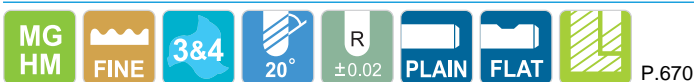
Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		

CARBIDE, 3&4 FLUTE 20° HELIX LONG LENGTH ROUGHING BALL NOSE - FINE
VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER STIRNRADIUS - FEIN

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ High velocity milling of hardened steels.
- ▶ For dry and wet milling.
- ▶ Fast chip ejection.
- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- ▶ Für Trocken und Naßfräsen.
- ▶ Schnelle Spanausfuhr.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	R (±0.02)	h10	h6			
EM833060	EM843060	R3.0	6.0	6	16	57	3
EM833080	EM843080	R4.0	8.0	8	16	63	3
EM833100	EM843100	R5.0	10.0	10	22	72	4
EM833120	EM843120	R6.0	12.0	12	26	83	4
EM833140	EM843140	R7.0	14.0	14	26	83	4
EM833160	EM843160	R8.0	16.0	16	32	92	4
EM833180	EM843180	R9.0	18.0	18	32	92	4
EM833200	EM843200	R10.0	20.0	20	38	104	4

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎	○				○		○		



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Gesteigerte Vorschubrate.



Unit : mm

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT					
EM818030	EM828030	RO.3	3.0	6	12	50
EM818040	EM828040	RO.3	4.0	6	15	50
EM818911	EM828911	RO.5	4.0	6	15	50
EM818050	EM828050	RO.3	5.0	6	20	60
EM818912	EM828912	RO.5	5.0	6	20	60
EM818913	EM828913	RO.3	6.0	6	20	60
EM818060	EM828060	RO.5	6.0	6	20	60
EM818901	EM828901	R1.0	6.0	6	20	70
EM818914	EM828914	RO.3	8.0	8	25	70
EM818080	EM828080	RO.5	8.0	8	25	70
EM818902	EM828902	R1.0	8.0	8	25	70
EM818903	EM828903	R1.5	8.0	8	25	70
EM818904	EM828904	R2.0	8.0	8	25	70
EM818915	EM828915	RO.3	10.0	10	30	90
EM818100	EM828100	RO.5	10.0	10	30	90
EM818905	EM828905	R1.0	10.0	10	30	90
EM818906	EM828906	R1.5	10.0	10	30	90
EM818907	EM828907	R2.0	10.0	10	30	90
EM818120	EM828120	RO.5	12.0	12	30	90
EM818908	EM828908	R1.0	12.0	12	30	90
EM818909	EM828909	R1.5	12.0	12	30	90
EM818910	EM828910	R2.0	12.0	12	30	90
EM818160	EM828160	RO.5	16.0	16	50	110
EM818916	EM828916	R1.0	16.0	16	50	110
EM818917	EM828917	R1.5	16.0	16	50	110
EM818918	EM828918	R2.0	16.0	16	50	110
EM818200	EM828200	RO.5	20.0	20	55	110
EM818919	EM828919	R1.0	20.0	20	55	110
EM818920	EM828920	R1.5	20.0	20	55	110
EM818921	EM828921	R2.0	20.0	20	55	110

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

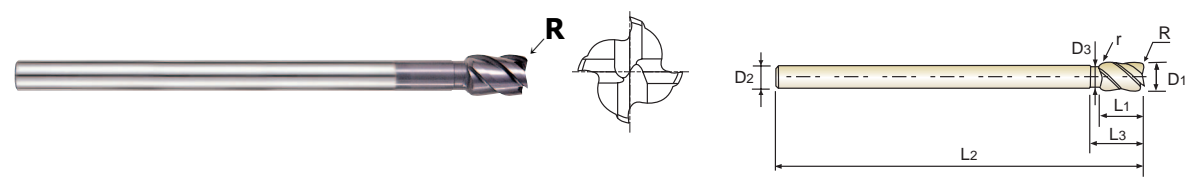
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○								

CARBIDE, 4 FLUTE 45° HELIX SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN 45° RECHTSSPIRALE KURZ ECKENRADIUS

- ▶ No line is marked on the boundary section during step milling because this tool has radius on the end faces of the shank
- ▶ High speed cutting in wide deep wall with step milling
- ▶ Suitable for deep side milling, Helical Milling, Contour Milling
- ▶ Hohe Oberflächengüte, auch an den Übergangsf lächen, durch Radien am Auslauf der Schneidkanten.
- ▶ Hochgeschwindigkeitsfräsen auch bei grosser Auskraglänge.
- ▶ Geeignet für tiefes Seitenfräsen, Spiralf r äsen und Konturfräsen.



Unit : mm

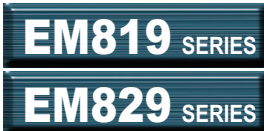
EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R	D1	D2	L1	L3	L2	D3
EM905100	R0.5	10.0	8	19.2	15	130	7.5
EM905901	R1.0	10.0	8	19.2	15	130	7.5
EM905120	R0.5	12.0	10	22.2	18	150	9.5
EM905902	R1.0	12.0	10	22.2	18	150	9.5
EM905140	R0.5	14.0	12	25.2	21	160	11.5
EM905903	R1.0	14.0	12	25.2	21	160	11.5
EM905180	R0.5	18.0	16	31.2	27	180	15.5
EM905904	R1.0	18.0	16	31.2	27	180	15.5
EM905220	R0.5	22.0	20	37.2	33	200	19.5
EM905905	R1.0	22.0	20	37.2	33	200	19.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		

- CARBIDE
- HSS
- CBN END MILLS
- i-Xmill END MILLS
- X5070 END MILLS
- X-POWER END MILLS
- JET-POWER END MILLS
- V7 Mill INOX END MILLS
- V7 Mill STEEL END MILLS
- ALU-POWER END MILLS
- D-POWER END MILLS
- K-2 CARBIDE END MILLS
- GENERAL CARBIDE END MILLS
- TANK-POWER END MILLS
- GENERAL HSS END MILLS
- MILLING CUTTERS
- TECHNICAL DATA



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erlauben bessere Oberflächengüte des Werkstücks.
- ▶ Gesteigerte Produktivität.



Unit : mm

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT					
EM819030	EM829030	RO.3	3.0	6	12	50
EM819040	EM829040	RO.3	4.0	6	15	50
EM819911	EM829911	RO.5	4.0	6	15	50
EM819050	EM829050	RO.3	5.0	6	20	60
EM819912	EM829912	RO.5	5.0	6	20	60
EM819913	EM829913	RO.3	6.0	6	20	60
EM819060	EM829060	RO.5	6.0	6	20	60
EM819901	EM829901	R1.0	6.0	6	20	70
EM819914	EM829914	RO.3	8.0	8	25	70
EM819080	EM829080	RO.5	8.0	8	25	70
EM819902	EM829902	R1.0	8.0	8	25	70
EM819903	EM829903	R1.5	8.0	8	25	70
EM819904	EM829904	R2.0	8.0	8	25	70
EM819915	EM829915	RO.3	10.0	10	30	90
EM819100	EM829100	RO.5	10.0	10	30	90
EM819905	EM829905	R1.0	10.0	10	30	90
EM819906	EM829906	R1.5	10.0	10	30	90
EM819907	EM829907	R2.0	10.0	10	30	90
EM819120	EM829120	RO.5	12.0	12	30	90
EM819908	EM829908	R1.0	12.0	12	30	90
EM819909	EM829909	R1.5	12.0	12	30	90
EM819910	EM829910	R2.0	12.0	12	30	90
EM819160	EM829160	RO.5	16.0	16	50	110
EM819916	EM829916	R1.0	16.0	16	50	110
EM819917	EM829917	R1.5	16.0	16	50	110
EM819918	EM829918	R2.0	16.0	16	50	110
EM819200	EM829200	RO.5	20.0	20	55	110
EM819919	EM829919	R1.0	20.0	20	55	110
EM819920	EM829920	R1.5	20.0	20	55	110
EM819921	EM829921	R2.0	20.0	20	55	110

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

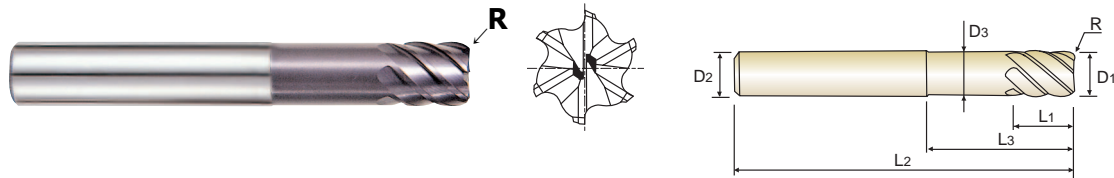
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○		○		

CARBIDE, 6 FLUTE 45° HELIX STUB LENGTH CORNER RADIUS
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA KURZ ECKENRADIUS

- ▶ High speed cutting
- ▶ Excellent performance in dry cutting
- ▶ Cutting up to the dimension three times as much as the diameter by reduced Neck

- ▶ Hochgeschwindigkeitsfräsen.
- ▶ Ausgezeichnete Leistung bei Trocken - Zerspanung.
- ▶ Fräst bis Zur dreifachen Größe des Durchmessers des abgesetzten Schaftteils.



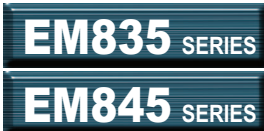
Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
EM897060	EM898060	R0.5	6.0	6	6	14	50	5.7
EM897080	EM898080	R0.5	8.0	8	8	24	60	7.65
EM897100	EM898100	R1.0	10.0	10	10	30	70	9.65
EM897120	EM898120	R1.0	12.0	12	12	30	75	11.6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 6 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS

- ▶ Designed to machine high hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistant.
- ▶ Suitable for dry milling.

- ▶ Geeignet zum Fräsen von Hochgehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.



Unit : mm

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT					
EM835060	EM845060	RO.5	6.0	6	13	70
EM835080	EM845080	RO.5	8.0	8	19	90
EM835100	EM845100	RO.5	10.0	10	22	100
EM835901	EM845901	R1.0	10.0	10	22	100
EM835120	EM845120	RO.5	12.0	12	26	110
EM835902	EM845902	R1.0	12.0	12	26	110
EM835160	EM845160	R1.0	16.0	16	32	130
EM835903	EM845903	R1.5	16.0	16	32	130
EM835200	EM845200	R1.0	20.0	20	38	140
EM835904	EM845904	R1.5	20.0	20	38	140
EM835905	EM845905	R2.0	20.0	20	38	140

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

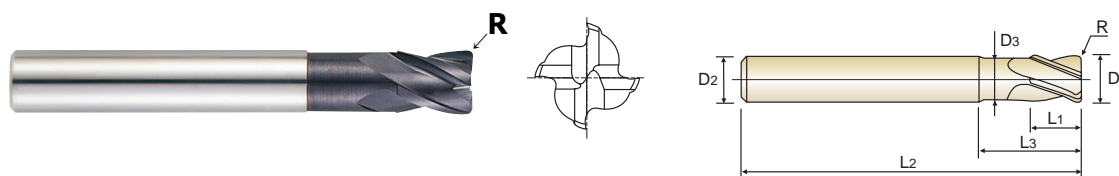
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Gesteigerte Vorschubrate.



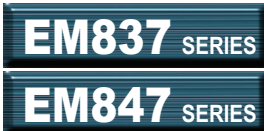
Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3
EM839020	EM849020	RO.2	2.0	6	2.5	5	50	1.9
EM839025	EM849025	RO.25	2.5	6	3	6	50	2.4
EM839030	EM849030	RO.3	3.0	6	4	7	50	2.8
EM839035	EM849035	RO.35	3.5	6	4.5	8	50	3.2
EM839040	EM849040	RO.4	4.0	6	5	9	50	3.7
EM839050	EM849050	RO.5	5.0	6	6	12	50	4.6
EM839060	EM849060	RO.6	6.0	6	7	14	55	5.6
EM839080	EM849080	RO.8	8.0	8	10	18	60	7.4
EM839100	EM849100	R1.0	10.0	10	12	25	70	9.4
EM839120	EM849120	R1.2	12.0	12	15	30	80	11.4
EM839160	EM849160	R1.6	16.0	16	18	35	90	15.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE TAPER VOLLHARTMETALL, 2 SCHNEIDEN KONISCH

- ▶ Designed for milling die cavity.
- ▶ Suitable for machining tool steel alloy steel, mold steel and other high hardened materials.
- ▶ Entworfen zur Gußformbearbeitung.
- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.



Unit : mm

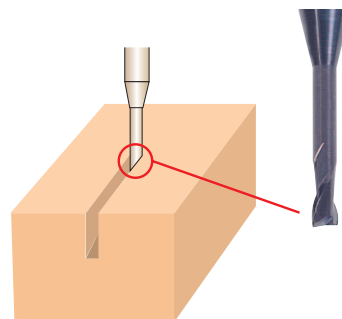
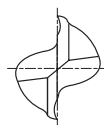
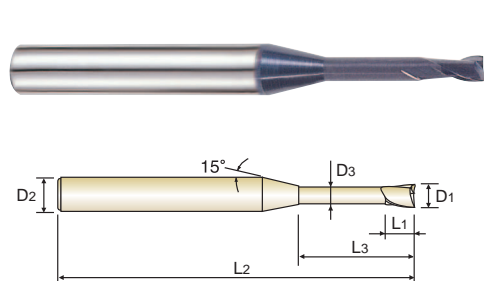
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	TAPER ANGLE	
						PLAIN
EM837913	2.0	4	6	45	30°	
EM837020	2.0	4	6	45	1°	
EM837901	2.0	4	6	45	2°	
EM837902	2.0	4	6	45	3°	
EM837914	EM847914	3.0	6	10	55	30°
EM837030	EM847030	3.0	6	10	55	1°
EM837903	EM847903	3.0	6	10	55	2°
EM837904	EM847904	3.0	6	10	55	3°
EM837915	EM847915	4.0	6	15	55	30°
EM837040	EM847040	4.0	6	15	55	1°
EM837905	EM847905	4.0	6	15	55	2°
EM837906	EM847906	4.0	6	15	55	3°
EM837916	EM847916	5.0	6	15	60	30°
EM837050	EM847050	5.0	6	15	60	1°
EM837907	EM847907	5.0	6	15	60	2°
EM837908	EM847908	5.0	6	15	60	3°
EM837917	EM847917	6.0	6	20	60	30°
EM837060	EM847060	6.0	6	20	60	1°
EM837909	EM847909	6.0	6	20	60	2°
EM837910	EM847910	6.0	8	20	65	3°
EM837918	EM847918	8.0	8	25	70	30°
EM837080	EM847080	8.0	8	25	70	1°
EM837911	EM847911	8.0	8	25	70	2°
EM837912	EM847912	8.0	10	25	75	3°

▶ We can supply various sizes and taper angle.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance	Taper Angle Tolerance
0~-0.03	h6	±5'

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
EM883004	0.4	4	0.6	2	45	0.37
EM883984	0.4	4	0.6	3	45	0.37
EM883985	0.4	4	0.6	4	45	0.37
EM883986	0.4	4	0.6	5	45	0.37
EM883005	0.5	4	0.7	2	45	0.45
EM883988	0.5	4	0.7	4	45	0.45
EM883989	0.5	4	0.7	6	45	0.45
EM883990	0.5	4	0.7	8	45	0.45
EM883006	0.6	4	0.9	2	45	0.55
EM883991	0.6	4	0.9	4	45	0.55
EM883992	0.6	4	0.9	6	45	0.55
EM883993	0.6	4	0.9	8	45	0.55
EM883819	0.6	4	0.9	10	45	0.55
EM883007	0.7	4	1.0	2	45	0.65
EM883820	0.7	4	1.0	3	45	0.65
EM883906	0.7	4	1.0	4	45	0.65
EM883907	0.7	4	1.0	6	45	0.65
EM883821	0.7	4	1.0	8	45	0.65
EM883822	0.7	4	1.0	10	45	0.65
EM883008	0.8	4	1.2	4	45	0.75
EM883908	0.8	4	1.2	6	45	0.75
EM883909	0.8	4	1.2	8	45	0.75
EM883994	0.8	4	1.2	10	45	0.75
EM883995	0.8	4	1.2	12	45	0.75
EM883009	0.9	4	1.35	6	45	0.85
EM883910	0.9	4	1.35	8	45	0.85
EM883911	0.9	4	1.35	10	45	0.85
EM883823	0.9	4	1.35	15	50	0.85
EM883996	1.0	4	1.5	4	45	0.95
EM883010	1.0	4	1.5	6	45	0.95
EM883912	1.0	4	1.5	8	45	0.95
EM883913	1.0	4	1.5	10	45	0.95

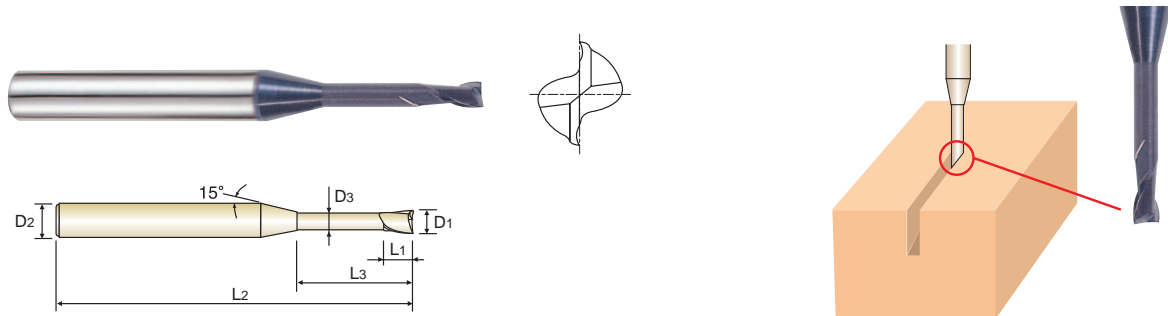
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

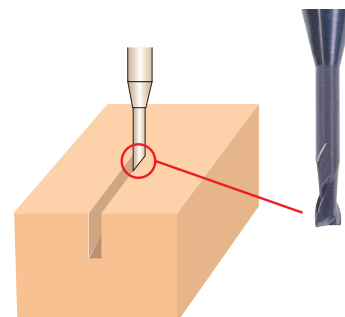
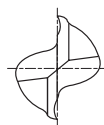
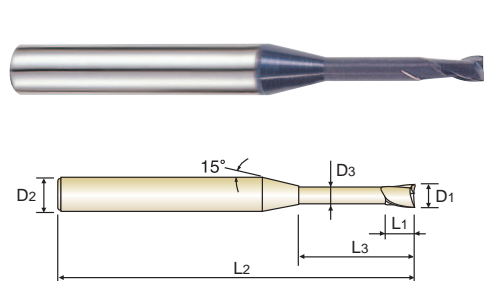


Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM883914	1.0	4	1.5	12	45	0.95
EM883997	1.0	4	1.5	16	50	0.95
EM883998	1.0	4	1.5	20	55	0.95
EM883012	1.2	4	1.8	6	45	1.15
EM883915	1.2	4	1.8	8	45	1.15
EM883916	1.2	4	1.8	10	45	1.15
EM883917	1.2	4	1.8	12	45	1.15
EM883999	1.2	4	1.8	16	50	1.15
EM883824	1.4	4	2.1	6	45	1.35
EM883918	1.4	4	2.1	8	45	1.35
EM883919	1.4	4	2.1	10	45	1.35
EM883920	1.4	4	2.1	12	45	1.35
EM883921	1.4	4	2.1	14	50	1.35
EM883922	1.4	4	2.1	16	50	1.35
EM883825	1.4	4	2.1	22	55	1.35
EM883015	1.5	4	2.3	6	45	1.45
EM883923	1.5	4	2.3	8	45	1.45
EM883924	1.5	4	2.3	10	45	1.45
EM883925	1.5	4	2.3	12	45	1.45
EM883926	1.5	4	2.3	14	50	1.45
EM883927	1.5	4	2.3	16	50	1.45
EM883928	1.5	4	2.3	18	55	1.45
EM883810	1.5	4	2.3	20	55	1.45
EM883930	1.6	4	2.4	6	45	1.55
EM883016	1.6	4	2.4	8	45	1.55
EM883931	1.6	4	2.4	10	45	1.55
EM883932	1.6	4	2.4	12	45	1.55
EM883826	1.6	4	2.4	14	50	1.55
EM883827	1.6	4	2.4	16	50	1.55
EM883828	1.6	4	2.4	18	55	1.55
EM883829	1.6	4	2.4	20	55	1.55
EM883830	1.6	4	2.4	26	60	1.55

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
EM883018	1.8	4	2.7	6	45	1.75
EM883944	1.8	4	2.7	8	45	1.75
EM883945	1.8	4	2.7	10	45	1.75
EM883946	1.8	4	2.7	12	45	1.75
EM883947	1.8	4	2.7	14	50	1.75
EM883948	1.8	4	2.7	16	50	1.75
EM883949	1.8	4	2.7	18	55	1.75
EM883950	1.8	4	2.7	20	55	1.75
EM883831	1.8	4	2.7	25	60	1.75
EM883958	2.0	4	3.0	6	45	1.95
EM883020	2.0	4	3.0	8	45	1.95
EM883959	2.0	4	3.0	10	45	1.95
EM883960	2.0	4	3.0	12	45	1.95
EM883961	2.0	4	3.0	14	50	1.95
EM883962	2.0	4	3.0	16	50	1.95
EM883963	2.0	4	3.0	18	55	1.95
EM883964	2.0	4	3.0	20	55	1.95
EM883966	2.0	4	3.0	25	60	1.95
EM883814	2.0	4	3.0	30	70	1.95
EM883967	2.5	4	3.7	8	45	2.40
EM883025	2.5	4	3.7	10	45	2.40
EM883968	2.5	4	3.7	12	45	2.40
EM883969	2.5	4	3.7	14	50	2.40
EM883970	2.5	4	3.7	16	55	2.40
EM883971	2.5	4	3.7	18	55	2.40
EM883972	2.5	4	3.7	20	60	2.40
EM883973	2.5	4	3.7	25	70	2.40
EM883974	2.5	4	3.7	30	80	2.40
EM883030	3.0	6	4.5	8	45	2.85
EM883975	3.0	6	4.5	10	45	2.85
EM883976	3.0	6	4.5	12	45	2.85
EM883977	3.0	6	4.5	14	50	2.85

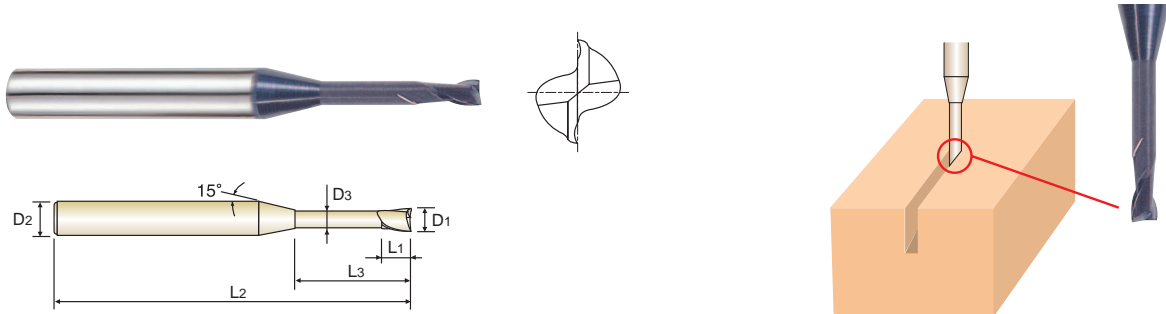
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN



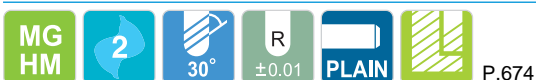
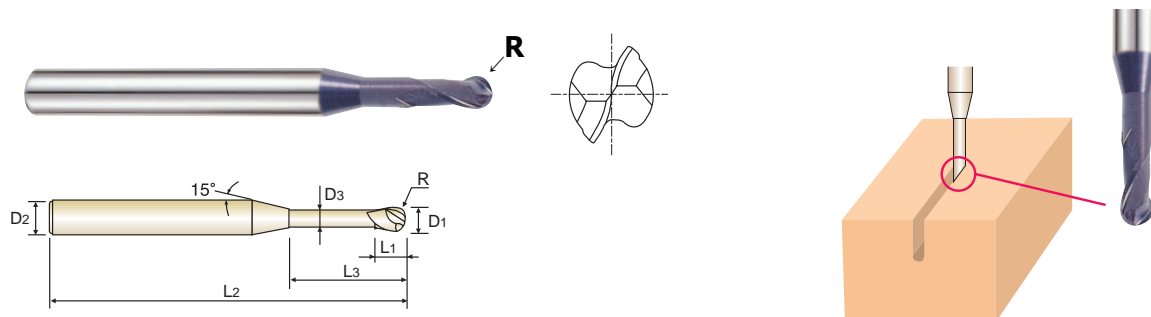
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM883978	3.0	6	4.5	16	55	2.85
EM883979	3.0	6	4.5	18	55	2.85
EM883980	3.0	6	4.5	20	60	2.85
EM883981	3.0	6	4.5	25	65	2.85
EM883832	3.0	6	4.5	30	70	2.85
EM883833	3.0	6	4.5	35	80	2.85
EM883983	3.0	6	4.5	40	90	2.85
EM883040	4.0	6	6	12	50	3.85
EM883801	4.0	6	6	16	60	3.85
EM883802	4.0	6	6	20	60	3.85
EM883803	4.0	6	6	25	70	3.85
EM883834	4.0	6	6	30	70	3.85
EM883835	4.0	6	6	35	80	3.85
EM883836	4.0	6	6	40	90	3.85
EM883837	4.0	6	6	45	90	3.85
EM883838	4.0	6	6	50	100	3.85
EM883050	5.0	6	7.5	16	60	4.85
EM883804	5.0	6	7.5	20	60	4.85
EM883805	5.0	6	7.5	25	70	4.85
EM883806	5.0	6	7.5	30	80	4.85
EM883839	5.0	6	7.5	35	80	4.85
EM883840	5.0	6	7.5	40	80	4.85
EM883841	5.0	6	7.5	50	110	4.85
EM883060	6.0	6	9	20	80	5.85
EM883807	6.0	6	9	30	90	5.85
EM883808	6.0	6	9	40	100	5.85
EM883809	6.0	6	9	50	110	5.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN


Unit : mm							
EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (± 0.01)	D1	D2	L1	L3	L2	D3
EM886004	RO.2	0.4	4	0.6	1	45	0.37
EM886960	RO.2	0.4	4	0.6	2	45	0.37
EM886961	RO.2	0.4	4	0.6	3	45	0.37
EM886005	RO.25	0.5	4	0.7	2	45	0.45
EM886962	RO.25	0.5	4	0.7	4	45	0.45
EM886963	RO.25	0.5	4	0.7	6	45	0.45
EM886964	RO.25	0.5	4	0.7	8	45	0.45
EM886957	RO.3	0.6	4	0.9	2	45	0.55
EM886915	RO.3	0.6	4	0.9	4	45	0.55
EM886006	RO.3	0.6	3	0.9	6	35	0.55
EM886916	RO.3	0.6	4	0.9	6	45	0.55
EM886917	RO.3	0.6	4	0.9	8	45	0.55
EM886918	RO.4	0.8	4	1.2	2	45	0.75
EM886919	RO.4	0.8	4	1.2	4	45	0.75
EM886008	RO.4	0.8	4	1.2	6	45	0.75
EM886901	RO.4	0.8	4	1.2	8	45	0.75
EM886965	RO.4	0.8	4	1.2	10	45	0.75
EM886920	RO.5	1.0	4	1.5	3	45	0.95
EM886921	RO.5	1.0	4	1.5	4	45	0.95
EM886923	RO.5	1.0	4	1.5	5	45	0.95
EM886010	RO.5	1.0	4	1.5	6	45	0.95
EM886924	RO.5	1.0	4	1.5	7	45	0.95
EM886902	RO.5	1.0	4	1.5	8	45	0.95
EM886925	RO.5	1.0	4	1.5	9	45	0.95
EM886903	RO.5	1.0	4	1.5	10	45	0.95
EM886904	RO.5	1.0	4	1.5	12	45	0.95
EM886926	RO.5	1.0	4	1.5	14	50	0.95
EM886927	RO.5	1.0	4	1.5	16	50	0.95
EM886966	RO.5	1.0	4	1.5	20	55	0.95
EM886012	RO.6	1.2	4	1.8	8	45	1.15
EM886905	RO.6	1.2	4	1.8	12	45	1.15
EM886928	RO.7	1.4	4	2.1	8	45	1.35

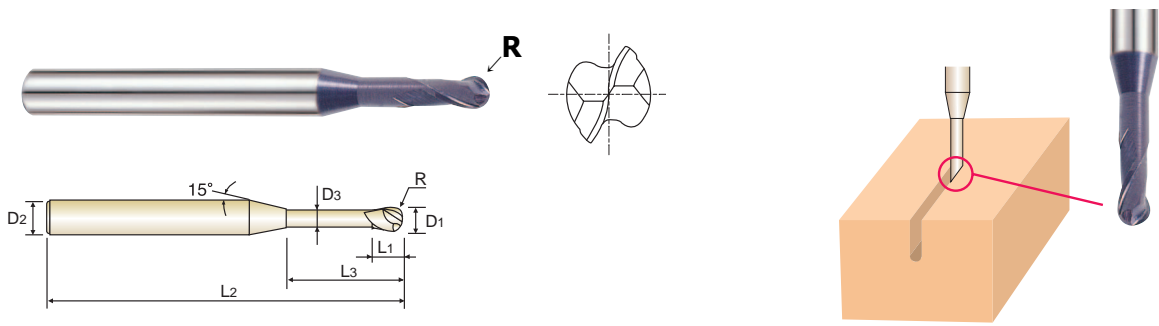
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRC55~70							
○	◎	◎	◎	○				○				



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

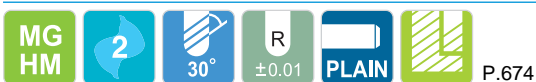
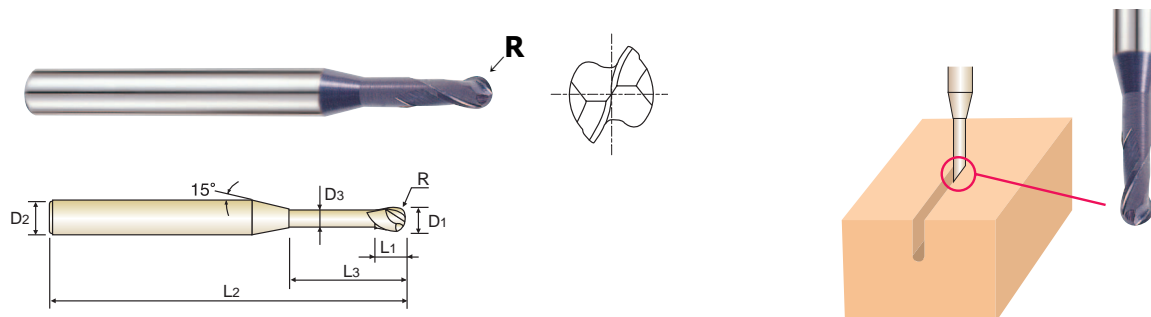


Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EM886014	RO.7	1.4	4	2.1	12	45	1.35
EM886929	RO.7	1.4	4	2.1	16	50	1.35
EM886930	RO.75	1.5	4	2.3	6	45	1.45
EM886015	RO.75	1.5	4	2.3	8	45	1.45
EM886931	RO.75	1.5	4	2.3	10	45	1.45
EM886906	RO.75	1.5	4	2.3	12	45	1.45
EM886907	RO.75	1.5	4	2.3	16	50	1.45
EM886932	RO.75	1.5	4	2.3	20	55	1.45
EM886933	RO.8	1.6	4	2.4	8	45	1.55
EM886934	RO.8	1.6	4	2.4	12	45	1.55
EM886016	RO.8	1.6	4	2.4	16	50	1.55
EM886935	RO.8	1.6	4	2.4	20	55	1.55
EM886936	RO.9	1.8	4	2.7	8	45	1.75
EM886937	RO.9	1.8	4	2.7	12	45	1.75
EM886018	RO.9	1.8	4	2.7	16	50	1.75
EM886938	RO.9	1.8	4	2.7	20	55	1.75
EM886939	R1.0	2.0	4	3	4	45	1.95
EM886940	R1.0	2.0	4	3	6	45	1.95
EM886020	R1.0	2.0	4	3	8	45	1.95
EM886941	R1.0	2.0	4	3	10	45	1.95
EM886942	R1.0	2.0	4	3	12	50	1.95
EM886943	R1.0	2.0	4	3	14	50	1.95
EM886909	R1.0	2.0	4	3	16	50	1.95
EM886910	R1.0	2.0	4	3	20	55	1.95
EM886944	R1.0	2.0	4	3	22	60	1.95
EM886945	R1.0	2.0	4	3	25	60	1.95
EM886967	R1.0	2.0	4	3	30	70	1.95
EM886946	R1.5	3.0	6	4.5	8	50	2.85
EM886947	R1.5	3.0	6	4.5	10	50	2.85
EM886948	R1.5	3.0	6	4.5	12	50	2.85
EM886030	R1.5	3.0	6	4.5	16	55	2.85
EM886911	R1.5	3.0	6	4.5	20	60	2.85

© : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○	○	○				○				

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN


Unit : mm							
EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (± 0.01)	D1	D2	L1	L3	L2	D3
EM886968	R1.5	3.0	6	4.5	25	65	2.85
EM886969	R1.5	3.0	6	4.5	30	70	2.85
EM886970	R1.5	3.0	6	4.5	35	80	2.85
EM886949	R2.0	4.0	6	6	10	60	3.85
EM886950	R2.0	4.0	6	6	12	60	3.85
EM886040	R2.0	4.0	6	6	16	60	3.85
EM886912	R2.0	4.0	6	6	20	65	3.85
EM886913	R2.0	4.0	6	6	25	70	3.85
EM886971	R2.0	4.0	6	6	30	70	3.85
EM886972	R2.0	4.0	6	6	35	80	3.85
EM886973	R2.0	4.0	6	6	40	90	3.85
EM886974	R2.0	4.0	6	6	45	90	3.85
EM886975	R2.0	4.0	6	6	50	100	3.85
EM886050	R2.5	5.0	6	7.5	16	60	4.85
EM886951	R2.5	5.0	6	7.5	20	60	4.85
EM886952	R2.5	5.0	6	7.5	25	70	4.85
EM886953	R2.5	5.0	6	7.5	30	80	4.85
EM886976	R2.5	5.0	6	7.5	35	80	4.85
EM886060	R3.0	6.0	6	9	20	80	5.85
EM886954	R3.0	6.0	6	9	30	90	5.85
EM886955	R3.0	6.0	6	9	40	100	5.85
EM886956	R3.0	6.0	6	9	50	110	5.85

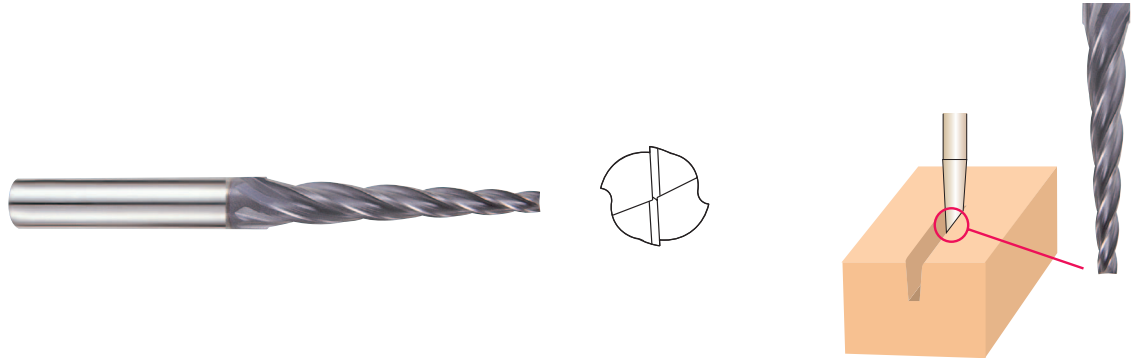
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good												
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎	○				○				



EM889 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE 25° HELIX TAPER for RIB PROCESSING
VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH für SCHMALE RIPPEN

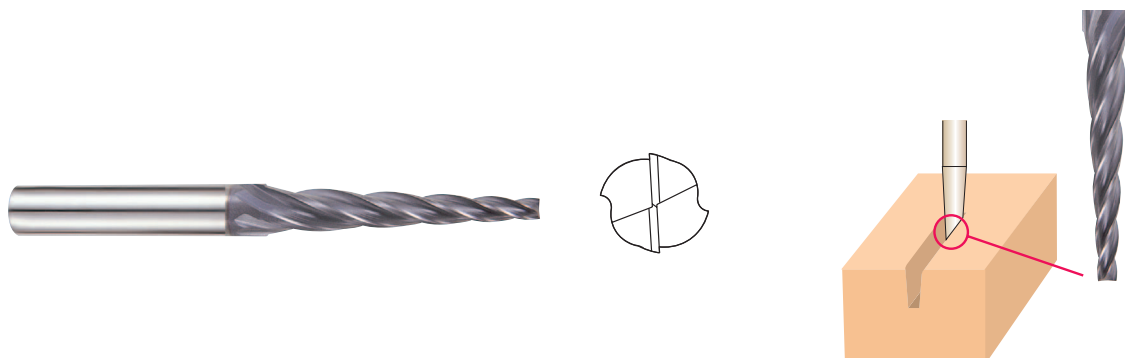


Unit : mm

EDP No. PLAIN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
EM889952	1.0	4	8	45	30'
EM889954	1.0	4	12	45	30'
EM889010	1.0	4	8	45	1°
EM889959	1.0	4	12	45	1°
EM889960	1.0	4	8	45	1° 30'
EM889962	1.0	4	12	45	1° 30'
EM889963	1.0	4	8	45	2°
EM889965	1.0	4	12	45	2°
EM889968	1.2	4	8	45	30'
EM889970	1.2	4	12	45	30'
EM889012	1.2	4	8	45	1°
EM889977	1.2	4	12	45	1°
EM889979	1.2	4	8	45	1° 30'
EM889981	1.2	4	12	45	1° 30'
EM889983	1.2	4	8	45	2°
EM889985	1.2	4	12	45	2°
EM889987	1.5	4	8	45	30'
EM889991	1.5	4	12	45	30'
EM889992	1.5	4	16	50	30'
EM889015	1.5	4	8	45	1°
EM889801	1.5	4	12	45	1°
EM889802	1.5	4	16	50	1°
EM889804	1.5	4	8	45	1° 30'
EM889806	1.5	4	12	45	1° 30'
EM889807	1.5	4	16	50	1° 30'
EM889809	1.5	4	8	45	2°
EM889811	1.5	4	12	45	2°
EM889812	1.5	4	16	50	2°

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

CARBIDE, 4 FLUTE 25° HELIX TAPER for RIB PROCESSING
VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH für SCHMALE RIPPEN


Unit : mm

EDP No. PLAIN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
EM889869	2.0	4	12	45	30'
EM889870	2.0	4	16	50	30'
EM889878	2.0	4	12	45	1°
EM889879	2.0	4	16	50	1°
EM889883	2.0	4	12	45	1° 30'
EM889884	2.0	4	16	50	1° 30'
EM889888	2.0	4	12	45	2°
EM889889	2.0	4	16	50	2°

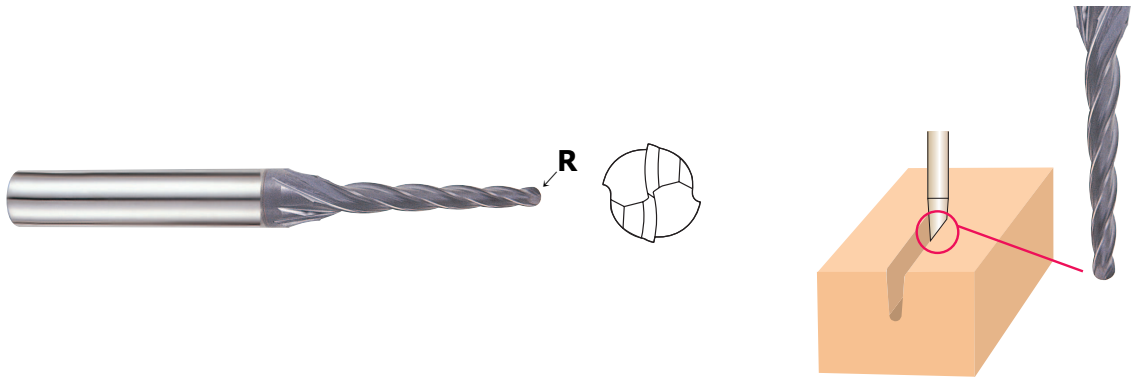
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance	Taper Angle Tolerance
0~-0.015	0~-0.008	±5'

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				



CARBIDE, 4 FLUTE 25° HELIX TAPER BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH STIRNRADIUS für SCHMALE RIPPEN



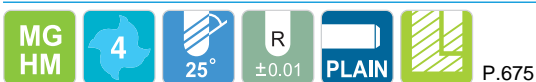
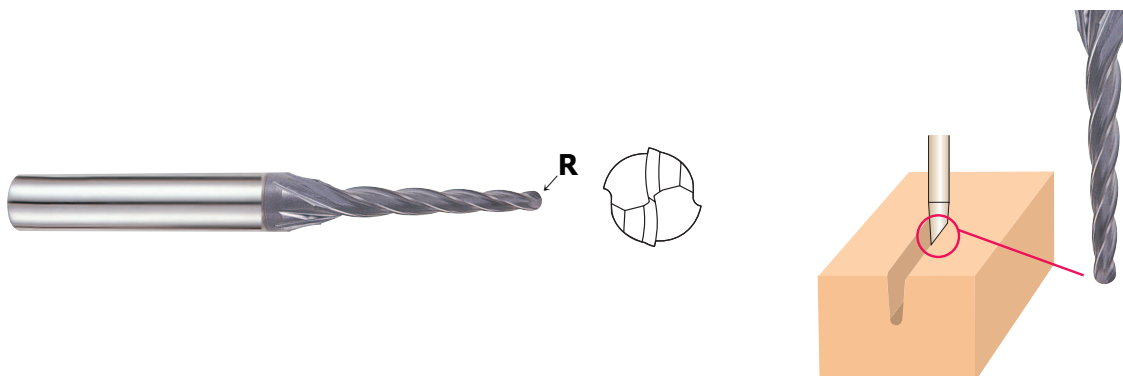
MG HM 4 25° R ±0.01 PLAIN P.675

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
PLAIN	R (±0.01)					
EM890909	RO.5	1.0	4	8	45	30'
EM890911	RO.5	1.0	4	12	45	30'
EM890010	RO.5	1.0	4	8	45	1°
EM890916	RO.5	1.0	4	12	45	1°
EM890917	RO.5	1.0	4	8	45	1° 30'
EM890919	RO.5	1.0	4	12	45	1° 30'
EM890920	RO.5	1.0	4	8	45	2°
EM890922	RO.5	1.0	4	12	45	2°
EM890923	RO.6	1.2	4	8	45	30'
EM890925	RO.6	1.2	4	12	45	30'
EM890012	RO.6	1.2	4	8	45	1°
EM890932	RO.6	1.2	4	12	45	1°
EM890934	RO.6	1.2	4	8	45	1° 30'
EM890936	RO.6	1.2	4	12	45	1° 30'
EM890938	RO.6	1.2	4	8	45	2°
EM890940	RO.6	1.2	4	12	45	2°
EM890942	RO.75	1.5	4	8	45	30'
EM890944	RO.75	1.5	4	12	45	30'
EM890945	RO.75	1.5	4	16	50	30'
EM890015	RO.75	1.5	4	8	45	1°
EM890953	RO.75	1.5	4	12	45	1°
EM890954	RO.75	1.5	4	16	50	1°
EM890956	RO.75	1.5	4	8	45	1° 30'
EM890958	RO.75	1.5	4	12	45	1° 30'
EM890959	RO.75	1.5	4	16	50	1° 30'
EM890961	RO.75	1.5	4	8	45	2°
EM890963	RO.75	1.5	4	12	45	2°
EM890964	RO.75	1.5	4	16	50	2°

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				○				

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE 25° HELIX TAPER BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH STIRNRADIUS für SCHMALE RIPPEN


Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
PLAIN	R (±0.01)					
EM890816	R1.0	2.0	4	12	45	30'
EM890817	R1.0	2.0	4	16	50	30'
EM890825	R1.0	2.0	4	12	45	1°
EM890826	R1.0	2.0	4	16	50	1°
EM890830	R1.0	2.0	4	12	45	1° 30'
EM890831	R1.0	2.0	4	16	50	1° 30'
EM890835	R1.0	2.0	4	12	45	2°
EM890836	R1.0	2.0	4	16	50	2°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance	Taper Angle Tolerance
0~-0.015	0~-0.008	±5'

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎	○				○				

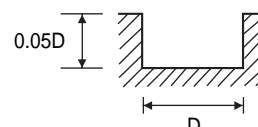
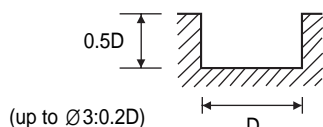


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE SHORT - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN KURZ - NUTENFRÄSEN

EM810, EM820 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	9250	190	6050	120	5050	90	4030	35		
3.0	7150	210	4450	140	3700	120	2690	40	1900	40
4.0	6050	300	3700	180	3100	150	2350	40	1480	40
5.0	5050	320	3020	190	2530	160	1860	50	1260	40
6.0	4450	350	2690	220	2270	180	1600	55	1100	40
8.0	3360	380	2020	200	1680	180	1350	75	840	40
10.0	2600	330	1600	160	1350	160	1090	60	680	35
12.0	2200	280	1350	130	1090	130	930	55	560	35
16.0	1760	220	1090	110	850	110	720	40	440	20
20.0	1350	170	850	80	670	80	550	30	320	20
25.0	1090	130	670	70	550	60	430	20	260	15



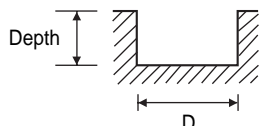
RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE MINIATURE - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN MINI - NUTENFRÄSEN

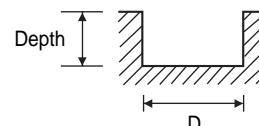
EM810 SERIES

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	HRC30 ~ HRC45		HRC45 ~ HRC55	
STRENGTH	1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
0.4	30000	90	23000	50
0.8	24000	150	18000	65
1.0	20000	160	15000	75
1.2	16000	160	12000	75
1.5	12000	150	9000	70

D < 1
Depth=0.15 × D
D ≥ 1
Depth=0.25 × D



D < 1
Depth=0.02 × D
D ≥ 1
Depth=0.05 × D

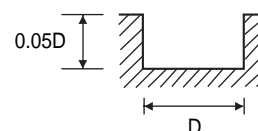
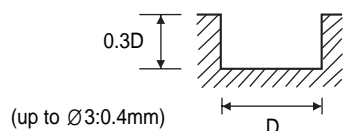


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE LONG - SLOTTING VOLLHARTMETALL, 2 SCHNEIDEN LANG - NUTENFRÄSEN

EM816, EM826 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7560	70	6050	60	3780	30
3.0	5290	85	4280	70	2640	35
4.0	4280	100	3410	85	2150	40
5.0	3660	125	2900	100	1900	45
6.0	3160	150	2520	125	1640	60
8.0	2400	160	1900	125	1260	60
10.0	2020	160	1640	125	1010	60
12.0	1640	125	1390	115	840	45
16.0	1390	115	1070	90	670	40
20.0	1010	85	820	60	500	30

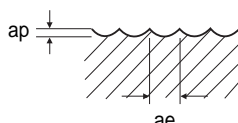

 RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

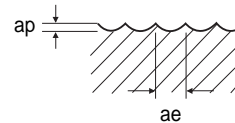
EM865 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	HRC30 ~ HRC45		HRC45 ~ HRC55	
STRENGTH	1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
R0.3 × 0.6	30000	510	30000	360
R0.4 × 0.8	27000	560	27000	330
R0.5 × 1.0	25000	560	25000	340
R0.6 × 1.2	24000	570	24000	350
R0.75 × 1.5	23000	600	23000	370
R1.0 × 2.0	19000	570	19000	320
R1.5 × 3.0	14000	480	14000	280

$D < 1$ $D \geq 1$
 $ap = 0.05 \times D$ $ap = 0.075 \times D$
 $ae = 0.15 \times D$ $ae = 0.15 \times D$



$D < 1$ $D \geq 1$
 $ap = 0.05 \times D$ $ap = 0.05 \times D$
 $ae = 0.1 \times D$ $ae = 0.15 \times D$


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

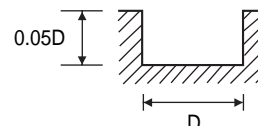
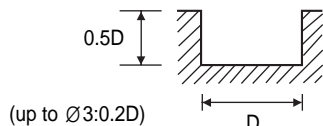


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN - NUTENFRÄSEN

EM895, EM896, EM836, EM846 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	11560	170	7560	110	6300	80	5040	30		
3.0	8920	190	5560	130	4620	110	3360	35	1900	40
4.0	7560	270	4620	160	3880	130	2940	35	1480	35
5.0	6300	280	3780	170	3160	140	2320	45	1260	35
6.0	5560	310	3360	200	2840	160	2000	50	1100	35
8.0	4200	340	2520	180	2100	160	1680	65	840	35
10.0	3260	300	2000	140	1680	145	1360	55	680	30
12.0	2740	250	1680	120	1360	120	1160	50	560	30
16.0	2200	200	1360	100	1060	100	900	35	440	20
18.0	1940	175	1210	85	950	85	790	30	380	20
20.0	1680	150	1060	70	840	70	680	25	320	20



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

CARBIDE, 3 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN - SEITENFRÄSEN

EM895, EM896, EM836, EM846 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	11560	210	7560	140	6300	115	5040	30		
3.0	8920	240	5560	150	4620	125	3360	40	1900	45
4.0	7560	430	4620	260	3880	210	2940	45	1480	45
5.0	6300	450	3780	270	3160	230	2320	55	1260	45
6.0	5560	500	3360	310	2840	250	2000	60	1100	45
8.0	4200	530	2520	290	2100	265	1680	80	840	45
10.0	3260	460	2000	230	1680	230	1360	70	680	35
12.0	2740	390	1680	190	1360	180	1160	60	560	35
16.0	2200	310	1360	150	1060	150	900	45	440	20
18.0	1940	280	1210	135	950	130	790	35	380	20
20.0	1680	240	1060	120	840	115	680	30	320	20

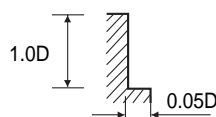


RPM = rev./min.
FEED = mm/min.

CARBIDE, 4 FLUTE SHORT - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN KURZ - SEITENFRÄSEN

EM811, EM821 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	11560	280	7560	170	6300	140	5040	50		
3.0	8920	320	5560	200	4620	170	3360	60	1900	50
4.0	7560	570	4620	350	3880	280	2940	60	1480	50
5.0	6300	600	3780	360	3160	300	2320	70	1260	50
6.0	5560	660	3360	410	2840	330	2000	80	1100	50
8.0	4200	710	2520	380	2100	350	1680	110	840	50
10.0	3260	610	2000	300	1680	300	1360	90	680	40
12.0	2740	520	1680	250	1360	240	1160	80	560	40
16.0	2200	410	1360	200	1100	200	900	60	440	25
20.0	1680	320	1060	160	840	150	680	40	320	25
25.0	1360	250	840	130	680	120	540	30	260	20

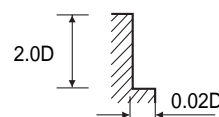
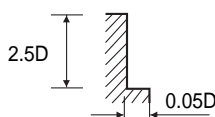


RPM = rev./min.
FEED = mm/min.

CARBIDE, 4 FLUTE LONG - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN LANG - SEITENFRÄSEN

EM817, EM827 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	8820	200	5040	80	3150	45		
3.0	6170	230	3570	100	2200	55	1890	30
4.0	5000	280	2840	115	1790	60	1470	35
5.0	4270	360	2420	140	1580	70	1260	40
6.0	3680	430	2100	180	1370	90	1160	50
8.0	2800	460	1580	180	1050	90	840	50
10.0	2350	460	1370	180	840	90	670	50
12.0	1920	360	1160	160	700	70	560	40
16.0	1620	320	890	125	560	60	440	35
20.0	1180	230	680	90	420	45	340	25



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



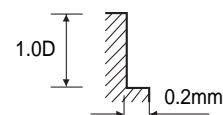
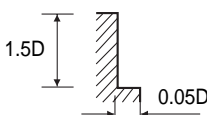
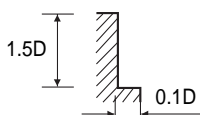
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 6&8 FLUTE 45° HELIX LONG - SIDE CUTTING
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG - SEITENFRÄSEN

EM812, EM822 SERIES

■ NORMAL SPEED

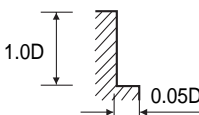
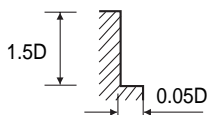
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
	~ HRC30		HRC30 ~ HRC50		HRC50 ~ HRC60		HRC60 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	5560	2000	3880	1370	1580	210	1100	130
8.0	4200	2000	2940	1370	1160	210	840	130
10.0	3360	2000	2320	1370	1000	210	680	130
12.0	2840	1680	2000	1160	840	180	560	110
16.0	2100	1260	1480	880	640	130	420	70
20.0	1680	1010	1160	690	500	110	320	60
25.0	1500	900	1100	600	430	90	260	50



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

■ HIGH SPEED

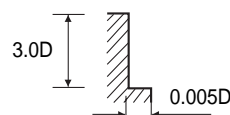
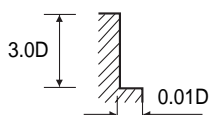
MATERIAL	HEAT RESISTANT STEELS HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
	~ HRC50		HRC50 ~ HRC60		HRC60 ~ HRC65	
STRENGTH	~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6.0	16800	6090	8400	3050	4200	1470
8.0	12600	6090	6300	3050	3160	1470
10.0	9980	5990	5040	3050	2520	1470
12.0	8400	5040	4200	2520	2100	1260
16.0	6300	3780	3160	1890	1580	950
20.0	5040	3050	2520	1470	1260	760
25.0	4500	2700	2200	1300	1120	670



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

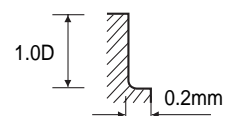
CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG - SIDE CUTTING
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG - SEITENFRÄSEN
EM834, EM844 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc40		HRc40 ~ HRc50		HRc50 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	~ 1250N/mm ²		1250 ~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2230	470	1670	350	1390	250	1110	200
8.0	1670	450	1250	330	1050	240	840	180
10.0	1330	440	1000	300	840	230	680	160
12.0	1110	400	840	270	690	210	560	150
16.0	840	330	630	230	530	170	420	130
20.0	670	280	500	200	420	150	320	120
25.0	540	240	400	170	340	130	270	95


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

CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS - SIDE CUTTING
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS - SEITENFRÄSEN
EM835, EM845 SERIES
HIGH SPEED

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc50		HRc50 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6.0	16800	6090	8400	3050	4200	1470
8.0	12600	6090	6300	3050	3150	1470
10.0	9980	5990	5040	3050	2520	1470
12.0	8400	5040	4200	2520	2100	1260
16.0	6300	3780	3150	1890	1580	950
20.0	5040	3050	2520	1470	1260	760


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



RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

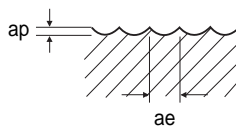
CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

EM876, EM877, EM813, EM823, EM878, EM879 SERIES

■ **NORMAL SPEED**

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	15760	250	12720	200	5800	90
R0.75 × 1.5	15760	350	12140	270	5320	120
R1.0 × 2.0	14400	750	10700	490	4680	150
R1.25 × 2.5	14400	750	10700	490	4680	150
R1.5 × 3.0	13100	680	10000	460	4520	150
R2.0 × 4.0	10500	740	8400	530	4200	180
R2.5 × 5.0	9140	820	7300	580	3680	180
R3.0 × 6.0	8490	1020	6900	830	3180	190
R4.0 × 8.0	7160	1290	5770	920	2470	220
R5.0 × 10.0	6370	1530	5090	1020	2040	225
R6.0 × 12.0	5840	1750	4640	1110	1750	245
R8.0 × 16.0	4770	1720	3780	1060	1350	245
R10.0 × 20.0	4140	1660	3260	1040	1110	250

ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.2 × D



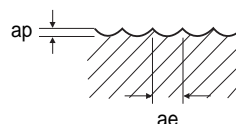
ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.1 × D

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

■ **HIGH SPEED**

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
R0.5 × 1.0	25000	1300	25000	800
R0.75 × 1.5	23000	1400	23000	860
R1.0 × 2.0	21000	1480	21000	940
R1.25 × 2.5	21000	1760	19000	980
R1.5 × 3.0	21000	2000	17000	1040
R2.0 × 4.0	21000	2940	13660	1160
R2.5 × 5.0	21000	3600	12000	1200
R3.0 × 6.0	21000	4000	10500	1250
R4.0 × 8.0	16700	4000	8360	1250
R5.0 × 10.0	14000	3900	7000	1200
R6.0 × 12.0	12200	3900	6100	1160
R8.0 × 16.0	9550	3450	4770	1000
R10.0 × 20.0	7960	3180	3980	920

ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.05 × D



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

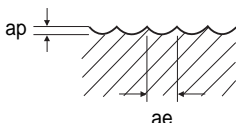
CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

EM899, EM900 SERIES

■ NORMAL SPEED

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	15760	250	12720	200	5800	90
R0.75 × 1.5	15760	350	12140	270	5320	120
R1.0 × 2.0	14400	750	10700	490	4680	150
R1.25 × 2.5	14400	750	10700	490	4680	150
R1.5 × 3.0	13100	680	10000	460	4520	150
R2.0 × 4.0	10500	740	8400	530	4200	180
R2.5 × 5.0	9140	820	7300	580	3680	180
R3.0 × 6.0	8490	1020	6900	830	3180	190
R4.0 × 8.0	7160	1290	5770	920	2470	220
R5.0 × 10.0	6370	1530	5090	1020	2040	225
R6.0 × 12.0	5840	1750	4640	1110	1750	245
R8.0 × 16.0	4770	1720	3780	1060	1350	245
R10.0 × 20.0	4140	1660	3260	1040	1110	250

ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.2 × D



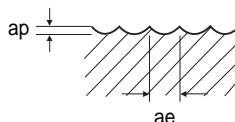
ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.1 × D

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

■ HIGH SPEED

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
R0.5 × 1.0	25000	1300	25000	800
R0.75 × 1.5	23000	1400	23000	860
R1.0 × 2.0	21000	1480	21000	940
R1.25 × 2.5	21000	1760	19000	980
R1.5 × 3.0	21000	2000	17000	1040
R2.0 × 4.0	21000	2940	13660	1160
R2.5 × 5.0	21000	3600	12000	1200
R3.0 × 6.0	21000	4000	10500	1250
R4.0 × 8.0	16700	4000	8360	1250
R5.0 × 10.0	14000	3900	7000	1200
R6.0 × 12.0	12200	3900	6100	1160
R8.0 × 16.0	9550	3450	4770	1000
R10.0 × 20.0	7960	3180	3980	920

ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.05 × D



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



RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

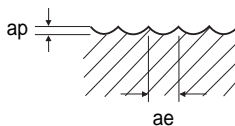
CARBIDE, 2 FLUTE LONG REACH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS

EM838, EM848 SERIES

■ **NORMAL SPEED**

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	12600	200	10180	160	4640	70
R0.75 × 1.5	12600	280	9710	220	4250	95
R1.0 × 2.0	12600	420	9250	260	3870	90
R1.25 × 2.5	11520	600	8560	390	3740	120
R1.5 × 3.0	10500	540	8000	370	3620	120
R2.0 × 4.0	8400	590	6720	420	3360	140
R2.5 × 5.0	7310	660	5840	460	2940	140
R3.0 × 6.0	6800	820	5500	600	2550	150
R4.0 × 8.0	5700	1030	4600	740	2000	175
R5.0 × 10.0	5100	1220	4070	820	1650	180
R6.0 × 12.0	4700	1400	3700	890	1400	195
R8.0 × 16.0	3800	1380	3000	850	1100	195
R10.0 × 20.0	3300	1330	2600	830	890	200

ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.2 × D



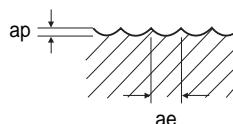
ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.1 × D

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

■ **HIGH SPEED**

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
R0.5 × 1.0	20000	1040	20000	640
R0.75 × 1.5	18400	1100	18400	690
R1.0 × 2.0	16800	1200	16800	750
R1.25 × 2.5	16800	1400	15200	780
R1.5 × 3.0	16800	1600	13600	830
R2.0 × 4.0	16800	2350	10930	930
R2.5 × 5.0	16800	2880	9600	960
R3.0 × 6.0	16800	3200	8400	1000
R4.0 × 8.0	13400	3200	6700	1000
R5.0 × 10.0	11200	3100	5600	960
R6.0 × 12.0	9800	3100	4900	930
R8.0 × 16.0	7600	2750	3800	800
R10.0 × 20.0	6400	2550	3200	740

ap: D1~D6 =0.2mm
D8~D20=0.3mm
ae: 0.05 × D



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

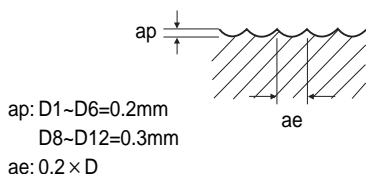
CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

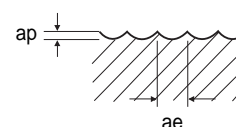
EM902, EM904 SERIES

■ NORMAL SPEED

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRC30 ~ HRC40		HRC40 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	1000 ~ 1250N/mm ²		1250 ~ 1750N/mm ²		1750 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	10180	160	16000	370	16000	320
R1.0 × 2.0	9250	260	11500	640	11300	590
R1.5 × 3.0	8000	370	10200	880	9800	850
R2.0 × 4.0	6720	420	8500	880	8200	850
R2.5 × 5.0	5840	460	7500	880	7200	850
R3.0 × 6.0	5500	660	6900	920	6500	880
R4.0 × 8.0	4600	740	5600	840	5300	800
R5.0 × 10.0	4070	820	4850	800	4650	770
R6.0 × 12.0	3700	890	4350	800	4150	770



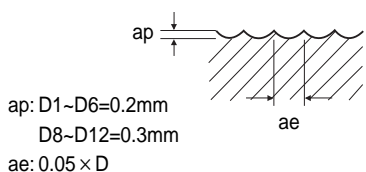
ap: D1~D4=0.05 × D
D5~D8=0.25mm
D10~D12=0.30mm
ae: 0.1 × D



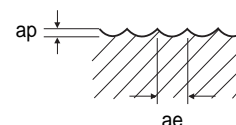
RPM = rev./min.
FEED = mm/min.

■ HIGH SPEED

MATERIAL	NON-ALLOY STEELS ALLOY STEELS CAST IRON		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	~ 1500N/mm ²		1250 ~ 1750N/mm ²		1750 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	20000	1040	16000	620	16000	550
R1.0 × 2.0	16800	1200	11500	850	11400	980
R1.5 × 3.0	16800	1600	10200	1400	9800	1300
R2.0 × 4.0	16800	2350	8500	1350	8200	1300
R2.5 × 5.0	16800	2880	7500	1320	7200	1250
R3.0 × 6.0	16800	3200	6900	1400	6600	1350
R4.0 × 8.0	13400	3200	5600	1250	5300	1150
R5.0 × 10.0	11200	3100	4800	1150	4600	1100
R6.0 × 12.0	9800	3100	4350	1130	4150	1050



ap: D1~D4=0.05 × D
D5~D8=0.25mm
D10~D12=0.30mm
ae: 0.05 × D



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



RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

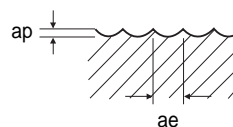
CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE for OVER HRc55
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS EXTRA KURZ für ÜBER HRc55

G4953, G4954 SERIES

■ **NORMAL SPEED**

MATERIAL	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc45 ~ HRc50		HRc50 ~ HRc55		HRc55 ~ HRc60		HRc60 ~ HRc70	
STRENGTH	1500 ~ 1750N/mm ²		1750 ~ 2000N/mm ²		2000 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	20000	460	20000	400	20000	350	20000	240
R0.75 × 1.5	16300	640	16100	580	16000	570	14200	360
R1.0 × 2.0	14500	800	14200	740	13850	760	11300	465
R1.25 × 2.5	13400	950	13000	890	12600	920	9600	560
R1.5 × 3.0	12700	1100	12300	1050	11800	1000	8400	660
R2.0 × 4.0	10600	1100	10300	1050	9800	1000	6650	650
R2.5 × 5.0	9400	1100	9050	1050	8600	950	5600	680
R3.0 × 6.0	8600	1150	8250	1100	7850	950	4850	700
R4.0 × 8.0	7000	1050	6700	1000	6350	950	3800	650
R5.0 × 10.0	6050	1000	5800	960	5450	900	3200	620
R6.0 × 12.0	5450	1000	5200	960	4900	900	2750	610
R8.0 × 16.0	4350	870	4150	830	3900	820	2150	265
R10.0 × 20.0	3500	690	3300	650	3150	630	1700	220

ap: D1~D4 = 0.05 × D
D5~D8 = 0.25mm
D10~D20 = 0.30mm
ae: D1~D20 = 0.1 × D

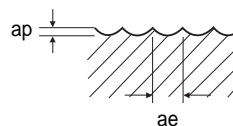


RPM = rev./min.
FEED = mm/min.

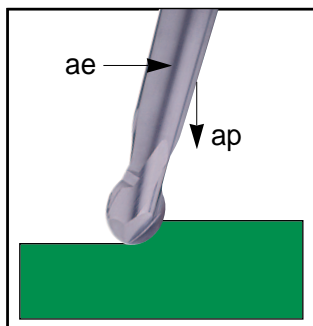
■ **HIGH SPEED**

MATERIAL	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc45 ~ HRc50		HRc50 ~ HRc55		HRc55 ~ HRc70	
STRENGTH	1500 ~ 1750N/mm ²		1750 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	20000	770	20000	700	20000	410
R0.75 × 1.5	16300	1050	16100	980	16000	580
R1.0 × 2.0	14500	1300	14200	1230	13850	700
R1.25 × 2.5	13400	1500	13000	1430	12600	780
R1.5 × 3.0	12700	1750	12300	1670	11800	860
R2.0 × 4.0	10600	1700	10300	1620	9800	860
R2.5 × 5.0	9400	1650	9050	1570	8600	860
R3.0 × 6.0	8600	1750	8250	1670	7850	865
R4.0 × 8.0	7000	1550	6700	1460	6350	890
R5.0 × 10.0	6050	1450	5800	1360	5450	870
R6.0 × 12.0	5450	1420	5200	1330	4900	785
R8.0 × 16.0	4350	1230	4150	1130	3900	485
R10.0 × 20.0	3500	1000	3300	900	3150	410

ap: D1~D4 = 0.05 × D
D5~D8 = 0.25mm
D10~D20 = 0.30mm
ae: D1~D20 = 0.05 × D



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

CARBIDE, 2 FLUTE BALL NOSE MMC
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS MMC


▶ $ap = 0.05 \times D$
 ▶ $ae = 0.02 \times D$

EM669, EM863 SERIES
■ NORMAL SPEED

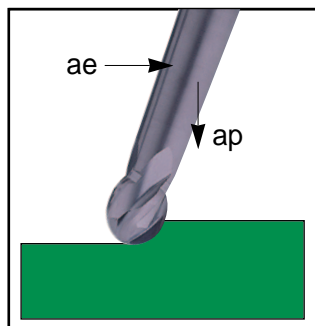
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	35000	2800	33000	2600	12000	900
R2.0 × 4.0	26000	2300	25000	2200	9000	800
R2.5 × 5.0	21000	2100	20000	2000	7000	700
R3.0 × 6.0	17000	1900	16000	1800	6000	650
R4.0 × 8.0	13000	1700	12000	1600	4500	550
R5.0 × 10.0	10500	1450	10000	1400	3500	500
R6.0 × 12.0	9000	1400	8000	1300	3000	450
R8.0 × 16.0	6000	1200	5500	1100	2000	400

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

■ HIGH SPEED

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	47000	3700	44000	3500	17000	1400
R2.0 × 4.0	35000	3200	33000	3000	13000	1200
R2.5 × 5.0	28000	2800	27000	2600	10000	1100
R3.0 × 6.0	23000	2600	22000	2400	8000	950
R4.0 × 8.0	18000	2300	17000	2100	6000	850
R5.0 × 10.0	14000	2000	13000	1900	5000	750
R6.0 × 12.0	12000	1800	11000	1800	4000	700
R8.0 × 16.0	9000	1600	8000	1500	3300	600

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


**CARBIDE, 4 FLUTE BALL NOSE MMC
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS MMC**


▶ $ap = 0.05 \times D$
▶ $ae = 0.02 \times D$

EM673, EM864 SERIES
■ NORMAL SPEED

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R2.5 × 5.0	21000	4000	20000	4000	7000	1400
R3.0 × 6.0	17000	4000	16000	3500	6000	1300
R4.0 × 8.0	13000	3500	12000	3000	4500	1100
R5.0 × 10.0	10500	3000	10000	2500	3500	1000
R6.0 × 12.0	9000	2800	8000	2500	3000	950
R8.0 × 16.0	6000	2800	5500	2200	2000	800

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

■ HIGH SPEED

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R2.5 × 5.0	28000	5600	27000	5300	11000	2100
R3.0 × 6.0	23000	5100	22000	4900	9000	1900
R4.0 × 8.0	18000	4600	17000	4300	7000	1700
R5.0 × 10.0	14000	3900	13000	3700	5000	1400
R6.0 × 12.0	12000	3700	11000	3500	4500	1300
R8.0 × 16.0	9000	3100	8000	3000	3300	1100

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

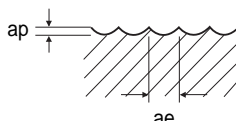
CARBIDE, 4 FLUTE LONG BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS

EM815, EM825 SERIES

■ NORMAL SPEED

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
R0.5 × 1.0	15760	380	12720	300	5800	130
R0.75 × 1.5	15760	530	12140	410	5320	180
R1.0 × 2.0	15760	800	11560	480	4840	160
R1.5 × 3.0	13100	1020	10000	690	4520	220
R2.0 × 4.0	10500	1110	8400	800	4200	270
R2.5 × 5.0	9140	1230	7300	870	3680	270
R3.0 × 6.0	8490	1530	6900	1250	3180	280
R4.0 × 8.0	7160	1950	5770	1380	2470	330
R5.0 × 10.0	6370	2300	5090	1530	2040	340
R6.0 × 12.0	5840	2600	4640	1650	1750	370
R8.0 × 16.0	4770	2600	3780	1600	1350	370
R10.0 × 20.0	4140	2500	3260	1560	1110	375

ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.2 × D



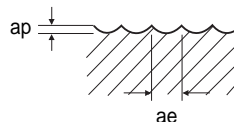
ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.1 × D

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

■ HIGH SPEED

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
R0.5 × 1.0	25000	1950	25000	1200
R0.75 × 1.5	23000	2100	23000	1290
R1.0 × 2.0	21000	2200	21000	1400
R1.5 × 3.0	21000	3000	17000	1560
R2.0 × 4.0	21000	4400	13660	1740
R2.5 × 5.0	21000	5400	12000	1800
R3.0 × 6.0	21000	6000	10500	1880
R4.0 × 8.0	16700	6000	8360	1880
R5.0 × 10.0	14000	5850	7000	1800
R6.0 × 12.0	12200	5850	6100	1740
R8.0 × 16.0	9550	5180	4770	1500
R10.0 × 20.0	7960	4770	3980	1380

ap: D1~D6=0.2mm
D8~D20=0.3mm
ae: 0.05 × D



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

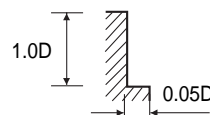
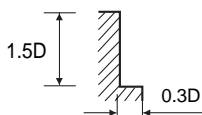


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE 20° HELIX ROUGHING - SIDE CUTTING
VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE SCHRUPPFÄRER - SEITENFRÄSEN

EM832, EM842, EM814, EM824 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC38		HRC38 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1200N/mm ²		1200 ~ 1400N/mm ²		1400 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	15600	2320	12400	840	8400	570	3400	260	2400	190
8.0	11600	2320	9200	840	6300	570	2400	240	1800	180
10.0	9200	2320	7600	840	5100	570	2000	290	1300	190
12.0	8000	2400	6000	800	4200	570	1680	260	1200	190
14.0	6800	2400	5200	840	3600	570	1400	200	900	130
16.0	6000	2400	4800	760	3300	510	1200	160	800	110
18.0	5200	2320	4400	720	2700	420	1100	150	700	100
20.0	4800	2160	3600	560	2400	360	1000	150	660	100
25.0	4300	2150	3200	620	2160	410	900	160	600	100

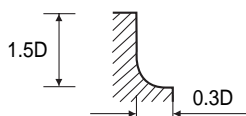


RPM = rev./min.
FEED = mm/min.

CARBIDE, 3&4 FLUTE 20° HELIX ROUGHING BALL NOSE - SIDE CUTTING
VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE SCHRUPPFÄRER STIRNRADIUS - SEITENFRÄSEN

EM833, EM843 SERIES

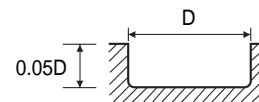
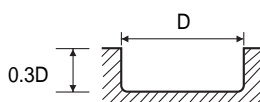
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC38		HRC38 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1200N/mm ²		1200 ~ 1400N/mm ²		1400 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R3.0 × 6.0	15600	2320	12400	840	8400	570	3400	260	2400	190
R4.0 × 8.0	11600	2320	9200	840	6300	570	2400	240	1800	180
R5.0 × 10.0	9200	2320	7600	840	5100	570	2000	290	1300	190
R6.0 × 12.0	8000	2400	6000	800	4200	570	1680	260	1200	190
R7.0 × 14.0	6800	2400	5200	840	3600	570	1400	200	900	130
R8.0 × 16.0	6000	2400	4800	760	3300	510	1200	160	800	110
R9.0 × 18.0	5200	2320	4400	720	2700	420	1100	150	700	100
R10.0 × 20.0	4800	2160	3600	560	2400	360	1000	150	660	100



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

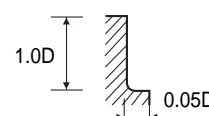
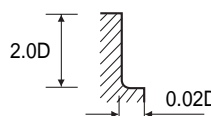
CARBIDE, 2 FLUTE LONG CORNER RADIUS - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS - NUTENFRÄSEN
EM818, EM828 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	6620	140	4280	70	2640	35	1870	18
4.0	5360	170	3410	85	2150	40	1470	20
5.0	4580	210	2900	100	1900	50	1260	25
6.0	3950	250	2520	125	1640	60	1160	35
8.0	3000	270	1900	125	1260	60	840	35
10.0	2520	270	1640	125	1010	60	670	35
12.0	2060	210	1390	115	840	50	550	25
16.0	1740	190	1070	90	670	40	440	20
20.0	1260	140	820	60	500	30	340	15


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

CARBIDE, 4 FLUTE LONG CORNER RADIUS - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS - SEITENFRÄSEN
EM819, EM829 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	6620	170	4280	130	2640	65	1870	30
4.0	5360	210	3410	150	2150	70	1470	35
5.0	4580	215	2900	180	1900	85	1260	40
6.0	3950	215	2520	180	1640	85	1160	50
8.0	3000	230	1900	180	1260	85	840	50
10.0	2520	230	1640	180	1010	85	670	50
12.0	2060	180	1390	160	840	70	550	40
16.0	1740	160	1070	125	670	60	440	35
20.0	1260	115	820	90	500	45	340	25


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

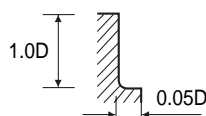


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE STUB CORNER RADIUS - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS - SEITENFRÄSEN

EM839, EM849 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	13870	340	9070	205	6050	60		
2.5	12290	360	7870	220	5040	65		
3.0	10700	385	6670	240	4030	70	2280	70
3.5	9890	535	6100	330	3780	70	2030	70
4.0	9070	685	5540	420	3530	70	1780	70
5.0	7560	720	4540	430	2780	85	1510	70
6.0	6670	790	4030	490	2400	95	1320	70
8.0	5040	850	3020	455	2020	130	1010	70
10.0	3910	730	2400	360	1630	110	820	60
12.0	3290	625	2020	300	1390	95	670	60
16.0	2640	490	1630	240	1080	70	530	35

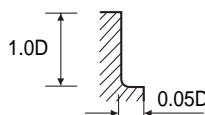


RPM = rev./min.
FEED = mm/min.

CARBIDE, 6 FLUTE STUB CORNER RADIUS - SIDE CUTTING
VOLLHARTMETALL, 6 SCHNEIDEN EXTRA KURZ ECKENRADIUS - SEITENFRÄSEN

EM897, EM898 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45		HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	6670	790	4030	490	2400	95	1320	70
8.0	5040	850	3020	455	2020	130	1010	70
10.0	3910	730	2400	360	1630	110	820	60
12.0	3290	625	2020	300	1390	95	670	60



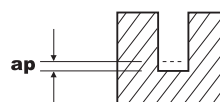
RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

EM883 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC30 ~ HRC45			HRC45 ~ HRC55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
0.4	31000~40000	200~440	0.007~0.018	22500~28000	85~340	0.007~0.018	14300~17000	30~90	0.004~0.008
0.5	31000~40000	200~440	0.009~0.022	22500~28000	85~340	0.009~0.022	14300~17000	30~90	0.004~0.009
0.6	31000~40000	250~570	0.011~0.026	22500~28000	110~430	0.011~0.026	14300~17000	40~110	0.005~0.011
0.7	31000~40000	250~570	0.012~0.031	22500~28000	110~430	0.012~0.031	14300~17000	40~110	0.006~0.013
0.8	27000~35000	280~630	0.014~0.035	19500~24500	120~480	0.014~0.035	12500~14800	45~125	0.007~0.015
0.9	25000~31500	280~720	0.030~0.060	17500~22500	160~540	0.030~0.060	11000~12500	55~130	0.008~0.016
1.0	22500~28000	280~810	0.045~0.090	15700~20000	190~600	0.045~0.090	10000~12500	65~130	0.009~0.018
1.2	18500~22500	280~900	0.055~0.100	13000~16500	190~600	0.055~0.100	8300~10500	65~130	0.010~0.022
1.4	16000~20000	280~900	0.062~0.125	11500~14000	190~600	0.062~0.125	7200~9000	65~130	0.012~0.025
1.5	14500~18500	280~900	0.070~0.135	10500~13500	190~600	0.070~0.135	6700~8200	65~130	0.014~0.028
1.6	14000~18000	280~900	0.075~0.145	10200~12800	190~600	0.075~0.145	6400~8000	65~130	0.015~0.030
1.8	13000~16500	280~900	0.080~0.160	9200~11500	190~600	0.080~0.160	5700~7200	65~130	0.016~0.032
2.0	12000~14500	280~900	0.090~0.180	8300~10500	190~600	0.090~0.180	5300~6600	65~130	0.018~0.035
2.5	9500~12000	280~900	0.112~0.235	6700~8500	190~600	0.112~0.235	4300~5300	65~130	0.022~0.045
3.0	8000~10000	280~900	0.135~0.270	5500~7000	190~600	0.135~0.270	3500~4400	65~130	0.028~0.055
2.0	6000~7500	280~900	0.180~0.36	4100~5300	190~600	0.180~0.36	2600~3300	65~130	0.036~0.072
5.0	4800~6000	280~900	0.225~0.450	3300~4200	190~600	0.225~0.450	2100~2600	65~130	0.045~0.090
6.0	4000~5000	280~900	0.270~0.540	2800~3500	190~600	0.270~0.540	1750~2600	65~130	0.054~0.108

(Depth of Cut per one pass)



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



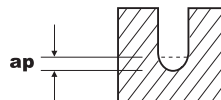
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

EM886 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC30 ~ HRC45			HRC45 ~ HRC55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
R0.2 × 0.4	31000~40000	175~490	0.018~0.036	22500~28500	88~270	0.018~0.036	14300~18000	88~175	0.004~0.007
R0.25 × 0.5	31000~40000	175~490	0.023~0.045	22500~28500	88~270	0.023~0.045	14300~18000	88~175	0.005~0.009
R0.3 × 0.6	31000~40000	225~630	0.027~0.054	22500~28500	110~350	0.027~0.054	14300~18000	110~225	0.005~0.011
R0.4 × 0.8	31000~40000	225~630	0.036~0.072	22500~28500	110~350	0.036~0.072	14300~18000	110~225	0.007~0.014
R0.5 × 1.0	29000~36500	250~700	0.045~0.090	20500~26000	125~390	0.045~0.090	13000~16300	125~250	0.009~0.018
R0.6 × 1.2	24000~30500	250~780	0.055~0.100	17000~21500	125~390	0.055~0.100	10800~13700	125~250	0.010~0.022
R0.7 × 1.4	21000~26000	250~780	0.062~0.125	15000~18000	125~390	0.062~0.125	9400~11700	125~250	0.012~0.025
R0.75 × 1.5	19000~24000	250~780	0.070~0.135	13500~17500	125~390	0.070~0.135	8700~10700	125~250	0.014~0.028
R0.8 × 1.6	18000~23500	250~780	0.075~0.145	13200~16500	125~390	0.075~0.145	8300~10400	125~250	0.015~0.030
R0.9 × 1.8	17000~21500	250~780	0.080~0.160	12000~15000	125~390	0.080~0.160	7400~9400	125~250	0.016~0.032
R1.0 × 2.0	15500~19000	250~780	0.090~0.180	11000~13500	125~390	0.090~0.180	6900~8600	125~250	0.018~0.035
R1.5 × 3.0	10500~13000	250~780	0.135~0.270	7000~9000	125~390	0.135~0.270	4600~5700	125~250	0.028~0.055
R2.0 × 4.0	8500~11000	250~780	0.180~0.360	5800~7800	125~390	0.180~0.360	3900~4900	125~250	0.035~0.070
R2.5 × 5.0	6800~8800	250~780	0.225~0.450	4600~6200	125~390	0.225~0.450	3100~3900	125~250	0.044~0.088
R3.0 × 6.0	5700~7300	250~780	0.270~0.540	3900~5200	125~390	0.270~0.540	2600~3300	125~250	0.053~0.105

(Depth of Cut per one pass)



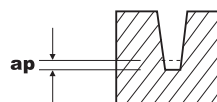
RPM = rev./min.
FEED = mm/min.

CARBIDE, 4 FLUTE TAPER for RIB PROCESSING
VOLLHARTMETALL, 4 SCHNEIDEN KONISCH für SCHMALE RIPPEN

EM889 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC30 ~ HRC45			HRC45 ~ HRC55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
1.0	20000	700	0.020~0.040	15000	500	0.020~0.030	10000	300	0.010~0.020
1.2	16000	700	0.025~0.050	13000	500	0.025~0.040	8000	300	0.012~0.025
1.5	13000	700	0.030~0.060	10000	500	0.030~0.050	6500	300	0.015~0.030
2.0	10000	700	0.040~0.080	8000	500	0.040~0.060	5000	300	0.020~0.040

(Depth of Cut per one pass)



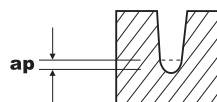
RPM = rev./min.
FEED = mm/min.

CARBIDE, 4 FLUTE TAPER BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 4 SCHNEIDEN KONISCH STIRNRADIUS für SCHMALE RIPPEN

EM890 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC30 ~ HRC45			HRC45 ~ HRC55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
R0.5 × 1.0	20000	700	0.020~0.040	15000	500	0.020~0.030	10000	300	0.010~0.020
R0.6 × 1.2	16000	700	0.025~0.050	13000	500	0.025~0.040	8000	300	0.012~0.025
R0.75 × 1.5	13000	700	0.030~0.060	10000	500	0.030~0.050	6500	300	0.015~0.030
R1.0 × 2.0	10000	700	0.040~0.080	8000	500	0.040~0.060	5000	300	0.020~0.040

(Depth of Cut per one pass)



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

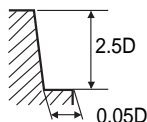


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE TAPER - SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN KONISCH - SEITENFRÄSEN

EM837, EM847 SERIES

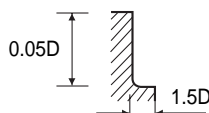
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS		ALLOY STEELS HEAT RESISTANT STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
2.0	8400	170	6300	125
3.0	4410	120	3570	100
4.0	3570	140	2840	115
5.0	3050	180	2410	145
6.0	2630	210	2100	170
8.0	2000	250	1580	180



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

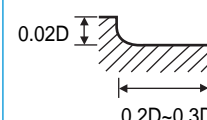
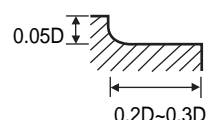
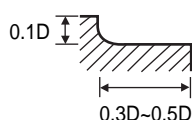
CARBIDE, 4 FLUTE 45° HELIX CORNER RADIUS - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS - SEITENFRÄSEN
EM905 SERIES

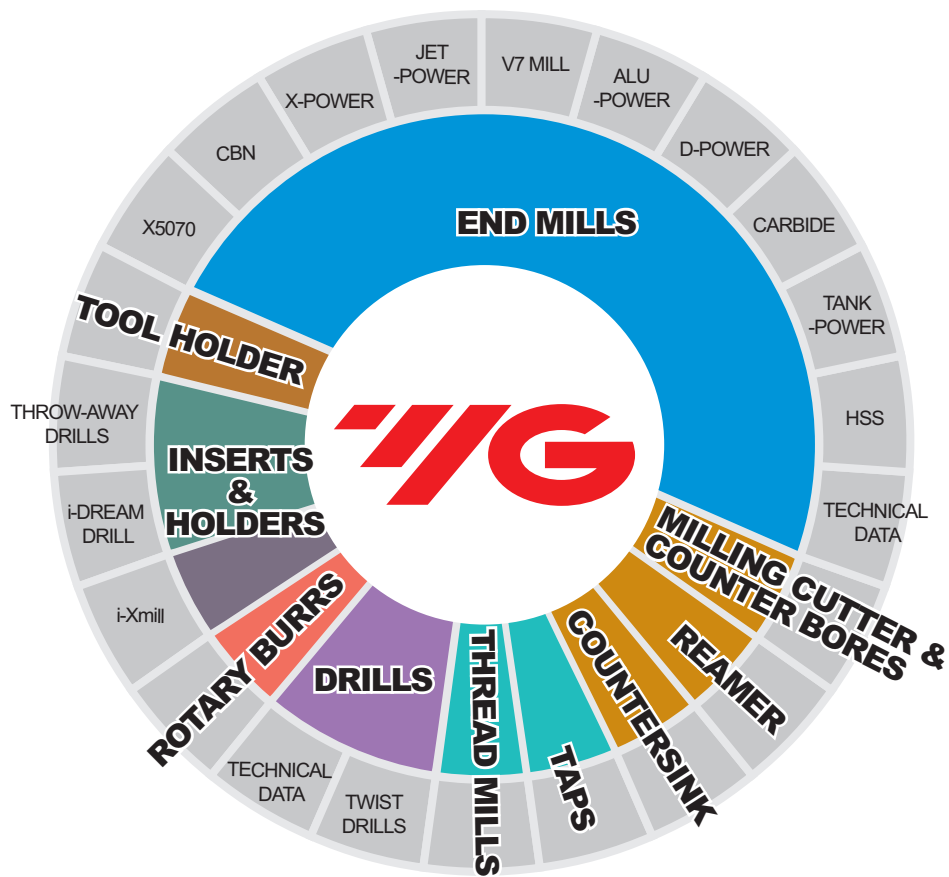
MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
10.0	7690	2000	7690	1220	5680	920	5680	740	3840	480
12.0	5760	2000	5760	1220	4260	920	4260	740	2880	480
14.0	4600	1800	4600	1220	3410	920	3410	740	2300	480
18.0	3850	1530	3850	1220	2840	920	2840	740	1920	480
22.0	3300	1300	3300	1220	2430	920	2430	740	1650	480


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

CARBIDE, 4 FLUTE 45° HELIX CORNER RADIUS - CONTOURING
VOLLHARTMETALL, 4 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS
EM905 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
10.0	7690	1150	5680	920	5680	800	5680	460	3840	290
12.0	5760	1150	4260	920	4260	800	4260	460	2880	290
14.0	4600	1150	3410	920	3410	800	3410	460	2300	290
18.0	3850	1150	2840	920	2840	800	2840	460	1920	290
22.0	3300	1150	2430	920	2430	800	2430	460	1650	290


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



Challenge Toward a Global Leader-
YG-1 Leads the World Market.

CARBIDE



Being the best through innovation



JET-POWER

JET-POWER FRÄSER

- Exotic materials like Stainless Steels, Nickel alloys and Titanium
- Für zähe Werkstoffe, wie rostfreier Stahl, Titan und Nickellegierungen

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
EH911 EH912		CARBIDE, 2 FLUTE 35° HELIX SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN 35° RECHTSSPIRALE KURZ	D1.0	D25.0	682
EH913 EH914		CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ	D2.0	D25.0	683
EH830 EH840		CARBIDE, 3&4 FLUTE 50° HELIX LONG LENGTH VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE LANG	D6.0	D25.0	684
EH915 EH916		CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH (Positive Rake Angle) VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG	D6.0	D25.0	685
EE515		PREMIUM HSS-PM, 4&6 FLUTE SHORT LENGTH PREMIUM HSS-PM, 4&6 SCHNEIDEN KURZ	D3.0	D25.0	686
EH852 EH862		CARBIDE, MULTI FLUTE SHORT LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN	D6.0	D25.0	687
EH831 EH841		CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN	D6.0	D25.0	688
EH917 EH918		CARBIDE, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN	D6.0	D20.0	689
EH919 EH920		CARBIDE, MULTI FLUTE 45° HELIX LONG LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN	D4.0	D25.0	690
EH921 EH942		CARBIDE, MULTI FLUTE 45° HELIX LONG REACH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE GROÛE REICHWEITE SCHRUPPFRÄSER - FEIN	D6.0	D20.0	691
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					692

JET-POWER END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎							◎	◎	
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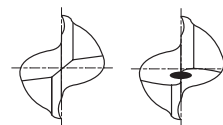
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE 35° HELIX SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN 35° RECHTSSPIRALE KURZ

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall.
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



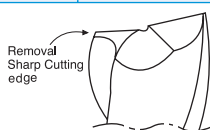
up to Ø3mm over Ø3mm



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EH911010	1.0	4	2.5	40
EH911901	1.0	6	2.5	40
EH911015	1.5	4	4	40
EH911902	1.5	6	4	40
EH911020	2.0	4	6	40
EH911903	2.0	6	6	40
EH911025	2.5	4	8	40
EH911904	2.5	6	8	40
EH911030	3.0	6	8	45
EH911035	3.5	6	10	45
EH911040	4.0	6	11	45
EH911045	4.5	6	11	45
EH911050	5.0	6	13	50
EH911055	5.5	6	13	50
EH911060	6.0	6	13	50
EH911065	6.5	8	16	60
EH911070	7.0	8	16	60
EH911075	7.5	8	16	60
EH911080	8.0	8	19	60
EH911085	8.5	10	19	70
EH911090	9.0	10	19	70
EH911095	9.5	10	19	70
EH911100	10.0	10	22	70
EH911110	11.0	12	22	75
EH911120	12.0	12	26	75
EH911140	14.0	16	26	85
EH911160	16.0	16	32	100
EH911180	18.0	16	32	100
EH911200	20.0	20	38	105
EH911220	22.0	20	38	105
EH911250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



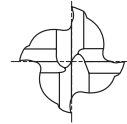
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎							◎	◎	

CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

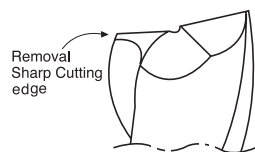
- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



Unit : mm

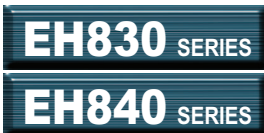
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EH913020	-	2.0	4	6	40
EH913901	EH914901	2.0	6	6	40
EH913025	-	2.5	4	8	40
EH913902	EH914902	2.5	6	8	40
EH913030	EH914030	3.0	6	8	45
EH913035	EH914035	3.5	6	10	45
EH913040	EH914040	4.0	6	11	45
EH913045	EH914045	4.5	6	11	45
EH913050	EH914050	5.0	6	13	50
EH913055	EH914055	5.5	6	13	50
EH913060	EH914060	6.0	6	13	50
EH913065	EH914065	6.5	8	16	60
EH913070	EH914070	7.0	8	16	60
EH913075	EH914075	7.5	8	16	60
EH913080	EH914080	8.0	8	19	60
EH913085	EH914085	8.5	10	19	70
EH913090	EH914090	9.0	10	19	70
EH913095	EH914095	9.5	10	19	70
EH913100	EH914100	10.0	10	22	70
EH913110	EH914110	11.0	12	22	75
EH913120	EH914120	12.0	12	26	75
EH913140	EH914140	14.0	16	26	85
EH913160	EH914160	16.0	16	32	100
EH913180	EH914180	18.0	16	32	100
EH913200	EH914200	20.0	20	38	105
EH913220	EH914220	22.0	20	38	105
EH913250	EH914250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎							◎	◎	



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

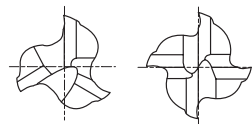
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3&4 FLUTE 50° HELIX LONG LENGTH

VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE LANG

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.

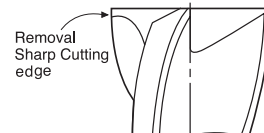


MG HM 3&4 50° PLAIN FLAT P.693

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT					
EH830060	EH840060	6.0	6	13	50	3
EH830080	EH840080	8.0	8	19	60	3
EH830100	EH840100	10.0	10	22	70	3
EH830120	EH840120	12.0	12	25	75	3
EH830160	EH840160	16.0	16	32	90	3
EH830180	EH840180	18.0	18	32	90	3
EH830200	EH840200	20.0	20	38	100	4
EH830250	EH840250	25.0	25	45	120	4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎							◎	◎	○

◎ : Excellent ○ : Good

CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH (Positive Rake Angle)
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

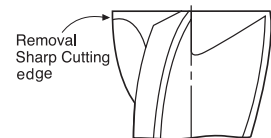
- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT					
EH915060	EH916060	6.0	6	13	57	6
EH915070	EH916070	7.0	8	16	63	6
EH915080	EH916080	8.0	8	19	63	6
EH915090	EH916090	9.0	10	19	72	6
EH915100	EH916100	10.0	10	22	72	6
EH915120	EH916120	12.0	12	26	83	6
EH915140	EH916140	14.0	14	26	83	6
EH915160	EH916160	16.0	16	32	92	6
EH915180	EH916180	18.0	18	32	92	8
EH915200	EH916200	20.0	20	38	104	8
EH915250	EH916250	25.0	25	44	104	8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎							◎	◎	○



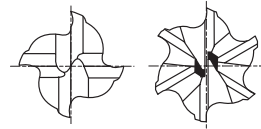
EE515 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 4&6 FLUTE SHORT LENGTH
PREMIUM HSS-PM, 4&6 SCHNEIDEN KURZ

- ▶ Excellent performance on Low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, Stainless Steel, Titanium, Inconel.
- ▶ High chemical stability prevents built-up edge, micro cracks and crater wear.
- ▶ Superior workpiece finish.

- ▶ Ausgezeichnete Eignung zur Bearbeitung von weichen Materialien (bis HRc45), Legierten Stählen, kraterbildung, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- ▶ Hohe chemische Stabilität verhindert Kantenbildung, Mikrorisse und Krateraufzug.
- ▶ Höhere Oberflächengüte.



Unit : mm

EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
EE515030	3.0	6	8	52	4
EE515040	4.0	6	11	55	4
EE515050	5.0	6	13	57	4
EE515060	6.0	6	13	57	4
EE515080	8.0	10	19	69	4
EE515100	10.0	10	22	72	4
EE515120	12.0	12	26	83	4
EE515140	14.0	12	26	83	4
EE515160	16.0	16	32	92	6
EE515180	18.0	16	32	92	6
EE515200	20.0	20	38	104	6
EE515250	25.0	25	45	121	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○	○							○	○	○

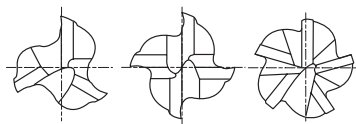
◎ : Excellent ○ : Good

CARBIDE, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN KURZ SCHRUPPFÄRER - FEIN

- ▶ Suitable for low hardness materials(under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
- ▶ High velocity milling operation.
- ▶ Fast chip ejection.

- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen..
- ▶ Hochgeschwindigkeitsfräsen.
- ▶ Schnelle Spanausfuhr.



Unit : mm

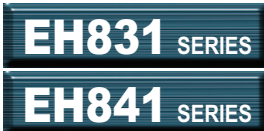
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	h10	h6			
EH852060	EH862060	6.0	6	7	54	3
EH852070	EH862070	7.0	8	8	58	3
EH852080	EH862080	8.0	8	9	58	3
EH852090	EH862090	9.0	10	13	66	4
EH852100	EH862100	10.0	10	14	66	4
EH852120	EH862120	12.0	12	16	73	4
EH852140	EH862140	14.0	14	18	75	4
EH852160	EH862160	16.0	16	22	82	4
EH852180	EH862180	18.0	18	24	84	4
EH852200	EH862200	20.0	20	26	92	4
EH852250	EH862250	25.0	25	25	110	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎							◎	◎	○

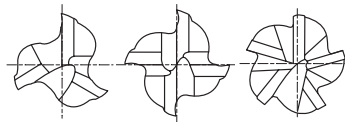


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN

- ▶ Longer flute length than EH852, EH862.
 - ▶ Suitable for low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc.
 - ▶ High velocity milling operation.
 - ▶ Fast chip ejection.
- ▶ Längere Schneiden als bei EH852 und EH862.
 - ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen..
 - ▶ Hochgeschwindigkeitsfräsen.
 - ▶ Schnelle Spanausfuhr.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	h10	h6			
EH831060	EH841060	6.0	6	16	57	3
EH831070	EH841070	7.0	8	16	63	3
EH831080	EH841080	8.0	8	16	63	3
EH831090	EH841090	9.0	10	19	72	4
EH831100	EH841100	10.0	10	22	72	4
EH831120	EH841120	12.0	12	26	83	4
EH831140	EH841140	14.0	14	26	83	4
EH831160	EH841160	16.0	16	32	92	4
EH831180	EH841180	18.0	18	32	92	4
EH831200	EH841200	20.0	20	38	104	4
EH831250	EH841250	25.0	25	45	121	5

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

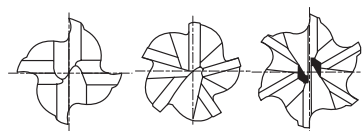
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎							◎	◎	○

CARBIDE, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE
VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen..

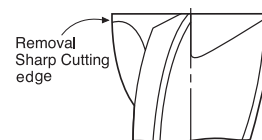


Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	h10	h6			
EH917060	EH918060	6.0	6	7	54	4
EH917080	EH918080	8.0	8	9	58	4
EH917100	EH918100	10.0	10	14	66	4
EH917120	EH918120	12.0	12	16	73	4
EH917160	EH918160	16.0	16	22	82	5
EH917200	EH918200	20.0	20	26	92	6

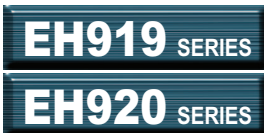
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13



Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	○	○	○							○	○	○

◎ : Excellent ○ : Good



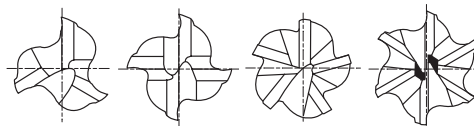
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE 45° HELIX LONG LENGTH ROUGHING - FINE
VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen..

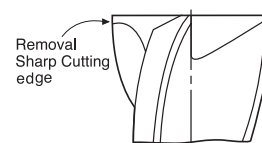


Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	h10	h6			
EH919040	EH920040	4.0	6	11	57	3
EH919050	EH920050	5.0	6	13	57	4
EH919060	EH920060	6.0	6	16	57	4
EH919070	EH920070	7.0	8	16	63	4
EH919080	EH920080	8.0	8	16	63	4
EH919090	EH920090	9.0	10	19	72	4
EH919100	EH920100	10.0	10	22	72	4
EH919120	EH920120	12.0	12	26	83	4
EH919140	EH920140	14.0	14	26	83	5
EH919160	EH920160	16.0	16	32	92	5
EH919200	EH920200	20.0	20	38	104	6
EH919250	EH920250	25.0	25	45	121	6

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13



Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○	○							○	○	○

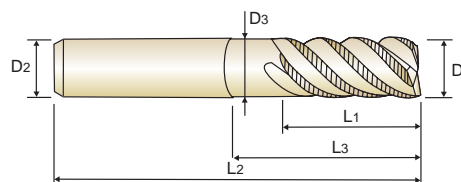
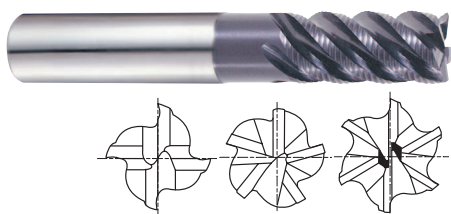
◎ : Excellent ○ : Good

CARBIDE, MULTI FLUTE 45° HELIX LONG REACH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE GROÙE REICHWEITE SCHRUPPFÄRER - FEIN

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials (under HRC45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen..



P.696

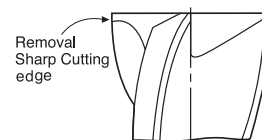
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute
PLAIN	FLAT	D1(h10)	D2(h6)	L1	L3	L2	D3	
EH921060	EH942060	6.0	6	16	20	57	5.5	4
EH921080	EH942080	8.0	8	16	26	63	7.5	4
EH921100	EH942100	10.0	10	22	31	72	9.5	4
EH921120	EH942120	12.0	12	26	37	83	11.5	4
EH921160	EH942160	16.0	16	32	51	100	15.5	5
EH921200	EH942200	20.0	20	38	59	110	19.2	6

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13



Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○	○							○	○	○

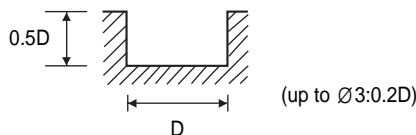
◎ : Excellent ○ : Good



**CARBIDE, 2 FLUTE SHORT - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN KURZ - NUTENFRÄSEN**

EH911, EH912 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY	
HARDNESS	~ HRc30		HRc30 ~ HRc45			
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED		
2.0	11560	190	7560	120	6300	90
3.0	8920	210	5560	140	4620	120
4.0	7560	300	4620	180	3880	150
5.0	6300	320	3780	190	3160	160
6.0	5560	350	3360	220	2840	180
8.0	4200	380	2520	200	2100	180
10.0	3260	330	2000	160	1680	160
12.0	2740	280	1680	130	1360	130
16.0	2200	220	1360	110	1060	110
20.0	1680	170	1060	80	840	80
25.0	1360	130	840	70	680	60

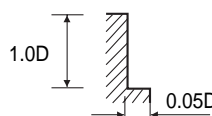


RPM = rev./min.
FEED = mm/min.

**CARBIDE, 4 FLUTE SHORT - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN KURZ - SEITENFRÄSEN**

EH913, EH914 SERIES

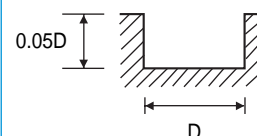
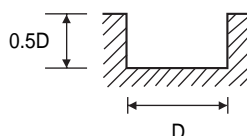
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY	
HARDNESS	~ HRc30		HRc30 ~ HRc45			
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED		
2.0	11560	280	7560	170	6300	140
3.0	8920	320	5560	200	4620	170
4.0	7560	570	4620	350	3880	280
5.0	6300	600	3780	360	3160	300
6.0	5560	660	3360	410	2840	330
8.0	4200	710	2520	380	2100	350
10.0	3260	610	2000	300	1680	300
12.0	2740	520	1680	250	1360	240
16.0	2200	410	1360	200	1060	200
20.0	1680	320	1060	160	840	150
25.0	1360	250	840	130	680	120



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

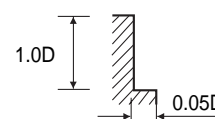
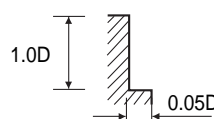
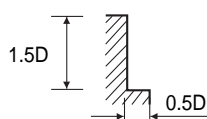
CARBIDE, 3&4 FLUTE 50° HELIX LONG - SLOTTING
VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE LANG - NUTENFRÄSEN
EH830, EH840 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRC30		HRC30 ~ HRC45					
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	5560	310	3360	200	2840	160	1160	40
8.0	4200	340	2520	180	2100	160	840	40
10.0	3260	300	2000	140	1680	140	670	40
12.0	2740	250	1680	120	1370	120	560	30
16.0	2200	200	1360	100	1050	100	420	25
18.0	1940	175	1210	85	950	85	370	20
20.0	1680	150	1060	70	840	70	320	20
25.0	1360	115	840	60	670	60	270	15


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

CARBIDE, 3&4 FLUTE 50° HELIX - SIDE CUTTING
VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE - SEITENFRÄSEN
EH830, EH840 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRC30		HRC30 ~ HRC45					
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	5560	400	3360	250	2840	250	1050	55
8.0	4200	420	2520	230	2100	265	840	50
10.0	3260	370	2000	180	1680	230	680	50
12.0	2740	310	1680	150	1370	180	560	45
16.0	2200	250	1360	120	1050	150	420	35
18.0	1940	220	1210	110	950	130	370	30
20.0	1680	190	1060	95	840	115	340	30
25.0	1360	150	840	75	670	90	270	25


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



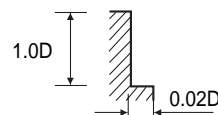
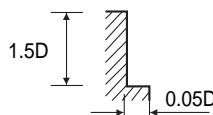
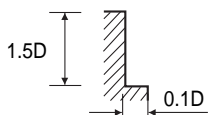
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 6&8 FLUTE 45° HELIX LONG - SIDE CUTTING
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG - SEITENFRÄSEN

EH915, EH916 SERIES

■ NORMAL SPEED

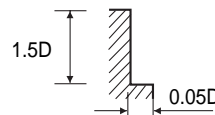
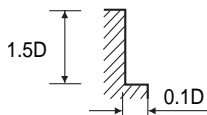
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
	~ HRc30		HRc30 ~ HRc45					
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	5560	2000	3880	1370	3370	1100	1350	280
8.0	4200	2000	2940	1370	2490	1100	1000	280
10.0	3360	2000	2320	1370	1920	1100	440	280
12.0	2840	1680	2000	1160	1610	1000	400	250
16.0	2100	1260	1480	880	1160	770	310	190
20.0	1680	1010	1160	690	900	620	250	155
25.0	1500	900	1100	600	850	540	220	135



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

■ HIGH SPEED

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
	~ HRc30		HRc30 ~ HRc45	
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
6.0	22200	8000	16800	6090
8.0	16800	8000	12600	6090
10.0	13400	8000	9980	5990
12.0	11350	6720	8400	5040
16.0	8400	5040	6300	3780
20.0	6700	4040	5040	3050
25.0	6000	3600	4500	2700



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

PREMIUM HSS-PM, 4&6 FLUTE SHORT- SIDE CUTTING
PREMIUM HSS-PM, 4&6 SCHNEIDEN KURZ - SEITENFRÄSEN
CARBIDE
HSS

 CBN
END MILLS

 i-Xmill
END MILLS

 X5070
END MILLS

 X-POWER
END MILLS

**JET-POWER
END MILLS**

 V7 INOX
END MILLS

 V7 STEEL
END MILLS

 ALU-POWER
END MILLS

 D-POWER
END MILLS

 K-2
END MILLS

 GENERAL
CARBIDE
END MILLS

 TANK-POWER
END MILLS

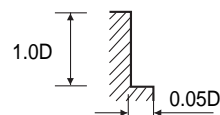
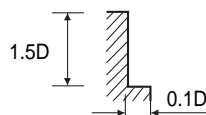
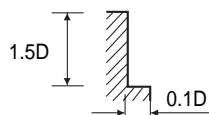
 GENERAL
HSS
END MILLS

 MILLING
CUTTERS

 TECHNICAL
DATA

EE515 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL		
	~ HRc30		HRc30 ~ HRc45		RPM	FEED	RPM	FEED	
HARDNESS	RPM	FEED	RPM	FEED					RPM
DIAMETER									
3.0	4400	185	1100	23	2200	110	880	28	
4.0	3600	210	900	31	1800	125	720	37	
5.0	3000	225	750	30	1500	135	600	36	
6.0	2600	235	600	29	1300	140	480	35	
8.0	2000	250	500	28	1000	150	400	34	
10.0	1600	285	410	30	800	170	330	36	
12.0	1320	250	340	29	660	150	270	35	
14.0	1160	235	290	27	580	140	230	32	
16.0	1000	225	250	26	500	135	200	31	
18.0	900	210	225	23	450	125	180	28	
20.0	800	200	200	17	400	120	160	21	
25.0	640	165	165	15	320	100	130	18	


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

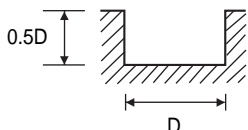


**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**

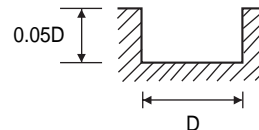
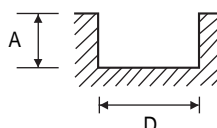
**CARBIDE, MULTI FLUTE ROUGHING - SLOTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFÄRER**

EH917, EH918, EH919, EH920, EH921, EH942, EH852, EH862, EH831, EH841 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRC30		HRC30 ~ HRC45					
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
4.0	23400	2320	18600	840	12600	570	3600	190
6.0	15600	2320	12400	840	8400	570	2400	190
8.0	11600	2320	9200	840	6300	570	1800	180
10.0	9200	2320	7600	840	5100	570	1300	190
12.0	8000	2400	6000	800	4200	570	1200	190
14.0	6800	2400	5200	840	3600	570	900	130
16.0	6000	2400	4800	760	3300	510	800	110
18.0	5200	2320	4400	720	2700	420	700	100
20.0	4800	2160	3600	560	2400	360	660	100
25.0	4300	2150	3200	620	2160	410	600	110



A: $\varnothing 4\text{-}\varnothing 10:0.25 \times D$
 $\varnothing 12\text{-}\varnothing 16:0.15 \times D$
 $\varnothing 18\text{-}\varnothing 25:0.10 \times D$

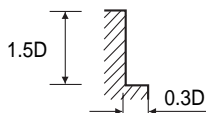


RPM = rev./min.
FEED = mm/min.

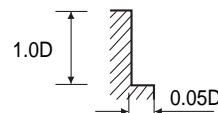
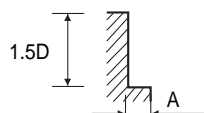
**CARBIDE, MULTI FLUTE ROUGHING - SIDE CUTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFÄRER**

EH917, EH918, EH919, EH920, EH921, EH942, EH852, EH862, EH831, EH841 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOY		INCONEL	
HARDNESS	~ HRC30		HRC30 ~ HRC45					
STRENGTH	1000N/mm ²		1000 ~ 1500N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
4.0	23400	2320	18600	840	12600	570	3600	190
6.0	15600	2320	12400	840	8400	570	2400	190
8.0	11600	2320	9200	840	6300	570	1800	180
10.0	9200	2320	7600	840	5100	570	1300	190
12.0	8000	2400	6000	800	4200	570	1200	190
14.0	6800	2400	5200	840	3600	570	900	130
16.0	6000	2400	4800	760	3300	510	800	110
18.0	5200	2320	4400	720	2700	420	700	100
20.0	4800	2160	3600	560	2400	360	660	100
25.0	4300	2150	3200	620	2160	410	600	110



A: $\varnothing 4\text{-}\varnothing 10:0.15 \times D$
 $\varnothing 12\text{-}\varnothing 16:0.10 \times D$
 $\varnothing 18\text{-}\varnothing 25:0.05 \times D$



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

CARBIDE



Being the best through innovation













V7 Mill INOX

V7 FRÄSER

- Stainless Steels in Heavy and Silent Cutting Materials up to HRc40. Designed as Variable Leads, YG-1's Patent.
- Für rostfreie Stähle in schwerem und ruhigem Schnitt bis zu HRc40. Variable Drallsteigungen. YG-1 Patent

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
METRIC					
EMB41 EMB42		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D3.0	D20.0	700
EMB43 EMB44		CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS	D3.0	D20.0	701
EMB14 EMB39		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.0	D25.0	702
EMB15 EMB40		CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS	D3.0	D25.0	703
EMB74 EMB75		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS	R1.5	R12.5	704
EMB72 EMB73		CARBIDE, 5 FLUTE LONG LENGTH VOLLHARTMETALL, 5 SCHNEIDEN LANG	D6.0	D25.0	705
INCH					
EMB12 EMB37		CARBIDE, 4 FLUTE REGULAR LENGTH VOLLHARTMETALL, 4 SCHNEIDEN STANDARD	D1/8"	D1"	706
EMB13 EMB38		CARBIDE, 4 FLUTE REGULAR LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN STANDARD ECKENRADIUS	D1/8"	D1"	707
EMB78 EMB79		CARBIDE, 4 FLUTE REGULAR LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN STANDARD STIRNRADIUS	R1/16"	R1/2"	708
EMB76 EMB77		CARBIDE, 5 FLUTE REGULAR LENGTH VOLLHARTMETALL, 5 SCHNEIDEN STANDARD	D1/4"	D1"	709
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					710

V7 Mill INOX END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							

○	◎	○								◎	◎	○
○	◎	○								◎	◎	○
○	◎	○								◎	◎	○
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○	◎	○								◎	◎	○
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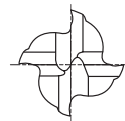
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEDEN KURZ

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : mm

EDP No.		Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT				
EMB41030	EMB42030	3.0	6	7	54
EMB41040	EMB42040	4.0	6	8	54
EMB41050	EMB42050	5.0	6	10	54
EMB41060	EMB42060	6.0	6	10	54
EMB41080	EMB42080	8.0	8	12	58
EMB41100	EMB42100	10.0	10	14	66
EMB41120	EMB42120	12.0	12	16	73
EMB41140	EMB42140	14.0	14	18	75
EMB41160	EMB42160	16.0	16	22	82
EMB41180	EMB42180	18.0	18	24	84
EMB41200	EMB42200	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : mm

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT					
EMB43030	EMB44030	RO.25~RO.38	3.0	6	7	54
EMB43040	EMB44040	RO.25~RO.38	4.0	6	8	54
EMB43050	EMB44050	RO.25~RO.38	5.0	6	10	54
EMB43060	EMB44060	RO.38~RO.51	6.0	6	10	54
EMB43080	EMB44080	RO.38~RO.51	8.0	8	12	58
EMB43100	EMB44100	RO.38~RO.51	10.0	10	14	66
EMB43120	EMB44120	RO.64~RO.76	12.0	12	16	73
EMB43140	EMB44140	RO.64~RO.76	14.0	14	18	75
EMB43160	EMB44160	RO.89~R1.02	16.0	16	22	82
EMB43180	EMB44180	RO.89~R1.02	18.0	18	24	84
EMB43200	EMB44200	RO.89~R1.02	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○



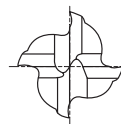
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : mm

EDP No.		Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT				
EMB14030	EMB39030	3.0	6	8	57
EMB14040	EMB39040	4.0	6	11	57
EMB14050	EMB39050	5.0	6	13	57
EMB14060	EMB39060	6.0	6	13	57
EMB14080	EMB39080	8.0	8	19	63
EMB14100	EMB39100	10.0	10	22	72
EMB14120	EMB39120	12.0	12	26	83
EMB14140	EMB39140	14.0	14	26	83
EMB14160	EMB39160	16.0	16	32	92
EMB14180	EMB39180	18.0	18	32	92
EMB14200	EMB39200	20.0	20	38	104
EMB14250	EMB39250	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : mm

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT					
EMB15030	EMB40030	RO.25~RO.38	3.0	6	8	57
EMB15040	EMB40040	RO.25~RO.38	4.0	6	11	57
EMB15050	EMB40050	RO.25~RO.38	5.0	6	13	57
EMB15060	EMB40060	RO.38~RO.51	6.0	6	13	57
EMB15080	EMB40080	RO.38~RO.51	8.0	8	19	63
EMB15100	EMB40100	RO.38~RO.51	10.0	10	22	72
EMB15120	EMB40120	RO.64~RO.76	12.0	12	26	83
EMB15140	EMB40140	RO.64~RO.76	14.0	14	26	83
EMB15160	EMB40160	RO.89~R1.02	16.0	16	32	92
EMB15180	EMB40180	RO.89~R1.02	18.0	18	32	92
EMB15200	EMB40200	RO.89~R1.02	20.0	20	38	104
EMB15250	EMB40250	RO.89~R1.02	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : mm

EDP No.		Radius of Ball Nose R (±0.01)	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT					
EMB74030	EMB75030	R1.5	3.0	6	8	57
EMB74040	EMB75040	R2.0	4.0	6	11	57
EMB74050	EMB75050	R2.5	5.0	6	13	57
EMB74060	EMB75060	R3.0	6.0	6	13	57
EMB74080	EMB75080	R4.0	8.0	8	19	63
EMB74100	EMB75100	R5.0	10.0	10	22	72
EMB74120	EMB75120	R6.0	12.0	12	26	83
EMB74160	EMB75160	R8.0	16.0	16	32	92
EMB74200	EMB75200	R10.0	20.0	20	38	104
EMB74250	EMB75250	R12.5	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

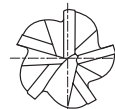
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○

CARBIDE, 5 FLUTE LONG LENGTH VOLLHARTMETALL, 5 SCHNEIDEN LANG

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



MG HM 5 PLAIN FLAT P.711

Unit : mm

EDP No.		Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT				
EMB72060	EMB73060	6.0	6	13	57
EMB72080	EMB73080	8.0	8	19	63
EMB72100	EMB73100	10.0	10	22	72
EMB72120	EMB73120	12.0	12	26	83
EMB72140	EMB73140	14.0	14	26	83
EMB72160	EMB73160	16.0	16	32	92
EMB72180	EMB73180	18.0	18	32	92
EMB72200	EMB73200	20.0	20	38	104
EMB72250	EMB73250	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE REGULAR LENGTH VOLLHARTMETALL, 4 SCHNEIDEN STANDARD

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : inch

EDP No.	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
EMB12008	1/8	1/8	3/8	1-1/2
EMB12010	5/32	3/16	7/16	2
EMB12012	3/16	3/16	7/16	2
EMB12014	7/32	1/4	7/16	2-1/2
EMB12016	1/4	1/4	1/2	2-1/2
EMB12018	9/32	5/16	5/8	2-1/2
EMB12020	5/16	5/16	13/16	2-1/2
EMB12022	EMB37022	11/32	3/8	2-1/2
EMB12024	EMB37024	3/8	3/8	2-1/2
EMB12026	EMB37026	13/32	7/16	2-3/4
EMB12028	EMB37028	7/16	7/16	2-3/4
EMB12030	EMB37030	15/32	1	3
EMB12032	EMB37032	1/2	1	3
EMB12036	EMB37036	9/16	9/16	3-1/2
EMB12040	EMB37040	5/8	5/8	3-1/2
EMB12048	EMB37048	3/4	3/4	4
EMB12064	EMB37064	1	1	4

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
0~-.0012	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE REGULAR LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN STANDARD ECKENRADIUS

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : inch

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT					
EMB13008	-	R.010~R.015	1/8	1/8	3/8	1-1/2
EMB13012	-	R.010~R.015	3/16	3/16	7/16	2
EMB13016	-	R.015~R.020	1/4	1/4	1/2	2-1/2
EMB13020	-	R.015~R.020	5/16	5/16	13/16	2-1/2
EMB13024	EMB38024	R.015~R.020	3/8	3/8	7/8	2-1/2
EMB13028	EMB38028	R.015~R.020	7/16	7/16	1	2-3/4
EMB13032	EMB38032	R.025~R.030	1/2	1/2	1	3
EMB13036	EMB38036	R.025~R.030	9/16	9/16	1-1/8	3-1/2
EMB13040	EMB38040	R.035~R.040	5/8	5/8	1-1/4	3-1/2
EMB13048	EMB38048	R.035~R.040	3/4	3/4	1-1/2	4
EMB13064	EMB38064	R.035~R.040	1	1	1-1/2	4

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
0~-.0012	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE REGULAR LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN STANDARD STIRNRADIUS

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (±0.0004")		h6		
EMB78008	-	R1/16	1/8	1/8	3/8	1-1/2
EMB78010	-	R5/64	5/32	3/16	7/16	2
EMB78012	-	R3/32	3/16	3/16	7/16	2
EMB78016	-	R1/8	1/4	1/4	1/2	2-1/2
EMB78020	-	R5/32	5/16	5/16	13/16	2-1/2
EMB78024	EMB79024	R3/16	3/8	3/8	7/8	2-1/2
EMB78032	EMB79032	R1/4	1/2	1/2	1	3
EMB78040	EMB79040	R5/16	5/8	5/8	1-1/4	3-1/2
EMB78048	EMB79048	R3/8	3/4	3/4	1-1/2	4
EMB78064	EMB79064	R1/2	1	1	1-1/2	4

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
0~-.0012	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○

CARBIDE, 5 FLUTE REGULAR LENGTH
VOLLHARTMETALL, 5 SCHNEIDEN LANG

- ▶ Special flute geometry eliminates vibrations
- ▶ Designed to mild steels, stainless steel, cast iron, tool steels, titanium alloys, prehardened steels and low hardness material under HRc 40
- ▶ Excellent work piece finishes
- ▶ Higher speeds, deeper cuts and metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen



MG HM 5 PLAIN FLAT P.711

Unit : inch

EDP No.		Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
PLAIN	FLAT				
EMB76016	-	1/4	1/4	1/2	2-1/2
EMB76020	-	5/16	5/16	13/16	2-1/2
EMB76024	EMB77024	3/8	3/8	7/8	2-1/2
EMB76032	EMB77032	1/2	1/2	1	3
EMB76036	EMB77036	9/16	9/16	1-1/8	3-1/2
EMB76040	EMB77040	5/8	5/8	1-1/4	3-1/2
EMB76048	EMB77048	3/4	3/4	1-1/2	4
EMB76064	EMB77064	1	1	1-1/2	4

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
0~-.0012	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	○								◎	◎	○

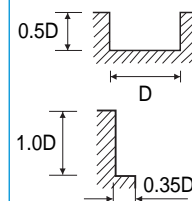
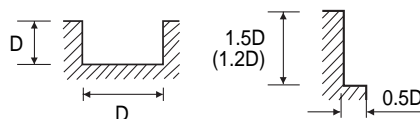


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE
VOLLHARTMETALL, 4 SCHNEIDEN

EMB41, EMB42, EMB43, EMB44, EMB14, EMB39, EMB15, EMB40, EMB12, EMB37, EMB13, EMB38 SERIES

MATERIAL	ALLOY STEELS CAST IRON		ALLOY STEELS CAST IRON		STAINLESS STEELS 300SERIES		STAINLESS STEELS 400SERIES		TITANIUM		INCONEL	
	HARDNESS	~HB 300	HB 300~HB 380	STRENGTH	~1000N/mm ²	1000~1300N/mm ²	DIAMETER	RPM	FEED	RPM	FEED	RPM
3.0	13475	275	9430	190	10185	195	14260	205	10185	205	2715	55
4.0	10105	330	7070	230	7600	250	14260	255	7600	255	2005	55
5.0	8085	370	5660	260	6110	310	8655	310	6110	310	1630	80
6.0	6735	435	4715	385	5095	360	7130	360	5095	360	1355	95
8.0	5050	555	3535	385	3820	435	5345	465	3280	465	1015	125
10.0	4455	690	3115	480	3055	590	4275	585	3055	585	815	155
12.0	3710	695	2600	485	2545	565	3565	565	2545	565	675	150
14.0	3180	620	2225	435	2180	520	3055	520	2180	520	580	140
16.0	2785	590	1950	410	1910	480	2670	480	1910	480	505	130
18.0	2475	585	1730	410	1695	475	2375	475	1695	475	450	125
20.0	2225	580	1560	405	1525	470	2140	470	1525	470	405	125
25.0	1780	450	1245	315	1215	380	1710	380	1215	380	320	110

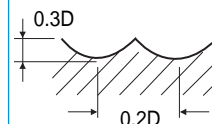
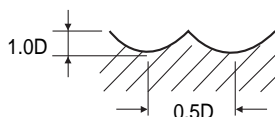


1.2 x D Axial cutting depth should be applied for Short length series DIA over 8mm

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

**CARBIDE, 4 FLUTE BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS**
EMB74, EMB75, EMB78, EMB79 SERIES

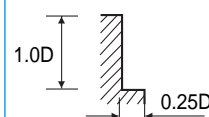
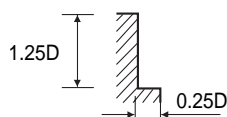
MATERIAL	ALLOY STEELS CAST IRON		STAINLESS STEELS 300SERIES		STAINLESS STEELS 400SERIES		TITANIUM		INCONEL	
HARDNESS	~HB 230									
STRENGTH	~1000N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	14324	1430	8220	650	7420	440	5830	280	3180	140
R2.0 × 4.0	10740	1070	6160	490	5570	330	4370	210	2380	100
R2.5 × 5.0	8590	1030	4930	490	4450	440	3500	210	1910	80
R3.0 × 6.0	7460	1140	4110	670	3710	440	2910	230	1590	100
R4.0 × 8.0	5370	1280	3080	550	2780	440	2180	260	1190	120
R5.0 × 10.0	4290	1030	2460	490	2220	400	1750	210	950	100
R6.0 × 12.0	3580	1000	2050	450	1850	370	1450	230	790	120
R8.0 × 16.0	2680	800	1540	370	1390	300	1090	190	590	110
R9.0 × 18.0	2380	760	1370	350	1230	290	970	190	530	110
R10.0 × 20.0	2140	770	1230	320	1110	260	870	210	470	100
R12.5 × 25.0	1710	680	980	270	890	210	700	190	380	80



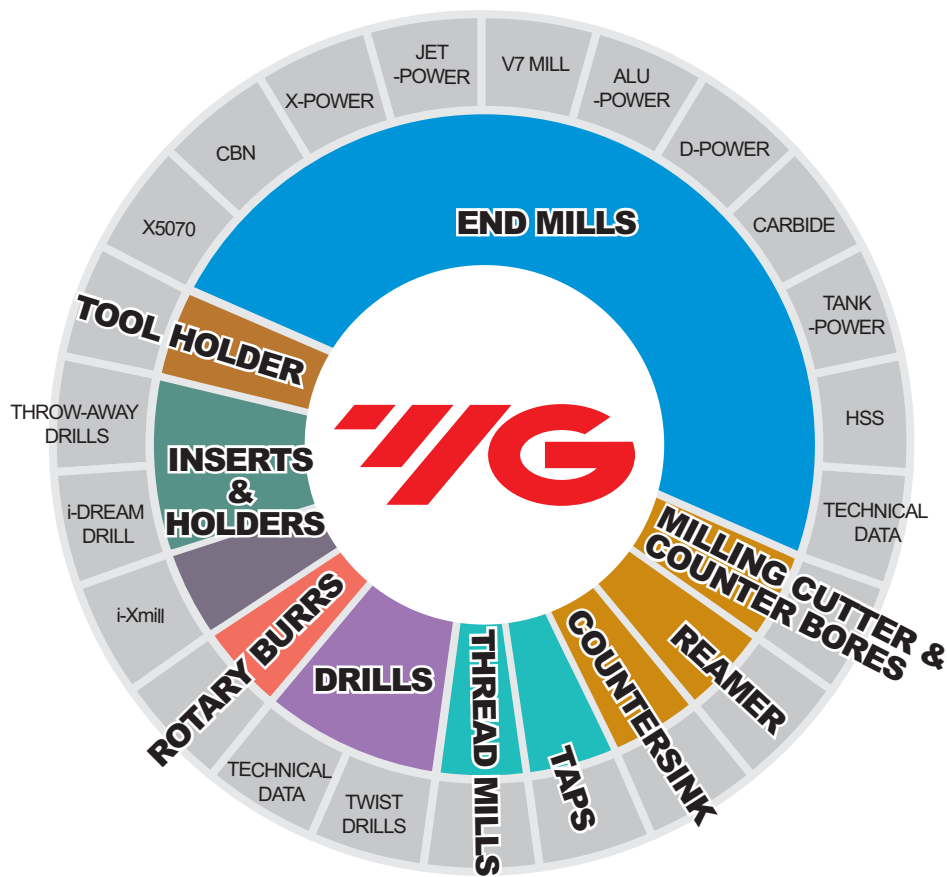
RPM = rev./min.
FEED = mm/min.

**CARBIDE, 5 FLUTE
VOLLHARTMETALL, 5 SCHNEIDEN**
EMB72, EMB73, EMB76, EMB77 SERIES

MATERIAL	ALLOY STEELS CAST IRON		STAINLESS STEELS 300SERIES		STAINLESS STEELS 400SERIES		TITANIUM		INCONEL	
HARDNESS	~HB 230									
STRENGTH	~1000N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	7270	1240	6060	920	5660	860	4440	670	1450	120
8.0	5450	1040	4540	720	4240	670	3330	520	1090	110
10.0	4360	1100	3630	690	3390	640	2660	500	870	110
12.0	3630	1150	3030	960	3830	820	2220	560	720	130
14.0	3110	1080	2600	850	2420	770	1900	540	620	140
16.0	2720	1040	2270	780	2120	720	1660	520	540	130
18.0	2420	1000	2020	710	1880	670	1480	510	480	130
20.0	2180	970	1810	690	1690	640	1330	500	430	130
25.0	1740	880	1450	640	1350	600	1060	470	340	130



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



Challenge toward a Global Leader-
YG-1 Leads the World Market.

CARBIDE



Being the best through innovation



V7 Mill STEEL

V7 FRÄSER

- Steels in Heavy and Silent Cutting Materials up to HRc40. Designed as Unequal Leads.
- Für Stähle in schwerem und ruhigem Schnitt bis zu HRc40. Ungleiche Teilung

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
METRIC					
EMD42 EMD43		CARBIDE, 4 FLUTE MULTIPLE HELIX SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D3.0	D20.0	716
EMD44 EMD45		CARBIDE, 4 FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS	D3.0	D20.0	717
EMD38 EMD39		CARBIDE, 4 FLUTE MULTIPLE HELIX LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.0	D25.0	718
EMD40 EMD41		CARBIDE, 4 FLUTE MULTIPLE HELIX LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS	D3.0	D25.0	719
INCH					
EMD46 EMD47		CARBIDE, 4 FLUTE MULTIPLE HELIX REGULAR LENGTH VOLLHARTMETALL, 4 SCHNEIDEN STANDARD	D1/8"	D1"	720
EMD48 EMD49		CARBIDE, 4 FLUTE MULTIPLE HELIX REGULAR LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN STANDARD ECKENRADIUS	D1/8"	D1"	721
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					722

V7 Mill STEEL END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							

◎	◎	◎	○	○				○				
◎	◎	◎	○	○				○				
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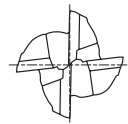
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHEN MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE MULTIPLE HELIX SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Designed to machine mild steels, cast irons, tool steels, and low hardened steels up to HRc 40.
- ▶ Excellent work piece finishes.
- ▶ Higher speeds, deeper cuts, and higher metal removal rates.

- ▶ Besondere Nutenform und variable Drallsteigung verhindern Vibrationen.
- ▶ Für die Bearbeitung von Baustahl, Guss, Werkzeugstahl und niedrig legierten Stählen bis HRc40.
- ▶ Ausgezeichnete Werkstückoberfläche.
- ▶ Höhere Schnittgeschwindigkeit, tieferer Schnitt und größeres Entspannungsvolumen.



MG HM DIN 6527 4 PLAIN FLAT P.722

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EMD42030	EMD43030	3.0	6	5	50
EMD42040	EMD43040	4.0	6	8	54
EMD42050	EMD43050	5.0	6	9	54
EMD42060	EMD43060	6.0	6	10	54
EMD42080	EMD43080	8.0	8	12	58
EMD42100	EMD43100	10.0	10	14	66
EMD42120	EMD43120	12.0	12	16	73
EMD42140	EMD43140	14.0	14	18	75
EMD42160	EMD43160	16.0	16	22	82
EMD42180	EMD43180	18.0	18	24	84
EMD42200	EMD43200	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

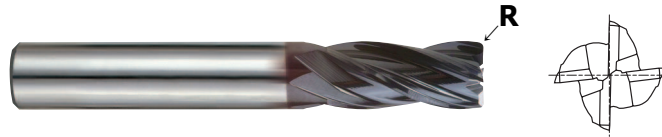
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○				○				

CARBIDE, 4 FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Designed to machine mild steels, cast irons, tool steels, and low hardened steels up to HRC 40.
- ▶ Excellent work piece finishes.
- ▶ Higher speeds, deeper cuts, and higher metal removal rates.

- ▶ Besondere Nutenform und variable Drallsteigung verhindern Vibrationen.
- ▶ Für die Bearbeitung von Baustahl, Guss, Werkzeugstahl und niedrig legierten Stählen bis HRC40.
- ▶ Ausgezeichnete Werkstückoberfläche.
- ▶ Höhere Schnittgeschwindigkeit, tieferer Schnitt und größeres Entspannungsvolumen.



Unit : mm

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT					
EMD44030	EMD45030	RO.3	3.0	6	5	50
EMD44040	EMD45040	RO.3	4.0	6	8	54
EMD44050	EMD45050	RO.3	5.0	6	9	54
EMD44060	EMD45060	RO.4	6.0	6	10	54
EMD44080	EMD45080	RO.4	8.0	8	12	58
EMD44100	EMD45100	RO.4	10.0	10	14	66
EMD44120	EMD45120	RO.6	12.0	12	16	73
EMD44140	EMD45140	RO.6	14.0	14	18	75
EMD44160	EMD45160	RO.8	16.0	16	22	82
EMD44180	EMD45180	RO.8	18.0	18	24	84
EMD44200	EMD45200	RO.8	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○				○				



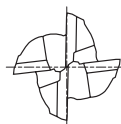
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHEN MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE MULTIPLE HELIX LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Designed to machine mild steels, cast irons, tool steels, and low hardened steels up to HRc 40.
- ▶ Excellent work piece finishes.
- ▶ Higher speeds, deeper cuts, and higher metal removal rates.

- ▶ Besondere Nutenform und variable Drallsteigung verhindern Vibrationen.
- ▶ Für die Bearbeitung von Baustahl, Guss, Werkzeugstahl und niedrig legierten Stählen bis HRc40.
- ▶ Ausgezeichnete Werkstückoberfläche.
- ▶ Höhere Schnittgeschwindigkeit, tieferer Schnitt und größeres Entspannungsvolumen.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EMD38030	EMD39030	3.0	6	8	57
EMD38040	EMD39040	4.0	6	11	57
EMD38050	EMD39050	5.0	6	13	57
EMD38060	EMD39060	6.0	6	13	57
EMD38080	EMD39080	8.0	8	19	63
EMD38100	EMD39100	10.0	10	22	72
EMD38120	EMD39120	12.0	12	26	83
EMD38140	EMD39140	14.0	14	26	83
EMD38160	EMD39160	16.0	16	32	92
EMD38180	EMD39180	18.0	18	32	92
EMD38200	EMD39200	20.0	20	38	104
EMD38250	EMD39250	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○	○	○				○				

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE MULTIPLE HELIX LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Designed to machine mild steels, cast irons, tool steels, and low hardened steels up to HRC 40.
- ▶ Excellent work piece finishes.
- ▶ Higher speeds, deeper cuts, and higher metal removal rates.

- ▶ Besondere Nutenform und variable Drallsteigung verhindern Vibrationen.
- ▶ Für die Bearbeitung von Baustahl, Guss, Werkzeugstahl und niedrig legierten Stählen bis HRC40.
- ▶ Ausgezeichnete Werkstückoberfläche.
- ▶ Höhere Schnittgeschwindigkeit, tieferer Schnitt und größeres Entspannungsvolumen.



P.722

Unit : mm

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT					
EMD40030	EMD41030	RO.3	3.0	6	8	57
EMD40040	EMD41040	RO.3	4.0	6	11	57
EMD40050	EMD41050	RO.3	5.0	6	13	57
EMD40060	EMD41060	RO.4	6.0	6	13	57
EMD40080	EMD41080	RO.4	8.0	8	19	63
EMD40100	EMD41100	RO.4	10.0	10	22	72
EMD40120	EMD41120	RO.6	12.0	12	26	83
EMD40140	EMD41140	RO.6	14.0	14	26	83
EMD40160	EMD41160	RO.8	16.0	16	32	92
EMD40180	EMD41180	RO.8	18.0	18	32	92
EMD40200	EMD41200	RO.8	20.0	20	38	104
EMD40250	EMD41250	RO.8	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	◎	○	○				○				



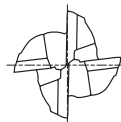
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHEN MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE MULTIPLE HELIX REGULAR LENGTH VOLLHARTMETALL, 4 SCHNEIDEN STANDARD

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Designed to machine mild steels, cast irons, tool steels, and low hardened steels up to HRc 40.
- ▶ Excellent work piece finishes.
- ▶ Higher speeds, deeper cuts, and higher metal removal rates.

- ▶ Besondere Nutenform und variable Drallsteigung verhindern Vibrationen.
- ▶ Für die Bearbeitung von Baustahl, Guss, Werkzeugstahl und niedrig legierten Stählen bis HRc40.
- ▶ Ausgezeichnete Werkstückoberfläche.
- ▶ Höhere Schnittgeschwindigkeit, tieferer Schnitt und größeres Entspannungsvolumen.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EMD46008	-	1/8	1/8	3/8	1-1/2
EMD46010	-	5/32	3/16	7/16	2
EMD46012	-	3/16	3/16	7/16	2
EMD46014	-	7/32	1/4	7/16	2-1/2
EMD46016	-	1/4	1/4	1/2	2-1/2
EMD46018	-	9/32	5/16	5/8	2-1/2
EMD46020	-	5/16	5/16	13/16	2-1/2
EMD46022	EMD47022	11/32	3/8	13/16	2-1/2
EMD46024	EMD47024	3/8	3/8	7/8	2-1/2
EMD46026	EMD47026	13/32	7/16	15/16	2-3/4
EMD46028	EMD47028	7/16	7/16	1	2-3/4
EMD46030	EMD47030	15/32	1/2	1	3
EMD46032	EMD47032	1/2	1/2	1	3
EMD46036	EMD47036	9/16	9/16	1-1/8	3-1/2
EMD46040	EMD47040	5/8	5/8	1-1/4	3-1/2
EMD46048	EMD47048	3/4	3/4	1-1/2	4
EMD46064	EMD47064	1	1	1-1/2	4

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance(inch)
0 ~ -.0012	0 ~ -.0003

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○				○				

CARBIDE, 4 FLUTE MULTIPLE HELIX REGULAR LENGTH CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN STANDARD ECKENRADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Designed to machine mild steels, cast irons, tool steels, and low hardened steels up to HRc 40.
- ▶ Excellent work piece finishes.
- ▶ Higher speeds, deeper cuts, and higher metal removal rates.

- ▶ Besondere Nutenform und variable Drallsteigung verhindern Vibrationen.
- ▶ Für die Bearbeitung von Baustahl, Guss, Werkzeugstahl und niedrig legierten Stählen bis HRc40.
- ▶ Ausgezeichnete Werkstückoberfläche.
- ▶ Höhere Schnittgeschwindigkeit, tieferer Schnitt und größeres Entspannungsvolumen.



Unit : inch

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT					
EMD48008	-	R.010	1/8	1/8	3/8	1-1/2
EMD48012	-	R.010	3/16	3/16	7/16	2
EMD48016	-	R.015	1/4	1/4	1/2	2-1/2
EMD48020	-	R.015	5/16	5/16	13/16	2-1/2
EMD48024	EMD49024	R.015	3/8	3/8	7/8	2-1/2
EMD48028	EMD49028	R.015	7/16	7/16	1	2-3/4
EMD48032	EMD49032	R.025	1/2	1/2	1	3
EMD48036	EMD49036	R.025	9/16	9/16	1-1/8	3-1/2
EMD48040	EMD49040	R.035	5/8	5/8	1-1/4	3-1/2
EMD48048	EMD49048	R.035	3/4	3/4	1-1/2	4
EMD48064	EMD49064	R.035	1	1	1-1/2	4

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance(inch)
0 ~ -.0012	0 ~ -.0003

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○				○				



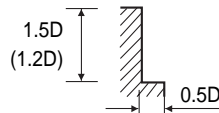
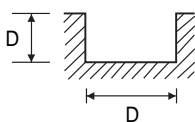
**V7 Mill STEEL
END MILLS**

**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**

**CARBIDE, 4 FLUTE
VOLLHARTMETALL, 4 SCHNEIDEN**

EMD42, EMD43, EMD44, EMD45, EMD38, EMD39, EMD40, EMD41, EMD46, EMD47, EMD48, EMD49 SERIES

MATERIAL	ALLOY STEELS CAST IRON		ALLOY STEELS CAST IRON	
HARDNESS	~ HB 300		HB 300 ~ HB 380	
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
3.0	13475	275	9430	190
4.0	10105	330	7070	230
5.0	8085	370	5660	260
6.0	6735	435	4715	305
8.0	5050	555	3535	385
10.0	4455	690	3115	480
12.0	3710	695	2600	485
14.0	3180	620	2225	435
16.0	2785	590	1950	410
18.0	2475	585	1730	410
20.0	2225	580	1560	405
25.0	1780	450	1245	315



* () : Short length Type

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

CARBIDE



Being the best through innovation



ALU-POWER

ALU-POWER FRÄSER

- Aluminium Alloys and Silent Cutting
- Für Aluminiumlegierungen in schwerem und ruhigem Schnitt

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
EG930		CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS TiCN COATED VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS TiCN-BESCHICHTET	D2.0	D20.0	726
E5522 E5521		CARBIDE, 2 FLUTE 45° HELIX VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE	D3.0	D20.0	727
EG909		CARBIDE, 2 FLUTE CORNER RADIUS TiCN COATED VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS TiCN-BESCHICHTET	D4.0	D20.0	728
EG910		CARBIDE, 2 FLUTE 50° HELIX BALL NOSE TiCN COATED VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET	R3.0	R10.0	729
EG908		CARBIDE, 3 FLUTE 40° HELIX BALL NOSE TiCN COATED VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET	R1.0	R8.0	730
EP922 EP923		PREMIUM HSS-PM, 3 FLUTE 42° HELIX SHORT LENGTH ROUGHING TiAIN COATED PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE KURZ SCHRUPPFRÄSER TiAIN-BESCHICHTET	D12.0	D32.0	731
EP924 EP925		PREMIUM HSS-PM, 3 FLUTE 42° HELIX LONG LENGTH ROUGHING TiAIN COATED PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE LANG SCHRUPPFRÄSER TiAIN-BESCHICHTET	D12.0	D32.0	732
RECOMMENDED CUTTING CONDITIONS EMPFOLGENE SCHNEIDKONDITIONEN					733

ALU-POWER END MILLS

◎ : Excellent, ○ : Good

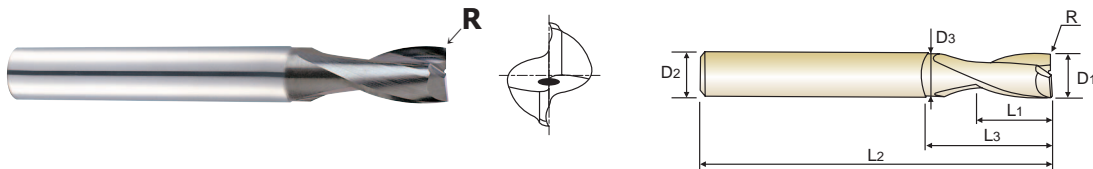
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○			◎			
						○			◎			
						○			◎			
						○			◎			
						○			◎			
						○		○	◎			
						○		○	◎			



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS TiCN-BESCHICHTET

- ▶ Designed for the machining aluminum and its alloys, non-ferrous materials.
- ▶ Increased tool life and higher cutting accuracy.
- ▶ Maximum-stock removal, chip ejection, stability.
- ▶ Corner Radius for avoiding the chipping.
- ▶ Geeignet zum Fräsen von Aluminium, Aluminiumlegierungen und NE-Metallen.
- ▶ Höhere standzeit und höhere Schneidgenauigkeit.
- ▶ Sehr gute Spanabfuhr.
- ▶ Eckenradius zur Vermeidung von Abbröckelungen.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R	D1	D2	L1	L3	L2	D3
EG930020	RO.2	2.0	3	3	6	40	1.9
EG930030	RO.2	3.0	3	4	8	40	2.9
EG930040	RO.2	4.0	4	5	12	50	3.8
EG930050	RO.2	5.0	5	8	14	50	4.8
EG930060	RO.2	6.0	6	8	18	65	5.7
EG930080	RO.2	8.0	8	10	22	70	7.7
EG930100	RO.2	10.0	10	14	28	80	9.7
EG930120	RO.2	12.0	12	16	35	90	11.5
EG930160	RO.2	16.0	16	20	40	90	15.5
EG930200	RO.2	20.0	20	25	50	100	19.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○			◎			

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE 45° HELIX VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE

► Suitable for high speed machining in aluminum and other non-ferrous materials, excellent surface finishes, superior chip removal.

► Zur HSC-Bearbeitung von Aluminium und anderen Nichteisenmetallen.



P.734

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
E5522030	E5521030	3.0	6	8	57
E5522040	E5521040	4.0	6	11	57
E5522050	E5521050	5.0	6	13	57
E5522060	E5521060	6.0	6	13	57
E5522080	E5521080	8.0	8	19	63
E5522100	E5521100	10.0	10	22	72
E5522120	E5521120	12.0	12	26	83
E5522140	E5521140	14.0	14	26	83
E5522160	E5521160	16.0	16	32	92
E5522180	E5521180	18.0	18	32	92
E5522200	E5521200	20.0	20	38	104

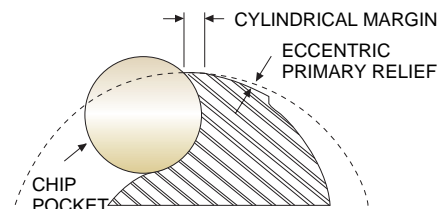
► TiN, TiCN - coating & TiAlN - coating is available on your request.



- High performance in machining aluminum and non-ferrous materials
- Special designed geometry with high rigidity cutting edge
- Improved surface roughness - cylindrical margin which is controlled tightly.
- Excellent chip removal - higher rake angle, higher helix angle(45°), bigger chip pocket.

- Corner radius, Corner chamfer, Neck design is available on your request.
- TiN, TiCN & TiAlN coating is available on your request.

	UNCOATED	TiN	TiCN	TiAlN
PLAIN SHANK	E5522	E6522	EG522	EH522
FLAT SHANK	E5521	E6521	EG521	EH521



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○			◎			

◎ : Excellent ○ : Good

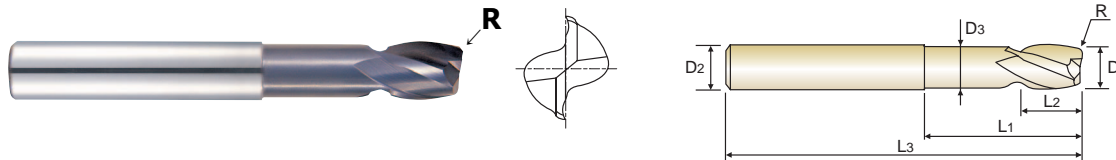


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS TiCN-BESCHICHTET

- ▶ Excellent cutting qualities on stainless steel, Aluminum, copper.
- ▶ Increased tool life and higher cutting accuracy.

- ▶ Zur Bearbeitung von Aluminium und anderen Nichteisenmetallen sowie rostfreien Stählen.
- ▶ Höhere standzeit und höhere Schneidgenauigkeit.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length Below Shank	Length of Cut	Overall Length	Neck Diameter
PLAIN	R	D	D2	L1	L2	L3	D3
EG909040	RO.3	4.0	6	10	5	50	3.6
EG909060	RO.5	6.0	6	20	8	60	5.4
EG909080	RO.6	8.0	8	30	10	70	7.2
EG909100	RO.8	10.0	10	36	12	80	9
EG909120	R1.0	12.0	12	40	14	90	11
EG909160	R1.3	16.0	16	45	18	100	14.5
EG909200	R1.6	20.0	20	45	24	100	18

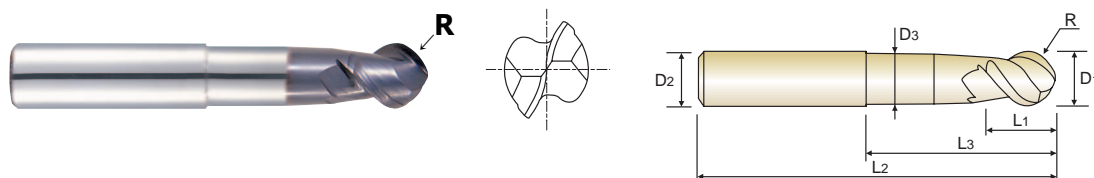
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○			◎			

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE 50° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

- ▶ Excellent cutting qualities on stainless steel, Aluminum, copper.
- ▶ Increased tool life and higher cutting accuracy.
- ▶ Zur Bearbeitung von Aluminium und anderen Nichteisenmetallen sowie rostfreien Stählen.
- ▶ Höhere standzeit und höhere Schneidgenauigkeit.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EG910060	R3.0	6.0	6	5.5	25	55	5.4
EG910080	R4.0	8.0	8	7	30	65	7.2
EG910100	R5.0	10.0	10	8.5	35	75	9
EG910120	R6.0	12.0	12	10.5	40	75	11
EG910160	R8.0	16.0	16	14	50	90	14.5
EG910200	R10.0	20.0	20	17	50	100	18

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
±0.02	h6

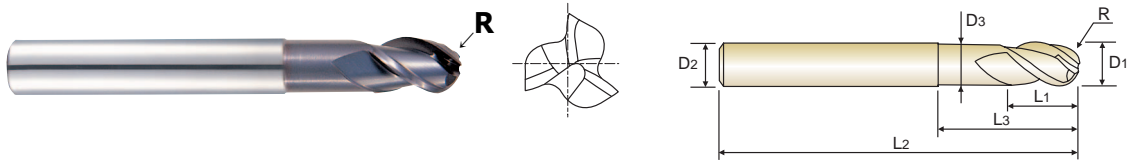
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○			◎			



CARBIDE, 3 FLUTE 40° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

- ▶ Excellent cutting qualities on stainless steel, Aluminum, copper.
- ▶ Increased tool life and higher cutting accuracy.
- ▶ Zur Bearbeitung von Aluminium und anderen Nichteisenmetallen sowie rostfreien Stählen.
- ▶ Höhere standzeit und höhere Schneidgenauigkeit.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EG908020	R1.0	2.0	6	3	5	60	1.9
EG908025	R1.25	2.5	6	4	6	60	2.4
EG908030	R1.5	3.0	6	4.5	6.5	60	2.8
EG908035	R1.75	3.5	6	5	7	65	3.2
EG908040	R2.0	4.0	6	6	8	65	3.7
EG908050	R2.5	5.0	6	7.5	10	65	4.6
EG908060	R3.0	6.0	6	9	12	75	5.6
EG908080	R4.0	8.0	8	12	25	75	7.4
EG908100	R5.0	10.0	10	15	30	80	9.4
EG908120	R6.0	12.0	12	18	36	90	11.4
EG908160	R8.0	16.0	16	24	40	100	15.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

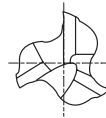
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○			◎			

◎ : Excellent ○ : Good

PREMIUM HSS-PM, 3 FLUTE 42° HELIX ROUGHING SHORT LENGTH TiAlN COATED
PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE SCHRUPPFRÄSER KURZ TiAlN-BESCHICHTET

- ▶ Maximum stock removal rates at High Speed Condition.
- ▶ Reduces vibrations and improves surface roughness.

- ▶ Sehr gute Spanabfuhr auch bei Hochgeschwindigkeitsfräsen.
- ▶ Reduziert Vibrieren und verbessert Oberflächenrauheit.



Unit : mm

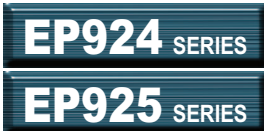
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	js12	h6		
EP922120	EP923120	12.0	12	26	83
EP922140	EP923140	14.0	12	26	83
EP922160	EP923160	16.0	16	32	92
EP922180	EP923180	18.0	16	32	92
EP922200	EP923200	20.0	20	38	104
EP922220	EP923220	22.0	20	38	104
EP922250	EP923250	25.0	25	45	121
EP922280	EP923280	28.0	25	45	121
EP922320	EP923320	32.0	32	53	133

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
						○		○	◎			



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE 42° HELIX ROUGHING LONG LENGTH TiAIN COATED
PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE SCHRUPPFÄSER LANG TiAIN-BESCHICHTET

- ▶ Maximum stock removal rates at High Speed Condition.
- ▶ Reduces vibrations and improves surface roughness.

- ▶ Sehr gute Spanabfuhr auch bei Hochgeschwindigkeitfräsen.
- ▶ Reduziert Vibrieren und verbessert Oberflächenrauheit.



EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	js12	h6		
EP924120	EP925120	12.0	12	53	110
EP924140	EP925140	14.0	12	53	110
EP924160	EP925160	16.0	16	63	123
EP924180	EP925180	18.0	16	63	123
EP924200	EP925200	20.0	20	75	141
EP924220	EP925220	22.0	20	75	141
EP924250	EP925250	25.0	25	90	166
EP924280	EP925280	28.0	25	90	166
EP924320	EP925320	32.0	32	106	186

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

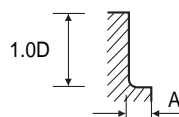
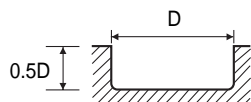
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○		○	◎			

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS TiCN-BESCHICHTET

EG930 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
	DIAMETER	RPM	FEED	FEED
3.0	13000	900	13000	1200
4.0	13000	1200	13000	1400
5.0	13000	1300	13000	1700
6.0	13000	1500	13000	2000
8.0	10000	1800	10000	2300
10.0	10000	2200	10000	2700
12.0	10000	2700	10000	3400
16.0	8000	2500	8000	3100
20.0	5000	2000	5000	2500



A : $\varnothing 3 \sim \varnothing 10 = 0.25 \times D$
 $\varnothing 12 \sim \varnothing 20 = 0.5 \times D$

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

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

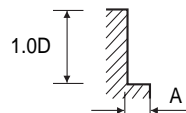
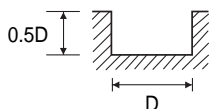


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE 45° HELIX
VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE

E5522, E5521 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3.0	10000	700	10000	900
4.0	10000	900	10000	1100
5.0	10000	1000	10000	1300
6.0	10000	1200	10000	1500
8.0	8000	1400	8000	1800
10.0	8000	1700	8000	2100
12.0	8000	2100	8000	2600
14.0	6000	1800	6000	2200
16.0	6000	1900	6000	2400
18.0	4000	1400	4000	1800
20.0	4000	1600	4000	1900



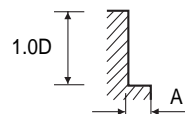
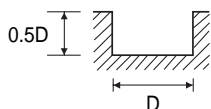
A : $\varnothing 3 \sim \varnothing 10 = 0.25 \times D$
 $\varnothing 12 \sim \varnothing 20 = 0.5 \times D$

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

CARBIDE, 2 FLUTE 45° HELIX TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE TiCN-BESCHICHTET

EG522, EG521 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3.0	13000	900	13000	1200
4.0	13000	1200	13000	1400
5.0	13000	1300	13000	1700
6.0	13000	1500	13000	2000
8.0	10000	1800	10000	2300
10.0	10000	2200	10000	2700
12.0	10000	2700	10000	3400
14.0	8000	2300	8000	2800
16.0	8000	2500	8000	3100
18.0	5000	1800	5000	2300
20.0	5000	2000	5000	2500



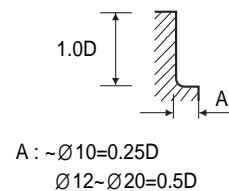
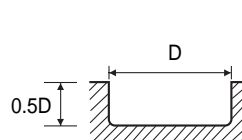
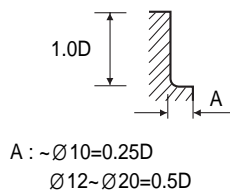
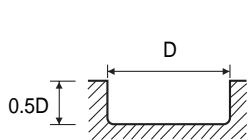
A : $\varnothing 3 \sim \varnothing 10 = 0.25 \times D$
 $\varnothing 12 \sim \varnothing 20 = 0.5 \times D$

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

CARBIDE, 2 FLUTE CORNER RADIUS TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS TiCN-BESCHICHTET

EG909 SERIES

MATERIAL	ALUMINUM ALUMINUM ALLOY				COPPER ALLOY			
	DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM
4.0	13000	1200	13000	1400	3900	300	3900	350
6.0	13000	1500	13000	2000	3900	380	3900	500
8.0	10000	1800	10000	2300	3000	450	3000	580
10.0	10000	2200	10000	2700	3000	550	3000	680
12.0	10000	2700	10000	3400	3000	680	3000	850
16.0	8000	2500	8000	3100	2400	630	2400	780
20.0	5000	2000	5000	2500	1500	500	1500	630

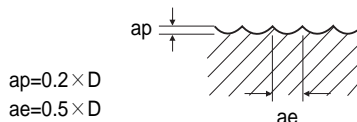


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE 50° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

EG910 SERIES

MATERIAL	ALUMINUM ALUMINUM ALLOY		COPPER ALLOY	
	DIAMETER	RPM	FEED	RPM
R3.0 × 6.0	18000	1750	5500	440
R4.0 × 8.0	14000	2000	4200	500
R5.0 × 10.0	14000	2350	4200	580
R6.0 × 12.0	14000	3000	4200	750
R8.0 × 16.0	11000	2700	3300	670
R10.0 × 20.0	7000	2200	2100	550



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

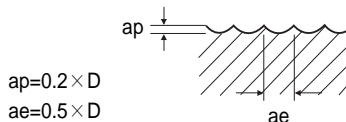


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 40° HELIX BALL NOSE TiCN COATED
VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS TiCN-BESCHICHTET

EG908 SERIES

MATERIAL	ALUMINUM LOW SILICON ALUMINUM		COPPER ALLOY		
	DIAMETER	RPM	FEED	RPM	FEED
R1.0 × 2.0		27000	950	8000	240
R1.25 × 2.5		22000	950	6500	240
R1.5 × 3.0		18000	950	5500	240
R2.0 × 4.0		18000	1250	5500	310
R2.5 × 5.0		18000	1350	5500	340
R3.0 × 6.0		18000	1750	5500	440
R4.0 × 8.0		14000	2000	4200	500
R5.0 × 10.0		14000	2350	4200	580
R6.0 × 12.0		14000	3000	4200	750
R8.0 × 16.0		11000	2700	3300	670

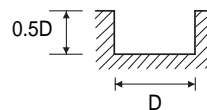
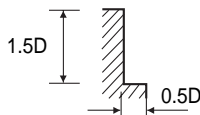


RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 3 FLUTE 42° HELIX ROUGHING TiAIN COATED
PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE SCHRUPPFÄRÄSER TiAIN-BESCHICHTET

EP922, EP923, EP924, EP925 SERIES

MATERIAL	ALUMINUM ALUMINUM ALLOY			
	DIAMETER	RPM	FEED	RPM
12.0	2800	550	2800	410
16.0	2200	625	2200	465
20.0	1700	700	1700	525
25.0	1400	625	1400	465
32.0	1100	700	1100	525



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

CARBIDE



Being the best through innovation










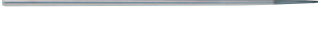
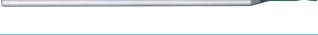

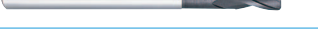


D-POWER

D-POWER FRÄSER

- D-Power for Graphites.
Economy type for Low Silicon Aluminium and Copper Alloys.
- Für Graphit.
Wirtschaftlicher Einsatz bei Aluminium mit geringem Silizium-Anteil und Kupferlegierungen.

SELECTION GUIDE

DIAMOND COATED CARBIDE END MILLS for GRAPHITE DIAMANT - BECHICHTET FRÄSER für GRAPHIT

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
EI997		CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS	R0.1	R3.0	742
EIB93		CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS	R0.2	R2.0	744
EI880		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R6.0	745
EI451		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R6.0	746
EI450		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS	R1.0	R6.0	747
EI881		CARBIDE, 3 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 3 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R6.0	748
EIB04		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D0.5	D12.0	749
EIB87		CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	R0.5	R1.0	750
EI996		CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS	D0.2	D6.0	751
EIB86		CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	D1.0	D2.0	753
EIB88		CARBIDE, 4 FLUTE CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS	D6.0	D12.0	754
EIA13		CARBIDE, 3 FLUTE 40° HELIX SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE KURZ ECKENRADIUS	D2.0	D12.0	755
EIA14		CARBIDE, 3 FLUTE 40° HELIX LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE LANG ECKENRADIUS	D2.0	D12.0	756














D-POWER END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55	HRc55~70							
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70		◎		○			
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							◎		○			

SELECTION GUIDE

D-POWER ECONOMY DIAMOND COATED CARBIDE END MILLS D-POWER KOSTENGÜNSTIGE DIAMANT-BECHICHTET FRÄSER

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
GEB46		CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS	R0.1	R3.0	757
GE944		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R6.0	759
GE945		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R6.0	760
GE946		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS	R1.0	R6.0	761
GE947		CARBIDE, 3 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 3 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R6.0	762
GE927		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D0.5	D12.0	763
GEB02		CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	R0.5	R1.0	764
GEB45		CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS	D0.2	D6.0	765
GEB01		CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	D1.0	D2.0	767
GEB03		CARBIDE, 4 FLUTE CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS	D6.0	D12.0	768
GE926		CARBIDE, 2 FLUTE 45° HELIX VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE	D1.0	D20.0	769
GE928		CARBIDE, 3 FLUTE 40° HELIX SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE KURZ ECKENRADIUS	D2.0	D12.0	770
GE929		CARBIDE, 3 FLUTE 40° HELIX LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE LANG ECKENRADIUS	D2.0	D12.0	771
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					772

D-POWER END MILLS



◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55	HRc55~70							
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70	◎	○		◎			
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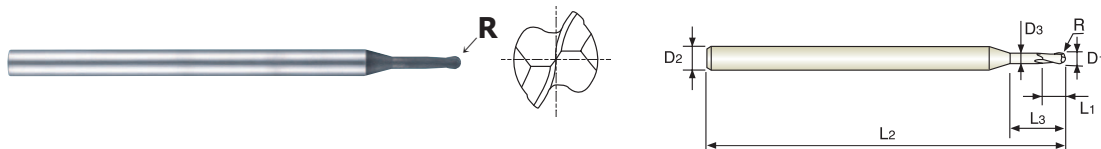


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

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Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI997002000040	RO.1	0.2	3	0.2	-	40	-
EI997003000040	RO.15	0.3	3	0.3	-	40	-
EI997004000040	RO.2	0.4	3	0.4	-	40	-
EI997005025040	RO.25	0.5	3	0.5	2.5	40	0.45
EI997006	RO.3	0.6	3	0.6	3	40	0.55
EI997006050040	RO.3	0.6	3	0.6	5	40	0.55
EI997008	RO.4	0.8	3	0.8	4	40	0.75
EI997008070040	RO.4	0.8	3	0.8	7	40	0.75
EI997010	RO.5	1.0	3	1	5	40	0.95
EI997903	RO.5	1.0	3	1	8.5	40	0.95
EI997010120040	RO.5	1.0	3	1	12	40	0.95
EI997012	RO.6	1.2	3	1.2	6	50	1.15
EI997012100050	RO.6	1.2	3	1.2	10	50	1.15
EI997015	RO.75	1.5	3	1.5	7.5	50	1.4
EI997906	RO.75	1.5	3	1.5	12	50	1.4
EI997015180050	RO.75	1.5	3	1.5	18	50	1.4
EI997020	R1.0	2.0	3	2.2	10	60	1.9
EI997908	R1.0	2.0	3	2.2	16	60	1.9
EI997020250060	R1.0	2.0	3	2.2	25	60	1.9
EI997030100065	R1.5	3.0	4	3	10	65	2.9
EI997030150065	R1.5	3.0	4	3	15	65	2.9
EI997030200065	R1.5	3.0	4	3	20	65	2.9
EI997030250075	R1.5	3.0	4	3	25	75	2.9
EI997030300075	R1.5	3.0	4	3	30	75	2.9
EI997040200065	R2.0	4.0	6	4	20	65	3.9
EI997040300075	R2.0	4.0	6	4	30	75	3.9
EI997040400090	R2.0	4.0	6	4	40	90	3.9

◎ : Excellent ○ : Good

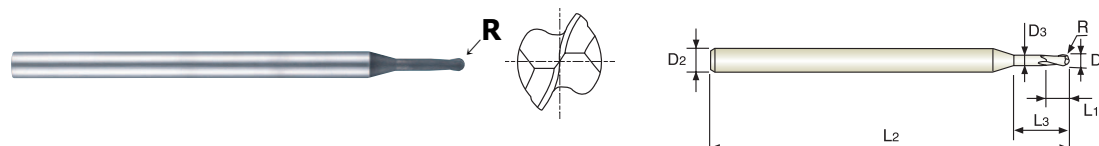
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

CARBIDE, 2 FLUTE MINIATURE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

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Unit : mm

EDP No.	Radius of Ball Nose R (±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EI997050200065	R2.5	5.0	6	5	20	65	4.9
EI997050300075	R2.5	5.0	6	5	30	75	4.9
EI997050400090	R2.5	5.0	6	5	40	90	4.9
EI997050500090	R2.5	5.0	6	5	50	90	4.9
EI997060300075	R3.0	6.0	6	6	30	75	5.9
EI997060400090	R3.0	6.0	6	6	40	90	5.9
EI997060500090	R3.0	6.0	6	6	50	90	5.9
EI997060600100	R3.0	6.0	6	6	60	100	5.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

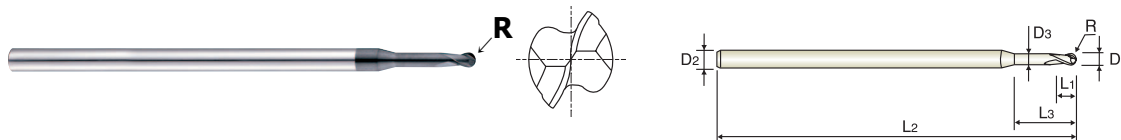


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

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Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EIB93004040	RO.2	0.4	4	0.6	4	45	0.36
EIB93004060	RO.2	0.4	4	0.6	6	45	0.36
EIB93006040	RO.3	0.6	4	1	4	45	0.56
EIB93006060	RO.3	0.6	4	1	6	45	0.56
EIB93006080	RO.3	0.6	4	1	8	45	0.56
EIB93010060	RO.5	1.0	4	1.5	6	45	0.95
EIB93010080	RO.5	1.0	4	1.5	8	45	0.95
EIB93010120	RO.5	1.0	4	1.5	12	45	0.95
EIB93015120	RO.75	1.5	4	1.75	12	45	1.45
EIB93020080	R1.0	2.0	4	3	8	60	1.95
EIB93020120	R1.0	2.0	4	3	12	60	1.95
EIB93020160	R1.0	2.0	4	3	16	60	1.95
EIB93040160	R2.0	4.0	4	6	16	60	3.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70		◎		○			

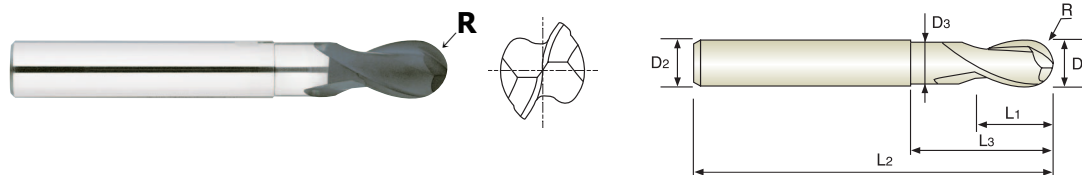
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

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Unit : mm

EDP No.	Radius of Ball Nose R (±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EI880020	R1.0	2.0	6	3	5	60	1.9
EI880025	R1.25	2.5	6	4	6	60	2.4
EI880030	R1.5	3.0	6	4.5	6.5	60	2.8
EI880035	R1.75	3.5	6	5	7	65	3.2
EI880040	R2.0	4.0	6	6	8	65	3.7
EI880050	R2.5	5.0	6	7.5	10	65	4.6
EI880060	R3.0	6.0	6	9	12	75	5.6
EI880080	R4.0	8.0	8	12	25	75	7.4
EI880100	R5.0	10.0	10	15	30	80	9.4
EI880120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

- CARBIDE
- HSS
- CBN END MILLS
- i-Xmill END MILLS
- X5070 END MILLS
- X-POWER END MILLS
- JET-POWER END MILLS
- V7 Mill INOX END MILLS
- V7 Mill STEEL END MILLS
- ALU-POWER END MILLS
- D-POWER END MILLS
- K-2 CARBIDE END MILLS
- GENERAL CARBIDE END MILLS
- TANK-POWER END MILLS
- GENERAL HSS END MILLS
- MILLING CUTTERS
- TECHNICAL DATA

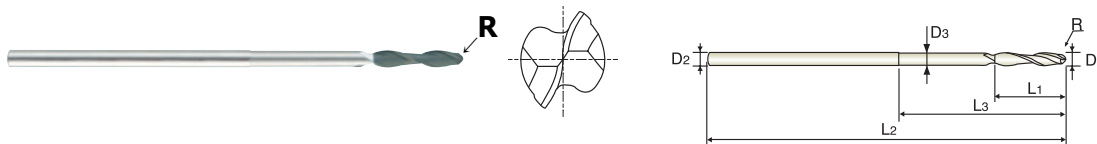


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS

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Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
E1451020	R1.0	2.0	4	10	20	80	1.95
E1451030	R1.5	3.0	4	15	25	80	2.9
E1451040	R2.0	4.0	4	20	30	80	3.9
E1451050	R2.5	5.0	6	30	50	100	4.9
E1451060	R3.0	6.0	6	30	50	100	5.5
E1451070	R3.5	7.0	6	30	-	100	-
E1451080	R4.0	8.0	8	40	60	110	7.5
E1451090	R4.5	9.0	8	40	-	110	-
E1451100	R5.0	10.0	10	50	70	120	9.5
E1451120	R6.0	12.0	12	55	75	130	11.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

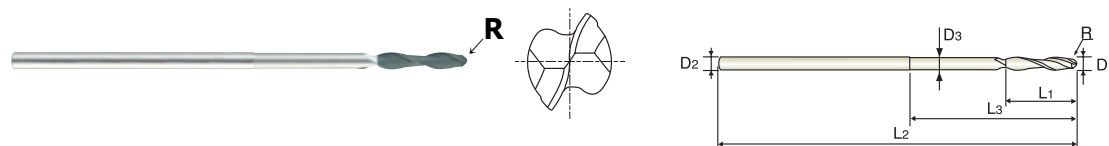
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

CARBIDE, 2 FLUTE LONG REACH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
 - ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
 - ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
 - ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
 - ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Unit : mm

EDP No.	Radius of Ball Nose R (± 0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EI450020	R1.0	2.0	4	10	20	100	1.95
EI450030	R1.5	3.0	4	15	25	100	2.9
EI450040	R2.0	4.0	4	20	30	100	3.9
EI450050	R2.5	5.0	6	30	50	120	4.9
EI450060	R3.0	6.0	6	30	50	150	5.5
EI450070	R3.5	7.0	6	30	-	150	-
EI450080	R4.0	8.0	8	40	60	150	7.5
EI450090	R4.5	9.0	8	40	-	150	-
EI450100	R5.0	10.0	10	50	70	180	9.5
EI450120	R6.0	12.0	12	55	75	200	11.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

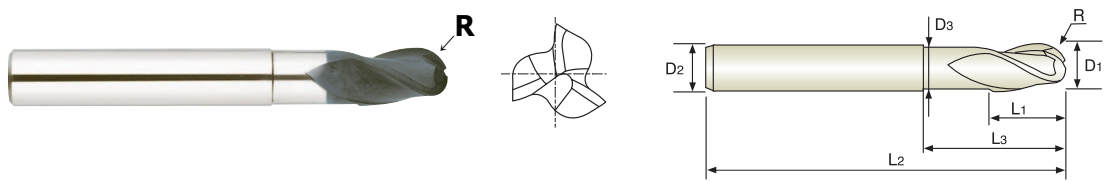


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 3 SCHNEIDEN KURZ STIRNRADIUS

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM 3 30° ±0.01 PLAIN P.772

Unit : mm

EDP No.	Radius of Ball Nose R (±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
E1881020	R1.0	2.0	6	3	5	60	1.9
E1881025	R1.25	2.5	6	4	6	60	2.4
E1881030	R1.5	3.0	6	4.5	6.5	60	2.8
E1881035	R1.75	3.5	6	5	7	65	3.2
E1881040	R2.0	4.0	6	6	8	65	3.7
E1881050	R2.5	5.0	6	7.5	10	65	4.6
E1881060	R3.0	6.0	6	9	12	75	5.6
E1881080	R4.0	8.0	8	12	25	75	7.4
E1881100	R5.0	10.0	10	15	30	80	9.4
E1881120	R6.0	12.0	12	18	36	90	11.4

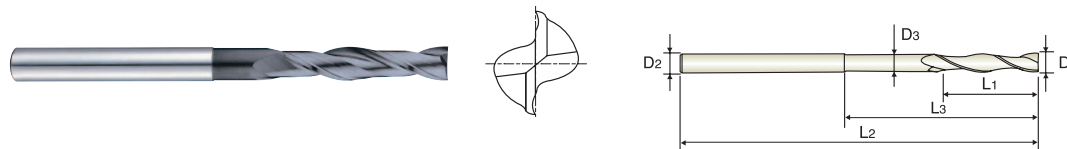
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
 - ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
 - ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
 - ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
 - ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EIB0400502040	0.5	3	1	2	40	0.45
EIB0400603040	0.6	3	2	3	40	0.55
EIB0400704040	0.7	3	2	4	40	0.65
EIB0400805040	0.8	3	2	5	40	0.75
EIB0400906040	0.9	3	2	6	40	0.85
EIB0401008075	1.0	4	3	8	75	0.95
EIB0401510075	1.5	4	4	10	75	1.45
EIB0402016100	2.0	4	6	16	100	1.9
EIB0402520100	2.5	4	8	20	100	2.4
EIB0403030100	3.0	6	8	30	100	2.8
EIB0403535100	3.5	6	10	35	100	3.2
EIB0404040100	4.0	6	20	40	100	3.7
EIB0405050125	5.0	6	25	50	125	4.6
EIB0406060140	6.0	6	30	60	140	5.6
EIB0407000140	7.0	6	35	-	140	-
EIB0408080150	8.0	8	40	80	150	7.4
EIB0409000150	9.0	8	45	-	150	-
EIB0410080150	10.0	10	50	80	150	9.4
EIB0411000150	11.0	10	50	-	150	-
EIB0412080150	12.0	12	55	80	150	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
							◎		○			

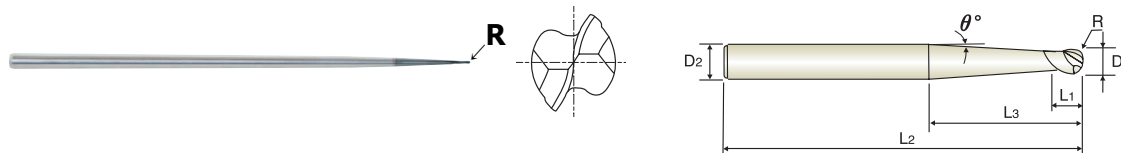


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Unit : mm

EDP No.	Radius of Ball Nose R (±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Taper Angle θ°
EIB87010	R0.5	1.0	3	2	-	40	8° 30'
EIB87901	R0.5	1.0	3	2	30	60	2°
EIB87902	R0.5	1.0	3	2	70	100	1°
EIB87015	R0.75	1.5	3	3	-	40	6° 15'
EIB87903	R0.75	1.5	3	3	30	60	1° 30'
EIB87904	R0.75	1.5	3	3	58	100	45'
EIB87020	R1.0	2.0	3	4	-	40	4° 15'
EIB87905	R1.0	2.0	3	4	30	60	1°
EIB87906	R1.0	2.0	4	4	70	100	1°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70		◎		○			

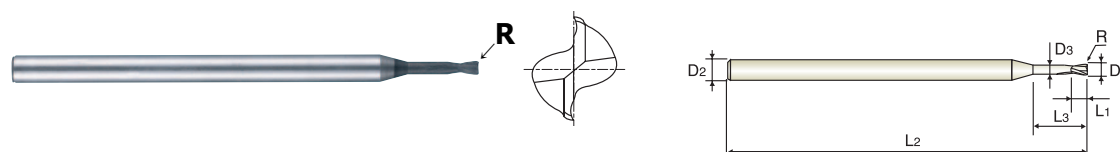
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
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- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
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Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
EI99600200000	-	0.2	3	0.3	-	40	-
EI99600300000	-	0.3	3	0.5	-	40	-
EI99600400000	-	0.4	3	0.6	-	40	-
EI99600505025	RO.05	0.5	3	0.7	2.5	40	0.45
EI99600505040	RO.05	0.5	3	0.7	4	40	0.45
EI996006	RO.05	0.6	3	0.9	3	40	0.55
EI99600605050	RO.05	0.6	3	0.9	5	40	0.55
EI996008	RO.05	0.8	3	1.2	4	40	0.75
EI99600805070	RO.05	0.8	3	1.2	7	40	0.75
EI996010	RO.1	1.0	3	1.5	5	40	0.95
EI996904	RO.1	1.0	3	1.5	8.5	40	0.95
EI99601010120	RO.1	1.0	3	1.5	12	40	0.95
EI996012	RO.1	1.2	3	1.8	6	50	1.15
EI99601210100	RO.1	1.2	3	1.8	10	50	1.15
EI996015	RO.15	1.5	3	2.2	7.5	50	1.4
EI996907	RO.15	1.5	3	2.2	12	50	1.4
EI99601515180	RO.15	1.5	3	2.2	18	50	1.4
EI996020	RO.15	2.0	3	2.2	10	60	1.9
EI996909	RO.15	2.0	3	2.2	16	60	1.9
EI99602015250	RO.15	2.0	3	2.2	25	60	1.9
EI99603020100	RO.2	3.0	4	3	10	65	2.9
EI99603020150	RO.2	3.0	4	3	15	65	2.9
EI99603020200	RO.2	3.0	4	3	20	65	2.9
EI99603020250	RO.2	3.0	4	3	25	75	2.9
EI99603020300	RO.2	3.0	4	3	30	75	2.9
EI99604020200	RO.2	4.0	6	4	20	65	3.9
EI99604020300	RO.2	4.0	6	4	30	75	3.9
EI99604020400	RO.2	4.0	6	4	40	90	3.9

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
							◎		○			

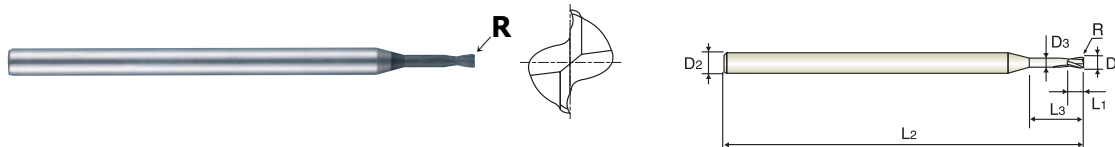
- CARBIDE
- HSS
- CBN END MILLS
- i-Xmill END MILLS
- X5070 END MILLS
- X-POWER END MILLS
- JET-POWER END MILLS
- V7 Mill INOX END MILLS
- V7 Mill STEEL END MILLS
- ALU-POWER END MILLS
- D-POWER END MILLS
- K-2 CARBIDE END MILLS
- GENERAL CARBIDE END MILLS
- TANK-POWER END MILLS
- GENERAL HSS END MILLS
- MILLING CUTTERS
- TECHNICAL DATA



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
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- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
EI99605030200	RO.3	5.0	6	5	20	75	4.9
EI99605030300	RO.3	5.0	6	5	30	75	4.9
EI99605030400	RO.3	5.0	6	5	40	90	4.9
EI99605030500	RO.3	5.0	6	5	50	90	4.9
EI99606030300	RO.3	6.0	6	6	30	75	5.9
EI99606030400	RO.3	6.0	6	6	40	90	5.9
EI99606030500	RO.3	6.0	6	6	50	90	5.9
EI99606030600	RO.3	6.0	6	6	60	100	5.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

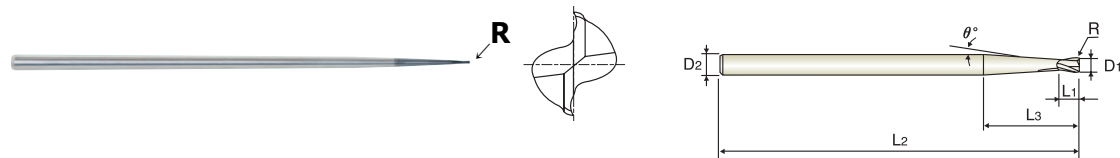
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK

VOLLHARTMETALL, 2 SCHEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

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Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Taper Angle θ°
EIB86010	RO.1	1.0	3	2	30	60	2°
EIB86901	RO.1	1.0	3	2	70	100	1°
EIB86015	RO.15	1.5	3	3	30	60	1°30'
EIB86902	RO.15	1.5	3	3	50	100	1°
EIB86020	RO.15	2.0	3	4	30	60	1°
EIB86903	RO.15	2.0	4	4	70	100	1°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

- CARBIDE
- HSS
- CBN END MILLS
- i-Xmill END MILLS
- X5070 END MILLS
- X-POWER END MILLS
- JET-POWER END MILLS
- V7 Mill INOX END MILLS
- V7 Mill STEEL END MILLS
- ALU-POWER END MILLS
- D-POWER END MILLS
- K-2 CARBIDE END MILLS
- GENERAL CARBIDE END MILLS
- TANK-POWER END MILLS
- GENERAL HSS END MILLS
- MILLING CUTTERS
- TECHNICAL DATA

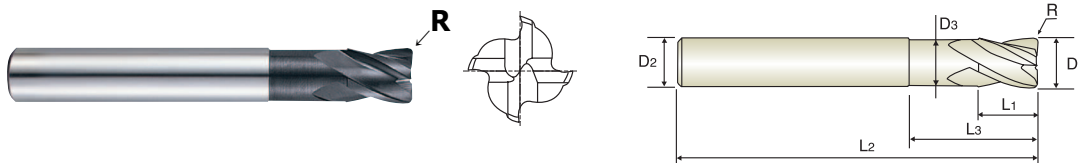


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

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Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EIB88060	RO.5	6.0	6	10	40	80	5.9
EIB88080	RO.5	8.0	8	10	40	80	7.8
EIB88901	R1.0	8.0	8	10	60	100	7.8
EIB88100	RO.5	10.0	10	25	-	75	-
EIB88902	RO.5	10.0	10	12	40	80	9.8
EIB88903	R1.0	10.0	10	12	40	80	9.8
EIB88904	RO.5	10.0	10	12	80	125	9.8
EIB88120	RO.5	12.0	12	25	-	80	-
EIB88905	RO.5	12.0	12	15	40	80	11.8
EIB88906	R1.0	12.0	12	15	40	80	11.8
EIB88907	R1.0	12.0	12	15	80	125	11.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

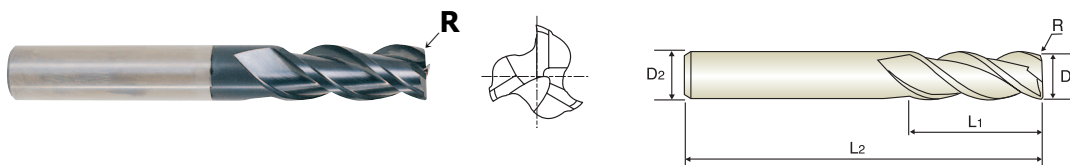
◎ : Excellent ○ : Good

CARBIDE, 3 FLUTE 40° HELIX SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE KURZ ECKENRADIUS

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
EIA13020	RO.15	2.0	3	6	40
EIA13030	RO.15	3.0	3	12	40
EIA13040	RO.2	4.0	4	14	50
EIA13050	RO.3	5.0	5	16	50
EIA13060	RO.3	6.0	6	20	65
EIA13080	RO.5	8.0	8	20	65
EIA13100	RO.5	10.0	10	25	75
EIA13120	RO.5	12.0	12	25	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

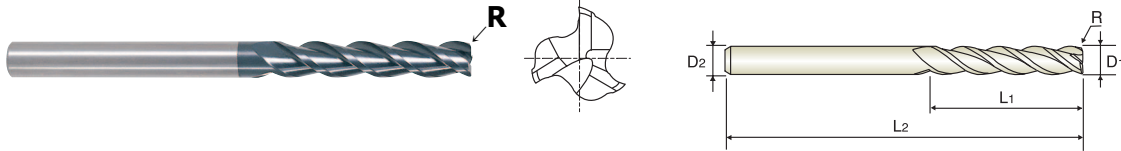
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE 40° HELIX LONG LENGTH CORNER RADIUS
VOLLHARTMETALL, 3 SCHNEIDN 40° RECHTSSPIRALE LANG ECKENRADIUS

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.
- ▶ **Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.**
- ▶ **Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaffräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.**
- ▶ **Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaffräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.**



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
EIA14020	RO.15	2.0	3	9	60
EIA14030	RO.15	3.0	3	30	60
EIA14040	RO.2	4.0	4	30	60
EIA14050	RO.3	5.0	5	35	70
EIA14060	RO.3	6.0	6	40	100
EIA14080	RO.5	8.0	8	40	100
EIA14100	RO.5	10.0	10	40	100
EIA14120	RO.5	12.0	12	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
							◎		○			

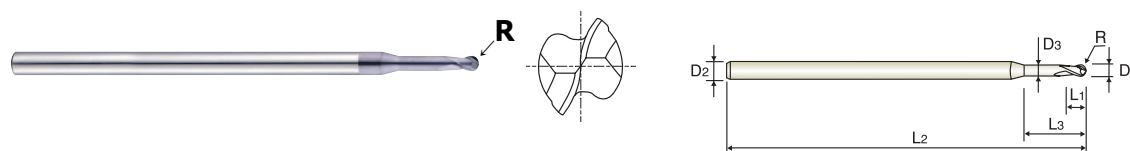
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE MINIATURE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



P.774

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter
	R (±0.01)						D3
GEB46002000040	RO.1	0.2	3	0.2	-	40	-
GEB46003000040	RO.15	0.3	3	0.3	-	40	-
GEB46004000040	RO.2	0.4	3	0.4	-	40	-
GEB46005025040	RO.25	0.5	3	0.5	2.5	40	0.45
GEB46006030040	RO.3	0.6	3	0.6	3	40	0.55
GEB46006050040	RO.3	0.6	3	0.6	5	40	0.55
GEB46008040040	RO.4	0.8	3	0.8	4	40	0.75
GEB46008070040	RO.4	0.8	3	0.8	7	40	0.75
GEB46010050040	RO.5	1.0	3	1	5	40	0.95
GEB46010085040	RO.5	1.0	3	1	8.5	40	0.95
GEB46010120040	RO.5	1.0	3	1	12	40	0.95
GEB46012060050	RO.6	1.2	3	1.2	6	50	1.15
GEB46012100050	RO.6	1.2	3	1.2	10	50	1.15
GEB46015075050	RO.75	1.5	3	1.5	7.5	50	1.4
GEB46015120050	RO.75	1.5	3	1.5	12	50	1.4
GEB46015180050	RO.75	1.5	3	1.5	18	50	1.4
GEB46020100060	R1.0	2.0	3	2.2	10	60	1.9
GEB46020160060	R1.0	2.0	3	2.2	16	60	1.9
GEB46020250060	R1.0	2.0	3	2.2	25	60	1.9
GEB46030100065	R1.5	3.0	4	3	10	65	2.9
GEB46030150065	R1.5	3.0	4	3	15	65	2.9
GEB46030200065	R1.5	3.0	4	3	20	65	2.9
GEB46030250075	R1.5	3.0	4	3	25	75	2.9
GEB46030300075	R1.5	3.0	4	3	30	75	2.9
GEB46040200065	R2.0	4.0	6	4	20	65	3.9
GEB46040300075	R2.0	4.0	6	4	30	75	3.9
GEB46040400090	R2.0	4.0	6	4	40	90	3.9

◎ : Excellent ○ : Good

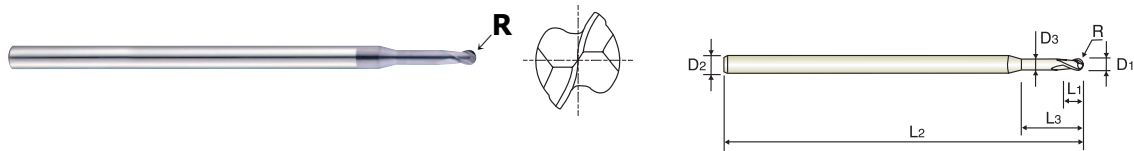
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			



CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
GEB46050200065	R2.5	5.0	6	5	20	65	4.9
GEB46050300075	R2.5	5.0	6	5	30	75	4.9
GEB46050400090	R2.5	5.0	6	5	40	90	4.9
GEB46050500090	R2.5	5.0	6	5	50	90	4.9
GEB46060300075	R3.0	6.0	6	6	30	75	5.9
GEB46060400090	R3.0	6.0	6	6	40	90	5.9
GEB46060500090	R3.0	6.0	6	6	50	90	5.9
GEB46060600100	R3.0	6.0	6	6	60	100	5.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			

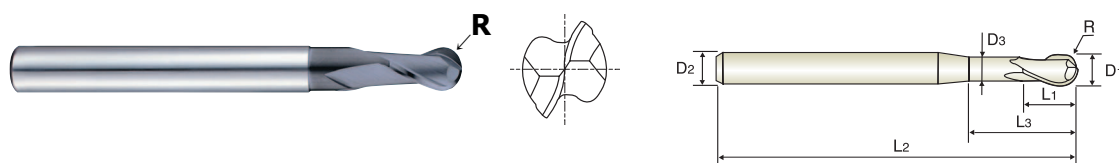
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



P.774

Unit : mm

EDP No.	Radius of Ball Nose R (±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GE944020	R1.0	2.0	6	3	5	60	1.9
GE944025	R1.25	2.5	6	4	6	60	2.4
GE944030	R1.5	3.0	6	4.5	6.5	60	2.8
GE944035	R1.75	3.5	6	5	7	65	3.2
GE944040	R2.0	4.0	6	6	8	65	3.7
GE944050	R2.5	5.0	6	7.5	10	65	4.6
GE944060	R3.0	6.0	6	9	12	75	5.6
GE944080	R4.0	8.0	8	12	25	75	7.4
GE944100	R5.0	10.0	10	15	30	80	9.4
GE944120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

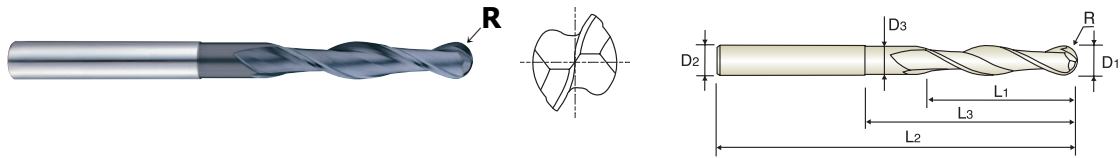
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
						◎	○		◎			



CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
GE945020	R1.0	2.0	4	10	20	80	1.95
GE945030	R1.5	3.0	4	15	25	80	2.9
GE945040	R2.0	4.0	4	20	30	80	3.9
GE945050	R2.5	5.0	6	30	50	100	4.9
GE945060	R3.0	6.0	6	30	50	100	5.5
GE945070	R3.5	7.0	6	30	-	100	-
GE945080	R4.0	8.0	8	40	60	110	7.5
GE945090	R4.5	9.0	8	40	-	110	-
GE945100	R5.0	10.0	10	50	70	120	9.5
GE945120	R6.0	12.0	12	55	75	130	11.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			

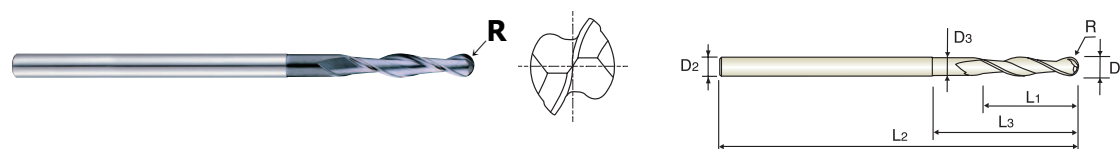
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE LONG REACH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



Unit : mm

EDP No.	Radius of Ball Nose R (± 0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GE946020	R1.0	2.0	4	10	20	100	1.95
GE946030	R1.5	3.0	4	15	25	100	2.9
GE946040	R2.0	4.0	4	20	30	100	3.9
GE946050	R2.5	5.0	6	30	50	120	4.9
GE946060	R3.0	6.0	6	30	50	150	5.5
GE946070	R3.5	7.0	6	30	-	150	-
GE946080	R4.0	8.0	8	40	60	150	7.5
GE946090	R4.5	9.0	8	40	-	150	-
GE946100	R5.0	10.0	10	50	70	180	9.5
GE946120	R6.0	12.0	12	55	75	200	11.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

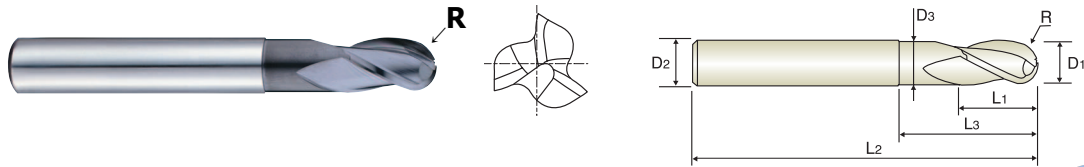
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
						◎	○		◎			



CARBIDE, 3 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 3 SCHNEIDEN KURZ STIRNRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
GE947020	R1.0	2.0	6	3	5	60	1.9
GE947025	R1.25	2.5	6	4	6	60	2.4
GE947030	R1.5	3.0	6	4.5	6.5	60	2.8
GE947035	R1.75	3.5	6	5	7	65	3.2
GE947040	R2.0	4.0	6	6	8	65	3.7
GE947050	R2.5	5.0	6	7.5	10	65	4.6
GE947060	R3.0	6.0	6	9	12	75	5.6
GE947080	R4.0	8.0	8	12	25	75	7.4
GE947100	R5.0	10.0	10	15	30	80	9.4
GE947120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			

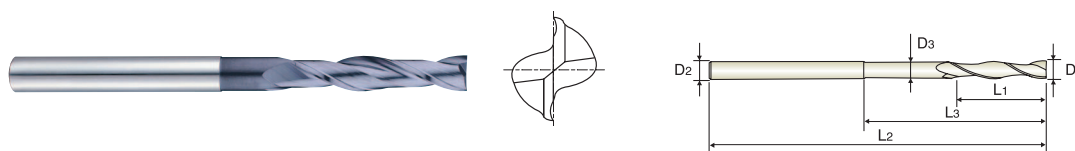
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
GE927005	0.5	3	1	2	40	0.45
GE927006	0.6	3	2	3	40	0.55
GE927007	0.7	3	2	4	40	0.65
GE927008	0.8	3	2	5	40	0.75
GE927009	0.9	3	2	6	40	0.85
GE927010	1.0	4	3	8	75	0.95
GE927015	1.5	4	4	10	75	1.45
GE927020	2.0	4	6	16	100	1.9
GE927025	2.5	4	8	20	100	2.4
GE927030	3.0	6	8	30	100	2.8
GE927035	3.5	6	10	35	100	3.2
GE927040	4.0	6	20	40	100	3.7
GE927050	5.0	6	25	50	125	4.6
GE927060	6.0	6	30	60	140	5.6
GE927070	7.0	6	35	-	140	-
GE927080	8.0	8	40	80	150	7.4
GE927090	9.0	8	45	-	150	-
GE927100	10.0	10	50	80	150	9.4
GE927110	11.0	10	50	-	150	-
GE927120	12.0	12	55	80	150	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

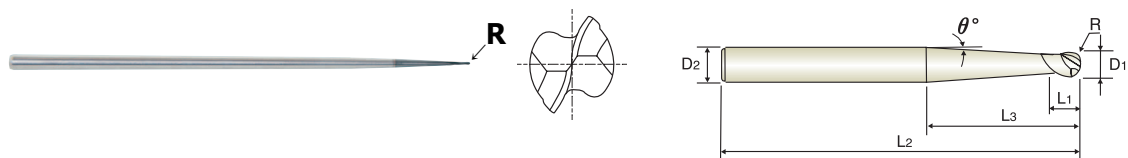
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
						◎	○		◎			



CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



MG HM 2 30° ±0.01 PLAIN P.774



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R (±0.01)	D1	D2	L1	L3	L2	θ°
GEB02010000040	RO.5	1.0	3	2	-	40	8° 30'
GEB02010300060	RO.5	1.0	3	2	30	60	2°
GEB02010700100	RO.5	1.0	3	2	70	100	1°
GEB02015000040	RO.75	1.5	3	3	-	40	6° 15'
GEB02015300060	RO.75	1.5	3	3	30	60	1° 30'
GEB02015580100	RO.75	1.5	3	3	58	100	45'
GEB02020000040	R1.0	2.0	3	4	-	40	4° 15'
GEB02020300060	R1.0	2.0	3	4	30	60	1°
GEB02020700100	R1.0	2.0	4	4	70	100	1°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			

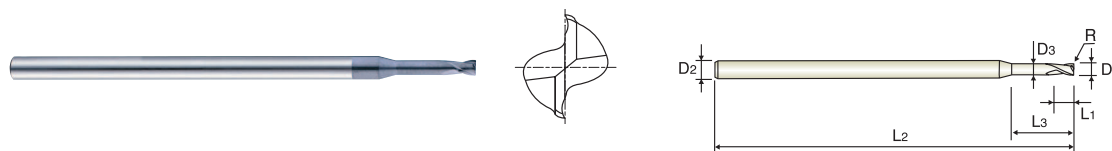
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
GEB4500200000	-	0.2	3	0.3	-	40	-
GEB4500300000	-	0.3	3	0.45	-	40	-
GEB4500400000	-	0.4	3	0.6	-	40	-
GEB4500505025	RO.05	0.5	3	0.7	2.5	40	0.45
GEB4500505040	RO.05	0.5	3	0.7	4	40	0.45
GEB4500605030	RO.05	0.6	3	0.9	3	40	0.55
GEB4500605050	RO.05	0.6	3	0.9	5	40	0.55
GEB4500805040	RO.05	0.8	3	1.2	4	40	0.75
GEB4500805070	RO.05	0.8	3	1.2	7	40	0.75
GEB4501010050	RO.1	1.0	3	1.5	5	40	0.95
GEB4501010085	RO.1	1.0	3	1.5	8.5	40	0.95
GEB4501010120	RO.1	1.0	3	1.5	12	40	0.95
GEB4501210060	RO.1	1.2	3	1.8	6	50	1.15
GEB4501210100	RO.1	1.2	3	1.8	10	50	1.15
GEB4501515075	RO.15	1.5	3	2.2	7.5	50	1.4
GEB4501515120	RO.15	1.5	3	2.2	12	50	1.4
GEB4501515180	RO.15	1.5	3	2.2	18	50	1.4
GEB4502015100	RO.15	2.0	3	2.2	10	60	1.9
GEB4502015160	RO.15	2.0	3	2.2	16	60	1.9
GEB4502015250	RO.15	2.0	3	2.2	25	60	1.9
GEB4503020100	RO.2	3.0	4	3	10	65	2.9
GEB4503020150	RO.2	3.0	4	3	15	65	2.9
GEB4503020200	RO.2	3.0	4	3	20	65	2.9
GEB4503020250	RO.2	3.0	4	3	25	75	2.9
GEB4503020300	RO.2	3.0	4	3	30	75	2.9
GEB4504020200	RO.2	4.0	6	4	20	65	3.9
GEB4504020300	RO.2	4.0	6	4	30	75	3.9
GEB4504020400	RO.2	4.0	6	4	40	90	3.9

◎ : Excellent ○ : Good

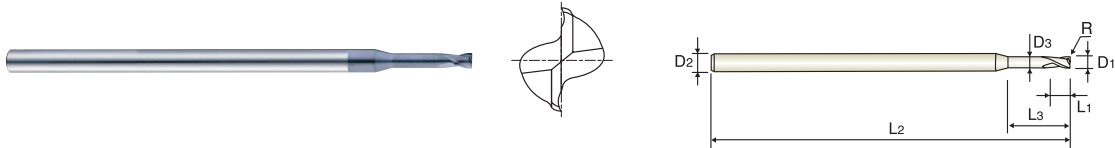
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
						◎	○		◎			



CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
GEB4505030200	RO.3	5.0	6	5	20	75	4.9
GEB4505030300	RO.3	5.0	6	5	30	75	4.9
GEB4505030400	RO.3	5.0	6	5	40	90	4.9
GEB4505030500	RO.3	5.0	6	5	50	90	4.9
GEB4506030300	RO.3	6.0	6	6	30	75	5.9
GEB4506030400	RO.3	6.0	6	6	40	90	5.9
GEB4506030500	RO.3	6.0	6	6	50	90	5.9
GEB4506030600	RO.3	6.0	6	6	60	100	5.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			

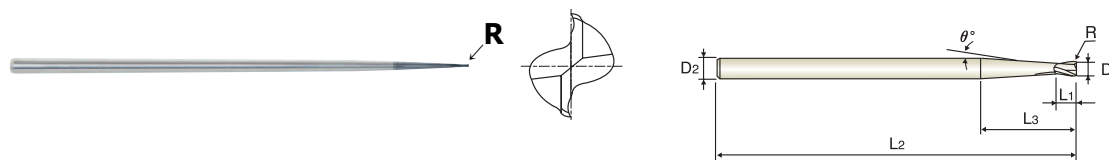
◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK

VOLLHARTMETALL, 2 SCHEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.
- ▶ Corner protection against chipping.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.
- ▶ Eckenschutz gegen Abbröckelung



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R	D1	D2	L1	L3	L2	θ°
GEB01010300060	RO.1	1.0	3	2	30	60	2°
GEB01010700100	RO.1	1.0	3	2	70	100	1°
GEB01015300060	RO.15	1.5	3	3	30	60	1°30'
GEB01015500100	RO.15	1.5	3	3	50	100	1°
GEB01020300060	RO.15	2.0	3	4	30	60	1°
GEB01020700100	RO.15	2.0	4	4	70	100	1°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			

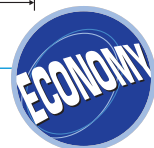
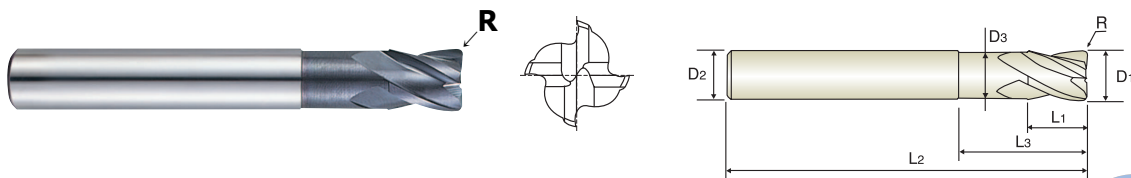
- CARBIDE
- HSS
- CBN END MILLS
- i-Xmill END MILLS
- X5070 END MILLS
- X-POWER END MILLS
- JET-POWER END MILLS
- V7 Mill INOX END MILLS
- V7 Mill STEEL END MILLS
- ALU-POWER END MILLS
- D-POWER END MILLS
- K-2 CARBIDE END MILLS
- GENERAL CARBIDE END MILLS
- TANK-POWER END MILLS
- GENERAL HSS END MILLS
- MILLING CUTTERS
- TECHNICAL DATA



CARBIDE, 4 FLUTE CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.
- ▶ Corner radius against chipping.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.
- ▶ Eckenradius gegen Abbröckelung



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
GEB0306005040	RO.5	6.0	6	10	40	80	5.9
GEB0308005040	RO.5	8.0	8	10	40	80	7.8
GEB0308010060	R1.0	8.0	8	10	60	100	7.8
GEB0310005000	RO.5	10.0	10	25	-	75	-
GEB0310005040	RO.5	10.0	10	12	40	80	9.8
GEB0310010040	R1.0	10.0	10	12	40	80	9.8
GEB0310005080	RO.5	10.0	10	12	80	125	9.8
GEB0312005000	RO.5	12.0	12	25	-	80	-
GEB0312005040	RO.5	12.0	12	15	40	80	11.8
GEB0312010040	R1.0	12.0	12	15	40	80	11.8
GEB0312010080	R1.0	12.0	12	15	80	125	11.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

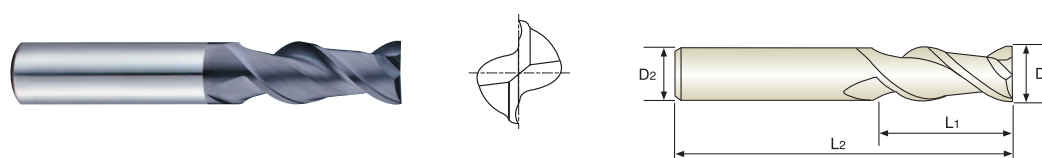
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						○	○		○			

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE 45° HELIX

VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE

- ▶ Designed for the machining aluminum and its alloys, copper, plastic etc.
 - ▶ Maximum-stock removal, chip ejection, stability.
 - ▶ Corner protection against chipping.
- ▶ Entwickelt zum Zerspanen von Aluminium and Aluminium Legierungen, Kupfer, Plastik...usw.
 - ▶ Maximale Spanentfernung, Stabilität
 - ▶ Eckenschutz gegen Abbröckelung



MG HM 2 45° PLAIN P.777

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GE926010	1.0	4	3	40
GE926015	1.5	4	4	40
GE926020	2.0	4	6	40
GE926025	2.5	4	8	40
GE926030	3.0	6	8	45
GE926035	3.5	6	10	45
GE926040	4.0	6	11	45
GE926045	4.5	6	11	50
GE926050	5.0	6	13	50
GE926055	5.5	6	13	50
GE926060	6.0	6	13	50
GE926070	7.0	8	16	60
GE926080	8.0	8	19	60
GE926090	9.0	10	19	70
GE926100	10.0	10	22	70
GE926110	11.0	12	22	75
GE926120	12.0	12	26	75
GE926160	16.0	16	32	90
GE926200	20.0	20	38	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

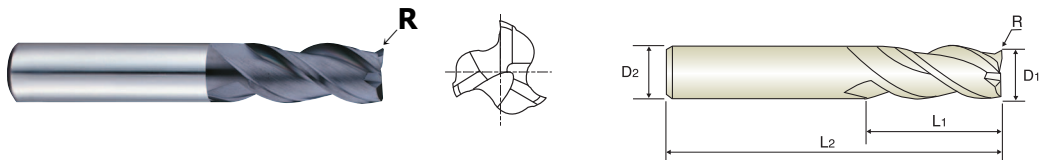
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
						◎	○		◎			



CARBIDE, 3 FLUTE 40° HELIX SHORT LENGTH CORNER RADIUS
VOLLHARTMETALL, 3 SCHMEIDEN 40° RECHTSSPIRALE KURZ ECKENRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.
- ▶ Corner radius against chipping.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.
- ▶ Eckenradius gegen Abbröckelung



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
GE928020	RO.15	2.0	3	6	40
GE928030	RO.15	3.0	3	12	40
GE928040	RO.2	4.0	4	14	50
GE928050	RO.3	5.0	5	16	50
GE928060	RO.3	6.0	6	20	65
GE928080	RO.5	8.0	8	20	65
GE928100	RO.5	10.0	10	25	75
GE928120	RO.5	12.0	12	25	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			

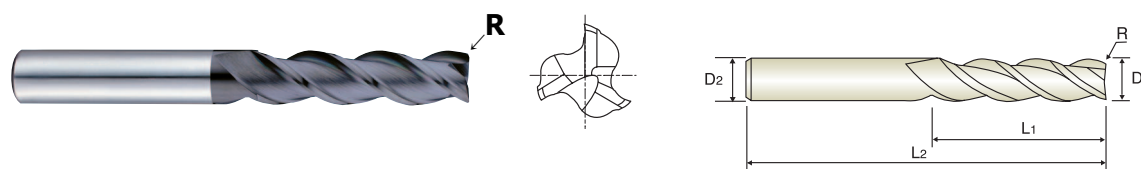
◎ : Excellent ○ : Good

CARBIDE, 3 FLUTE 40° HELIX LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 3 SCHMEIDEN 40° RECHTSSPIRALE LANG ECKENRADIUS

- ▶ Designed for the machining reinforced plastic, high silicon aluminum alloy, Copper Alloy.
- ▶ YG-1's newly developed diamond film coating allows a good result for the machining non-ferrous metals and non-metallic materials.
- ▶ Corner radius against chipping.

- ▶ Zum Zerspanen von verstärkten Verbundmaterialien, Silikon-Aluminium Legierung, Kupfer-Legierungen.
- ▶ Die neuentwickelte Diamantfilmbeschichtung ermöglicht hervorragende Zerspanergebnisse von Nichteisenmetallen und nichtmetallischen Materialien.
- ▶ Eckenradius gegen Abbröckelung



Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
GE929020	RO.15	2.0	3	9	60
GE929030	RO.15	3.0	3	30	60
GE929040	RO.2	4.0	4	30	60
GE929050	RO.3	5.0	5	35	70
GE929060	RO.3	6.0	6	40	100
GE929080	RO.5	8.0	8	40	100
GE929100	RO.5	10.0	10	40	100
GE929120	RO.5	12.0	12	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
						◎	○		◎			



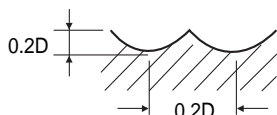
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE MINIATURE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

EI997, EIB93, EIB87 SERIES

MATERIAL	GRAPHITE	
DIAMETER	RPM	FEED
R0.2 × 0.4	40000	600
R0.3 × 0.6	40000	800
R0.4 × 0.8	40000	960
R0.5 × 1.0	40000	1200
R0.6 × 1.2	40000	1440
R0.75 × 1.5	40000	1600
R1.0 × 2.0	40000	2000
R1.5 × 3.0	27000	2200
R2.0 × 4.0	20000	2900
R2.5 × 5.0	16000	2900
R3.0 × 6.0	14000	2900



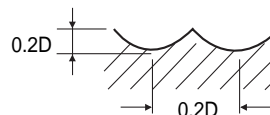
RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

EI880, EI451, EI450 SERIES

MATERIAL	GRAPHITE	
DIAMETER	RPM	FEED
R1.0 × 2.0	16000	800
R1.25 × 2.5	16000	1120
R1.5 × 3.0	16000	1450
R1.75 × 3.5	16000	1750
R2.0 × 4.0	16000	2100
R2.5 × 5.0	15500	2550
R3.0 × 6.0	15000	2950
R4.0 × 8.0	13000	3000
R5.0 × 10.0	11500	3050
R6.0 × 12.0	10500	3150



* The FEED, in long & long reach types, should be reduced by around 50%

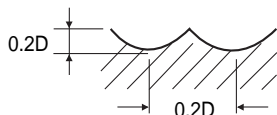
RPM = rev./min.
FEED = mm/min.

CARBIDE, 3 FLUTE BALL NOSE

VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS

EI881 SERIES

MATERIAL	GRAPHITE	
DIAMETER	RPM	FEED
R1.0 × 2.0	16000	1200
R1.25 × 2.5	16000	1700
R1.5 × 3.0	16000	2150
R1.75 × 3.5	16000	2650
R2.0 × 4.0	16000	3100
R2.5 × 5.0	15500	3800
R3.0 × 6.0	15000	4450
R4.0 × 8.0	13000	4500
R5.0 × 10.0	11500	4600
R6.0 × 12.0	10500	4750



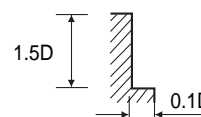
RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG

EIB04 SERIES

MATERIAL	GRAPHITE	
DIAMETER	RPM	FEED
0.4	40000	200
0.6	40000	350
0.8	40000	550
1.0	40000	700
1.5	40000	800
2.0	25000	800
3.0	20000	800
4.0	18000	950
5.0	14000	1200
6.0	11000	1400
8.0	8000	1300
10.0	6500	1200
12.0	5500	1200



* The FEED, in long & long reach types, should be reduced by around 50%

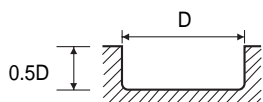
RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

EI996, EIB86 SERIES

MATERIAL	GRAPHITE	
	DIAMETER	RPM
0.4	40000	640
0.6	40000	640
0.8	40000	800
1.0	40000	960
1.2	40000	1200
1.5	40000	1440
2.0	40000	1600
3.0	27000	1900
4.0	20000	2300
5.0	16000	2300
6.0	14000	2300



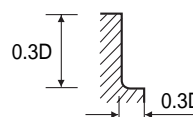
RPM = rev./min.
FEED = mm/min.

CARBIDE, 4 FLUTE CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

EIB88 SERIES

MATERIAL	GRAPHITE	
	DIAMETER	RPM
6.0	40000	5600
8.0	32000	5600
10.0	26000	5700
12.0	21000	5450



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

CARBIDE, 3 FLUTE 40° HELIX CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE
ECKENRADIUS

EIA13, EIA14 SERIES

MATERIAL	GRAPHITE	
	DIAMETER	RPM
2.0	40000	3000
3.0	40000	4200
4.0	40000	6000
5.0	40000	7200
6.0	40000	8400
8.0	32000	8400
10.0	26000	8600
12.0	21000	8200



* The FEED, in long & long reach types, should be reduced by around 50%

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



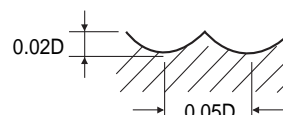
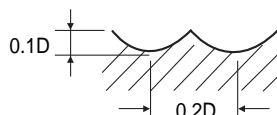
**D-POWER
END MILLS**

**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**

**CARBIDE, 2 FLUTE MINIATURE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS**

GEB46, GEB02 SERIES

MATERIAL DIAMETER	ALUMINUM DIECAST		COPPER ALLOY	
	RPM	FEED	RPM	FEED
R0.25 × 0.5	50000	850	43000	650
R0.3 × 0.6	50000	1300	43000	1000
R0.4 × 0.8	50000	1600	38000	1200
R0.5 × 1.0	46000	2000	34000	1400
R0.6 × 1.2	39000	2000	29000	1400
R0.75 × 1.5	36000	2000	26000	1400
R1.0 × 2.0	27000	1800	20000	1300
R1.5 × 3.0	20000	1800	13500	1300
R2.0 × 4.0	15000	1800	10000	1300
R2.5 × 5.0	12000	1800	8000	1300
R3.0 × 6.0	10000	1800	6800	1300

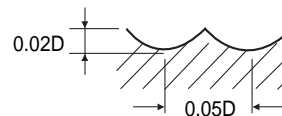
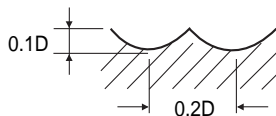


RPM = rev./min.
FEED = mm/min.

**CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS**

GE944, GE945, GE946 SERIES

MATERIAL DIAMETER	ALUMINUM DIECAST		COPPER ALLOY	
	RPM	FEED	RPM	FEED
R1.0 × 2.0	25000	1000	19000	800
R1.5 × 3.0	17000	1000	12500	800
R2.0 × 4.0	12500	1000	9500	800
R2.5 × 5.0	10000	1200	7600	850
R3.0 × 6.0	8500	1350	6400	900
R4.0 × 8.0	7000	1450	5100	900
R5.0 × 10.0	6000	1450	4200	900
R6.0 × 12.0	5000	1450	3500	900



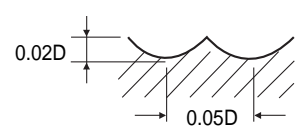
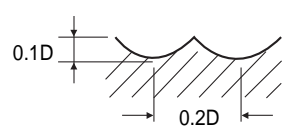
※ The FEED, in long & long reach types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE BALL NOSE VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS

GE947 SERIES

MATERIAL	ALUMINUM DIECAST		COPPER ALLOY		
	DIAMETER	RPM	FEED	RPM	FEED
R1.0 × 2.0		25000	1000	19000	800
R1.5 × 3.0		17000	1000	12500	800
R2.0 × 4.0		12500	1000	9500	800
R2.5 × 5.0		10000	1200	7600	850
R3.0 × 6.0		8500	1350	6400	900
R4.0 × 8.0		7000	1450	5100	900
R5.0 × 10.0		6000	1450	4200	900
R6.0 × 12.0		5000	1450	3500	900

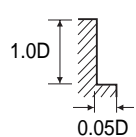
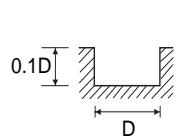
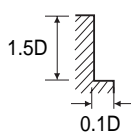
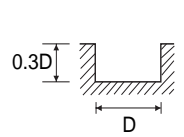


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE VOLLHARTMETALL, 2 SCHNEIDEN

GE927 SERIES

MATERIAL	ALUMINUM DIECAST		COPPER ALLOY		
	DIAMETER	RPM	FEED	RPM	FEED
0.5		32000	100	32000	100
1.0		32000	190	25000	140
2.0		27000	300	12000	150
3.0		20000	510	8000	220
4.0		15000	520	6000	240
5.0		12000	540	4800	250
6.0		10000	600	4000	250
8.0		8000	650	3000	280
10.0		6400	680	2500	330
12.0		5500	800	2000	360
16.0		4000	1000	1500	450
20.0		3300	1200	1200	500



* The FEED, in long & long reach types, should be reduced by around 50%

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

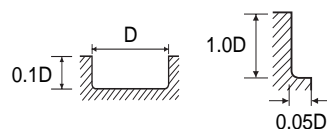
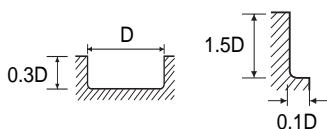


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

GEB45, GEB01 SERIES

MATERIAL	ALUMINUM DIECAST		COPPER ALLOY	
DIAMETER	RPM	FEED	RPM	FEED
0.5	32000	130	32000	130
1.0	32000	250	25000	180
1.5	32000	320	16000	185
2.0	27000	390	12000	190
3.0	20000	660	8000	280
4.0	15000	670	6000	310
5.0	12000	700	4800	320
6.0	10000	780	4000	320

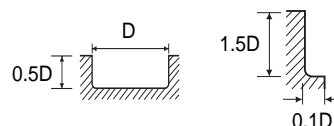
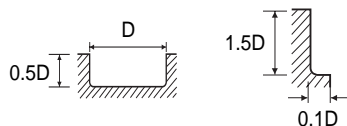


RPM = rev./min.
FEED = mm/min.

CARBIDE, 4 FLUTE CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

GEB03 SERIES

MATERIAL	ALUMINUM DIECAST		COPPER ALLOY	
DIAMETER	RPM	FEED	RPM	FEED
6.0	10000	1850	4000	530
8.0	7500	2000	3000	610
10.0	6000	2250	2400	640
12.0	5000	2250	2000	680

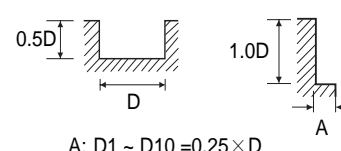
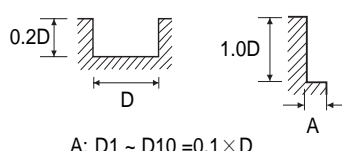


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE 45° HELIX VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE

GE926 SERIES

MATERIAL	ALUMINUM DIECAST		COPPER ALLOY	
	DIAMETER	RPM	FEED	RPM
1.0	30000	260	20000	80
2.0	30000	450	20000	160
3.0	24000	700	14000	280
4.0	20000	950	11000	380
5.0	13000	1100	7500	400
6.0	13000	1200	7500	480
8.0	11000	1500	6000	580
10.0	8500	1800	4800	700
12.0	7200	2200	3900	850
16.0	6000	2000	3300	780
20.0	3600	1600	2000	630

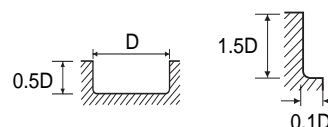
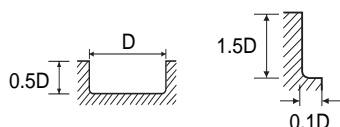


RPM = rev./min.
FEED = mm/min.

CARBIDE, 3 FLUTE 40° HELIX CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE ECKENRADIUS

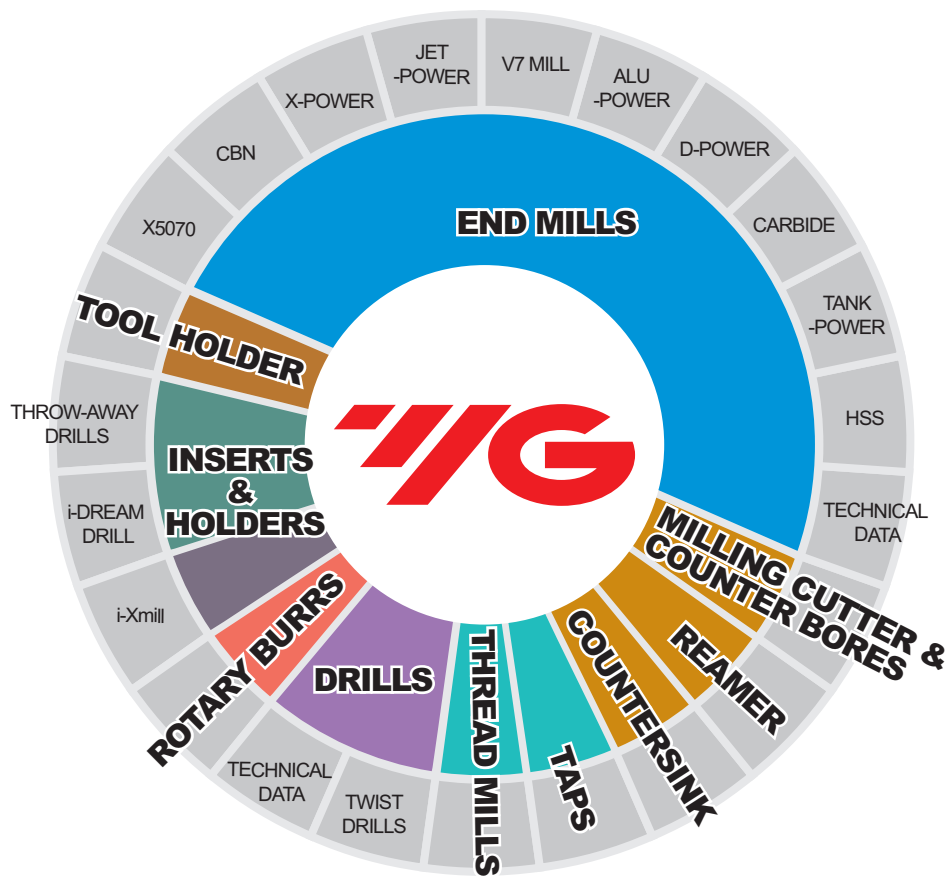
GE928, GE929 SERIES

MATERIAL	ALUMINUM DIECAST		COPPER ALLOY	
	DIAMETER	RPM	FEED	RPM
2.0	27000	1000	10000	250
3.0	21000	1100	8000	320
4.0	15000	1200	6000	360
5.0	12000	1250	4800	385
6.0	10000	1400	4000	400
8.0	7500	1500	3000	460
10.0	6000	1700	2400	480
12.0	5000	1700	2000	510



* The FEED, in long & long reach types, should be reduced by around 50%

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



Challenge Toward a Global Leader-
YG-1 Leads the World Market.

CARBIDE



Being the best through innovation




















K-2 CARBIDE












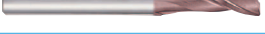



K-2 VOLLHARTMETALL FRÄSER

- General Purpose as Coating.
Conventional or High Speed Milling, Wet or Dry Cutting.
- Beschichtet für allgemeinen Einsatz.
Konventionelles oder HSC-Fräsen, Nass- oder Trockenfräsen.

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
G9424		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0	D20.0	784
G9A68		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0	D20.0	785
G9444		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D2.0	D20.0	786
G9527		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D3.5	D20.0	787
G9445		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D2.0	D20.0	788
G9452		CARBIDE, 2 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG	D3.0	D20.0	789
G9553 G9410		CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER	D0.5	D20.0	790
G9425		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D1.0	D20.0	791
G9439		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D2.0	D20.0	792
G9528		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.5	D20.0	793
G9433		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.0	D20.0	794
G9447		CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG	D3.0	D20.0	795
G9432		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D1.0	D20.0	796
G9A69		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D1.0	D20.0	797
G9448		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0	D20.0	798
G9540		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.5	D20.0	799
G9449		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D2.0	D20.0	800

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
G9453		CARBIDE, 4 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG	D3.0	D20.0	801
G9624		CARBIDE, 2 FULTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	802
G9A70		CARBIDE, 2 FULTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R0.5	R10.0	803
G9437		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	804
G9438		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R10.0	805
G9454		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS	R1.5	R10.0	806
G9455		CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS	R1.5	R10.0	807
G9634		CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	808
G9A42		CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - COARSE PITCH VOLLHARTMETALL, MEHRSCHEIDEN LANG SCHRUPPFÄSER - GROB	D6.0	D25.0	809
G9B80		CARBIDE, 2 FLUTE RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN	D0.4	D4.0	810
G9B81		CARBIDE, 2 FLUTE BALL NOSE RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS SCHMALE RIPPEN	R0.2	R2.0	812
G9B82		CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS	D2.0	D12.0	814
G9B83		CARBIDE, 2 FLUTE LONG REACH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE ECKENRADIUS	D3.0	D12.0	816
G9B84		CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS	D2.0	D12.0	817
G9B85		CARBIDE, 4 FLUTE LONG REACH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN GROÙE REICHWEITE ECKENRADIUS	D3.0	D12.0	819
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					820

K-2 CARBIDE END MILLS

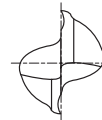
◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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CARBIDE, 2 FLUTE SHORT LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN KURZ

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9424010	1.0	4	3	40
G9424015	1.5	4	4.5	40
G9424020	2.0	2	8	32
G9424025	2.5	2.5	8	32
G9424030	3.0	3	12	32
G9424035	3.5	3.5	12	32
G9424040	4.0	4	12	40
G9424045	4.5	4.5	14	50
G9424050	5.0	5	14	50
G9424055	5.5	5.5	16	50
G9424060	6.0	6	16	50
G9424070	7.0	7	20	60
G9424080	8.0	8	20	60
G9424090	9.0	9	20	60
G9424100	10.0	10	22	70
G9424120	12.0	12	22	70
G9424140	14.0	14	25	75
G9424160	16.0	16	25	75
G9424200	20.0	20	32	100

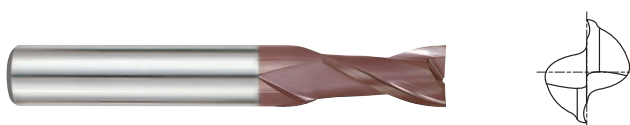
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE SHORT LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN KURZ

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 - ▶ Hervorragendes Preis - Leistungsverhältnis.
 - ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A68010	1.0	3	3	39
G9A68015	1.5	3	5	39
G9A68020	2.0	3	7	39
G9A68025	2.5	3	7	39
G9A68030	3.0	3	9	39
G9A68040	4.0	4	14	51
G9A68050	5.0	5	16	51
G9A68060	6.0	6	19	64
G9A68080	8.0	8	21	64
G9A68100	10.0	10	22	70
G9A68120	12.0	12	25	76
G9A68160	16.0	16	32	89
G9A68200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○



CARBIDE, 2 FLUTE SHORT LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN KURZ

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- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9444020	2.0	6	3	50
G9444030	3.0	6	4	50
G9444035	3.5	6	4	50
G9444040	4.0	6	5	54
G9444045	4.5	6	5	54
G9444050	5.0	6	6	54
G9444060	6.0	6	7	54
G9444070	7.0	8	8	58
G9444080	8.0	8	9	58
G9444090	9.0	10	10	66
G9444100	10.0	10	11	66
G9444120	12.0	12	12	73
G9444140	14.0	14	14	75
G9444160	16.0	16	16	82
G9444180	18.0	18	18	84
G9444200	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good

**CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



P.820

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9527035	3.5	3.5	7	50
G9527040	4.0	4	8	50
G9527045	4.5	4.5	8	50
G9527050	5.0	5	10	50
G9527055	5.5	5.5	10	57
G9527060	6.0	6	10	57
G9527065	6.5	6.5	13	60
G9527070	7.0	7	13	60
G9527075	7.5	7.5	16	63
G9527080	8.0	8	16	63
G9527085	8.5	8.5	16	67
G9527090	9.0	9	16	67
G9527095	9.5	9.5	19	72
G9527100	10.0	10	19	72
G9527110	11.0	11	22	83
G9527120	12.0	12	22	83
G9527130	13.0	13	22	83
G9527140	14.0	14	22	83
G9527150	15.0	15	26	92
G9527160	16.0	16	26	92
G9527180	18.0	18	26	92
G9527200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○



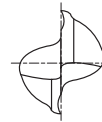
G9445 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



MG HM DIN 6527 2 $\approx 30^\circ$ DIN 6535HA DIN 6535HB P.820

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445901	2.0	● 3	6	38
G9445028	2.8	6	7	57
G9445030	3.0	6	7	57
G9445035	3.5	6	7	57
G9445038	3.8	6	8	57
G9445040	4.0	6	8	57
G9445045	4.5	6	8	57
G9445048	4.8	6	10	57
G9445050	5.0	6	10	57
G9445957	5.75	6	10	57
G9445060	6.0	6	10	57
G9445967	6.75	8	13	63
G9445070	7.0	8	13	63
G9445977	7.75	8	16	63
G9445080	8.0	8	16	63
G9445087	8.7	10	16	72
G9445090	9.0	10	16	72
G9445097	9.7	10	19	72
G9445100	10.0	10	19	72
G9445117	11.7	12	22	83
G9445120	12.0	12	22	83
G9445137	13.7	14	22	83
G9445140	14.0	14	22	83
G9445157	15.7	16	26	92
G9445160	16.0	16	26	92
G9445177	17.7	18	26	92
G9445180	18.0	18	26	92
G9445197	19.7	20	32	104
G9445200	20.0	20	32	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

CARBIDE, 2 FLUTE EXTRA LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG

- ▶ Suitable for dry milling applications at high temperatures.
 - ▶ Excellent high-performance end mills.
 - ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
 - ▶ Hervorragendes Preis - Leistungsverhältnis.
 - ▶ 2 Schneiden zum Nutenfräsen.



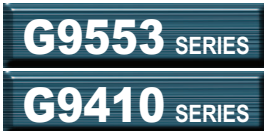
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9452903	3.0	3	20	60
G9452904	4.0	4	20	60
G9452905	5.0	5	25	75
G9452906	6.0	6	30	75
G9452908	8.0	8	30	75
G9452910	10.0	10	40	100
G9452912	12.0	12	45	100
G9452914	14.0	14	45	100
G9452916	16.0	16	45	100
G9452918	18.0	18	45	100
G9452920	20.0	20	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	◎				○		○	○	○	○	○

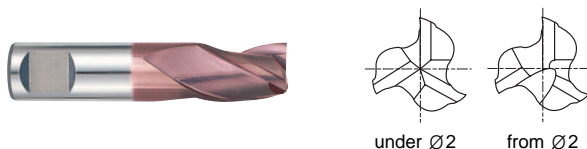


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY
VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9553005	0.5	● 3	1.5	38
G9553006	0.6	● 3	1.5	38
G9553008	0.8	● 3	2	38
G9553010	1.0	● 3	2	38
G9553012	1.2	● 3	2	38
G9553015	1.5	● 3	2	38
G9553018	1.8	● 3	2	38
G9410020	2.0	6	4	35
G9410025	2.5	6	5	36
G9410030	3.0	6	5	36
G9410035	3.5	6	6	37
G9410040	4.0	6	7	38
G9410045	4.5	6	8	38
G9410050	5.0	6	8	39
G9410055	5.5	6	8	39
G9410957	5.75	6	8	39
G9410060	6.0	6	8	39
G9410967	6.75	8	10	42
G9410070	7.0	8	10	42
G9410977	7.75	8	10	42
G9410080	8.0	8	11	43
G9410087	8.7	10	11	48
G9410090	9.0	10	11	48
G9410097	9.7	10	11	48
G9410100	10.0	10	13	50
G9410120	12.0	12	15	55
G9410140	14.0	14	15	58
G9410160	16.0	16	18	62
G9410180	18.0	18	20	70
G9410200	20.0	20	22	75

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

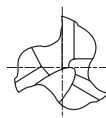
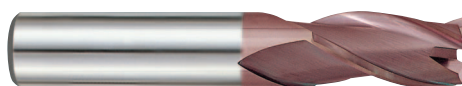
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9425010	1.0	4	3	40
G9425015	1.5	4	4.5	40
G9425020	2.0	2	8	32
G9425025	2.5	2.5	8	32
G9425030	3.0	3	12	32
G9425035	3.5	3.5	12	32
G9425040	4.0	4	12	40
G9425045	4.5	4.5	14	50
G9425050	5.0	5	14	50
G9425055	5.5	5.5	16	50
G9425060	6.0	6	16	50
G9425070	7.0	7	20	60
G9425080	8.0	8	20	60
G9425090	9.0	9	20	60
G9425100	10.0	10	22	70
G9425120	12.0	12	22	70
G9425140	14.0	14	25	75
G9425160	16.0	16	25	75
G9425200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

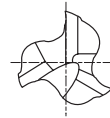
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good



CARBIDE, 3 FLUTE SHORT LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN KURZ

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9439020	2.0	6	3	50
G9439030	3.0	6	4	50
G9439035	3.5	6	4	50
G9439040	4.0	6	5	54
G9439045	4.5	6	5	54
G9439050	5.0	6	6	54
G9439060	6.0	6	7	54
G9439070	7.0	8	8	58
G9439080	8.0	8	9	58
G9439090	9.0	10	10	66
G9439100	10.0	10	11	66
G9439120	12.0	12	12	73
G9439140	14.0	14	14	75
G9439160	16.0	16	16	82
G9439180	18.0	18	18	84
G9439200	20.0	20	20	92

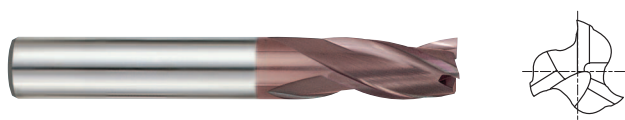
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good

CARBIDE, 3 FLUTE LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN LANG

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9528035	3.5	3.5	7	50
G9528040	4.0	4	8	50
G9528045	4.5	4.5	8	50
G9528050	5.0	5	10	50
G9528055	5.5	5.5	10	57
G9528060	6.0	6	10	57
G9528065	6.5	6.5	13	60
G9528070	7.0	7	13	60
G9528075	7.5	7.5	16	63
G9528080	8.0	8	16	63
G9528085	8.5	8.5	16	67
G9528090	9.0	9	16	67
G9528095	9.5	9.5	19	72
G9528100	10.0	10	19	72
G9528110	11.0	11	22	83
G9528120	12.0	12	22	83
G9528130	13.0	13	22	83
G9528140	14.0	14	22	83
G9528150	15.0	15	26	92
G9528160	16.0	16	26	92
G9528180	18.0	18	26	92
G9528200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

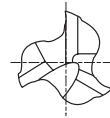
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○



CARBIDE, 3 FLUTE LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN LANG

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9433030	3.0	6	7	57
G9433040	4.0	6	8	57
G9433050	5.0	6	10	57
G9433060	6.0	6	10	57
G9433080	8.0	8	16	63
G9433090	9.0	10	16	72
G9433100	10.0	10	19	72
G9433120	12.0	12	22	83
G9433140	14.0	14	22	83
G9433160	16.0	16	26	92
G9433180	18.0	18	26	92
G9433200	20.0	20	32	104

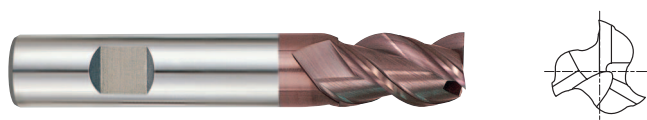
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good

CARBIDE, 3 FLUTE 45° HELIX, LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9447030	3.0	6	7	57
G9447035	3.5	6	7	57
G9447040	4.0	6	8	57
G9447045	4.5	6	8	57
G9447050	5.0	6	10	57
G9447060	6.0	6	10	57
G9447070	7.0	8	13	63
G9447080	8.0	8	16	63
G9447090	9.0	10	16	72
G9447100	10.0	10	19	72
G9447120	12.0	12	22	83
G9447140	14.0	14	22	83
G9447160	16.0	16	26	92
G9447180	18.0	18	26	92
G9447200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

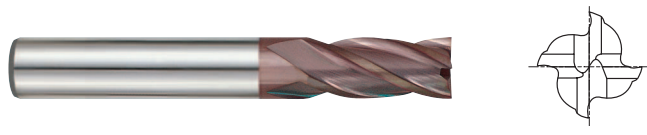
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	◎				◎		○	◎	○	○	○



CARBIDE, 4 FLUTE SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN KURZ

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9432010	1.0	4	3	40
G9432015	1.5	4	4.5	40
G9432020	2.0	2	8	32
G9432025	2.5	2.5	8	32
G9432030	3.0	3	12	32
G9432035	3.5	3.5	12	32
G9432040	4.0	4	12	40
G9432045	4.5	4.5	14	50
G9432050	5.0	5	14	50
G9432055	5.5	5.5	16	50
G9432060	6.0	6	16	50
G9432070	7.0	7	20	60
G9432080	8.0	8	20	60
G9432090	9.0	9	20	60
G9432100	10.0	10	22	70
G9432120	12.0	12	22	70
G9432140	14.0	14	25	75
G9432160	16.0	16	25	75
G9432200	20.0	20	32	100

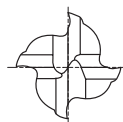
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN KURZ

- ▶ Suitable for dry milling applications at high temperatures.
 - ▶ Excellent high-performance end mills.
 - ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
 - ▶ Hervorragendes Preis - Leistungsverhältnis.
 - ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



MG HM
YG STD
4
30°
DIN 6535HA
P.822

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A69010	1.0	3	3	39
G9A69015	1.5	3	5	39
G9A69020	2.0	3	7	39
G9A69025	2.5	3	7	39
G9A69030	3.0	3	10	39
G9A69040	4.0	4	14	51
G9A69050	5.0	5	16	51
G9A69060	6.0	6	19	64
G9A69080	8.0	8	21	64
G9A69100	10.0	10	22	70
G9A69120	12.0	12	25	76
G9A69160	16.0	16	32	89
G9A69200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

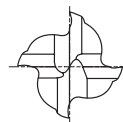


FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN KURZ

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9448020	2.0	6	4	50
G9448025	2.5	6	4	50
G9448030	3.0	6	5	50
G9448035	3.5	6	6	50
G9448040	4.0	6	8	54
G9448045	4.5	6	8	54
G9448050	5.0	6	9	54
G9448060	6.0	6	10	54
G9448070	7.0	8	11	58
G9448080	8.0	8	12	58
G9448090	9.0	10	13	66
G9448100	10.0	10	14	66
G9448120	12.0	12	16	73
G9448140	14.0	14	18	75
G9448160	16.0	16	22	82
G9448180	18.0	18	24	84
G9448200	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9540035	3.5	3.5	10	50
G9540040	4.0	4	11	50
G9540045	4.5	4.5	11	50
G9540050	5.0	5	13	50
G9540055	5.5	5.5	13	57
G9540060	6.0	6	13	57
G9540065	6.5	6.5	16	60
G9540070	7.0	7	16	60
G9540075	7.5	7.5	19	63
G9540080	8.0	8	19	63
G9540085	8.5	8.5	19	67
G9540090	9.0	9	19	67
G9540095	9.5	9.5	22	72
G9540100	10.0	10	22	72
G9540110	11.0	11	26	83
G9540120	12.0	12	26	83
G9540130	13.0	13	26	83
G9540140	14.0	14	26	83
G9540150	15.0	15	32	92
G9540160	16.0	16	32	92
G9540180	18.0	18	32	92
G9540200	20.0	20	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	◎				○		○	○	○	○	○

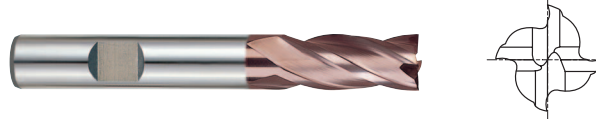


PLAIN SHANK
GLATTER ZYLINDERSCHAFT
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9449901	2.0	● 3	7	38
G9449030	3.0	6	8	57
G9449035	3.5	6	10	57
G9449040	4.0	6	11	57
G9449045	4.5	6	11	57
G9449050	5.0	6	13	57
G9449060	6.0	6	13	57
G9449070	7.0	8	16	63
G9449080	8.0	8	19	63
G9449090	9.0	10	19	72
G9449100	10.0	10	22	72
G9449120	12.0	12	26	83
G9449140	14.0	14	26	83
G9449160	16.0	16	32	92
G9449180	18.0	18	32	92
G9449200	20.0	20	38	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

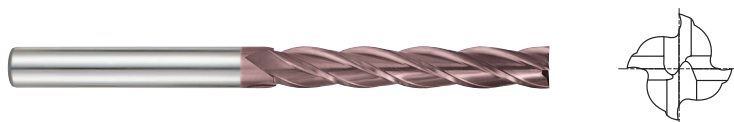
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

CARBIDE, 4 FLUTE EXTRA LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9453903	3.0	3	20	60
G9453904	4.0	4	20	60
G9453905	5.0	5	25	75
G9453906	6.0	6	30	75
G9453908	8.0	8	30	75
G9453910	10.0	10	40	100
G9453912	12.0	12	45	100
G9453914	14.0	14	45	100
G9453916	16.0	16	45	100
G9453918	18.0	18	45	100
G9453920	20.0	20	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	◎				○		○	○	○	○	○

YG K-2 CARBIDE END MILLS

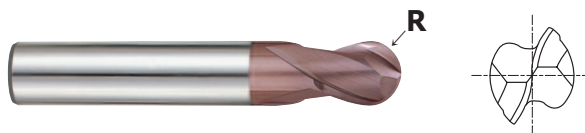
G9624 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

**CARBIDE, 2 FULTE SHORT LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM
YG STD
2
30°
R ±0.02
DIN 6535HA
P.823

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9624020	R 1.0	2.0	6	4	48
G9624025	R 1.25	2.5	6	4	48
G9624030	R 1.5	3.0	6	4	48
G9624040	R 2.0	4.0	6	6	50
G9624901	R 2.0	4.0	4	12	40
G9624050	R 2.5	5.0	6	7	51
G9624902	R 2.5	5.0	5	14	50
G9624060	R 3.0	6.0	6	7	51
G9624080	R 4.0	8.0	8	9	59
G9624100	R 5.0	10.0	10	10	60
G9624120	R 6.0	12.0	12	14	71
G9624140	R 7.0	14.0	14	14	71
G9624160	R 8.0	16.0	16	16	76
G9624180	R 9.0	18.0	18	18	76
G9624200	R 10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

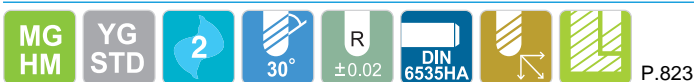
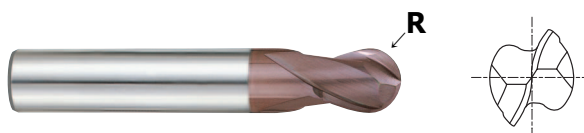
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○		○		○	○	○	○	○

◎ : Excellent ○ : Good

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A70010	R 0.5	1.0	3	3	39
G9A70015	R 0.75	1.5	3	5	39
G9A70020	R 1.0	2.0	3	7	39
G9A70025	R 1.25	2.5	3	7	39
G9A70030	R 1.5	3.0	3	9	39
G9A70040	R 2.0	4.0	4	14	51
G9A70050	R 2.5	5.0	5	16	51
G9A70060	R 3.0	6.0	6	19	64
G9A70080	R 4.0	8.0	8	21	64
G9A70100	R 5.0	10.0	10	22	70
G9A70110	R 5.5	11.0	11	25	70
G9A70120	R 6.0	12.0	12	25	76
G9A70160	R 8.0	16.0	16	32	89
G9A70200	R 10.0	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

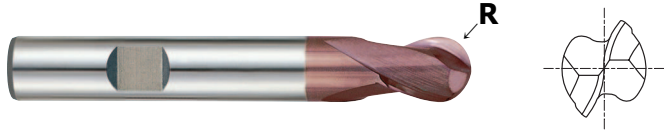
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○		○		○	○	○	○	○

YG K-2 CARBIDE END MILLS

G9437 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FULTE SHORT LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM
DIN 6527
2
30°
R ±0.02
DIN 6535HB
P.823

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9437020	R 1.0	2.0	6	3	50
G9437030	R 1.5	3.0	6	4	50
G9437040	R 2.0	4.0	6	5	54
G9437050	R 2.5	5.0	6	6	54
G9437060	R 3.0	6.0	6	7	54
G9437080	R 4.0	8.0	8	9	58
G9437100	R 5.0	10.0	10	11	66
G9437120	R 6.0	12.0	12	12	73
G9437140	R 7.0	14.0	14	14	75
G9437180	R 9.0	18.0	18	18	84
G9437200	R 10.0	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○		○		○	○	○	○	○

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
 - ▶ Excellent high-performance end mills.
 - ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ Für die Trockenbearbeitung.
 - ▶ Hervorragendes Preis - Leistungsverhältnis.
 - ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG
HM

DIN
6527

2

R
±0.02

DIN
6535HA

DIN
6535HB

P.823

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9438020	R 1.0	2.0	● 3	6	38
G9438030	R 1.5	3.0	6	7	57
G9438040	R 2.0	4.0	6	8	57
G9438050	R 2.5	5.0	6	10	57
G9438060	R 3.0	6.0	6	10	57
G9438080	R 4.0	8.0	8	16	63
G9438100	R 5.0	10.0	10	19	72
G9438120	R 6.0	12.0	12	22	83
G9438140	R 7.0	14.0	14	22	83
G9438160	R 8.0	16.0	16	26	92
G9438180	R 9.0	18.0	18	26	92
G9438200	R 10.0	20.0	20	32	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○		○		○	○	○	○	○

- CARBIDE
- HSS
- CBN END MILLS
- i-Xmill END MILLS
- X5070 END MILLS
- X-POWER END MILLS
- JET-POWER END MILLS
- V7 Mill INOX END MILLS
- V7 Mill STEEL END MILLS
- ALU-POWER END MILLS
- D-POWER END MILLS
- K-2 CARBIDE END MILLS
- GENERAL CARBIDE END MILLS
- TANK-POWER END MILLS
- GENERAL HSS END MILLS
- MILLING CUTTERS
- TECHNICAL DATA

YG K-2 CARBIDE END MILLS

G9454 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG REACH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM YG STD 2 30° R ±0.02 DIN 6535HA P.823

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9454030	R 1.5	3.0	3	5	75
G9454040	R 2.0	4.0	4	8	75
G9454050	R 2.5	5.0	5	9	75
G9454060	R 3.0	6.0	6	10	100
G9454080	R 4.0	8.0	8	12	100
G9454100	R 5.0	10.0	10	14	100
G9454120	R 6.0	12.0	12	16	100
G9454140	R 7.0	14.0	14	18	100
G9454160	R 8.0	16.0	16	22	150
G9454200	R 10.0	20.0	20	26	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○		○		○	○	○	○	○

CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
 - ▶ Excellent high-performance end mills.
 - ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ Für die Trockenbearbeitung.
 - ▶ Hervorragendes Preis - Leistungsverhältnis.
 - ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9455903	R 1.5	3.0	3	20	60
G9455904	R 2.0	4.0	4	20	60
G9455905	R 2.5	5.0	5	25	75
G9455906	R 3.0	6.0	6	30	75
G9455908	R 4.0	8.0	8	30	75
G9455910	R 5.0	10.0	10	40	100
G9455912	R 6.0	12.0	12	45	100
G9455914	R 7.0	14.0	14	45	100
G9455916	R 8.0	16.0	16	45	100
G9455918	R 9.0	18.0	18	45	100
G9455920	R 10.0	20.0	20	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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YG K-2 CARBIDE END MILLS

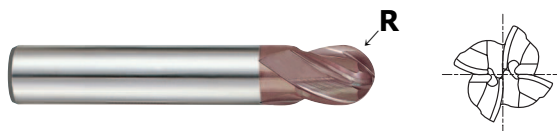
G9634 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

**CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM YG STD 4 30° R ±0.02 DIN 6535HA P.823

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9634020	R 1.0	2.0	6	4	48
G9634030	R 1.5	3.0	6	4	48
G9634040	R 2.0	4.0	6	6	50
G9634050	R 2.5	5.0	6	7	51
G9634060	R 3.0	6.0	6	7	51
G9634080	R 4.0	8.0	8	9	59
G9634100	R 5.0	10.0	10	10	60
G9634120	R 6.0	12.0	12	14	71
G9634140	R 7.0	14.0	14	14	71
G9634160	R 8.0	16.0	16	16	76
G9634180	R 9.0	18.0	18	18	76
G9634200	R 10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○	○		○		○	○	○	○	○

CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - COARSE PITCH

VOLLHARTMETALL, MEHRSCHEIDEN LANG SCHRUPPFÄRER - GROB

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Fast chip ejection.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Guter Spanauswurf.



MG HM YG STD COARSE 3-5 30° DIN 6535HB P.822

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	h10	h6			
G9A42060	6.0	6	16	57	3
G9A42080	8.0	8	16	63	3
G9A42100	10.0	10	22	72	4
G9A42120	12.0	12	26	83	4
G9A42140	14.0	14	26	83	4
G9A42160	16.0	16	32	92	4
G9A42180	18.0	18	32	92	4
G9A42200	20.0	20	38	104	4
G9A42250	25.0	25	45	121	5

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

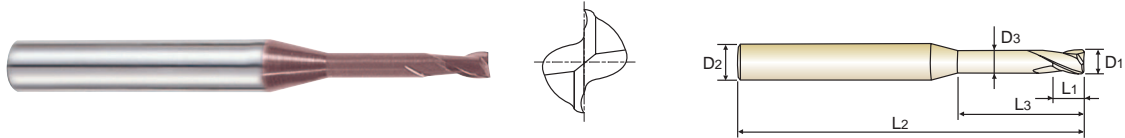
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

YG K-2 CARBIDE END MILLS

G9B80 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT

**CARBIDE, 2 FLUTE RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G9B80004	0.4	4	0.7	2	50	0.37
G9B80901	0.4	4	0.7	4	50	0.37
G9B80005	0.5	4	0.75	2	50	0.45
G9B80902	0.5	4	0.75	4	50	0.45
G9B80903	0.5	4	0.75	6	50	0.45
G9B80006	0.6	4	0.9	2	50	0.55
G9B80904	0.6	4	0.9	4	50	0.55
G9B80905	0.6	4	0.9	6	50	0.55
G9B80007	0.7	4	1.1	4	50	0.65
G9B80906	0.7	4	1.1	6	50	0.65
G9B80008	0.8	4	1.2	4	50	0.75
G9B80907	0.8	4	1.2	6	50	0.75
G9B80908	0.8	4	1.2	8	50	0.75
G9B80009	0.9	4	1.4	6	50	0.85
G9B80909	0.9	4	1.4	8	50	0.85
G9B80910	0.9	4	1.4	10	50	0.85
G9B80010	1.0	4	1.5	6	50	0.95
G9B80911	1.0	4	1.5	8	50	0.95
G9B80912	1.0	4	1.5	10	50	0.95
G9B80913	1.0	4	1.5	12	50	0.95
G9B80012	1.2	4	1.8	6	50	1.15
G9B80914	1.2	4	1.8	8	50	1.15
G9B80915	1.2	4	1.8	10	50	1.15
G9B80916	1.2	4	1.8	12	50	1.15
G9B80015	1.5	4	2.3	6	50	1.45
G9B80917	1.5	4	2.3	8	50	1.45
G9B80918	1.5	4	2.3	10	50	1.45
G9B80919	1.5	4	2.3	12	50	1.45
G9B80920	1.5	4	2.3	14	50	1.45
G9B80921	1.5	4	2.3	16	50	1.45

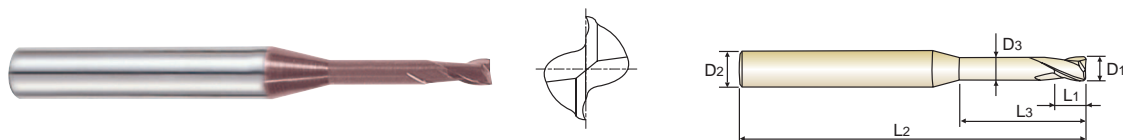
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

CARBIDE, 2 FLUTE RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G9B80922	1.5	4	2.3	18	50	1.45
G9B80923	1.5	4	2.3	20	50	1.45
G9B80020	2.0	4	3	6	50	1.95
G9B80924	2.0	4	3	8	50	1.95
G9B80925	2.0	4	3	10	50	1.95
G9B80926	2.0	4	3	12	50	1.95
G9B80927	2.0	4	3	14	50	1.95
G9B80928	2.0	4	3	16	50	1.95
G9B80929	2.0	4	3	18	50	1.95
G9B80930	2.0	4	3	20	50	1.95
G9B80025	2.5	4	3.7	8	50	2.40
G9B80931	2.5	4	3.7	12	50	2.40
G9B80932	2.5	4	3.7	16	50	2.40
G9B80933	2.5	4	3.7	20	50	2.40
G9B80030	3.0	6	4.5	8	50	2.85
G9B80934	3.0	6	4.5	12	50	2.85
G9B80935	3.0	6	4.5	16	60	2.85
G9B80936	3.0	6	4.5	20	60	2.85
G9B80937	3.0	6	4.5	25	75	2.85
G9B80040	4.0	6	6	12	50	3.85
G9B80938	4.0	6	6	16	60	3.85
G9B80939	4.0	6	6	20	75	3.85
G9B80940	4.0	6	6	25	75	3.85
G9B80941	4.0	6	6	30	75	3.85
G9B80942	4.0	6	6	35	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

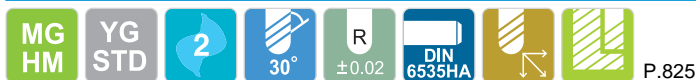
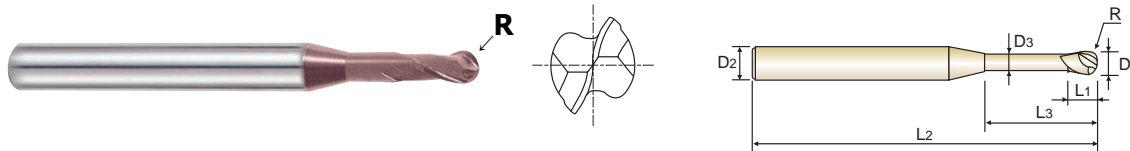
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRC55~70							
◎	◎	◎				○		○	○	○	○	○

YG K-2 CARBIDE END MILLS

G9B81 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT

**CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G9B81004	RO.2	0.4	4	0.7	2	50	0.37
G9B81005	RO.25	0.5	4	0.75	2	50	0.45
G9B81901	RO.25	0.5	4	0.75	4	50	0.45
G9B81902	RO.25	0.5	4	0.75	6	50	0.45
G9B81006	RO.3	0.6	4	0.9	2	50	0.55
G9B81903	RO.3	0.6	4	0.9	4	50	0.55
G9B81904	RO.3	0.6	4	0.9	6	50	0.55
G9B81008	RO.4	0.8	4	1.2	4	50	0.75
G9B81905	RO.4	0.8	4	1.2	6	50	0.75
G9B81906	RO.4	0.8	4	1.2	8	50	0.75
G9B81010	RO.5	1.0	4	1.5	6	50	0.95
G9B81907	RO.5	1.0	4	1.5	8	50	0.95
G9B81908	RO.5	1.0	4	1.5	10	50	0.95
G9B81909	RO.5	1.0	4	1.5	12	50	0.95
G9B81012	RO.6	1.2	4	1.8	8	50	1.15
G9B81910	RO.6	1.2	4	1.8	12	50	1.15
G9B81014	RO.7	1.4	4	2.1	16	50	1.35
G9B81015	RO.75	1.5	4	2.3	6	50	1.45
G9B81911	RO.75	1.5	4	2.3	8	50	1.45
G9B81912	RO.75	1.5	4	2.3	10	50	1.45
G9B81913	RO.75	1.5	4	2.3	12	50	1.45
G9B81914	RO.75	1.5	4	2.3	16	50	1.45
G9B81915	RO.75	1.5	4	2.3	20	50	1.45
G9B81016	RO.8	1.6	4	2.4	8	50	1.55
G9B81916	RO.8	1.6	4	2.4	12	50	1.55
G9B81917	RO.8	1.6	4	2.4	16	50	1.55

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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K-2 CARBIDE END MILLS

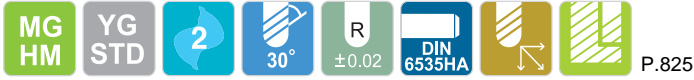
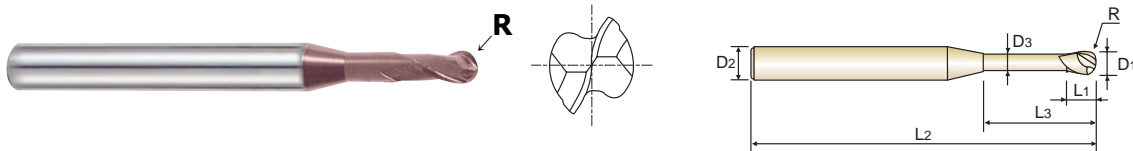
G9B81 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G9B81918	R0.8	1.6	4	2.4	20	50	1.55
G9B81020	R1.0	2.0	4	3	8	50	1.95
G9B81919	R1.0	2.0	4	3	10	50	1.95
G9B81920	R1.0	2.0	4	3	12	50	1.95
G9B81921	R1.0	2.0	4	3	14	50	1.95
G9B81922	R1.0	2.0	4	3	16	50	1.95
G9B81923	R1.0	2.0	4	3	20	50	1.95
G9B81030	R1.5	3.0	6	4.5	10	50	2.85
G9B81924	R1.5	3.0	6	4.5	12	50	2.85
G9B81925	R1.5	3.0	6	4.5	16	60	2.85
G9B81926	R1.5	3.0	6	4.5	20	60	2.85
G9B81927	R1.5	3.0	6	4.5	25	75	2.85
G9B81040	R2.0	4.0	6	6	12	50	3.85
G9B81928	R2.0	4.0	6	6	16	60	3.85
G9B81929	R2.0	4.0	6	6	20	75	3.85
G9B81930	R2.0	4.0	6	6	25	75	3.85
G9B81931	R2.0	4.0	6	6	30	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B82020	RO.2	2.0	4	4	50
G9B82901	RO.3	2.0	4	4	50
G9B82902	RO.5	2.0	4	4	50
G9B82025	RO.2	2.5	4	5	50
G9B82903	RO.3	2.5	4	5	50
G9B82904	RO.5	2.5	4	5	50
G9B82030	RO.2	3.0	4	6	50
G9B82905	RO.3	3.0	4	6	50
G9B82906	RO.5	3.0	4	6	50
G9B82907	R1.0	3.0	4	6	50
G9B82040	RO.2	4.0	4	8	50
G9B82908	RO.3	4.0	4	8	50
G9B82909	RO.5	4.0	4	8	50
G9B82910	R1.0	4.0	4	8	50
G9B82050	RO.2	5.0	6	10	50
G9B82911	RO.3	5.0	6	10	50
G9B82912	RO.5	5.0	6	10	50
G9B82913	R1.0	5.0	6	10	50
G9B82060	RO.2	6.0	6	12	50
G9B82914	RO.3	6.0	6	12	50
G9B82915	RO.5	6.0	6	12	50
G9B82916	R1.0	6.0	6	12	50

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS
VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B82080	R0.5	8.0	8	16	60
G9B82917	R1.0	8.0	8	16	60
G9B82918	R1.5	8.0	8	16	60
G9B82919	R2.0	8.0	8	16	60
G9B82920	R2.5	8.0	8	16	60
G9B82100	R0.5	10.0	10	20	75
G9B82921	R1.0	10.0	10	20	75
G9B82922	R1.5	10.0	10	20	75
G9B82923	R2.0	10.0	10	20	75
G9B82924	R2.5	10.0	10	20	75
G9B82120	R0.5	12.0	12	24	75
G9B82925	R1.0	12.0	12	24	75
G9B82926	R1.5	12.0	12	24	75
G9B82927	R2.0	12.0	12	24	75
G9B82928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○

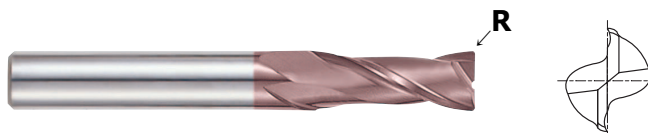
YG K-2 CARBIDE END MILLS

G8B83 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

**CARBIDE, 2 FLUTE LONG REACH CORNER RADIUS
VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE ECKENRADIUS**

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B83030	R0.5	3.0	4	6	75
G9B83901	R1.0	3.0	4	6	75
G9B83040	R0.5	4.0	4	8	75
G9B83902	R1.0	4.0	4	8	75
G9B83050	R0.5	5.0	6	10	75
G9B83903	R1.0	5.0	6	10	75
G9B83060	R0.5	6.0	6	12	75
G9B83904	R1.0	6.0	6	12	75
G9B83080	R0.5	8.0	8	16	100
G9B83905	R1.0	8.0	8	16	100
G9B83906	R1.5	8.0	8	16	100
G9B83907	R2.0	8.0	8	16	100
G9B83908	R2.5	8.0	8	16	100
G9B83100	R0.5	10.0	10	20	100
G9B83909	R1.0	10.0	10	20	100
G9B83910	R1.5	10.0	10	20	100
G9B83911	R2.0	10.0	10	20	100
G9B83912	R2.5	10.0	10	20	100
G9B83120	R0.5	12.0	12	24	100
G9B83913	R1.0	12.0	12	24	100
G9B83914	R1.5	12.0	12	24	100
G9B83915	R2.0	12.0	12	24	100
G9B83916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B84020	RO.2	2.0	4	4	50
G9B84901	RO.3	2.0	4	4	50
G9B84902	RO.5	2.0	4	4	50
G9B84025	RO.2	2.5	4	5	50
G9B84903	RO.3	2.5	4	5	50
G9B84904	RO.5	2.5	4	5	50
G9B84030	RO.2	3.0	4	6	50
G9B84905	RO.3	3.0	4	6	50
G9B84906	RO.5	3.0	4	6	50
G9B84907	R1.0	3.0	4	6	50
G9B84040	RO.2	4.0	4	8	50
G9B84908	RO.3	4.0	4	8	50
G9B84909	RO.5	4.0	4	8	50
G9B84910	R1.0	4.0	4	8	50
G9B84050	RO.2	5.0	6	10	50
G9B84911	RO.3	5.0	6	10	50
G9B84912	RO.5	5.0	6	10	50
G9B84913	R1.0	5.0	6	10	50
G9B84060	RO.2	6.0	6	12	50
G9B84914	RO.3	6.0	6	12	50
G9B84915	RO.5	6.0	6	12	50
G9B84916	R1.0	6.0	6	12	50

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎				○		○	○	○	○	○



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B84080	R0.5	8.0	8	16	60
G9B84917	R1.0	8.0	8	16	60
G9B84918	R1.5	8.0	8	16	60
G9B84919	R2.0	8.0	8	16	60
G9B84920	R2.5	8.0	8	16	60
G9B84100	R0.5	10.0	10	20	75
G9B84921	R1.0	10.0	10	20	75
G9B84922	R1.5	10.0	10	20	75
G9B84923	R2.0	10.0	10	20	75
G9B84924	R2.5	10.0	10	20	75
G9B84120	R0.5	12.0	12	24	75
G9B84925	R1.0	12.0	12	24	75
G9B84926	R1.5	12.0	12	24	75
G9B84927	R2.0	12.0	12	24	75
G9B84928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

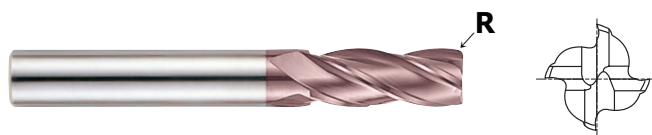
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○	○	○	○	○

◎ : Excellent ○ : Good

CARBIDE, 4 FLUTE LONG REACH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN GROÙE REICHWEITE ECKENRADIUS

- ▶ Suitable for dry milling applications at high temperatures.
 - ▶ Excellent high-performance end mills.
 - ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ Für die Trockenbearbeitung.
 - ▶ Hervorragendes Preis - Leistungsverhältnis.
 - ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B85030	R0.5	3.0	4	6	75
G9B85901	R1.0	3.0	4	6	75
G9B85040	R0.5	4.0	4	8	75
G9B85902	R1.0	4.0	4	8	75
G9B85050	R0.5	5.0	6	10	75
G9B85903	R1.0	5.0	6	10	75
G9B85060	R0.5	6.0	6	12	75
G9B85904	R1.0	6.0	6	12	75
G9B85080	R0.5	8.0	8	16	100
G9B85905	R1.0	8.0	8	16	100
G9B85906	R1.5	8.0	8	16	100
G9B85907	R2.0	8.0	8	16	100
G9B85908	R2.5	8.0	8	16	100
G9B85100	R0.5	10.0	10	20	100
G9B85909	R1.0	10.0	10	20	100
G9B85910	R1.5	10.0	10	20	100
G9B85911	R2.0	10.0	10	20	100
G9B85912	R2.5	10.0	10	20	100
G9B85120	R0.5	12.0	12	24	100
G9B85913	R1.0	12.0	12	24	100
G9B85914	R1.5	12.0	12	24	100
G9B85915	R2.0	12.0	12	24	100
G9B85916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	◎				○		○	○	○	○	○

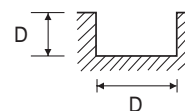
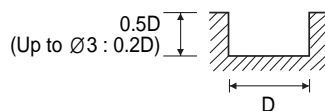
YG K-2 CARBIDE END MILLS

**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**

**CARBIDE, 4 FLUTE
VOLLHARTMETALL, 4 SCHNEIDEN**

G9424, G9A68, G9444, G9527, G9445, G9452 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS, HEAT RESISTANT STEELS		STAINLESS STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER, BRASS NON-FERROUS METALS		
	~ HRC 30		HRC 30 ~ HRC 45										
HARDNESS	~1000N/mm ²		1000~1500N/mm ²										
STRENGTH	DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	14300	105	8500	65	7150	50	18700	205	44000	330	24700	200	
1.5	9350	150	5550	85	5600	80	12100	205	27500	385	20300	300	
2.0	7850	160	5150	100	4300	80	9350	220	22000	460	16500	340	
3.0	6100	180	3800	120	3150	100	6050	220	15400	460	11000	340	
4.0	5150	255	3150	155	2650	130	4600	220	11000	460	8800	340	
5.0	4300	270	2550	160	2150	135	3650	220	9150	460	6800	340	
6.0	3800	300	2300	190	1950	155	2950	255	7600	485	5700	375	
8.0	2850	325	1700	170	1450	155	2200	275	5700	485	4400	375	
10.0	2200	280	1350	135	1150	135	1850	285	4600	485	3400	375	
12.0	1850	240	1150	110	950	110	1450	295	3750	485	2850	375	
14.0	1700	215	1050	100	850	100	1300	310	3300	485	2400	375	
16.0	1500	185	950	95	700	95	1100	320	2850	485	2200	375	
20.0	1150	145	700	70	550	70	900	340	2200	485	1700	375	



※ The FEED, in long & extra long types, should be reduced by around 50%

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



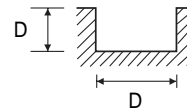
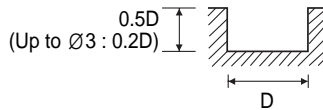
K-2 CARBIDE END MILLS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE FINISH SLOTING VOLLHARTMETALL, 3 SCHNEIDEN SCHLICHTEN NUTENFRÄSEN

G9553, G9410, G9425, G9439, G9528, G9433, G9447 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS, HEAT RESISTANT STEELS		STAINLESS STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER, BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 30		HRc 30 ~ HRc 45									
STRENGTH	~1000N/mm ²		1000~1500N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	14300	75	8500	45	7150	35	18700	185	44000	300	24700	180
1.5	12750	105	5550	60	5600	55	12100	185	27500	345	20300	270
2.0	7850	110	5150	70	4300	55	9350	200	22000	420	16500	310
3.0	6100	125	3800	85	3150	70	6050	200	15400	430	11000	310
4.0	5150	180	3150	110	2650	90	4600	185	11000	420	8800	310
5.0	4300	190	2550	110	2150	95	3650	200	9150	420	6800	310
6.0	3800	210	2300	135	1950	110	2950	230	7600	440	5700	340
8.0	2850	230	1700	120	1450	110	2200	240	5700	440	4400	330
10.0	2200	195	1350	95	1150	95	1850	255	4600	440	3400	330
12.0	1850	170	1150	75	950	75	1450	275	3750	430	2850	330
14.0	1700	150	1050	70	850	70	1300	285	3300	430	2400	330
16.0	1500	130	950	65	700	65	1100	285	2850	430	2200	330
20.0	1150	100	700	50	550	50	900	310	2200	430	1700	330



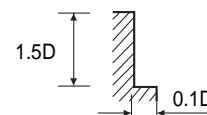
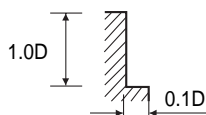
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE FINISH SIDE CUTTING VOLLHARTMETALL, 3 SCHNEIDEN SCHLICHTEN SEITENFRÄSEN

G9553, G9410, G9425, G9439, G9528, G9433, G9447 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS, HEAT RESISTANT STEELS		STAINLESS STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER, BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 30		HRc 30 ~ HRc 45									
STRENGTH	~1000N/mm ²		1000~1500N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	17600	110	10250	65	8650	55	18700	460	44000	750	24700	450
1.5	11800	160	7050	85	7050	90	12100	460	27500	860	20300	675
2.0	9850	180	6450	120	5350	100	9350	475	22000	1035	16500	770
3.0	7600	205	4750	130	3950	105	6050	475	15400	990	11000	760
4.0	6450	365	3950	220	3300	180	4600	485	11000	1035	8800	770
5.0	5350	385	3200	230	2700	195	3650	485	9150	1010	6800	760
6.0	4750	425	2850	265	2400	215	2950	570	7600	1100	5700	825
8.0	3550	450	2150	245	1800	225	2200	615	5700	1100	4400	825
10.0	2750	390	1700	195	1450	195	1850	640	4600	1100	3400	825
12.0	2350	330	1450	160	1150	155	1450	670	3750	1100	2850	825
14.0	2100	465	1300	145	1050	140	1300	705	3300	1100	2400	825
16.0	1850	265	1150	130	900	130	1100	725	2850	1100	2200	825
20.0	1450	205	900	100	700	100	900	770	2200	1100	1700	825



※ The FEED, in long & extra long types, should be reduced by around 50%

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

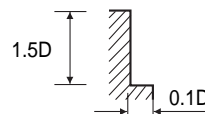
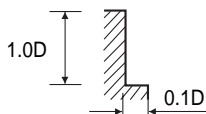
YG K-2 CARBIDE END MILLS

**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**

**CARBIDE, 4 FLUTE FINISH SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN SCHLICHTEN SEITENFRÄSEN**

G9432, G9A69, G9448, G9540, G9449, G9453 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 30		HRc 30 ~ HRc 45									
STRENGTH	~1000N/mm ²		1000~1500N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	17600	150	10250	85	8650	75	18700	620	44000	1050	24700	605
1.5	11800	215	7050	115	7050	120	12100	620	27500	1160	20300	910
2.0	9850	240	6450	145	5350	120	9350	640	22000	1320	16500	1035
3.0	7600	270	4750	170	3950	145	6050	640	15400	1320	11000	1035
4.0	6450	485	3950	300	3300	240	4600	640	11000	1320	8800	1035
5.0	5350	510	3200	305	2700	255	3650	640	9150	1320	6800	1035
6.0	4750	560	2850	350	2400	280	2950	770	7600	1430	5700	1100
8.0	3550	605	2150	325	1800	300	2200	815	5700	1430	4400	1100
10.0	2750	520	1700	255	1450	255	1850	860	4600	1430	3400	1100
12.0	2350	440	1450	215	1150	205	1450	900	3750	1430	2850	1100
14.0	2100	395	1300	195	1050	190	1300	945	3300	1430	2400	1100
16.0	1850	350	1150	170	950	170	1100	970	2850	1430	2200	1100
20.0	1450	270	900	135	700	130	900	1035	2200	1430	1700	1100



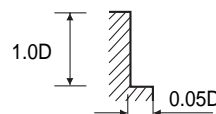
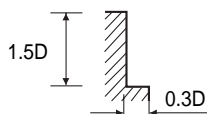
※ The FEED, in long & extra long types, should be reduced by around 50%

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

**CARBIDE, MULTI FLUTE ROUGHING SIDE CUTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFÄSER SEITENFRÄSEN**

G9A42 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		INCONEL	
HARDNESS	~ HRc30		HRc30 ~ HRc38		HRc38 ~ HRc45			
STRENGTH	1000N/mm ²		1000 ~ 1200N/mm ²		1200 ~ 1400N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	13250	1970	10550	710	7150	480	2050	160
8.0	9850	1970	7800	710	5350	480	1550	150
10.0	7800	1970	6450	710	4350	480	1100	160
12.0	6800	2040	5100	680	3550	480	1000	160
14.0	5800	2040	4400	710	3050	480	750	110
16.0	5100	2040	4100	650	2800	430	700	90
18.0	4400	1970	3750	610	2300	360	600	90
20.0	4100	1840	3050	480	2050	310	550	90
25.0	3650	1830	2700	530	1850	350	500	90



※ The FEED, in long & extra long types, should be reduced by around 50%

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



K-2 CARBIDE END MILLS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

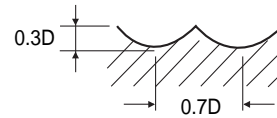
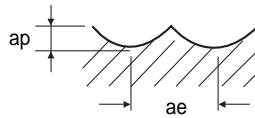
TECHNICAL
DATA

CARBIDE, 2 FLUTE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

G9624, G9A70, G9437, G9438, G9454, G9455 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		HARDENED STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRc 30		HRc 30 ~ HRc 45		HRc 45 ~ HRc 50					
STRENGTH	~1000N/mm ²		1000~1500N/mm ²		1500N/mm ² ~					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	12350	640	9150	415	4000	125	10500	220	30800	395
3.0	11400	575	8550	390	3800	125	7050	230	20500	395
4.0	8950	630	7150	450	3600	150	5150	285	15400	395
5.0	7800	700	6200	490	3100	150	4150	330	12100	470
6.0	7250	870	5900	705	2700	160	3400	360	10300	470
8.0	6100	1090	4900	785	2050	190	2500	460	7900	540
10.0	5450	1330	4350	870	1750	190	2050	460	6150	540
12.0	4990	1500	3950	950	1500	210	1750	460	5150	630
14.0	4530	1495	3600	925	1300	210	1400	460	4300	630
16.0	4085	1470	3200	905	1150	210	1300	460	3850	540
18.0	3800	1425	3000	890	1050	210	1100	460	3400	540
20.0	3550	1425	2800	885	950	210	1050	420	2950	540

ap : D1~D6=0.2mm
D8~D20=0.3mm
ae : 0.2D



※ The FEED, in long & extra long types, should be reduced by around 50%

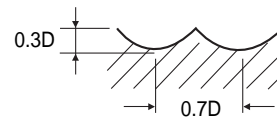
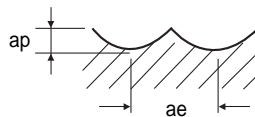
RPM = rev./min. FEED = mm/min.

CARBIDE, 4 FLUTE BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS

G9634 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		HARDENED STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRc 30		HRc 30 ~ HRc 45		HRc 45 ~ HRc 50					
STRENGTH	~1000N/mm ²		1000~1500N/mm ²		1500N/mm ² ~					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	13300	680	10000	405	4100	135	10500	330	30800	605
3.0	11500	870	8550	585	3850	190	7050	340	20500	605
4.0	8950	950	7150	680	3600	230	5150	430	15400	605
5.0	7800	1045	6200	745	3100	230	4150	495	12100	715
6.0	7250	1330	5900	1090	2700	235	3400	540	10300	715
8.0	6100	1660	4900	1185	2100	285	2500	680	7900	820
10.0	5450	1950	4350	1330	1750	290	2050	680	6150	820
12.0	4985	2230	4000	1425	1500	320	1750	680	5150	945
14.0	4500	2230	3600	1425	1300	320	1400	700	4300	945
16.0	4085	2230	3200	1380	1100	320	1300	700	3850	820
18.0	3800	2135	3000	1330	1050	320	1100	700	3400	820
20.0	3550	2135	2800	1330	950	320	1050	630	2950	820

ap : D1~D6=0.2mm
D8~D20=0.3mm
ae : 0.2D



※ The FEED, in long & extra long types, should be reduced by around 50%

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



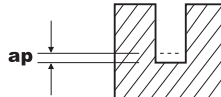
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

G9B80 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS			ALLOY STEELS HEAT RESISTANT STEELS		
HARDNESS	~ HRC30			HRC30 ~ HRC45		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²		
DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
0.4	26500~34000	170~370	0.007~0.018	19000~24000	72~290	0.007~0.018
0.5	26500~34000	170~370	0.009~0.022	19000~24000	72~290	0.009~0.022
0.6	26500~34000	210~485	0.011~0.026	19000~24000	95~365	0.011~0.026
0.7	26500~34000	210~485	0.012~0.031	19000~24000	95~365	0.012~0.031
0.8	23000~30000	240~535	0.014~0.035	16500~21000	100~410	0.014~0.035
0.9	21500~27000	240~610	0.030~0.060	15000~19000	135~460	0.030~0.060
1.0	19000~24000	240~690	0.045~0.090	13500~17000	160~510	0.045~0.090
1.2	15500~19000	240~765	0.055~0.100	11000~14000	160~510	0.055~0.100
1.4	13600~17000	240~765	0.062~0.125	9800~12000	160~510	0.062~0.125
1.5	12500~15500	240~765	0.070~0.135	8950~11500	160~510	0.070~0.135
1.6	12000~15000	240~765	0.075~0.145	8700~10900	160~510	0.075~0.145
1.8	11000~14000	240~765	0.080~0.160	7800~9800	160~510	0.080~0.160
2.0	10000~12500	240~765	0.090~0.180	7000~8950	160~510	0.090~0.180
2.5	8000~10000	240~765	0.112~0.235	5700~7200	160~510	0.112~0.235
3.0	6800~8500	240~765	0.135~0.270	4700~6000	160~510	0.135~0.270
4.0	5100~6500	240~765	0.180~0.360	3500~4500	160~510	0.180~0.360

(Depth of Cut per one pass)



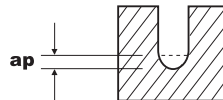
* The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN
G9B81 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS			ALLOY STEELS HEAT RESISTANT STEELS		
	HARDNESS	~ HRC30			HRC30 ~ HRC45	
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²		
DIAMETER	RPM	FEED	ap (mm)	RPM	FEED	ap (mm)
0.4	26350~34000	150~415	0.018~0.036	19100~24200	75~230	0.018~0.036
0.5	26350~34000	150~415	0.023~0.045	19100~24200	75~230	0.023~0.045
0.6	26350~34000	190~535	0.027~0.054	19100~24200	95~300	0.027~0.054
0.8	26350~34000	190~535	0.036~0.072	19100~24200	95~300	0.036~0.072
1.0	24650~31000	210~595	0.045~0.090	17400~22100	105~330	0.045~0.090
1.2	20500~26000	210~665	0.055~0.100	14500~18300	105~330	0.055~0.100
1.4	18000~22000	210~665	0.062~0.125	12800~15300	105~330	0.062~0.125
1.5	16000~20500	210~665	0.070~0.135	11500~14900	105~330	0.070~0.135
1.6	15500~20000	210~665	0.075~0.145	11200~14000	105~330	0.075~0.145
1.8	14500~18200	210~665	0.080~0.160	10200~12800	105~330	0.080~0.160
2.0	13000~16000	210~665	0.090~0.180	9400~11500	105~330	0.090~0.180
3.0	9000~11000	210~665	0.135~0.270	6000~11500	105~330	0.135~0.270
4.0	7200~9350	210~665	0.180~0.360	5000~6600	105~330	0.180~0.360

(Depth of Cut per one pass)



※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSS

CBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

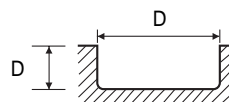
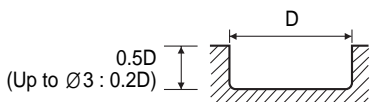
**YG K-2 CARBIDE
END MILLS**

**RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN**

**CARBIDE, 2 FLUTE CORNER RADIUS FINISH SLOTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS SCHLICHTEN NUTENFRÄSEN**

G9B82, G9B83 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS, HEAT RESISTANT STEELS		STAINLESS STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER, BRASS NON-FERROUS METALS	
HARDNESS	~ Hrc 30		HRc 30 ~ HRc 45									
STRENGTH	~1000N/mm ²		1000~1500N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	14300	105	8500	65	7150	50	18700	205	44000	330	24700	200
1.5	9350	150	5550	85	5600	80	12100	205	27500	385	20300	300
2.0	7850	160	5150	100	4300	80	9350	220	22000	460	16500	340
3.0	6100	180	3800	120	3150	100	6050	220	15400	460	11000	340
4.0	5150	255	3150	155	2650	130	4600	220	11000	460	8800	340
5.0	4300	270	2550	160	2150	135	3650	220	9150	460	6800	340
6.0	3800	300	2300	190	1950	155	2950	255	7600	485	5700	375
8.0	2850	325	1700	170	1450	155	2200	275	5700	485	4400	375
10.0	2200	280	1350	135	1150	135	1850	285	4600	485	3400	375
12.0	1850	240	1150	110	950	110	1450	295	3750	485	2850	375



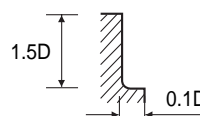
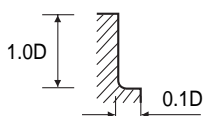
※ The FEED, in long & extra long types, should be reduced by around 50%

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

**CARBIDE, 4 FLUTE CORNER RADIUS FINISH SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS SCHLICHTEN SEITENFRÄSEN**

G9B84, G9B85 SERIES

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS, HEAT RESISTANT STEELS		STAINLESS STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER, BRASS NON-FERROUS METALS	
HARDNESS	~ Hrc 30		HRc 30 ~ HRc 45									
STRENGTH	~1000N/mm ²		1000~1500N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1.0	17600	150	10250	85	8650	75	18700	620	44000	1050	24700	605
1.5	11800	215	7050	115	7050	120	12100	620	27500	1160	20300	910
2.0	9850	240	6450	145	5350	120	9350	640	22000	1320	16500	1035
3.0	7600	270	4750	170	3950	145	6050	640	15400	1320	11000	1035
4.0	6450	485	3950	300	3300	240	4600	640	11000	1320	8800	1035
5.0	5350	510	3200	305	2700	255	3650	640	9150	1320	6800	1035
6.0	4750	560	2850	350	2400	280	2950	770	7600	1430	5700	1100
8.0	3550	605	2150	325	1800	300	2200	815	5700	1430	4400	1100
10.0	2750	520	1700	255	1450	255	1850	860	4600	1430	3400	1100
12.0	2350	440	1450	215	1150	205	1450	900	3750	1430	2850	1100



※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE



Being the best through innovation



CARBIDE

VOLLHARTMETALL FRÄSER

- General Purposes, Non-coated, Any Coating Available
- Unbeschichtet für allgemeinen Einsatz. Jegliche Beschichtung möglich

SELECTION GUIDE










ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
E5424 E5416		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0 D6.0	D20.0	832
E5444		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D2.0	D20.0	833
E5445		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D2.0	D20.0	834
E5527		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D3.5	D20.0	835
E5452		CARBIDE, 2 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG	D3.0	D20.0	836
E5553 E5410		CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEG FRÄSER	D0.5	D20.0	837
E5SET410		CARBIDE, THROW AWAY SET (NON-COATED) VOLLHARTMETALL, EINWEG-SCHAFTFRÄSER SET (NICHT-BESCHICHTET)	D2.0	D10.0	838
E5425 E5417		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D2.0 D6.0	D20.0	839
E5439		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D2.0	D20.0	840
E5433		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.0	D20.0	841
E5528		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.5	D20.0	842
E5882		CARBIDE, 3 FLUTE 35° HELIX CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 35° RECHTSSPIRALE ECKENRADIUS	D3.0	D20.0	843
E5423 E5415		CARBIDE, 3 FLUTE 45° HELIX SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE KURZ	D3.0	D20.0	844
E5446		CARBIDE, 3 FLUTE 45° HELIX SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE KURZ	D1.5	D20.0	845
E5447		CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG	D3.0	D20.0	846
E5432 E5595		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0 D6.0	D20.0	847
E5448		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0	D20.0	848
E5449		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D2.0	D20.0	849
E5540		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.5	D20.0	850

GENERAL CARBIDE END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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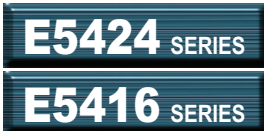
SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
E5453		CARBIDE, 4 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG	D3.0	D20.0	851
E5624 E5650		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	852
E5437		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	853
E5438		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R10.0	854
E5454		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROÙE REICHWEITE STIRNRADIUS	R1.5	R10.0	855
E5455		CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS	R1.5	R10.0	856
E5634 E5524		CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	857
E5742 E5711		CARBIDE, 3 FLUTE LONG LENGTH ROUGHING VOLLHARTMETALL, 3 SCHNEIDEN LANG SCHRUPPFÄSER	D6.0	D25.0	858
E5400		CARBIDE, DRILL MILLS VOLLHARTMETALL, BOHRNUTEN FRÄSER	D3.0	D20.0	859
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					860

GENERAL CARBIDE END MILLS

◎ : Excellent, ○ : Good

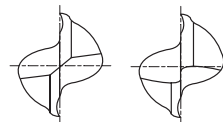
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN KURZ



up to Ø3mm over Ø3mm



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	PLAIN	FLAT	FLAT	h10	h6		
E5424010	T2GRS-010X	—	—	1.0	4	3	40
E5424015	T2GRS-015X	—	—	1.5	4	4.5	40
E5424020	T2GRS-020Z	—	—	2.0	2	8	32
E5424025	T2GRS-025Z	—	—	2.5	2.5	8	32
E5424030	T2GRS-030Z	—	—	3.0	3	12	32
E5424035	T2GRS-035Z	—	—	3.5	3.5	12	32
E5424040	T2GRS-040Z	—	—	4.0	4	12	40
E5424045	T2GRS-045Z	—	—	4.5	4.5	14	50
E5424050	T2GRS-050Z	—	—	5.0	5	14	50
E5424055	T2GRS-055Z	—	—	5.5	5.5	16	50
E5424060	T2GRS-060Z	E5416060	T2GRS-060ZF	6.0	6	16	50
E5424070	T2GRS-070Z	—	—	7.0	7	20	60
E5424080	T2GRS-080Z	E5416080	T2GRS-080ZF	8.0	8	20	60
E5424090	T2GRS-090Z	—	—	9.0	9	20	60
E5424100	T2GRS-100Z	E5416100	T2GRS-100ZF	10.0	10	22	70
E5424120	T2GRS-120Z	E5416120	T2GRS-120ZF	12.0	12	22	70
E5424140	T2GRS-140Z	E5416140	T2GRS-140ZF	14.0	14	25	75
E5424160	T2GRS-160Z	E5416160	T2GRS-160ZF	16.0	16	25	75
E5424200	T2GRS-200Z	E5416200	T2GRS-200ZF	20.0	20	32	100

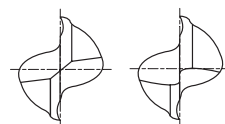
► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 2 FLUTE SHORT LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN KURZ


up to Ø2mm over Ø2mm

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5444020	2.0	6	3	50
E5444030	3.0	6	4	50
E5444035	3.5	6	4	50
E5444040	4.0	6	5	54
E5444045	4.5	6	5	54
E5444050	5.0	6	6	54
E5444060	6.0	6	7	54
E5444070	7.0	8	8	58
E5444080	8.0	8	9	58
E5444090	9.0	10	10	66
E5444100	10.0	10	11	66
E5444120	12.0	12	12	73
E5444140	14.0	14	14	75
E5444160	16.0	16	16	82
E5444180	18.0	18	18	84
E5444200	20.0	20	20	92

▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

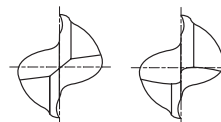
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎			○		◎	○	○		



E5445 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG



up to Ø2mm over Ø2mm

MG HM DIN 6527 N 2 30° DIN 6535HB P.860

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5445901	2.0	3	6	38
E5445028	2.8	6	7	57
E5445030	3.0	6	7	57
E5445035	3.5	6	7	57
E5445038	3.8	6	8	57
E5445040	4.0	6	8	57
E5445045	4.5	6	8	57
E5445048	4.8	6	10	57
E5445050	5.0	6	10	57
E5445957	5.75	6	10	57
E5445060	6.0	6	10	57
E5445967	6.75	8	13	63
E5445070	7.0	8	13	63
E5445977	7.75	8	16	63
E5445080	8.0	8	16	63
E5445087	8.7	10	16	72
E5445090	9.0	10	16	72
E5445097	9.7	10	19	72
E5445100	10.0	10	19	72
E5445117	11.7	12	22	83
E5445120	12.0	12	22	83
E5445137	13.7	14	22	83
E5445140	14.0	14	22	83
E5445157	15.7	16	26	92
E5445160	16.0	16	26	92
E5445177	17.7	18	26	92
E5445180	18.0	18	26	92
E5445197	19.7	20	32	104
E5445200	20.0	20	32	104

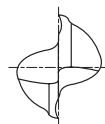
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

● with plain shank
▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5527035	3.5	3.5	7	50
E5527040	4.0	4	8	50
E5527045	4.5	4.5	8	50
E5527050	5.0	5	10	50
E5527055	5.5	5.5	10	57
E5527060	6.0	6	10	57
E5527065	6.5	6.5	13	60
E5527070	7.0	7	13	60
E5527075	7.5	7.5	16	63
E5527080	8.0	8	16	63
E5527085	8.5	8.5	16	67
E5527090	9.0	9	16	67
E5527095	9.5	9.5	19	72
E5527100	10.0	10	19	72
E5527110	11.0	11	22	83
E5527120	12.0	12	22	83
E5527130	13.0	13	22	83
E5527140	14.0	14	22	83
E5527150	15.0	15	26	92
E5527160	16.0	16	26	92
E5527180	18.0	18	26	92
E5527200	20.0	20	32	104

▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

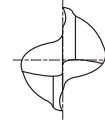
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎			○		◎	○	○		



E5452 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE EXTRA LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG



MG HM
YG STD
N
2
30°
DIN 6535HA
P.860

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5452030	3.0	3	30	75
E5452040	4.0	4	30	75
E5452050	5.0	5	40	100
E5452060	6.0	6	50	150
E5452080	8.0	8	50	150
E5452100	10.0	10	60	150
E5452120	12.0	12	75	150
E5452140	14.0	14	65	150
E5452160	16.0	16	65	150
E5452180	18.0	18	65	150
E5452200	20.0	20	65	150

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

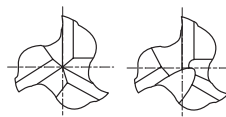
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY
VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEG



up to Ø2mm over Ø2mm



Unit : mm

EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	FLAT	h10	h6		
E5553005	T3FSC-005KS	0.5	● 3	1.5	38
E5553006	T3FSC-006KS	0.6	● 3	1.5	38
E5553008	T3FSC-008KS	0.8	● 3	2	38
E5553010	T3FSC-010KS	1.0	● 3	2	38
E5553012	T3FSC-012KS	1.2	● 3	2	38
E5553015	T3FSC-015KS	1.5	● 3	2	38
E5553018	T3FSC-018KS	1.8	● 3	2	38
E5410020	T3FSC-020AF	2.0	6	4	35
E5410025	T3FSC-025AF	2.5	6	5	36
E5410030	T3FSC-030AF	3.0	6	5	36
E5410035	T3FSC-035AF	3.5	6	6	37
E5410040	T3FSC-040AF	4.0	6	7	38
E5410045	T3FSC-045AF	4.5	6	8	38
E5410050	T3FSC-050AF	5.0	6	8	39
E5410055	T3FSC-055AF	5.5	6	8	39
E5410957	T3FSC-0575AF	5.75	6	8	39
E5410060	T3FSC-060AF	6.0	6	8	39
E5410967	T3FSC-0675BF	6.75	8	10	42
E5410070	T3FSC-070BF	7.0	8	10	42
E5410977	T3FSC-0775BF	7.75	8	10	42
E5410080	T3FSC-080BF	8.0	8	11	43

● with plain shank

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

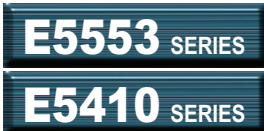
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

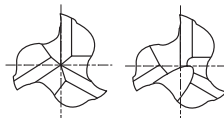
MILLING
CUTTERS

TECHNICAL
DATA



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY
VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEG



up to Ø2mm over Ø2mm



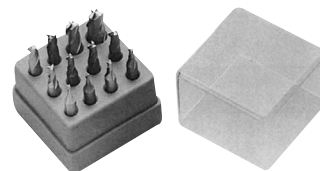
Unit : mm

EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	FLAT	h10	h6		
E5410087	T3FSC-087TF	8.7	10	11	48
E5410090	T3FSC-090TF	9.0	10	11	48
E5410097	T3FSC-097TF	9.7	10	11	48
E5410100	T3FSC-100TF	10.0	10	13	50
E5410120	T3FSC-120DF	12.0	12	15	55
E5410140	T3FSC-140ZF	14.0	14	15	58
E5410160	T3FSC-160EF	16.0	16	18	62
E5410180	T3FSC-180ZF	18.0	18	20	70
E5410200	T3FSC-200FF	20.0	20	22	75

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13



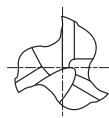
SET ORDERING No.: E5SET410

- * 12PCS. SET
- 2PCS. OF EACH SIZE
2, 3, 4, 5, 6mm (T3FSC)
- 1PC. OF EACH SIZE
8, 10mm (T3FSC)
- * 1 Tooth Over Center

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 3 FLUTE SHORT LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN KURZ



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	PLAIN	FLAT	FLAT	h10	h6		
E5425020	T3GRC-020Z	—	—	2.0	2	8	32
E5425025	T3GRC-025Z	—	—	2.5	2.5	8	32
E5425030	T3GRC-030Z	—	—	3.0	3	12	32
E5425035	T3GRC-035Z	—	—	3.5	3.5	12	32
E5425040	T3GRC-040Z	—	—	4.0	4	12	40
E5425045	T3GRC-045Z	—	—	4.5	4.5	14	50
E5425050	T3GRC-050Z	—	—	5.0	5	14	50
E5425055	T3GRC-055Z	—	—	5.5	5.5	16	50
E5425060	T3GRC-060Z	E5417060	T3GRC-060ZF	6.0	6	16	50
E5425070	T3GRC-070Z	—	—	7.0	7	20	60
E5425080	T3GRC-080Z	E5417080	T3GRC-080ZF	8.0	8	20	60
E5425090	T3GRC-090Z	—	—	9.0	9	20	60
E5425100	T3GRC-100Z	E5417100	T3GRC-100ZF	10.0	10	22	70
E5425120	T3GRC-120Z	E5417120	T3GRC-120ZF	12.0	12	22	70
E5425140	T3GRC-140Z	E5417140	T3GRC-140ZF	14.0	14	25	75
E5425160	T3GRC-160Z	E5417160	T3GRC-160ZF	16.0	16	25	75
E5425200	T3GRC-200Z	E5417200	T3GRC-200ZF	20.0	20	32	100

► TiN, TiCN-COATING & TiAIN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

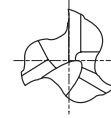
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRC55~70							
○	◎	◎	◎			○		◎	○	○		



E5439 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN KURZ



MG HM DIN 6528HB N 3 30° DIN 6535HB P.861

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5439020	2.0	6	3	50
E5439030	3.0	6	4	50
E5439035	3.5	6	4	50
E5439040	4.0	6	5	54
E5439045	4.5	6	5	54
E5439050	5.0	6	6	54
E5439060	6.0	6	7	54
E5439070	7.0	8	8	58
E5439080	8.0	8	9	58
E5439090	9.0	10	10	66
E5439100	10.0	10	11	66
E5439120	12.0	12	12	73
E5439140	14.0	14	14	75
E5439160	16.0	16	16	82
E5439180	18.0	18	18	84
E5439200	20.0	20	20	92

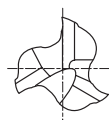
► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 3 FLUTE LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN LANG


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5433030	3.0	6	7	57
E5433040	4.0	6	8	57
E5433050	5.0	6	10	57
E5433060	6.0	6	10	57
E5433080	8.0	8	16	63
E5433100	10.0	10	19	72
E5433120	12.0	12	22	83
E5433140	14.0	14	22	83
E5433160	16.0	16	26	92
E5433180	18.0	18	26	92
E5433200	20.0	20	32	104

▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

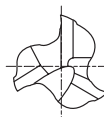
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎			○		◎	○	○		



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN LANG



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5528035	3.5	3.5	7	50
E5528040	4.0	4	8	50
E5528045	4.5	4.5	8	50
E5528050	5.0	5	10	50
E5528055	5.5	5.5	10	57
E5528060	6.0	6	10	57
E5528065	6.5	6.5	13	60
E5528070	7.0	7	13	60
E5528075	7.5	7.5	16	63
E5528080	8.0	8	16	63
E5528085	8.5	8.5	16	67
E5528090	9.0	9	16	67
E5528095	9.5	9.5	19	72
E5528100	10.0	10	19	72
E5528110	11.0	11	22	83
E5528120	12.0	12	22	83
E5528130	13.0	13	22	83
E5528140	14.0	14	22	83
E5528150	15.0	15	26	92
E5528160	16.0	16	26	92
E5528180	18.0	18	26	92
E5528200	20.0	20	32	104

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 3 FLUTE 35° HELIX CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 35° RECHTSSPIRALE ECKENRADIUS

for STAINLESS STEELS
für EDELSTÄHLE



Unit : mm

EDP No.	CORNER RADIUS	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	R	h10	h6		
E5882030	0.20~0.25	3.0	3	4	38
E5882040	0.20~0.25	4.0	6	5	54
E5882050	0.20~0.25	5.0	6	6	54
E5882060	0.40~0.50	6.0	6	7	54
E5882080	0.40~0.50	8.0	8	9	58
E5882100	0.40~0.50	10.0	10	11	66
E5882120	0.75~0.85	12.0	12	12	73
E5882160	0.75~0.85	16.0	16	16	82
E5882200	0.75~0.85	20.0	20	20	92

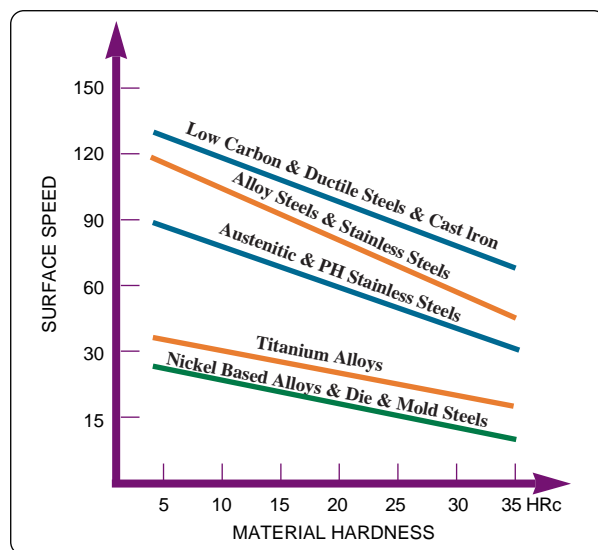
► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

FEED CHART

MILL DIAMETER(mm)	3	5	6	8	10	12	16	20
FEED(mm)/TOOTH	0.008 ~ 0.015	0.010 ~ 0.050	0.025 ~ 0.065	0.040 ~ 0.075	0.040 ~ 0.090	0.050 ~ 0.100	0.065 ~ 0.130	0.075 ~ 0.150

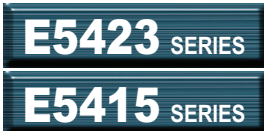
Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13



◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	◎		



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 45° HELIX SHORT LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE KURZ



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	PLAIN	FLAT	FLAT	h10	h6		
E5423030	T3ERS-030A	E5415030	T3ERS-030AF	3.0	6	8	45
E5423040	T3ERS-040A	E5415040	T3ERS-040AF	4.0	6	11	45
E5423050	T3ERS-050A	E5415050	T3ERS-050AF	5.0	6	13	50
E5423060	T3ERS-060Z	E5415060	T3ERS-060ZF	6.0	6	13	50
E5423080	T3ERS-080Z	E5415080	T3ERS-080ZF	8.0	8	19	60
E5423100	T3ERS-100Z	E5415100	T3ERS-100ZF	10.0	10	22	70
E5423120	T3ERS-120Z	E5415120	T3ERS-120ZF	12.0	12	26	75
E5423140	T3ERS-140Z	E5415140	T3ERS-140ZF	14.0	14	26	75
E5423160	T3ERS-160Z	E5415160	T3ERS-160ZF	16.0	16	25	75
E5423200	T3ERS-200Z	E5415200	T3ERS-200ZF	20.0	20	32	100

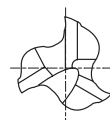
► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			◎		◎	◎			

CARBIDE, 3 FLUTE 45° HELIX SHORT LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE KURZ


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	h10	h6		
FLAT				
E5446015	1.5	3	3	38
E5446020	2.0	6	3	50
E5446030	3.0	6	4	50
E5446035	3.5	6	4	50
E5446040	4.0	6	5	54
E5446045	4.5	6	5	54
E5446050	5.0	6	6	54
E5446060	6.0	6	7	54
E5446070	7.0	8	8	58
E5446080	8.0	8	9	58
E5446090	9.0	10	10	66
E5446100	10.0	10	11	66
E5446120	12.0	12	12	73
E5446140	14.0	14	14	75
E5446160	16.0	16	16	82
E5446180	18.0	18	18	84
E5446200	20.0	20	20	92

● with plain shank

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

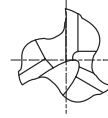
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			◎		◎	◎			



E5447 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG



MG HM DIN 6527 N 3 45° DIN 6535HB P.863

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5447030	3.0	6	7	57
E5447035	3.5	6	7	57
E5447040	4.0	6	8	57
E5447045	4.5	6	8	57
E5447050	5.0	6	10	57
E5447060	6.0	6	10	57
E5447070	7.0	8	13	63
E5447080	8.0	8	16	63
E5447090	9.0	10	16	72
E5447100	10.0	10	19	72
E5447120	12.0	12	22	83
E5447140	14.0	14	22	83
E5447160	16.0	16	26	92
E5447180	18.0	18	26	92
E5447200	20.0	20	32	104

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

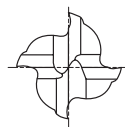
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			◎		◎	◎			

CARBIDE, 4 FLUTE SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN KURZ



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	PLAIN	FLAT	FLAT	h10	h6		
E5432020	T4GRC-020Z	—	—	2.0	2	8	32
E5432025	T4GRC-025Z	—	—	2.5	2.5	8	32
E5432030	T4GRC-030Z	—	—	3.0	3	12	32
E5432035	T4GRC-035Z	—	—	3.5	3.5	12	32
E5432040	T4GRC-040Z	—	—	4.0	4	12	40
E5432045	T4GRC-045Z	—	—	4.5	4.5	14	50
E5432050	T4GRC-050Z	—	—	5.0	5	14	50
E5432055	T4GRC-055Z	—	—	5.5	5.5	16	50
E5432060	T4GRC-060Z	E5595060	T4GRC-060ZF	6.0	6	16	50
E5432070	T4GRC-070Z	—	—	7.0	7	20	60
E5432080	T4GRC-080Z	E5595080	T4GRC-080ZF	8.0	8	20	60
E5432090	T4GRC-090Z	—	—	9.0	9	20	60
E5432100	T4GRC-100Z	E5595100	T4GRC-100ZF	10.0	10	22	70
E5432120	T4GRC-120Z	E5595120	T4GRC-120ZF	12.0	12	22	70
E5432140	T4GRC-140Z	E5595140	T4GRC-140ZF	14.0	14	25	75
E5432160	T4GRC-160Z	E5595160	T4GRC-160ZF	16.0	16	25	75
E5432200	T4GRC-200Z	E5595200	T4GRC-200ZF	20.0	20	32	100

► TiN, TiCN-COATING & TiAIN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

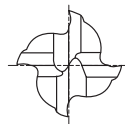
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		



E5448 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN KURZ



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5448020	2.0	6	4	50
E5448025	2.5	6	4	50
E5448030	3.0	6	5	50
E5448035	3.5	6	6	50
E5448040	4.0	6	8	54
E5448045	4.5	6	8	54
E5448050	5.0	6	9	54
E5448060	6.0	6	10	54
E5448070	7.0	8	11	58
E5448080	8.0	8	12	58
E5448090	9.0	10	13	66
E5448100	10.0	10	14	66
E5448120	12.0	12	16	73
E5448140	14.0	14	18	75
E5448160	16.0	16	22	82
E5448180	18.0	18	24	84
E5448200	20.0	20	26	92

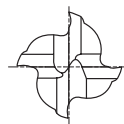
► TIN, TiCN-COATING & TiAIN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5449901	2.0	3	7	38
E5449030	3.0	6	8	57
E5449035	3.5	6	10	57
E5449040	4.0	6	11	57
E5449045	4.5	6	11	57
E5449050	5.0	6	13	57
E5449060	6.0	6	13	57
E5449070	7.0	8	16	63
E5449080	8.0	8	19	63
E5449090	9.0	10	19	72
E5449100	10.0	10	22	72
E5449120	12.0	12	26	83
E5449140	14.0	14	26	83
E5449160	16.0	16	32	92
E5449180	18.0	18	32	92
E5449200	20.0	20	38	104

● with plain shank

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

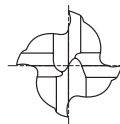
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRC55~70							
○	◎	◎	◎			○		◎	○	○		



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5540035	3.5	3.5	10	50
E5540040	4.0	4	11	50
E5540045	4.5	4.5	11	50
E5540050	5.0	5	13	50
E5540055	5.5	5.5	13	57
E5540060	6.0	6	13	57
E5540065	6.5	6.5	16	60
E5540070	7.0	7	16	60
E5540075	7.5	7.5	19	63
E5540080	8.0	8	19	63
E5540085	8.5	8.5	19	67
E5540090	9.0	9	19	67
E5540095	9.5	9.5	22	72
E5540100	10.0	10	22	72
E5540110	11.0	11	26	83
E5540120	12.0	12	26	83
E5540130	13.0	13	26	83
E5540140	14.0	14	26	83
E5540150	15.0	15	32	92
E5540160	16.0	16	32	92
E5540180	18.0	18	32	92
E5540200	20.0	20	38	104

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎			○		◎	○	○		

CARBIDE, 4 FLUTE EXTRA LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	h10	h6		
E5453030	3.0	3	30	75
E5453040	4.0	4	30	75
E5453050	5.0	5	40	100
E5453060	6.0	6	50	150
E5453080	8.0	8	50	150
E5453100	10.0	10	60	150
E5453120	12.0	12	75	150
E5453140	14.0	14	65	150
E5453160	16.0	16	65	150
E5453180	18.0	18	65	150
E5453200	20.0	20	65	150

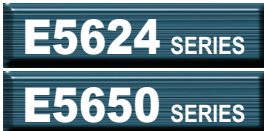
▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎			○		◎	○	○		



PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FULTE SHORT LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	PLAIN	FLAT	FLAT	R (±0.02)	h10	h6		
E5624020	T2GRB-020A	E5650020	T2GOB-020AF	R1.0	2.0	6	4	48
E5624025	T2GRB-025A	E5650025	T2GOB-025AF	R1.25	2.5	6	4	48
E5624030	T2GRB-030A	E5650030	T2GOB-030AF	R1.5	3.0	6	4	48
E5624040	T2GRB-040A	E5650040	T2GOB-040AF	R2.0	4.0	6	6	50
E5624901	T2GRB-040Z	—	—	R2.0	4.0	4	12	40
E5624050	T2GRB-050A	E5650050	T2GOB-050AF	R2.5	5.0	6	7	51
E5624902	T2GRB-050Z	—	—	R2.5	5.0	5	14	50
E5624060	T2GRB-060Z	E5650060	T2GOB-060ZF	R3.0	6.0	6	7	51
E5624080	T2GRB-080Z	E5650080	T2GOB-080ZF	R4.0	8.0	8	9	59
E5624100	T2GRB-100Z	E5650100	T2GOB-100ZF	R5.0	10.0	10	10	60
E5624120	T2GRB-120Z	E5650120	T2GOB-120ZF	R6.0	12.0	12	14	71
E5624140	T2GRB-140Z	E5650140	T2GOB-140ZF	R7.0	14.0	14	14	71
E5624160	T2GRB-160Z	E5650160	T2GOB-160ZF	R8.0	16.0	16	16	76
E5624180	T2GRB-180Z	E5650180	T2GOB-180ZF	R9.0	18.0	18	18	76
E5624200	T2GRB-200Z	E5650200	T2GOB-200ZF	R10.0	20.0	20	20	82

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎	○				◎	○			

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS


Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	R (± 0.02)	h10	h6		
E5437020	R1.0	2.0	6	3	50
E5437030	R1.5	3.0	6	4	50
E5437040	R2.0	4.0	6	5	54
E5437050	R2.5	5.0	6	6	54
E5437060	R3.0	6.0	6	7	54
E5437080	R4.0	8.0	8	9	58
E5437100	R5.0	10.0	10	11	66
E5437120	R6.0	12.0	12	12	73
E5437140	R7.0	14.0	14	14	75
E5437180	R9.0	18.0	18	18	84
E5437200	R10.0	20.0	20	20	92

▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○	◎	◎	◎	○				◎	○			



E5438 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	R (±0.02)	h10	h6		
E5438020	R1.0	2.0	● 3	6	38
E5438030	R1.5	3.0	6	7	57
E5438040	R2.0	4.0	6	8	57
E5438050	R2.5	5.0	6	10	57
E5438060	R3.0	6.0	6	10	57
E5438080	R4.0	8.0	8	16	63
E5438100	R5.0	10.0	10	19	72
E5438120	R6.0	12.0	12	22	83
E5438140	R7.0	14.0	14	22	83
E5438160	R8.0	16.0	16	26	92
E5438180	R9.0	18.0	18	26	92
E5438200	R10.0	20.0	20	32	104

● with plain shank
▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				◎	○			

CARBIDE, 2 FLUTE LONG REACH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN GROÖE REICHWEITE STIRNRADIUS


Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	R (±0.02)	h10	h6		
E5454030	R1.5	3.0	3	5	75
E5454040	R2.0	4.0	4	8	75
E5454050	R2.5	5.0	5	9	75
E5454060	R3.0	6.0	6	10	100
E5454080	R4.0	8.0	8	12	100
E5454100	R5.0	10.0	10	14	100
E5454120	R6.0	12.0	12	16	100
E5454140	R7.0	14.0	14	18	100
E5454160	R8.0	16.0	16	22	150
E5454200	R10.0	20.0	20	26	150

▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				◎	○			



E5455 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS



Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	R (±0.02)	h10	h6		
E5455030	R1.5	3.0	3	30	75
E5455040	R2.0	4.0	4	30	75
E5455050	R2.5	5.0	5	40	100
E5455060	R3.0	6.0	6	50	150
E5455080	R4.0	8.0	8	50	150
E5455100	R5.0	10.0	10	60	150
E5455120	R6.0	12.0	12	75	150
E5455140	R7.0	14.0	14	75	150
E5455160	R8.0	16.0	16	75	150
E5455180	R9.0	18.0	18	75	150
E5455200	R10.0	20.0	20	75	150

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				◎	○			

CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	PLAIN	FLAT	FLAT	R (±0.02)	h10	h6		
E5634020	T4GRB-020A	E5524020	T4GRB-020AF	R1.0	2.0	6	4	48
E5634030	T4GRB-030A	E5524030	T4GRB-030AF	R1.5	3.0	6	4	48
E5634040	T4GRB-040A	E5524040	T4GRB-040AF	R2.0	4.0	6	6	50
E5634050	T4GRB-050A	E5524050	T4GRB-050AF	R2.5	5.0	6	7	51
E5634060	T4GRB-060Z	E5524060	T4GRB-060ZF	R3.0	6.0	6	7	51
E5634080	T4GRB-080Z	E5524080	T4GRB-080ZF	R4.0	8.0	8	9	59
E5634100	T4GRB-100Z	E5524100	T4GRB-100ZF	R5.0	10.0	10	10	60
E5634120	T4GRB-120Z	E5524120	T4GRB-120ZF	R6.0	12.0	12	14	71
E5634140	T4GRB-140Z	E5524140	T4GRB-140ZF	R7.0	14.0	14	14	71
E5634160	T4GRB-160Z	E5524160	T4GRB-160ZF	R8.0	16.0	16	16	76
E5634180	T4GRB-180Z	E5524180	T4GRB-180ZF	R9.0	18.0	18	18	76
E5634200	T4GRB-200Z	E5524200	T4GRB-200ZF	R10.0	20.0	20	20	82

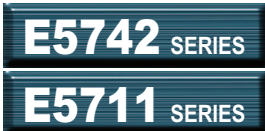
► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○				◎	○			

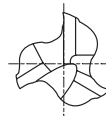


PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE LONG LENGTH ROUGHING
VOLLHARTMETALL, 3 SCHNEIDEN LANG SCHRUPPFRÄSER

for ALUMINUM
für ALUMINIUM



Unit : mm

EDP No.	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length	
					PLAIN
E5742060	E5711060	6.0	6	16	57
E5742070	E5711070	7.0	8	16	63
E5742080	E5711080	8.0	8	16	63
E5742090	E5711090	9.0	10	19	72
E5742100	E5711100	10.0	10	22	72
E5742120	E5711120	12.0	12	26	83
E5742140	E5711140	14.0	14	26	83
E5742160	E5711160	16.0	16	32	92
E5742180	E5711180	18.0	18	32	92
E5742200	E5711200	20.0	20	38	104
E5742250	E5711250	25.0	25	45	121

► TiN, TiCN-COATING & TiAlN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○							○	◎			

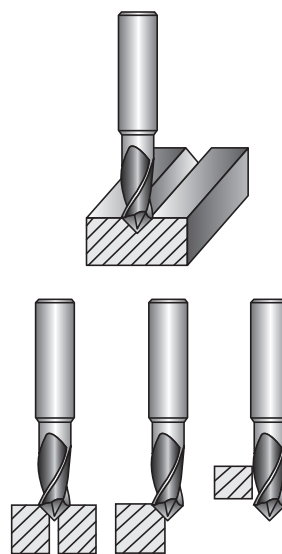
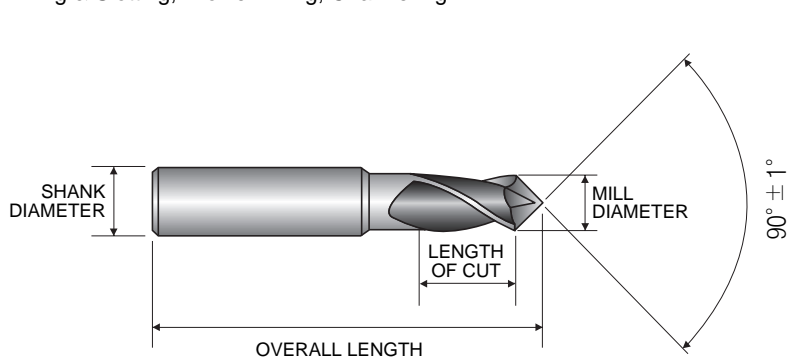
CARBIDE, 2 FLUTE DRILL MILLS
VOLLHARTMETALL, 2 SCHNEIDEN BOHRNUTEN FRÄSER


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN		h6		
E5400030	3.0	4	6	50
E5400040	4.0	5	8	50
E5400050	5.0	6	10	50
E5400060	6.0	8	12	60
E5400080	8.0	10	16	70
E5400100	10.0	12	18	70
E5400120	12.0	12	20	70
E5540140	14.0	14	24	80
E5400160	16.0	16	26	80
E5400200	20.0	20	32	100

▶ TiN, TiCN-COATING & TiAlN-COATING are available on your request.

- Performs many drilling and milling operations not presently done with the standard end mill.
- Among the many vertical milling machine operations the Drill Mill performs are : Drilling, Slotting, NC Milling
Drilling & Slotting, Profile Milling, Chamfering.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
Ø3 ~ Ø10=h9 Ø12 ~ Ø20=d9	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎					◎	○	○		

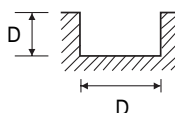


RECOMMENDED CUTTING CONDITIONS
EMPHOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN - NUTENFRÄSEN

E5424, E5416, E5444, E5527, E5445, E5452 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5500	80	4800	70	4000	55	8000	65	6500	150	16000	320	12000	240
3.0	3700	90	3200	80	2600	60	5300	65	4200	150	11000	320	8000	240
4.0	2800	90	2400	80	2000	60	4000	65	3200	150	8000	320	6000	240
5.0	2200	90	1900	80	1600	60	3200	65	2500	150	6400	320	4800	240
6.0	1800	90	1600	80	1300	60	2600	65	2100	180	5300	340	4000	260
8.0	1400	90	1200	80	1000	60	2000	65	1600	190	4000	340	3000	260
10.0	1100	90	950	80	800	60	1600	65	1300	200	3200	340	2400	260
12.0	900	90	800	80	660	60	1300	65	1000	210	2600	340	2000	260
14.0	800	90	700	80	570	60	1100	65	900	220	2300	340	1700	260
16.0	700	100	600	85	500	75	1000	75	800	225	2000	340	1500	260
20.0	550	100	480	85	400	75	800	80	640	240	1600	340	1200	260



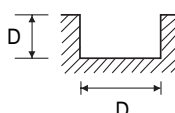
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 2 FLUTE TiCN-COATED - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN - NUTENFRÄSEN

E5424, E5416, E5444, E5527, E5445, E5452 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7200	100	6200	90	5200	70	7000	85	8500	200	20000	420	15000	310
3.0	4800	120	4200	105	3400	80	6900	85	5500	200	14000	420	10000	310
4.0	3640	120	3100	105	2600	80	5200	85	4200	200	10000	420	8000	310
5.0	2860	120	2500	105	2000	80	4200	85	3300	200	8300	420	6200	310
6.0	2400	120	2000	105	1700	80	3400	85	2700	230	6900	440	5200	340
8.0	1800	120	1500	105	1300	80	2600	85	2000	250	5200	440	4000	340
10.0	1400	120	1200	105	1000	80	2000	85	1700	260	4200	440	3100	340
12.0	1200	120	1000	105	860	80	1700	85	1300	270	3400	440	2600	340
14.0	1000	120	900	105	740	80	1400	85	1200	280	3000	440	2200	340
16.0	900	130	800	110	650	100	1300	100	1000	290	2600	440	2000	340
20.0	720	130	620	110	520	100	1000	100	830	310	2000	440	1560	340



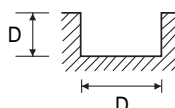
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN - NUTENFRÄSEN

E5553, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5500	70	4800	60	4000	50	8000	55	6500	140	16000	290	12000	220
3.0	3700	80	3200	75	2600	55	5300	55	4200	140	11000	300	8000	220
4.0	2800	80	2400	75	2000	55	4000	55	3200	130	8000	290	6000	220
5.0	2200	80	1900	70	1600	55	3200	55	2500	135	6400	290	4800	220
6.0	1800	80	1600	70	1300	55	2600	60	2100	160	5300	305	4000	240
8.0	1400	80	1200	70	1000	55	2000	60	1600	170	4000	310	3000	230
10.0	1100	80	950	70	800	55	1600	60	1300	180	3200	305	2400	230
12.0	900	80	800	70	660	55	1300	60	1000	190	2600	300	2000	230
14.0	800	80	700	70	570	55	1100	60	900	200	2300	300	1700	230
16.0	700	90	600	75	500	65	1000	70	800	200	2000	300	1500	230
20.0	550	90	480	75	400	65	800	70	640	215	1600	300	1200	230



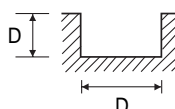
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE TiCN-COATED - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN TiCN-BESCHICHTET - NUTENFRÄSEN

E5553, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7200	90	6200	80	5200	65	10000	70	8500	180	20000	380	15000	280
3.0	4800	105	4200	100	3400	70	6900	70	5500	180	14000	390	10000	280
4.0	3640	105	3100	100	2600	70	5200	70	4200	170	10000	380	8000	280
5.0	2860	105	2500	90	2000	70	4200	70	3300	180	8300	380	6200	280
6.0	2400	105	2000	90	1700	70	3400	80	2700	210	6900	400	5200	310
8.0	1800	105	1500	90	1300	70	2600	80	2000	220	5200	400	4000	300
10.0	1400	105	1200	90	1000	70	2000	80	1700	230	4200	400	3100	300
12.0	1200	105	1000	90	860	70	1700	80	1300	250	3400	390	2600	300
14.0	1000	105	900	90	740	70	1400	80	1200	260	3000	390	2200	300
16.0	900	120	800	100	650	85	1300	90	1000	260	2600	390	2000	300
20.0	720	120	620	100	520	85	1000	90	830	280	2000	390	1560	300



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

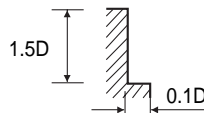


RECOMMENDED CUTTING CONDITIONS
EMPHOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN - SEITENFRÄSEN

E5553, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
HARDNESS	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
STRENGTH														
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5500	180	4800	160	4000	120	8000	140	6500	330	16000	720	12000	540
3.0	3700	200	3200	170	2600	130	5300	140	4200	330	11000	690	8000	530
4.0	2800	200	2400	180	2000	130	4000	140	3200	340	8000	720	6000	540
5.0	2200	200	1900	180	1600	130	3200	140	2500	340	6400	710	4800	530
6.0	1800	200	1600	180	1300	130	2600	150	2100	400	5300	760	4000	580
8.0	1400	200	1200	180	1000	130	2000	150	1600	430	4000	760	3000	580
10.0	1100	200	950	180	800	130	1600	150	1300	450	3200	760	2400	580
12.0	900	200	800	180	660	130	1300	150	1000	470	2600	760	2000	580
14.0	800	200	700	180	570	130	1100	150	900	490	2300	760	1700	580
16.0	700	220	600	190	500	160	1000	170	800	510	2000	760	1500	580
20.0	550	220	480	190	400	160	800	180	640	540	1600	760	1200	580



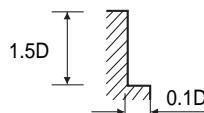
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE TiCN-COATED - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN TiCN-BESCHICHTET - SEITENFRÄSEN

E5553, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
HARDNESS	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
STRENGTH														
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7200	230	6200	210	5200	160	10000	180	8500	430	20000	940	15000	700
3.0	4800	260	4200	220	3400	170	6900	180	5500	430	14000	900	10000	690
4.0	3640	260	3100	230	2600	170	5200	180	4200	440	10000	940	8000	700
5.0	2860	260	2500	230	2000	170	4200	180	3300	440	8300	920	6200	690
6.0	2400	260	2000	230	1700	170	3400	200	2700	520	6900	1000	5200	750
8.0	1800	260	1500	230	1300	170	2600	200	2000	560	5200	1000	4000	750
10.0	1400	260	1200	230	1000	170	2000	200	1700	580	4200	1000	3100	750
12.0	1200	260	1000	230	860	170	1700	200	1300	610	3400	1000	2600	750
14.0	1000	260	900	230	740	170	1400	200	1200	640	3000	1000	2200	750
16.0	900	280	800	250	650	210	1300	220	1000	660	2600	1000	2000	750
20.0	720	280	620	250	520	210	1000	230	830	700	2000	1000	1560	750



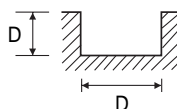
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE 45° HELIX - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE - NUTENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
	HARDNESS	~ HRc30	HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	1600	95	1300	65	2100	220	5300	410	4000	310
8.0	1200	95	1000	65	1600	230	4000	410	3000	310
10.0	950	95	800	65	1300	240	3200	410	2400	310
12.0	800	95	660	65	1000	250	2600	410	2000	310
14.0	700	95	570	65	900	260	2300	410	1700	310
16.0	600	100	500	80	800	270	2000	410	1500	310
20.0	480	100	400	80	640	290	1600	410	1200	310



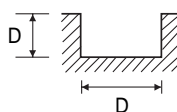
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE 45° HELIX TiCN-COATED - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE TiCN-BESCHICHTET - NUTENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
	HARDNESS	~ HRc30	HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2000	125	1700	85	2700	280	6900	530	5200	400
8.0	1560	125	1300	85	2000	300	5200	530	3900	400
10.0	1240	125	1000	85	1700	310	4200	530	3100	400
12.0	1000	125	860	85	1300	330	3400	530	2600	400
14.0	900	125	740	85	1200	340	3000	530	2200	400
16.0	800	130	650	100	1000	350	2600	530	2000	400
20.0	620	130	520	100	830	380	2000	530	1560	400



※ The FEED, in long & extra long types, should be reduced by around 50%

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

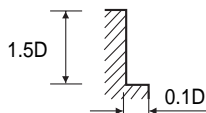


RECOMMENDED CUTTING CONDITIONS
EMPHOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 45° HELIX - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE - SEITENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc30		HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	1600	190	1300	130	2100	440	5300	820	4000	620
8.0	1200	190	1000	130	1600	460	4000	820	3000	620
10.0	950	190	800	130	1300	480	3200	820	2400	620
12.0	800	190	660	130	1000	500	2600	820	2000	620
14.0	700	190	570	130	900	520	2300	820	1700	620
16.0	600	200	500	160	800	540	2000	820	1500	620
20.0	480	200	400	160	640	580	1600	820	1200	620



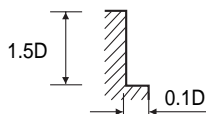
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 3 FLUTE 45° HELIX TiCN-COATED - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE TiCN-BESCHICHTET - SEITENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS		COPPER. BRASS NON-FERROUS METALS	
HARDNESS	~ HRc30		HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²							
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2000	250	1700	170	2700	570	6900	1000	5200	800
8.0	1560	250	1300	170	2000	600	5200	1000	3900	800
10.0	1240	250	1000	170	1700	620	4200	1000	3100	800
12.0	1000	250	860	170	1300	650	3400	1000	2600	800
14.0	900	250	740	170	1200	680	3000	1000	2200	800
16.0	800	260	650	210	1000	700	2600	1000	2000	800
20.0	620	260	520	210	830	750	2000	1000	1560	800



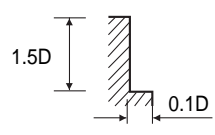
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 4 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN - SEITENFRÄSEN

E5432, E5595, E5448, E5449, E5540, E5453 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER, BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5500	240	4800	210	4000	160	8000	200	6500	450	16000	960	12000	720
3.0	3700	270	3200	240	2600	180	5300	200	4200	450	11000	960	8000	720
4.0	2800	270	2400	240	2000	180	4000	200	3200	450	8000	960	6000	720
5.0	2200	270	1900	240	1600	180	3200	200	2500	450	6400	960	4800	720
6.0	1800	270	1600	240	1300	180	2600	200	2100	540	5300	1020	4000	780
8.0	1400	270	1200	240	1000	180	2000	200	1600	570	4000	1020	3000	780
10.0	1100	270	950	240	800	180	1600	200	1300	600	3200	1020	2400	780
12.0	900	270	800	240	660	180	1300	200	1000	630	2600	1020	2000	780
14.0	800	270	700	240	570	180	1100	200	900	660	2300	1020	1700	780
16.0	700	300	600	260	500	220	1000	225	800	680	2000	1020	1500	780
20.0	550	300	480	260	400	220	800	240	640	720	1600	1020	1200	780



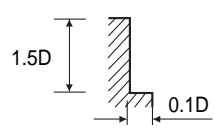
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 4 FLUTE TiCN-COATED - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN TiCN-BESCHICHTET - SEITENFRÄSEN

E5432, E5595, E5448, E5449, E5540, E5453 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		CAST IRON		ALUMINUM ALLOYS		COPPER, BRASS NON-FERROUS METALS	
HARDNESS	~ HRc 20		HRc 20 ~ HRc 30		HRc 30 ~ HRc 40									
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²									
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7200	310	6200	270	5200	210	10000	260	8500	580	20000	1200	15000	940
3.0	4800	350	4200	310	3400	230	6900	260	5500	580	14000	1200	10000	940
4.0	3640	350	3100	310	2600	230	5200	260	4200	580	10000	1200	8000	940
5.0	2860	350	2500	310	2000	230	4200	260	3300	580	8300	1200	6200	940
6.0	2400	350	2000	310	1700	230	3400	260	2700	700	6900	1300	5200	1000
8.0	1800	350	1500	310	1300	230	2600	260	2000	740	5200	1300	4000	1000
10.0	1400	350	1200	310	1000	230	2000	260	1700	780	4200	1300	3100	1000
12.0	1200	350	1000	310	860	230	1700	260	1300	820	3400	1300	2600	1000
14.0	1000	350	900	310	740	230	1400	260	1200	860	3000	1300	2200	1000
16.0	900	390	800	340	650	290	1300	290	1000	880	2600	1300	2000	1000
20.0	720	390	620	340	520	290	1000	310	830	940	2000	1300	1560	1000



※ The FEED, in long & extra long types, should be reduced by around 50%

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

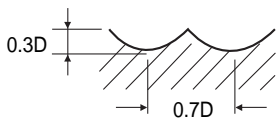


RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

E5624, E5650, E5437, E5438, E5454, E5455 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
	~ HRC30		HRC30 ~ HRC40					
HARDNESS	~ HRC30		HRC30 ~ HRC40					
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.0 × 2.0	5200	90	4400	45	7300	150	21500	280
R1.5 × 3.0	3500	100	2900	45	4900	160	14300	280
R2.0 × 4.0	2600	100	2100	45	3600	200	10900	280
R2.5 × 5.0	2100	105	1700	45	2900	230	8800	330
R3.0 × 6.0	1700	100	1430	45	2400	250	7260	330
R4.0 × 8.0	1270	95	1100	45	1800	320	5500	380
R5.0 × 10.0	1000	95	870	45	1430	320	4300	380
R6.0 × 12.0	870	85	730	45	1200	320	3600	440
R7.0 × 14.0	750	85	620	45	1000	325	3000	440
R8.0 × 16.0	650	85	540	45	920	325	2700	380
R9.0 × 18.0	580	85	480	45	810	325	2400	380
R10.0 × 20.0	500	85	430	45	730	290	2100	380



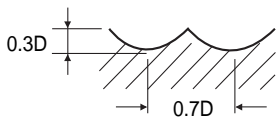
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 2 FLUTE BALL NOSE TiCN-COATED
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS TiCN-BESCHICHTET

E5624, E5650, E5437, E5438, E5454, E5455 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
	~ HRC30		HRC30 ~ HRC40					
HARDNESS	~ HRC30		HRC30 ~ HRC40					
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.0 × 2.0	6760	120	5700	60	9500	200	28000	360
R1.5 × 3.0	4500	130	3800	60	6400	210	18600	360
R2.0 × 4.0	3400	130	2700	60	4700	260	14000	360
R2.5 × 5.0	2700	135	2200	60	3800	300	11000	430
R3.0 × 6.0	2200	130	1860	60	3100	330	9400	430
R4.0 × 8.0	1600	120	1400	60	2300	420	7200	490
R5.0 × 10.0	1300	120	1100	60	1860	420	5600	490
R6.0 × 12.0	1100	110	950	60	1600	420	4700	570
R7.0 × 14.0	980	110	800	60	1300	420	3900	570
R8.0 × 16.0	850	110	700	60	1200	420	3500	490
R9.0 × 18.0	750	110	620	60	1000	420	3100	490
R10.0 × 20.0	650	110	560	60	950	380	2700	490



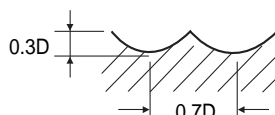
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 4 FLUTE BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS

E5634, E5524 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRC30		HRC30 ~ HRC40					
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.0 × 2.0	5200	140	4400	70	7300	230	21500	420
R1.5 × 3.0	3500	150	2900	70	4900	240	14300	420
R2.0 × 4.0	2600	150	2100	70	3600	300	10900	420
R2.5 × 5.0	2100	160	1700	70	2900	350	8800	500
R3.0 × 6.0	1700	150	1430	70	2400	380	7260	500
R4.0 × 8.0	1270	140	1100	70	1800	480	5500	570
R5.0 × 10.0	1000	140	870	70	1430	480	4300	570
R6.0 × 12.0	870	130	730	70	1200	480	3600	660
R7.0 × 14.0	750	130	620	70	1000	490	3000	660
R8.0 × 16.0	650	130	540	70	920	490	2700	570
R9.0 × 18.0	580	130	480	70	810	490	2400	570
R10.0 × 20.0	500	130	430	70	730	440	2100	570



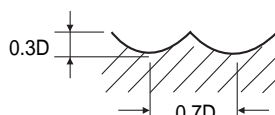
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 4 FLUTE BALL NOSE TiCN-COATED
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS TiCN-BESCHICHTET

E5634, E5524 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CAST IRON		ALUMINUM ALLOYS	
HARDNESS	~ HRC30		HRC30 ~ HRC40					
STRENGTH	~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.0 × 2.0	6760	180	5700	90	9500	300	28000	550
R1.5 × 3.0	4500	200	3800	90	6400	310	18600	550
R2.0 × 4.0	3400	200	2700	90	4700	390	14000	550
R2.5 × 5.0	2700	210	2200	90	3800	450	11000	650
R3.0 × 6.0	2200	200	1860	90	3100	490	9400	650
R4.0 × 8.0	1600	180	1400	90	2300	620	7200	740
R5.0 × 10.0	1300	180	1100	90	1860	620	5600	740
R6.0 × 12.0	1100	170	950	90	1600	620	4700	860
R7.0 × 14.0	980	170	800	90	1300	640	3900	860
R8.0 × 16.0	850	170	700	90	1200	640	3500	740
R9.0 × 18.0	750	170	620	90	1000	640	3100	740
R10.0 × 20.0	650	170	560	90	950	570	2700	740



※ The FEED, in long & extra long types, should be reduced by around 50%

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

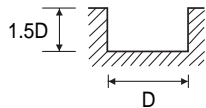


RECOMMENDED CUTTING CONDITIONS
EMPHOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE ROUGHING
VOLLHARTMETALL, 3 SCHNEIDEN SCHRUPPFÄSER

E5742, E5711 SERIES <Slotting>

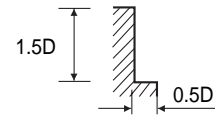
MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6.0	10500	800
8.0	8000	700
10.0	6500	750
12.0	5250	800
16.0	4000	800
20.0	3200	800



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

E5742, E5711 SERIES <Side Cutting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6.0	10500	800
8.0	8000	700
10.0	6500	750
12.0	5250	800
16.0	4000	800
20.0	3200	800

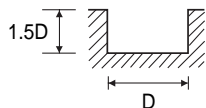


RPM = rev./min.
FEED = mm/min.

CARBIDE, 3 FLUTE ROUGHING TiCN-COATED
VOLLHARTMETALL, 3 SCHNEIDEN SCHRUPPFÄSER TiCN-BESCHICHTET

E5742, E5711 SERIES <Slotting>

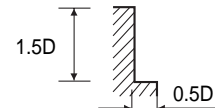
MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6.0	13500	1050
8.0	10500	900
10.0	8500	1000
12.0	6800	1050
16.0	5200	1050
20.0	4200	1050



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

E5742, E5711 SERIES <Side Cutting>

MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED
6.0	13500	1050
8.0	10500	900
10.0	8500	950
12.0	6800	1050
16.0	5200	1050
20.0	4200	1050

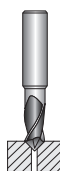


RPM = rev./min.
FEED = mm/min.

CARBIDE, 2 FLUTE - CHAMFERING
VOLLHARTMETALL, 2 SCHNEIDEN - SENKEN

E5400 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	4400	220	3500	160	3000	140	2400	100	11000	550
4.0	3600	220	3000	160	2500	140	2000	100	9000	580
5.0	2860	230	2400	170	2000	140	1760	105	6900	620
6.0	2300	240	2000	170	1600	140	1400	105	5600	640
8.0	1760	250	1540	180	1200	145	1000	110	4400	660
10.0	1500	250	1300	190	1100	145	870	110	4000	680
12.0	1300	260	1100	200	900	150	730	115	3500	700
10.0	1000	250	950	200	700	160	550	120	2750	740
20.0	950	260	750	210	600	160	530	130	2200	770



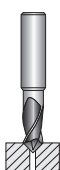
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 2 FLUTE TiCN-COATED - CHAMFERING
VOLLHARTMETALL, 2 SCHNEIDEN TiCN-BESCHICHTET - SENKEN

E5400 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	5700	280	4500	210	4000	180	3100	130	14000	720
4.0	4700	280	4000	210	3300	180	2600	130	11000	750
5.0	3700	300	3100	220	2600	180	2300	135	9000	810
6.0	3000	310	2600	220	2000	180	1800	135	7300	830
8.0	2300	330	2000	230	1600	190	1300	145	5700	860
10.0	2000	330	1700	250	1400	190	1100	145	5200	880
12.0	1700	340	1400	260	1200	200	950	150	4500	900
16.0	1300	330	1200	260	900	210	700	155	3600	960
20.0	1200	340	1000	270	800	210	690	170	2900	1000



※ The FEED, in long & extra long types, should be reduced by around 50%

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



RECOMMENDED CUTTING CONDITIONS
EMPHOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE - CHAMFERING & SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN - SENKEN & SEITENFRÄSEN

E5400 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	5900	95	3900	65	3300	50	2400	40	14000	230
4.0	4800	95	3200	65	2800	50	2000	40	12000	240
5.0	3800	100	2500	65	2200	55	1760	45	9500	250
6.0	3000	110	2000	70	1800	60	1400	50	7700	300
8.0	2300	115	1540	75	1300	65	1100	55	5800	350
10.0	2000	120	1300	80	1200	65	1000	55	5100	380
12.0	1760	130	1100	90	1000	70	840	60	4400	400
16.0	1300	140	900	90	770	70	660	60	3300	330
20.0	1100	140	700	90	600	70	440	60	2640	340



* The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 2 FLUTE TiCN-COATED - CHAMFERING & SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN TiCN-BESCHICHTET - SENKEN & SEITENFRÄSEN

E5400 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	7600	120	5000	85	4300	65	3100	50	18000	300
4.0	6200	120	4200	85	3600	65	2600	50	16000	310
5.0	5000	130	3300	85	2900	70	2300	60	13000	330
6.0	4000	140	2600	90	2300	80	1800	65	10000	390
8.0	3000	150	2000	100	1700	85	1400	70	7500	450
10.0	2600	160	1700	105	1600	85	1300	70	6600	490
12.0	2300	170	1400	120	1300	90	1100	80	5700	520
16.0	1700	180	1200	120	1000	90	860	80	4300	430
20.0	1400	180	900	120	800	90	570	80	3400	440



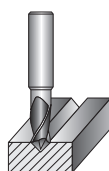
* The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 2 FLUTE - V-GROOVING
VOLLHARTMETALL, 2 SCHNEIDEN - ENTGRATEN

E5400 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	5900	60	4000	30	3300	25	2400	20	14000	220
4.0	4800	60	3300	30	2800	25	2000	20	11800	230
5.0	3800	60	2500	30	2200	25	1760	20	9500	240
6.0	3000	60	2000	30	1800	30	1400	20	7700	250
8.0	2300	65	1540	35	1300	35	1100	20	5800	260
10.0	2000	65	1300	35	1200	35	1000	20	5000	260
12.0	1760	65	1000	40	1000	35	840	20	4400	260
16.0	1400	65	900	40	770	35	660	25	3300	270
20.0	1100	65	700	40	600	35	440	25	2600	270



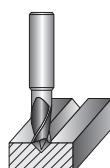
※ The FEED, in long & extra long types, should be reduced by around 50%

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

CARBIDE, 2 FLUTE TiCN-COATED - V-GROOVING
VOLLHARTMETALL, 2 SCHNEIDEN TiCN-BESCHICHTET - ENTGRATEN

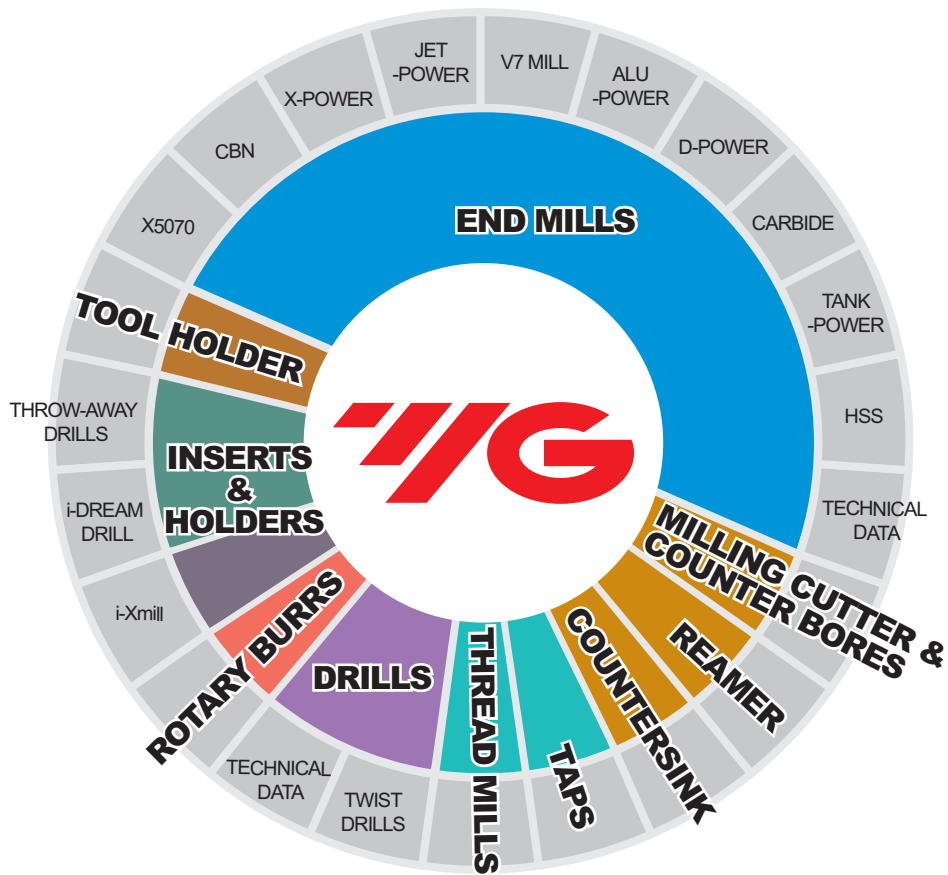
E5400 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		STAINLESS STEELS TITANIUM ALLOYS		ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40					
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²					
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3.0	7600	80	5000	40	4300	30	3100	25	18000	290
4.0	6200	80	4300	40	3600	30	2600	25	15000	300
5.0	5000	80	3300	40	2900	30	2300	25	12000	310
6.0	4000	80	2600	40	2300	40	1800	25	10000	330
8.0	3000	85	2000	45	1700	45	1400	25	7500	340
10.0	2600	85	1700	45	1600	45	1300	25	6500	340
12.0	2300	85	1300	50	1300	45	1100	25	5700	340
16.0	1800	85	1200	50	1000	45	860	30	4300	350
20.0	1400	85	900	50	800	45	570	30	3400	350



※ The FEED, in long & extra long types, should be reduced by around 50%

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



Challenge Toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation
















TANK-POWER

TANK-POWER FRÄSER

- Very Good Toughness, Good for Exotic Materials like Stainless Steels, Nickel Alloys, Titanium and General Application, Rough & Finish
- Sehr gute Zähigkeit. Für rostfreie Stähle, Nickellegierungen, Titan und allgemeinen Einsatz. Schruppen und schlichten

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
E9936 GA936		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN KURZ	D1.0	D25.0	876
E9A29 GAA29		PREMIUM HSS-PM, 2 FLUTE LONG LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN LANG	D1.0	D25.0	877
E9942 GA942		PREMIUM HSS-PM, 3 FLUTE STUB LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN EXTRA KURZ	D1.0	D25.0	878
E9A30 GAA30		PREMIUM HSS-PM, 3 FLUTE SHORT LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN KURZ	D1.0	D25.0	879
E9938 GA938		PREMIUM HSS-PM, 4 FLUTE SHORT LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN KURZ	D1.0	D25.0	880
E9A31 GAA31		PREMIUM HSS-PM, 4 FLUTE LONG LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN LANG	D2.0	D25.0	881
E9940 GA940		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN KURZ STIRNRADIUS	R0.5	R12.5	882
E9A32 GAA32		PREMIUM HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R12.5	883
E9941 GA941		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - FEIN	D6.0	D25.0	884
E9A35 GAA35		PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - FEIN	D6.0	D25.0	885
E9A26 GAA26		PREMIUM HSS-PM, MULTI FLUTE, 45° HELIX SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN	D4.0	D25.0	886
E9A33 GAA33		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB	D6.0	D25.0	887
E9A34 GAA34		PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB	D6.0	D25.0	888
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					889

TANK-POWER END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		◎		○		
○	○	○				○		◎		○		
○	○	○				○		◎		○		
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CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

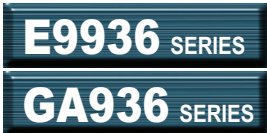
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
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MILLING
CUTTERS

TECHNICAL
DATA

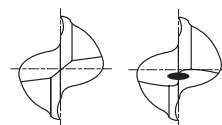


FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN KURZ

- ▶ 2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø3mm over Ø3mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9936010	GA936010	1.0	6	2.5	47
E9936020	GA936020	2.0	6	4	48
E9936030	GA936030	3.0	6	5	49
E9936040	GA936040	4.0	6	7	51
E9936050	GA936050	5.0	6	8	52
E9936060	GA936060	6.0	6	8	52
E9936070	GA936070	7.0	10	10	60
E9936080	GA936080	8.0	10	11	61
E9936090	GA936090	9.0	10	11	61
E9936100	GA936100	10.0	10	13	63
E9936120	GA936120	12.0	12	16	73
E9936140	GA936140	14.0	12	16	73
E9936160	GA936160	16.0	16	19	79
E9936180	GA936180	18.0	16	19	79
E9936200	GA936200	20.0	20	22	88
E9936220	GA936220	22.0	20	22	88
E9936250	GA936250	25.0	25	26	102

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

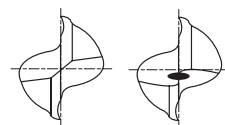
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎		○		

PREMIUM HSS-PM, 2 FLUTE LONG LENGTH
PREMIUM HSS-PM, 2 SCHNEIDEN LANG

- ▶ 2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø3mm over Ø3mm

YPM DIN 844 2 30° DIN 1835B P.889

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9A29010	GAA29010	1.0	6	3	47
E9A29020	GAA29020	2.0	6	7	51
E9A29030	GAA29030	3.0	6	8	52
E9A29040	GAA29040	4.0	6	11	55
E9A29050	GAA29050	5.0	6	13	57
E9A29060	GAA29060	6.0	6	13	57
E9A29070	GAA29070	7.0	10	16	66
E9A29080	GAA29080	8.0	10	19	69
E9A29090	GAA29090	9.0	10	19	69
E9A29100	GAA29100	10.0	10	22	72
E9A29120	GAA29120	12.0	12	26	83
E9A29140	GAA29140	14.0	12	26	83
E9A29160	GAA29160	16.0	16	32	92
E9A29180	GAA29180	18.0	16	32	92
E9A29200	GAA29200	20.0	20	38	104
E9A29220	GAA29220	22.0	20	38	104
E9A29250	GAA29250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73
h6	0 -6	0 -8	0 -9	0 -11	0 -13

◎ : Excellent ○ : Good

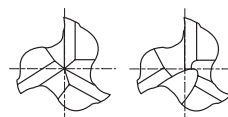
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎		○		



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE STUB LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN EXTRA KURZ

- ▶ Well balanced web design to minimize deflection and chattering.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Verstärkter Kern zur Erhöhung der Stabilität.
- ▶ 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9942010	GA942010	1.0	6	2.5	47
E9942020	GA942020	2.0	6	4	48
E9942030	GA942030	3.0	6	5	49
E9942040	GA942040	4.0	6	7	51
E9942050	GA942050	5.0	6	8	52
E9942060	GA942060	6.0	6	8	52
E9942070	GA942070	7.0	10	10	60
E9942080	GA942080	8.0	10	11	61
E9942090	GA942090	9.0	10	11	61
E9942100	GA942100	10.0	10	13	63
E9942120	GA942120	12.0	12	16	73
E9942140	GA942140	14.0	12	16	73
E9942160	GA942160	16.0	16	19	79
E9942180	GA942180	18.0	16	19	79
E9942200	GA942200	20.0	20	22	88
E9942220	GA942220	22.0	20	22	88
E9942250	GA942250	25.0	25	26	102

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

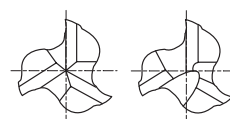
Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎		○		

PREMIUM HSS-PM, 3 FLUTE SHORT LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN KURZ

- ▶ Well balanced web design to minimize deflection and chattering.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Verstärkter Kern zur Erhöhung der Stabilität.
- ▶ 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm



Unit : mm

EDP No.		Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED				
E9A30010	GAA30010	1.0	6	3	47
E9A30020	GAA30020	2.0	6	7	51
E9A30030	GAA30030	3.0	6	8	52
E9A30040	GAA30040	4.0	6	11	55
E9A30050	GAA30050	5.0	6	13	57
E9A30060	GAA30060	6.0	6	13	57
E9A30070	GAA30070	7.0	10	16	66
E9A30080	GAA30080	8.0	10	19	69
E9A30090	GAA30090	9.0	10	19	69
E9A30100	GAA30100	10.0	10	22	72
E9A30120	GAA30120	12.0	12	26	83
E9A30140	GAA30140	14.0	12	26	83
E9A30160	GAA30160	16.0	16	32	92
E9A30180	GAA30180	18.0	16	32	92
E9A30200	GAA30200	20.0	20	38	104
E9A30220	GAA30220	22.0	20	38	104
E9A30250	GAA30250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73
h6	0 -6	0 -8	0 -9	0 -11	0 -13

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎		○		

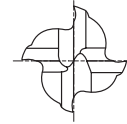
CARBIDE

HSS

**TANK-POWER
END MILLS****E9938** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**GA938** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**PREMIUM HSS-PM, 4 FLUTE SHORT LENGTH**
PREMIUM HSS-PM, 4 SCHNEIDEN KURZ

- ▶ Recommended for pocketing, cam milling, die sinking and slotting..
- ▶ Designed for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



YPM

DIN
844

4

30°

DIN
1835B

P.892

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED				
E9938010	GA938010	1.0	6	3	49
E9938020	GA938020	2.0	6	7	51
E9938030	GA938030	3.0	6	8	52
E9938040	GA938040	4.0	6	11	55
E9938050	GA938050	5.0	6	13	57
E9938060	GA938060	6.0	6	13	57
E9938070	GA938070	7.0	10	16	66
E9938080	GA938080	8.0	10	19	69
E9938090	GA938090	9.0	10	19	69
E9938100	GA938100	10.0	10	22	72
E9938120	GA938120	12.0	12	26	83
E9938140	GA938140	14.0	12	26	83
E9938160	GA938160	16.0	16	32	92
E9938180	GA938180	18.0	16	32	92
E9938200	GA938200	20.0	20	38	104
E9938220	GA938220	22.0	20	38	104
E9938250	GA938250	25.0	25	45	121

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.03	h6

TECHNICAL
DATA

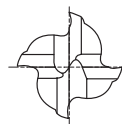
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○		○		

◎ : Excellent ○ : Good

PREMIUM HSS-PM, 4 FLUTE LONG LENGTH
PREMIUM HSS-PM, 4 SCHNEIDEN LANG

- ▶ Recommended for pocketing, cam milling, die sinking and slotting.
- ▶ Designed for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



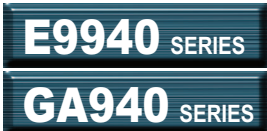
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED				
E9A31020	GAA31020	2.0	6	10	54
E9A31030	GAA31030	3.0	6	12	56
E9A31040	GAA31040	4.0	6	19	63
E9A31050	GAA31050	5.0	6	24	68
E9A31060	GAA31060	6.0	6	24	68
E9A31070	GAA31070	7.0	10	30	80
E9A31080	GAA31080	8.0	10	38	88
E9A31090	GAA31090	9.0	10	38	88
E9A31100	GAA31100	10.0	10	45	95
E9A31120	GAA31120	12.0	12	53	110
E9A31140	GAA31140	14.0	12	53	110
E9A31160	GAA31160	16.0	16	63	123
E9A31180	GAA31180	18.0	16	63	123
E9A31200	GAA31200	20.0	20	75	141
E9A31220	GAA31220	22.0	20	75	141
E9A31250	GAA31250	25.0	25	90	166

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎		○		



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE
PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS KURZ

- ▶ Excellent performance on wide materials from carbon steels and stainless steels to aluminum.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	R (±0.02)				
E9940010	GA940010	R0.5	1.0	6	2.5	47
E9940020	GA940020	R1.0	2.0	6	4	48
E9940030	GA940030	R1.5	3.0	6	5	49
E9940040	GA940040	R2.0	4.0	6	7	51
E9940050	GA940050	R2.5	5.0	6	8	52
E9940060	GA940060	R3.0	6.0	6	8	52
E9940070	GA940070	R3.5	7.0	10	10	60
E9940080	GA940080	R4.0	8.0	10	11	61
E9940090	GA940090	R4.5	9.0	10	11	61
E9940100	GA940100	R5.0	10.0	10	13	63
E9940120	GA940120	R6.0	12.0	12	16	73
E9940140	GA940140	R7.0	14.0	12	16	73
E9940160	GA940160	R8.0	16.0	16	19	79
E9940180	GA940180	R9.0	18.0	16	19	79
E9940200	GA940200	R10.0	20.0	20	22	88
E9940220	GA940220	R11.0	22.0	20	22	88
E9940250	GA940250	R12.5	25.0	25	26	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

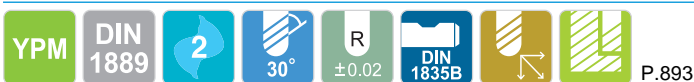
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○		○				

◎ : Excellent ○ : Good

PREMIUM HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS LANG

- ▶ Excellent performance on wide materials from carbon steels and stainless steels to aluminum.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRC, rostfreien Stählen, Titan und Nickellegierungen.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	R (±0.02)				
E9A32020	GAA32020	R1.0	2.0	6	7	54
E9A32030	GAA32030	R1.5	3.0	6	8	56
E9A32040	GAA32040	R2.0	4.0	6	11	63
E9A32050	GAA32050	R2.5	5.0	6	13	68
E9A32060	GAA32060	R3.0	6.0	6	13	68
E9A32070	GAA32070	R3.5	7.0	10	16	80
E9A32080	GAA32080	R4.0	8.0	10	19	88
E9A32090	GAA32090	R4.5	9.0	10	19	88
E9A32100	GAA32100	R5.0	10.0	10	22	95
E9A32120	GAA32120	R6.0	12.0	12	26	110
E9A32140	GAA32140	R7.0	14.0	12	26	110
E9A32160	GAA32160	R8.0	16.0	16	32	123
E9A32180	GAA32180	R9.0	18.0	16	32	123
E9A32200	GAA32200	R10.0	20.0	20	38	141
E9A32220	GAA32220	R11.0	22.0	20	38	141
E9A32250	GAA32250	R12.5	25.0	25	45	166

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

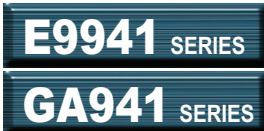
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

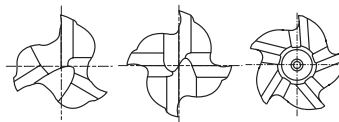


FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE
PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut

- ▶ Geeignet zum HSC - Schrapp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fällen exzellente bearbeitete Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



up to $\varnothing 9$ $\varnothing 10 \sim \varnothing 20$ over $\varnothing 20$



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9941060	GA941060	6.0	6	13	57	3
E9941070	GA941070	7.0	10	16	66	3
E9941080	GA941080	8.0	10	19	69	3
E9941090	GA941090	9.0	10	19	69	3
E9941100	GA941100	10.0	10	22	72	4
E9941120	GA941120	12.0	12	26	83	4
E9941140	GA941140	14.0	12	26	83	4
E9941160	GA941160	16.0	16	32	92	4
E9941180	GA941180	18.0	16	32	92	4
E9941200	GA941200	20.0	20	38	104	4
E9941220	GA941220	22.0	20	38	104	5
E9941250	GA941250	25.0	25	45	121	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

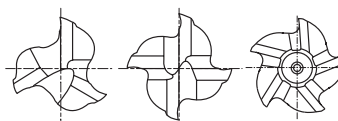
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - FEIN

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels..
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fällen exzellente Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



up to $\varnothing 9$ $\varnothing 10 \sim \varnothing 20$ over $\varnothing 20$



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9A35060	GAA35060	6.0	6	24	68	3
E9A35070	GAA35070	7.0	10	30	80	3
E9A35080	GAA35080	8.0	10	38	88	3
E9A35090	GAA35090	9.0	10	38	88	3
E9A35100	GAA35100	10.0	10	45	95	4
E9A35120	GAA35120	12.0	12	53	110	4
E9A35140	GAA35140	14.0	12	53	110	4
E9A35160	GAA35160	16.0	16	63	123	4
E9A35180	GAA35180	18.0	16	63	123	4
E9A35200	GAA35200	20.0	20	75	141	4
E9A35220	GAA35220	22.0	20	75	141	5
E9A35250	GAA35250	25.0	25	90	166	5

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				



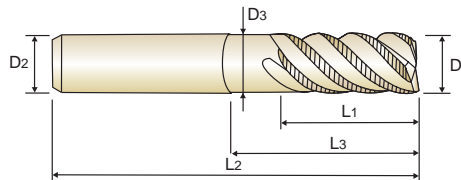
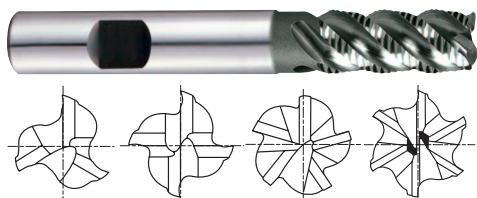
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE
PREMIUM HSS-PM, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN

- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting

- ▶ Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute
UNCOATED	TANK-POWER COATED	D(js12)	D2(h6)	L1	L3	L2	D3	
E9A26040	GAA26040	4.0	6	11	-	57	-	3
E9A26050	GAA26050	5.0	6	13	-	57	-	4
E9A26060	GAA26060	6.0	6	13	-	57	-	4
E9A26070	GAA26070	7.0	10	16	-	66	-	4
E9A26080	GAA26080	8.0	10	19	-	69	-	4
E9A26090	GAA26090	9.0	10	19	-	69	-	4
E9A26100	GAA26100	10.0	10	22	31	72	9.5	4
E9A26120	GAA26120	12.0	12	26	37	83	11.5	4
E9A26140	GAA26140	14.0	12	26	-	83	-	5
E9A26160	GAA26160	16.0	16	32	44	92	15	5
E9A26180	GAA26180	18.0	16	32	-	92	-	6
E9A26200	GAA26200	20.0	20	38	54	104	19	6
E9A26250	GAA26250	25.0	25	45	63	121	24	6

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

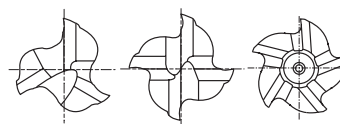
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE
PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis $D \leq 20\text{mm}$: mit Zentrumschnitt, über $D > 20\text{mm}$: Ohne Zentrumschnitt.



up to $\varnothing 9$ $\varnothing 10 \sim \varnothing 20$ over $\varnothing 20$

P.894

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9A33060	GAA33060	6.0	6	13	57	3
E9A33070	GAA33070	7.0	10	16	66	3
E9A33080	GAA33080	8.0	10	19	69	3
E9A33090	GAA33090	9.0	10	19	69	3
E9A33100	GAA33100	10.0	10	22	72	4
E9A33120	GAA33120	12.0	12	26	83	4
E9A33140	GAA33140	14.0	12	26	83	4
E9A33160	GAA33160	16.0	16	32	92	4
E9A33180	GAA33180	18.0	16	32	92	4
E9A33200	GAA33200	20.0	20	38	104	4
E9A33220	GAA33220	22.0	20	38	104	5
E9A33250	GAA33250	25.0	25	45	121	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

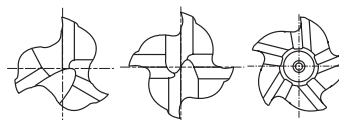
TECHNICAL
DATA



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE
PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB

- Suitable for high-feed roughing milling.
- Designed to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- up to $\varnothing 20$: center cut, over $\varnothing 20$: non center cut
- Geeignet zum HSC - Schrupp - Fräsen.
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- Bis $D \leq 20\text{mm}$: mit Zentrumschnitt, über $D > 20\text{mm}$: Ohne Zentrumschnitt.



up to $\varnothing 9$ $\varnothing 10 \sim \varnothing 20$ over $\varnothing 20$



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	TANK-POWER COATED	js12	h6			
E9A34060	GAA34060	6.0	6	24	68	3
E9A34070	GAA34070	7.0	10	30	80	3
E9A34080	GAA34080	8.0	10	38	88	3
E9A34090	GAA34090	9.0	10	38	88	3
E9A34100	GAA34100	10.0	10	45	95	4
E9A34120	GAA34120	12.0	12	53	110	4
E9A34140	GAA34140	14.0	12	53	110	4
E9A34160	GAA34160	16.0	16	63	123	4
E9A34180	GAA34180	18.0	16	63	123	4
E9A34200	GAA34200	20.0	20	75	141	4
E9A34220	GAA34220	22.0	20	75	141	5
E9A34250	GAA34250	25.0	25	90	166	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

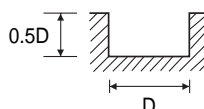
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○		◎				

PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

GA936, GAA29 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS	~ 500N/mm ²		~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7000	115	5900	90	4900	80	3150	65	2000	40
3.0	5000	160	4100	135	3350	115	2300	80	1800	62
4.0	4300	230	3600	175	3150	160	2000	92	1600	75
5.0	3900	255	3250	200	2600	185	1700	102	1350	75
6.0	3500	265	2900	210	2300	190	1450	110	1150	85
8.0	2600	275	2200	240	1800	200	1150	115	890	85
10.0	2100	300	1800	265	1450	230	900	125	700	102
12.0	1800	275	1450	240	1150	210	740	115	580	85
14.0	1600	265	1250	210	1000	195	630	110	500	80
16.0	1350	265	1150	195	890	180	560	102	440	80
18.0	1150	240	950	195	790	160	500	100	400	75
20.0	950	220	780	165	700	150	440	92	360	70
22.0	840	185	710	150	600	125	400	80	320	55
25.0	750	155	630	140	490	115	360	75	250	52

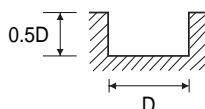


RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

E9936, E9A29 SERIES

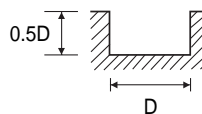
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS	~ 500N/mm ²		~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	4800	70	4000	55	3300	50	2100	40	1300	25
3.0	3300	100	2800	85	2200	75	1600	50	1200	40
4.0	2900	140	2400	110	2100	100	1300	60	1050	45
5.0	2600	160	2200	125	1800	115	1100	65	900	45
6.0	2300	160	2000	135	1600	120	1000	65	750	55
8.0	1800	170	1500	150	1200	125	750	70	600	55
10.0	1400	180	1200	165	1000	140	600	80	480	65
12.0	1200	170	1000	150	800	130	500	70	400	55
14.0	1100	160	850	140	680	120	430	65	340	50
16.0	900	160	750	135	600	110	380	65	300	50
18.0	800	150	640	120	530	100	340	55	270	45
20.0	640	130	540	100	480	95	300	55	240	40
22.0	570	110	480	90	400	75	270	50	210	35
25.0	510	95	430	85	340	70	240	45	175	30



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

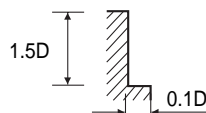

**PREMIUM HSS-PM, 3 FLUTE - SLOTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - NUTENFRÄSEN**
GA942, GAA30 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6500	70	5500	55	4800	45	3000	35	1900	28
3.0	4600	102	3900	85	3350	52	2200	45	1800	45
4.0	4300	140	3600	115	3000	80	1900	52	1500	55
5.0	3800	160	3200	130	2600	92	1700	62	1300	55
6.0	3350	230	2800	190	2300	140	1450	92	1100	75
8.0	2600	240	2200	210	1800	150	1150	102	890	85
10.0	100	250	1800	210	1400	160	890	115	680	92
12.0	1800	275	1450	230	1200	170	740	115	580	92
14.0	1600	250	1350	220	1000	160	660	110	500	85
16.0	1350	240	1150	210	890	150	560	102	440	85
18.0	1150	240	890	190	790	150	500	95	400	80
20.0	950	230	790	190	700	140	440	92	360	80
22.0	840	230	730	195	600	150	400	95	315	85
25.0	750	240	630	210	490	160	360	102	250	85


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

**PREMIUM HSS-PM, 3 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - SEITENFRÄSEN**
GA942, GAA30 SERIES

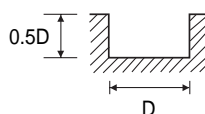
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC35		HRC35 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	8200	100	6800	80	5500	65	3800	50	2400	40
3.0	5800	145	4800	120	3800	75	2700	65	2200	65
4.0	5200	185	4400	155	3500	110	2300	75	1900	75
5.0	4700	210	4000	175	2900	125	2000	85	1700	75
6.0	4200	300	3600	250	2600	190	1800	125	1500	100
8.0	3200	330	2600	270	2000	200	1300	140	1100	115
10.0	2500	350	2100	290	1600	210	1000	150	890	125
12.0	2100	350	1800	300	1400	230	900	150	740	125
14.0	1800	350	1500	285	1150	210	780	140	630	120
16.0	1600	330	1300	275	1000	200	660	140	550	115
18.0	1350	310	1150	265	890	195	580	130	500	110
20.0	1250	300	1050	255	780	190	520	125	440	110
22.0	1150	310	950	265	740	195	470	130	400	110
25.0	1000	330	840	275	630	210	420	135	360	120


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

PREMIUM HSS-PM, 3 FLUTE - SLOTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - NUTENFRÄSEN

E9942, E9A30 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	4400	45	3700	35	3300	30	2100	20	1300	18
3.0	3150	65	2650	55	3200	30	1500	30	1200	28
4.0	2900	85	2400	70	2100	50	1300	35	1000	35
5.0	2600	100	2150	80	1800	55	1100	40	890	35
6.0	2300	145	1900	120	1600	85	1000	55	750	45
8.0	1800	150	1500	130	1200	95	780	65	610	55
10.0	1400	155	1200	130	960	100	610	70	460	58
12.0	1200	170	1000	145	820	105	500	70	395	58
14.0	1070	155	930	135	680	100	450	65	345	55
16.0	930	150	780	130	610	95	380	65	300	55
18.0	780	150	610	120	530	95	350	60	270	50
20.0	640	145	530	120	480	85	300	55	245	50
22.0	570	145	500	120	410	95	270	60	215	55
25.0	520	150	430	130	340	100	240	65	170	55

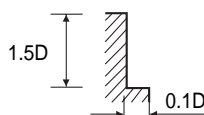


RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 3 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - SEITENFRÄSEN

E9942, E9A30 SERIES

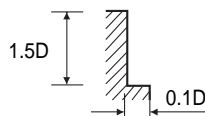
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5600	60	4600	50	3700	40	2600	32	1600	25
3.0	3900	90	3300	75	1600	45	1800	40	1500	40
4.0	3600	115	3000	95	2400	68	1600	45	1300	45
5.0	3200	130	2700	110	2000	80	1400	55	1100	45
6.0	2800	190	2400	155	1800	120	1200	80	1000	65
8.0	2100	210	1800	170	1350	125	890	85	710	70
10.0	1700	210	1400	180	1100	130	710	95	610	80
12.0	1400	220	1200	185	930	145	610	95	500	80
14.0	1200	215	1000	180	780	130	540	90	430	75
16.0	1100	210	890	170	680	125	440	85	370	70
18.0	930	195	790	165	610	120	390	80	340	68
20.0	860	185	720	155	540	120	360	80	300	68
22.0	790	195	650	165	500	120	320	80	270	68
25.0	680	210	580	170	430	130	290	85	240	75



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

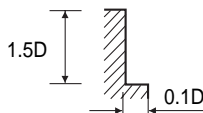

**PREMIUM HSS-PM, 4 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 4 SCHNEIDEN - SEITENFRÄSEN**
GA938, GAA31 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	9200	290	8400	240	6100	170	4100	125	3300	85
3.0	6600	410	6000	350	4400	250	2700	180	2400	125
4.0	5300	480	4700	400	3600	300	2300	200	2000	150
5.0	4400	510	4000	420	2900	320	2000	220	1700	160
6.0	3900	540	3600	450	2600	330	1800	230	1450	180
8.0	3100	570	2600	480	2000	370	1400	240	1150	185
10.0	2300	630	2100	530	1600	380	1000	265	890	200
12.0	2000	570	1800	480	1400	370	890	240	720	185
14.0	1800	550	1600	460	1100	350	790	230	630	170
16.0	1600	510	1400	430	1000	340	680	220	550	165
18.0	1500	460	1250	400	890	310	630	195	500	150
20.0	1250	440	1050	370	780	275	530	175	440	140
22.0	1050	410	950	320	680	255	470	160	400	130
25.0	1000	370	840	305	630	230	420	150	360	125


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

**PREMIUM HSS-PM, 4 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 4 SCHNEIDEN - SEITENFRÄSEN**
E9938, E9A31 SERIES

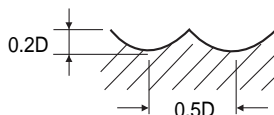
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS		ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS	
HARDNESS			~ HRC20		HRc20 ~ HRc30		HRc30 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6300	180	5700	150	4000	110	2800	75	2300	55
3.0	4500	260	4000	210	3000	155	2000	110	1650	80
4.0	3600	300	3200	250	2400	190	1600	125	1350	95
5.0	3000	310	2700	265	2000	195	1400	135	1125	100
6.0	2600	330	2400	275	1800	205	1200	140	975	110
8.0	2100	360	1800	300	1400	230	900	150	750	115
10.0	1600	390	1400	330	1100	235	710	165	600	125
12.0	1300	360	1200	300	900	230	600	150	495	115
14.0	1200	340	1100	285	780	215	530	140	430	105
16.0	1100	310	900	265	680	205	450	135	375	100
18.0	1000	280	850	250	600	190	430	120	340	95
20.0	850	270	710	230	540	175	360	110	300	85
22.0	710	260	640	200	460	160	320	100	270	80
25.0	680	230	570	190	430	140	280	95	240	80


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

PREMIUM HSS-PM, 2 FLUTE BALL NOSE - PROFILING
PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS - PROFILFRÄSEN

GA940, GAA32 SERIES

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	7300	340	5800	230	3900	125	2000	55
R2.0 × 4.0	6000	430	4620	290	3000	160	1600	75
R3.0 × 6.0	4400	480	3500	320	2300	180	1200	85
R4.0 × 8.0	3350	530	2600	350	1800	200	890	85
R5.0 × 10.0	2750	600	2100	400	1400	230	680	102
R6.0 × 12.0	2300	530	1800	350	1200	200	580	85
R8.0 × 16.0	1700	480	1300	320	890	180	440	80
R10.0 × 20.0	1350	420	1000	280	680	150	360	70
R12.5 × 25.0	950	310	740	210	470	115	250	52

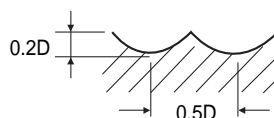


RPM = rev./min.
FEED = mm/min.

PREMIUM HSS-PM, 2 FLUTE BALL NOSE - PROFILING
PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS - PROFILFRÄSEN

E9940, E9A32 SERIES

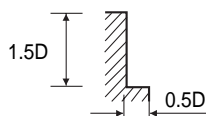
MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	5000	210	3900	140	2600	80	1300	35
R2.0 × 4.0	4000	260	3100	180	2100	100	1000	45
R3.0 × 6.0	3000	300	2300	200	1600	110	820	55
R4.0 × 8.0	2300	330	1800	220	1200	125	600	55
R5.0 × 10.0	1800	370	1400	250	1000	140	480	65
R6.0 × 12.0	1500	330	1200	220	820	125	400	55
R8.0 × 16.0	1100	300	900	200	600	110	300	50
R10.0 × 20.0	930	260	710	170	480	95	240	45
R12.5 × 25.0	640	190	500	130	340	70	175	30



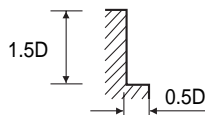
RPM = rev./min.
FEED = mm/min.

**PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN****GA941, GAA35, GAA33, GAA34, GAA26 SERIES**

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2800	230	2200	180	1600	115	1300	105
8.0	2400	290	1900	230	1400	160	1050	125
10.0	1900	415	1500	315	1050	195	890	160
12.0	1600	415	1200	330	900	230	740	180
14.0	1400	415	1050	330	760	230	630	180
16.0	1200	415	950	330	660	230	550	180
18.0	1050	415	890	330	610	230	490	180
20.0	960	425	760	330	530	230	440	180
22.0	890	425	650	330	470	230	400	180
25.0	790	415	600	315	420	220	360	180

RPM = rev./min.
FEED = mm/min.**PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN****E9941, E9A35, E9A33, E9A34, E9A26 SERIES**

MATERIAL	STRUCTURAL STEELS CARBON STEELS		STRUCTURAL STEELS CARBON STEELS CAST IRONS		CARBON STEELS ALLOY STEELS TOOL STEELS		PREHARDENED STEELS ALLOY STEELS TOOL STEELS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	1900	140	1500	110	1050	70	900	65
8.0	1600	180	1300	140	900	100	740	80
10.0	1300	260	1000	195	710	125	600	100
12.0	1100	260	820	205	600	140	500	110
14.0	930	260	710	205	510	140	430	110
16.0	820	260	640	205	450	140	370	110
18.0	710	260	610	205	410	140	330	110
20.0	660	265	510	205	360	140	300	110
22.0	610	265	440	205	320	140	270	110
25.0	540	260	400	195	280	135	240	110

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

HSS



Being the best through innovation



HSS

HSS FRÄSER

- General Purposes, Non-coated, Any Coating Available
- Unbeschichtet für allgemeinen Einsatz. Jegliche Beschichtung möglich

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
E2570		HSSCo8, 2 FLUTE SHORT LENGTH HSSCo8, 2 SCHNEIDEN KURZ	D1.0	D40.0	902
E2571		HSSCo8, 2 FLUTE LONG LENGTH HSSCo8, 2 SCHNEIDEN LANG	D1.5	D40.0	905
E2510		HSSCo8, 2 FLUTE EXTRA LONG LENGTH HSSCo8, 2 SCHNEIDEN EXTRA LANG	D2.5	D40.0	907
E2464		HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ	D1.0	D32.0	908
E2509		HSSCo8, 2 FLUTE 42° HELIX LONG LENGTH HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE LANG	D2.0	D20.0	910
EL612		HSS-E, 1 FLUTE HSS-E, 1 SCHNEIDEN	D3.0	D10.0	911
EL623		HSS-E, 1 FLUTE HSS-E, 1 SCHNEIDEN	D3.0	D10.0	912
E2572		HSSCo8, 3 FLUTE STUB LENGTH HSSCo8, 3 SCHNEIDEN EXTRA KURZ	D1.5	D32.0	913
E2573		HSSCo8, 3 FLUTE SHORT LENGTH HSSCo8, 3 SCHNEIDEN KURZ	D1.0	D40.0	914
E2516		HSSCo8, 3 FLUTE LONG LENGTH HSSCo8, 3 SCHNEIDEN LANG	D2.0	D40.0	916
E2553		HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER	D1.0	D20.0	918
E2SET553		HSSCo8, THROW AWAY SET (NON-COATED) HSSCo8, EINWEG-SCHAFTFRÄSER SET (NICHT-BESCHICHTET)	D2.0	D10.0	919
E2554		HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER	D1.5	D10.0	920
E2551		HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER	D1.0	D10.0	921
E2552		HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER	D1.5	D10.0	922
E2574 E2575		HSSCo8, 4&6 FLUTE SHORT LENGTH HSSCo8, 4&6 SCHNEIDEN KURZ	D2.0 D21.0	D20.0 D40.0	923
E2576 E2577		HSSCo8, 4&6 FLUTE LONG LENGTH HSSCo8, 4&6 SCHNEIDEN LANG	D2.0 D22.0	D20.0 D40.0	924
E2595 E2596		HSSCo8, 4&6 FLUTE SHORT LENGTH - CENTER CUTTING HSSCo8, 4&6 SCHNEIDEN KURZ	D2.0 D22.0	D25.0 D40.0	925

GENERAL HSS END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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SELECTION GUIDE




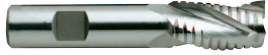










ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
E2597 E2598		HSSCo8, 4&6 FLUTE LONG LENGTH - CENTER CUTTING HSSCo8, 4&6 SCHNEIDEN LANG	D2.0 D22.0	D20.0 D40.0	926
E2461 E2462 E2463		HSSCo8, MULTI FLUTE 50° HELIX SHORT LENGTH HSSCo8, MULTI SCHNEIDEN 50° RECHTSSPIRALE KURZ	D2.0 D6.0 D22.0	D5.0 D23.0 D30.0	927
E2535		HSSCo8, 2 FLUTE SHORT LENGTH BALL NOSE HSSCo8, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R16.0	928
E2492		HSSCo8, 2 FLUTE LONG LENGTH BALL NOSE HSSCo8, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R15.0	929
E2410		HSSCo8, 4&6 FLUTE SHORT LENGTH BALL NOSE HSSCo8, 4&6 SCHNEIDEN KURZ STIRNRADIUS	R3.0	R12.5	930
E2429		HSSCo8, 4&6 FLUTE LONG LENGTH BALL NOSE HSSCo8, 4&6 SCHNEIDEN LANG STIRNRADIUS	R5.0	R12.5	931
E2512		HSSCo8, 3 FLUTE SHORT LENGTH BALL NOSE THROW AWAY HSSCo8, 3 SCHNEIDEN KURZ STIRNRADIUS EINWEGFRÄSER	R1.0	R3.0	932
E2751		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFÄSER - GROB	D6.0	D50.0	933
E2752		HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFÄSER - GROB	D6.0	D40.0	935
E2751 E2764		HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING - COARSE HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPFÄSER - GROB	D6.0 D10.0	D8.0 D40.0	936
E2752 E2765		HSSCo8, 3 FLUTE LONG LENGTH ROUGHING - COARSE HSSCo8, 3 SCHNEIDEN LANG SCHRUPPFÄSER - GROB	D6.0 D10.0	D8.0 D40.0	937
E2755		HSSCo8, 3 FLUTE 37° HELIX SHORT LENGTH ROUGHING HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE KURZ SCHRUPPFÄSER	D6.0	D30.0	938
E2756		HSSCo8, 3 FLUTE 37° HELIX LONG LENGTH ROUGHING HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE LANG SCHRUPPFÄSER	D10.0	D30.0	939
E2757		HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - COARSE HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFÄSER STIRNRADIUS - GROB	R3.0	R20.0	940
E2761		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - EXTRA FINE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFÄSER - EXTRA FEIN	D6.0	D25.0	941
E2524		HSSCo8, 3&4 FLUTE STUB LENGTH ROUGHING - FINE HSSCo8, 3&4 SCHNEIDEN EXTRA KURZ SCHRUPPFÄSER - FEIN	D6.0	D20.0	942
E2606		HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - FINE HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFÄSER STIRNRADIUS - FEIN	R3.0	R20.0	943
E2753		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFÄSER - FEIN	D6.0	D40.0	944

GENERAL HSS END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			~HB225	HB225~325								
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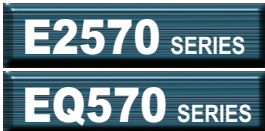
SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
E2762		HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - FINE HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFÄRÄSER - FEIN	D6.0	D40.0	945
E2754		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER	D6.0	D40.0	946
E2768		HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER	D6.0	D45.0	947
E2766		HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING & FINISHING HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER	D6.0	D40.0	948
E2767		HSSCo8, 3 FLUTE LONG LENGTH ROUGHING & FINISHING HSSCo8, 3 SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER	D6.0	D40.0	949
E2776		HSSCo8, MULTI FLUTE SHORT LENGTH HSSCo8, MULTI SCHNEIDEN KURZ	D14.0	D50.0	950
E2777		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFÄRÄSER - GROB	D14.0	D50.0	951
E2778		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFÄRÄSER - FEIN	D16.0	D50.0	952
E2779		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER	D16.0	D50.0	953
E3570		HSS-PM, 2 FLUTE SHORT LENGTH HSS-PM, 2 SCHNEIDEN KURZ	D2.0	D30.0	954
E3574 E3575		HSS-PM, 4&6 FLUTE SHORT LENGTH HSS-PM, 4&6 SCHNEIDEN KURZ	D2.0 D22.0	D20.0 D30.0	955
E3462 E3463		HSS-PM, 3&4 FLUTE 60° HELIX SHORT LENGTH HSS-PM, 3&4 SCHNEIDEN 60° RECHTSSPIRALE KURZ	D6.0 D25.0	D20.0 D30.0	956
E9410		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN KURZ	D2.0	D25.0	957
E9720		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPPFÄRÄSER KURZ - FEIN	D6.0	D30.0	958
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					959

GENERAL HSS END MILLS

◎ : Excellent, ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
			HRc40~45	HRc45~55								
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE SHORT LENGTH
HSSCo8, 2 SCHNEIDEN KURZ

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

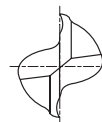
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



P.959, 968, 972

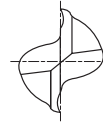
Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2570010	C2GRS-010AF	EQ570010	R2GRS-010AF	1.0	6	2.5	47
E2570015	C2GRS-015AF	EQ570015	R2GRS-015AF	1.5	6	3	47
E2570020	C2GRS-020AF	EQ570020	R2GRS-020AF	2.0	6	4	48
E2570025	C2GRS-025AF	EQ570025	R2GRS-025AF	2.5	6	5	49
E2570028	C2GRS-028AF	EQ570028	R2GRS-028AF	2.8	6	5	49
E2570030	C2GRS-030AF	EQ570030	R2GRS-030AF	3.0	6	5	49
E2570035	C2GRS-035AF	EQ570035	R2GRS-035AF	3.5	6	6	50
E2570038	C2GRS-038AF	EQ570038	R2GRS-038AF	3.8	6	7	51
E2570040	C2GRS-040AF	EQ570040	R2GRS-040AF	4.0	6	7	51
E2570045	C2GRS-045AF	EQ570045	R2GRS-045AF	4.5	6	7	51
E2570048	C2GRS-048AF	EQ570048	R2GRS-048AF	4.8	6	8	52
E2570050	C2GRS-050AF	EQ570050	R2GRS-050AF	5.0	6	8	52
E2570055	C2GRS-055AF	EQ570055	R2GRS-055AF	5.5	6	8	52
E2570957	C2GRS-0575AF	EQ570957	R2GRS-0575AF	5.75	6	8	52
E2570060	C2GRS-060AF	EQ570060	R2GRS-060AF	6.0	6	8	52
E2570065	C2GRS-065TF	EQ570065	R2GRS-065TF	6.5	10	10	60
E2570967	C2GRS-0675TF	EQ570967	R2GRS-0675TF	6.75	10	10	60
E2570070	C2GRS-070TF	EQ570070	R2GRS-070TF	7.0	10	10	60
E2570075	C2GRS-075TF	EQ570075	R2GRS-075TF	7.5	10	10	60
E2570977	C2GRS-0775TF	EQ570977	R2GRS-0775TF	7.75	10	11	61
E2570080	C2GRS-080TF	EQ570080	R2GRS-080TF	8.0	10	11	61
E2570085	C2GRS-085TF	EQ570085	R2GRS-085TF	8.5	10	11	61
E2570087	C2GRS-087TF	EQ570087	R2GRS-087TF	8.7	10	11	61
E2570090	C2GRS-090TF	EQ570090	R2GRS-090TF	9.0	10	11	61
E2570095	C2GRS-095TF	EQ570095	R2GRS-095TF	9.5	10	11	61
E2570097	C2GRS-097TF	EQ570097	R2GRS-097TF	9.7	10	13	63
E2570100	C2GRS-100TF	EQ570100	R2GRS-100TF	10.0	10	13	63

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 2 FLUTE SHORT LENGTH
HSSCo8, 2 SCHNEIDEN KURZ



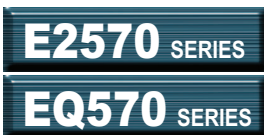
P.959, 968, 972

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2570105	C2GRS-105DF	EQ570105	R2GRS-105DF	10.5	12	13	70
E2570107	C2GRS-107DF	EQ570107	R2GRS-107DF	10.7	12	13	70
E2570110	C2GRS-110DF	EQ570110	R2GRS-110DF	11.0	12	13	70
E2570115	C2GRS-115DF	EQ570115	R2GRS-115DF	11.5	12	13	70
E2570117	C2GRS-117DF	EQ570117	R2GRS-117DF	11.7	12	16	73
E2570120	C2GRS-120DF	EQ570120	R2GRS-120DF	12.0	12	16	73
E2570125	C2GRS-125DF	EQ570125	R2GRS-125DF	12.5	12	16	73
E2570127	C2GRS-127DF	EQ570127	R2GRS-127DF	12.7	12	16	73
E2570130	C2GRS-130DF	EQ570130	R2GRS-130DF	13.0	12	16	73
E2570135	C2GRS-135DF	EQ570135	R2GRS-135DF	13.5	12	16	73
E2570137	C2GRS-137DF	EQ570137	R2GRS-137DF	13.7	12	16	73
E2570140	C2GRS-140DF	EQ570140	R2GRS-140DF	14.0	12	16	73
E2570147	C2GRS-147DF	EQ570147	R2GRS-147DF	14.7	12	16	73
E2570150	C2GRS-150DF	EQ570150	R2GRS-150DF	15.0	12	16	73
E2570157	C2GRS-157EF	EQ570157	R2GRS-157EF	15.7	16	19	79
E2570160	C2GRS-160EF	EQ570160	R2GRS-160EF	16.0	16	19	79
E2570167	C2GRS-167EF	EQ570167	R2GRS-167EF	16.7	16	19	79
E2570170	C2GRS-170EF	EQ570170	R2GRS-170EF	17.0	16	19	79
E2570177	C2GRS-177EF	EQ570177	R2GRS-177EF	17.7	16	19	79
E2570180	C2GRS-180EF	EQ570180	R2GRS-180EF	18.0	16	19	79
E2570190	C2GRS-190EF	EQ570190	R2GRS-190EF	19.0	16	19	79
E2570197	C2GRS-197FF	EQ570197	R2GRS-197FF	19.7	20	22	88
E2570920	C2GRS-200EF	EQ570920	R2GRS-200EF	20.0	16	22	82
E2570200	C2GRS-200FF	EQ570200	R2GRS-200FF	20.0	20	22	88
E2570210	C2GRS-210FF	EQ570210	R2GRS-210FF	21.0	20	22	88
E2570220	C2GRS-220FF	EQ570220	R2GRS-220FF	22.0	20	22	88
E2570922	C2GRS-220GF	EQ570922	R2GRS-220GF	22.0	25	22	98

◎ : Excellent ○ : Good

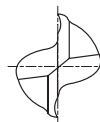
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE SHORT LENGTH HSSCo8, 2 SCHNEIDEN KURZ



P.959, 968, 972

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2570240	C2GRS-240GF	EQ570240	R2GRS-240GF	24.0	25	26	102
E2570250	C2GRS-250GF	EQ570250	R2GRS-250GF	25.0	25	26	102
E2570260	C2GRS-260GF	EQ570260	R2GRS-260GF	26.0	25	26	102
E2570270	C2GRS-270GF	EQ570270	R2GRS-270GF	27.0	25	26	102
E2570280	C2GRS-280GF	EQ570280	R2GRS-280GF	28.0	25	26	102
E2570290	C2GRS-290GF	EQ570290	R2GRS-290GF	29.0	25	26	102
E2570300	C2GRS-300GF	EQ570300	R2GRS-300GF	30.0	25	26	102
E2570320	C2GRS-320HF	EQ570320	R2GRS-320HF	32.0	32	32	112
E2570340	C2GRS-340HF	EQ570340	R2GRS-340HF	34.0	32	32	112
E2570350	C2GRS-350HF	EQ570350	R2GRS-350HF	35.0	32	32	112
E2570360	C2GRS-360HF	EQ570360	R2GRS-360HF	36.0	32	32	112
E2570380	C2GRS-380HF	EQ570380	R2GRS-380HF	38.0	32	38	118
E2570938	C2GRS-380IF	EQ570938	R2GRS-380IF	38.0	40	38	130
E2570400	C2GRS-400HF	EQ570400	R2GRS-400HF	40.0	32	38	118
E2570903	C2GRS-400IF	EQ570903	R2GRS-400IF	40.0	40	38	130

- ▶ Other shank design on your request.
- ▶ TIN-COATING & TICN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161

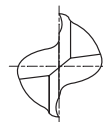
Toleranzen nach DIN 7160 & 7161

		Tolerance range in μm / Toleranzwerte in μm					
		Nominal-Diameter in mm / Nennmaßbereich in mm					
		from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8		— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6		0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 2 FLUTE LONG LENGTH
HSSCo8, 2 SCHNEIDEN LANG



P.959, 968, 972

Unit : mm

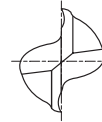
EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2571015	C2GLS-015AF	EQ571015	R2GLS-015AF	1.5	6	7	51
E2571020	C2GLS-020AF	EQ571020	R2GLS-020AF	2.0	6	7	51
E2571025	C2GLS-025AF	EQ571025	R2GLS-025AF	2.5	6	8	52
E2571030	C2GLS-030AF	EQ571030	R2GLS-030AF	3.0	6	8	52
E2571035	C2GLS-035AF	EQ571035	R2GLS-035AF	3.5	6	10	54
E2571040	C2GLS-040AF	EQ571040	R2GLS-040AF	4.0	6	11	55
E2571045	C2GLS-045AF	EQ571045	R2GLS-045AF	4.5	6	11	55
E2571050	C2GLS-050AF	EQ571050	R2GLS-050AF	5.0	6	13	57
E2571055	C2GLS-055AF	EQ571055	R2GLS-055AF	5.5	6	13	57
E2571060	C2GLS-060AF	EQ571060	R2GLS-060AF	6.0	6	13	57
E2571065	C2GLS-065TF	EQ571065	R2GLS-065TF	6.5	10	16	66
E2571070	C2GLS-070TF	EQ571070	R2GLS-070TF	7.0	10	16	66
E2571075	C2GLS-075TF	EQ571075	R2GLS-075TF	7.5	10	16	66
E2571080	C2GLS-080TF	EQ571080	R2GLS-080TF	8.0	10	19	69
E2571085	C2GLS-085TF	EQ571085	R2GLS-085TF	8.5	10	19	69
E2571090	C2GLS-090TF	EQ571090	R2GLS-090TF	9.0	10	19	69
E2571095	C2GLS-095TF	EQ571095	R2GLS-095TF	9.5	10	19	69
E2571100	C2GLS-100TF	EQ571100	R2GLS-100TF	10.0	10	22	72
E2571110	C2GLS-110DF	EQ571110	R2GLS-110DF	11.0	12	22	79
E2571120	C2GLS-120DF	EQ571120	R2GLS-120DF	12.0	12	26	83
E2571130	C2GLS-130DF	EQ571130	R2GLS-130DF	13.0	12	26	83
E2571140	C2GLS-140DF	EQ571140	R2GLS-140DF	14.0	12	26	83
E2571150	C2GLS-150DF	EQ571150	R2GLS-150DF	15.0	12	26	83
E2571160	C2GLS-160EF	EQ571160	R2GLS-160EF	16.0	16	32	92
E2571180	C2GLS-180EF	EQ571180	R2GLS-180EF	18.0	16	32	92

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	○				○			○			

CARBIDE

HSS

**HSS
END MILLS****E2571** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**EQ571** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 2 FLUTE LONG LENGTH**
HSSCo8, 2 SCHNEIDEN LANGCBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

P.959, 968, 972

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN				
E2571200	C2GLS-200FF	EQ571200	R2GLS-200FF	20.0	20	38	104
E2571220	C2GLS-220FF	EQ571220	R2GLS-220FF	22.0	20	38	104
E2571240	C2GLS-240GF	EQ571240	R2GLS-240GF	24.0	25	45	121
E2571250	C2GLS-250GF	EQ571250	R2GLS-250GF	25.0	25	45	121
E2571260	C2GLS-260GF	EQ571260	R2GLS-260GF	26.0	25	45	121
E2571270	C2GLS-270GF	EQ571270	R2GLS-270GF	27.0	25	45	121
E2571280	C2GLS-280GF	EQ571280	R2GLS-280GF	28.0	25	45	121
E2571300	C2GLS-300GF	EQ571300	R2GLS-300GF	30.0	25	45	121
E2571320	C2GLS-320HF	EQ571320	R2GLS-320HF	32.0	32	53	133
E2571400	C2GLS-400IF	EQ571400	R2GLS-400IF	40.0	40	63	155

▶ Other shank design on your request.

▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			



E2510 SERIES
EQ510 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE EXTRA LONG LENGTH
HSSCo8, 2 SCHNEIDEN EXTRA LANG



P.959, 968, 972

Unit : mm							
EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2510025	C2GXS-025AF	EQ510025	R2GXS-025AF	2.5	6	8	56
E2510030	C2GXS-030AF	EQ510030	R2GXS-030AF	3.0	6	8	56
E2510035	C2GXS-035AF	EQ510035	R2GXS-035AF	3.5	6	10	59
E2510040	C2GXS-040AF	EQ510040	R2GXS-040AF	4.0	6	11	63
E2510045	C2GXS-045AF	EQ510045	R2GXS-045AF	4.5	6	11	63
E2510050	C2GXS-050AF	EQ510050	R2GXS-050AF	5.0	6	13	68
E2510055	C2GXS-055AF	EQ510055	R2GXS-055AF	5.5	6	13	68
E2510060	C2GXS-060AF	EQ510060	R2GXS-060AF	6.0	6	13	68
E2510065	C2GXS-065TF	EQ510065	R2GXS-065TF	6.5	10	16	80
E2510070	C2GXS-070TF	EQ510070	R2GXS-070TF	7.0	10	16	80
E2510080	C2GXS-080TF	EQ510080	R2GXS-080TF	8.0	10	19	88
E2510085	C2GXS-085TF	EQ510085	R2GXS-085TF	8.5	10	19	88
E2510090	C2GXS-090TF	EQ510090	R2GXS-090TF	9.0	10	19	88
E2510100	C2GXS-100TF	EQ510100	R2GXS-100TF	10.0	10	22	95
E2510120	C2GXS-120DF	EQ510120	R2GXS-120DF	12.0	12	26	110
E2510140	C2GXS-140DF	EQ510140	R2GXS-140DF	14.0	12	26	110
E2510160	C2GXS-160EF	EQ510160	R2GXS-160EF	16.0	16	32	123
E2510180	C2GXS-180EF	EQ510180	R2GXS-180EF	18.0	16	32	123
E2510200	C2GXS-200FF	EQ510200	R2GXS-200FF	20.0	20	38	141
E2510220	C2GXS-220FF	EQ510220	R2GXS-220FF	22.0	20	38	141
E2510240	C2GXS-240GF	EQ510240	R2GXS-240GF	24.0	25	45	166
E2510250	C2GXS-250GF	EQ510250	R2GXS-250GF	25.0	25	45	166
E2510260	C2GXS-260GF	EQ510260	R2GXS-260GF	26.0	25	45	166
E2510280	C2GXS-280GF	EQ510280	R2GXS-280GF	28.0	25	45	166
E2510300	C2GXS-300GF	EQ510300	R2GXS-300GF	30.0	25	45	166
E2510320	C2GXS-320HF	EQ510320	R2GXS-320HF	32.0	32	53	186
E2510360	C2GXS-360HF	EQ510360	R2GXS-360HF	36.0	32	53	186
E2510400	C2GXS-400HF	EQ510400	R2GXS-400HF	40.0	32	63	207
E2510940	C2GXS-400IF	EQ510940	R2GXS-400IF	40.0	40	63	217

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

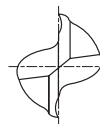
► Other shank design on your request.
► TIN-COATING & TiCN-COATING are available on your request.

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	○	○				○			○			

◎ : Excellent ○ : Good

CARBIDE

HSS

**HSS
END MILLS****E2464** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**EU464** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH**
HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ**for ALUMINUM****für ALUMINIUM****HSS
Co8****DIN
844****W****2****42°****DIN
1835B**

P.959

Unit : mm

EDP No.	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length	
					UNCOATED
E2464010	EU464010	1.0	6	3	49
E2464015	EU464015	1.5	6	5	49
E2464020	EU464020	2.0	6	7	51
E2464025	EU464025	2.5	6	8	52
E2464030	EU464030	3.0	6	8	52
E2464035	EU464035	3.5	6	10	54
E2464040	EU464040	4.0	6	11	55
E2464045	EU464045	4.5	6	11	55
E2464050	EU464050	5.0	6	13	57
E2464055	EU464055	5.5	6	13	57
E2464060	EU464060	6.0	6	13	57
E2464065	EU464065	6.5	10	16	66
E2464070	EU464070	7.0	10	16	66
E2464075	EU464075	7.5	10	16	66
E2464080	EU464080	8.0	10	19	69
E2464085	EU464085	8.5	10	19	69
E2464090	EU464090	9.0	10	19	69
E2464100	EU464100	10.0	10	22	72
E2464110	EU464110	11.0	12	22	79
E2464120	EU464120	12.0	12	26	83
E2464130	EU464130	13.0	12	26	83
E2464140	EU464140	14.0	12	26	83
E2464150	EU464150	15.0	12	26	83
E2464160	EU464160	16.0	16	32	92
E2464170	EU464170	17.0	16	32	92
E2464180	EU464180	18.0	16	32	92
E2464190	EU464190	19.0	16	32	92

CBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○									◎			

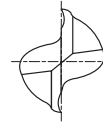


E2464 SERIES
EU464 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH
HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ

for ALUMINUM
für ALUMINIUM



HSS Co8 DIN 844 W 2 42° DIN 1835B P.959

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	HARDSLICK	e8	h6		
E2464200	EU464200	20.0	20	38	104
E2464210	EU464210	21.0	20	38	104
E2464220	EU464220	22.0	20	38	104
E2464230	EU464230	23.0	20	38	104
E2464240	EU464240	24.0	25	45	121
E2464250	EU464250	25.0	25	45	121
E2464260	EU464260	26.0	25	45	121
E2464280	EU464280	28.0	25	45	121
E2464300	EU464300	30.0	25	45	121
E2464320	EU464320	32.0	32	53	133

- ▶ Other shank design on your request.
- ▶ TIN-COATING & TICN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

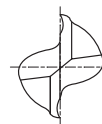
Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
○									◎			

CARBIDE

HSS

**HSS
END MILLS****E2509** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**EU509** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 2 FLUTE 42° HELIX LONG LENGTH**
HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE LANG**for ALUMINUM****für ALUMINIUM**HSS
Co8DIN
844

W

2

42°

DIN
1835B

P.959

Unit : mm

EDP No.	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2509020	2.0	6	10	54
E2509030	3.0	6	12	56
E2509040	4.0	6	19	63
E2509050	5.0	6	24	68
E2509060	6.0	6	24	68
E2509070	7.0	10	30	80
E2509080	8.0	10	38	88
E2509090	9.0	10	38	88
E2509100	10.0	10	45	95
E2509110	11.0	12	45	102
E2509120	12.0	12	53	110
E2509130	13.0	12	53	110
E2509140	14.0	12	53	110
E2509150	15.0	12	53	110
E2509160	16.0	16	63	123
E2509180	18.0	16	63	123
E2509200	20.0	20	75	141

► Other shank design on your request.

► TIN-COATING & TICN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161**Toleranzen nach DIN 7160 & 7161**

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

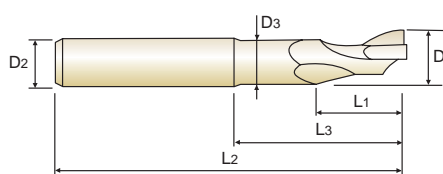
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○									◎			

HSS-E, 1 FLUTE
HSS-E, 1 SCHNEIDEN
for ALUMINUM
für ALUMINIUM


Unit : mm

EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	js14	h6		
EL612030	M1NRA-03001	3.0	8	12	60
EL612040	M1NRA-04001	4.0	8	12	60
EL612050	M1NRA-05001	5.0	8	14	60
EL612060	M1NRA-06001	6.0	8	14	60
EL612070	M1NRA-07001	7.0	8	14	60
EL612080	M1NRA-08001	8.0	8	14	80
EL612090	M1NRA-09001	9.0	8	14	80
EL612100	M1NRA-10001	10.0	8	14	80



Unit : mm

EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	LENGTH BELOW SHANK	Overall Length	NECK DIAMETER
UNCOATED	UNCOATED	D1(js14)	D2(h6)	L1	L3	L2	D3
EL612904	M1NRA-05002	5.0	8	18	35	80	4.8
EL612909	M1NRA-05009	5.0	8	40	40	100	—
EL612932	M1NRA-08007	8.0	8	14	68	120	7.5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js14	± 125	± 150	± 180	± 215	± 260	± 310
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
○									◎			



EL623SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

HSS-E, 1 FLUTE
HSS-E, 1 SCHNEIDEN



Unit : mm

EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	js14	h6		
EL623030	M1NRS-03001	3.0	8	12	60
EL623040	M1NRS-04001	4.0	8	12	60
EL623050	M1NRS-05006	5.0	8	12	60
EL623060	M1NRS-06001	6.0	8	14	60
EL623070	M1NRS-07001	7.0	8	14	60
EL623080	M1NRS-08001	8.0	8	14	80
EL623090	M1NRS-09001	9.0	8	14	80
EL623100	M1NRS-10001	10.0	8	14	80

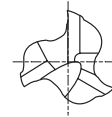
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js14	± 125	± 150	± 180	± 215	± 260	± 310
h6	$\begin{matrix} 0 \\ -6 \end{matrix}$	$\begin{matrix} 0 \\ -8 \end{matrix}$	$\begin{matrix} 0 \\ -9 \end{matrix}$	$\begin{matrix} 0 \\ -11 \end{matrix}$	$\begin{matrix} 0 \\ -13 \end{matrix}$	$\begin{matrix} 0 \\ -16 \end{matrix}$

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎								○			

HSSCo8, 3 FLUTE STUB LENGTH
HSSCo8, 3 SCHNEIDEN EXTRA KURZ



P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2572015	C3GSC-015AF	EQ572015	R3GSC-015AF	1.5	6	3	47
E2572020	C3GSC-020AF	EQ572020	R3GSC-020AF	2.0	6	4	48
E2572025	C3GSC-025AF	EQ572025	R3GSC-025AF	2.5	6	5	49
E2572030	C3GSC-030AF	EQ572030	R3GSC-030AF	3.0	6	5	49
E2572035	C3GSC-035AF	EQ572035	R3GSC-035AF	3.5	6	6	50
E2572040	C3GSC-040AF	EQ572040	R3GSC-040AF	4.0	6	7	51
E2572045	C3GSC-045AF	EQ572045	R3GSC-045AF	4.5	6	7	51
E2572050	C3GSC-050AF	EQ572050	R3GSC-050AF	5.0	6	8	52
E2572055	C3GSC-055AF	EQ572055	R3GSC-055AF	5.5	6	8	52
E2572060	C3GSC-060AF	EQ572060	R3GSC-060AF	6.0	6	8	52
E2572065	C3GSC-065TF	EQ572065	R3GSC-065TF	6.5	10	10	60
E2572070	C3GSC-070TF	EQ572070	R3GSC-070TF	7.0	10	10	60
E2572075	C3GSC-075TF	EQ572075	R3GSC-075TF	7.5	10	10	60
E2572080	C3GSC-080TF	EQ572080	R3GSC-080TF	8.0	10	11	61
E2572085	C3GSC-085TF	EQ572085	R3GSC-085TF	8.5	10	11	61
E2572100	C3GSC-100TF	EQ572100	R3GSC-100TF	10.0	10	13	63
E2572120	C3GSC-120DF	EQ572120	R3GSC-120DF	12.0	12	16	73
E2572140	C3GSC-140DF	EQ572140	R3GSC-140DF	14.0	12	16	73
E2572150	C3GSC-150DF	EQ572150	R3GSC-150DF	15.0	12	16	73
E2572160	C3GSC-160EF	EQ572160	R3GSC-160EF	16.0	16	19	79
E2572180	C3GSC-180EF	EQ572180	R3GSC-180EF	18.0	16	19	79
E2572200	C3GSC-200FF	EQ572200	R3GSC-200FF	20.0	20	22	88
E2572220	C3GSC-220FF	EQ572220	R3GSC-220FF	22.0	20	22	88
E2572240	C3GSC-240GF	EQ572240	R3GSC-240GF	24.0	25	26	102
E2572250	C3GSC-250GF	EQ572250	R3GSC-250GF	25.0	25	26	102
E2572260	C3GSC-260GF	EQ572260	R3GSC-260GF	26.0	25	26	102
E2572280	C3GSC-280GF	EQ572280	R3GSC-280GF	28.0	25	26	102
E2572300	C3GSC-300GF	EQ572300	R3GSC-300GF	30.0	25	26	102
E2572320	C3GSC-320HF	EQ572320	R3GSC-320HF	32.0	32	32	112

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

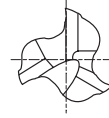
- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

**HSS
END MILLS****E2573** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**EQ573** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 3 FLUTE SHORT LENGTH**
HSSCo8, 3 SCHNEIDEN KURZCBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2573010	C3GRC-010AF	EQ573010	R3GRC-010AF	1.0	6	3	47
E2573015	C3GRC-015AF	EQ573015	R3GRC-015AF	1.5	6	7	51
E2573020	C3GRC-020AF	EQ573020	R3GRC-020AF	2.0	6	7	51
E2573025	C3GRC-025AF	EQ573025	R3GRC-025AF	2.5	6	8	52
E2573030	C3GRC-030AF	EQ573030	R3GRC-030AF	3.0	6	8	52
E2573035	C3GRC-035AF	EQ573035	R3GRC-035AF	3.5	6	10	54
E2573040	C3GRC-040AF	EQ573040	R3GRC-040AF	4.0	6	11	55
E2573045	C3GRC-045AF	EQ573045	R3GRC-045AF	4.5	6	11	55
E2573050	C3GRC-050AF	EQ573050	R3GRC-050AF	5.0	6	13	57
E2573055	C3GRC-055AF	EQ573055	R3GRC-055AF	5.5	6	13	57
E2573060	C3GRC-060AF	EQ573060	R3GRC-060AF	6.0	6	13	57
E2573065	C3GRC-065TF	EQ573065	R3GRC-065TF	6.5	10	16	66
E2573070	C3GRC-070TF	EQ573070	R3GRC-070TF	7.0	10	16	66
E2573075	C3GRC-075TF	EQ573075	R3GRC-075TF	7.5	10	16	66
E2573080	C3GRC-080TF	EQ573080	R3GRC-080TF	8.0	10	19	69
E2573085	C3GRC-085TF	EQ573085	R3GRC-085TF	8.5	10	19	69
E2573090	C3GRC-090TF	EQ573090	R3GRC-090TF	9.0	10	19	69
E2573095	C3GRC-095TF	EQ573095	R3GRC-095TF	9.5	10	19	69
E2573100	C3GRC-100TF	EQ573100	R3GRC-100TF	10.0	10	22	72
E2573120	C3GRC-120DF	EQ573120	R3GRC-120DF	12.0	12	26	83
E2573140	C3GRC-140DF	EQ573140	R3GRC-140DF	14.0	12	26	83
E2573150	C3GRC-150DF	EQ573150	R3GRC-150DF	15.0	12	26	83
E2573160	C3GRC-160EF	EQ573160	R3GRC-160EF	16.0	16	32	92
E2573180	C3GRC-180EF	EQ573180	R3GRC-180EF	18.0	16	32	92

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 3 FLUTE SHORT LENGTH
HSSCo8, 3 SCHNEIDEN KURZ



P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2573200	C3GRC-200FF	EQ573200	R3GRC-200FF	20.0	20	38	104
E2573220	C3GRC-220FF	EQ573220	R3GRC-220FF	22.0	20	38	104
E2573240	C3GRC-240GF	EQ573240	R3GRC-240GF	24.0	25	45	121
E2573250	C3GRC-250GF	EQ573250	R3GRC-250GF	25.0	25	45	121
E2573260	C3GRC-260GF	EQ573260	R3GRC-260GF	26.0	25	45	121
E2573280	C3GRC-280GF	EQ573280	R3GRC-280GF	28.0	25	45	121
E2573300	C3GRC-300GF	EQ573300	R3GRC-300GF	30.0	25	45	121
E2573320	C3GRC-320HF	EQ573320	R3GRC-320HF	32.0	32	53	133
E2573400	C3GRC-400IF	EQ573400	R3GRC-400IF	40.0	40	63	155

▶ Other shank design on your request.
▶ TIN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS



E2516 SERIES
EQ516 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH
HSSCo8, 3 SCHNEIDEN LANG

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



P.960, 968, 969, 972, 973

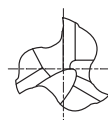
Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAlN	TiAlN	e8	h6		
E2516020	C3GLC-020AF	EQ516020	R3GLC-020AF	2.0	6	10	54
E2516025	C3GLC-025AF	EQ516025	R3GLC-025AF	2.5	6	12	56
E2516030	C3GLC-030AF	EQ516030	R3GLC-030AF	3.0	6	12	56
E2516035	C3GLC-035AF	EQ516035	R3GLC-035AF	3.5	6	15	59
E2516040	C3GLC-040AF	EQ516040	R3GLC-040AF	4.0	6	19	63
E2516045	C3GLC-045AF	EQ516045	R3GLC-045AF	4.5	6	19	63
E2516050	C3GLC-050AF	EQ516050	R3GLC-050AF	5.0	6	24	68
E2516055	C3GLC-055AF	EQ516055	R3GLC-055AF	5.5	6	24	68
E2516060	C3GLC-060AF	EQ516060	R3GLC-060AF	6.0	6	24	68
E2516070	C3GLC-070TF	EQ516070	R3GLC-070TF	7.0	10	30	80
E2516075	C3GLC-075TF	EQ516075	R3GLC-075TF	7.5	10	30	80
E2516080	C3GLC-080TF	EQ516080	R3GLC-080TF	8.0	10	38	88
E2516090	C3GLC-090TF	EQ516090	R3GLC-090TF	9.0	10	38	88
E2516100	C3GLC-100TF	EQ516100	R3GLC-100TF	10.0	10	45	95
E2516110	C3GLC-110DF	EQ516110	R3GLC-110DF	11.0	12	45	102
E2516120	C3GLC-120DF	EQ516120	R3GLC-120DF	12.0	12	53	110
E2516130	C3GLC-130DF	EQ516130	R3GLC-130DF	13.0	12	53	110
E2516140	C3GLC-140DF	EQ516140	R3GLC-140DF	14.0	12	53	110
E2516150	C3GLC-150DF	EQ516150	R3GLC-150DF	15.0	12	53	110
E2516160	C3GLC-160EF	EQ516160	R3GLC-160EF	16.0	16	63	123
E2516170	C3GLC-170EF	EQ516170	R3GLC-170EF	17.0	16	63	123
E2516180	C3GLC-180EF	EQ516180	R3GLC-180EF	18.0	16	63	123
E2516190	C3GLC-190EF	EQ516190	R3GLC-190EF	19.0	16	63	123
E2516901	C3GLC-200EF	EQ516901	R3GLC-200EF	20.0	16	75	135
E2516200	C3GLC-200FF	EQ516200	R3GLC-200FF	20.0	20	75	141
E2516220	C3GLC-220FF	EQ516220	R3GLC-220FF	22.0	20	75	141

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 3 FLUTE LONG LENGTH
HSSCo8, 3 SCHNEIDEN LANG



P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2516240	C3GLC-240GF	EQ516240	R3GLC-240GF	24.0	25	90	166
E2516250	C3GLC-250GF	EQ516250	R3GLC-250GF	25.0	25	90	166
E2516260	C3GLC-260GF	EQ516260	R3GLC-260GF	26.0	25	90	166
E2516280	C3GLC-280GF	EQ516280	R3GLC-280GF	28.0	25	90	166
E2516300	C3GLC-300GF	EQ516300	R3GLC-300GF	30.0	25	90	166
E2516320	C3GLC-320HF	EQ516320	R3GLC-320HF	32.0	32	106	186
E2516350	C3GLC-350HF	EQ516350	R3GLC-350HF	35.0	32	106	186
E2516360	C3GLC-360HF	EQ516360	R3GLC-360HF	36.0	32	106	186
E2516400	C3GLC-400IF	EQ516400	R3GLC-400IF	40.0	40	125	217

- ▶ Other shank design on your request.
- ▶ TIN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

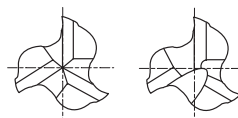
Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRC55~70							
◎	◎	○				○			○			

CARBIDE

HSS

**HSS
END MILLS****E2553** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**EQ553** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY**
HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER

Up to Ø10mm Over Ø10mm

HSS
Co8YG
STD

N

3

30°

DIN
1835B

P.960, 968, 969, 972, 973

Unit : mm

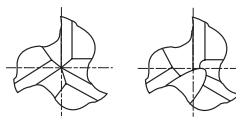
EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2553010	C3FSC-010AF	EQ553010	R3FSC-010AF	1.0	6	2	34
E2553013	C3FSC-013AF	EQ553013	R3FSC-013AF	1.3	6	3	34
E2553015	C3FSC-015AF	EQ553015	R3FSC-015AF	1.5	6	3	34
E2553018	C3FSC-018AF	EQ553018	R3FSC-018AF	1.8	6	3	34
E2553020	C3FSC-020AF	EQ553020	R3FSC-020AF	2.0	6	4	35
E2553023	C3FSC-023AF	EQ553023	R3FSC-023AF	2.3	6	4	35
E2553025	C3FSC-025AF	EQ553025	R3FSC-025AF	2.5	6	5	36
E2553028	C3FSC-028AF	EQ553028	R3FSC-028AF	2.8	6	5	36
E2553030	C3FSC-030AF	EQ553030	R3FSC-030AF	3.0	6	5	36
E2553033	C3FSC-033AF	EQ553033	R3FSC-033AF	3.3	6	6	37
E2553035	C3FSC-035AF	EQ553035	R3FSC-035AF	3.5	6	6	37
E2553038	C3FSC-038AF	EQ553038	R3FSC-038AF	3.8	6	7	38
E2553040	C3FSC-040AF	EQ553040	R3FSC-040AF	4.0	6	7	38
E2553043	C3FSC-043AF	EQ553043	R3FSC-043AF	4.3	6	7	38
E2553045	C3FSC-045AF	EQ553045	R3FSC-045AF	4.5	6	7	38
E2553048	C3FSC-048AF	EQ553048	R3FSC-048AF	4.8	6	8	39
E2553050	C3FSC-050AF	EQ553050	R3FSC-050AF	5.0	6	8	39
E2553053	C3FSC-053AF	EQ553053	R3FSC-053AF	5.3	6	8	39
E2553055	C3FSC-055AF	EQ553055	R3FSC-055AF	5.5	6	8	39
E2553957	C3FSC-0575AF	EQ553957	R3FSC-0575AF	5.75	6	8	39
E2553060	C3FSC-060AF	EQ553060	R3FSC-060AF	6.0	6	8	39

JET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY
HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER



Up to Ø10mm Over Ø10mm



P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E2553065	C3FSC-065BF	EQ553065	R3FSC-065BF	6.5	8	10	42
E2553070	C3FSC-070BF	EQ553070	R3FSC-070BF	7.0	8	10	42
E2553075	C3FSC-075BF	EQ553075	R3FSC-075BF	7.5	8	10	42
E2553080	C3FSC-080BF	EQ553080	R3FSC-080BF	8.0	8	11	43
E2553085	C3FSC-085TF	EQ553085	R3FSC-085TF	8.5	10	11	48
E2553090	C3FSC-090TF	EQ553090	R3FSC-090TF	9.0	10	11	48
E2553095	C3FSC-095TF	EQ553095	R3FSC-095TF	9.5	10	11	48
E2553100	C3FSC-100TF	EQ553100	R3FSC-100TF	10.0	10	13	50
E2553120	C3FSC-120DF	EQ553120	R3FSC-120DF	12.0	12	16	58
E2553160	C3FSC-160EF	EQ553160	R3FSC-160EF	16.0	16	19	64
E2553200	C3FSC-200FF	EQ553200	R3FSC-200FF	20.0	20	22	78

► TIN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	— 0 — 6	— 0 — 8	— 0 — 9	— 0 — 11	— 0 — 13	— 0 — 16

SET ORDERING No.:
E2SET553
* 12PCS. SET
SHORT LENGTH
- 2PCS. OF EACH SIZE
2, 3, 4, 5, 6mm (C3FSC)
- 1PC. OF EACH SIZE
8, 10mm (C3FSC)

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

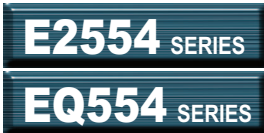
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

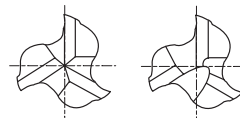
MILLING
CUTTERS

TECHNICAL
DATA



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER



Up to Ø10mm Over Ø10mm



P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN				
E2554015	C3FLC-015AF	EQ554015	R3FLC-015AF	1.5	6	4	35
E2554020	C3FLC-020AF	EQ554020	R3FLC-020AF	2.0	6	7	38
E2554025	C3FLC-025AF	EQ554025	R3FLC-025AF	2.5	6	8	39
E2554030	C3FLC-030AF	EQ554030	R3FLC-030AF	3.0	6	8	39
E2554035	C3FLC-035AF	EQ554035	R3FLC-035AF	3.5	6	10	41
E2554040	C3FLC-040AF	EQ554040	R3FLC-040AF	4.0	6	11	42
E2554045	C3FLC-045AF	EQ554045	R3FLC-045AF	4.5	6	11	42
E2554050	C3FLC-050AF	EQ554050	R3FLC-050AF	5.0	6	13	44
E2554055	C3FLC-055AF	EQ554055	R3FLC-055AF	5.5	6	13	44
E2554060	C3FLC-060AF	EQ554060	R3FLC-060AF	6.0	6	13	44
E2554065	C3FLC-065BF	EQ554065	R3FLC-065BF	6.5	8	16	48
E2554070	C3FLC-070BF	EQ554070	R3FLC-070BF	7.0	8	16	48
E2554075	C3FLC-075BF	EQ554075	R3FLC-075BF	7.5	8	16	48
E2554080	C3FLC-080BF	EQ554080	R3FLC-080BF	8.0	8	19	51
E2554085	C3FLC-085TF	EQ554085	R3FLC-085TF	8.5	10	19	56
E2554090	C3FLC-090TF	EQ554090	R3FLC-090TF	9.0	10	19	56
E2554095	C3FLC-095TF	EQ554095	R3FLC-095TF	9.5	10	19	56
E2554100	C3FLC-100TF	EQ554100	R3FLC-100TF	10.0	10	22	59

► TIN-COATING & TiCN-COATING are available on your request.

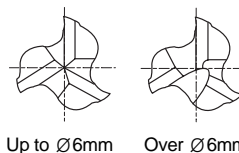
Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY
HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER



P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter e8	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN				
E2551010	C3CSC-010AF	EQ551010	R3CSC-010AF	1.0	6	2	24.5
E2551015	C3CSC-015AF	EQ551015	R3CSC-015AF	1.5	6	2.5	24.5
E2551020	C3CSC-020AF	EQ551020	R3CSC-020AF	2.0	6	3	25.5
E2551025	C3CSC-025AF	EQ551025	R3CSC-025AF	2.5	6	4	26
E2551028	C3CSC-028AF	EQ551028	R3CSC-028AF	2.8	6	4.5	28
E2551030	C3CSC-030AF	EQ551030	R3CSC-030AF	3.0	6	4.5	28
E2551035	C3CSC-035AF	EQ551035	R3CSC-035AF	3.5	6	5.5	30
E2551038	C3CSC-038AF	EQ551038	R3CSC-038AF	3.8	6	6.5	32.5
E2551040	C3CSC-040AF	EQ551040	R3CSC-040AF	4.0	6	6.5	32.5
E2551045	C3CSC-045AF	EQ551045	R3CSC-045AF	4.5	6	7	34.5
E2551048	C3CSC-048AF	EQ551048	R3CSC-048AF	4.8	6	7.5	36
E2551050	C3CSC-050AF	EQ551050	R3CSC-050AF	5.0	6	7.5	36
E2551055	C3CSC-055AF	EQ551055	R3CSC-055AF	5.5	6	8.5	36
E2551957	C3CSC-0575AF	EQ551957	R3CSC-0575AF	5.75	6	9.5	36
E2551060	C3CSC-060AF	EQ551060	R3CSC-060AF	6.0	6	9.5	36
E2551075	C3CSC-075TF	EQ551075	R3CSC-075TF	7.5	10	11	47.5
E2551080	C3CSC-080TF	EQ551080	R3CSC-080TF	8.0	10	11	47.5
E2551095	C3CSC-095TF	EQ551095	R3CSC-095TF	9.5	10	13	51.5
E2551100	C3CSC-100TF	EQ551100	R3CSC-100TF	10.0	10	13	51.5

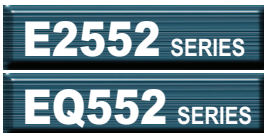
► TIN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm							Shank Dia. Tolerance	
Nominal-Diameter in mm / Nennmaßbereich in mm								
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	up to Ø6	over Ø6
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89	— 0.018 — 0.025	
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16		h6

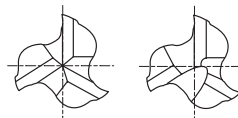
◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY
HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER



Up to Ø6mm Over Ø6mm



P.960, 968, 969, 972, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter e8	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN				
E2552015	C3CLC-015AF	EQ552015	R3CLC-015AF	1.5	6	4	28
E2552020	C3CLC-020AF	EQ552020	R3CLC-020AF	2.0	6	4.5	29
E2552025	C3CLC-025AF	EQ552025	R3CLC-025AF	2.5	6	6.5	32
E2552030	C3CLC-030AF	EQ552030	R3CLC-030AF	3.0	6	7.5	34
E2552035	C3CLC-035AF	EQ552035	R3CLC-035AF	3.5	6	8.5	36.5
E2552040	C3CLC-040AF	EQ552040	R3CLC-040AF	4.0	6	9.5	39
E2552045	C3CLC-045AF	EQ552045	R3CLC-045AF	4.5	6	11	42
E2552050	C3CLC-050AF	EQ552050	R3CLC-050AF	5.0	6	12.5	44.5
E2552055	C3CLC-055AF	EQ552055	R3CLC-055AF	5.5	6	14.5	46
E2552060	C3CLC-060AF	EQ552060	R3CLC-060AF	6.0	6	16	44.5
E2552080	C3CLC-080TF	EQ552080	R3CLC-080TF	8.0	10	19	55.5
E2552090	C3CLC-090TF	EQ552090	R3CLC-090TF	9.0	10	22.5	61
E2552100	C3CLC-100TF	EQ552100	R3CLC-100TF	10.0	10	22.5	61

►TIN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161

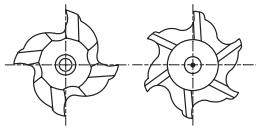
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm							Shank Dia. Tolerance	
Nominal-Diameter in mm / Nennmaßbereich in mm								
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	up to Ø6	— 0.018 — 0.025
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89	over Ø6	h6
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16		

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 4&6 FLUTE SHORT LENGTH
HSSCo8, 4&6 SCHNEIDEN KURZ



HSS Co8
DIN 844
N
4&6
≈ 30°
DIN 1835B

P.961, 969, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	UNCOATED	TiAIN	TiAIN					
E2574020	C4GRS-020AF	EQ574020	R4GRS-020AF	2.0	6	7	51	4
E2574025	C4GRS-025AF	EQ574025	R4GRS-025AF	2.5	6	8	52	4
E2574030	C4GRS-030AF	EQ574030	R4GRS-030AF	3.0	6	8	52	4
E2574035	C4GRS-035AF	EQ574035	R4GRS-035AF	3.5	6	10	54	4
E2574040	C4GRS-040AF	EQ574040	R4GRS-040AF	4.0	6	11	55	4
E2574050	C4GRS-050AF	EQ574050	R4GRS-050AF	5.0	6	13	57	4
E2574060	C4GRS-060AF	EQ574060	R4GRS-060AF	6.0	6	13	57	4
E2574070	C4GRS-070TF	EQ574070	R4GRS-070TF	7.0	10	16	66	4
E2574080	C4GRS-080TF	EQ574080	R4GRS-080TF	8.0	10	19	69	4
E2574090	C4GRS-090TF	EQ574090	R4GRS-090TF	9.0	10	19	69	4
E2574100	C4GRS-100TF	EQ574100	R4GRS-100TF	10.0	10	22	72	4
E2574110	C4GRS-110DF	EQ574110	R4GRS-110DF	11.0	12	22	79	4
E2574120	C4GRS-120DF	EQ574120	R4GRS-120DF	12.0	12	26	83	4
E2574130	C4GRS-130DF	EQ574130	R4GRS-130DF	13.0	12	26	83	4
E2574140	C4GRS-140DF	EQ574140	R4GRS-140DF	14.0	12	26	83	4
E2574150	C4GRS-150DF	EQ574150	R4GRS-150DF	15.0	12	26	83	4
E2574160	C4GRS-160EF	EQ574160	R4GRS-160EF	16.0	16	32	92	4
E2574170	C4GRS-170EF	EQ574170	R4GRS-170EF	17.0	16	32	92	4
E2574180	C4GRS-180EF	EQ574180	R4GRS-180EF	18.0	16	32	92	4
E2574190	C4GRS-190EF	EQ574190	R4GRS-190EF	19.0	16	32	92	4
E2574200	C4GRS-200FF	EQ574200	R4GRS-200FF	20.0	20	38	104	4
E2575210	C6GRS-210FF	EQ575210	R6GRS-210FF	21.0	20	38	104	6
E2575220	C6GRS-220FF	EQ575220	R6GRS-220FF	22.0	20	38	104	6
E2575230	C6GRS-230FF	EQ575230	R6GRS-230FF	23.0	20	38	104	6
E2575240	C6GRS-240GF	EQ575240	R6GRS-240GF	24.0	25	45	121	6
E2575250	C6GRS-250GF	EQ575250	R6GRS-250GF	25.0	25	45	121	6
E2575260	C6GRS-260GF	EQ575260	R6GRS-260GF	26.0	25	45	121	6
E2575280	C6GRS-280GF	EQ575280	R6GRS-280GF	28.0	25	45	121	6
E2575300	C6GRS-300GF	EQ575300	R6GRS-300GF	30.0	25	45	121	6
E2575320	C6GRS-320HF	EQ575320	R6GRS-320HF	32.0	32	53	133	6
E2575340	C6GRS-340HF	EQ575340	R6GRS-340HF	34.0	32	53	133	6
E2575350	C6GRS-350HF	EQ575350	R6GRS-350HF	35.0	32	53	133	6
E2575360	C6GRS-360HF	EQ575360	R6GRS-360HF	36.0	32	53	133	6
E2575400	C6GRS-400HF	EQ575400	R6GRS-400HF	40.0	32	63	143	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.04	h6

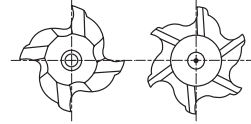
▶ Other shank design on your request.
 ▶ TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

**HSS
END MILLS****E2576, EQ576** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**E2577, EQ577** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 4&6 FLUTE LONG LENGTH**
HSSCo8, 4&6 SCHNEIDEN LANGCBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

P.961, 969, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	UNCOATED	TiAIN	TiAIN					
E2576020	C4GLS-020AF	EQ576020	R4GLS-020AF	2.0	6	10	54	4
E2576025	C4GLS-025AF	EQ576025	R4GLS-025AF	2.5	6	12	56	4
E2576030	C4GLS-030AF	EQ576030	R4GLS-030AF	3.0	6	12	56	4
E2576035	C4GLS-035AF	EQ576035	R4GLS-035AF	3.5	6	15	59	4
E2576040	C4GLS-040AF	EQ576040	R4GLS-040AF	4.0	6	19	63	4
E2576045	C4GLS-045AF	EQ576045	R4GLS-045AF	4.5	6	19	63	4
E2576050	C4GLS-050AF	EQ576050	R4GLS-050AF	5.0	6	24	68	4
E2576060	C4GLS-060AF	EQ576060	R4GLS-060AF	6.0	6	24	68	4
E2576070	C4GLS-070TF	EQ576070	R4GLS-070TF	7.0	10	30	80	4
E2576080	C4GLS-080TF	EQ576080	R4GLS-080TF	8.0	10	38	88	4
E2576090	C4GLS-090TF	EQ576090	R4GLS-090TF	9.0	10	38	88	4
E2576100	C4GLS-100TF	EQ576100	R4GLS-100TF	10.0	10	45	95	4
E2576110	C4GLS-110DF	EQ576110	R4GLS-110DF	11.0	12	45	102	4
E2576120	C4GLS-120DF	EQ576120	R4GLS-120DF	12.0	12	53	110	4
E2576130	C4GLS-130DF	EQ576130	R4GLS-130DF	13.0	12	53	110	4
E2576140	C4GLS-140DF	EQ576140	R4GLS-140DF	14.0	12	53	110	4
E2576150	C4GLS-150DF	EQ576150	R4GLS-150DF	15.0	12	53	110	4
E2576160	C4GLS-160EF	EQ576160	R4GLS-160EF	16.0	16	63	123	4
E2576170	C4GLS-170EF	EQ576170	R4GLS-170EF	17.0	16	63	123	4
E2576180	C4GLS-180EF	EQ576180	R4GLS-180EF	18.0	16	63	123	4
E2576190	C4GLS-190EF	EQ576190	R4GLS-190EF	19.0	16	63	123	4
E2576902	C4GLS-200EF	EQ576902	R4GLS-200EF	20.0	16	75	135	4
E2576200	C4GLS-200FF	EQ576200	R4GLS-200FF	20.0	20	75	141	4
E2577220	C6GLS-220FF	EQ577220	R6GLS-220FF	22.0	20	75	141	6
E2577240	C6GLS-240GF	EQ577240	R6GLS-240GF	24.0	25	90	166	6
E2577250	C6GLS-250GF	EQ577250	R6GLS-250GF	25.0	25	90	166	6
E2577260	C6GLS-260GF	EQ577260	R6GLS-260GF	26.0	25	90	166	6
E2577280	C6GLS-280GF	EQ577280	R6GLS-280GF	28.0	25	90	166	6
E2577300	C6GLS-300GF	EQ577300	R6GLS-300GF	30.0	25	90	166	6
E2577320	C6GLS-320HF	EQ577320	R6GLS-320HF	32.0	32	106	186	6
E2577360	C6GLS-360HF	EQ577360	R6GLS-360HF	36.0	32	106	186	6
E2577400	C6GLS-400IF	EQ577400	R6GLS-400IF	40.0	40	125	217	6

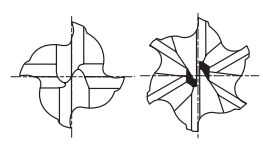
Mill Dia. Tolerance(mm)		Shank Dia. Tolerance
up to Ø6	0~+0.04	
over Ø6	0~+0.05	

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 4&6 FLUTE SHORT LENGTH
HSSCo8, 4&6 SCHNEIDEN KURZ



P.961, 969, 973

Unit : mm

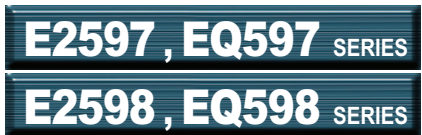
EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	UNCOATED	TiAlN	TiAlN					
E2595020	C4GRC-020AF	EQ595020	R4GRC-020AF	2.0	6	7	51	4
E2595030	C4GRC-030AF	EQ595030	R4GRC-030AF	3.0	6	8	52	4
E2595040	C4GRC-040AF	EQ595040	R4GRC-040AF	4.0	6	11	55	4
E2595050	C4GRC-050AF	EQ595050	R4GRC-050AF	5.0	6	13	57	4
E2595060	C4GRC-060AF	EQ595060	R4GRC-060AF	6.0	6	13	57	4
E2595070	C4GRC-070TF	EQ595070	R4GRC-070TF	7.0	10	16	66	4
E2595080	C4GRC-080TF	EQ595080	R4GRC-080TF	8.0	10	19	69	4
E2595090	C4GRC-090TF	EQ595090	R4GRC-090TF	9.0	10	19	69	4
E2595100	C4GRC-100TF	EQ595100	R4GRC-100TF	10.0	10	22	72	4
E2595110	C4GRC-110DF	EQ595110	R4GRC-110DF	11.0	12	22	79	4
E2595120	C4GRC-120DF	EQ595120	R4GRC-120DF	12.0	12	26	83	4
E2595130	C4GRC-130DF	EQ595130	R4GRC-130DF	13.0	12	26	83	4
E2595140	C4GRC-140DF	EQ595140	R4GRC-140DF	14.0	12	26	83	4
E2595150	C4GRC-150DF	EQ595150	R4GRC-150DF	15.0	12	26	83	4
E2595160	C4GRC-160EF	EQ595160	R4GRC-160EF	16.0	16	32	92	4
E2595170	C4GRC-170EF	EQ595170	R4GRC-170EF	17.0	16	32	92	4
E2595180	C4GRC-180EF	EQ595180	R4GRC-180EF	18.0	16	32	92	4
E2595190	C4GRC-190EF	EQ595190	R4GRC-190EF	19.0	16	32	92	4
E2595920	C4GRC-200EF	EQ595920	R4GRC-200EF	20.0	16	38	98	4
E2595200	C4GRC-200FF	EQ595200	R4GRC-200FF	20.0	20	38	104	4
E2595220	C4GRC-220FF	EQ595220	R4GRC-220FF	22.0	20	38	104	4
E2595250	C4GRC-250GF	EQ595250	R4GRC-250GF	25.0	25	45	121	4
E2596220	C6GRC-220FF	EQ596220	R6GRC-220FF	22.0	20	38	104	6
E2596240	C6GRC-240GF	EQ596240	R6GRC-240GF	24.0	25	45	121	6
E2596250	C6GRC-250GF	EQ596250	R6GRC-250GF	25.0	25	45	121	6
E2596260	C6GRC-260GF	EQ596260	R6GRC-260GF	26.0	25	45	121	6
E2596280	C6GRC-280GF	EQ596280	R6GRC-280GF	28.0	25	45	121	6
E2596300	C6GRC-300GF	EQ596300	R6GRC-300GF	30.0	25	45	121	6
E2596320	C6GRC-320HF	EQ596320	R6GRC-320HF	32.0	32	53	133	6
E2596340	C6GRC-340HF	EQ596340	R6GRC-340HF	34.0	32	53	133	6
E2596350	C6GRC-350HF	EQ596350	R6GRC-350HF	35.0	32	53	133	6
E2596360	C6GRC-360HF	EQ596360	R6GRC-360HF	36.0	32	53	133	6
E2596380	C6GRC-380HF	EQ596380	R6GRC-380HF	38.0	32	63	143	6
E2596901	C6GRC-400HF	EQ596901	R6GRC-400HF	40.0	32	63	143	6
E2596400	C6GRC-400IF	EQ596400	R6GRC-400IF	40.0	40	63	155	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.04	h6

▶ Other shank design on your request.
 ▶ TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

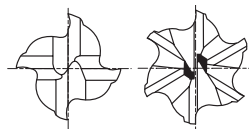
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE LONG LENGTH
HSSCo8, 4&6 SCHNEIDEN LANG



P.961, 969, 973

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	UNCOATED	TiAIN	TiAIN					
E2597020	C4GLC-020AF	EQ597020	R4GLC-020AF	2.0	6	10	54	4
E2597025	C4GLC-025AF	EQ597025	R4GLC-025AF	2.5	6	12	56	4
E2597030	C4GLC-030AF	EQ597030	R4GLC-030AF	3.0	6	12	56	4
E2597035	C4GLC-035AF	EQ597035	R4GLC-035AF	3.5	6	15	59	4
E2597040	C4GLC-040AF	EQ597040	R4GLC-040AF	4.0	6	19	63	4
E2597045	C4GLC-045AF	EQ597045	R4GLC-045AF	4.5	6	19	63	4
E2597050	C4GLC-050AF	EQ597050	R4GLC-050AF	5.0	6	24	68	4
E2597055	C4GLC-055AF	EQ597055	R4GLC-055AF	5.5	6	24	68	4
E2597060	C4GLC-060AF	EQ597060	R4GLC-060AF	6.0	6	24	68	4
E2597070	C4GLC-070TF	EQ597070	R4GLC-070TF	7.0	10	30	80	4
E2597080	C4GLC-080TF	EQ597080	R4GLC-080TF	8.0	10	38	88	4
E2597090	C4GLC-090TF	EQ597090	R4GLC-090TF	9.0	10	38	88	4
E2597100	C4GLC-100TF	EQ597100	R4GLC-100TF	10.0	10	45	95	4
E2597110	C4GLC-110DF	EQ597110	R4GLC-110DF	11.0	12	45	102	4
E2597120	C4GLC-120DF	EQ597120	R4GLC-120DF	12.0	12	53	110	4
E2597130	C4GLC-130DF	EQ597130	R4GLC-130DF	13.0	12	53	110	4
E2597140	C4GLC-140DF	EQ597140	R4GLC-140DF	14.0	12	53	110	4
E2597150	C4GLC-150DF	EQ597150	R4GLC-150DF	15.0	12	53	110	4
E2597160	C4GLC-160EF	EQ597160	R4GLC-160EF	16.0	16	63	123	4
E2597170	C4GLC-170EF	EQ597170	R4GLC-170EF	17.0	16	63	123	4
E2597180	C4GLC-180EF	EQ597180	R4GLC-180EF	18.0	16	63	123	4
E2597190	C4GLC-190EF	EQ597190	R4GLC-190EF	19.0	16	63	123	4
E2597200	C4GLC-200FF	EQ597200	R4GLC-200FF	20.0	20	75	141	4
E2598220	C6GLC-220FF	EQ598220	R6GLC-220FF	22.0	20	75	141	6
E2598240	C6GLC-240GF	EQ598240	R6GLC-240GF	24.0	25	90	166	6
E2598250	C6GLC-250GF	EQ598250	R6GLC-250GF	25.0	25	90	166	6
E2598260	C6GLC-260GF	EQ598260	R6GLC-260GF	26.0	25	90	166	6
E2598280	C6GLC-280GF	EQ598280	R6GLC-280GF	28.0	25	90	166	6
E2598300	C6GLC-300GF	EQ598300	R6GLC-300GF	30.0	25	90	166	6
E2598320	C6GLC-320HF	EQ598320	R6GLC-320HF	32.0	32	106	186	6
E2598360	C6GLC-360HF	EQ598360	R6GLC-360HF	36.0	32	106	186	6
E2598400	C6GLC-400IF	EQ598400	R6GLC-400IF	40.0	40	125	217	6

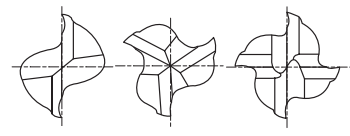
Mill Dia. Tolerance(mm)		Shank Dia. Tolerance
up to Ø6	0~+0.04	
over Ø6	0~+0.05	

▶ Other shank design on your request.
▶ TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE 50° HELIX SHORT LENGTH
HSSCo8, MULTI SCHNEIDEN 50° RECHTSSPIRALE KURZ

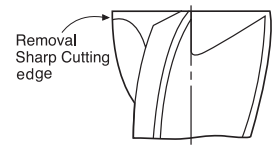


HSS Co8
DIN 844
N
2-4
50°
DIN 1835B
P.961

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	UNCOATED	TiAIN	TiAIN					
E2461020	C2ERH-020AF	EQ461020	R2ERH-020AF	2.0	6	7	51	2
E2461030	C2ERH-030AF	EQ461030	R2ERH-030AF	3.0	6	8	52	2
E2461040	C2ERH-040AF	EQ461040	R2ERH-040AF	4.0	6	11	55	2
E2461050	C2ERH-050AF	EQ461050	R2ERH-050AF	5.0	6	13	57	2
E2462060	C3ERH-060AF	EQ462060	R3ERH-060AF	6.0	6	13	57	3
E2462070	C3ERH-070TF	EQ462070	R3ERH-070TF	7.0	10	16	66	3
E2462080	C3ERH-080TF	EQ462080	R3ERH-080TF	8.0	10	19	69	3
E2462090	C3ERH-090TF	EQ462090	R3ERH-090TF	9.0	10	19	69	3
E2462100	C3ERH-100TF	EQ462100	R3ERH-100TF	10.0	10	22	72	3
E2462110	C3ERH-110DF	EQ462110	R3ERH-110DF	11.0	12	22	79	3
E2462120	C3ERH-120DF	EQ462120	R3ERH-120DF	12.0	12	26	83	3
E2462130	C3ERH-130DF	EQ462130	R3ERH-130DF	13.0	12	26	83	3
E2462140	C3ERH-140DF	EQ462140	R3ERH-140DF	14.0	12	26	83	3
E2462150	C3ERH-150DF	EQ462150	R3ERH-150DF	15.0	12	26	83	3
E2462160	C3ERH-160EF	EQ462160	R3ERH-160EF	16.0	16	32	92	3
E2462180	C3ERH-180EF	EQ462180	R3ERH-180EF	18.0	16	32	92	3
E2462200	C3ERH-200FF	EQ462200	R3ERH-200FF	20.0	20	38	104	3
E2462230	C3ERH-230FF	EQ462230	R3ERH-230FF	23.0	20	38	104	3
E2463220	C4ERH-220GF	EQ463220	R4ERH-220GF	22.0	25	45	121	4
E2463250	C4ERH-250GF	EQ463250	R4ERH-250GF	25.0	25	45	121	4
E2463300	C4ERH-300GF	EQ463300	R4ERH-300GF	30.0	25	45	121	4

▶ Other shank design on your request.
 ▶ TIN-COATING & TiCN-COATING are available on your request.



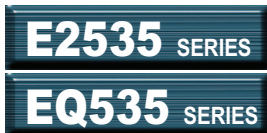
Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
up to Ø3	0~+0.04
Ø4.0 ~ Ø6.0	0~+0.048
Ø7.0 ~ Ø10.0	0~+0.058
Ø10.5 ~ Ø18.0	0~+0.07
over Ø18	0~+0.084

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	○				○						

CARBIDE

HSS



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE SHORT LENGTH BALL NOSE HSSCo8, 2 SCHNEIDEN KURZ STIRNRADIUS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



P.962, 970, 974

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	R (±0.02)	e8	h6		
E2535020	C2GRB-020AF	EQ535020	R2GRB-020AF	R1.0	2.0	6	4	48
E2535025	C2GRB-025AF	EQ535025	R2GRB-025AF	R1.25	2.5	6	5	49
E2535030	C2GRB-030AF	EQ535030	R2GRB-030AF	R1.5	3.0	6	5	49
E2535035	C2GRB-035AF	EQ535035	R2GRB-035AF	R1.75	3.5	6	6	50
E2535040	C2GRB-040AF	EQ535040	R2GRB-040AF	R2.0	4.0	6	7	51
E2535045	C2GRB-045AF	EQ535045	R2GRB-045AF	R2.25	4.5	6	7	51
E2535050	C2GRB-050AF	EQ535050	R2GRB-050AF	R2.5	5.0	6	8	52
E2535055	C2GRB-055AF	EQ535055	R2GRB-055AF	R2.75	5.5	6	8	52
E2535060	C2GRB-060AF	EQ535060	R2GRB-060AF	R3.0	6.0	6	8	52
E2535070	C2GRB-070TF	EQ535070	R2GRB-070TF	R3.5	7.0	10	10	60
E2535080	C2GRB-080TF	EQ535080	R2GRB-080TF	R4.0	8.0	10	11	61
E2535090	C2GRB-090TF	EQ535090	R2GRB-090TF	R4.5	9.0	10	11	61
E2535100	C2GRB-100TF	EQ535100	R2GRB-100TF	R5.0	10.0	10	13	63
E2535110	C2GRB-110DF	EQ535110	R2GRB-110DF	R5.5	11.0	12	13	70
E2535120	C2GRB-120DF	EQ535120	R2GRB-120DF	R6.0	12.0	12	16	73
E2535130	C2GRB-130DF	EQ535130	R2GRB-130DF	R6.5	13.0	12	16	73
E2535140	C2GRB-140DF	EQ535140	R2GRB-140DF	R7.0	14.0	12	16	73
E2535150	C2GRB-150DF	EQ535150	R2GRB-150DF	R7.5	15.0	12	16	73
E2535160	C2GRB-160EF	EQ535160	R2GRB-160EF	R8.0	16.0	16	19	79
E2535170	C2GRB-170EF	EQ535170	R2GRB-170EF	R8.5	17.0	16	19	79
E2535180	C2GRB-180EF	EQ535180	R2GRB-180EF	R9.0	18.0	16	19	79
E2535190	C2GRB-190EF	EQ535190	R2GRB-190EF	R9.5	19.0	16	19	79
E2535923	C2GRB-200EF	EQ535923	R2GRB-200EF	R10.0	20.0	16	22	82
E2535200	C2GRB-200FF	EQ535200	R2GRB-200FF	R10.0	20.0	20	22	88
E2535220	C2GRB-220FF	EQ535220	R2GRB-220FF	R11.0	22.0	20	22	88
E2535922	C2GRB-220GF	EQ535922	R2GRB-220GF	R11.0	22.0	25	22	98
E2535240	C2GRB-240GF	EQ535240	R2GRB-240GF	R12.0	24.0	25	26	102
E2535250	C2GRB-250GF	EQ535250	R2GRB-250GF	R12.5	25.0	25	26	102
E2535260	C2GRB-260GF	EQ535260	R2GRB-260GF	R13.0	26.0	25	26	102
E2535280	C2GRB-280GF	EQ535280	R2GRB-280GF	R14.0	28.0	25	26	102
E2535300	C2GRB-300GF	EQ535300	R2GRB-300GF	R15.0	30.0	25	26	102
E2535320	C2GRB-320HF	EQ535320	R2GRB-320HF	R16.0	32.0	32	32	112

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 2 FLUTE LONG LENGTH BALL NOSE
HSSCo8, 2 SCHNEIDEN LANG STIRNRADIUS



P.962, 970, 974

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	R (±0.02)	e8	h6		
E2492020	C2GLB-020AF	EQ492020	R2GLB-020AF	R1.0	2.0	6	7	54
E2492030	C2GLB-030AF	EQ492030	R2GLB-030AF	R1.5	3.0	6	8	56
E2492040	C2GLB-040AF	EQ492040	R2GLB-040AF	R2.0	4.0	6	11	63
E2492050	C2GLB-050AF	EQ492050	R2GLB-050AF	R2.5	5.0	6	13	68
E2492060	C2GLB-060AF	EQ492060	R2GLB-060AF	R3.0	6.0	6	13	68
E2492070	C2GLB-070TF	EQ492070	R2GLB-070TF	R3.5	7.0	10	16	80
E2492080	C2GLB-080TF	EQ492080	R2GLB-080TF	R4.0	8.0	10	19	88
E2492090	C2GLB-090TF	EQ492090	R2GLB-090TF	R4.5	9.0	10	19	88
E2492100	C2GLB-100TF	EQ492100	R2GLB-100TF	R5.0	10.0	10	22	95
E2492110	C2GLB-110DF	EQ492110	R2GLB-110DF	R5.5	11.0	12	22	102
E2492120	C2GLB-120DF	EQ492120	R2GLB-120DF	R6.0	12.0	12	26	110
E2492130	C2GLB-130DF	EQ492130	R2GLB-130DF	R6.5	13.0	12	26	110
E2492140	C2GLB-140DF	EQ492140	R2GLB-140DF	R7.0	14.0	12	26	110
E2492150	C2GLB-150DF	EQ492150	R2GLB-150DF	R7.5	15.0	12	26	110
E2492160	C2GLB-160EF	EQ492160	R2GLB-160EF	R8.0	16.0	16	32	123
E2492170	C2GLB-170EF	EQ492170	R2GLB-170EF	R8.5	17.0	16	32	123
E2492180	C2GLB-180EF	EQ492180	R2GLB-180EF	R9.0	18.0	16	32	123
E2492190	C2GLB-190EF	EQ492190	R2GLB-190EF	R9.5	19.0	16	32	123
E2492200	C2GLB-200FF	EQ492200	R2GLB-200FF	R10.0	20.0	20	38	141
E2492220	C2GLB-220FF	EQ492220	R2GLB-220FF	R11.0	22.0	20	38	141
E2492240	C2GLB-240GF	EQ492240	R2GLB-240GF	R12.0	24.0	25	45	166
E2492250	C2GLB-250GF	EQ492250	R2GLB-250GF	R12.5	25.0	25	45	166
E2492260	C2GLB-260GF	EQ492260	R2GLB-260GF	R13.0	26.0	25	45	166
E2492280	C2GLB-280GF	EQ492280	R2GLB-280GF	R14.0	28.0	25	45	166
E2492300	C2GLB-300GF	EQ492300	R2GLB-300GF	R15.0	30.0	25	45	166

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

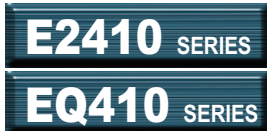
► Other shank design on your request.
► TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	○				○			○			

CARBIDE

HSS



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE SHORT LENGTH BALL NOSE
HSSCo8, 4&6 SCHNEIDEN KURZ STIRNRADIUS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

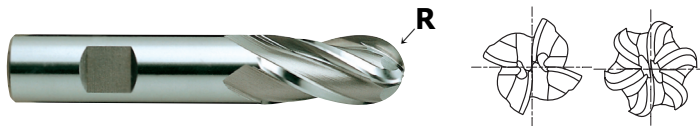
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



P.962, 970, 974

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAlN	R (±0.02)	e8	h6			
E2410060	EQ410060	R3.0	6.0	6	13	57	4
E2410080	EQ410080	R4.0	8.0	10	19	69	4
E2410100	EQ410100	R5.0	10.0	10	22	72	4
E2410120	EQ410120	R6.0	12.0	12	26	83	4
E2410160	EQ410160	R8.0	16.0	16	32	92	4
E2410200	EQ410200	R10.	20.0	20	38	104	4
E2410250	EQ410250	R12.5	25.0	25	45	121	6

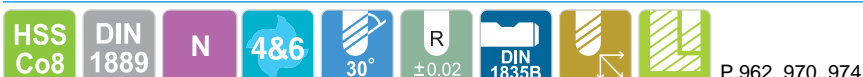
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 4&6 FLUTE LONG LENGTH BALL NOSE
HSSCo8, 4&6 SCHNEIDEN LANG STIRNRADIUS



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAIN	R (±0.02)	e8	h6			
E2429100	EQ429100	R5.0	10.0	10	45	95	4
E2429120	EQ429120	R6.0	12.0	12	53	110	4
E2429160	EQ429160	R8.0	16.0	16	63	123	4
E2429200	EQ429200	R10.0	20.0	20	75	141	4
E2429250	EQ429250	R12.5	25.0	25	90	166	6

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

**HSS
END MILLS****E2512** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**EQ512** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 3 FLUTE SHORT LENGTH BALL NOSE THROW AWAY
HSSCo8, 3 SCHNEIDEN KURZ STIRNRADIUS EINWEGFRÄSER**HSS
Co8YG
STD

N

3

30°

R
±0.02DIN
1835B

P.962, 970, 974

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	R (±0.02)	e8	h6		
E2512020	C3FSB-020AF	EQ512020	R3FSB-020AF	R1.0	2.0	6	4	35
E2512025	C3FSB-025AF	EQ512025	R3FSB-025AF	R1.25	2.5	6	5	36
E2512030	C3FSB-030AF	EQ512030	R3FSB-030AF	R1.5	3.0	6	5	36
E2512040	C3FSB-040AF	EQ512040	R3FSB-040AF	R2.0	4.0	6	7	38
E2512050	C3FSB-050AF	EQ512050	R3FSB-050AF	R2.5	5.0	6	8	39
E2512060	C3FSB-060AF	EQ512060	R3FSB-060AF	R3.0	6.0	6	8	39

► TiN-COATING & TiCN-COATING are available on your request.

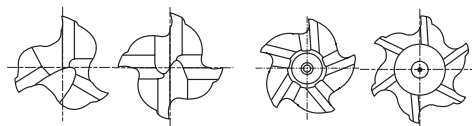
**Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161**

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE
HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB



Up to Ø20mm

Over Ø20mm



P.963, 971, 975

Unit : mm

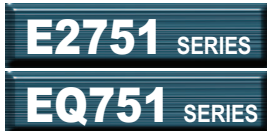
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAlN	js12	h6			
E2751060	EQ751060	6.0	6	13	57	3
E2751070	EQ751070	7.0	10	16	66	3
E2751080	EQ751080	8.0	10	19	69	3
E2751090	EQ751090	9.0	10	19	69	3
E2751095	EQ751095	9.5	10	19	69	3
E2751100	EQ751100	10.0	10	22	72	4
E2751110	EQ751110	11.0	12	22	79	4
E2751120	EQ751120	12.0	12	26	83	4
E2751125	EQ751125	12.5	12	26	83	4
E2751130	EQ751130	13.0	12	26	83	4
E2751140	EQ751140	14.0	12	26	83	4
E2751145	EQ751145	14.5	12	26	83	4
E2751150	EQ751150	15.0	12	26	83	4
E2751160	EQ751160	16.0	16	32	92	4
E2751170	EQ751170	17.0	16	32	92	4
E2751180	EQ751180	18.0	16	32	92	4
E2751190	EQ751190	19.0	16	32	92	4
E2751200	EQ751200	20.0	20	38	104	4
E2751901	EQ751901	20.0	16	38	98	4
E2751220	EQ751220	22.0	20	38	104	5
E2751240	EQ751240	24.0	25	45	121	5
E2751250	EQ751250	25.0	25	45	121	5
E2751260	EQ751260	26.0	25	45	121	6
E2751280	EQ751280	28.0	25	45	121	6
E2751300	EQ751300	30.0	25	45	121	6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE
HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

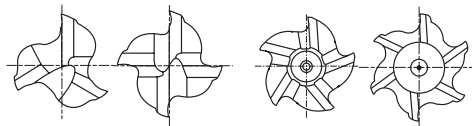
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



Up to Ø20mm

Over Ø20mm



P.963, 971, 975

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAIN	js12	h6			
E2751320	EQ751320	32.0	32	53	133	6
E2751340	EQ751340	34.0	32	53	133	6
E2751350	EQ751350	35.0	32	53	133	6
E2751360	EQ751360	36.0	32	53	133	6
E2751380	EQ751380	38.0	32	63	155	6
E2751938	EQ751938	38.0	40	63	155	6
E2751400	EQ751400	40.0	32	63	155	6
E2751940	EQ751940	40.0	40	63	155	6
E2751450	EQ751450	45.0	32	63	143	6
E2751500	EQ751500	50.0	50	75	177	6

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

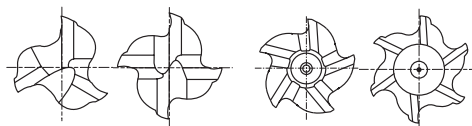
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE
HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - GROB



Up to Ø20mm

Over Ø20mm



P.963, 971, 975

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAlN	js12	h6			
E2752060	EQ752060	6.0	6	24	68	3
E2752070	EQ752070	7.0	10	30	80	3
E2752080	EQ752080	8.0	10	38	88	3
E2752090	EQ752090	9.0	10	38	88	3
E2752100	EQ752100	10.0	10	45	95	4
E2752110	EQ752110	11.0	12	45	102	4
E2752120	EQ752120	12.0	12	53	110	4
E2752130	EQ752130	13.0	12	53	110	4
E2752140	EQ752140	14.0	12	53	110	4
E2752150	EQ752150	15.0	12	53	110	4
E2752160	EQ752160	16.0	16	63	123	4
E2752170	EQ752170	17.0	16	63	123	4
E2752180	EQ752180	18.0	16	63	123	4
E2752190	EQ752190	19.0	16	63	123	4
E2752200	EQ752200	20.0	20	75	141	4
E2752901	EQ752901	20.0	16	75	135	4
E2752220	EQ752220	22.0	20	75	141	5
E2752902	EQ752902	22.0	25	75	151	5
E2752240	EQ752240	24.0	25	90	166	5
E2752250	EQ752250	25.0	25	90	166	5
E2752260	EQ752260	26.0	25	90	166	6
E2752280	EQ752280	28.0	25	90	166	6
E2752300	EQ752300	30.0	25	90	166	6
E2752320	EQ752320	32.0	32	106	186	6
E2752350	EQ752350	35.0	32	106	186	6
E2752360	EQ752360	36.0	32	106	186	6
E2752380	EQ752380	38.0	32	125	217	6
E2752938	EQ752938	38.0	40	125	217	6
E2752400	EQ752400	40.0	32	125	217	6
E2752940	EQ752940	40.0	40	125	217	6

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

▶ Other shank design on your request.
▶ TiN-COATING & TiCN-COATING are available on your request.

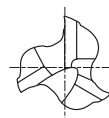
Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

**HSS
END MILLS****E2751, EQ751** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**E2764, EQ764** SERIESFLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN**HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING - COARSE**
HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPFRÄSER - GROBCBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

P.963, 971, 975

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E2751060	6.0	6	13	57
E2751080	8.0	10	19	69
E2764100	10.0	10	22	72
E2764120	12.0	12	26	83
E2764140	14.0	12	26	83
E2764160	16.0	16	32	92
E2764180	18.0	16	32	92
E2764200	20.0	20	38	104
E2764220	22.0	20	38	104
E2764250	25.0	25	45	121
E2764280	28.0	25	45	121
E2764300	30.0	25	45	121
E2764320	32.0	32	53	133
E2764360	36.0	32	53	133
E2764400	40.0	32	63	155

- ▶ Other shank design on your request.
- ▶ TIN-COATING & TICN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161**Toleranzen nach DIN 7160 & 7161**

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	$\begin{matrix} 0 \\ -6 \end{matrix}$	$\begin{matrix} 0 \\ -8 \end{matrix}$	$\begin{matrix} 0 \\ -9 \end{matrix}$	$\begin{matrix} 0 \\ -11 \end{matrix}$	$\begin{matrix} 0 \\ -13 \end{matrix}$	$\begin{matrix} 0 \\ -16 \end{matrix}$

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 3 FLUTE LONG LENGTH ROUGHING - COARSE
HSSCo8, 3 SCHNEIDEN LANG SCHRUPPFÄRER - GROB



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAIN	js12	h6		
E2752060	EQ752060	6.0	6	24	68
E2752080	EQ752080	8.0	10	38	88
E2765100	EQ765100	10.0	10	45	95
E2765120	EQ765120	12.0	12	53	110
E2765140	EQ765140	14.0	12	53	110
E2765160	EQ765160	16.0	16	63	123
E2765180	EQ765180	18.0	16	63	123
E2765200	EQ765200	20.0	20	75	141
E2765220	EQ765220	22.0	20	75	141
E2765250	EQ765250	25.0	25	90	166
E2765280	EQ765280	28.0	25	90	166
E2765300	EQ765300	30.0	25	90	166
E2765360	EQ765360	36.0	32	106	186
E2765400	EQ765400	40.0	32	125	217

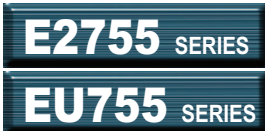
- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE 37° HELIX SHORT LENGTH ROUGHING
HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE KURZ SCHRUPPFRÄSER

for ALUMINUM
für ALUMINIUM



P.963, 971, 975

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	HARDSLICK	js12	h6		
E2755060	EU755060	6.0	6	13	57
E2755080	EU755080	8.0	10	19	69
E2755100	EU755100	10.0	10	22	72
E2755120	EU755120	12.0	12	26	83
E2755140	EU755140	14.0	12	26	83
E2755160	EU755160	16.0	16	32	92
E2755180	EU755180	18.0	16	32	92
E2755200	EU755200	20.0	20	38	104
E2755220	EU755220	22.0	20	38	104
E2755250	EU755250	25.0	25	45	121
E2755300	EU755300	30.0	25	45	121

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

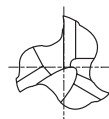
Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			◎			

HSSCo8, 3 FLUTE 37° HELIX LONG LENGTH ROUGHING
HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE LANG SCHRUPPFÄSER

for ALUMINUM
für ALUMINIUM



P.963, 971, 975

Unit : mm

EDP		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	HARDSLICK	js12	h6		
E2756100	EU756100	10.0	10	45	95
E2756120	EU756120	12.0	12	53	110
E2756140	EU756140	14.0	12	53	110
E2756160	EU756160	16.0	16	63	123
E2756180	EU756180	18.0	16	63	123
E2756200	EU756200	20.0	20	75	141
E2756220	EU756220	22.0	20	75	141
E2756250	EU756250	25.0	25	90	166
E2756300	EU756300	30.0	25	90	166

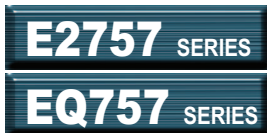
- ▶ Other shank design on your request.
- ▶ TIN-COATING & TICN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

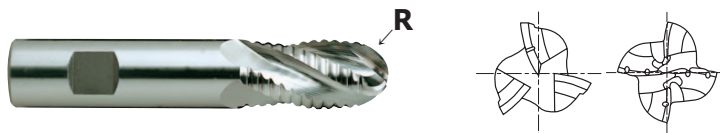
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	○				○			◎			



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - COARSE
HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFRÄSER STIRNRADIUS - GROB



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAIN	R (±0.02)	js12	h6			
E2757060	EQ757060	R3.0	6.0	6	13	57	3
E2757080	EQ757080	R4.0	8.0	10	19	69	3
E2757100	EQ757100	R5.0	10.0	10	22	72	3
E2757120	EQ757120	R6.0	12.0	12	26	83	4
E2757160	EQ757160	R8.0	16.0	16	32	92	4
E2757200	EQ757200	R10.0	20.0	20	38	104	4
E2757250	EQ757250	R12.5	25.0	25	45	121	4
E2757320	EQ757320	R16.0	32.0	32	53	133	4
E2757400	EQ757400	R20.0	40.0	32	63	155	4

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - EXTRA FINE
HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - EXTRA FEIN



P.963, 971, 975

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAlN	js12	h6			
E2761060	EQ761060	6.0	6	13	57	3
E2761070	EQ761070	7.0	10	16	66	3
E2761080	EQ761080	8.0	10	19	69	3
E2761090	EQ761090	9.0	10	19	69	3
E2761100	EQ761100	10.0	10	22	72	4
E2761120	EQ761120	12.0	12	26	83	4
E2761140	EQ761140	14.0	12	26	83	4
E2761160	EQ761160	16.0	16	32	92	4
E2761180	EQ761180	18.0	16	32	92	4
E2761200	EQ761200	20.0	20	38	104	4
E2761220	EQ761220	22.0	20	38	104	5
E2761250	EQ761250	25.0	25	45	121	5

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
◎	◎	○				○			○			

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

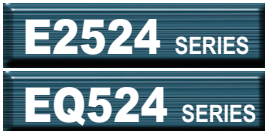
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

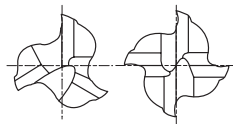
TECHNICAL
DATA



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3&4 FLUTE STUB LENGTH ROUGHING - FINE
HSSCo8, 3&4 SCHNEIDEN EXTRA KURZ SCHRUPPFÄRÄSER - FEIN



P.963, 971, 975

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute	
						UNCOATED
E2524060	EQ524060	6.0	6	8	52	3
E2524080	EQ524080	8.0	10	11	61	4
E2524100	EQ524100	10.0	10	13	63	4
E2524120	EQ524120	12.0	12	16	73	4
E2524140	EQ524140	14.0	12	16	73	4
E2524160	EQ524160	16.0	16	19	79	4
E2524180	EQ524180	18.0	16	19	79	4
E2524200	EQ524200	20.0	20	22	88	4

- ▶ Other shank design on your request.
- ▶ TIN-COATING & TICN-COATING are available on your request.

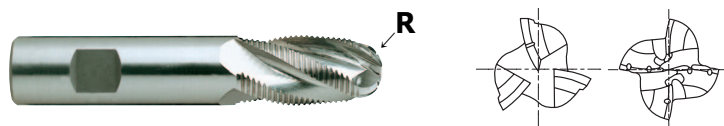
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k12	+90 0	+120 0	+150 0	+180 0	+210 0	+250 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - FINE
HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFRÄSER STIRNRADIUS - FEIN



Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAlN	R (±0.02)	js12	h6			
E2606060	EQ606060	R3.0	6.0	6	13	57	3
E2606080	EQ606080	R4.0	8.0	10	19	69	3
E2606100	EQ606100	R5.0	10.0	10	22	72	3
E2606120	EQ606120	R6.0	12.0	12	26	83	4
E2606160	EQ606160	R8.0	16.0	16	32	92	4
E2606200	EQ606200	R10.0	20.0	20	38	104	4
E2606250	EQ606250	R12.5	25.0	25	45	121	4
E2606320	EQ606320	R16.0	32.0	32	53	133	4
E2606400	EQ606400	R20.0	40.0	32	63	155	4

► Other shank design on your request.
► TIN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

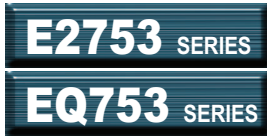
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

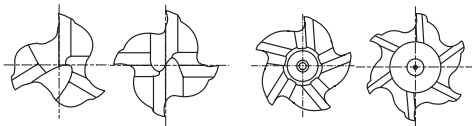
TECHNICAL
DATA



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN



Up to Ø20mm

Over Ø20mm



P.963, 971, 975

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	UNCOATED	TiAIN	TiAIN	js12	h6			
E2753060	C3426-060AF	EQ753060	R3426-060AF	6.0	6	13	57	3
E2753070	C3426-070TF	EQ753070	R3426-070TF	7.0	10	16	66	3
E2753080	C3426-080TF	EQ753080	R3426-080TF	8.0	10	19	69	3
E2753090	C3426-090TF	EQ753090	R3426-090TF	9.0	10	19	69	3
E2753100	C4426-100TF	EQ753100	R4426-100TF	10.0	10	22	72	4
E2753110	C4426-110DF	EQ753110	R4426-110DF	11.0	12	22	79	4
E2753120	C4426-120DF	EQ753120	R4426-120DF	12.0	12	26	83	4
E2753130	C4426-130DF	EQ753130	R4426-130DF	13.0	12	26	83	4
E2753140	C4426-140DF	EQ753140	R4426-140DF	14.0	12	26	83	4
E2753150	C4426-150DF	EQ753150	R4426-150DF	15.0	12	26	83	4
E2753160	C4426-160EF	EQ753160	R4426-160EF	16.0	16	32	92	4
E2753180	C4426-180EF	EQ753180	R4426-180EF	18.0	16	32	92	4
E2753200	C4426-200FF	EQ753200	R4426-200FF	20.0	20	38	104	4
E2753250	C5426-250GF	EQ753250	R5426-250GF	25.0	25	45	121	5
E2753280	C6426-280GF	EQ753280	R6426-280GF	28.0	25	45	121	6
E2753300	C6426-300GF	EQ753300	R6426-300GF	30.0	25	45	121	6
E2753320	C6426-320HF	EQ753320	R6426-320HF	32.0	32	53	133	6
E2753350	C6426-350HF	EQ753350	R6426-350HF	35.0	32	53	133	6
E2753400	C6426-400HF	EQ753400	R6426-400HF	40.0	32	63	155	6

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

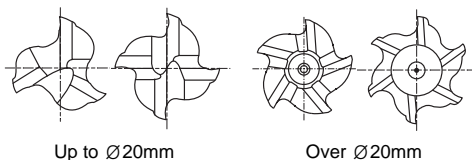
Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - FINE
HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN



P.963, 971, 975

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	TiAlN	js12	h6			
E2762060	EQ762060	6.0	6	24	68	3
E2762070	EQ762070	7.0	10	30	80	3
E2762080	EQ762080	8.0	10	38	88	3
E2762090	EQ762090	9.0	10	38	88	3
E2762100	EQ762100	10.0	10	45	95	4
E2762110	EQ762110	11.0	12	45	102	4
E2762120	EQ762120	12.0	12	53	110	4
E2762130	EQ762130	13.0	12	53	110	4
E2762140	EQ762140	14.0	12	53	110	4
E2762150	EQ762150	15.0	12	53	110	4
E2762160	EQ762160	16.0	16	63	123	4
E2762170	EQ762170	17.0	16	63	123	4
E2762180	EQ762180	18.0	16	63	123	4
E2762190	EQ762190	19.0	16	63	123	4
E2762200	EQ762200	20.0	20	75	141	4
E2762220	EQ762220	22.0	20	75	141	5
E2762240	EQ762240	24.0	25	90	166	5
E2762250	EQ762250	25.0	25	90	166	5
E2762260	EQ762260	26.0	25	90	166	6
E2762280	EQ762280	28.0	25	90	166	6
E2762300	EQ762300	30.0	25	90	166	6
E2762320	EQ762320	32.0	32	106	186	6
E2762350	EQ762350	35.0	32	106	186	6
E2762360	EQ762360	36.0	32	106	186	6
E2762380	EQ762380	38.0	32	125	217	6
E2762400	EQ762400	40.0	32	125	217	6
E2762940	EQ762940	40.0	40	125	217	6

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

▶ Other shank design on your request.
▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

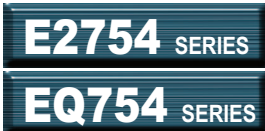
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

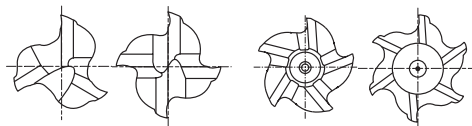
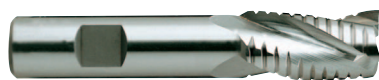
TECHNICAL
DATA



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER



Up to Ø20mm

Over Ø20mm



P.964, 971, 975

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.OF Flute
UNCOATED	UNCOATED	TiAIN	TiAIN	k10	h6			
E2754060	C3428-060AF	EQ754060	R3428-060AF	6.0	6	13	57	3
E2754070	C3428-070TF	EQ754070	R3428-070TF	7.0	10	16	66	3
E2754080	C4428-080TF	EQ754080	R4428-080TF	8.0	10	19	69	4
E2754090	C4428-090TF	EQ754090	R4428-090TF	9.0	10	19	69	4
E2754100	C4428-100TF	EQ754100	R4428-100TF	10.0	10	22	72	4
E2754110	C4428-110DF	EQ754110	R4428-110DF	11.0	12	22	79	4
E2754120	C4428-120DF	EQ754120	R4428-120DF	12.0	12	26	83	4
E2754130	C4428-130DF	EQ754130	R4428-130DF	13.0	12	26	83	4
E2754140	C4428-140DF	EQ754140	R4428-140DF	14.0	12	26	83	4
E2754150	C4428-150DF	EQ754150	R4428-150DF	15.0	120	26	83	4
E2754160	C4428-160EF	EQ754160	R4428-160EF	16.0	16	32	92	4
E2754180	C4428-180EF	EQ754180	R4428-180EF	18.0	16	32	92	4
E2754200	C4428-200FF	EQ754200	R4428-200FF	20.0	20	38	104	4
E2754220	C5428-220FF	EQ754220	R5428-220FF	22.0	20	38	104	5
E2754250	C5428-250GF	EQ754250	R5428-250GF	25.0	25	45	121	5
E2754280	C5428-280GF	EQ754280	R5428-280GF	28.0	25	45	121	5
E2754300	C5428-300GF	EQ754300	R5428-300GF	30.0	25	45	121	5
E2754320	C5428-320HF	EQ754320	R5428-320HF	32.0	32	53	133	5
E2754360	C6428-360HF	EQ754360	R6428-360HF	36.0	32	53	133	6
E2754400	C6428-400HF	EQ754400	R6428-400HF	40.0	32	63	155	6

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

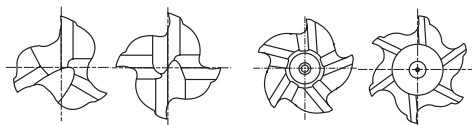
Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER



Up to $\varnothing 20\text{mm}$

Over $\varnothing 20\text{mm}$



P.964, 971, 975

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. OF Flute
UNCOATED	TiAlN	k10	h6			
E2768060	EQ768060	6.0	6	24	68	3
E2768080	EQ768080	8.0	10	38	88	4
E2768100	EQ768100	10.0	10	45	95	4
E2768120	EQ768120	12.0	12	53	110	4
E2768140	EQ768140	14.0	12	53	110	4
E2768160	EQ768160	16.0	16	63	123	4
E2768180	EQ768180	18.0	16	63	123	4
E2768200	EQ768200	20.0	20	75	141	4
E2768220	EQ768220	22.0	20	75	141	5
E2768250	EQ768250	25.0	25	90	166	5
E2768300	EQ768300	30.0	25	90	166	5
E2768320	EQ768320	32.0	32	106	186	5
E2768450	EQ768450	45.0	40	125	217	6

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS



E2766 SERIES

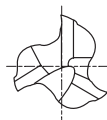
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

EQ766 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING & FINISHING

HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER

CBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

P.964, 971, 975

Unit : mm

	EDP		Mill Diameter k10	Shank Diameter h6	Length of Cut	Overall Length
	UNCOATED	TiAIN				
E2766060		EQ766060	6.0	6	13	57
E2766080		EQ766080	8.0	10	19	69
E2766100		EQ766100	10.0	10	22	72
E2766120		EQ766120	12.0	12	26	83
E2766130		EQ766130	13.0	12	26	83
E2766140		EQ766140	14.0	12	26	83
E2766160		EQ766160	16.0	16	32	92
E2766180		EQ766180	18.0	16	32	92
E2766200		EQ766200	20.0	20	38	104
E2766220		EQ766220	22.0	20	38	104
E2766250		EQ766250	25.0	25	45	121
E2766280		EQ766280	28.0	25	45	121
E2766300		EQ766300	30.0	25	45	121
E2766320		EQ766320	32.0	32	53	133
E2766360		EQ766360	36.0	32	53	133
E2766400		EQ766400	40.0	32	63	155

► Other shank design on your request.

► TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 3 FLUTE LONG LENGTH ROUGHING & FINISHING
HSSCo8, 3 SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER



P.964, 971, 975

Unit : mm

EDP		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	k10	h6		
E2767060	EQ767060	6.0	6	24	68
E2767080	EQ767080	8.0	10	38	88
E2767100	EQ767100	10.0	10	45	95
E2767120	EQ767120	12.0	12	53	110
E2767140	EQ767140	14.0	12	53	110
E2767160	EQ767160	16.0	16	63	123
E2767180	EQ767180	18.0	16	63	123
E2767200	EQ767200	20.0	20	75	141
E2767220	EQ767220	22.0	20	75	141
E2767250	EQ767250	25.0	25	90	166
E2767280	EQ767280	28.0	25	90	166
E2767300	EQ767300	30.0	25	90	166
E2767360	EQ767360	36.0	32	106	186
E2767400	EQ767400	40.0	32	125	217

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

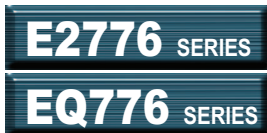
Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS



MORSE TAPER SHANK
MORSE KEGELSCHAFT
MORSE TAPER SHANK
MORSE KEGELSCHAFT

HSSCo8, MULTI FLUTE SHORT LENGTH
HSSCo8, MULTI SCHNEIDEN KURZ

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

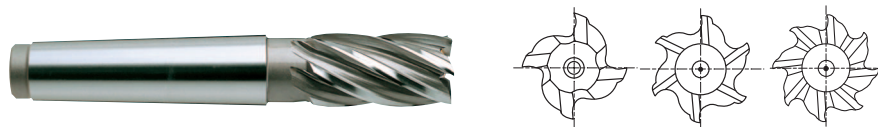
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



P.961, 969, 973

Unit : mm

EDP No.		Mill Diameter	Length of Cut	Overall Length	MORSE TAPER No.	No. of Flute
UNCOATED	TiAIN					
E2776140	EQ776140	14.0	26	111	2	4
E2776150	EQ776150	15.0	26	111	2	4
E2776160	EQ776160	16.0	32	117	2	4
E2776180	EQ776180	18.0	32	117	2	4
E2776200	EQ776200	20.0	38	123	2	4
E2776220	EQ776220	22.0	38	123	2	6
E2776240	EQ776240	24.0	45	147	3	6
E2776250	EQ776250	25.0	45	147	3	6
E2776260	EQ776260	26.0	45	147	3	6
E2776280	EQ776280	28.0	45	147	3	6
E2776300	EQ776300	30.0	45	147	3	6
E2776320	EQ776320	32.0	53	178	4	6
E2776350	EQ776350	35.0	53	178	4	6
E2776360	EQ776360	36.0	53	178	4	6
E2776380	EQ776380	38.0	63	188	4	6
E2776400	EQ776400	40.0	63	188	4	6
E2776420	EQ776420	42.0	63	188	4	6
E2776440	EQ776440	44.0	63	188	4	6
E2776450	EQ776450	45.0	63	188	4	8
E2776500	EQ776500	50.0	75	233	5	8

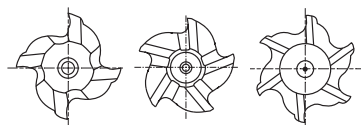
- ▶ Other shank design on your request.
- ▶ TIN-COATING & TiCN-COATING are available on your request.

Mill Dia. Tolerance(mm)
±0.120

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE
HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB



P.963, 971, 975

Unit : mm

EDP No.		Mill Diameter	Length of Cut	Overall Length	MORSE TAPER No.	No. of Flute
UNCOATED	TiAlN					
E2777140	EQ777140	14.0	26	111	2	4
E2777160	EQ777160	16.0	32	117	2	4
E2777180	EQ777180	18.0	32	117	2	4
E2777200	EQ777200	20.0	38	123	2	4
E2777220	EQ777220	22.0	38	123	2	5
E2777240	EQ777240	24.0	45	147	3	5
E2777250	EQ777250	25.0	45	147	3	5
E2777260	EQ777260	26.0	45	147	3	5
E2777270	EQ777270	27.0	45	147	3	6
E2777280	EQ777280	28.0	45	147	3	6
E2777300	EQ777300	30.0	45	147	3	6
E2777320	EQ777320	32.0	53	178	4	6
E2777350	EQ777350	35.0	53	178	4	6
E2777360	EQ777360	36.0	53	178	4	6
E2777380	EQ777380	38.0	63	188	4	6
E2777400	EQ777400	40.0	63	188	4	6
E2777450	EQ777450	45.0	63	188	4	6
E2777500	EQ777500	50.0	75	233	5	6

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

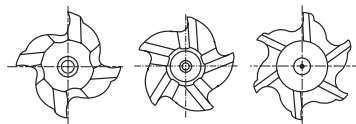
Mill Dia. Tolerance(mm)
±0.120

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS

**HSS
END MILLS****E2778** SERIESMORSE TAPER SHANK
MORSE KEGELSCHAFT**EQ778** SERIESMORSE TAPER SHANK
MORSE KEGELSCHAFT**HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE**
HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEINCBN
END MILLSi-Xmill
END MILLSX5070
END MILLSX-POWER
END MILLSJET-POWER
END MILLSV7 Mill INOX
END MILLSV7 Mill STEEL
END MILLSALU-POWER
END MILLSD-POWER
END MILLSK-2 CARBIDE
END MILLSGENERAL
CARBIDE
END MILLSTANK-POWER
END MILLSGENERAL
HSS
END MILLSMILLING
CUTTERSTECHNICAL
DATA

P.963, 971, 975

Unit : mm

EDP No.		Mill Diameter	Length of Cut	Overall Length	MORSE TAPER No.	No. of Flute
UNCOATED	TiAIN					
E2778160	EQ778160	16.0	32	117	2	4
E2778180	EQ778180	18.0	32	117	2	4
E2778200	EQ778200	20.0	38	123	2	4
E2778220	EQ778220	22.0	38	123	2	5
E2778240	EQ778240	24.0	45	147	3	5
E2778250	EQ778250	25.0	45	147	3	5
E2778260	EQ778260	26.0	45	147	3	5
E2778280	EQ778280	28.0	45	147	3	6
E2778300	EQ778300	30.0	45	147	3	6
E2778320	EQ778320	32.0	53	178	4	6
E2778350	EQ778350	35.0	53	178	4	6
E2778360	EQ778360	36.0	53	178	4	6
E2778380	EQ778380	38.0	63	188	4	6
E2778400	EQ778400	40.0	63	188	4	6
E2778450	EQ778450	45.0	63	188	4	6
E2778500	EQ778500	50.0	75	233	5	6

▶ Other shank design on your request.

▶ TiN-COATING & TiCN-COATING are available on your request.

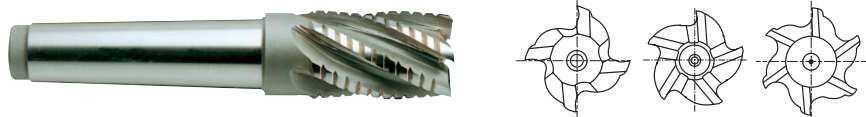
Mill Dia.
Tolerance(mm)

±0.120

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING
HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER



P.964, 971, 975

Unit : mm

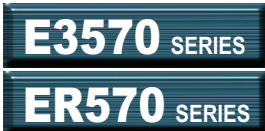
EDP No.		Mill Diameter	Length of Cut	Overall Length	MORSE TAPER No.	No. of Flute
UNCOATED	TiAlN					
E2779160	EQ779160	16.0	32	117	2	4
E2779180	EQ779180	18.0	32	117	2	4
E2779200	EQ779200	20.0	38	123	2	4
E2779220	EQ779220	22.0	38	123	2	5
E2779240	EQ779240	24.0	45	147	3	5
E2779250	EQ779250	25.0	45	147	3	5
E2779260	EQ779260	26.0	45	147	3	5
E2779280	EQ779280	28.0	45	147	3	6
E2779300	EQ779300	30.0	45	147	3	6
E2779320	EQ779320	32.0	53	178	4	6
E2779350	EQ779350	35.0	53	178	4	6
E2779360	EQ779360	36.0	53	178	4	6
E2779380	EQ779380	38.0	63	188	4	6
E2779400	EQ779400	40.0	63	188	4	6
E2779450	EQ779450	45.0	63	188	4	6
E2779500	EQ779500	50.0	75	233	5	6

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Mill Dia. Tolerance(mm)
±0.120

◎ : Excellent ○ : Good

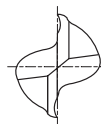
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSS-PM, 2 FLUTE SHORT LENGTH
HSS-PM, 2 SCHNEIDEN KURZ



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	UNCOATED	TiAIN	TiAIN	e8	h6		
E3570020	P2GRS-020AF	ER570020	Z2GRS-020AF	2.0	6	4	48
E3570025	P2GRS-025AF	ER570025	Z2GRS-025AF	2.5	6	5	49
E3570030	P2GRS-030AF	ER570030	Z2GRS-030AF	3.0	6	5	49
E3570040	P2GRS-040AF	ER570040	Z2GRS-040AF	4.0	6	7	51
E3570050	P2GRS-050AF	ER570050	Z2GRS-050AF	5.0	6	8	52
E3570060	P2GRS-060AF	ER570060	Z2GRS-060AF	6.0	6	8	52
E3570070	P2GRS-070TF	ER570070	Z2GRS-070TF	7.0	10	10	60
E3570080	P2GRS-080TF	ER570080	Z2GRS-080TF	8.0	10	11	61
E3570090	P2GRS-090TF	ER570090	Z2GRS-090TF	9.0	10	11	61
E3570100	P2GRS-100TF	ER570100	Z2GRS-100TF	10.0	10	13	63
E3570110	P2GRS-110DF	ER570110	Z2GRS-110DF	11.0	12	13	70
E3570120	P2GRS-120DF	ER570120	Z2GRS-120DF	12.0	12	16	73
E3570130	P2GRS-130DF	ER570130	Z2GRS-130DF	13.0	12	16	73
E3570140	P2GRS-140DF	ER570140	Z2GRS-140DF	14.0	12	16	73
E3570150	P2GRS-150DF	ER570150	Z2GRS-150DF	15.0	12	16	73
E3570160	P2GRS-160EF	ER570160	Z2GRS-160EF	16.0	16	19	79
E3570170	P2GRS-170EF	ER570170	Z2GRS-170EF	17.0	16	19	79
E3570180	P2GRS-180EF	ER570180	Z2GRS-180EF	18.0	16	19	79
E3570190	P2GRS-190EF	ER570190	Z2GRS-190EF	19.0	16	19	79
E3570200	P2GRS-200FF	ER570200	Z2GRS-200FF	20.0	20	22	88
E3570220	P2GRS-220FF	ER570220	Z2GRS-220FF	22.0	20	22	88
E3570240	P2GRS-240GF	ER570240	Z2GRS-240GF	24.0	25	26	102
E3570250	P2GRS-250GF	ER570250	Z2GRS-250GF	25.0	25	26	102
E3570280	P2GRS-280GF	ER570280	Z2GRS-280GF	28.0	25	26	102
E3570300	P2GRS-300GF	ER570300	Z2GRS-300GF	30.0	25	26	102

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSS-PM, 4&6 FLUTE SHORT LENGTH
HSS-PM, 4&6 SCHNEIDEN KURZ



HSS PM
DIN 844
N
4&6
≈ 30°
DIN 1835B
P.965

Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	UNCOATED	TiAIN	TiAIN					
E3574020	P4GRS-020AF	ER574020	Z4GRS-020AF	2.0	6	7	51	4
E3574030	P4GRS-030AF	ER574030	Z4GRS-030AF	3.0	6	8	52	4
E3574040	P4GRS-040AF	ER574040	Z4GRS-040AF	4.0	6	11	55	4
E3574050	P4GRS-050AF	ER574050	Z4GRS-050AF	5.0	6	13	57	4
E3574060	P4GRS-060AF	ER574060	Z4GRS-060AF	6.0	6	13	57	4
E3574070	P4GRS-070TF	ER574070	Z4GRS-070TF	7.0	10	16	66	4
E3574080	P4GRS-080TF	ER574080	Z4GRS-080TF	8.0	10	19	69	4
E3574090	P4GRS-090TF	ER574090	Z4GRS-090TF	9.0	10	19	69	4
E3574100	P4GRS-100TF	ER574100	Z4GRS-100TF	10.0	10	22	72	4
E3574120	P4GRS-120DF	ER574120	Z4GRS-120DF	12.0	12	26	83	4
E3574140	P4GRS-140DF	ER574140	Z4GRS-140DF	14.0	12	26	83	4
E3574160	P4GRS-160EF	ER574160	Z4GRS-160EF	16.0	16	32	92	4
E3574180	P4GRS-180EF	ER574180	Z4GRS-180EF	18.0	16	32	92	4
E3574200	P4GRS-200FF	ER574200	Z4GRS-200FF	20.0	20	38	104	4
E3575220	P6GRS-220FF	ER575220	Z6GRS-220FF	22.0	20	38	104	6
E3575240	P6GRS-240GF	ER575240	Z6GRS-240GF	24.0	25	45	121	6
E3575250	P6GRS-250GF	ER575250	Z6GRS-250GF	25.0	25	45	121	6
E3575280	P6GRS-280GF	ER575280	Z6GRS-280GF	28.0	25	45	121	6
E3575300	P6GRS-300GF	ER575300	Z6GRS-300GF	30.0	25	45	121	6

▶ Other shank design on your request.
 ▶ TiN-COATING & TiCN-COATING are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
+ 0.04 - 0	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

- CARBIDE
- HSS
- CBN END MILLS
- i-Xmill END MILLS
- X5070 END MILLS
- X-POWER END MILLS
- JET-POWER END MILLS
- V7 Mill INOX END MILLS
- V7 Mill STEEL END MILLS
- ALU-POWER END MILLS
- D-POWER END MILLS
- K-2 CARBIDE END MILLS
- GENERAL CARBIDE END MILLS
- TANK-POWER END MILLS
- GENERAL HSS END MILLS
- MILLING CUTTERS
- TECHNICAL DATA

CARBIDE

HSS



E3462, ER462 SERIES
E3463, ER463 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN
FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSS-PM, 3&4 FLUTE 60° HELIX SHORT LENGTH
HSS-PM, 3&4 SCHNEIDEN 60° RECHTSSPIRALE KURZ

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

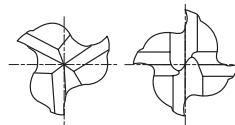
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

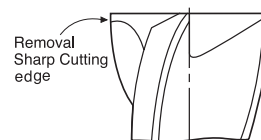
TECHNICAL
DATA



Unit : mm

EDP No.	ITEM No.	EDP No.	ITEM No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
UNCOATED	UNCOATED	TiAIN	TiAIN					
E3462060	P3ERH-060AF	ER462060	Z3ERH-060AF	6.0	6	13	57	3
E3462070	P3ERH-070TF	ER462070	Z3ERH-070TF	7.0	10	16	66	3
E3462080	P3ERH-080TF	ER462080	Z3ERH-080TF	8.0	10	19	69	3
E3462090	P3ERH-090TF	ER462090	Z3ERH-090TF	9.0	10	19	69	3
E3462100	P3ERH-100TF	ER462100	Z3ERH-100TF	10.0	10	22	72	3
E3462120	P3ERH-120DF	ER462120	Z3ERH-120DF	12.0	12	26	83	3
E3462140	P3ERH-140DF	ER462140	Z3ERH-140DF	14.0	12	26	83	3
E3462150	P3ERH-150DF	ER462150	Z3ERH-150DF	15.0	12	26	83	3
E3462160	P3ERH-160EF	ER462160	Z3ERH-160EF	16.0	16	32	92	3
E3462180	P3ERH-180EF	ER462180	Z3ERH-180EF	18.0	16	32	92	3
E3462200	P3ERH-200FF	ER462200	Z3ERH-200FF	20.0	20	38	104	3
E3463250	P4ERH-250GF	ER463250	Z4ERH-250GF	25.0	25	45	121	4
E3463300	P4ERH-300GF	ER463300	Z4ERH-300GF	30.0	25	45	121	4

► Other shank design on your request.
► TiN-COATING & TiCN-COATING are available on your request.

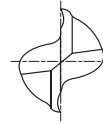


Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
up to Ø6.5	h6
+ 0.048 - 0	
Ø7.0 ~ Ø10.0	
+ 0.058 - 0	
Ø10.5 ~ Ø18.0	h6
+ 0.070 - 0	
over Ø18.0	h6
+ 0.084 - 0	

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH
PREMIUM HSS-PM, 2 SCHNEIDEN KURZ



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E9410020	EP410020	2.0	6	4	48
E9410030	EP410030	3.0	6	5	49
E9410040	EP410040	4.0	6	7	51
E9410050	EP410050	5.0	6	8	52
E9410060	EP410060	6.0	6	8	52
E9410080	EP410080	8.0	10	11	61
E9410100	EP410100	10.0	10	13	63
E9410120	EP410120	12.0	12	16	73
E9410140	EP410140	14.0	12	16	73
E9410160	EP410160	16.0	16	19	79
E9410180	EP410180	18.0	16	19	79
E9410200	EP410200	20.0	20	22	88
E9410220	EP410220	22.0	20	22	88
E9410250	EP410250	25.0	25	26	102

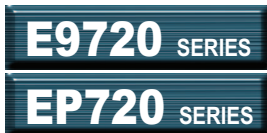
- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

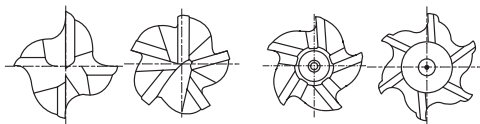
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			



FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE
PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPPFÄRÄSER - FEIN



Up to Ø20mm

Over Ø20mm



Unit : mm

EDP No.	Mill Diameter		Shank Diameter		Length of Cut	Overall Length	No. of Flute
	UNCOATED	TiAIN	js12	h6			
E9720060	EP720060	6.0	6	13	57	4	
E9720070	EP720070	7.0	10	16	66	4	
E9720080	EP720080	8.0	10	19	69	4	
E9720090	EP720090	9.0	10	19	69	5	
E9720100	EP720100	10.0	10	22	72	5	
E9720110	EP720110	11.0	12	22	79	5	
E9720120	EP720120	12.0	12	26	83	5	
E9720130	EP720130	13.0	12	26	83	5	
E9720140	EP720140	14.0	12	26	83	5	
E9720150	EP720150	15.0	12	26	83	5	
E9720160	EP720160	16.0	16	32	92	5	
E9720180	EP720180	18.0	16	32	92	5	
E9720200	EP720200	20.0	20	38	104	5	
E9720220	EP720220	22.0	20	38	104	5	
E9720250	EP720250	25.0	25	45	121	6	
E9720300	EP720300	30.0	25	45	121	6	

- ▶ Other shank design on your request.
- ▶ TiN-COATING & TiCN-COATING are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

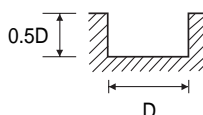
Tolerance range in μm / Toleranzwerte in μm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

HSSCo8, 2 FLUTE - SLOTTING
HSSCo8, 2 SCHNEIDEN - NUTENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5600	40	4500	30	4000	30	2200	15	12000	160
3.0	3500	55	3200	45	2500	40	1600	20	11000	250
4.0	2800	70	2200	55	1800	45	1100	30	8000	290
5.0	2200	90	1800	70	1600	60	900	35	6300	310
6.0	1800	90	1600	80	1200	60	800	40	5600	310
8.0	1400	100	1100	90	900	70	560	45	4000	390
10.0	1100	100	900	90	800	80	450	45	3100	400
12.0	900	110	800	100	630	80	400	50	2500	380
14.0	800	110	700	90	560	80	350	50	2200	350
16.0	700	110	560	90	450	70	280	45	2000	350
18.0	630	100	500	90	400	70	250	45	1800	350
20.0	560	100	450	90	400	70	220	45	1600	320
22.0	500	100	450	90	350	70	220	45	1400	300
25.0	450	90	400	80	310	60	180	35	1200	280
28.0	400	80	350	70	280	55	160	30	1100	270
30.0	350	70	310	60	250	50	160	30	1100	270
32.0	350	70	280	55	220	45	140	30	1000	240
36.0	310	60	250	50	200	40	120	25	900	220
40.0	280	60	220	50	180	40	110	25	800	200



※ The FEED, in long & extra long types, should be reduced by around 50%

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

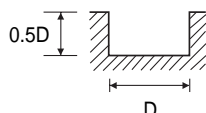
HSSCo8, 2 FLUTE 42° HELIX
HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE

SLOTTING

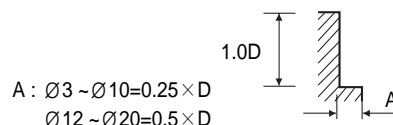
MATERIAL	ALUMINUM NONFERROUS METALS	
	RPM	FEED
3.0	8000	560
6.0	7000	700
8.0	6000	850
10.0	5000	1200
12.0	5000	1200
14.0	3500	1240
16.0	3500	1240
18.0	2300	1300
20.0	2300	1300

SIDE CUTTING

MATERIAL	ALUMINUM NONFERROUS METALS	
	RPM	FEED
3.0	8000	730
6.0	7000	900
8.0	6000	1100
10.0	5000	1500
12.0	5000	1500
14.0	3500	1600
16.0	3500	1600
18.0	2300	1700
20.0	2300	1700



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



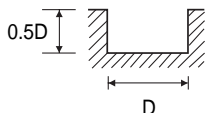
RPM = rev./min.
FEED = mm/min.



RECOMMENDED CUTTING CONDITIONS
EMPHOHLENE SCHNEIDKONDITIONEN

HSSCo8, 3 FLUTE - SLOTTING
HSSCo8, 3 SCHNEIDEN - NUTENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5600	60	4500	45	4000	45	2200	20	12000	240
3.0	3500	80	3200	65	2500	60	1600	30	11000	380
4.0	2800	105	2200	80	1800	65	1100	45	8000	440
5.0	2200	135	1800	105	1600	90	900	50	6300	470
6.0	1800	135	1600	120	1200	90	800	60	5600	470
8.0	1400	150	1100	135	900	105	560	65	4000	580
10.0	1100	150	900	135	800	120	450	65	3100	600
12.0	900	165	800	150	630	120	400	75	2500	570
14.0	800	165	700	135	560	120	350	75	2200	530
16.0	700	165	560	135	450	105	280	65	2000	530
18.0	630	150	500	135	400	105	250	65	1800	530
20.0	560	150	450	135	400	105	220	65	1600	480
22.0	500	150	450	135	350	105	220	65	1400	450
25.0	450	135	400	120	310	90	180	50	1200	420
28.0	400	120	350	105	280	80	160	45	1100	400
30.0	350	105	310	90	250	75	160	45	1100	400

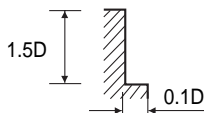


※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, 3 FLUTE - SIDE CUTTING
HSSCo8, 3 SCHNEIDEN - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5600	60	4500	40	4000	35	2200	15	12000	180
3.0	3500	80	3200	60	2500	45	1600	20	11000	280
4.0	2800	105	2200	75	1800	50	1100	30	8000	330
5.0	2200	135	1800	95	1600	65	900	35	6300	350
6.0	1800	135	1600	110	1200	65	800	45	5600	350
8.0	1400	150	1100	120	900	80	560	50	4000	440
10.0	1100	150	900	120	800	90	450	50	3100	450
12.0	900	165	800	135	630	90	400	55	2500	430
14.0	800	165	700	120	560	90	350	55	2200	400
16.0	700	165	560	120	450	80	280	50	2000	400
18.0	630	150	500	120	400	80	250	50	1800	400
20.0	560	150	450	120	400	80	220	50	1600	360
22.0	500	150	450	120	350	80	220	50	1400	340
25.0	450	135	400	110	310	65	180	35	1200	320
28.0	400	120	350	95	280	60	160	30	1100	300
30.0	350	105	310	80	250	55	160	30	1100	300

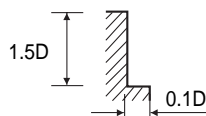


※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, MULTI FLUTE - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5600	80	4500	55	4000	45	2200	20	12000	240
3.0	3500	110	3200	80	2500	60	1600	30	11000	380
4.0	2800	140	2200	100	1800	65	1100	45	8000	440
5.0	2200	180	1800	125	1600	90	900	50	6300	470
6.0	1800	180	1600	145	1200	90	800	60	5600	470
8.0	1400	200	1100	160	900	105	560	65	4000	580
10.0	1100	200	900	160	800	120	450	65	3100	600
12.0	900	220	800	180	630	120	400	75	2500	570
14.0	800	220	700	160	560	120	350	75	2200	530
16.0	700	220	560	160	450	105	280	65	2000	530
18.0	630	200	500	160	400	105	250	65	1800	530
20.0	560	200	450	160	400	105	220	65	1600	480
22.0	500	200	450	160	350	105	220	65	1400	450
25.0	450	180	400	145	310	90	180	50	1200	420
28.0	400	160	350	125	280	80	160	45	1100	400
30.0	350	140	310	110	250	75	160	45	1100	400
32.0	350	140	280	100	220	65	140	45	1000	360
36.0	310	120	250	90	200	60	120	35	900	330
40.0	280	120	220	90	180	60	110	35	800	300

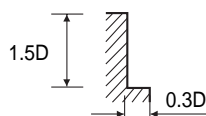


RPM = rev./min.
FEED = mm/min.

※The FEED, in long & extra long types, should be reduced by around 50%

HSSCo8, MULTI FLUTE 50° HELIX - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN 50° RECHTSSPIRALE - SEITENFRÄSEN

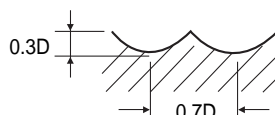
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5000	35	4500	25	2500	10
3.0	3500	50	2800	35	1800	20
4.0	2500	60	2000	40	1200	25
5.0	2000	75	1800	55	1000	30
6.0	1800	85	1300	55	900	35
8.0	1200	95	1000	65	600	40
10.0	1000	95	900	70	500	40
12.0	900	110	700	70	450	45
14.0	800	95	600	70	400	45
16.0	600	95	500	65	300	40
18.0	550	95	450	65	280	40
20.0	500	95	450	65	250	40
22.0	500	95	400	65	250	40
25.0	450	85	350	55	200	30
28.0	400	75	300	50	180	25
30.0	350	65	280	45	180	25



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


**HSSCo8, 2 FLUTE BALL NOSE
HSSCo8, 2 SCHNEIDEN STIRNRADIUS**

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	4500	95	3400	70	2000	30	1400	20	11000	230
R2.0 × 4.0	3200	115	2400	80	1400	35	1000	25	8000	260
R3.0 × 6.0	2200	135	1700	90	1000	45	700	25	5600	280
R4.0 × 8.0	1600	160	1200	105	700	50	500	30	4000	350
R5.0 × 10.0	1300	180	1000	120	560	60	400	35	3200	360
R6.0 × 12.0	1000	170	800	105	450	55	320	35	2500	340
R8.0 × 16.0	800	150	600	100	350	55	250	35	2000	300
R10.0 × 20.0	600	140	500	85	300	50	200	35	1600	280
R12.5 × 25.0	500	130	400	70	220	40	160	30	1300	250

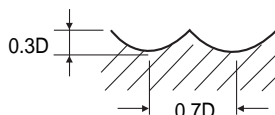


※ The FEED, in long & extra long types, should be reduced by around 50%

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

**HSSCo8, MULTI FLUTE BALL NOSE
HSSCo8, MULTI SCHNEIDEN STIRNRADIUS**

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R3.0 × 6.0	2200	200	1700	135	1000	70	700	40	5600	420
R4.0 × 8.0	1600	240	1200	160	700	75	500	45	4000	530
R5.0 × 10.0	1300	270	1000	180	560	90	400	50	3200	540
R6.0 × 12.0	1000	260	800	160	450	80	320	50	2500	510
R8.0 × 16.0	800	230	600	150	350	80	250	50	2000	450
R10.0 × 20.0	600	210	500	130	300	75	200	50	1600	420
R12.5 × 25.0	500	200	400	105	220	60	160	45	1300	380

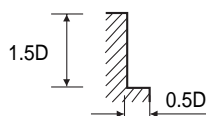


※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, MULTI FLUTE ROUGHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFÄRÄSER - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	1800	80	1600	60	1200	55	800	30	4500	200
8.0	1400	105	1100	75	900	65	560	35	3100	230
10.0	1100	150	900	120	800	110	450	60	2500	350
12.0	900	180	800	140	630	110	400	70	2000	400
14.0	800	180	700	140	560	110	350	70	1800	420
16.0	700	180	560	140	450	110	280	70	1600	450
18.0	630	180	500	140	400	110	250	70	1400	470
20.0	560	180	450	140	400	110	220	70	1200	500
22.0	500	220	450	170	350	140	220	85	1100	470
25.0	450	220	400	170	310	140	180	85	1000	450
28.0	400	210	350	160	280	130	160	85	900	510
30.0	350	210	310	160	250	130	160	85	900	530
32.0	350	210	280	160	220	130	140	85	800	500
36.0	310	210	250	160	200	130	120	85	700	470
40.0	280	200	220	150	180	120	110	80	630	450
50.0	220	200	180	170	160	140	90	80	500	370

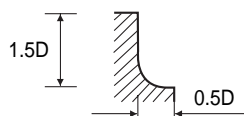


※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, MULTI FLUTE ROUGHING BALL NOSE - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFÄRÄSER STIRNRADIUS - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R4.0 × 8.0	1400	105	1100	75	900	65	560	35	3100	230
R5.0 × 10.0	1100	150	900	120	800	110	450	60	2500	250
R6.0 × 12.0	900	180	800	140	630	110	400	70	2000	400
R8.0 × 16.0	700	180	560	140	450	110	280	70	1600	450
R10.0 × 20.0	560	180	450	140	400	110	220	70	1200	500
R12.5 × 25.0	450	220	400	170	310	140	180	85	1000	450
R16.0 × 32.0	350	210	280	160	220	130	140	85	800	500
R20.0 × 40.0	280	200	220	150	180	120	110	80	630	450

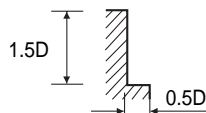


※ The FEED, in long & extra long types, should be reduced by around 50%

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


**HSSCo8, MULTI FLUTE ROUGHING & FINISHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER - SEITENFRÄSEN**

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	1800	65	1600	50	1200	45	800	25	4500	160
8.0	1400	85	1100	60	900	50	560	30	3100	185
10.0	1100	120	900	95	800	90	450	50	2500	280
12.0	900	145	800	110	630	90	400	55	2000	320
14.0	800	145	700	110	560	90	350	55	1800	340
16.0	700	145	560	110	450	90	280	55	1600	360
18.0	630	145	500	110	400	90	250	55	1400	380
20.0	560	145	450	110	400	90	220	55	1200	400
22.0	500	175	450	135	350	110	220	70	1100	380
25.0	450	175	400	135	310	110	180	70	1000	360
28.0	400	170	350	130	280	105	160	70	900	410
30.0	350	170	310	130	250	105	160	70	900	420
32.0	350	170	280	130	220	105	140	70	800	400
36.0	310	170	250	130	200	105	120	70	700	380
40.0	280	160	220	120	180	95	110	65	630	360

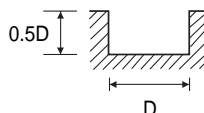


※The FEED, in long & extra long types, should be reduced by around 50%

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

HSS-PM, 2 FLUTE - SLOTTING
HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

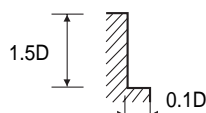
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
HARDNESS	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
STRENGTH						
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5000	35	4500	35	2400	15
3.0	3500	50	2800	45	1800	20
4.0	2500	60	2000	50	1200	35
5.0	2000	75	1800	65	1000	40
6.0	1800	90	1300	65	900	45
8.0	1200	100	1000	75	600	50
10.0	1000	100	900	90	500	50
12.0	900	110	700	90	450	55
14.0	800	100	600	90	400	55
16.0	600	100	500	75	300	50
18.0	550	100	450	75	280	50
20.0	500	100	450	75	250	50
22.0	500	100	400	75	250	50
25.0	450	90	350	65	200	40



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

HSS-PM, MULTI FLUTE - SIDE CUTTING
HSS-PM, MULTI SCHNEIDEN - SEITENFRÄSEN

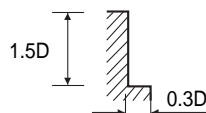
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
HARDNESS	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
STRENGTH						
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5000	60	4500	50	2400	20
3.0	3500	90	2800	65	1800	35
4.0	2500	110	2000	70	1200	50
5.0	2000	140	1800	100	1000	55
6.0	1800	160	1300	100	900	65
8.0	1200	180	1000	115	600	70
10.0	1000	180	900	130	500	70
12.0	900	200	700	130	450	80
14.0	800	180	600	130	400	80
16.0	600	180	500	115	300	70
18.0	550	180	450	115	280	70
20.0	500	180	450	115	250	70
22.0	500	180	400	115	250	70
25.0	450	160	350	100	200	55



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


**HSS-PM, 3&4 FLUTE 60° HELIX - SIDE CUTTING
HSS-PM, 3&4 SCHNEIDEN 60° RECHTSSPIRALE - SEITENFRÄSEN**

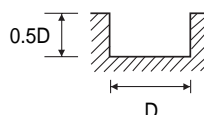
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2000	100	1600	65	1200	45
8.0	1500	100	1300	80	1000	45
10.0	1300	110	1000	80	800	50
12.0	1000	120	800	80	600	50
14.0	800	130	650	80	500	55
16.0	660	140	520	110	400	70
18.0	500	180	400	140	310	100
20.0	400	190	330	160	250	100



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

**PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN**

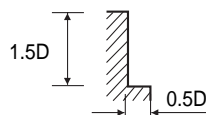
MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2.0	5600	35	5000	35	2800	20
3.0	4000	55	3000	50	2000	25
4.0	2800	70	2200	55	1400	35
5.0	2200	85	2000	75	1100	45
6.0	2000	100	1500	75	1000	50
8.0	1400	110	1100	85	700	55
10.0	1100	110	1000	100	560	55
12.0	1000	125	800	100	500	60
14.0	900	110	700	100	450	60
16.0	700	110	560	85	350	55
18.0	600	110	500	85	300	55
20.0	560	110	500	85	280	55
22.0	560	110	450	85	280	55
25.0	500	100	400	75	230	45



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

PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPPFÄSER- SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
	~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40		HRc30 ~ HRc40	
HARDNESS	500 ~ 800N/mm ²		800 ~ 9000N/mm ²		900~ 1100N/mm ²		1100 ~ 1300N/mm ²	
STRENGTH	500 ~ 800N/mm ²		800 ~ 9000N/mm ²		900~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2300	100	2000	75	1500	70	1000	35
8.0	1800	130	1400	95	1100	80	700	45
10.0	1400	190	1100	150	1000	140	560	75
12.0	1100	230	1000	180	800	140	500	85
14.0	1000	230	900	180	700	140	450	85
16.0	900	230	700	180	560	140	350	85
18.0	800	230	600	180	500	140	300	85
20.0	700	230	560	180	500	140	300	85
22.0	600	280	560	210	450	180	300	105
25.0	560	280	500	210	400	180	230	105
28.0	500	260	450	200	350	160	200	105
30.0	450	260	400	200	300	160	200	105



※ The FEED, in long & extra long types, should be reduced by around 50%

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

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

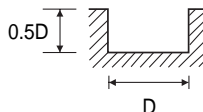
MILLING
CUTTERS

TECHNICAL
DATA



HSSCo8, 2 FLUTE TiN-COATED - SLOTTING
HSSCo8, 2 SCHNEIDEN TiN-BESCHICHTET - NUTENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6700	50	5400	35	5000	35	2600	20	14000	190
3.0	4200	65	3800	55	3000	50	1900	25	13000	300
4.0	3400	85	2600	65	2200	55	1300	35	9500	350
5.0	2600	110	2200	85	1900	70	1100	40	7500	370
6.0	2200	110	1900	95	1400	70	950	50	6700	370
8.0	1700	120	1300	110	1100	85	670	55	5000	470
10.0	1300	120	1100	110	950	95	550	55	3700	480
12.0	1100	130	950	120	750	95	500	60	3000	460
14.0	950	130	850	110	670	95	400	60	2600	420
16.0	850	130	670	110	550	85	340	55	2400	420
18.0	750	120	600	110	500	85	300	55	2200	420
20.0	670	120	550	110	500	85	260	55	1900	380
22.0	600	120	550	110	400	85	260	55	1700	360
25.0	550	110	500	95	370	70	220	40	1400	340
28.0	500	95	400	85	340	65	190	35	1300	320
30.0	400	85	370	70	300	60	190	35	1300	320
32.0	400	85	340	65	260	55	170	35	1200	290
36.0	370	70	300	60	240	50	140	30	1100	260
40.0	340	70	260	60	220	50	130	30	950	240

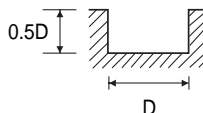


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%

HSSCo8, 3 FLUTE TiN-COATED - SLOTTING
HSSCo8, 3 SCHNEIDEN TiN-BESCHICHTET - NUTENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6700	70	5400	55	5000	55	2600	25	14000	290
3.0	4200	95	3800	80	3000	70	1900	35	13000	460
4.0	3400	125	2600	95	2200	80	1300	55	9500	530
5.0	2600	160	2200	125	1900	110	1100	60	7500	560
6.0	2200	160	1900	145	1400	110	950	70	6700	560
8.0	1700	180	1300	160	1100	125	670	80	5000	700
10.0	1300	180	1100	160	950	145	550	80	3700	720
12.0	1100	200	950	180	750	145	500	90	3000	680
14.0	950	200	850	160	670	145	400	90	2600	640
16.0	850	200	670	160	550	125	340	80	2400	640
18.0	750	180	600	160	500	125	300	80	2200	640
20.0	670	180	550	160	500	125	260	80	1900	580
22.0	600	180	550	160	400	125	260	80	1700	540
25.0	550	160	500	145	370	110	220	60	1400	500
28.0	500	145	400	125	340	95	190	55	1300	480
30.0	400	125	370	110	300	90	190	55	1300	480

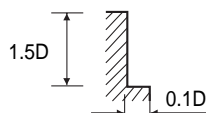


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%

HSSCo8, 3 FLUTE TiN-COATED - SIDE CUTTING
HSSCo8, 3 SCHNEIDEN TiN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6700	70	5400	50	5000	40	2600	20	14000	220
3.0	4200	95	3800	70	3000	55	1900	25	13000	340
4.0	3400	125	2600	90	2200	60	1300	35	9500	400
5.0	2600	160	2200	115	1900	80	1100	40	7500	420
6.0	2200	160	1900	130	1400	80	950	55	6700	420
8.0	1700	180	1300	145	1100	95	670	60	5000	530
10.0	1300	180	1100	145	950	110	550	60	3700	540
12.0	1100	200	950	160	750	110	500	65	3000	520
14.0	950	200	850	145	670	110	400	65	2600	480
16.0	850	200	670	145	550	95	340	60	2400	480
18.0	750	180	600	145	500	95	300	60	2200	480
20.0	670	180	550	145	500	95	260	60	1900	430
22.0	600	180	550	145	400	95	260	60	1700	410
25.0	550	160	500	130	370	80	220	40	1400	380
28.0	500	145	400	115	340	70	190	35	1300	360
30.0	400	125	370	95	300	65	190	35	1300	360

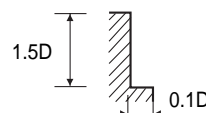


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%

HSSCo8, MULTI FLUTE TiN-COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN TiN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	6700	95	5400	65	5000	55	2600	25	14000	290
3.0	4200	130	3800	95	3000	70	1900	35	13000	460
4.0	3400	170	2600	120	2200	80	1300	55	9500	530
5.0	2600	220	2200	150	1900	110	1100	60	7500	560
6.0	2200	220	1900	170	1400	110	950	70	6700	560
8.0	1700	240	1300	190	1100	125	670	80	5000	700
10.0	1300	240	1100	190	950	145	550	80	3700	720
12.0	1100	260	950	220	750	145	500	90	3000	680
14.0	950	260	850	190	670	145	400	90	2600	640
16.0	850	260	670	190	550	125	340	80	2400	640
18.0	750	240	600	190	500	125	300	80	2200	640
20.0	670	240	550	190	500	125	260	80	1900	580
22.0	600	240	550	190	400	125	260	80	1700	540
25.0	550	220	500	175	370	110	220	60	1400	500
28.0	500	190	400	150	340	95	190	55	1300	480
30.0	400	170	370	130	300	90	190	55	1300	480
32.0	400	170	340	120	260	80	170	55	1200	430
36.0	370	145	300	110	240	70	140	40	1100	400
40.0	340	145	260	110	220	70	130	40	950	360

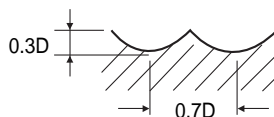


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%


**HSSCo8, 2 FLUTE BALL NOSE TiN-COATED
HSSCo8, 2 SCHNEIDEN STIRNRADIUS TiN-BESCHICHTET**

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	5400	115	4000	85	2400	35	1700	25	13000	280
R2.0 × 4.0	3800	140	3000	95	1700	40	1200	30	9500	310
R3.0 × 6.0	2600	160	2000	110	1200	55	850	30	6700	340
R4.0 × 8.0	1900	190	1400	125	850	60	600	35	5000	420
R5.0 × 10.0	1600	220	1200	145	670	70	500	40	4000	430
R6.0 × 12.0	1200	200	950	125	550	65	400	40	3000	410
R8.0 × 16.0	950	180	700	120	400	65	300	40	2500	360
R10.0 × 20.0	700	170	600	100	350	60	240	40	2000	340
R12.5 × 25.0	600	155	500	85	260	50	190	35	1500	300

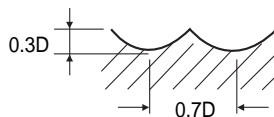


※ The FEED, in long & extra long types, should be reduced by around 50%

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

**HSSCo8, MULTI FLUTE BALL NOSE TiN-COATED
HSSCo8, MULTI SCHNEIDEN STIRNRADIUS TiN-BESCHICHTET**

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R3.0 × 6.0	2600	240	2000	160	1200	85	850	50	6700	500
R4.0 × 8.0	1900	290	1400	190	850	90	600	55	5000	640
R5.0 × 10.0	1600	320	1200	220	670	110	500	60	4000	650
R6.0 × 12.0	1200	310	950	190	550	95	400	60	3000	610
R8.0 × 16.0	950	280	700	180	400	95	300	60	2500	540
R10.0 × 20.0	700	250	600	160	350	90	240	60	2000	500
R12.5 × 25.0	600	240	500	130	260	70	190	55	1500	450

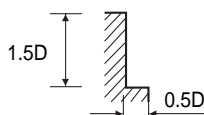


※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, MULTI FLUTE ROUGHING TiN-COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER TiN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2200	95	1900	70	1400	65	950	35	5500	240
8.0	1700	125	1300	90	1000	80	670	40	3700	280
10.0	1300	180	1000	145	950	130	550	70	3000	420
12.0	1000	220	950	170	750	130	500	85	2500	480
14.0	950	220	850	170	670	130	420	85	2200	500
16.0	850	220	670	170	550	130	340	85	1900	540
18.0	750	220	600	170	500	130	300	85	1700	560
20.0	650	220	550	170	500	130	260	85	1400	600
22.0	600	260	550	200	400	170	260	100	1300	560
25.0	500	260	500	200	370	170	220	100	1200	540
28.0	500	250	400	190	340	160	190	100	1100	600
30.0	400	250	370	190	300	160	190	100	1100	640
32.0	400	250	340	190	260	160	170	100	950	600
36.0	370	250	300	190	240	160	140	100	850	560
40.0	340	240	260	180	220	140	130	95	750	540
50.0	260	240	220	200	190	170	110	95	600	440

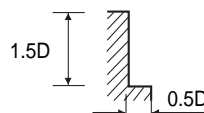


※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, MULTI FLUTE ROUGHING & FINISHING TiN-COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER TiN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2200	80	1900	60	1400	55	950	30	5500	190
8.0	1700	100	1300	70	1000	60	670	35	3700	220
10.0	1300	145	1000	115	950	110	550	60	3000	340
12.0	1000	175	950	130	750	110	500	65	2500	380
14.0	950	175	850	130	670	110	420	65	2200	410
16.0	850	175	670	130	550	110	340	65	1900	430
18.0	750	175	600	130	500	110	300	65	1700	460
20.0	650	175	550	130	500	110	260	65	1400	480
22.0	600	210	550	160	400	130	260	85	1300	460
25.0	500	210	500	160	370	130	220	85	1200	430
28.0	500	200	400	155	340	125	190	85	1100	490
30.0	400	200	370	155	300	125	190	85	1100	500
32.0	400	200	340	155	260	125	170	85	950	480
36.0	370	200	300	155	240	125	140	85	850	460
40.0	340	190	260	145	220	115	130	80	750	430



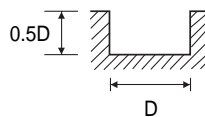
※ The FEED, in long & extra long types, should be reduced by around 50%

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



HSSCo8, 2 FLUTE TiCN-COATED - SLOTTING
HSSCo8, 2 SCHNEIDEN TiCN-BESCHICHTET - NUTENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7300	50	6000	40	5000	40	2900	20	16000	210
3.0	4500	70	4200	60	3300	50	2100	25	14000	330
4.0	3600	90	2900	70	2300	60	1400	40	10000	380
5.0	2900	115	2300	90	2100	80	1200	45	8200	400
6.0	2300	115	2000	105	1600	80	1000	50	7300	400
8.0	1800	130	1400	115	1200	90	730	60	5000	510
10.0	1400	130	1200	115	1000	105	600	60	4000	520
12.0	1200	145	1000	130	800	105	500	65	3300	500
14.0	1000	145	900	115	700	105	450	65	2800	450
16.0	900	145	700	115	600	90	360	60	2600	450
18.0	800	130	650	115	500	90	320	60	2300	450
20.0	730	130	600	115	500	90	300	60	2100	420
22.0	650	130	600	115	450	90	280	60	1800	390
25.0	600	120	500	105	400	80	230	48	1600	360
28.0	500	105	450	90	350	70	210	40	1400	350
30.0	450	90	400	80	320	65	210	40	1400	350
32.0	450	90	360	70	280	60	180	40	1300	310
36.0	400	80	320	65	260	50	160	30	1200	280
40.0	360	80	280	65	230	50	140	30	1000	260

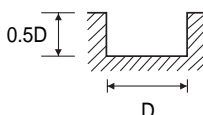


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%

HSSCo8, 3 FLUTE TiCN-COATED - SLOTTING
HSSCo8, 3 SCHNEIDEN TiCN-BESCHICHTET - NUTENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7300	80	6000	60	5000	60	2900	25	16000	310
3.0	4500	105	4200	85	3300	80	2100	40	14000	500
4.0	3600	135	2900	105	2300	85	1400	60	10000	570
5.0	2900	175	2300	135	2100	115	1200	65	8200	610
6.0	2300	175	2000	155	1600	115	1000	80	7300	610
8.0	1800	195	1400	175	1200	135	730	85	5000	750
10.0	1400	195	1200	175	1000	155	600	85	4000	780
12.0	1200	215	1000	195	800	155	500	95	3300	740
14.0	1000	215	900	175	700	155	450	95	2800	690
16.0	900	215	700	175	600	135	360	85	2600	690
18.0	800	195	650	175	500	135	320	85	2300	690
20.0	730	195	600	175	500	135	300	85	2100	620
22.0	650	195	600	175	450	135	280	85	1800	580
25.0	600	175	500	155	400	115	230	65	1600	550
28.0	500	155	450	135	350	105	210	60	1400	520
30.0	450	135	400	115	320	95	210	60	1400	520

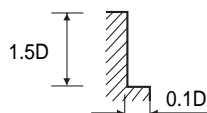


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%

HSSCo8, 3 FLUTE TiCN-COATED - SIDE CUTTING
HSSCo8, 3 SCHNEIDEN TiCN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7300	80	6000	50	5000	45	2900	20	16000	230
3.0	4500	105	4200	80	3300	60	2100	25	14000	360
4.0	3600	135	2900	95	2300	65	1400	40	10000	430
5.0	2900	175	2300	125	2100	85	1200	45	8200	450
6.0	2300	175	2000	145	1600	85	1000	60	7300	450
8.0	1800	195	1400	155	1200	105	730	65	5000	570
10.0	1400	195	1200	155	1000	115	600	65	4000	590
12.0	1200	215	1000	175	800	115	500	70	3300	560
14.0	1000	215	900	155	700	115	450	70	2800	520
16.0	900	215	700	155	600	105	360	65	2600	520
18.0	800	195	650	155	500	105	320	65	2300	520
20.0	730	195	600	155	500	105	300	65	2100	470
22.0	650	195	600	155	450	105	280	65	1800	440
25.0	600	175	500	145	400	85	230	45	1600	420
28.0	500	155	450	125	350	80	210	40	1400	390
30.0	450	135	400	105	320	70	210	40	1400	390

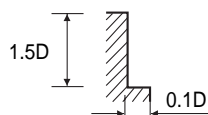


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%

HSSCo8, MULTI FLUTE TiCN-COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN TiCN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2.0	7300	105	6000	70	5000	60	2900	25	16000	310
3.0	4500	145	4200	105	3300	80	2100	40	14000	500
4.0	3600	180	2900	130	2300	85	1400	60	10000	570
5.0	2900	235	2300	160	2100	115	1200	65	8200	610
6.0	2300	235	2000	190	1600	115	1000	80	7300	610
8.0	1800	260	1400	210	1200	135	730	85	5000	750
10.0	1400	260	1200	210	1000	155	600	85	4000	780
12.0	1200	285	1000	235	800	155	500	95	3300	740
14.0	1000	285	900	210	700	155	450	95	2800	690
16.0	900	285	700	210	600	135	360	85	2600	690
18.0	800	260	650	210	500	135	320	85	2300	690
20.0	730	260	600	210	500	135	300	85	2100	620
22.0	650	260	600	210	450	135	280	85	1800	580
25.0	600	235	500	190	400	115	230	65	1600	550
28.0	500	210	450	160	350	105	210	60	1400	520
30.0	450	180	400	145	320	95	210	60	1400	520
32.0	450	180	360	130	280	85	180	60	1300	470
36.0	400	155	320	120	260	80	160	45	1200	430
40.0	360	155	280	120	230	80	140	45	1000	390

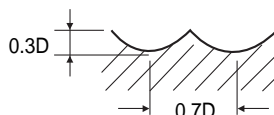


RPM = rev./min.
FEED = mm/min.

※ The FEED, in long & extra long types, should be reduced by around 50%


**HSSCo8, 2 FLUTE BALL NOSE TiCN-COATED
HSSCo8, 2 SCHNEIDEN STIRNRADIUS TiCN-BESCHICHTET**

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1.5 × 3.0	6000	125	4400	90	2600	40	1800	25	14000	300
R2.0 × 4.0	4000	150	3100	105	1800	45	1300	30	10000	340
R3.0 × 6.0	3000	175	2200	115	1300	60	900	30	7300	360
R4.0 × 8.0	2000	210	1600	135	900	65	650	40	5000	450
R5.0 × 10.0	1700	235	1300	155	730	80	500	45	4000	470
R6.0 × 12.0	1300	220	1000	135	600	70	400	45	3300	440
R8.0 × 16.0	1000	200	800	130	450	70	300	45	2600	390
R10.0 × 20.0	800	180	650	110	400	65	250	45	2000	360
R12.5 × 25.0	650	170	500	90	300	50	200	40	1700	330

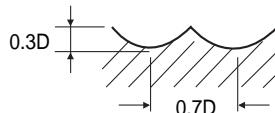


※ The FEED, in long & extra long types, should be reduced by around 50%

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

**HSSCo8, MULTI FLUTE BALL NOSE TiCN-COATED
HSSCo8, MULTI SCHNEIDEN STIRNRADIUS TiCN-BESCHICHTET**

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R3.0 × 6.0	3000	260	2200	175	1300	90	900	50	7300	550
R4.0 × 8.0	2000	310	1600	210	900	95	650	60	5000	690
R5.0 × 10.0	1700	350	1300	230	730	115	500	65	4000	700
R6.0 × 12.0	1300	340	1000	210	600	105	400	65	3300	660
R8.0 × 16.0	1000	300	800	200	450	105	300	65	2600	590
R10.0 × 20.0	800	270	650	170	400	95	250	65	2000	550
R12.5 × 25.0	650	260	500	135	300	80	200	60	1700	490

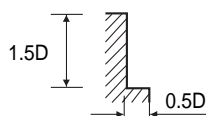


※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, MULTI FLUTE ROUGHING TiCN-COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER TiCN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2300	105	2000	80	1600	70	1000	40	6000	260
8.0	1800	135	1400	95	1200	85	700	45	4000	300
10.0	1400	195	1200	155	1000	145	600	80	3200	450
12.0	1200	235	1000	180	800	145	500	90	2600	520
14.0	1000	235	900	180	700	145	450	90	2300	550
16.0	900	235	700	180	600	145	350	90	2100	580
18.0	800	235	650	180	500	145	320	90	1800	610
20.0	700	235	600	180	500	145	300	90	1600	650
22.0	650	285	600	220	450	180	300	110	1400	610
25.0	600	285	500	220	400	180	230	110	1300	580
28.0	500	275	450	210	350	170	210	110	1200	660
30.0	450	275	400	210	320	170	210	110	1200	690
36.0	450	275	350	210	300	170	180	110	1000	650
39.0	400	275	320	210	250	170	150	110	900	610
40.0	350	260	300	195	230	155	140	105	800	280
50.0	300	260	230	220	200	180	120	105	650	480

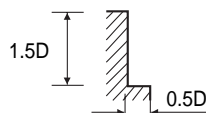


※ The FEED, in long & extra long types, should be reduced by around 50%

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

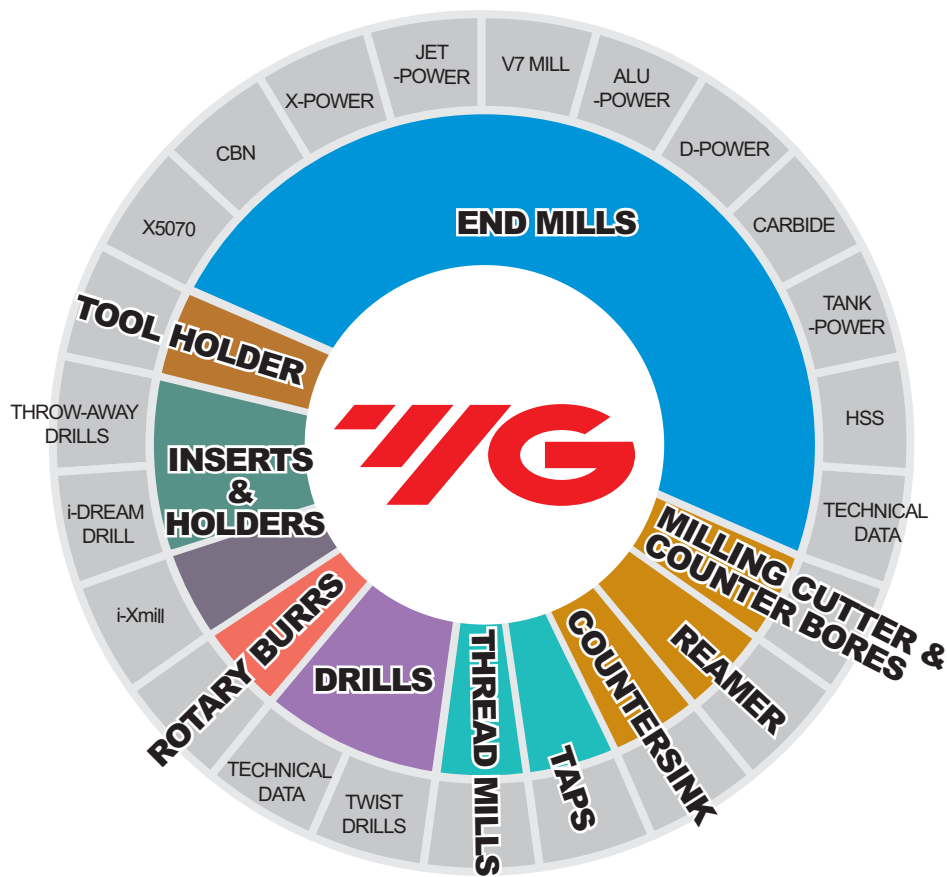
HSSCo8, MULTI FLUTE ROUGHING & FINISHING TiCN-COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER TiCN-BESCHICHTET - SEITENFRÄSEN

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²		RPM	FEED
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40			
STRENGTH										
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6.0	2300	85	2000	65	1600	60	1000	30	6000	210
8.0	1800	110	1400	80	1200	65	700	40	4000	240
10.0	1400	155	1200	125	1000	115	600	65	3200	360
12.0	1200	190	1000	145	800	115	500	70	2600	420
14.0	1000	190	900	145	700	115	450	70	2300	440
16.0	900	190	700	145	600	115	350	70	2100	470
18.0	800	190	650	145	500	115	320	70	1800	500
20.0	700	190	600	145	500	115	300	70	1600	520
22.0	650	230	600	175	450	145	300	90	1400	500
25.0	600	230	500	175	400	145	230	90	1300	470
28.0	500	220	450	170	350	135	210	90	1200	530
30.0	450	220	400	170	320	135	210	90	1200	550
32.0	450	220	350	170	300	135	180	90	1000	520
36.0	400	220	320	170	250	135	150	90	900	500
40.0	350	210	300	155	230	125	140	85	800	470



※ The FEED, in long & extra long types, should be reduced by around 50%

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



Challenge Toward a Global Leader-
YG-1 Leads the World Market.

HSS



Being the best through innovation



MILLING CUTTER

FRÄSER

- General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% cobalt) Corner Rounding, Shell End Mills
- Für allgemeinen Einsatz. Winkelschaftfräser, Schlitzfräser, T-Nutenfräser, Konkavfräser, Scheibenfräser und HSSE-Co8 Walzenstirnfräser

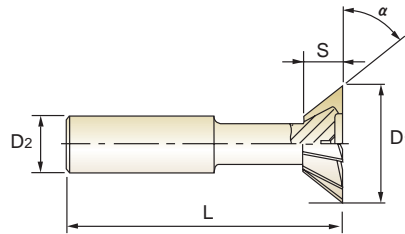
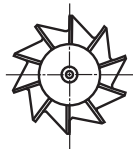
SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
ML012 ML022 ML112 ML122		HSS-E, DOVETAIL CUTTERS TYPE "A", "C", "E" HSS-E, WINKELFRÄSER FORM "A", "C", "E"	D16.0	D50.0	979
ML032 ML042 ML132 ML142		HSS-E, DOVETAIL CUTTERS TYPE "B", "D", "F" HSS-E, WINKELFRÄSER FORM "B", "D", "F"	D16.0	D38.0	980
ML062 ML162		HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE "B", "D", "F" HSS-E, SCHLITZFRÄSER FORM "B", "D", "F"	D10.5	D45.5	981
ML072 ML172		HSS-E, T-SLOT CUTTERS TYPE "AA", "AB", "AD" HSS-E, SCHAFTERFRÄSER FÜR T-NUTEN FORM "AA", "AB", "AD"	D12.5	D40.0	983
ML092		HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT	D50.0	D125.0	984
ML102		HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT	D50.0	D200.0	985
E2675		HSSCo8, MULTI FLUTE SHELL END MILL HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER	D30.0	D160.0	988
E2676		HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINUM HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM	D30.0	D100.0	989
E2677		HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - COARSE HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFÄSER - GROBES	D40.0	D160.0	990
E2678		HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - FINE HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFÄSER - FEINES	D40.0	D160.0	991
E2679		HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER	D40.0	D160.0	992
E2498		HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER	D8.0	D56.0	993
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					994

HSS-E, DOVETAIL CUTTERS TYPE "A", "C", "E"
HSS-E, WINKELFRÄSER FORM "A", "C", "E"

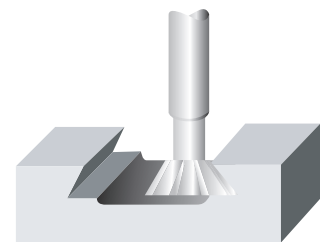
► Recommended for use in place of arbor and threaded hole type cutters to reduce set time and facilitate handling.

► Empfohlen zur Nutzung anstelle von Arbor und threaded hole type Cutters um Montierzeit zu verkürzen und Handhabung zu erleichtern.



Unit : mm

EDP No.			Cutter Diameter	Width of Face	Divergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(js16)	S(js14)	$\alpha(\pm 15')$	D2(h6)	L(js18)	Z
ML01201601	ML11201601	ML21201601	16.0	4	45°	12	60	6
ML01202001	ML11202001	ML21202001	20.0	5	45°	12	63	6
ML01202201	ML11202201	ML21202201	22.0	6	45°	12	67	6
ML01202501	ML11202501	ML21202501	25.0	6.3	45°	16	67	8
ML01202801	ML11202801	ML21202801	28.0	7.5	45°	16	67	8
ML01203201	ML11203201	ML21203201	32.0	8	45°	16	71	10
ML01203801	ML11203801	ML21203801	38.0	10	45°	16	80	12
ML02201601	ML12201601	ML22201601	16.0	6.3	60°	12	60	6
ML02202001	ML12202001	ML22202001	20.0	8	60°	12	63	6
ML02202201	ML12202201	ML22202201	22.0	9	60°	12	67	6
ML02202501	ML12202501	ML22202501	25.0	10	60°	16	67	8
ML02202801	ML12202801	ML22202801	28.0	11	60°	16	67	8
ML02203201	ML12203201	ML22203201	32.0	12.5	60°	16	71	10
ML02203801	ML12203801	ML22203801	38.0	16	60°	16	80	12
ML02204001	ML12204001	ML22204001	40.0	13	60°	25	85	12
ML02205001	ML12205001	ML22205001	50.0	16	60°	25	100	16



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm							
	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120
Tolerance range in mm / Toleranzwerte in mm							
js16	± 0.375	± 0.45	± 0.55	± 0.65	± 0.80	± 0.95	± 1.10
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in μm / Toleranzwerte in μm							
h6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19	0 - 22

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



ML032, ML042 SERIES

ML132, ML142 SERIES

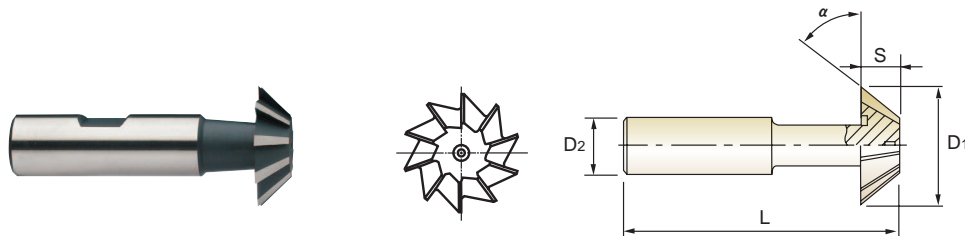
ML232, ML242 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

FLAT SHANK
SEITLICHEN MITNAHMEFLÄCHEN

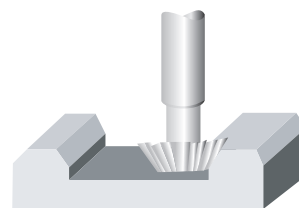
THREAD SHANK
ANZUGSGEWINDE

HSS-E, DOVETAIL CUTTERS TYPE "B", "D", "F"
HSS-E, WINKELFRÄSER FORM "B", "D", "F"



Unit : mm

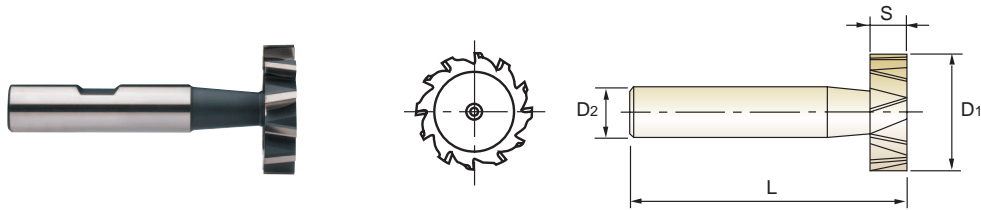
EDP No.			Cutter Diameter	Width of Face	Convergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(js16)	S(js14)	$\alpha(\pm 15')$	D2(h6)	L(js18)	Z
ML03201601	ML13201601	ML23201601	16.0	4	45°	12	60	6
ML03202001	ML13202001	ML23202001	20.0	5	45°	12	63	6
ML03202201	ML13202201	ML23202201	22.0	6	45°	12	67	6
ML03202501	ML13202501	ML23202501	25.0	6.3	45°	16	67	8
ML03202801	ML13202801	ML23202801	28.0	7.5	45°	16	67	8
ML03203201	ML13203201	ML23203201	32.0	8	45°	16	71	10
ML03203801	ML13203801	ML23203801	38.0	10	45°	16	80	12
ML04201601	ML14201601	ML24201601	16.0	6.3	60°	12	60	6
ML04202001	ML14202001	ML24202001	20.0	8	60°	12	63	6
ML04202201	ML14202201	ML24202201	22.0	9	60°	12	67	6
ML04202501	ML14202501	ML24202501	25.0	10	60°	16	67	8
ML04202801	ML14202801	ML24202801	28.0	11	60°	16	67	8
ML04203201	ML14203201	ML24203201	32.0	12.5	60°	16	71	10
ML04203801	ML14203801	ML24203801	38.0	16	60°	16	80	12



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm						
	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80
Tolerance range in mm / Toleranzwerte in mm						
js16	± 0.375	± 0.45	± 0.55	± 0.65	± 0.80	± 0.95
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30
Tolerance range in μm / Toleranzwerte in μm						
h6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19

HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE "B", "D", "F"
HSS-E, SCHLITZFRÄSER FORM "B", "D", "F"



Unit : mm

EDP No.			Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D ₁ (h11)	S(e8)	D ₂ (h6)	L(js18)	Z
MLO6210E01	ML16210E01	ML26210E01	10.5	2	6	50	8
MLO6210E02	ML16210E02	ML26210E02	10.5	2.5	6	50	8
MLO6210E03	ML16210E03	ML26210E03	10.5	3	6	50	8
MLO6213E01	ML16213E01	ML26213E01	13.5	2	10	56	8
MLO6213E02	ML16213E02	ML26213E02	13.5	2.5	10	56	8
MLO6213E03	ML16213E03	ML26213E03	13.5	3	10	56	8
MLO6213E04	ML16213E04	ML26213E04	13.5	4	10	56	8
MLO6216E01	ML16216E01	ML26216E01	16.5	2.5	10	56	8
MLO6216E02	ML16216E02	ML26216E02	16.5	3	10	56	8
MLO6216E03	ML16216E03	ML26216E03	16.5	4	10	56	8
MLO6216E04	ML16216E04	ML26216E04	16.5	5	10	56	8
MLO6219E01	ML16219E01	ML26219E01	19.5	3	10	56	8
MLO6219E02	ML16219E02	ML26219E02	19.5	4	10	63	8
MLO6219E03	ML16219E03	ML26219E03	19.5	5	10	63	8
MLO6219E04	ML16219E04	ML26219E04	19.5	6	10	63	8
MLO6222E01	ML16222E01	ML26222E01	22.5	4	10	63	10
MLO6222E02	ML16222E02	ML26222E02	22.5	5	10	63	10
MLO6222E03	ML16222E03	ML26222E03	22.5	6	10	63	10
MLO6222E04	ML16222E04	ML26222E04	22.5	8	10	63	10
MLO6225E01	ML16225E01	ML26225E01	25.5	5	10	63	10
MLO6225E02	ML16225E02	ML26225E02	25.5	6	10	63	10
MLO6225E03	ML16225E03	ML26225E03	25.5	7	10	63	10
MLO6225E04	ML16225E04	ML26225E04	25.5	8	10	63	10
MLO6228E01	ML16228E01	ML26228E01	28.5	5	10	63	10
MLO6228E02	ML16228E02	ML26228E02	28.5	6	10	63	10
MLO6228E03	ML16228E03	ML26228E03	28.5	7	10	63	10
MLO6228E04	ML16228E04	ML26228E04	28.5	8	10	63	10
MLO6228E05	ML16228E05	ML26228E05	28.5	10	12	71	10

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

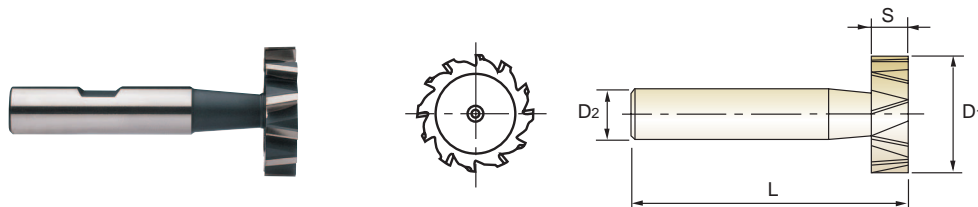
MILLING
CUTTERS

TECHNICAL
DATA



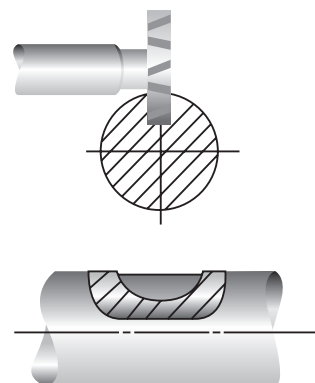
ML062 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT
ML162 SERIES FLAT SHANK
SEITLICHEN MITNAHMEFLÄCHEN
ML262 SERIES THREAD SHANK
ANZUGSGEWINDE

HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE "B", "D", "F"
HSS-E, SCHLITZFRÄSER FORM "B", "D", "F"



Unit : mm

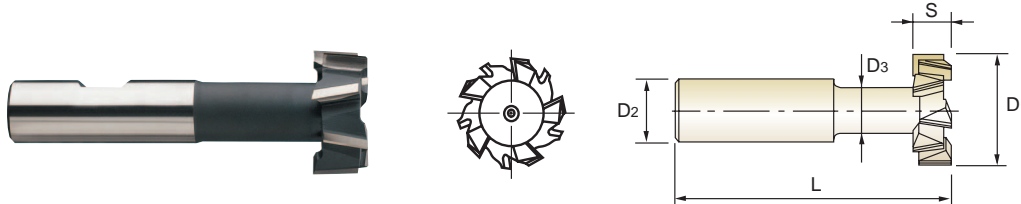
EDP No.			Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(h11)	S(e8)	D2(h6)	L(js18)	Z
ML06232E01	ML16232E01	ML26232E01	32.5	5	12	71	12
ML06232E02	ML16232E02	ML26232E02	32.5	6	12	71	12
ML06232E03	ML16232E03	ML26232E03	32.5	7	12	71	12
ML06232E04	ML16232E04	ML26232E04	32.5	8	12	71	12
ML06232E05	ML16232E05	ML26232E05	32.5	10	12	71	12
ML06238E01	ML16238E01	ML26238E01	38.5	7	12	71	12
ML06238E02	ML16238E02	ML26238E02	38.5	8	12	71	12
ML06238E03	ML16238E03	ML26238E03	38.5	9	12	71	12
ML06238E04	ML16238E04	ML26238E04	38.5	10	12	71	12
ML06245E01	ML16245E01	ML26245E01	45.5	10	12	71	14



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

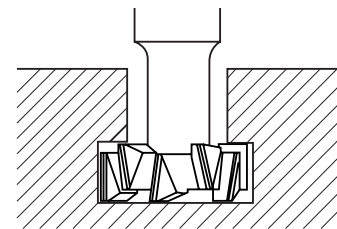
Nominal-Diameter in mm / Nennmaßbereich in mm							
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80
Tolerance range in mm / Toleranzwerte in mm							
js18	—	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30
Tolerance range in μm / Toleranzwerte in μm							
h11	0 - 60	0 - 75	0 - 90	0 - 110	0 - 130	0 - 160	0 - 190
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89	- 60 - 106
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19

HSS-E, T-SLOT CUTTERS TYPE "AA", "AB", "AD"
HSS-E, SCHAFTERFRÄSER FÜR T-NUTEN FORM "AA", "AB", "AD"



Unit : mm

EDP No.			Cutter Diameter	Width of Face	Shank Diameter	Neck Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(d11)	S(d11)	D2(h6)	D3(h12)	L(js18)	Z
ML07212E01	ML17212E01	ML27212E01	12.5	6	10	5	57	6
ML07201601	ML17201601	ML27201601	16.0	8	10	6.5	62	6
ML07201801	ML17201801	ML27201801	18.0	8	12	8	70	6
ML07201901	ML17201901	ML27201901	19.0	9	12	8	71	6
ML07202101	ML17202101	ML27202101	21.0	9	12	10	74	6
ML07202201	ML17202201	ML27202201	22.0	10	12	10	75	6
ML07202501	ML17202501	ML27202501	25.0	11	16	12	82	6
ML07202801	ML17202801	ML27202801	28.0	12	16	13	83	6
ML07203201	ML17203201	ML27203201	32.0	14	16	15	90	8
ML07203601	ML17203601	ML27203601	36.0	16	25	17	103	8
ML07204001	ML17204001	ML27204001	40.0	18	25	19	108	8



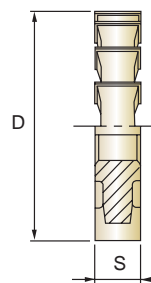
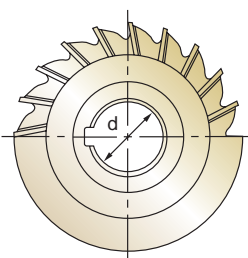
Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm							
	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120
Tolerance range in mm / Toleranzwerte in mm							
h12	0 - 0.12	0 - 0.15	0 - 0.18	0 - 0.21	0 - 0.25	0 - 0.30	0 - 0.35
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in µm / Toleranzwerte in µm							
d11	- 30 - 105	- 40 - 130	- 50 - 160	- 65 - 195	- 80 - 240	- 100 - 290	- 120 - 340
h6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19	0 - 22

HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT

► The tools are used for general purpose side and straddle milling where deep cut is not required.

► Diese Werkzeuge werden bei allgemeinen Seiten- und Breitfräsen eingesetzt, wo Tiefschnitte nicht vorkommen.



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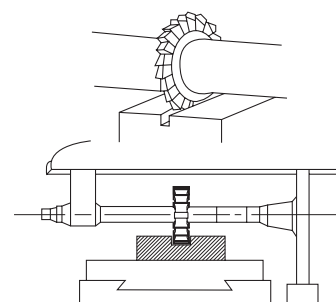
Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML09205001	50.0	4	16	18
ML09205002	50.0	5	16	18
ML09205003	50.0	6	16	18
ML09205004	50.0	8	16	16
ML09205005	50.0	10	16	16
ML09206301	63.0	5	22	22
ML09206302	63.0	6	22	22
ML09206303	63.0	8	22	20
ML09206304	63.0	10	22	20
ML09206305	63.0	12	22	20
ML09208001	80.0	6	22	24
ML09208002	80.0	8	22	24
ML09208003	80.0	10	22	24
ML09208004	80.0	12	22	20
ML09208005	80.0	6	27	24
ML09208006	80.0	8	27	24
ML09208007	80.0	10	27	24
ML09208008	80.0	12	27	20
ML09210001	100.0	6	27	26
ML09210002	100.0	8	27	26
ML09210003	100.0	10	27	22
ML09210004	100.0	6	32	26
ML09210005	100.0	8	32	26
ML09210006	100.0	10	32	22
ML09210007	100.0	12	32	22
ML09212501	125.0	8	32	30
ML09212502	125.0	10	32	30
ML09212503	125.0	12	32	24

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm								
	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120	over 120 to 180 über 120 bis 180
Tolerance range in mm / Toleranzwerte mm								
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50
Tolerance range in μm / Toleranzwerte in μm								
k11	+ 75 0	+ 90 0	+ 110 0	+ 130 0	+ 160 0	+ 190 0	+ 220 0	+ 250 0
H7	+ 12 0	+ 15 0	+ 18 0	+ 21 0	+ 25 0	+ 30 0	+ 35 0	+ 40 0

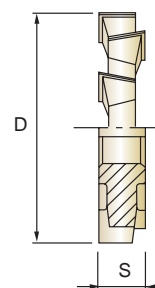
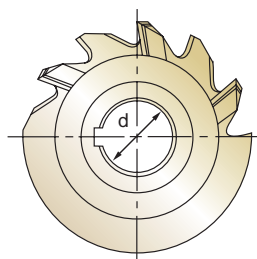


HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT

► The type of cutter is recommended for slotting operations.
 The alternate spiral effectively counteracts all tendency to chatter.

► Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende
 Spiral wirkt allen Schnatterbewegungen entgegen.



EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10205001	50.0	3	16	14
ML10205002	50.0	4	16	14
ML10205003	50.0	5	16	14
ML10205004	50.0	6	16	14
ML10205005	50.0	7	16	14
ML10205006	50.0	8	16	14
ML10205007	50.0	9	16	14
ML10205008	50.0	10	16	14
ML10206301	63.0	3	22	16
ML10206302	63.0	4	22	16
ML10206303	63.0	5	22	16
ML10206304	63.0	6	22	16
ML10206305	63.0	7	22	16
ML10206306	63.0	8	22	16
ML10206307	63.0	9	22	16
ML10206308	63.0	10	22	16
ML10206309	63.0	12	22	16
ML10206310	63.0	14	22	16
ML10206311	63.0	16	22	16
ML10206312	63.0	18	22	16
ML10208001	80.0	3	22	18
ML10208002	80.0	4	22	18
ML10208003	80.0	5	22	18
ML10208004	80.0	6	22	18
ML10208005	80.0	7	22	18
ML10208006	80.0	8	22	18
ML10208007	80.0	9	22	18
ML10208008	80.0	10	22	18
ML10208009	80.0	12	22	18
ML10208010	80.0	14	22	18
ML10208011	80.0	16	22	18
ML10208012	80.0	18	22	18
ML10208013	80.0	20	22	18
ML10208014	80.0	4	27	18
ML10208015	80.0	5	27	18
ML10208016	80.0	6	27	18
ML10208017	80.0	7	27	18
ML10208018	80.0	8	27	18

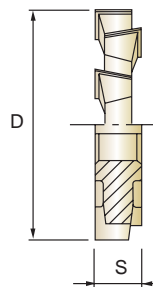
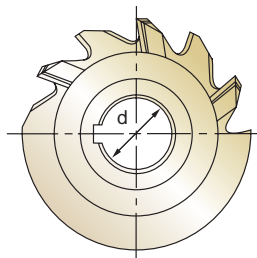
Unit : mm

HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT

► The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.

► Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende
Spiral wirkt allen Schnatterbewegungen entgegen.



HSS-E

DIN
885-A

H



P.996

Unit : mm

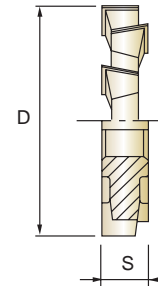
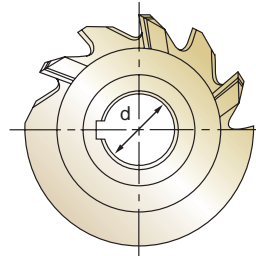
EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10208019	80.0	9	27	18
ML10208020	80.0	10	27	18
ML10208021	80.0	12	27	18
ML10208022	80.0	14	27	18
ML10208023	80.0	16	27	18
ML10208024	80.0	18	27	18
ML10208025	80.0	20	27	18
ML10210001	100.0	3	27	20
ML10210002	100.0	4	27	20
ML10210003	100.0	5	27	20
ML10210004	100.0	6	27	20
ML10210005	100.0	7	27	20
ML10210006	100.0	8	27	20
ML10210007	100.0	9	27	20
ML10210008	100.0	10	27	20
ML10210009	100.0	12	27	20
ML10210010	100.0	14	27	20
ML10210011	100.0	15	27	20
ML10210012	100.0	16	27	20
ML10210013	100.0	18	27	20
ML10210014	100.0	20	27	20
ML10210015	100.0	4	32	20
ML10210016	100.0	5	32	20
ML10210017	100.0	6	32	20
ML10210018	100.0	7	32	20
ML10210019	100.0	8	32	20
ML10210020	100.0	9	32	20
ML10210021	100.0	10	32	20
ML10210022	100.0	12	32	20
ML10210023	100.0	14	32	20
ML10210024	100.0	15	32	20
ML10210025	100.0	16	32	20
ML10210026	100.0	18	32	20
ML10210027	100.0	20	32	20
ML10212501	125.0	5	32	22
ML10212502	125.0	6	32	22
ML10212503	125.0	8	32	22
ML10212504	125.0	10	32	22

HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT

► The type of cutter is recommended for slotting operations.
 The alternate spiral effectively counteracts all tendency to chatter.

► Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende
 Spiral wirkt allen Schnatterbewegungen entgegen.

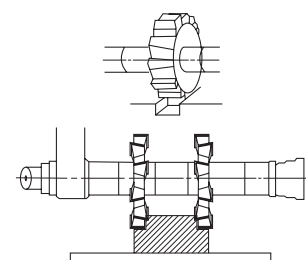


HSS-E DIN 885-A H P.996

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML10212505	125.0	12	32	22
ML10212506	125.0	14	32	22
ML10212507	125.0	16	32	22
ML10212508	125.0	18	32	22
ML10212509	125.0	20	32	22
ML10216001	160.0	6	32	26
ML10216002	160.0	8	32	26
ML10216003	160.0	10	32	26
ML10216004	160.0	12	32	26
ML10216005	160.0	14	32	26
ML10216006	160.0	16	32	26
ML10216007	160.0	18	32	26
ML10216008	160.0	20	32	26
ML10216009	160.0	6	40	26
ML10216010	160.0	8	40	26
ML10216011	160.0	10	40	26
ML10216012	160.0	12	40	26
ML10216013	160.0	14	40	26
ML10216014	160.0	16	40	26
ML10216015	160.0	18	40	26
ML10216016	160.0	20	40	26
ML10220001	200.0	10	40	30
ML10220002	200.0	12	40	30
ML10220003	200.0	14	40	30
ML10220004	200.0	16	40	30
ML10220005	200.0	18	40	30
ML10220006	200.0	20	40	30
ML10220007	200.0	22	40	30
ML10220008	200.0	25	40	30

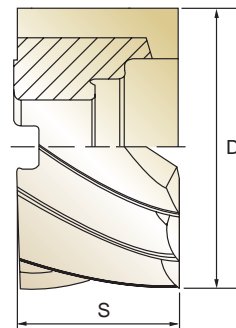
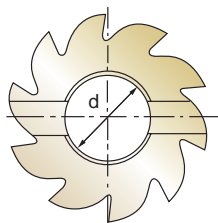
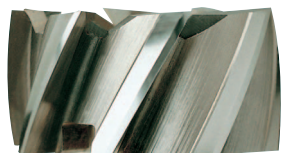
Tolerances according to DIN 7160 & 7161
 Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm									
	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120	over 120 to 180 über 120 bis 180	over 180 to 250 über 180 bis 250
Tolerance range in mm / Toleranzwerte in mm									
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
Tolerance range in µm / Toleranzwerte in µm									
k11	+ 75 0	+ 90 0	+ 110 0	+ 130 0	+ 160 0	+ 190 0	+ 220 0	+ 250 0	+ 290 0
H7	+ 12 0	+ 15 0	+ 18 0	+ 21 0	+ 25 0	+ 30 0	+ 35 0	+ 40 0	+ 46 0



HSSCo8, MULTI FLUTE SHELL END MILL

HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER



Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2675300	30.0	30	● 13	6
E2675350	35.0	35	● 16	6
E2675400	40.0	20	● 16	8
E2675402	40.0	40	● 16	8
E2675500	50.0	25	22	8
E2675502	50.0	50	22	8
E2675600	60.0	30	27	8
E2675601	60.0	60	27	8
E2675750	75.0	35	27	10
E2675751	75.0	75	27	10
E2675900	90.0	35	27	10
E2675902	110.0	35	32	10

● Tolerance of Internal Diameter = +0.018 - 0

▶ TiN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.



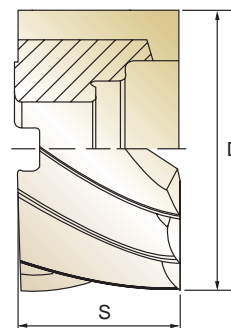
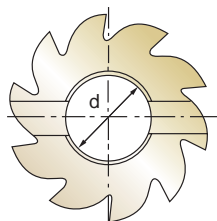
Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	
E2675401	40.0	32	● 16	8
E2675501	50.0	36	22	8
E2675630	63.0	40	27	8
E2675800	80.0	45	27	10
E2675901	100.0	50	32	10
E2675903	125.0	56	40	12
E2675904	160.0	63	50	14

● Tolerance of Internal Diameter = +0.018 - 0

▶ TiN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINUM
HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM


Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2676300	30.0	30	● 13	4
E2676400	40.0	20	● 16	4
E2676402	40.0	40	● 16	4
E2676500	50.0	25	22	6
E2676502	50.0	50	22	6
E2676600	60.0	30	27	6
E2676601	60.0	60	27	6
E2676750	75.0	75	27	6

● Tolerance of Internal Diameter = +0.018 - 0
 ▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.



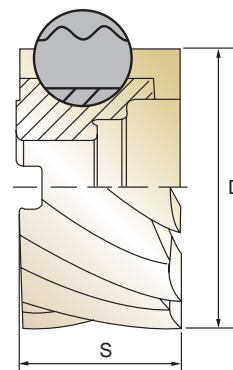
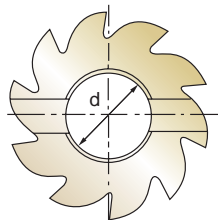
Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2676401	40.0	32	● 16	4
E2676501	50.0	36	22	6
E2676630	63.0	40	27	6
E2676800	80.0	45	27	6
E2676901	100.0	50	32	6

● Tolerance of Internal Diameter = +0.018 - 0
 ▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - COARSE
HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFÄRÄSER - GROBES



HSS Co8
DIN 841
NR
COARSE
6-12
30°

P.998

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2677401	40.0	40	● 16	6
E2677501	50.0	50	22	8
E2677600	60.0	30	27	8
E2677601	60.0	60	27	8
E2677750	75.0	35	27	10
E2677751	75.0	75	27	10
E2677900	90.0	35	27	10
E2677902	110.0	35	32	12

● Tolerance of Internal Diameter = +0.018 - 0
 ▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8
DIN 1880
NR
COARSE
6-12
30°

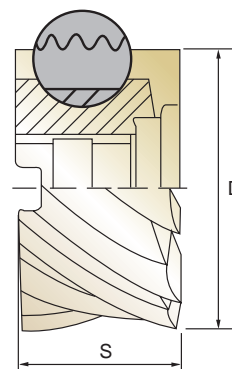
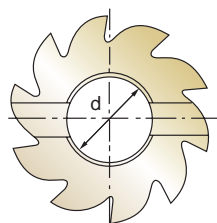
P.998

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2677400	40.0	32	● 16	6
E2677500	50.0	36	22	8
E2677630	63.0	40	27	8
E2677800	80.0	45	27	10
E2677901	100.0	50	32	10
E2677903	125.0	56	40	12
E2677904	160.0	63	50	12

● Tolerance of Internal Diameter = +0.018 - 0
 ▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - FINE
HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFÄRÄSER - FEINES


HSS Co8
DIN 841
HR
FINE
6-12
30°
P.998

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	Z
E2678401	40.0	40	● 16	6
E2678501	50.0	50	22	8
E2678600	60.0	30	27	8
E2678601	60.0	60	27	8
E2678750	75.0	35	27	10
E2678751	75.0	75	27	10
E2678900	90.0	35	27	10
E2678902	110.0	35	32	12

- Tolerance of Internal Diameter = +0.018 - 0
- ▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8
DIN 1880
HR
FINE
6-12
30°
P.998

Unit : mm

EDP No.	Mill Diameter	Width of Face	Internal Diameter	No. of Teeth
	D	S	d	Z
E2678400	40.0	32	● 16	6
E2678500	50.0	36	22	8
E2678630	63.0	40	27	8
E2678800	80.0	45	27	10
E2678901	100.0	50	32	10
E2678903	125.0	56	40	12
E2678904	160.0	63	50	12

- Tolerance of Internal Diameter = +0.018 - 0
- ▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL
HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

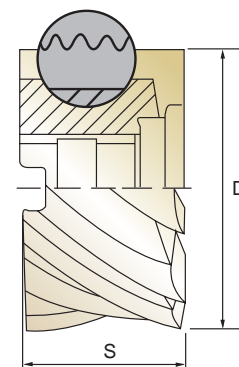
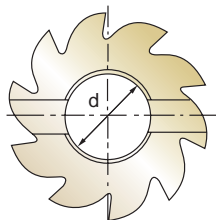
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



HSS Co8
DIN 841
NF
ROUGHING & FINISHING
6-12
30°
P.998

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2679401	40.0	40	● 16	6
E2679501	50.0	50	22	8
E2679600	60.0	30	27	8
E2679601	60.0	60	27	8
E2679750	75.0	35	27	10
E2679751	75.0	75	27	10
E2679900	90.0	35	27	10
E2679902	110.0	35	32	12

- Tolerance of Internal Diameter = +0.018 - 0
- ▶ TiN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.

HSS Co8
DIN 1880
NF
ROUGHING & FINISHING
6-12
30°
P.998

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2679400	40.0	32	● 16	6
E2679500	50.0	36	22	8
E2679630	63.0	40	27	8
E2679800	80.0	45	27	10
E2679901	100.0	50	32	10
E2679903	125.0	56	40	12
E2679904	160.0	63	50	12

- Tolerance of Internal Diameter = +0.018 - 0
- ▶ TiN-COATING, TiCN-COATING & TiAIN-COATING is available on your request.

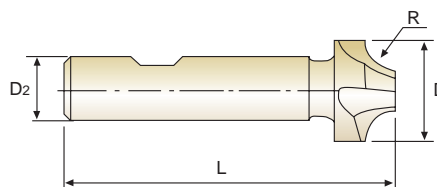
Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 - 0.15	+ 0.5 - 0	+ 0.02 - 0

HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS

HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER

► These tools can be adapted for many screw machine applications as end forming tools to form a specific radius.

► Dieses Werkzeug kann an vielen Scrow maschine als Finishingtool für spezielle Radien montiert werden.



Unit : mm

EDP No.	Radius	Outside Diameter	Shank Diameter	Overall Length
FLAT	R(H11)	D	D2(h6)	L
E2498010	R1.0	8.0	10	60
E2498015	R1.5	9.0	10	60
E2498020	R2.0	10.0	10	60
E2498025	R2.5	11.0	10	60
E2498030	R3.0	12.0	12	60
E2498035	R3.5	13.0	12	60
E2498040	R4.0	14.0	12	60
E2498045	R4.5	15.0	12	60
E2498050	R5.0	16.0	12	60
E2498055	R5.5	19.0	16	67
E2498060	R6.0	20.0	16	67
E2498065	R6.5	21.0	16	71
E2498070	R7.0	22.0	16	71
E2498075	R7.5	23.0	16	71
E2498080	R8.0	24.0	16	71
E2498085	R8.5	25.0	25	85
E2498090	R9.0	26.0	25	85
E2498095	R9.5	27.0	25	85
E2498100	R10.0	28.0	25	85
E2498105	R10.5	31.0	25	90
E2498110	R11.0	32.0	25	90
E2498120	R12.0	34.0	25	90
E2498125	R12.5	41.0	25	100
E2498130	R13.0	42.0	25	100
E2498140	R14.0	44.0	25	100
E2498150	R15.0	46.0	25	100
E2498160	R16.0	48.0	25	100
E2498180	R18.0	52.0	32	112
E2498200	R20.0	56.0	32	112

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
Tolerance range in μm / Toleranzwerte in μm						
H11	+60 0	+75 0	+90 0	+110 0	+130 0	+160 0
h6	-6	-8	-9	-11	-13	-16

► TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.


HSS-E, DOVETAIL CUTTERS TYPE "A", "C", "E"
HSS-E, WINKELFRÄSER FORM "A", "C", "E"
ML012, ML112, ML022, ML122, ML212, ML222 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
16.0	615	110	305	57	215	40	160	20	1850	336
20.0	500	110	255	55	180	38	125	15	1350	324
25.0	380	80	190	47	135	30	100	16	1150	270
32.0	300	125	155	64	100	40	80	16	920	375
40.0	250	130	125	64	90	45	60	16	765	387
50.0	190	90	100	42	75	36	50	16	550	265
63.0	150	75	80	40	60	32	40	15	450	240

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

HSS-E, DOVETAIL CUTTERS TYPE "B", "D", "F"
HSS-E, WINKELFRÄSER FORM "B", "D", "F"
ML032, ML132, ML042, ML142, ML232, ML242 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
16.0	615	110	305	57	215	40	160	20	1850	336
20.0	500	110	255	55	180	38	125	15	1350	324
25.0	380	80	190	47	135	30	100	16	1150	270
32.0	300	125	155	64	100	40	80	16	920	375

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

HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE "B", "D", "F"
HSS-E, SCHLITZFRÄSER FORM "B", "D", "F"

ML062, ML162, ML262 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	ALUMINUM & ALUMINUM ALLOYS
HARDNESS		~ HRc20	HRc20 ~ HRc30	HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²	500 ~ 800N/mm ²	800 ~ 1000N/mm ²	1000 ~ 1300N/mm ²	
DIAMETER	RPM	RPM	RPM	RPM	RPM
10.5	900	600	480	300	3000
13.5	700	470	370	230	2300
16.5	570	380	300	190	1900
19.5	480	320	260	160	1600
22.5	420	280	220	140	1400
28.5	330	220	180	110	1100
32.5	290	190	155	90	900
45.5	210	130	110	70	700

RPM = rev./min.

HSS-E, T-SLOT CUTTERS TYPE "AA", "AB", "AD"
HSS-E, SCHAFTERFRÄSER FÜR T-NUTEN FORM "AA", "AB", "AD"

ML072, ML172, ML272 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRc20		HRc20 ~ HRc30		HRc30 ~ HRc40	
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
12.5	770	38	380	16	270	8	2350	110
16.0	600	45	300	19	210	9	1830	140
18.0	550	47	270	20	195	12	1680	150
19.0	500	50	250	20	180	15	1540	160
21.0	470	52	230	22	160	16	1430	165
22.0	440	55	220	25	150	17	1330	170
25.0	390	65	190	30	135	18	1170	180
28.0	345	75	170	38	120	20	1040	210
32.0	310	90	150	42	100	20	910	250
50.0	270	80	135	40	90	20	800	230
63.0	240	70	120	38	85	20	730	210

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



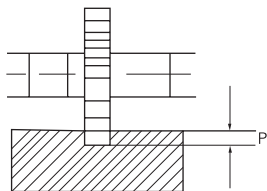
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-E, SIDE AND FACE MILLING CUTTERS WITH STRAIGHT TEETH
HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT

ML092 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
50.0	160	130	115	82	95	58	76	42	630	200
63.0	125	160	90	72	75	51	60	38	500	250
80.0	100	145	70	69	60	48	47	34	400	250
100.0	80	130	60	60	47	41	38	30	320	200
125.0	63	100	45	54	38	38	30	26	250	200

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



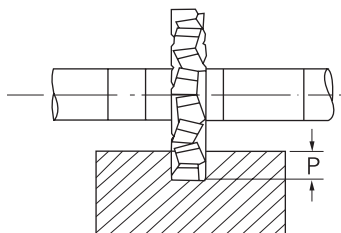
MILLING DEPTH P = WIDTH OF FACES

HSS-E, SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH
HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT

ML102 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS			~ HRC20		HRC20 ~ HRC30		HRC30 ~ HRC40			
STRENGTH	~ 500N/mm ²		500 ~ 800N/mm ²		800 ~ 1000N/mm ²		1000 ~ 1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
50.0	160	130	115	85	95	58	76	42	630	200
63.0	125	160	90	75	75	51	60	38	500	250
80.0	100	145	70	69	60	48	47	34	400	250
100.0	80	130	60	60	47	41	38	30	320	200
125.0	63	100	45	54	38	38	30	26	250	200
160.0	50	105	37	48	30	34	23	24	200	150
200.0	40	95	31	45	25	31	19	22	160	150

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

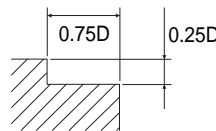


MILLING DEPTH P = WIDTH OF FACES

HSSCo8, MULTI FLUTE SHELL END MILL
HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER

E2675 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS	
HARDNESS	~ HRc20		HRc20 ~ HRc28		HRc28 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 800N/mm ²		800 ~ 900N/mm ²		900 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
40.0	240	135	200	120	140	80	80	50
50.0	200	125	170	105	120	75	70	45
63.0	150	110	130	95	90	65	50	40
80.0	120	120	100	100	80	75	40	40
100.0	100	115	80	95	60	70	30	35
125.0	80	115	70	95	50	65	20	35
160.0	60	110	60	100	40	65	20	35



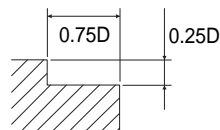
※ The FEED, in long & extra long types, should be reduced by around 50%

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

HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINUM
HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM

E2676 SERIES

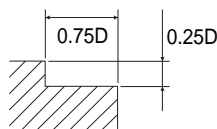
MATERIAL	ALUMINUM, NONFERROUS METALS	
DIAMETER	RPM	FEED
30.0	135	75
40.0	120	105
50.0	105	135
60.0	85	120
63.0	75	120
75.0	70	120
80.0	60	120
100.0	45	105



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

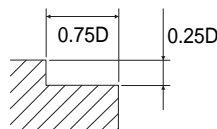

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL
HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER
E2677, E2678 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc28		HRc28 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 800N/mm ²		800 ~ 900N/mm ²		900 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
40.0	240	100	200	85	140	60	80	35
50.0	200	125	170	105	120	75	70	45
63.0	150	110	130	95	90	65	50	40
80.0	120	120	100	100	80	75	40	40
100.0	100	115	80	95	60	70	30	35
125.0	80	115	70	95	50	65	20	35
160.0	60	110	60	100	40	65	20	35


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

HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL
HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER
E2679 SERIES

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM & ALUMINUM ALLOYS	
HARDNESS	~ HRc20		HRc20 ~ HRc28		HRc28 ~ HRc35		HRc35 ~ HRc40	
STRENGTH	~ 800N/mm ²		800 ~ 900N/mm ²		900 ~ 1100N/mm ²		1100 ~ 1300N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
40.0	240	100	200	85	140	60	80	35
50.0	200	125	170	105	120	75	70	45
63.0	150	110	130	95	90	65	50	40
80.0	120	120	100	100	80	75	40	40
100.0	100	115	80	95	60	70	30	35
125.0	80	115	70	95	50	65	20	35
160.0	60	110	60	100	40	65	20	35


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

HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS
HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER

E2498 SERIES

MATERIAL		ALUMINUM & ALUMINUM ALLOYS	CARBON STEELS ALLOY STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS
HARDNESS				~ HRc20	HRc20 ~ HRc35
STRENGTH			~ 500N/mm ²	500 ~ 800N/mm ²	800 ~ 1100N/mm ²
OUTSIDE DIAMETER	CORNER RADIUS	RPM	RPM	RPM	RPM
8.0	R1	3500	800	600	480
9.0	R1.5	2800	630	470	380
10.0	R2	2800	630	470	380
11.0	R2.5	2400	530	390	315
12.0	R3	2400	530	390	315
14.0	R4	2000	450	330	270
16.0	R5	1600	350	260	210
20.0	R6	1400	310	230	185
24.0	R8	1200	260	190	155
28.0	R10	950	210	155	125
34.0	R12	800	180	130	105
48.0	R16	600	130	95	75

RPM = rev./min.

CARBIDE

HSS

CBN
END MILLS

i-Xmill
END MILLS

X5070
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill INOX
END MILLS

V7 Mill STEEL
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

K-2 CARBIDE
END MILLS

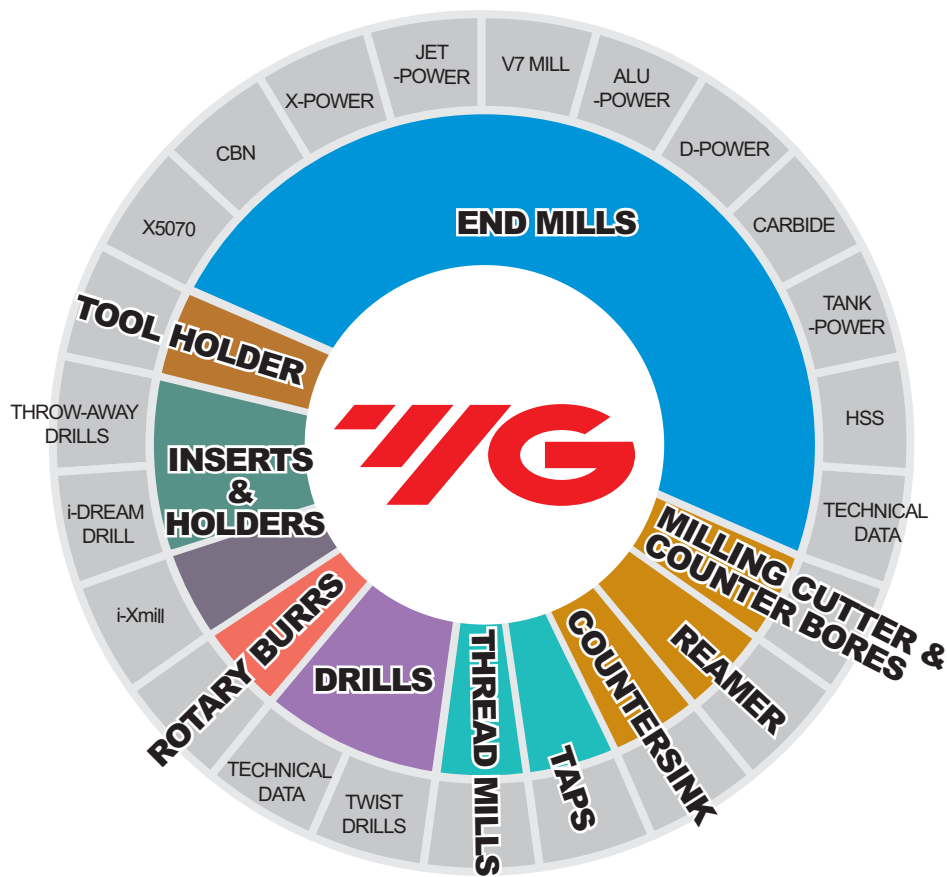
GENERAL
CARBIDE
END MILLS

TANK-POWER
END MILLS

GENERAL
HSS
END MILLS

MILLING
CUTTERS

TECHNICAL
DATA



Challenge toward a Global Leader-
YG-1 Leads the World Market.

END MILLS



Being the best through innovation

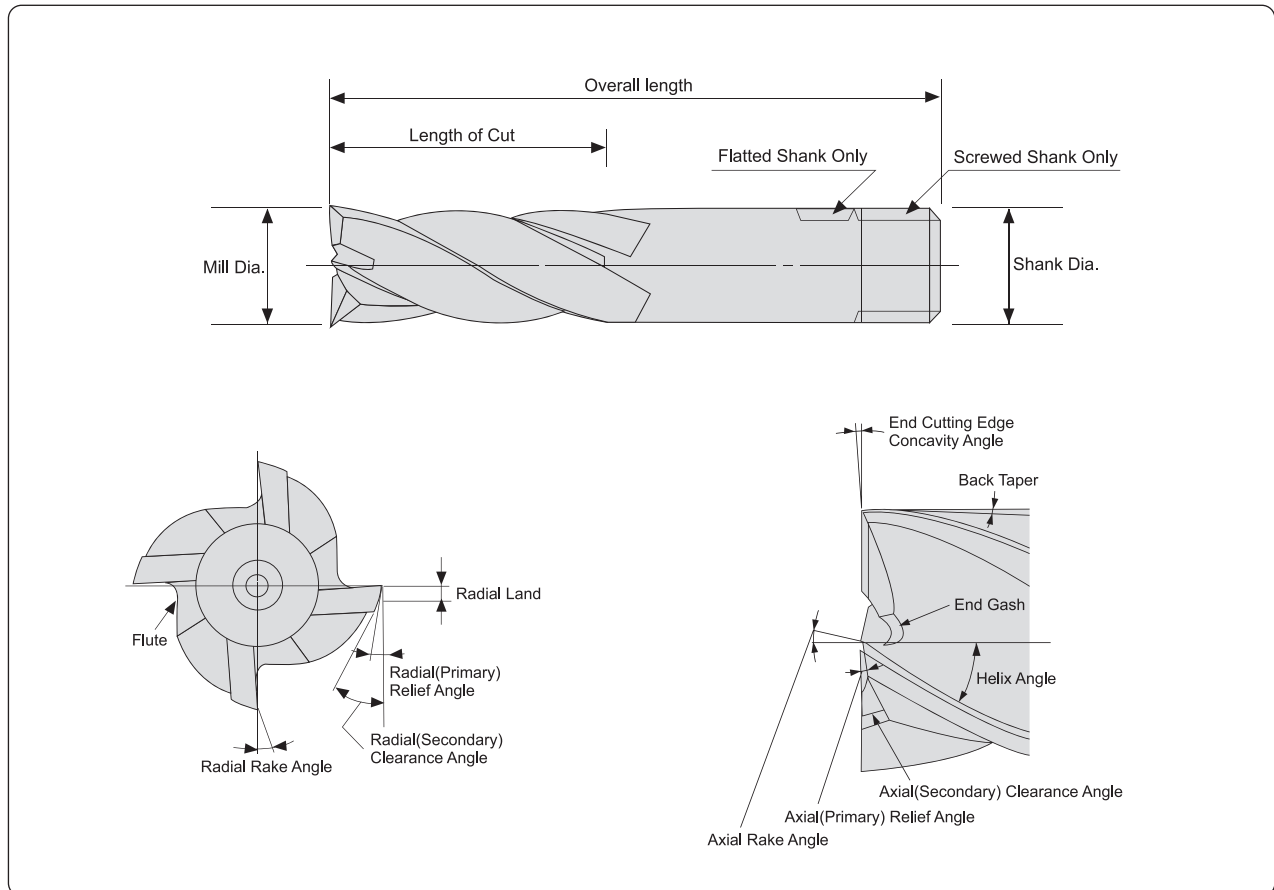


TECHNICAL DATA

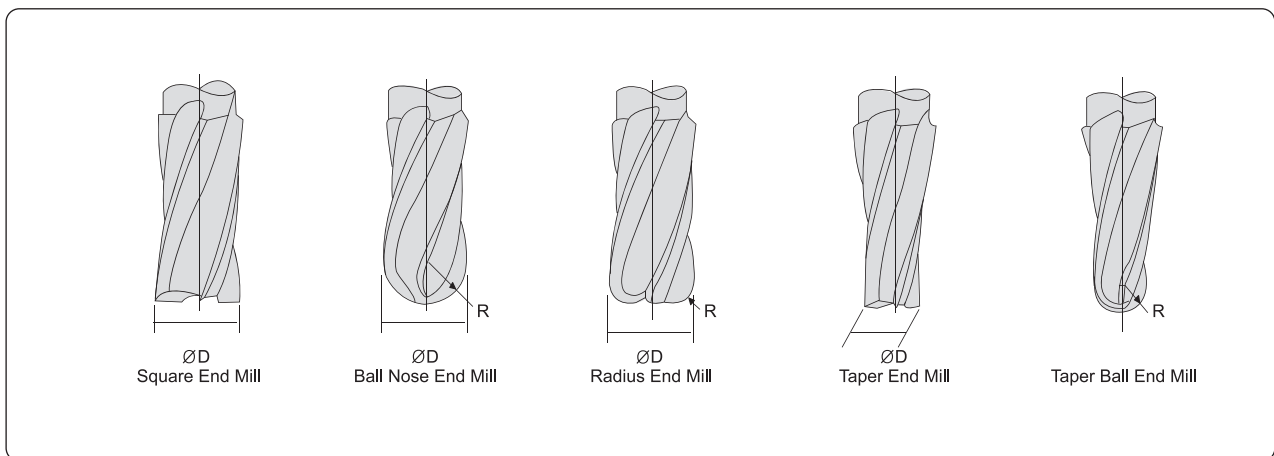
TECHNISCHE DATEN



Names of End Mill Parts
Erläuterung der Fräser Teile

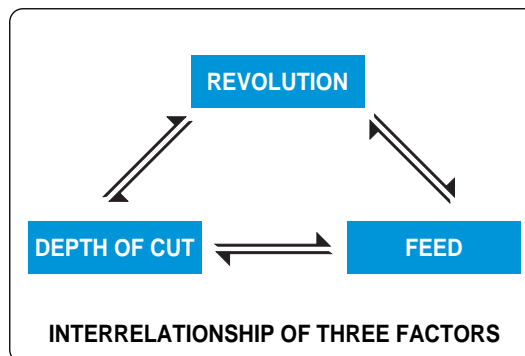


Type of End Mill
Fräser Typen



Speed, feed and depth of cut are the most important factors to consider for best results in milling. Improper feeds and speeds often cause low production, poor work quality and unnecessary damage to the cutter. This section covers the basic principles of speed and feed selection for milling cutters and end mills. It will serve as a guide in setting-up new milling jobs.

Geschwindigkeit, Vorschub und Schnitttiefe sind die wichtigsten Faktoren, um das beste Fräsergebnis zu erzielen. Ungeeignete Vorschübe und Geschwindigkeiten verursachen oft niedrige Produktivität, schlechte Bearbeitungsqualität und unnötige Beschädigung des Fräasers. Dieser Abschnitt beinhaltet die Basisprinzipien von Geschwindigkeit- und Vorschubauswahl für Fräser und Scheibenfräser. Dieser Abschnitt sollte als ein Setting up-Führer neuer Fräsaufgaben dienen.



3 SPEEDS Geschwindigkeit

In milling, SPEED is measured in peripheral feet per minute. (revolution per minute times cutter circumference in feet) This is frequently referred to as "peripheral speed" "cutting speed" or "surface speed".

Beim Fräsen, Geschwindigkeit ist gemessen in Bogenlänge pro Minute. Dies wird oft als 'peripheral speed', 'cutting speed' oder 'surface speed' bezeichnet.

$$N = \frac{1000V}{\pi \times D}$$

Revolutions per Minute / Umdrehung pro Minute

V : Cutting Speed(m/min) / Schneidgeschwindigkeit
 D : Diameter of Tool(mm) / Werkzeugdurchmesser
 N : Revolution per minute(rev/min) / Umdrehung pro Minute
 π : 3.1416

They will have to be tempered to suit the conditions ON THE JOB. For example:
 Dies muß der jeweiligen Aufgabe angepaßt werden. Zum Beispiel:

Use Lower Speed Ranges for Niedrig Geschwindigkeitsbereiche für
Hard materials / Hartes Material
Tough materials / Rauhes Material
Abrasive materials / Abrasives Material
Heavy cuts / Heavy cut
Minimum tool wear / Minimale Werkzeugabnutzung
Maximum cutter life / Maximale Standzeit

Use Higher Speed Ranges for Hohe Geschwindigkeitsbereiche für
Softer materials / Weiches Material
Better finishes / Bessere Oberflächengüte
Smaller diameter cutters / Kleinere Fräserdurchmesser
Light cuts / Light cut
Frail work pieces or set-ups / Zerbrechliche Stücke oder Set-up
Hand feed operations / Handarbeit
Maximum production rates / Maximale Produktivität
Non-metallics / Nichtmetallische Werkstoffe

4 FEEDS Vorschub

Feed is usually measured in millimeters per minute. It is the product of feed per tooth times revolution per minute times the number of teeth in the cutter. Due to variations in cutter sizes, numbers of teeth and revolutions per minute, all feed rates should be calculated from feed per tooth. Feed per tooth is the basis of all feed rates per minute, whether the cutters are large or small, fine or coarse tooth, and are run at high or low peripheral speed. Because feed per tooth affects chip thickness. It is a very important factor in cutter life. Highest possible feed per tooth will usually give longer cutter life between grinds and greater production per grind. Excessive feeds may overload the cutter teeth and cause breakage or chipping of the cutting edges. The following factors should be kept in mind when using the recommended starting feed per tooth.

Vorschub wird meist in Millimeter pro Minute gemessen. Er ist das Produkt von Vorschub pro Zahn, Umdrehung pro Minute oder der Anzahl der Zähne am Werkzeug. Aufgrund der Variationen in Fräsergrößen, Anzahl der Zähne und Umdrehungen pro Minute, Vorschübe sollten mit Vorschub pro Zahn gerechnet werden. Vorschub pro Zahn ist die Basis für alle Vorschubraten pro Minute unabhängig davon, ob die Fräser groß, klein, mit Fein- oder Grobgewinde und mit hoher- oder niedriger Bogengeschwindigkeit arbeiten. Vorschub pro Zahn beeinflusst Spandicke, was für ein Werkzeug ein sehr wichtiger Faktor ist. Höchstmöglicher Vorschub pro Zahn verursacht meist längeres Werkzeugleben zwischen Abnutzung und Produktivität pro Abnutzung. Exzessiver Vorschub dagegen wird den Werkzeugzahn überbelasten und Beschädigungen oder Abbröckelungen von Schneidkanten verursachen. Bei der Nutzung von empfohlenen Vorschüben pro Zahn sollten folgende Faktoren berücksichtigt werden.



Feed in milimeters per Minute / *Vorschub in Milimeter pro Minute*

$$F.M = F.R. \times R.P.M$$

F.R. : Feed per Revolutions in milimeters / *Vorschub pro Umdrehungen pro Minute*

R.P.M. : Revolutions per Minutes / *Umdrehungen pro Minute*

The following factors should be kept in mind when using the recommended stating feed per tooth.

Die folgenden Faktoren sind beim Einsatz der Vorschübe pro Zahn zu berücksichtigen.

Use Higher Feeds For

Höherer Vorschub für

Heavy, roughing cuts / *Heavy cut, Schruppfräsen*
Rigid set-ups / *Robustes Werkstück*
Easy-to-machine work materials / *Leicht fräsbares Material*
Rugged cutters / *Robuster Fräser*
Slab milling cuts / *Scheibenfräsen*
Low tensile strength materials / *Material von niedriger Zugfestigkeit*
Coarse tooth cutters / *Grobgewinde-Fräser*
Abrasive materials / *Abrasives Material*

Use Lower Feeds For

Niedrigerer Vorschub für

Light, and finishing cuts / *Light cut, Finishing cut*
Frail set-ups / *Zerbrechliches Material*
Hard to machine work materials / *Schwer fräsbares Material*
Frail and small cutters / *Dünne, kleine Fräser*
Deep slots / *Tiefnuten*
High tensile strength materials / *Material von hoher Zugfestigkeit*
Fine tooth cutters / *Feingewinde-Fräser*

**SPEED AND FEED CALCULATIONS
FOR MILLING CUTTERS AND OTHER ROTATING TOOLS**

TO FIND	HAVING	FORMULA
Surface(or Periphery) Speed in meter Per Minute=S.F.M.	Diameter of Tool in milimeters =D Revolutions per Minute =R.P.M.	$V = \frac{D \times 3.1416 \times R.P.M.}{1000}$
Revolutions Per Minute=R.P.M.	Surface Speed in meter per Minute =S.F.M. Diameter of Tool in milimeters =D	$R.P.M. = \frac{V \times 1000}{D \times 3.1416}$
Feed per Revolution in milimeters-F.R.	Feed in milimeters per Minute =F.M. Revolution per Minute =R.P.M.	$F.R. = \frac{F.M.}{R.P.M.}$
Feed in milimeters Per Minute-F.M.	Feed per Revolution in milimeters =F.R. Revolution per Minute =R.P.M.	$F.M. = F.R. \times R.P.M.$
Number of Cutting Teeth per Minute=T.M.	Number of Teeth in Tool =T Revolution per Minute =R.P.M.	$T.M = T \times R.P.M.$
Feed per tooth=F.T.	Number of Teeth in Tool =T Feed per Revolution in milimeters =R.P.M.	$F.T. = \frac{F.R.}{T}$
Feed per Tooth=F.T.	Number of Teeth in Tool =T Feed in milimeters per Minute =F.M. Speed in Revolution per Minute =R.P.M.	$F.T. = \frac{F.M.}{T \times R.P.M.}$

5 CASE OF RESHARPENING
Nachschleiffälle

When the product finish become worse, the cutting edge must get dulled, chips become smaller and the cutting sound gets louder. In such cases, a end mill must be resharpened. The following are the damages of end mills when the resharpening is required.

Wenn die Schneidkante abstumpft, verschlechtert sich die Bearbeitungsqualität, Span wird kürzer und das Fräsgeräusch wird lauter. In solchen Fällen muß der Fräser nachgeschliffen werden. Folgend sind Beschädigungen an Fräser, die das Nachschleifen nötig machen.

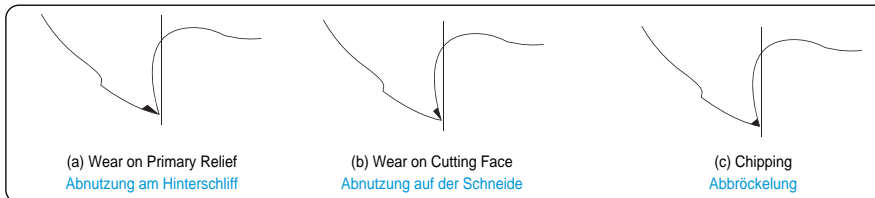


Fig. 1. Damages of Cutting Edge

6 SHARPEN AT PREDETERMINED WEAR LAND
Schleifen bei vorbestimmten Abnutzungsflächen

Cutters should be sharpened as soon as the wear land(Fig. 2.) reaches a predetermined width. This width should permit sharpening without excessive loss of tool life. it may vary from a few hundreds to some tenth of a millimeter, depending on the type of cutter and the finish required on the product. This method is used on production runs where uneven amounts of stock is removed or where the material varies in machinability. It is also used on small quantity product lots.

Fräser sollten nachgeschliffen werden, so bald die Abnutzungsfläche die vorbestimmte Breite erreicht. Diese Breite sollte ein Schleifen ohne exzessive Verlust der Werkzeuglebensdauer ermöglichen. Sie variiert, in Abhängigkeit von Werkzeugtypen und benötigtem Finish, von Hundertstel bis einigen Zehntel Millimeter. Diese Methode wird in Prozeßen angewandt, in denen variierende Mengen von Werkstoffen abgefräst oder Materialien verschiedener Fräsbarkeiten bearbeitet werden. Ebenso in Produktionen kleiner Losgrößen.

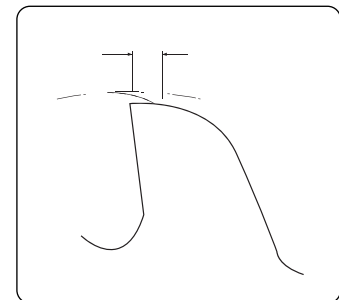


Fig. 2. Wear Land

7 RESHARPENING PERIPHERAL CUTTING EDGE
Nachschleifen von Peripher-Schneidkanten

1 RESHARPENING PERIPHERAL CUTTING EDGE
Nachschleifen von Primärschneide

The geometry of relief angle in an end mill consist of three methods as shown in Fig.3 concave, flat, and eccentric. Recently, most end mills have the eccentric relief(eccentric sharpening). In this method, since the relief is formed an eccentric arc surface in cylindrical grinding method, the roughness of the finished surface of the relief improves and the strength of cutting edge increase at the same time.(Fig.4) As a result, the tool life is improved.

Die Geometrie von Hinterschliffwinkel in einem Fräser hat, wie in Fig. 3 gezeigt, 3 verschiedene Variationen : Konkav, Flach und Exzentrisch. In letzter Zeit, die meisten Fräser haben die exzentrische Form. In dieser Methode verbessern sich Oberflächengüte der bearbeiteten Fläche und die Stärke der Schneidkanten gleichzeitig, was eine Verlängerung der Werkzeuglebensdauer zur Folge hat.

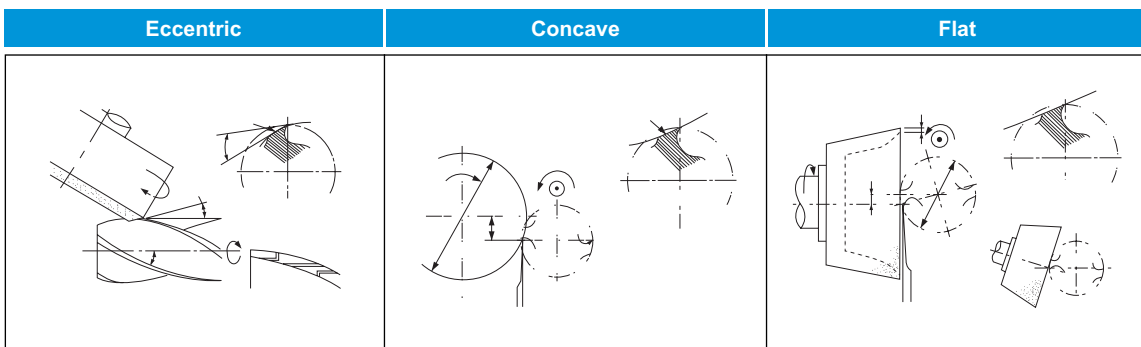


Fig. 3. Three Types of Primary Relief

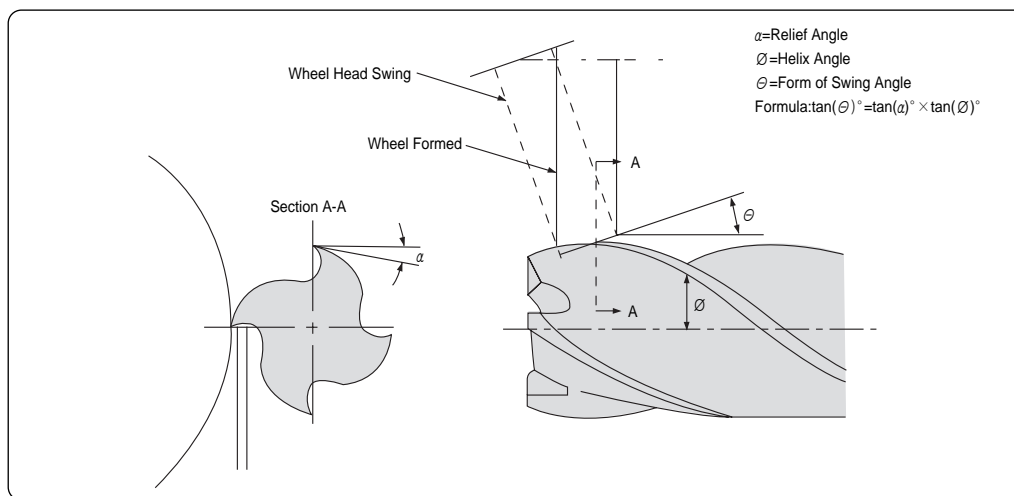


Fig. 4. Tothing of Eccentric Relief Angle

2 ANGLE OF WHEEL INCLINATION

Winkel der Radneigung.

Eccentric relief is produced with a plain wheel positioned with its axis parallel or at a slight angle with the cutter axis. The degree of relief is varied by changing the angle of wheel inclination.

Exzentrischer Hinterschliff wird mit einer, mit der eigenen Achse zur Fräsachse parallelen oder nur geringfügig geneigten Schleifscheibe produziert. Das Grad des Hinterschliffs variiert mit dem Einstellwinkel der Schleifscheiben Einstellung.

Table 1. RECOMMENDED RELIEF ON END MILLS

Mill Diameter (mm)	Eccentric relief indicator drop for relief Angles shown		Checking Distance	Wheel Angles(Deg.) θ			Radial Relief Angles(α 1)	Clearance Angles(α 2)
	Min	Max.		15° Helix	30° Helix	60° Helix		
-	Min	Max.	-	*Angle	*Angle	*Angle	*Angle	*Angle
3.0	0.100	0.130	0.40	4°24'	9°25'	26°28'	16°02'	25°
6.0	0.090	0.125	0.50	3°18'	7°05'	20°25'	12°08'	25°
12.0	0.100	0.135	0.65	2°46'	5°46'	17°23'	10°15'	25°
25.0	0.095	0.140	0.80	2°15'	4°15'	14°16'	8°21'	25°
40.0	0.085	0.125	0.80	2°01'	4°33'	12°48'	7°29'	25°
50.0	0.085	0.125	0.80	2°01'	4°33'	12°48'	7°29'	25°

The actual at the radial relief angle is normally kept within the range shown but may be varied to suit the cutter material, the work material and the operating conditions.

Die Freiwinkel sind normalerweise in den angegebenen Maßen, sie schwanken je nach Werkzeug, Werkstück und den Einsatzbedingungen

*Angle is calculated from the basic mean at the radial angle.

Der Winkel wird von der Hauptschneide zum Radialwinkel gemessen.

8 RESHARPENING END TEETH Nachschleifen des Endzahns

The three necessary operations and one option feature, along with setup suggestions are shown in Fig.5 A to D in each drawing, the shaded area indicates the surface being ground.

Die drei nötigen Operationen und eine Option werden, zusammen mit einem Rüstvorschlag, in Bild 5 A bis D gezeigt. Die dunklen Flächen zeigen Bereiche an, die nachgeschliffen werden.

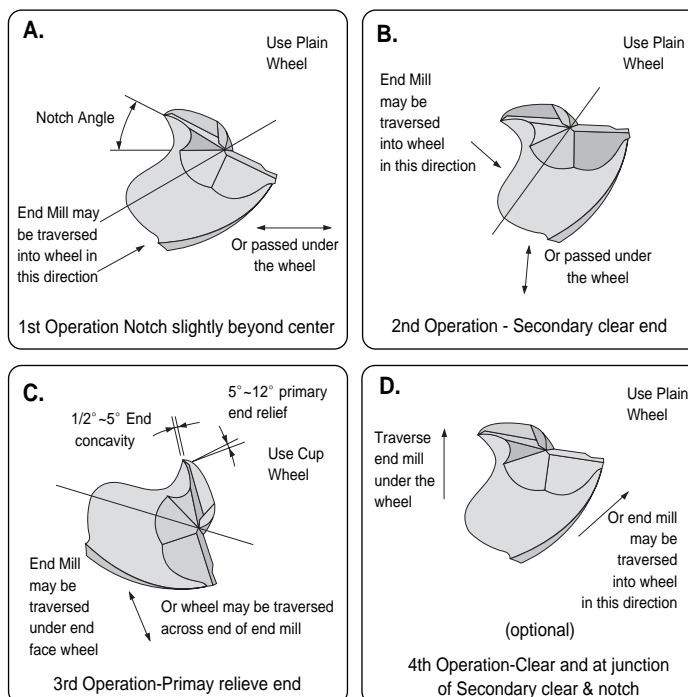


Fig 5. PROCEDURE FOR SHARPENING END OF 2 FLUTE SQUARE END MILLS

9 INSPECTION Inspektion

The inspection is calculated by using the formula shown in Table 1.

Procedure To Check
Radial Relief Angles
With Indicators.

1. Mount the cutter to rotate freely with no end movement.
2. Adjust the sharp pointed indicator to bear at the very tip of the cutting edge, pointing in a radial line, shown in Figure 6
3. Roll the cutter the tabulated amount gives under "checking distance" using the second indicator as control.
4. Consult chart for amount of drop for the particular diameter and relief angle.

Die Inspektion wird aufgrund der Formel aus der Tabelle 1 durchgeführt.

Prozedur, um mit Indikator radialen Hinterschliffwinkel zu messen.

1. Fräser so montieren, daß er frei rotiert ohne sich seitlich zu bewegen.
2. Indikator so justieren, daß der Stab, in radiale Richtung zeigend, am äußersten Rand der Schneidkante angelegt ist (Bild 6).
3. Den Fräser um tabellierte 'Checking distance' rollen. Einen zweiten Indikator zur Kontrolle einsetzen.
4. Um den 'Drop' für den gemessenen Durchmesser und Hinterschliffwinkel zu erhalten, Chart konsultieren.

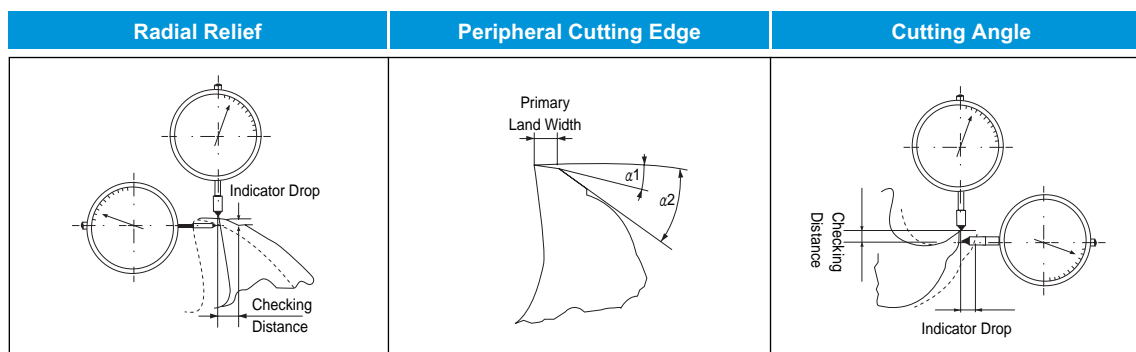


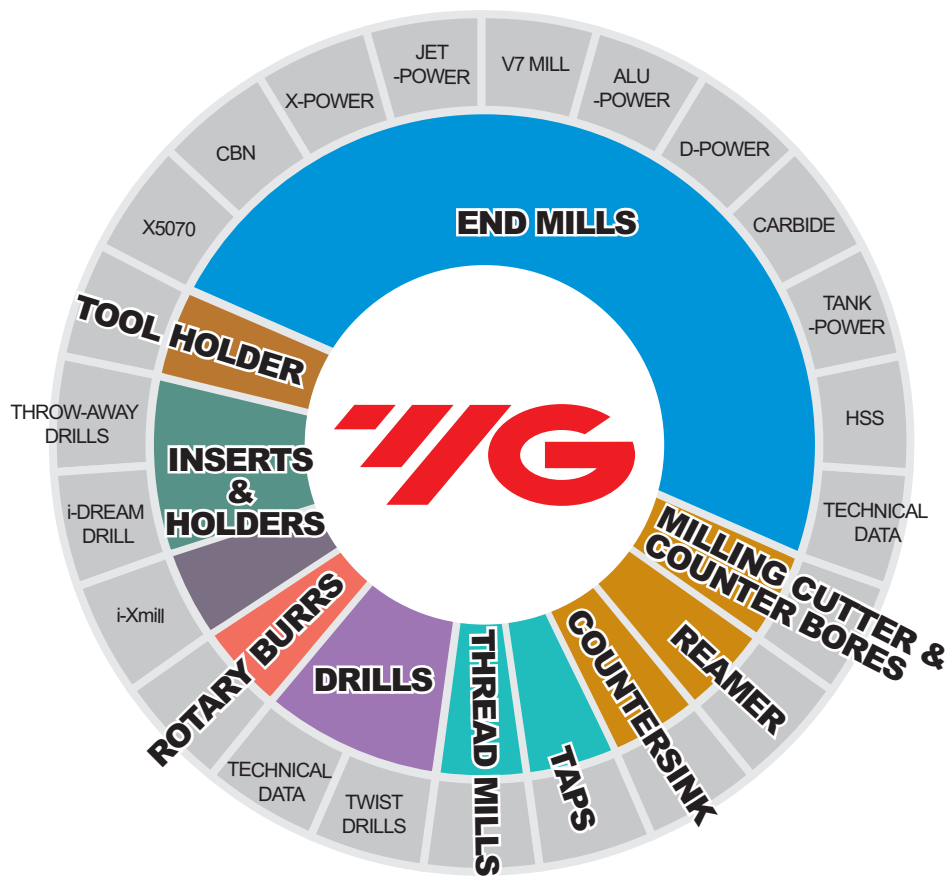
Fig. 6. Indicator Set-Up for Checking



10 Troubleshooting in Endmilling Problemlösung bei Fräsen

Trouble Problem	Occurrences of trouble Auftreten des Problems	Countermeasures Gegenmaßnahmen
Breaking of tool Werkzeugbruch	<ul style="list-style-type: none"> At time of engaging with work material Beim Eintritt in das Werkstück When ending cut Beim Austritt aus dem Werkstück 	<ol style="list-style-type: none"> Decrease feed rate. / Vermindern von Vorschub Decrease projection amount / Schnitttiefe verringern Shorten cutting edge length to required minimum limit Eingriffslänge reduzieren
	<ul style="list-style-type: none"> During normal cutting Während des Fräsens 	<ol style="list-style-type: none"> Decrease feed rate / Vorschub mindern Control wear → replace tool early Abnutzung kontrollieren - Werkzeug frühzeitig ersetzen Replace chuck or collet / Chuck oder Collet ersetzen Decrease projection amount / Schnitttiefe verringern Carry out honing / Nachschleifen If 4 flute, reduce to 2 flute(clogging of chipping) Wenn 4 Schneiden, zu 2 Schneiden verkleinern If dry cutting change to wet cutting utilize cutting fluid. In case of wet cutting flow oil supplied from the front, change to from rear angle of side top. Use ample with rate. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlfüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten
	<ul style="list-style-type: none"> When changing direction of feed Wenn Vorschubrichtung geändert wird 	<ol style="list-style-type: none"> Utilize circular interpolation(in case of NC machine) or temporarily stop feed(Dowelling) Circular interpolation benutzen(bei NC-Maschinen) oder Vorschub vorübergehend stoppen. Reduce feed rate before and after change of directions Vor und nach dem Richtungswechsel den Vorschub mindern Replace chuck or collect / Chuck oder Collet ersetzen,
Fracture of cutting edge Beschädigung der Schneidkante	<ul style="list-style-type: none"> Fracture of corners Eckenbruch 	<ol style="list-style-type: none"> Carry out chamfering or nose with hand lapper. Mit Handlapper eine Abschrägung durchführen. Down cut → Up cut / Down cut → Up cut
	<ul style="list-style-type: none"> Fracture at boundary of depth of cut Beschädigung an der Schneidtiefgrenze 	<ol style="list-style-type: none"> Down cut → Up cut / Down cut → Up cut Reduce cutting speed / Schneidgeschwindigkeit mindern
	<ul style="list-style-type: none"> Chipping at center part or overall Abbröckelung an der Hauptschneide oder überall 	<ol style="list-style-type: none"> Carry out honing. Or enlarge. / Nachschleifen oder erweitern Change number of rotation(in case machine vibrates) Drehzahl ändern(wenn Maschine vibriert). Increase cutting speed / Fräsgeschwindigkeit erhöhen. In ease of squeaking noise during cutting, increase feed. Wenn quitschendes Fräsgeräusch zu vernehmen, Vorschub erhöhen. If dry cutting use cutting fluid or blow air. Wenn Trockenfräsen, Kühlfüssigkeit oder Luft zuführen Replace chuck or collet / Chuck oder Collet auswechseln. Reduce cutting speed / Fräsgeschwindigkeit reduzieren.
Large fracturing of cutting edge Größere Beschädigung an Schneidkanten	<ul style="list-style-type: none"> Large fracturing of cutting edge Größere Beschädigung an Schneidkanten 	<ol style="list-style-type: none"> Decrease feed rate / Vorschub mindern. If 4 flute reduce to 2 flute Wenn 4 Schneiden, zu 2 Schneiden wechseln. Carry out honing. Or enlarge / Nachschleifen oder erweitern. Replace chuck or collet / Chuck oder Collet auswechseln. Reduce cutting speed / Fräsgeschwindigkeit mindern. If dry cutting, change to wet cutting. In case oil supply in wet cutting is from the front, change to rear at an angle or from side top. Use ample supply. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlfüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten.

Trouble Problem	Occurrences of trouble Auftreten des Problems	Countermeasures Gegenmaßnahmen
Rapid tool wear Zu schnelle Werkzeugabnutzung		1. Reduce cutting speed / Fräsgeschwindigkeit mindern 2. Up cut → Down cut / Up cut - Down cut 3. Increase feed / Vorschub erhöhen 4. Utilize wet cutting or air / Naßfräsen oder Kühlluft zuführen. 5. If reground tool, improve surface roughness of flank. Beim Nachschleifen, die Oberflächenrauheit der Hauptfreiflächen verbessern.
Inferior finished surface Ungenügende Bearbeitungsfläche	· Surface is good but rough Oberfläche ist gut aber rau	1. Decrease feed / Vorschub mindern 2. In case using 2 flute, increase to 4 flute Wenn 2 Schneiden, zu 4 Schneiden wechseln
	· Small chip welding Kleine Partikelverschweißung	1. Increase cutting speed / Fräsgeschwindigkeit erhöhen 2. Utilize wet cutting air blow(ample supply) Naßfräsen und Luftzufuhr (reichlich) 3. Carry out fine honing / Feinschliff durchführen 4. Up cut → Down cut / Up cut → Down cut 5. Increase feed or enlarge finish allowance Vorschub erhöhen oder Bearbeitungstoleranz erhöhen
	· With transverse streaks Mit Querstreifen	1. Carry out fine honing / Feinschliff durchführen 2. Use water insoluble cutting fluid Wasserunlösliche Kühlflüssigkeit benutzen. 3. Down cut → Up cut / Down cut → Up cut
	· Signs of excessive cutting Zeichen exzessiven FräSENS	1. Reduce finishing depth of cut / Frästiefe reduzieren. 2. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 3. Reduce feed / Vorschub mindern
Poor machining accuracy Geringe Genauigkeit der Maschine	· Finish dimensions are on minus side Bearbeitungsmaße auf der Minusseite	1. Up cut → Down cut / Up cut → Down cut 2. Reduce finishing depth of cut / Schlichttiefe verringern reduzieren. 3. Replace chuck or collet / Chuck oder Collet austauschen. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Increase cutting speed / Fräsgeschwindigkeit reduzieren.
	· Poor perpendicularity Ungenauer Winkel	1. Reduce finishing depth of cut / Finishing-tiefe reduzieren. 2. Replace chuck or collet / Chuck oder Collet austauschen. 3. Reduce projection amount / Projektionsgröße mindern 4. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 5. 2Flute → 4 Flute / 2 Schneiden → 4 Schneiden 6. Reduce feed / Vorschub mindern. 7. Check wear rate → Replace tool Verschleiß überprüfen → Werkzeug austauschen.
Chattering Rattern		1. Increase feed rate(in case over 0.05 mm/Zahn, try reducing) Vorschub erhöhen(wenn über 0.05mm/Tooth Vorschub reduzieren). 2. Change cutting speed / Fräsgeschwindigkeit ändern. 3. Replace chuck or collet / Chuck oder Collet austauschen. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Use 2 flute cutter for rough cutting and 4 flute for finishing 2 Schneiden Fräser zum Schruppen und 4 für Finishing einsetzen. 6. Down cut → Up cut / Down cut → Up cut



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HSS COUNTERSINKS

HSS-E COUNTERBORES

CARBIDE ROTARY BURRS

320mm(LENGTH) GROUND CARBIDE BARS

Contents

OTHER TOOLS

REAMERS

COUNTERSINKS

COUNTERBORES

ROTARY BURRS

GROUND CARBIDE BARS

Contents / OTHER TOOLS

HSS REAMERS

HSS Hand Reamers, HSS-E Chucking Reamers

REAMERS

HSS COUNTERSINKS

Deburring, Chamfering, Countersinking, HSS & HSS-E & 8% Cobalt

COUNTER
SINKS

HSS-E COUNTERBORES

General Purpose

COUNTER
BORES

CARBIDE ROTARY BURRS

General Steels and Nonferrous Metals etc.(3&6mm Shank Diameter)

ROTARY
BURRS

320mm(LENGTH) GROUND CARBIDE BARS

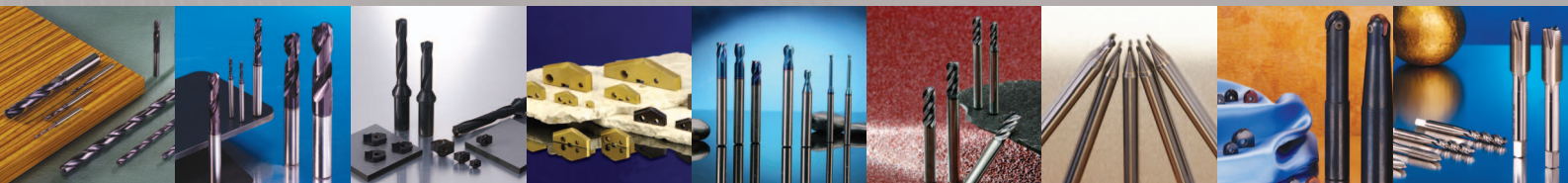
h6(Diameter Tolerance), +6.0mm(Length Tolerance)

GROUND
CARBIDE
BARS





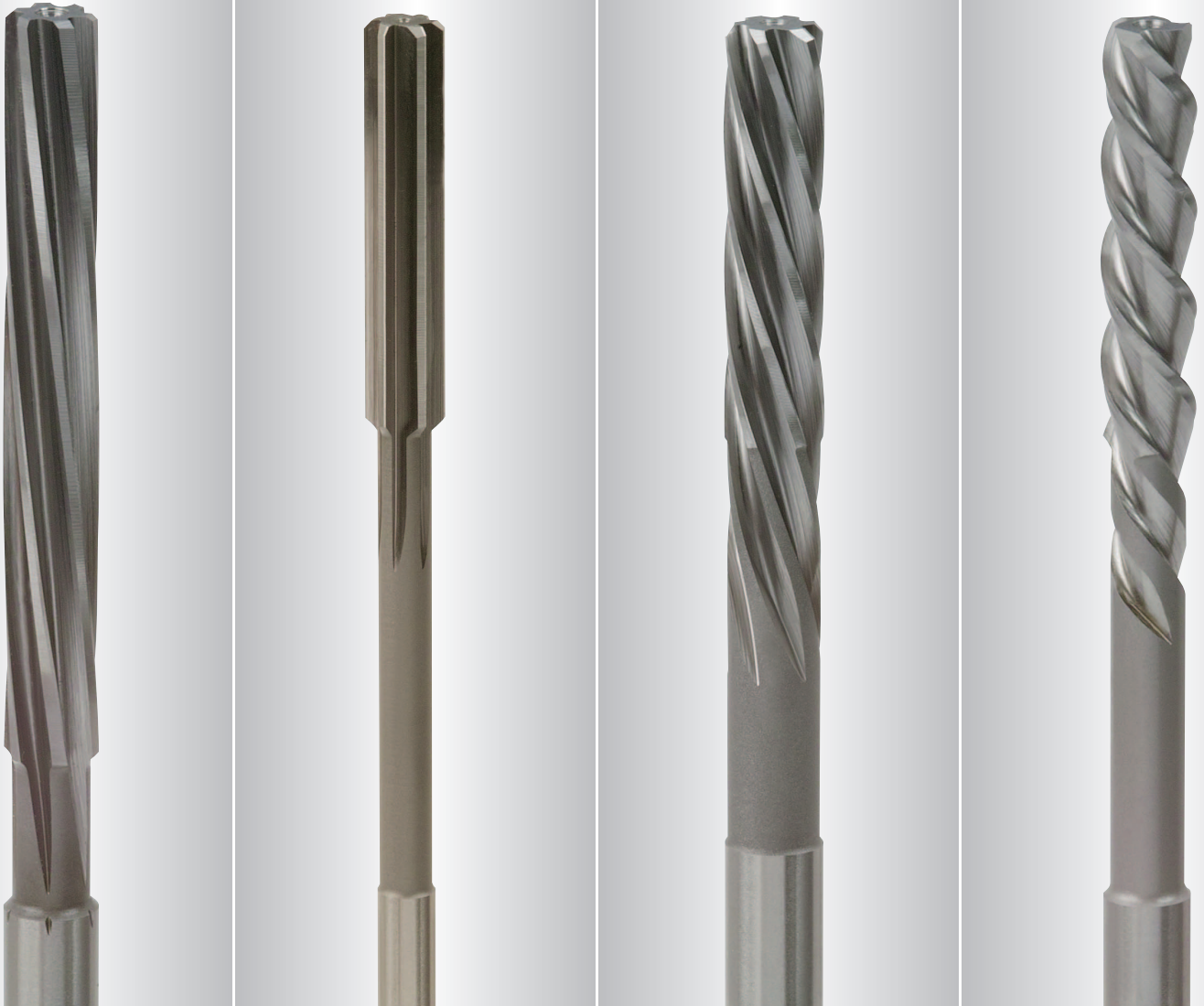
CUTTING TOOLS



HSS



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REAMERS

REIBAHLEN

- HSS Hand Reamers, HSS-E Chucking Reamers
- HSS Handreibahlen, HSS-E Maschinenreibahlen

SELECTION GUIDE

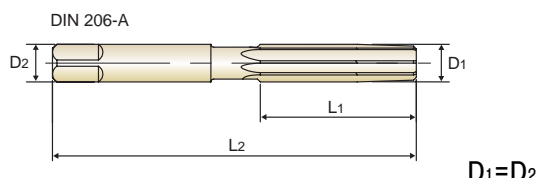
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K1143		HSS HAND REAMERS - STRAIGHT FLUTES HSS HANDREIBAHLEN - GERADEGENUTET	D2.0	D60.0	1017
K1153		HSS HAND REAMERS - LH SPIRAL FLUTES HSS HANDREIBAHLEN - SPIRALGENUTET mit LINKSDRALL	D2.0	D60.0	1019
K2101		HSS-E STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTES HSS-E MASCHINENREIBAHLE mit ZYLINDERSCHAFT - GERADEGENUTET	D2.0	D20.0	1021
K2111		HSS-E STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES HSS-E MASCHINENREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRALL	D2.0	D20.0	1022
K2121		HSS-E STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES(QUICK SPIRAL) HSS-E MASCHINEN - SCHÄLREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRAL	D4.0	D20.0	1023
K2102		HSS-E MORSE TAPER SHANK CHUCKING REAMERS - STRAIGHT FLUTES HSS-E MASCHINENREIBAHLE mit MK - GERADEGENUTET	D10.0	D50.0	1024
K2112		HSS-E MORSE TAPER SHANK CHUCKING REAMERS - LH SPIRAL FLUTES HSS-E MASCHINENREIBAHLE mit MK - SPIRALGENUTET mit LINKSDRALL	D10.0	D50.0	1025
RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN					1026

HSS HAND REAMERS - STRAIGHT FLUTES

HSS HANDREIBAHLEN - GERADEGENUTET

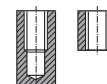
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter \approx Nominal Reamer Diameter
- ▶ Straight Flutes / Right Hand Cut
- ▶ Chamfer Angle - tapered
- ▶ Type of center - Up to $\varnothing 3.75$: external centers
- Over $\varnothing 3.75$: internal centers

- ▶ Schneiden- \varnothing Toleranzen : DIN 1420 für H7
- ▶ Schaft- \varnothing = Nomineller Reibahlen- \varnothing
- ▶ Geradegenutet / Rechtsschneident
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis $\varnothing 3,75$ mm : Zentrierungszapfen
- über $\varnothing 3,75$ mm : Zentrierung



HSS **DIN 206** **H7**

Hole type



Unit : mm

EDP No.	Nominal SIZE	Flute Length	Overall Length	No. of Flutes
	D	L1	L2	
K114300200	2.0	25	50	4
K114300220	2.2	27	54	4
K114300250	2.5	29	58	4
K114300280	2.8	31	62	4
K114300300	3.0	31	62	6
K114300320	3.2	33	66	6
K114300350	3.5	35	71	6
K114300400	4.0	38	76	6
K114300450	4.5	41	81	6
K114300500	5.0	44	87	6
K114300550	5.5	47	93	6
K114300600	6.0	47	93	6
K114300700	7.0	54	107	6
K114300800	8.0	58	115	6
K114300900	9.0	62	124	6
K114301000	10.0	66	133	6
K114301100	11.0	71	142	6
K114301200	12.0	76	152	6
K114301300	13.0	76	152	6
K114301400	14.0	81	163	8
K114301500	15.0	81	163	8
K114301600	16.0	87	175	8
K114301700	17.0	87	175	8
K114301800	18.0	93	188	8
K114301900	19.0	93	188	8
K114302000	20.0	100	201	8
K114302200	22.0	107	215	8
K114302400	24.0	115	231	8

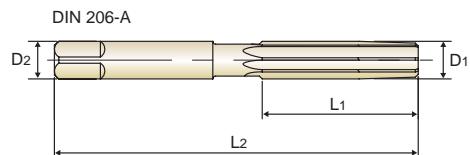


HSS HAND REAMERS - STRAIGHT FLUTES

HSS HANDREIBAHLEN - GERADEGENUTET

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter \approx Nominal Reamer Diameter
- ▶ Straight Flutes / Right Hand Cut
- ▶ Chamfer Angle - tapered
- ▶ Type of center - Up to $\varnothing 3.75$: external centers
- Over $\varnothing 3.75$: internal centers

- ▶ Schneiden- \varnothing Toleranzen : DIN 1420 für H7
- ▶ Schaft- \varnothing = Nomineller Reibahlen- \varnothing
- ▶ Geradegenutet / Rechtsschneident
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis $\varnothing 3,75$ mm : Zentrierungszapfen
- über $\varnothing 3,75$ mm : Zentrierung

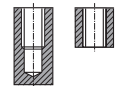
D₁=D₂

HSS

DIN
206

H7

Hole type



Unit : mm

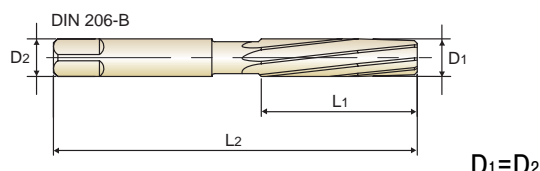
EDP No.	Nominal SIZE	Flute Length	Overall Length	No. of Flutes
	D	L1	L2	
K114302500	25.0	115	231	8
K114302600	26.0	115	231	8
K114302700	27.0	124	247	10
K114302800	28.0	124	247	10
K114302900	29.0	124	247	10
K114303000	30.0	124	247	10
K114303100	31.0	133	265	10
K114303200	32.0	133	265	10
K114303300	33.0	133	265	10
K114303400	34.0	142	284	10
K114303500	35.0	142	284	10
K114303600	36.0	142	284	10
K114303700	37.0	142	284	10
K114303800	38.0	152	305	10
K114303810	38.1	152	305	10
K114303900	39.0	152	305	10
K114304000	40.0	152	305	10
K114304100	41.0	152	305	12
K114304200	42.0	152	305	12
K114304300	43.0	163	326	12
K114304400	44.0	163	326	12
K114304500	45.0	163	326	12
K114304600	46.0	163	326	12
K114304700	47.0	163	326	12
K114304800	48.0	174	347	12
K114304900	49.0	174	347	12
K114305200	52.0	174	347	12
K114306000	60.0	184	367	12

HSS HAND REAMERS - LH SPIRAL FLUTES

HSS HANDREIBAHLEN - SPIRALGENUTET mit LINKSDRALL

- ▶ O.D. Tolerances : DIN 1420, H7
- ▶ Shank Diameter \approx Nominal Reamer Diameter
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - tapered
- ▶ Type of center - Up to $\varnothing 3.75$: external centers
- Over $\varnothing 3.75$: internal centers

- ▶ Schneiden- \varnothing Toleranzen : DIN 1420 für H7
- ▶ Schaft- \varnothing = Nomineller Reibahlen- \varnothing
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneident
- ▶ Anschnittwinkel - Konisch
- ▶ Zentrierungsart - bis $\varnothing 3,75$ mm : Zentrierungszapfen
- über $\varnothing 3,75$ mm : Zentrierung



Unit : mm

EDP No.	Nominal SIZE	Flute Length	Overall Length	No. of Flutes
	D	L1	L2	
K115300200	2.0	25	50	4
K115300220	2.2	27	54	4
K115300250	2.5	29	58	4
K115300280	2.8	31	62	4
K115300300	3.0	31	62	6
K115300320	3.2	33	66	6
K115300350	3.5	35	71	6
K115300400	4.0	38	76	6
K115300450	4.5	41	81	6
K115300500	5.0	44	87	6
K115300550	5.5	47	93	6
K115300600	6.0	47	93	6
K115300700	7.0	54	107	6
K115300800	8.0	58	115	6
K115300900	9.0	62	124	6
K115301000	10.0	66	133	6
K115301100	11.0	71	142	6
K115301200	12.0	76	152	6
K115301300	13.0	76	152	6
K115301400	14.0	81	163	8
K115301500	15.0	81	163	8
K115301600	16.0	87	175	8
K115301700	17.0	87	175	8
K115301800	18.0	93	188	8
K115301900	19.0	93	188	8
K115302000	20.0	100	201	8
K115302200	22.0	107	215	8
K115302400	24.0	115	231	8

HSS HAND REAMERS - LH SPIRAL FLUTES

HSS HANDREIBAHLEN - SPIRALGENUTET mit LINKSDRALL

▶ O.D. Tolerances : DIN 1420, H7

▶ Shank Diameter \approx Nominal Reamer Diameter

▶ LH Spiral Flutes / Right Hand Cut

▶ Chamfer Angle - tapered

▶ Type of center - Up to $\varnothing 3.75$: external centers
- Over $\varnothing 3.75$: internal centers

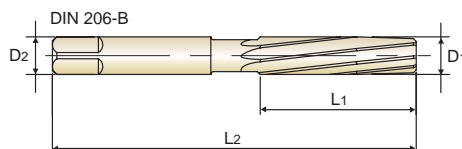
▶ Schneiden- \varnothing Toleranzen : DIN 1420 für H7

▶ Schaft- \varnothing = Nomineller Reibahlen- \varnothing

▶ Geradegenutet / Rechtsschneident

▶ Anschnittwinkel - Konisch

▶ Zentrierungsart - bis $\varnothing 3,75$ mm : Zentrierungszapfen
- über $\varnothing 3,75$ mm : Zentrierung



$D_1 = D_2$

HSS

DIN
206

H7



Hole type



Unit : mm

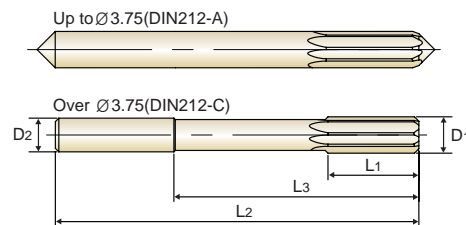
EDP No.	Nominal SIZE	Flute Length	Overall Length	No. of Flutes
	D	L1	L2	
K115302500	25.0	115	231	8
K115302600	26.0	115	231	8
K115302700	27.0	124	247	10
K115302800	28.0	124	247	10
K115302900	29.0	124	247	10
K115303000	30.0	124	247	10
K115303100	31.0	133	265	10
K115303200	32.0	133	265	10
K115303300	33.0	133	265	10
K115303400	34.0	142	284	10
K115303500	35.0	142	284	10
K115303600	36.0	142	284	10
K115303700	37.0	142	284	10
K115303800	38.0	152	305	10
K115303810	38.1	152	305	10
K115303900	39.0	152	305	10
K115304000	40.0	152	305	10
K115304100	41.0	152	305	12
K115304200	42.0	152	305	12
K115304300	43.0	163	326	12
K115304400	44.0	163	326	12
K115304500	45.0	163	326	12
K115304600	46.0	163	326	12
K115304700	47.0	163	326	12
K115304800	48.0	174	347	12
K115304900	49.0	174	347	12
K115305200	52.0	174	347	12
K115306000	60.0	184	367	12

HSS-E STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTES

HSS-E MASCHINENREIBAHLE mit ZYLINDERSCHAFT - GERADEGENUTET

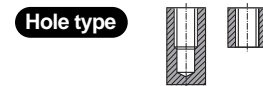
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ Straight Flute / Right Hand Cut
- ▶ Chamfer Angle - Up to $\varnothing 3.75$: 15°
- Over $\varnothing 3.75$: 45°

- ▶ Schneiden- \varnothing Toleranzen : DIN 1420 für H7
- ▶ Schaft- \varnothing Toleranzen : h8
- ▶ Geradegenutet / Rechtsschneident
- ▶ Anschnittwinkel - bis $\varnothing 3,75$ mm : 15°
- über $\varnothing 3,75$ mm : 45°



HSS-E
DIN 212
H7
15°
45°
P.1026

up to $\varnothing 3.75$ over $\varnothing 3.75$



Unit : mm

EDP No.	Nominal SIZE	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flutes
	D1	D2	L1	L3	L2	
K210100200	2.0	2	11	-	49	4
K210100220	2.2	2.2	12	-	53	4
K210100250	2.5	2.5	14	-	57	4
K210100260	2.6	2.6	14	-	57	4
K210100280	2.8	2.8	15	-	61	4
K210100300	3.0	3	15	-	61	6
K210100310	3.1	3.1	16	-	65	6
K210100320	3.2	3.2	16	-	65	6
K210100350	3.5	3.5	18	-	70	6
K210100360	3.6	3.6	18	-	70	6
K210100370	3.7	3.7	18	-	70	6
K210100400	4.0	4	19	42	75	6
K210100430	4.3	4.5	21	46	80	6
K210100450	4.5	4.5	21	46	80	6
K210100460	4.6	4.5	21	46	80	6
K210100500	5.0	5	23	51	86	6
K210100550	5.5	5.6	26	56	93	6
K210100560	5.6	5.6	26	56	93	6
K210100600	6.0	5.6	26	56	93	6
K210100650	6.5	6.3	28	62	101	6
K210100700	7.0	7.1	31	68	109	6
K210100720	7.2	7.1	31	68	109	6
K210100800	8.0	8	33	74	117	6
K210100830	8.3	8	33	74	117	6
K210100850	8.5	8	33	74	117	6
K210100900	9.0	9	36	80	125	6
K210100950	9.5	9	36	80	125	6
K210101000	10.0	10	38	86	133	6
K210101050	10.5	10	38	86	133	6
K210101100	11.0	10	41	95	142	6
K210101200	12.0	10	44	104	151	6
K210101300	13.0	10	44	104	151	6
K210101400	14.0	12.5	47	108	160	8
K210101500	15.0	12.5	50	110	162	8
K210101600	16.0	12.5	52	118	170	8
K210101700	17.0	14	54	121	175	8
K210101800	18.0	14	56	128	182	8
K210101900	19.0	16	58	129	189	8
K210102000	20.0	16	60	135	195	8

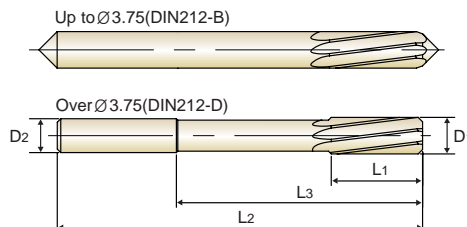


HSS-E STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES

HSS-E MASCHINENREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRALL

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle - Up to $\varnothing 3.75$: 15°
- Over $\varnothing 3.75$: 45°

- ▶ Schneiden- \varnothing Toleranzen : DIN 1420 für H7
- ▶ Schaft- \varnothing Toleranzen : h8
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneident
- ▶ Anschnittwinkel - bis $\varnothing 3,75$ mm : 15°
- über $\varnothing 3,75$ mm : 45°



P.1026

up to $\varnothing 3.75$ over $\varnothing 3.75$

Hole type



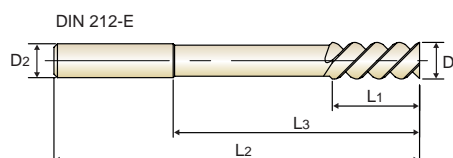
Unit : mm

EDP No.	Nominal SIZE	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flutes
	D1	D2	L1	L3	L2	
K211100200	2.0	2	11	-	49	4
K211100220	2.2	2.2	12	-	53	4
K211100250	2.5	2.5	14	-	57	4
K211100260	2.6	2.6	14	-	57	4
K211100280	2.8	2.8	15	-	61	4
K211100300	3.0	3	15	-	61	6
K211100310	3.1	3.1	16	-	65	6
K211100320	3.2	3.2	16	-	65	6
K211100350	3.5	3.5	18	-	70	6
K211100360	3.6	3.6	18	-	70	6
K211100370	3.7	3.7	18	-	70	6
K211100400	4.0	4	19	42	75	6
K211100430	4.3	4.5	21	46	80	6
K211100450	4.5	4.5	21	46	80	6
K211100460	4.6	4.5	21	46	80	6
K211100500	5.0	5	23	51	86	6
K211100550	5.5	5.6	26	56	93	6
K211100560	5.6	5.6	26	56	93	6
K211100600	6.0	5.6	26	56	93	6
K211100650	6.5	6.3	28	62	101	6
K211100700	7.0	7.1	31	68	109	6
K211100720	7.2	7.1	31	68	109	6
K211100800	8.0	8	33	74	117	6
K211100830	8.3	8	33	74	117	6
K211100850	8.5	8	33	74	117	6
K211100900	9.0	9	36	80	125	6
K211100950	9.5	9	36	80	125	6
K211101000	10.0	10	38	86	133	6
K211101050	10.5	10	38	86	133	6
K211101100	11.0	10	41	95	142	6
K211101200	12.0	10	44	104	151	6
K211101300	13.0	10	44	104	151	6
K211101400	14.0	12.5	47	108	160	8
K211101500	15.0	12.5	50	110	162	8
K211101600	16.0	12.5	52	118	170	8
K211101700	17.0	14	54	121	175	8
K211101800	18.0	14	56	128	182	8
K211101900	19.0	16	58	129	189	8
K211102000	20.0	16	60	135	195	8

HSS-E STRAIGHT SHANK CHUCKING REAMERS - LH SPIRAL FLUTES(QUICK SPIRAL)
HSS-E MASCHINEN - SCHÄLREIBAHLE mit ZYLINDERSCHAFT - SPIRALGENUTET mit LINKSDRAL

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Shank Diameter Tolerances : h8
- ▶ Chamfer Angle - tapered
- ▶ LH High Spiral Flutes / Right Hand Cut

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Schaft-Ø Toleranzen : h8
- ▶ Anschnittwinkel - Konisch
- ▶ Spiralgenutet mit Linksdral / Rechtsschneident



HSS-E
DIN 212
H7
LH45°
FORM E
P.1026



Unit : mm

EDP No.	Nominal SIZE	Shank Diameter	Cutting Length	Neck Length	Overall Length	No. of Flutes
	D1	D2	L1	L3	L2	
K212100400	4.0	4	19	42	75	3
K212100450	4.5	4.5	21	46	80	3
K212100500	5.0	5	23	51	86	3
K212100550	5.5	5.6	26	56	93	3
K212100600	6.0	5.6	26	56	93	3
K212100650	6.5	6.3	28	62	101	3
K212100700	7.0	7.1	31	68	109	3
K212100800	8.0	8	33	74	117	3
K212100850	8.5	8	33	74	117	3
K212100900	9.0	9	36	80	125	3
K212100950	9.5	9	36	80	125	3
K212101000	10.0	10	38	86	133	3
K212101100	11.0	10	41	95	142	3
K212101200	12.0	10	44	104	151	3
K212101300	13.0	10	44	104	151	3
K212101400	14.0	12.5	47	108	160	4
K212101500	15.0	12.5	50	110	162	4
K212101600	16.0	12.5	52	118	170	4
K212101700	17.0	14	54	121	175	4
K212101800	18.0	14	56	128	182	4
K212101900	19.0	16	58	129	189	4
K212102000	20.0	16	60	135	195	4

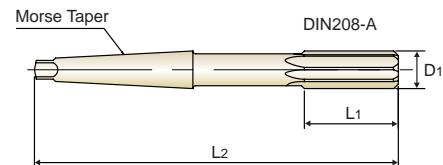


HSS-E MORSE TAPER SHANK CHUCKING REAMERS - STRAIGHT FLUTES

HSS-E MASCHINENREIBAHLE mit MK - GERADEGENUTET

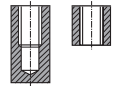
- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ Straight Flute / Right Hand Cut
- ▶ Chamfer Angle : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Geradegenutet / Rechtsschneident
- ▶ Anschnittwinkel : 45°



P.1026

Hole type



Unit : mm

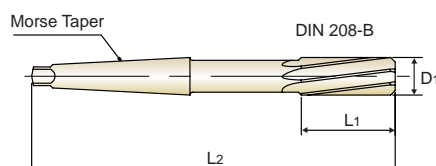
EDP No.	Nominal SIZE D1	No. of Morse Taper	Cutting Length L1	Overall Length L2	No. of Flutes
K210201000	10.0	1	38	168	6
K210201100	11.0	1	41	175	6
K210201200	12.0	1	44	182	6
K210201300	13.0	1	44	182	6
K210201400	14.0	1	47	189	8
K210201500	15.0	2	50	204	8
K210201600	16.0	2	52	210	8
K210201700	17.0	2	54	214	8
K210201800	18.0	2	56	219	8
K210201900	19.0	2	58	223	8
K210202000	20.0	2	60	228	8
K210202100	21.0	2	62	232	8
K210202200	22.0	2	64	237	8
K210202300	23.0	2	66	241	8
K210202400	24.0	3	68	268	8
K210202500	25.0	3	68	268	8
K210202600	26.0	3	70	273	8
K210202700	27.0	3	71	277	10
K210202800	28.0	3	71	277	10
K210202900	29.0	3	73	281	10
K210203000	30.0	3	73	281	10
K210203100	31.0	3	75	285	10
K210203200	32.0	4	77	317	10
K210203400	34.0	4	78	321	10
K210203500	35.0	4	78	321	10
K210203600	36.0	4	79	325	10
K210203800	38.0	4	81	329	10
K210204000	40.0	4	81	329	10
K210204100	41.0	4	82	333	12
K210204200	42.0	4	82	333	12
K210204300	43.0	4	83	336	12
K210204400	44.0	4	83	336	12
K210204500	45.0	4	83	336	12
K210204600	46.0	4	84	340	12
K210204700	47.0	4	84	340	12
K210204800	48.0	4	86	344	12
K210205000	50.0	4	86	344	12

HSS-E MORSE TAPER SHANK CHUCKING REAMERS - LH SPIRAL FLUTES

HSS-E MASCHINENREIBAHLE mit MK - SPIRALGENUTET mit LINKSDRALL

- ▶ O.D. Tolerances : DIN 1420 for H7
- ▶ LH Spiral Flutes / Right Hand Cut
- ▶ Chamfer Angle : 45°

- ▶ Schneiden-Ø Toleranzen : DIN 1420 für H7
- ▶ Spiralgenutet mit Linksdraht / Rechtsschneident
- ▶ Anschnittwinkel : 45°



Unit : mm

EDP No.	Nominal SIZE D1	No. of Morse Taper	Cutting Length L1	Overall Length L2	No. of Flutes
K211201000	10.0	1	38	168	6
K211201100	11.0	1	41	175	6
K211201200	12.0	1	44	182	6
K211201300	13.0	1	44	182	6
K211201400	14.0	1	47	189	8
K211201500	15.0	2	50	204	8
K211201600	16.0	2	52	210	8
K211201700	17.0	2	54	214	8
K211201800	18.0	2	56	219	8
K211201900	19.0	2	58	223	8
K211202000	20.0	2	60	228	8
K211202100	21.0	2	62	232	8
K211202200	22.0	2	64	237	8
K211202300	23.0	2	66	241	8
K211202400	24.0	3	68	268	8
K211202500	25.0	3	68	268	8
K211202600	26.0	3	70	273	8
K211202700	27.0	3	71	277	10
K211202800	28.0	3	71	277	10
K211202900	29.0	3	73	281	10
K211203000	30.0	3	73	281	10
K211203100	31.0	3	75	285	10
K211203200	32.0	4	77	317	10
K211203400	34.0	4	78	321	10
K211203500	35.0	4	78	321	10
K211203600	36.0	4	79	325	10
K211203800	38.0	4	81	329	10
K211204000	40.0	4	81	329	10
K211204100	41.0	4	82	333	12
K211204200	42.0	4	82	333	12
K211204300	43.0	4	83	336	12
K211204400	44.0	4	83	336	12
K211204500	45.0	4	83	336	12
K211204600	46.0	4	84	340	12
K211204700	47.0	4	84	340	12
K211204800	48.0	4	86	344	12
K211205000	50.0	4	86	344	12



Straight Flute Chucking Reamer, Spiral Flute Chucking Reamer Geradegenutete Maschinenreibahlen, Spiralgenutete Maschinenreibahlen

Material	Cutting Speed (m/min.)	Feed(mm/rev.)					
		Ø2 ~ Ø4	Ø5 ~ Ø8	Ø9 ~ Ø12	Ø13 ~ Ø20	Ø20 ~ Ø30	> Ø30
Steels < 500N/mm ²	12 ~ 16	0.05~0.15	0.10~0.20	0.15~0.25	0.20~0.30	0.25~0.40	0.35~0.50
Steels 500-700N/mm ²	10 ~ 12	0.05~0.15	0.10~0.20	0.15~0.25	0.20~0.30	0.25~0.40	0.35~0.50
Steels 700-800N/mm ²	6 ~ 8	0.05~0.10	0.08~0.16	0.10~0.20	0.15~0.25	0.20~0.30	0.30~0.40
Alloy Steel or Carbon Steel castings < 500N/mm ²	6 ~ 10	0.05~0.10	0.08~0.16	0.10~0.20	0.15~0.25	0.20~0.30	0.30~0.40
Alloy Steel or Carbon Steel castings > 500N/mm ²	4 ~ 6	0.05~0.10	0.08~0.16	0.10~0.20	0.15~0.25	0.20~0.30	0.30~0.40
Alloy Steel or Carbon Steel forgings	4 ~ 6	0.03~0.08	0.06~0.10	0.08~0.15	0.10~0.20	0.15~0.25	0.20~0.30
Cast Iron < 200HB	12 ~ 14	0.05~0.15	0.10~0.20	0.15~0.25	0.20~0.30	0.25~0.40	0.35~0.50
Cast Iron > 200HB	10 ~ 12	0.05~0.10	0.08~0.16	0.10~0.20	0.15~0.25	0.20~0.30	0.30~0.40
Aluminum or Aluminum Alloy	16 ~ 20	0.10~0.20	0.15~0.25	0.20~0.30	0.25~0.40	0.35~0.50	0.40~0.60
Magnesium or Magnesium Alloy	10 ~ 16	0.10~0.20	0.15~0.25	0.20~0.30	0.25~0.40	0.35~0.50	0.40~0.60
Copper, Brass	16 ~ 18	0.10~0.20	0.15~0.25	0.20~0.30	0.25~0.40	0.35~0.50	0.40~0.60
Stainless Steels	4 ~ 6	0.03~0.08	0.06~0.10	0.08~0.15	0.10~0.20	0.15~0.25	0.20~0.30
Plastics	8 ~ 12	0.10~0.20	0.20~0.30	0.30~0.40	0.40~0.50	0.50~0.60	0.60~0.80

Chucking Reamer-Quick Spiral Maschinen - Schälreibahlen

Material	Cutting Speed (m/min.)	Feed(mm/rev.)			
		Ø2 ~ Ø4	Ø5 ~ Ø8	Ø9 ~ Ø12	Ø13 ~ Ø20
Steels < 500N/mm ²	16 ~ 18	0.08~0.16	0.16~0.25	0.20~0.30	0.30~0.40
Steels 500-700N/mm ²	14 ~ 16	0.08~0.16	0.16~0.25	0.20~0.30	0.30~0.40
Aluminum or Aluminum Alloy	18 ~ 22	0.10~0.20	0.20~0.30	0.30~0.40	0.40~0.60
Magnesium or Magnesium Alloy	10 ~ 16	0.08~0.16	0.16~0.25	0.20~0.30	0.30~0.40
Copper, Brass	16 ~ 20	0.08~0.16	0.16~0.25	0.20~0.30	0.30~0.40
Plastics	12 ~ 14	0.10~0.20	0.20~0.30	0.30~0.40	0.40~0.60

HSS



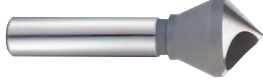


Being the best through innovation



COUNTERSINK SENKER

- Deburring, Chamfering, Countersinking, HSS & HSS-E & 8% Cobalt
- Entgraten und anfasen. HSS und HSSE-Co8

SELECTION GUIDE

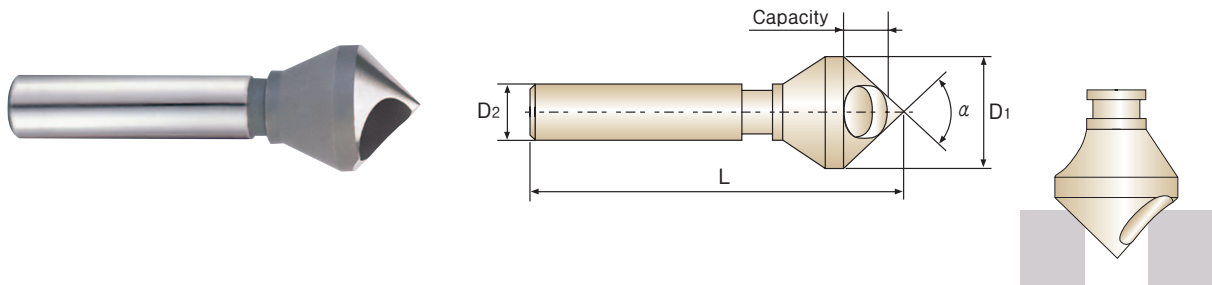
ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
C1109 C2109 C3109		HSS DEBURRING TOOL with HOLE HSS QUERLOCHSENKER	D10.0	D50.0	1029
C1119 C2119 C3119		HSS SINGLE FLUTE CHAMFERING CUTTERS HSS EINSCHNEIDEN KEGELSENKER	D10.0	D50.0	1030
C1139 C2139 C3139		HSS THREE FLUTE COUNTERSINKS HSS DREISCHNEIDEN KEGELSENKER	D4.3	D31.0	1031
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1032

HSS DEBURRING TOOL with HOLE

HSS QUERLOCHSENKER

- ▶ For light metals and plastics.
- ▶ For deburring and small chamfers.
- ▶ Best surface finish.
- ▶ Works without vibrations.

- ▶ Für Leichtmetall und Plastik
- ▶ Zum Entgraten und Abfasen
- ▶ Bestes Oberflächenfinish
- ▶ Arbeitet ohne Vibration



Unit : mm

EDP No. (uncoating)			Angle α (-1°)	Nominal Diameter D1	Shank Diameter D2	Overall Length L(±1)	Capacity min/max
HSSCo8	HSS-E	HSS					
C1109100	C2109100	C3109100	90°	10.0	6	45	2 - 5
C1109150	C2109150	C3109150	90°	15.0	8	55	6 - 14
C1109200	C2109200	C3109200	90°	20.0	10	65	8 - 18
C1109250	C2109250	C3109250	90°	25.0	12	78	10 - 23
C1109300	C2109300	C3109300	90°	30.0	12	88	12 - 28
C1109350	C2109350	C3109350	90°	35.0	16	110	14 - 33
C1109400	C2109400	C3109400	90°	40.0	16	115	16 - 38
C1109450	C2109450	C3109450	90°	45.0	16	120	18 - 43
C1109500	C2109500	C3109500	90°	50.0	16	130	20 - 48

▶ TiN & TiCN coating are available on your request.

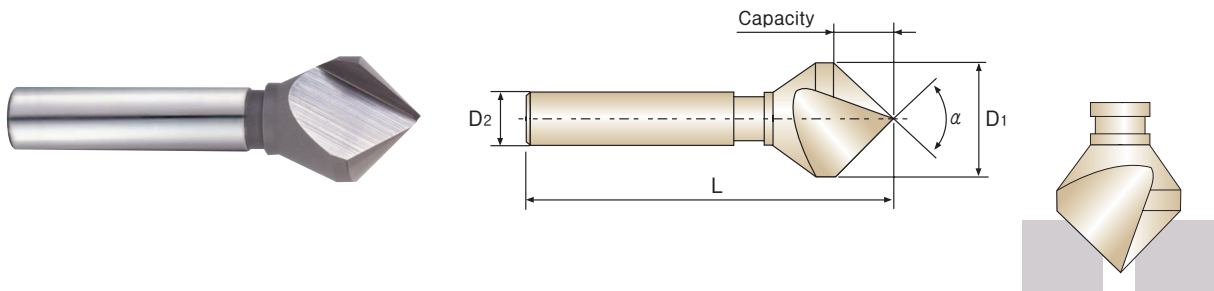
Nominal Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)
+0.3	h9

HSS SINGLE FLUTE CHAMFERING CUTTERS

HSS EINSCHNEIDEN KEGELSENKER

- ▶ For wood and hard plastics.
- ▶ Can drill in sheet materials.
- ▶ Easy to resharpen.
- ▶ Works without vibrations.

- ▶ Für Holz und Hartplastik
- ▶ Kann in Bleche bohren
- ▶ Leicht nachzuschärfen
- ▶ Arbeitet ohne Vibration



Unit : mm

EDP No. (uncoating)			Angle α (-1°)	Nominal Diameter D1	Shank Diameter D2	Overall Length L(±1)	Capacity min/max
HSSCo8	HSS-E	HSS					
C1119100	C2119100	C3119100	90°	10.0	6	45	1 - 10
C1119150	C2119150	C3119150	90°	15.0	8	55	2 - 15
C1119200	C2119200	C3119200	90°	20.0	10	65	2 - 20
C1119250	C2119250	C3119250	90°	25.0	12	78	3 - 25
C1119300	C2119300	C3119300	90°	30.0	12	88	3 - 30
C1119350	C2119350	C3119350	90°	35.0	16	110	4 - 35
C1119400	C2119400	C3119400	90°	40.0	16	115	5 - 40
C1119450	C2119450	C3119450	90°	45.0	16	120	10 - 45
C1119500	C2119500	C3119500	90°	50.0	16	130	12 - 50

▶ TiN & TiCN coating are available on your request.

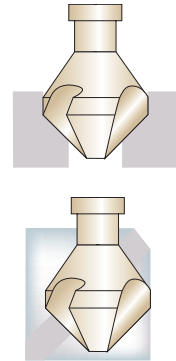
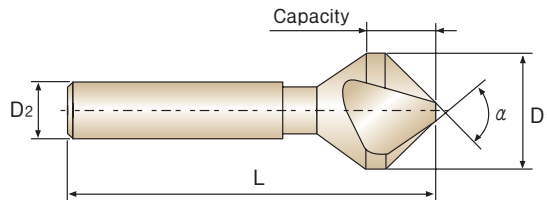
Nominal Dia Tolerance(mm)	Shank Dia. Tolerance(mm)
+0.3	h9

HSS THREE FLUTE COUNTERSINKS

HSS DREISCHNEIDEN KEGELSENKER

- ▶ Self-centering(3 flutes).
- ▶ Designed for 90° capscrews countersinking.
- ▶ Hand using.
- ▶ Longitudinal chamfers and contouring.
- ▶ Works without vibrations

- ▶ Selbstzentrierend
- ▶ Besonders geeignet zum 90° Ansenken für Senkkopfschrauben
- ▶ Manueller Einsatz möglich
- ▶ Zum Entgraten von Längs- und Profilkanten
- ▶ Arbeitet ohne Vibration

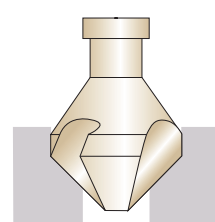
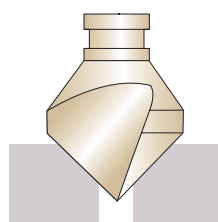
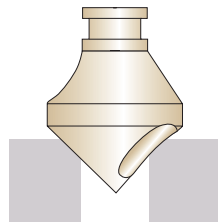

DIN 335 C

Unit : mm

EDP No. (uncoating)			Angle	Nominal Diameter	Shank Diameter	Overall Length	Capacity
HSSCo8	HSS-E	HSS	α (-1°)	D1	D2	L(±1)	min/max
C1139043	C2139043	C3139043	90°	4.3	4	40	1.3 - 4.3
C1139050	C2139050	C3139050	90°	5.0	4	40	1.5 - 5
C1139060	C2139060	C3139060	90°	6.0	5	45	1.5 - 6
C1139063	C2139063	C3139063	90°	6.3	5	45	1.5 - 6.3
C1139070	C2139070	C3139070	90°	7.0	6	50	1.8 - 7
C1139080	C2139080	C3139080	90°	8.0	6	50	2 - 8
C1139083	C2139083	C3139083	90°	8.3	6	50	2 - 8.3
C1139100	C2139100	C3139100	90°	10.0	6	50	2.5 - 10
C1139104	C2139104	C3139104	90°	10.4	6	50	2.5 - 10.4
C1139115	C2139115	C3139115	90°	11.5	8	56	2.8 - 11.5
C1139124	C2139124	C3139124	90°	12.4	8	56	2.8 - 12.4
C1139150	C2139150	C3139150	90°	15.0	10	60	3.2 - 15
C1139165	C2139165	C3139165	90°	16.5	10	60	3.2 - 16.5
C1139190	C2139190	C3139190	90°	19.0	10	63	3.5 - 19
C1139205	C2139205	C3139205	90°	20.5	10	63	3.5 - 20.5
C1139230	C2139230	C3139230	90°	23.0	10	67	3.8 - 23
C1139250	C2139250	C3139250	90°	25.0	10	67	3.8 - 25
C1139300	C2139300	C3139300	90°	30.0	12	71	4.2 - 30
C1139310	C2139310	C3139310	90°	31.0	12	71	4.2 - 31

▶ TiN & TiCN coating are available on your request.

Nominal Dia. Tolerance(mm)	Shank Dia. Tolerance(mm)
±0.05	h9



Material	V	S			V	S			V	S		
		Ø ≤ 10	Ø ≤ 20	Ø ≤ 30		Ø ≤ 10	Ø ≤ 20	Ø ≤ 30		Ø ≤ 10	Ø ≤ 20	Ø ≤ 30
STEELS ≤ 500N/mm ²	35-45	0.20	0.22	0.24	35-45	0.20	0.22	0.24	17-22	0.30	0.32	0.36
STEELS 500~800N/mm ²	20-30	0.14	0.17	0.20	20-30	0.14	0.17	0.20	10-15	0.28	0.30	0.31
STEELS 800~1000N/mm ²	15-20	0.11	0.12	0.14	15-20	0.11	0.12	0.14	8-12	0.24	0.26	0.28
STEELS-STAINLESS STEEL 1000~1300N/mm ²	12-15	0.10	0.12	0.15	12-15	0.10	0.12	0.15	6-8	0.20	0.20	0.22
STAINLESS STEELS	6-8	0.07	0.08	0.09	6-8	0.07	0.08	0.09	4-6	0.08	0.09	0.10
CAST IRON	20-40	0.15	0.24	0.28	20-40	0.15	0.24	0.28	15-25	0.13	0.19	0.24
ALUMINUM	50-60	0.22	0.25	0.27	50-60	0.22	0.25	0.27	35-45	0.27	0.30	0.35
BRASS-BRONZE	30-40	0.23	0.25	0.28	30-40	0.23	0.25	0.28	20-30	0.30	0.30	0.31
COPPER	20-30	0.22	0.25	0.27	20-30	0.22	0.25	0.27	10-15	0.29	0.30	0.31
PLASTICS	50-100	0.50	0.60	0.65	50-100	0.50	0.60	0.65	35-70	0.40	0.45	0.50

V : Cutting Speed(mm/min)

S : Feed per Revolution(mm/rev)

HSS



Being the best through innovation



COUNTERBORES

FLACHSENKER

- General Purpose
- Für allgemeinen Einsatz



COUNTERBORES

EL950 SERIES

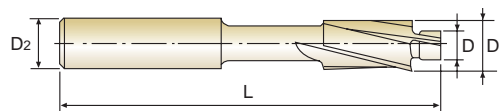
PLAIN SHANK
GLATTER ZYLINDERSCHAFT

HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

HSS-E, 3 SCHNEIDEN FLACHSENKER MIT FESTEM FÜHRUNGSZAPFEN

► The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.

► Die Flachsenker mit festem Führungszapfen dienen dem 180° Ansenken für Zylinderkopfschrauben und Auswerferstiften in Formen



P1035

MEDIUM

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
PLAIN	PLAIN					
EL950003	YG54M3-M	M3	3.4	6.0	5	71
EL950035	YG54M3.5-M	M3.5	3.9	6.5	5	71
EL950004	YG54M4-M	M4	4.5	8.0	5	71
EL950005	YG54M5-M	M5	5.5	10.0	8	80
EL950006	YG54M6-M	M6	6.6	11.0	8	80
EL950008	YG54M8-M	M8	9.0	15.0	12.5	100
EL950010	YG54M10-M	M10	11.0	18.0	12.5	100
EL950012	YG54M12-M	M12	14.0	20.0	12.5	100

FINE

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
PLAIN	PLAIN					
EL950901	YG54M3-F	M3	3.2	6.0	5	71
EL950902	YG54M3.5-F	M3.5	3.7	6.5	5	71
EL950903	YG54M4-F	M4	4.3	8.0	5	71
EL950904	YG54M5-F	M5	5.3	10.0	8	80
EL950905	YG54M6-F	M6	6.4	11.0	8	80
EL950906	YG54M8-F	M8	8.4	15.0	12.5	100
EL950907	YG54M10-F	M10	10.5	18.0	12.5	100
EL950908	YG54M12-F	M12	13.0	20.0	12.5	100

BEFORE THREADING

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
PLAIN	PLAIN					
EL950909	YG54M3-T	M3	2.5	6.0	5	71
EL950910	YG54M3.5-T	M3.5	2.9	6.5	5	71
EL950911	YG54M4-T	M4	3.3	8.0	5	71
EL950912	YG54M5-T	M5	4.2	10.0	8	80
EL950913	YG54M6-T	M6	5.0	11.0	8	80
EL950914	YG54M8-T	M8	6.8	15.0	12.5	100
EL950915	YG54M10-T	M10	8.5	18.0	12.5	100
EL950916	YG54M12-T	M12	10.2	20.0	12.5	100

Tolerances according to DIN 7160 & 7161

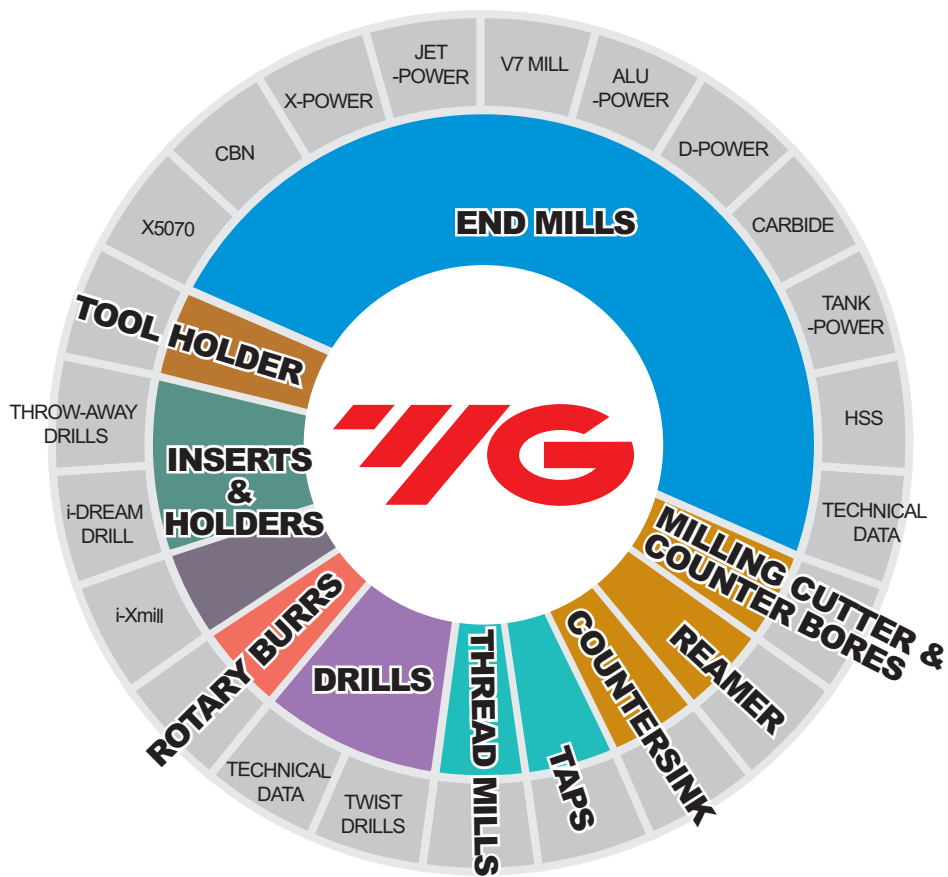
Toleranzen nach DIN 7160 & 7161

	Nominal-Diameter in mm / Nennmaßbereich in mm				Nominal-Diameter in mm / Nennmaßbereich in mm			
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	from 6 to 10 von 6 bis 10	over 10 to 14 über 10 bis 14	over 14 to 18 über 14 bis 18	over 18 to 24 über 18 bis 24
	Tolerance range in μm / Toleranzwerte in μm				Tolerance range in μm / Toleranzwerte in μm			
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	+ 78 + 42	+ 93 + 50	+ 103 + 60	+ 125 + 73
h9	0 - 25	0 - 30	0 - 36	0 - 43				

HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW
HSS-E, 3 SCHNEIDEN FLACHSENKER mit FESTEM FÜHRUNGZAPFEN
EL950 SERIES

MATERIAL	ALUMINUM & ALUMINUM ALLOYS	CARBON STEELS ALLOY STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS	CARBON STEELS ALLOY STEELS TOOL STEELS
HARDNESS			~ HRC20	HRC20 ~ HRC35	HRC35 ~ HRC40
STRENGTH		~ 500N/mm ²	500 ~ 800N/mm ²	800 ~ 1100N/mm ²	1100 ~ 1300N/mm ²
CUTTER DIAMETER	RPM	RPM	RPM	RPM	RPM
6.0	2100	590	480	380	320
6.5	2100	590	480	380	320
8.0	1700	470	380	300	250
10.0	1200	380	320	260	170
11.0	1100	300	240	190	160
15.0	840	240	195	155	130
18.0	670	190	160	120	80
20.0	550	160	125	95	70

RPM = rev./min.



Challenge Toward a Global Leader-
YG-1 Leads the World Market.



CARBIDE

Being the best through innovation











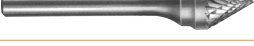




CARBIDE ROTARY BURRS

FRÄSSTIFTE AUS HARTMETALL

- General Steels and Nonferrous Metals etc.
(3mm & 6mm Shank Diameter)
- Für normale Stähle und Nichteisenmetalle usw. (3 u. 6mm Schaft-Æ)

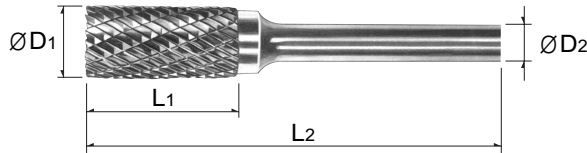
SELECTION GUIDE

CARBIDE ROTARY BURRS

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
SA R1101 R1201 R1301		CYLINDER SHAPE TYPE SA(Form A) ZYLINDER – FORM TYP SA (Form A)	D1.5	D25.0	1039
SB R1102 R1202 R1302		CYLINDER SHAPE WITH END CUT TYPE SB(Form B) ZYLINDER – FORM MIT STIRNVERZÄHNUNG TYP SB (Form B)	D1.5	D25.0	1040
SC R1103 R1203 R1303		CYLINDER SHAPE WITH RADIUS END TYPE SC(Form C) WALZENRUND – FORM TYP SC (Form C)	D2.5	D25.0	1041
SD R1104 R1204 R1304		BALL SHAPE TYPE SD(Form D) KUGEL – FORM TYP SD (Form D)	D2.5	D25.0	1042
SE R1105 R1205 R1305		OVAL SHAPE TYPE SE(Form E) TROPFEN – FORM TYP SE (Form E)	D3.0	D19.0	1043
SF R1106 R1206 R1306		TREE SHAPE WITH RADIUS END TYPE SF(Form F) RUNDBOGEN – FORM TYP SF (Form F)	D3.0	D19.0	1044
SG R1107 R1207		TREE SHAPE WITH POINTED END TYPE SG(Form G) SPITZBOGEN – FORM TYP SG (Form G)	D3.0	D19.0	1045
SH R1108 R1208		FLAME SHAPE TYPE SH(Form H) FLAMMEN – FORM TYP SH (Form H)	D3.0	D19.0	1046
SJ R1109 R1209		60° CONE SHAPE TYPE SJ(Form J) 60° KEGELSENK – FORM TYP SJ (Form J)	D3.0	D25.0	1047
SK R1110 R1210		90° CONE SHAPE TYPE SK(Form K) 90° KEGELSENK – FORM TYP SK (Form K)	D3.0	D25.0	1048
SL R1111 R1211 R1311		TAPER WITH RADIUS END TYPE SL(Form L) RUNDKEGEL – FORM TYP SL (Form L)	D3.0	D19.0	1049
SM R1112 R1212		CONE SHAPE TYPE SM(Form M) SPITZKEGEL – FORM TYP SM (Form M)	D3.0	D16.0	1050
SN R1113 R1213		INVERTED CONE SHAPE TYPE SN(Form N) WINKEL – FORM TYP SN (Form N)	D2.5	D19.0	1051
TECHNICAL INFORMATION FOR CARBIDE BURRS TECHNISCHE INFORMATION ZU HARTMETALL FRÄSSTIFTEN					1052
BURR APPLICATION INFORMATION & SPEED RECOMMENDATION EINSATZ EMPFEHLUNGEN & SCHNITTGESCHWINDIGKEITS EMPFEHLUNGEN					1053



CYLINDER SHAPE TYPE SA(FORM A) ZYLINDER – FORM TYP SA (FORM A)

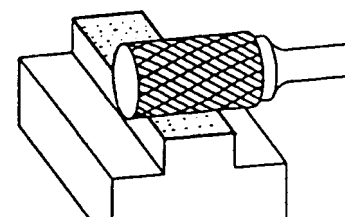


Unit : mm

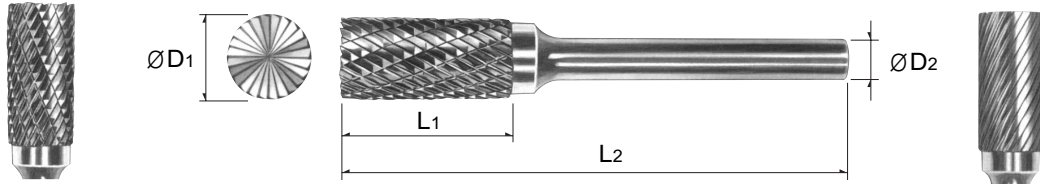
DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1101001	SA-41M	1.5	3	6	38	R1201001	SA-41MP
R1101002	SA-41ML2	1.5	3	6	50	R1201002	SA-41ML2P
R1101003	SA-41ML3	1.5	3	6	75	R1201003	SA-41ML3P
R1101004	SA-42M	2.5	3	11	38	R1201004	SA-42MP
R1101005	SA-42ML2	2.5	3	11	50	R1201005	SA-42ML2P
R1101006	SA-42ML3	2.5	3	11	75	R1201006	SA-42ML3P
R1101007	SA-43M	3.0	3	14	38	R1201007	SA-43MP
R1101008	SA-43ML2	3.0	3	14	50	R1201008	SA-43ML2P
R1101009	SA-43ML3	3.0	3	14	75	R1201009	SA-43ML3P
R1101010	SA-11M	3.0	6	12	56	R1201010	SA-11MP
R1101011	SA-12M	3.0	6	12.7	60	R1201011	SA-12MP
R1101012	SA-52M	4.0	3	12.7	38	R1201012	SA-52MP
R1101013	SA-13M	4.0	6	16	50	R1201013	SA-13MP
R1101014	SA-53M	5.0	3	12.7	38	R1201014	SA-53MP
R1101015	SA-14M	5.0	6	16	50	R1201015	SA-14MP
R1101017	SA-1ML	6.0	6	25	50	R1201017	SA-1MLP
R1101019	SA-1M	6.0	6	16	50	R1201019	SA-1MP
R1101020	SA-51M	6.3	3	12.7	50	R1201020	SA-51MP
R1101021	SA-2M	8.0	6	19	63	R1201021	SA-2MP
R1101022	SA-3M	9.5	6	19	63	R1201022	SA-3MP
R1101025	SA-3ML	9.5	6	25	69	R1201025	SA-3MLP
R1101027	SA-4M	11.0	6	25	69	R1201027	SA-4MP
R1101029	SA-5M	12.7	6	25	69	R1201029	SA-5MP
R1101032	SA-6M	16.0	6	25	69	R1201032	SA-6MP
R1101034	SA-7M	19.0	6	25	69	R1201034	SA-7MP
R1101037	SA-9M	25.0	6	25	69	R1201037	SA-9MP



ALUMA CUT		D1	D2	L1	L2
EDP No.	ITEM No.				
R1301018	SA-1MNF	6.0	6	19	50
R1301024	SA-3MNF	9.5	6	19	63
R1301030	SA-5MNF	12.7	6	25	69
R1301033	SA-6MNF	16.0	6	25	69
R1301035	SA-7MNF	19.0	6	25	69



► Chip Breaker Type or Diamond Cut Type is available on your request.

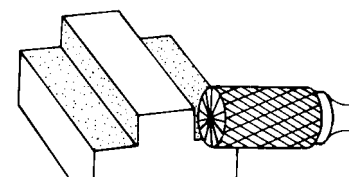

CYLINDER SHAPE WITH END CUT TYPE SB(FORM B)
ZYLINDER – FORM MIT STIRNVERZÄHNUNG TYP SB (FORM B)


Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1102001	SB-41M	1.5	3	6	38	R1202001	SB-41MP
R1102002	SB-41ML2	1.5	3	6	50	R1202002	SB-41ML2P
R1102003	SB-41ML3	1.5	3	6	75	R1202003	SB-41ML3P
R1102004	SB-42M	2.5	3	11	38	R1202004	SB-42MP
R1102005	SB-42ML2	2.5	3	11	50	R1202005	SB-42ML2P
R1102006	SB-42ML3	2.5	3	11	75	R1202006	SB-42ML3P
R1102007	SB-ECOM	3.0	3	-	38	-	-
R1102008	SB-43M	3.0	3	14	38	R1202008	SB-43MP
R1102026	SB-43ML2	3.0	3	14	50	R1202026	SB-43ML2P
R1102027	SB-43ML3	3.0	3	14	75	R1202027	SB-43ML3P
R1102009	SB-11M	3.0	6	12	56	R1202009	SB-11MP
R1102010	SB-12M	3.0	6	12.7	60	R1202010	SB-12MP
R1102011	SB-13M	4.0	6	16	50	R1202011	SB-13MP
R1102012	SB-14M	5.0	6	16	50	R1202012	SB-14MP
R1102013	SB-1M	6.0	6	16	50	R1202013	SB-1MP
R1102014	SB-1ML	6.0	6	25	50	R1202014	SB-1MLP
R1102015	SB-51M	6.3	3	4.7	43	R1202015	SB-51MP
R1102016	SB-2M	8.0	6	19	63	R1202016	SB-2MP
R1102017	SB-3M	9.5	6	19	63	R1202017	SB-3MP
R1102018	SB-3ML	9.5	6	25	69	R1202018	SB-3MLP
R1102020	SB-4M	11.0	6	25	69	R1202020	SB-4MP
R1102022	SB-5M	12.7	6	25	69	R1202022	SB-5MP
R1102023	SB-6M	16.0	6	25	69	R1202023	SB-6MP
R1102024	SB-7M	19.0	6	25	69	R1202024	SB-7MP
R1102025	SB-9M	25.0	6	25	69	R1202025	SB-9MP



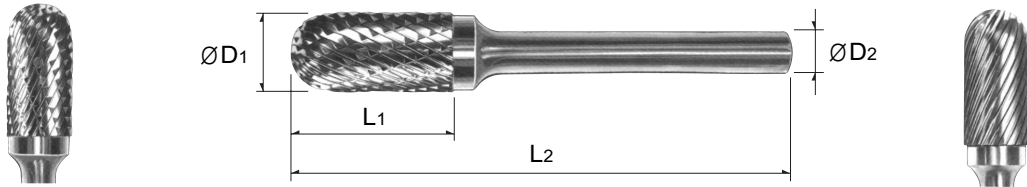
ALUMA CUT		D1	D2	L1	L2
EDP No.	ITEM No.				
R1302018	SB-1MNF	6.0	6	19	50
R1302024	SB-3MNF	9.5	6	19	63
R1302030	SB-5MNF	12.7	6	25	69
R1302033	SB-6MNF	16.0	6	25	69
R1302035	SB-7MNF	19.0	6	25	69



► Chip Breaker Type or Diamond Cut Type is available on your request.



CYLINDER SHAPE WITH RADIUS END TYPE SC(FORM C) WALZENRUND – FORM TYP SC (FORM C)

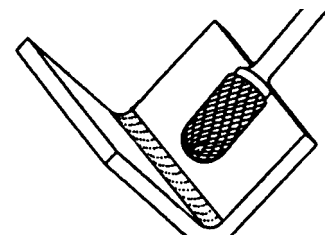


Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1103001	SC-41M	2.5	3	11	38	R1203001	SC-41MP
R1103002	SC-42M	3.0	3	14	38	R1203002	SC-42MP
R1103003	SC-42ML2	3.0	3	14	50	R1203003	SC-42ML2P
R1103004	SC-42ML3	3.0	3	14	75	R1203004	SC-42ML3P
R1103005	SC-11M	3.0	6	12	56	R1203005	SC-11MP
R1103006	SC-12M	3.0	6	16	60	R1203006	SC-12MP
R1103007	SC-52M	4.0	3	12.7	38	R1203007	SC-52MP
R1103008	SC-13M	4.0	6	16	50	R1203008	SC-13MP
R1103009	SC-53M	5.0	3	12.7	38	R1203009	SC-53MP
R1103010	SC-14M	5.0	6	16	50	R1203010	SC-14MP
R1103011	SC-1M	6.0	6	16	50	R1203011	SC-1MP
R1103014	SC-1ML	6.0	6	25	50	R1203014	SC-1MLP
R1103015	SC-51M	6.3	3	12.7	50	R1203015	SC-51MP
R1103016	SC-2M	8.0	6	19	63	R1203016	SC-2MP
R1103017	SC-3M	9.5	6	19	63	R1203017	SC-3MP
R1103020	SC-3ML	9.5	6	25	69	R1203020	SC-3MLP
R1103022	SC-4M	11.0	6	25	69	R1203022	SC-4MP
R1103024	SC-5M	12.7	6	25	69	R1203024	SC-5MP
R1103027	SC-6M	16.0	6	25	69	R1203027	SC-6MP
R1103028	SC-7M	19.0	6	25	69	R1203028	SC-7MP
R1103031	SC-9M	25.0	6	25	69	R1203031	SC-9MP



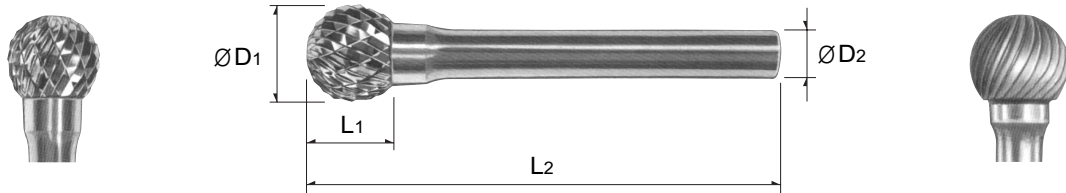
ALUMA CUT		D1	D2	L1	L2
EDP No.	ITEM No.				
R1303013	SC-1MNF	6.0	6	19	50
R1303019	SC-3MNF	9.5	6	19	63
R1303026	SC-5MNF	12.7	6	25	69
R1303029	SC-7MNF	19.0	6	25	69



► Chip Breaker Type or Diamond Cut Type is available on your request.



BALL SHAPE TYPE SD(FORM D) KUGEL – FORM TYP SD (FORM D)

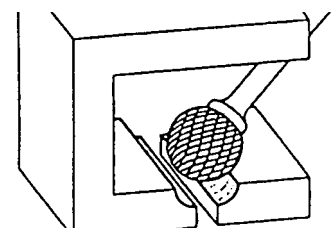


Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1104001	SD-41M	2.5	3	2.3	38	R1204001	SD-41MP
R1104002	SD-42M	3.0	3	2.8	38	R1204002	SD-42MP
R1104003	SD-42ML2	3.0	3	2.8	50	R1204003	SD-42ML2P
R1104004	SD-42ML3	3.0	3	2.8	75	R1204004	SD-42ML3P
R1104005	SD-11M	3.0	6	2.8	50	R1204005	SD-11MP
R1104007	SD-53M	5.0	3	4	38	R1204007	SD-53MP
R1104008	SD-14M	5.0	6	4	50	R1204008	SD-14MP
R1104010	SD-1M	6.0	6	5	50	R1204010	SD-1MP
R1104012	SD-51M	6.3	3	5	44	R1204012	SD-51MP
R1104013	SD-2M	8.0	6	6.4	50	R1204013	SD-2MP
R1104014	SD-3M	9.5	6	8	52	R1204014	SD-3MP
R1104018	SD-4M	11.0	6	9.5	54	R1204018	SD-4MP
R1104020	SD-5M	12.7	6	11	55	R1204020	SD-5MP
R1104023	SD-6M	16.0	6	14	58	R1204023	SD-6MP
R1104025	SD-7M	19.0	6	16	62	R1204025	SD-7MP
R1104028	SD-9M	25.0	6	23	68	R1204028	SD-9MP



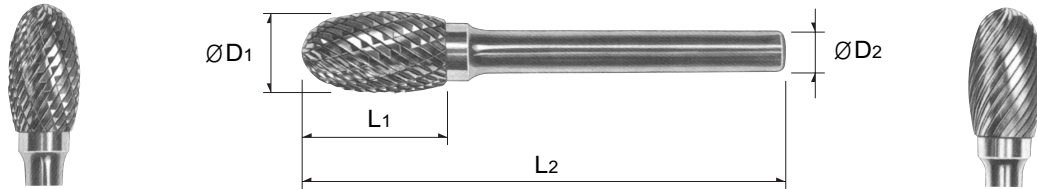
ALUMA CUT		D1	D2	L1	L2
EDP No.	ITEM No.				
R1304011	SD-1MNF	6.0	6	5	50
R1304015	SD-3MNF	9.5	6	8	52
R1304021	SD-5MNF	12.7	6	11	55
R1304024	SD-6MNF	16.0	6	14	58
R1304026	SD-7MNF	19.0	6	16	62



► Chip Breaker Type or Diamond Cut Type is available on your request.



OVAL SHAPE TYPE SE(FORM E) TROPFEN – FORM TYP SE (FORM E)

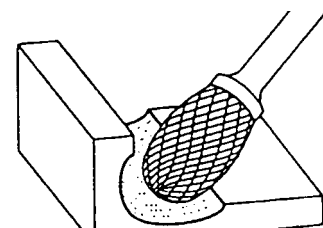


Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1105001	SE-41M	3.0	3	5.5	38	R1205001	SE-41MP
R1105002	SE-41ML2	3.0	3	5.5	50	R1205002	SE-41ML2P
R1105003	SE-41ML3	3.0	3	5.5	75	R1205003	SE-41ML3P
R1105004	SE-53M	5.0	3	7.1	38	R1205004	SE-53MP
R1105005	SE-1M	6.0	6	9.5	50	R1205005	SE-1MP
R1105007	SE-51M	6.3	3	9.5	47	R1205007	SE-51MP
R1105008	SE-3M	9.5	6	16	60	R1205008	SE-3MP
R1105011	SE-5M	12.7	6	22	66	R1205011	SE-5MP
R1105014	SE-6M	16.0	6	25	69	R1205014	SE-6MP
R1105016	SE-7M	19.0	6	25	69	R1205016	SE-7MP



ALUMA CUT		D1	D2	L1	L2
EDP No.	ITEM No.				
R1305010	SE-3MNF	9.5	6	16	60
R1305013	SE-5MNF	12.7	6	22	66
R1305015	SE-6MNF	16.0	6	25	69
R1305017	SE-7MNF	19.0	6	25	69



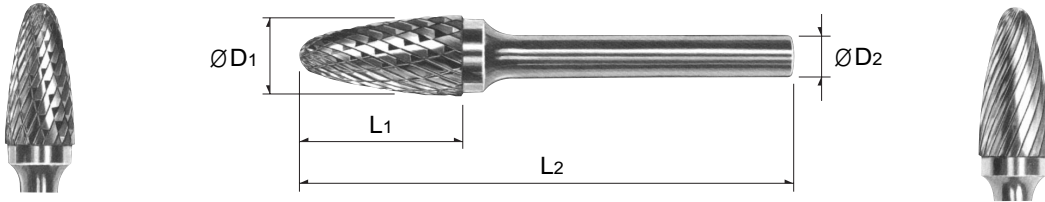
► Chip Breaker Type or Diamond Cut Type is available on your request.

HSS

CARBIDE


ROTARY BURRS
SF R1106, R1206, R1306
TREE SHAPE WITH RADIUS END TYPE SF(FORM F)
RUNDBOGEN – FORM TYP SF (FORM F)

REAMERS

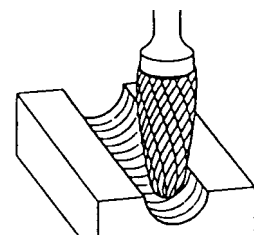
COUNTER
SINKSCOUNTER
BORES
**ROTARY
BURRS**
GROUND
CARBIDE
BARS

Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1106001	SF-41M	3.0	3	6	38	R1206001	SF-41MP
R1106002	SF-42M	3.0	3	12.7	38	R1206002	SF-42MP
R1106003	SF-11M	3.0	6	12.7	56	R1206003	SF-11MP
R1106004	SF-42ML2	3.0	3	12.7	50	R1206004	SF-42ML2P
R1106005	SF-42ML3	3.0	3	12.7	75	R1206005	SF-42ML3P
R1106006	SF-53M	5.0	3	12.7	38	R1206006	SF-53MP
R1106008	SF-1M	6.0	6	16	50	R1206008	SF-1MP
R1106010	SF-51M	6.3	3	12.7	50	R1206010	SF-51MP
R1106011	SF-3M	9.5	6	19	63	R1206011	SF-3MP
R1106014	SF-4M	11.0	6	25	69	R1206014	SF-4MP
R1106016	SF-13M	12.7	6	19	63	R1206016	SF-13MP
R1106017	SF-5M	12.7	6	25	69	R1206017	SF-5MP
R1106020	SF-6M	16.0	6	25	69	R1206020	SF-6MP
R1106022	SF-7M	19.0	6	25	69	R1206022	SF-7MP
R1106023	SF-14M	19.0	6	32	76	R1206023	SF-14MP
R1106026	SF-15M	19.0	6	38	82	R1206026	SF-15MP



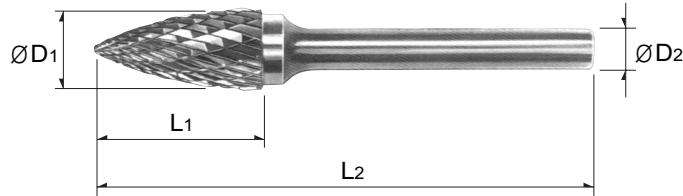
ALUMA CUT		D1	D2	L1	L2
EDP No.	ITEM No.				
R1306009	SF-1MNF	6.0	6	19	50
R1306013	SF-3MNF	9.5	6	19	63
R1306019	SF-5MNF	12.7	6	25	69
R1306021	SF-6MNF	16.0	6	25	69
R1306024	SF-14MNF	19.0	6	32	76



▶ Chip Breaker Type or Diamond Cut Type is available on your request.



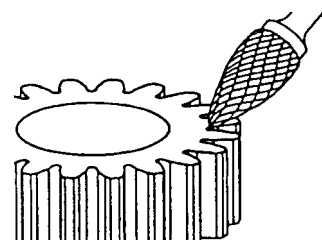
TREE SHAPE WITH POINTED END TYPE SG(FORM G) SPITZBOGEN – FORM TYP SG (FORM G)



Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1107001	SG-41M	3.0	3	6	38	R1207001	SG-41MP
R1107002	SG-43M	3.0	3	9.5	38	R1207002	SG-43MP
R1107003	SG-44M	3.0	3	12.7	38	R1207003	SG-44MP
R1107004	SG-44ML2	3.0	3	12.7	50	R1207004	SG-44ML2P
R1107005	SG-44ML3	3.0	3	12.7	75	R1207005	SG-44ML3P
R1107006	SG-53M	5.0	3	12.7	38	R1207006	SG-53MP
R1107008	SG-1M	6.0	6	16	50	R1207008	SG-1MP
R1107009	SG-51M	6.3	3	12.7	50	R1207009	SG-51MP
R1107010	SG-2M	8.0	6	19	63	R1207010	SG-2MP
R1107011	SG-3M	9.5	6	19	63	R1207011	SG-3MP
R1107015	SG-13M	12.7	6	19	63	R1207015	SG-13MP
R1107016	SG-5M	12.7	6	25	69	R1207016	SG-5MP
R1107018	SG-6M	16.0	6	25	69	R1207018	SG-6MP
R1107019	SG-7M	19.0	6	25	69	R1207019	SG-7MP
R1107020	SG-15M	19.0	6	38	82	R1207020	SG-15MP

► Chip Breaker Type or Diamond Cut Type is available on your request.



HSS

CARBIDE

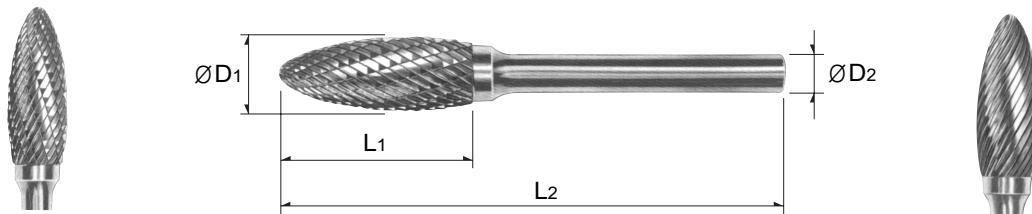
REAMERS

COUNTER SINKS

COUNTER BORES

ROTARY BURRS

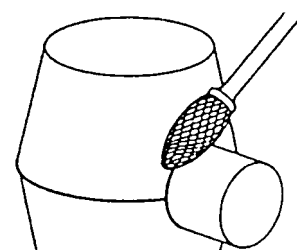
GROUND CARBIDE BARS


FLAME SHAPE TYPE SH(FORM H)
FLAMMEN – FORM TYP SH (FORM H)


Unit : mm

DOUBLE CUT		D ₁	D ₂	L ₁	L ₂	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1108001	SH-41M	3.0	3	6.3	38	R1208001	SH-41MP
R1108002	SH-41ML2	3.0	3	6.3	50	R1208002	SH-41ML2P
R1108003	SH-41ML3	3.0	3	6.3	75	R1208003	SH-41ML3P
R1108004	SH-53M	5.0	3	9.5	38	R1208004	SH-53MP
R1108005	SH-2M	8.0	6	19	63	R1208005	SH-2MP
R1108007	SH-5M	12.7	6	32	76	R1208007	SH-5MP
R1108009	SH-6M	16.0	6	36	80	R1208009	SH-6MP
R1108010	SH-7M	19.0	6	41	85	R1208010	SH-7MP

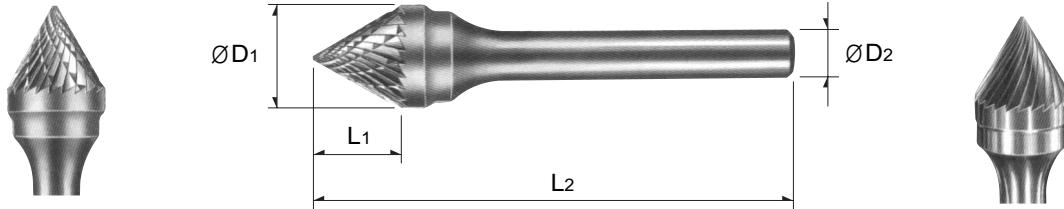
► Chip Breaker Type or Diamond Cut Type is available on your request.





60° CONE SHAPE TYPE SJ(FORM J)

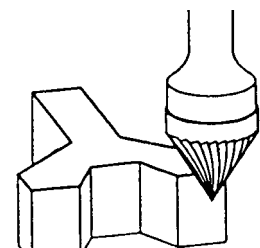
60° KEGELSENK – FORM TYP SJ (FORM J)



Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1109001	SJ-42M	3.0	3	2.5	38	R1209001	SJ-42MP
R1109002	SJ-1M	6.0	6	4	50	R1209002	SJ-1MP
R1109003	SJ-3M	9.5	6	8	55	R1209003	SJ-3MP
R1109004	SJ-5M	12.7	6	11	58	R1209004	SJ-5MP
R1109005	SJ-6M	16.0	6	13.5	61	R1209005	SJ-6MP
R1109006	SJ-7M	19.0	6	16.5	65	R1209006	SJ-7MP
R1109007	SJ-9M	25.0	6	21.5	68	R1209007	SJ-9MP

► Chip Breaker Type or Diamond Cut Type is available on your request.



HSS

CARBIDE

REAMERS

COUNTER SINKS

COUNTER BORES

ROTARY BURRS

GROUND CARBIDE BARS

HSS

CARBIDE


ROTARY BURRS
SK R1110, R1210
90° CONE SHAPE TYPE SK(FORM K)
90° KEGELSENK – FORM TYP SK (FORM K)

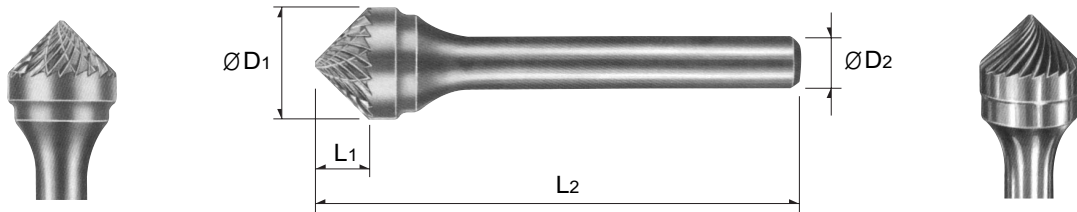
REAMERS

COUNTER SINKS

COUNTER BORES

ROTARY BURRS

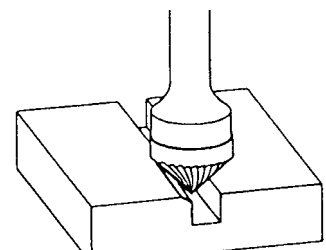
GROUND CARBIDE BARS



Unit : mm

DOUBLE CUT		D1	D2	L1	L2	PLAIN CUT	
EDP No.	ITEM No.					EDP No.	ITEM No.
R1110001	SK-42M	3.0	3	1.5	38	R1210001	SK-42MP
R1110002	SK-1M	6.0	6	3	50	R1210002	SK-1MP
R1110003	SK-3M	9.5	6	4.7	52	R1210003	SK-3MP
R1110004	SK-5M	12.7	6	6.3	54	R1210004	SK-5MP
R1110005	SK-6M	16.0	6	8	57	R1210005	SK-6MP
R1110006	SK-7M	19.0	6	9.5	58	R1210006	SK-7MP
R1110007	SK-9M	25.0	6	12.7	60	R1210007	SK-9MP

► Chip Breaker Type or Diamond Cut Type is available on your request.

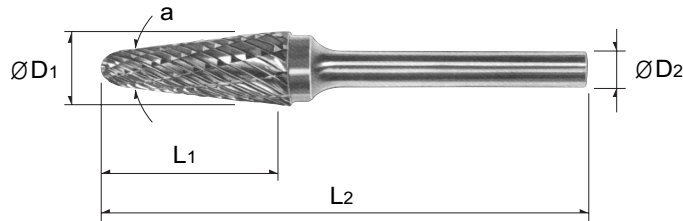




ROTARY BURRS

SL R1111, R1211, R1311

TAPER WITH RADIUS END TYPE SL(FORM L) RUNDKEGEL – FORM TYP SL (FORM L)

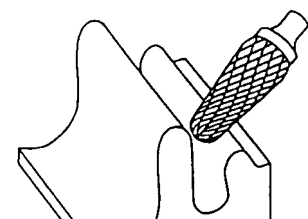


Unit : mm

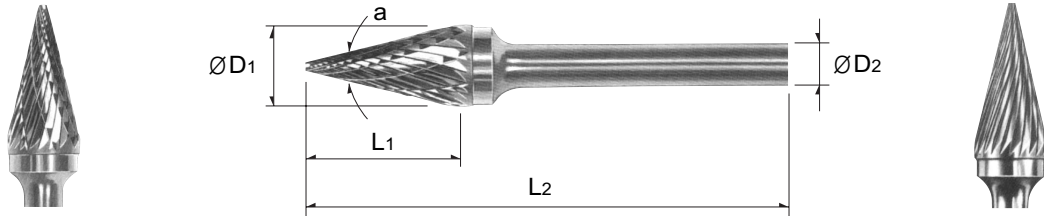
DOUBLE CUT		D1	D2	L1	L2	a	PLAIN CUT	
EDP No.	ITEM No.						EDP No.	ITEM No.
R1111001	SL-41M	3.0	3	9.5	38	8°	R1211001	SL-41MP
R1111002	SL-42M	3.0	3	12.7	38	8°	R1211002	SL-42MP
R1111003	SL-42ML2	3.0	3	12.7	50	8°	R1211003	SL-42ML2P
R1111004	SL-42ML3	3.0	3	12.7	75	8°	R1211004	SL-42ML3P
R1111005	SL-53M	5.0	3	12.7	38	14°	R1211005	SL-53MP
R1111006	SL-1M	6.0	6	16	50	14°	R1211006	SL-1MP
R1111008	SL-2M	8.0	6	22	69	14°	R1211008	SL-2MP
R1111009	SL-3M	9.5	6	27	74	14°	R1211009	SL-3MP
R1111012	SL-4M	12.7	6	28	76	14°	R1211012	SL-4MP
R1111015	SL-5M	16.0	6	30	77	14°	R1211015	SL-5MP
R1111017	SL-7M	19.0	6	38	85	14°	R1211017	SL-7MP



ALUMA CUT		D1	D2	L1	L2	a
EDP No.	ITEM No.					
R1311010	SL-3MNF	9.5	6	27	74	14°
R1311013	SL-4MNF	12.7	6	28	76	14°
R1311016	SL-5MNF	16.0	6	30	77	14°
R1311018	SL-7MNF	19.0	6	38	85	14°



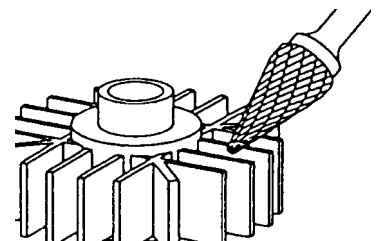
► Chip Breaker Type or Diamond Cut Type is available on your request.


CONE SHAPE TYPE SM(FORM M)
SPITZKEGEL – FORM TYP SM (FORM M)


Unit : mm

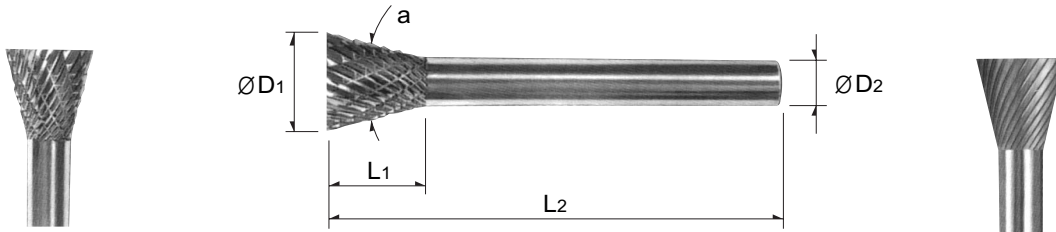
DOUBLE CUT		D1	D2	L1	L2	a	PLAIN CUT	
EDP No.	ITEM No.						EDP No.	ITEM No.
R1112001	SM-41M	3.0	3	8.9	38	12°	R1212001	SM-41MP
R1112002	SM-42M	3.0	3	11	38	14°	R1212002	SM-42MP
R1112003	SM-42ML2	3.0	3	11	50	14°	R1212003	SM-42ML2P
R1112004	SM-42ML3	3.0	3	11	75	14°	R1212004	SM-42ML3P
R1112005	SM-43M	3.0	3	16	38	7°	R1212005	SM-43MP
R1112006	SM-53M	5.0	3	12.7	38	16°	R1212006	SM-53MP
R1112007	SM-1M	6.0	6	12.7	50	22°	R1212007	SM-1MP
R1112008	SM-2M	6.0	6	19	50	14°	R1212008	SM-2MP
R1112009	SM-3M	6.0	6	25	50	10°	R1212009	SM-3MP
R1112010	SM-51M	6.3	3	12.7	53	22°	R1212010	SM-51MP
R1112011	SM-4M	9.5	6	16	63	28°	R1212011	SM-4MP
R1112012	SM-5M	12.7	6	22	69	28°	R1212012	SM-5MP
R1112013	SM-6M	16.0	6	25	73	31°	R1212013	SM-6MP

► Chip Breaker Type or Diamond Cut Type is available on your request.





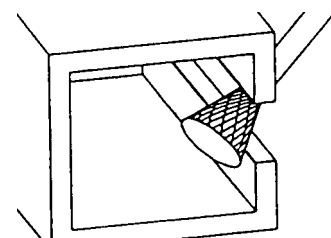
INVERTED CONE SHAPE TYPE SN(FORM N) WINKEL – FORM TYP SN (FORM N)



Unit : mm

DOUBLE CUT		D1	D2	L1	L2	a	PLAIN CUT	
EDP No.	ITEM No.						EDP No.	ITEM No.
R1113001	SN-41M	2.5	3	3	38	10°	R1213001	SN-41MP
R1113002	SN-42M	3.0	3	4	38	10°	R1213002	SN-42MP
R1113003	SN-53M	5.0	3	6.3	38	10°	R1213003	SN-53MP
R1113004	SN-1M	6.0	6	8	50	10°	R1213004	SN-1MP
R1113005	SN-51M	6.3	3	6	44	10°	R1213005	SN-51MP
R1113006	SN-2M	9.5	6	9.5	53	13°	R1213006	SN-2MP
R1113007	SN-4M	12.7	6	12.7	57	28°	R1213007	SN-4MP
R1113008	SN-6M	16.0	6	19	63	18°	R1213008	SN-6MP
R1113009	SN-7M	19.0	6	16	60	30°	R1213009	SN-7MP

► Chip Breaker Type or Diamond Cut Type is available on your request.



HSS

CARBIDE

REAMERS

COUNTER SINKS

COUNTER BORES

ROTARY BURRS

GROUND CARBIDE BARS

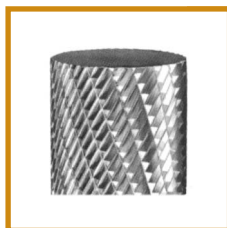


TECHNICAL INFORMATION FOR CARBIDE BURRS TECHNISCHE INFORMATION ZU HARTMETALL FRÄSSTIFTEN



Plain Cut Schlichtzahnung

- The general use of "Plain Cut" is on steels, steel alloys, cast iron, copper and brass.
- Designed for rapid stock removal and good workpiece finishes.
- Produces long chips.
- Zum gewöhnlichen Einsatz in Stahl, legiertem Stahl, Guss, Kupfer und Messing.
- Entwickelt für schnellen Spanabtrag und gute Oberflächenqualität.
- Macht lange Späne



Double Cut Spanbrecher

- The double cut burr allows rapid stock removal in the harder materials.
- Designed for creating a small chip and excellent workpiece finishes.
- The small chip helps to eliminate loading of the flutes.
- Exceedingly convenient application by user.
- Erlaubt schnellen Spanabtrag von härteren Werkstoffen.
- Macht kurze Späne und ausgezeichnete Oberflächengüte.
- Der kurze Span hilft, das Zusetzen der Nuten zu verhindern.
- Meistverwendete Zahnform.



Aluma Cut Alu-Zahnung

- Designed to have wider chip space with relief angle.
- More suitable application to non-ferrous metals.
- Größerer Spanraum und mit Spanwinkel.
- Überwiegend für Nichteisen-Metalle entwickelt



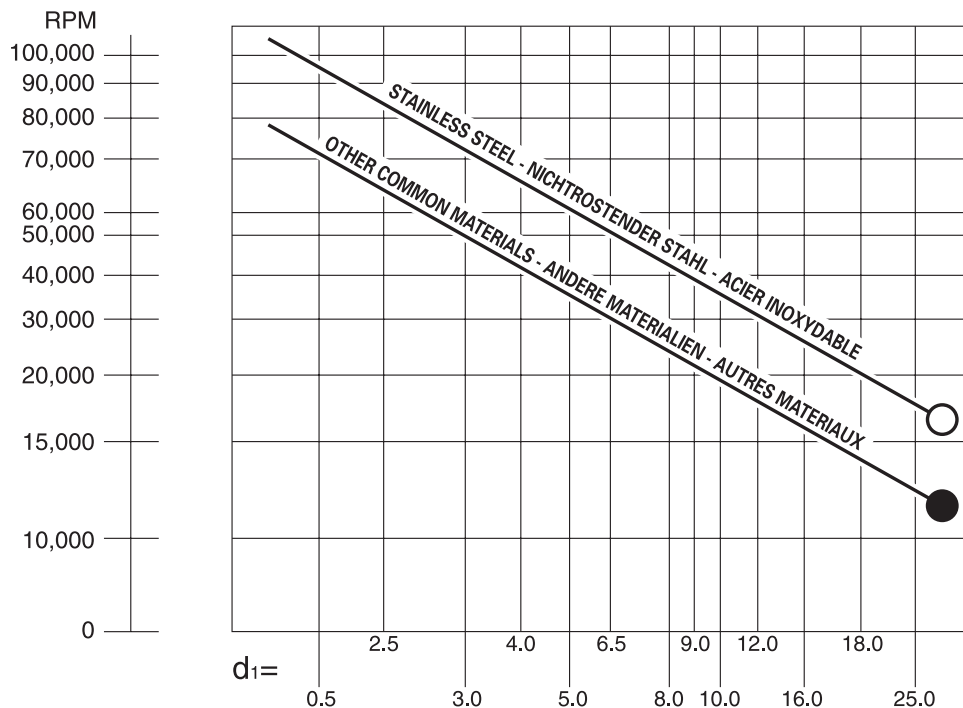
Diamond Cut Diamant-Zahnung

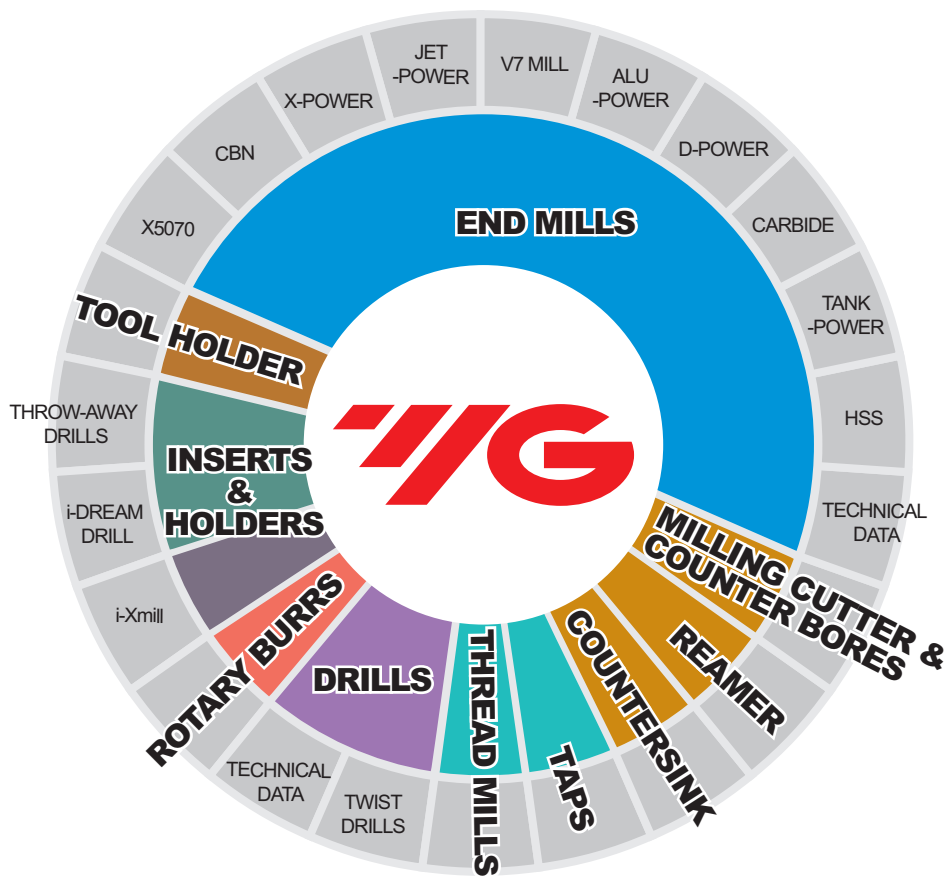
- Designed for creating extremely small chips as powder-like chip.
- Excellent operator control on heat treated and tough alloy steels.
- Excellent finishes.
- Macht extrem kleine Späne, pulverähnliche Späne.
- Gute Führungskontrolle bei gehärteten und zähen legierten Stählen.
- Ausgezeichnete Oberfläche.

BURR APPLICATION INFORMATION EINSATZ EMPFEHLUNGEN

MATERIALS	PLAIN CUT	DOUBLE CUT	ALUMA CUT	DIAMOND CUT	CHIP BREAKER
ALUMINUM			●		
BRASS, BRONZE, COPPER	●	●			●
FIBER GLASS				●	
CAST IRON	●	●			●
PLASTICS			●		
STEEL, HRc 40~55	●	●		●	●
STEEL, HRc 55~60	●	●		●	●
STEEL, CARBON	●	●			●
STEEL, NICKEL CHROME	●	●		●	●
STEEL, WELDMENTS	●	●			●
TITANIUM	●	●			●
ZINC			●		

BURR SPEED RECOMMENDATIONS SCHNITTGESCHWINDIGKEITS EMPFEHLUNGEN





Challenge Toward a Global Leader-
YG-1 Leads the World Market.

CARBIDE



Being the best through innovation



GROUND CARBIDE BARS

GESCHLIFFENE VHM - RUNDSTÄBE

- 320mm(LENGTH) GROUND CARBIDE BARS
h6(Diameter Tolerance), +6.0mm(Length Tolerance)
- GESCHLIFFENE VHM - RUNDSTÄBE (320 mm Gesamtlänge)
h6 \AA -Tol. +6,0 mm GL-Tol.

**GROUND CARBIDE BARS**
GESCHLIFFENE VHM - RUNDSTÄBE

Unit : mm

EDP No.	Diameter	Length
	D(h6)	L
B6321030	3.0	320
B6321040	4.0	320
B6321050	5.0	320
B6321060	6.0	320
B6321070	7.0	320
B6321080	8.0	320
B6321090	9.0	320
B6321100	10.0	320
B6321110	11.0	320
B6321120	12.0	320
B6321130	13.0	320
B6321140	14.0	320
B6321150	15.0	320
B6321160	16.0	320
B6321170	17.0	320
B6321180	18.0	320
B6321190	19.0	320
B6321200	20.0	320

Diameter Tolerance(mm)	Length Tolerance(mm)
h6	0~6.0

SPECIAL CUTTING TOOLS

Step drills(HSS & Carbide, Multi-diameter Drills)

HSS Sub-land (Step) Drills

Carbide Burnishing Drills

HSS Drill Taps

Acme Thread Taps & Trapezoidal thread taps

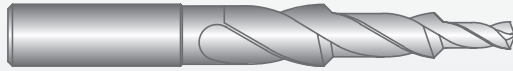
Carbide step Reamers

Bridge Reamers

Aircraft drills.



STEP DRILLS(HSS & CARBIDE, MULTI-DIAMETER DRILLS) STUFENBOHRER(HSS UND VHM, MULTI-DURCHMESSER-BOHRER)



These tools can produce all type of multi-diameters hole.

available 2 step, 3 step & 4 step drill etc.



Diese Bohrer können beliebige Multi-Durchmesser-Bohrungen machen.

Lieferbar mit 2 Stufen, 3 Stufen, 4 Stufen, usw.

HSS SUB-LAND (STEP) DRILLS HSS MEHRFASEN-STUFENBOHRER



The subland (step) drill performs the same function as the step drill though its construction is somewhat different.

The advantage of the subland drill is that the two diameters may be maintained constant throughout the life of drill because in resharping the cutting edges of the large diameter it is unnecessary to touch the margins of the small diameter.

It is somewhat more expensive to manufacture than the step drill, but the convenience and economy in resharping often outweigh the difference in first cost.

Der Mehrfasen-Stufenbohrer arbeitet wie der einfache Stufenbohrer, unterscheidet sich aber in der Konstruktion.

Der Vorteil des Mehrfasen-Stufenbohrers ist, dass die zwei Durchmesser über die gesamte Lebensdauer des Bohrers gleich bleiben, weil beim Nachschleifen der Schneiden des großen Durchmessers die Rundlauffase des kleineren Durchmessers unberührt bleiben kann.

Seine Herstellung ist teurer als ein Stufenbohrer, aber die Vorteile und Wirtschaftlichkeit beim Nachschärfen überwiegen meist die höheren Einstandskosten.

CARBIDE BURNISHING DRILLS VHM- BOHRER ZUM GLÄTTEN



The burnishing drill has four margins which stabilize it as it is drilling.

The two extra "Burnishing" margins also help to smooth the hole after the "Cutting" margin has cut, giving the hole a better finish than a conventional drill.

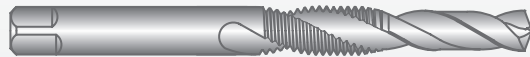


Der Glättbohrer hat vier Rundlauffasen, die ihn beim Bohren stabilisieren.

Die zwei zusätzlichen "Glättfasen" dienen auch dazu, die Bohrungswand nach dem Bohren zu glätten und der Bohrung ein besseres Finish zu geben als herkömmliche Spiralbohrer.



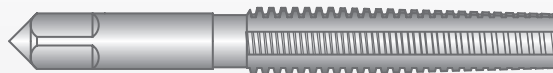
HSS DRILL TAPS HSS KOMBI-GEWINDEBOHRER



These tools are used for drilling & threading in one operation.

Dieses Werkzeug vereint das Bohren und Gewinden in einem Arbeitsgang.

ACME THREAD TAPS & TRAPEZOIDAL THREAD TAPS ACMEGEWINDEBOHRER UND ACMETRAPEZGEWINDEBOHRER



Acme threads(29°) and trapezoidal threads(30°) are used for purpose of producing traversing motion on machine tools and similar machines.

These taps are used for making internal threads of screw for traversing motion.

Die (amerikanischen) Acmegewinde (29°) und Acmetrapezgewinde (30°) werden dazu benutzt um Schwenkvorrichtungen in Werkzeugmaschinen und ähnlichen Maschinen herzustellen.

Diese Gewindebohrer werden benutzt um Innengewinde von Schwenkvorrichtungen herzustellen.

CARBIDE STEP REAMERS VHM STUFENREIBAHLEN



Using carbide substrates, longer tool life and better finish than HSS reamers can be achieved .

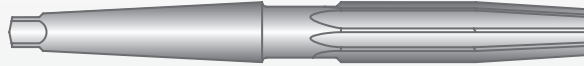
Two or more step diameters or chamfers can be machined in one operation.

Durch den Einsatz von Hartmetall werden längere Standzeiten und besseres Finish erreicht, als mit HSS-Reibahlen.

Zwei oder mehr Stufendurchmesser oder Anfasungen können in einem Arbeitsgang erledigt werden.



BRIDGE REAMERS NIETLOCHREIBAHLEN



Bridge reamers, made of high speed steels, are especially designed for severe service and are particularly adapted for use in structural iron and steel, bridge erection, and ship construction, where extreme precision not required.

HSS - Nietlochreibahlen sind für raue Einsatzbedingungen gemacht und besonders für die Bearbeitung von Eisen und Baustahl im Brücken- und Schiffbau, wo keine große Präzision benötigt wird.

AIRCRAFT DRILLS. STANGENBOHRER FÜR DIE LUFTFAHRTINDUSTRIE

- Aircraft Extension Drills(6" & 12" O.A.L.)



- Treaded Shank Aircraft Drills



- 1) Aircraft Extension Drills(6" & 12" OAL)
- 2) Threaded Shank Aircraft Drills.

Used for drilling aircraft materials and made to NAS 907 specification.

- 1) Lange Stangenbohrer (6" und 12" GL)
- 2) Stangenbohrer mit Gewindeschaft

Zum Einsatz in Werkstoffen für die Luftfahrtindustrie; gefertigt nach NAS 907 Norm.



Step drills/(HSS & Carbide, Multi-diameter Drills)
 HSS Sub-land (Step) Drills
 Carbide Burnishing Drills
 HSS Drill Taps
 Acme Thread Taps & Trapezoidal thread taps
 Carbide step Reamers
 Bridge Reamers
 Aircraft drills.

TOOL HOLDERS

HYDRAULIC CHUCK

SHRINK FIT HOLDER

MILLING CHUCK

SK SLIM CHUCK

ER COLLET CHUCK

NC DRILL CHUCK

MORSE TAPER ARBOR

TAPPING ER CHUCK

TAP CHUCK

END MILL HOLDER & SIDE LOCK ARBOR

FACE MILL SYSTEM

FACE MILL SYSTEM

SHELL MILL ARBOR & COMBI SMA

BORING SYSTEM

TOOL HOLDERS INDEX

HYDRAULIC CHUCK

 MAS403-BT page :1064~1067	 DIN69893-HSK page : 1068~1070	 DIN69871-SK page : 1071~1073	 MAS403-BT (HMC) page : 1074
 DIN69893-HSK (HMC) page : 1075	 DIN69871-SK (HMC) page : 1076	 DIN228-MTB (For Grinder) page : 1077	 COLLET page : 1078



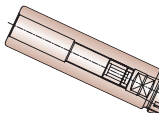

SHRINK FIT HOLDER

 MAS403-BT page : 1079~1080	 DIN69893-HSK page : 1081~1083	 DIN69871-SK page : 1084~1085	 EXTENSION page : 1086~1087
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MILLING CHUCK

 MAS403-BT page : 1088~1089	 DIN69893-HSK page : 1090~1091	 DIN69871-SK page :1092~1093	 DIN228-MTA page : 1094
 R8 page : 1095	 STANDARD SET page :1096	 Q.C SET page : 1097	 COLLET & SPANNER page : 1098



SK SLIM CHUCK

 MAS403-BT page : 1099~1100	 DIN69893-HSK page :1101	 K page : 1102	 COLLET & NUT page : 1103~1104
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ER COLLET CHUCK

 MAS403-BT page : 1106~1107	 DIN69893-HSK page :1108~1109	 DIN69871-SK page : 1110~1111	 MAS403-BT page :1112
 DIN228-MTA page : 1113	 DIN228-MTB page : 1114	 K page : 1115~1116	 NC page : 1117
 ER COLLET-UF page :1118~1119	 ER COLLET for TAP page : 1120	 ER SPANNER / WRENCH page : 1121	

NC DRILL CHUCK

 MAS403-BT page : 1122	 K page : 1123	 JACOBS TAPER ADAPTER page : 1124
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MORSE TAPER ARBOR

 MAS403-BT page : 1125~1126	 ANSI B5.18-NT page : 1127	 DIN69893-HSK page :1128	 DIN69871-SK page : 1129
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TAPPING ER CHUCK

 MAS403-BT page : 1130	 DIN69893-HSK page : 1131	 DIN69871-SK page : 1132
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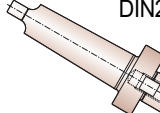


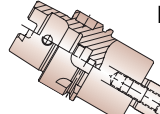
TAP CHUCK

 MAS403-BT page : 1133	 K page : 1134	 DIN69893-HSK page : 1135	 DIN69871-SK page : 1136
 DIN228-MTA page : 1136	 TAP ADAPTER page : 1137		

END MILL HOLDER & SIDE LOCK ARBOR

 DIN69871-SK page : 1138~1140	 DIN69893-HSK page : 1141~1142	 MAS403-BT(EMH) page : 1143	 MAS403-BT(SLA) page : 1144 (SLB) page : 1145
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FACE MILL SYSTEM

 MAS403-BT (FMA) page : 1146	 DIN2080-NT (FMA) page : 1147	 DIN228-MTA (FMA) page : 1147	 MAS403-BT (FMB) page : 1148
 MAS403-BT (FMC) page : 1149	 DIN69893-HSK page : 1150		

SHELL MILL ARBOR & COMBI SMA

 MAS403-BT page : 1151	 DIN69893-HSK page : 1152	 DIN69871-SK page : 1153	 MAS403-BT (SCA) page : 1155
 DIN69893-HSK (CMA) page : 1156	 DIN69871-SK (CMA) page : 1157	 MAS403-BT (CMA) page : 1158	 DIN2080-ISO (CMA) page : 1159

BORING SYSTEM

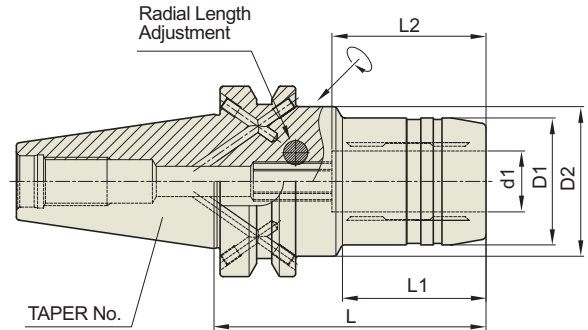
 MAS403-BT (TBH) page : 1161	 DIN69871-SK (TBH) page : 1162	 MAS403-BT (SAS) page : 1163	 DIN69871-SK (SAS) page : 1164
 MAS403-BT (TBH) page : 1167	 DIN69871-SK (TBH) page : 1168	 MAS403-BT (FBH) page : 1169	 DIN69871-SK (FBH) page : 1170
 MAS403-BT (SAS) page : 1171 DIN69871-SK (page : 1171)	 MAS403-BT (BCA) page : 1173~1174	 ST page : 1175	 MAS403-BT (BSA) page : 1179 (BSB) page : 1180



HYDRAULIC CHUCK (Radial tool length pre-setting type)

HYDRAULIK SPANNFUTTER (Radiale Werkzeuglängen Voreinstellung)

MAS403-BT FORM AD/B



MAS403 -BT	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System AD/B
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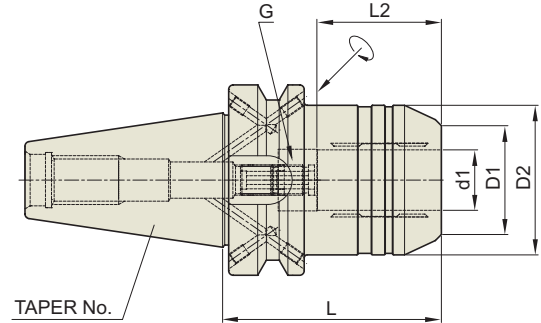
TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	Weight (kg)
30	BT30AD/B-HCR12-85	12	32	44.5	85	40	37	0.90
	BT30AD/B-HCR20-85	20	44	44	85	-	42	1.00
40	BT40AD/B-HCR12-90	12	32	44.5	90	44.5	37	1.50
	BT40AD/B-HCR20-90	20	42	49.5	90	47.5	42	1.60
	BT40AD/B-HCR32-105	32	60	60	105	-	55	2.20
50	BT50AD/B-HCR12-95	12	32	44.5	95	34	37	3.90
	BT50AD/B-HCR20-95	20	42	44.5	95	34	42	4.00
	BT50AD/B-HCR32-115	32	60	60	115	-	55	4.10

▶ In case of BT50, balancing grade shall be guaranteed up to G2.5/15,000rpm.

▶ Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC CHUCK (SHORT & HEAVY) HYDRAULIK SPANNFUTTER (KURZ und SCHWER)

MAS403-BT FORM AD/B


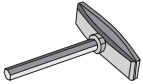


MAS403-BT	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System AD/B
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TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
30	BT30AD/B-HC20S-85	20	41	44	85	42	M10×1.0	0.93
40	BT40AD/B-HC20S-72.5	20	37	49.5	72.5	42	M16×1.0	1.40
50	BT50AD/B-HC20S-90	20	37	49.5	90	42	M16×1.0	3.85
	BT50AD/B-HC32S-90	32	55	72	90	55	M16×1.0	4.53

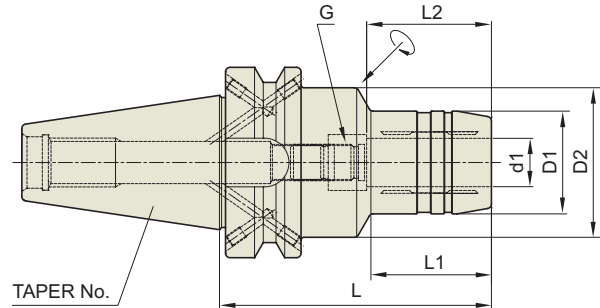
- ▶ In case of BT50, balancing grade shall be guaranteed up to G2.5/15,000rpm.
- ▶ Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC CHUCK COLLET (REDUCTION SLEEVE)

HK COLLET	CODE No.	T-WRENCH	CODE No.
	HK12		T-4
	HK20		T-5
	HK32		

**HYDRAULIC CHUCK (SLIM)****HYDRAULIK SPANNFUTTER (SCHLANK)**

MAS403-BT FORM AD/B

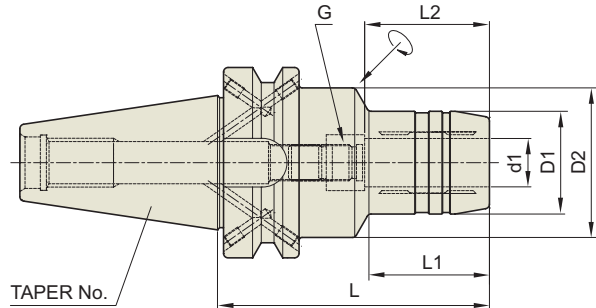
MAS403
-BTTaper
Accuracy
AT3G Value
2.5RPM
20,000Coolant
System
AD/B

TAPER No.	CODE No.	d1	D1	D2	L	L1	L2	G	Weight (kg)
30	BT30AD/B-HC6-70	6	26	44.5	70	29.5	27	M5×0.8	0.65
	BT30AD/B-HC8-70	8	28	44.5	70	30	27	M6×1.0	0.65
	BT30AD/B-HC10-75	10	30	44.5	75	31	32	M8×1.0	0.73
	BT30AD/B-HC12-85	12	32	44.5	85	40	37	M10×1.0	0.80
	BT30AD/B-HC14-85	14	34	44.5	85	40	37	M10×1.0	0.80
	BT30AD/B-HC16-90	16	38	44.5	90	46	42	M12×1.0	0.90
	BT30AD/B-HC18-90	18	40	44.5	90	46	42	M12×1.0	0.90
BT30AD/B-HC20-90	20	42	44.5	90	48	42	M16×1.0	0.90	
40	BT40AD/B-HC6-90	6	26	49.5	90	30	27	M5×0.8	1.30
	BT40AD/B-HC8-90	8	28	49.5	90	30	27	M6×1.0	1.30
	BT40AD/B-HC10-90	10	30	49.5	90	32	32	M8×1.0	1.35
	BT40AD/B-HC12-90	12	32	49.5	90	35	37	M10×1.0	1.35
	BT40AD/B-HC14-90	14	34	49.5	90	35	37	M10×1.0	1.35
	BT40AD/B-HC16-90	16	38	49.5	90	40	42	M12×1.0	1.40
	BT40AD/B-HC18-90	18	40	49.5	90	40	42	M12×1.0	1.45
	BT40AD/B-HC20-90	20	42	49.5	90	40	42	M16×1.0	1.50
	BT40AD/B-HC25-100	25	50	60	100	45	48	M16×1.0	1.70
BT40AD/B-HC32-105	32	60	60	105	50	55	M16×1.0	2.10	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC CHUCK (SLIM) HYDRAULIK SPANNFUTTER (SCHLANK)

MAS403-BT FORM AD/B



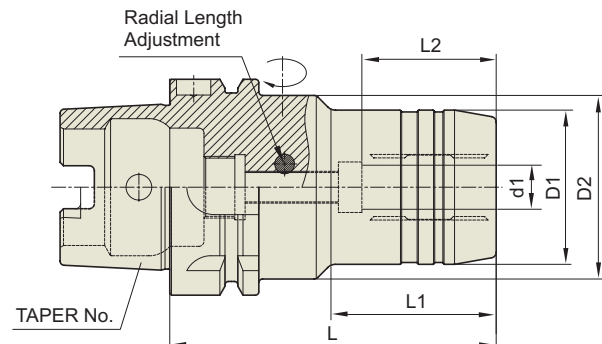
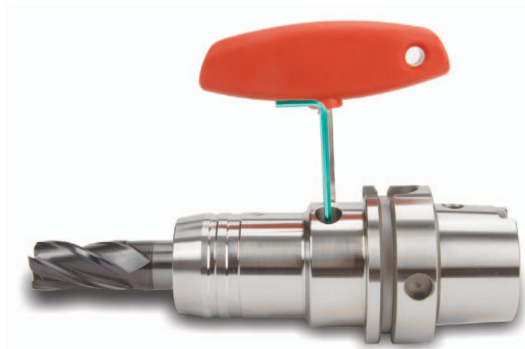
MAS403-BT	Taper Accuracy AT3	G Value 2.5	RPM 15,000	Coolant System AD/B
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TAPER No.	CODE No.	d1	D1	D2	L	L1	L2	G	Weight (kg)
50	BT50AD/B-HC6-90	6	26	44.5	90	43	27	M5×0.8	3.75
	BT50AD/B-HC6-120	6	26	44.5	120	43	27	M5×0.8	4.10
	BT50AD/B-HC6-150	6	26	44.5	150	43	27	M5×0.8	4.70
	BT50AD/B-HC8-90	8	28	44.5	90	44.5	27	M6×1.0	3.75
	BT50AD/B-HC8-120	8	28	44.5	120	44.5	27	M6×1.0	4.10
	BT50AD/B-HC8-150	8	28	44.5	150	44.5	27	M6×1.0	4.10
	BT50AD/B-HC10-90	10	30	44.5	90	44.5	32	M8×1.0	3.90
	BT50AD/B-HC10-120	10	30	44.5	120	44.5	32	M8×1.0	4.30
	BT50AD/B-HC10-150	10	30	44.5	150	44.5	32	M8×1.0	4.90
	BT50AD/B-HC12-90	12	32	44.5	90	44.5	37	M10×1.0	3.90
	BT50AD/B-HC12-120	12	32	44.5	120	44.5	37	M10×1.0	4.30
	BT50AD/B-HC12-150	12	32	44.5	150	44.5	37	M10×1.0	4.90
	BT50AD/B-HC14-90	14	34	44.5	90	44.5	37	M10×1.0	3.90
	BT50AD/B-HC14-120	14	34	44.5	120	44.5	37	M10×1.0	4.30
	BT50AD/B-HC14-150	14	34	44.5	150	44.5	37	M10×1.0	4.90
	BT50AD/B-HC16-90	16	38	44.5	90	44.5	42	M12×1.0	4.00
	BT50AD/B-HC16-120	16	38	44.5	120	44.5	42	M12×1.0	4.40
	BT50AD/B-HC16-150	16	38	44.5	150	44.5	42	M12×1.0	5.00
	BT50AD/B-HC18-90	18	40	44.5	90	44.5	42	M12×1.0	4.00
	BT50AD/B-HC18-120	18	40	44.5	120	44.5	42	M12×1.0	4.40
BT50AD/B-HC18-150	18	40	44.5	150	44.5	42	M12×1.0	5.00	
BT50AD/B-HC20-90	20	42	44.5	90	44.5	42	M16×1.0	4.00	
BT50AD/B-HC20-120	20	42	44.5	120	44.5	42	M16×1.0	4.40	
BT50AD/B-HC20-150	20	42	44.5	150	44.5	42	M16×1.0	5.00	
BT50AD/B-HC25-105	25	50	60	105	47.5	42	M16×1.0	4.40	
BT50AD/B-HC25-150	25	50	60	150	47.5	42	M16×1.0	5.60	
BT50AD/B-HC32-115	32	60	60	115	-	42	M16×1.0	4.70	
BT50AD/B-HC32-150	32	60	60	150	-	42	M16×1.0	6.00	

► In case of Hydraulic Chuck with Ø12, Ø20 and Ø32 ID, various cutting tools with different dia. can be used together with Hydraulic Chuck collet(reduction sleeve).

HYDRAULIC CHUCK (Radial tool length pre-setting type) HYDRAULIK SPANNFUTTER (Radiale Werkzeuglängen Voreinstellung)

DIN69893-HSK FORM A



DIN69893 - HSK	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System
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TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	Weight (kg)
40A	HSK40A-HCR6-80	6	26	34	80	36	27	0.55
	HSK40A-HCR8-80	8	28	34	80	36	27	0.55
	HSK40A-HCR10-85	10	30	34	85	43	32	0.65
	HSK40A-HCR12-90	12	32	34	90	48	37	0.70
50A	HSK50A-HCR6-80	6	26	50	80	35	27	0.70
	HSK50A-HCR8-80	8	28	50	80	35	27	0.70
	HSK50A-HCR10-85	10	30	50	85	38	32	0.73
	HSK50A-HCR12-90	12	32	50	90	40	37	0.80
	HSK50A-HCR14-90	14	34	50	90	40	37	0.80
	HSK50A-HCR16-95	16	38	53	95	34	42	1.00
	HSK50A-HCR18-95	18	40	57	95	34	42	1.00
HSK50A-HCR20-100	20	42	60	100	34	42	1.10	
63A	HSK63A-HCR6-80	6	26	50	80	33	27	0.96
	HSK63A-HCR8-80	8	28	50	80	33	27	0.98
	HSK63A-HCR10-85	10	30	50	85	38	32	1.04
	HSK63A-HCR12-90	12	32	50	90	40	37	1.06
	HSK63A-HCR14-90	14	34	50	90	46	37	1.08
	HSK63A-HCR16-95	16	38	50	95	51	42	1.18
	HSK63A-HCR18-95	18	40	50	95	52	42	1.20
	HSK63A-HCR20-100	20	42	50	100	51	42	1.22
	HSK63A-HCR25-120	25	57	63	120	54.5	48	2.20
HSK63A-HCR32-125	32	64	75	125	57.5	55	2.60	
100A	HSK100A-HCR6-85	6	26	63	85	33	27	3.60
	HSK100A-HCR8-85	8	28	63	85	33	27	3.60
	HSK100A-HCR10-90	10	30	63	90	36	32	3.80
	HSK100A-HCR12-95	12	32	63	95	40	37	3.80
	HSK100A-HCR14-95	14	34	63	95	41	37	3.80
	HSK100A-HCR16-100	16	38	63	100	46	42	3.90
	HSK100A-HCR18-100	18	40	63	100	46	42	3.90
	HSK100A-HCR20-105	20	42	75	105	51	42	4.20
	HSK100A-HCR25-115	25	57	75	115	55.5	48	4.40
HSK100A-HCR32-120	32	64	75	120	63.5	55	4.60	

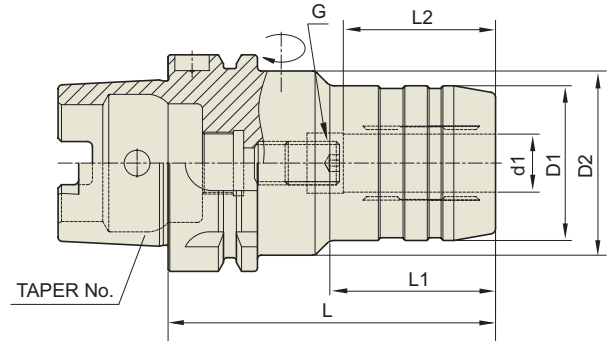
► In case of HSK100A, balancing grade shall be guaranteed up to G2.5/15,000rpm.

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC CHUCK HYDRAULIK SPANNFUTTER

TOOL
HOLDERS

DIN69893-HSK FORM A



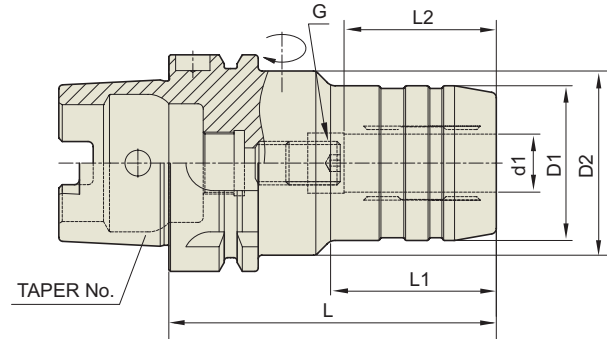
DIN69893 - HSK	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System
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TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	G	Weight (kg)
40A	HSK40A-HC6-70	6	26	34	70	36	27	M5×0.8	0.50
	HSK40A-HC8-70	8	28	34	70	36	27	M6×1.0	0.50
	HSK40A-HC10-75	10	30	34	75	42	32	M6×1.0	0.60
	HSK40A-HC12-80	12	32	34	80	48	37	M6×1.0	0.65
50A	HSK50A-HC6-70	6	26	50	70	28	27	M5×0.8	0.65
	HSK50A-HC8-70	8	28	50	70	28	27	M6×1.0	0.65
	HSK50A-HC10-75	10	30	50	75	34	32	M8×1.0	0.70
	HSK50A-HC12-85	12	32	50	85	44	37	M10×1.0	0.75
	HSK50A-HC14-85	14	34	50	85	44	37	M10×1.0	0.75
	HSK50A-HC16-90	16	38	53	90	30	42	M12×1.0	0.90
	HSK50A-HC18-90	18	40	57	90	30	42	M12×1.0	0.90
	HSK50A-HC20-90	20	42	60	90	34	42	M16×1.0	1.00
63A	HSK63A-HC6-70	6	26	50	70	24	27	M5×0.8	0.53
	HSK63A-HC8-70	8	28	50	70	24	27	M6×1.0	0.55
	HSK63A-HC10-80	10	30	50	80	35	32	M8×1.0	1.00
	HSK63A-HC12-85	12	32	50	85	40	37	M10×1.0	1.03
	HSK63A-HC14-85	14	34	50	85	40	37	M10×1.0	1.05
	HSK63A-HC16-90	16	38	50	90	46	42	M12×1.0	1.15
	HSK63A-HC18-90	18	40	50	90	46	42	M12×1.0	1.15
	HSK63A-HC20-90	20	42	50	90	48	42	M16×1.0	1.20
	HSK63A-HC25-120	25	57	63	120	59	48	M16×1.0	2.20
HSK63A-HC32-125	32	64	75	125	63	55	M16×1.0	2.40	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

**HYDRAULIC CHUCK
HYDRAULIK SPANNFUTTER**

DIN69893-HSK FORM A

DIN69893
- HSKTaper
Accuracy
AT3G Value
2.5RPM
15,000Coolant
System

TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	G	Weight (kg)
100A	HSK100A-HC6-75	6	26	50	75	24	27	M5×0.8	3.20
	HSK100A-HC8-75	8	28	50	75	24	27	M6×1.0	3.20
	HSK100A-HC10-90	10	30	50	90	35	32	M8×1.0	3.40
	HSK100A-HC12-95	12	32	50	95	40	37	M10×1.0	3.40
	HSK100A-HC14-95	14	34	50	95	40	37	M10×1.0	3.40
	HSK100A-HC16-100	16	38	50	100	46	42	M12×1.0	3.50
	HSK100A-HC18-100	18	40	50	100	46	42	M12×1.0	3.60
	HSK100A-HC20-105	20	42	50	105	48	42	M16×1.0	4.00
	HSK100A-HC25-110	25	57	63	110	59	48	M16×1.0	4.20
HSK100A-HC32-110	32	64	75	110	63	55	M16×1.0	4.30	

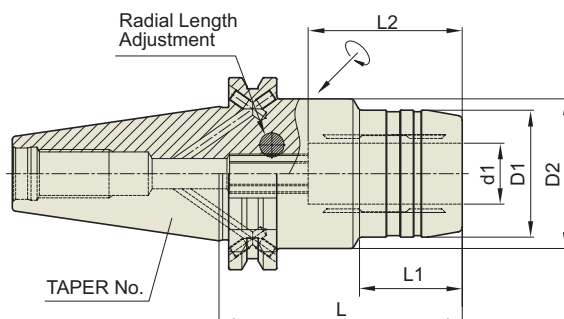
► In case of Hydraulic Chuck with $\varnothing 12$, $\varnothing 20$ and $\varnothing 32$ ID, various cutting tools with different dia. can be used together with Hydraulic Chuck collet(reduction sleeve).

HYDRAULIC CHUCK COLLET (REDUCTION SLEEVE)

HK COLLET	CODE No.	T-WRENCH	CODE No.
	HK12		T-4
	HK20		T-5
	HK32		

HYDRAULIC CHUCK (Radial tool length pre-setting type) HYDRAULIK SPANNFUTTER (Radiale Werkzeuglängen Voreinstellung)

DIN 69871-SK FORM AD/B



DIN 69871 -SK	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System AD/B
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TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	Weight (kg)
30	SK30AD/B-HCR12-85	12	32	44.5	85	40	37	0.90
	SK30AD/B-HCR20-85	20	44	44	85	-	42	1.00
40	SK40AD/B-HCR12-80.5	12	32	49.5	80.5	31.5	37	1.50
	SK40AD/B-HCR20-80.5	20	42	49.5	80.5	34	42	1.60
	SK40AD/B-HCR32-110	32	63	80	110	50	55	2.20
50	SK50AD/B-HCR12-80.5	12	32	49.5	80.5	31.5	37	3.90
	SK50AD/B-HCR20-80.5	20	42	49.5	80.5	34	42	4.00
	SK50AD/B-HCR32-100	32	60	60	100	-	55	4.70

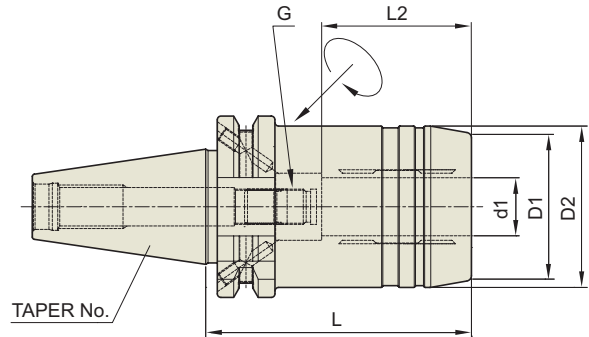
- ▶ In case of SK50, balancing grade shall be guaranteed up to G2.5/15,000rpm.
- ▶ Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.



HYDRAULIC CHUCK (SHORT & HEAVY)

HYDRAULIK SPANNFUTTER (KURZ und SCHWER)

DIN 69871-SK FORM AD/B



DIN 69871
-SK

Taper
Accuracy
AT3

G Value
2.5

RPM
20,000

Coolant
System
AD/B

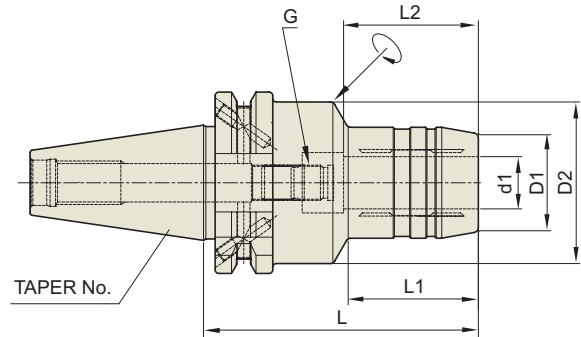
TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
30	SK30AD/B-HC20S-85	20	41	44	85	42	M10×1.0	0.53
40	SK40AD/B-HC20S-64.5	20	37	49.5	64.5	42	M16×1.0	1.26
50	SK50AD/B-HC20S-81	20	37	49.5	81	42	M16×1.0	3.65
	SK50AD/B-HC32S-81	32	55	72	81	55	M16×1.0	3.87

▶ In case of SK50, balancing grade shall be guaranteed up to G2.5/15,000rpm.

▶ Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC CHUCK (SLIM) HYDRAULIK SPANNFUTTER (SCHLANK)

DIN 69871-SK FORM AD/B



DIN 69871 -SK	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System AD/B
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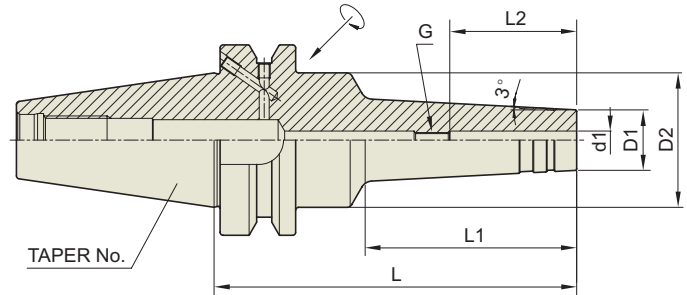
TAPER No.	CODE No.	d1	D1	D2	L	L1	L2	G	Weight (kg)
30	SK30AD/B-HC6-70	6	26	44.5	70	29.5	27	M5×0.8	0.65
	SK30AD/B-HC8-70	8	28	44.5	70	30	27	M6×1.0	0.65
	SK30AD/B-HC10-75	10	30	44.5	75	31	32	M8×1.0	0.73
	SK30AD/B-HC12-85	12	32	44.5	85	40	37	M10×1.0	0.80
	SK30AD/B-HC14-85	14	34	44.5	85	40	37	M10×1.0	0.80
	SK30AD/B-HC16-90	16	38	44.5	90	46	42	M12×1.0	0.90
	SK30AD/B-HC18-90	18	40	44.5	90	46	42	M12×1.0	0.90
SK30AD/B-HC20-90	20	42	44.5	90	48	42	M16×1.0	0.90	
40	SK40AD/B-HC6-80.5	6	22	26	80.5	30	27	M5×0.8	1.31
	SK40AD/B-HC6-110	6	22	26	110	30	27	M5×0.8	1.76
	SK40AD/B-HC8-80.5	8	24	28	80.5	30	27	M12×1.0	1.34
	SK40AD/B-HC8-110	8	24	28	110	30	27	M6×1.0	1.76
	SK40AD/B-HC10-80.5	10	26	30	80.5	32	32	M8×1.0	1.34
	SK40AD/B-HC10-110	10	26	30	110	32	32	M8×1.0	1.76
	SK40AD/B-HC12-80.5	12	28	32	80.5	35	37	M10×1.0	1.34
	SK40AD/B-HC12-110	12	28	32	110	35	37	M10×1.0	1.76
	SK40AD/B-HC16-80.5	16	34	38	80.5	40	42	M12×1.0	1.34
	SK40AD/B-HC16-110	16	34	38	110	40	42	M12×1.0	1.76
	SK40AD/B-HC20-80.5	20	38	42	80.5	40	42	M16×1.0	1.35
	SK40AD/B-HC20-110	20	38	42	110	40	42	M16×1.0	1.78
50	SK50AD/B-HC6-80.5	6	22	26	80.5	30	27	M5×0.8	3.00
	SK50AD/B-HC8-80.5	8	24	28	80.5	30	27	M6×1.0	3.00
	SK50AD/B-HC10-80.5	10	26	30	80.5	32	32	M8×1.0	3.00
	SK50AD/B-HC12-80.5	12	28	32	80.5	35	37	M10×1.0	3.05
	SK50AD/B-HC16-80.5	16	34	38	80.5	40	42	M12×1.0	3.10
	SK50AD/B-HC20-80.5	20	38	42	80.5	40	42	M16×1.0	3.15

- ▶ In case of SK50, balancing grade shall be guaranteed up to G2.5/15,000rpm.
- ▶ Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC MOLD CHUCK

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU

MAS403-BT FORM AD/B



MAS403 -BT	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System AD/B
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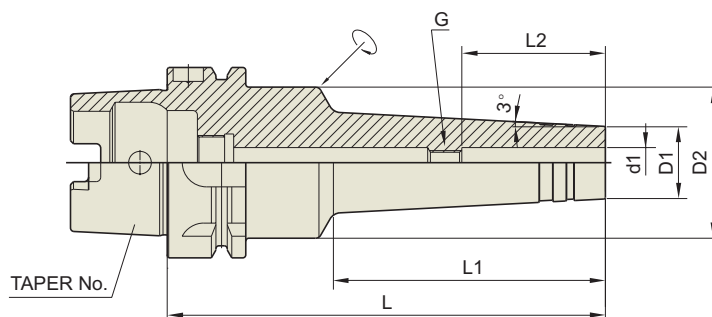
TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	G	Weight (kg)
40	BT40AD/B-HMC6-120	6	20	44.5	120	70	27	M5×0.8	1.40
	BT40AD/B-HMC6-150	6	20	44.5	150	100	27	M5×0.8	1.65
	BT40AD/B-HMC8-120	8	22	44.5	120	70	27	M6×1.0	1.40
	BT40AD/B-HMC8-150	8	22	44.5	150	100	27	M6×1.0	1.65
	BT40AD/B-HMC10-120	10	24	44.5	120	70	32	M8×1.0	1.40
	BT40AD/B-HMC10-150	10	24	44.5	150	100	32	M8×1.0	1.65
	BT40AD/B-HMC12-120	12	25	44.5	120	70	37	M10×1.0	1.40
	BT40AD/B-HMC12-150	12	25	44.5	150	100	37	M10×1.0	1.65
	BT40AD/B-HMC16-120	16	32	44.5	120	70	42	M12×1.0	1.45
	BT40AD/B-HMC16-150	16	32	44.5	150	100	42	M12×1.0	1.70
	BT40AD/B-HMC20-120	20	34	44	120	-	42	M16×1.0	1.50
BT40AD/B-HMC20-150	20	34	47	150	-	42	M16×1.0	1.80	
50	BT50AD/B-HMC6-150	6	20	50	150	90	27	M5×0.8	4.70
	BT50AD/B-HMC8-150	8	22	50	150	90	27	M6×1.0	4.70
	BT50AD/B-HMC10-150	10	24	50	150	90	32	M8×1.0	4.70
	BT50AD/B-HMC12-150	12	25	37	150	-	37	M10×1.0	4.70
	BT50AD/B-HMC16-150	16	32	44	150	-	42	M12×1.0	4.90
	BT50AD/B-HMC20-150	20	34	46	150	-	42	M16×1.0	5.00

▶ In case of BT50, balancing grade shall be guaranteed up to G2.5/15,000rpm.

▶ Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC MOLD CHUCK HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU

DIN69893-HSK FORM A



DIN69893 - HSK	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System
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TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	G	Weight (kg)
63A	HSK63A-HMC6-145	6	20	50	145	90	27	M5×0.8	1.40
	HSK63A-HMC8-145	8	22	50	145	90	27	M6×1.0	1.40
	HSK63A-HMC10-145	10	24	50	145	90	32	M8×1.0	1.40
	HSK63A-HMC12-145	12	25	50	145	90	37	M10×1.0	1.40
	HSK63A-HMC16-145	16	32	50	145	90	42	M12×1.0	1.45
	HSK63A-HMC20-145	20	34	50	145	90	42	M16×1.0	1.50
100A	HSK100A-HMC6-150	6	20	50	150	90	27	M5×0.8	4.50
	HSK100A-HMC8-150	8	22	50	150	90	27	M6×1.0	4.50
	HSK100A-HMC10-150	10	24	50	150	90	32	M8×1.0	4.50
	HSK100A-HMC12-150	12	25	50	150	90	37	M10×1.0	4.50
	HSK100A-HMC16-150	16	32	50	150	90	42	M12×1.0	4.70
	HSK100A-HMC20-150	20	34	50	150	90	42	M16×1.0	5.00

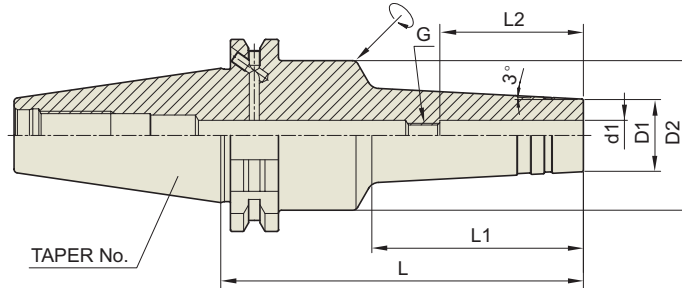
► In case of HSK100A, balancing grade shall be guaranteed up to G2.5/15,000rpm.

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC MOLD CHUCK

HYDRAULIK SPANNFUTTER FÜR DEN FORMENBAU

DIN 69871-SK FORM AD/B



DIN 69871
-SK

Taper
Accuracy
AT3

G Value
2.5

RPM
20,000

Coolant
System
AD/B

TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	G	Weight (kg)
40	SK40AD/B-HMC6-120	6	20	49.5	120	70	27	M5×0.8	1.40
	SK40AD/B-HMC6-150	6	20	49.5	150	100	27	M5×0.8	1.65
	SK40AD/B-HMC8-120	8	22	49.5	120	70	27	M6×1.0	1.40
	SK40AD/B-HMC8-150	8	22	49.5	150	100	27	M6×1.0	1.65
	SK40AD/B-HMC10-120	10	24	49.5	120	70	32	M8×1.0	1.40
	SK40AD/B-HMC10-150	10	24	49.5	150	100	32	M8×1.0	1.65
	SK40AD/B-HMC12-120	12	25	49.5	120	70	37	M10×1.0	1.40
	SK40AD/B-HMC12-150	12	25	49.5	150	100	37	M10×1.0	1.65
	SK40AD/B-HMC16-120	16	32	49.5	120	70	42	M12×1.0	1.45
	SK40AD/B-HMC16-150	16	32	49.5	150	100	42	M12×1.0	1.70
50	SK50AD/B-HMC6-150	6	20	49.5	150	90	27	M5×0.8	4.50
	SK50AD/B-HMC8-150	8	22	49.5	150	90	27	M6×1.0	4.50
	SK50AD/B-HMC10-150	10	24	49.5	150	90	32	M8×1.0	4.50
	SK50AD/B-HMC12-150	12	25	49.5	150	90	37	M10×1.0	4.50
	SK50AD/B-HMC16-150	16	32	49.5	150	90	42	M12×1.0	4.70
	SK50AD/B-HMC20-150	20	34	49.5	150	90	42	M16×1.0	5.00

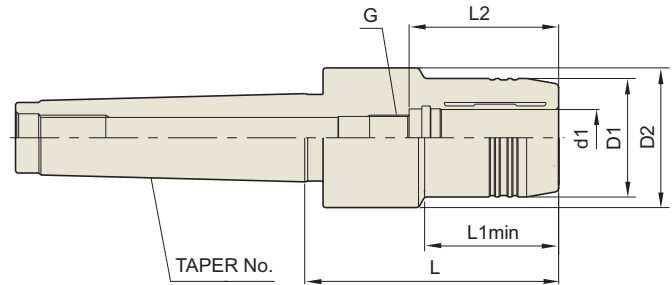
► In case of SK50, balancing grade shall be guaranteed up to G2.5/15,000rpm.

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

HYDRAULIC CHUCK (Exclusive use for grinder) HYDRAULIK SPANNFUTTER (für Schleifmaschine)

TOOL HOLDERS

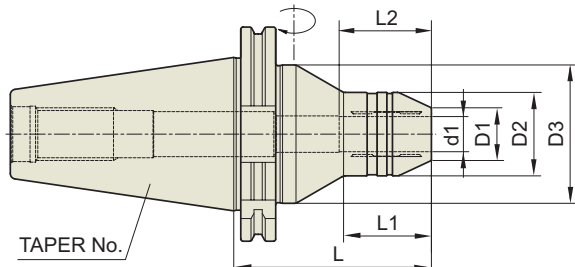
MTB



MTB	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	d1	D1	D2	L	L1	L2	G	Weight (kg)
MT4	MTB4-HC20-90	20	42	49.5	90	47.5	53	M6 × 1.0	1.30
	MTB4-HC32S-90	32	72	72	90	-	75	-	1.40
MT5	MTB5-HC20-90	20	42	49.5	90	47.5	53	-	2.20
	MTB5-HC32S-90	32	72	72	90	-	100	-	2.40

DIN 69871 - SK FORM A



DIN 69871 - SK	Taper Accuracy AT3	G Value 2.5	RPM 15,000	Coolant System
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TAPER No.	CODE No.	d1	D1	D2	D3	L	L1	L2	Weight (kg)
50	SK50-HC6G-90	6	14	30	63	90	30	27	3.00
	SK50-HC8G-90	8	16	30	63	90	30	27	3.00
	SK50-HC10G-90	10	18	30	63	90	30	32	3.00
	SK50-HC12G-90	12	21	33	63	90	35	37	3.05
	SK50-HC14G-90	14	22	35	63	90	35	37	3.10
	SK50-HC16G-90	16	24	38	63	90	40	42	3.10
	SK50-HC18G-90	18	26	40	63	90	40	42	3.10
	SK50-HC20G-110	20	29	42	63	110	40	42	3.30
	SK50-HC25G-110	25	34	50	70	110	45	48	3.60
SK50-HC32G-110	32	42	56	80	110	50	55	4.20	

HYDRAULIC CHUCK COLLET (REDUCTION SLEEVE)

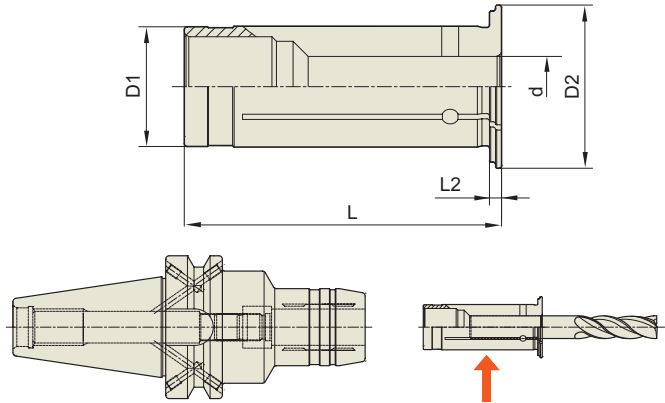
HK COLLET	CODE No.	T-WRENCH	CODE No.
	HK12		T-4
	HK20		T-5
	HK32		



HYDRAULIC CHUCK COLLET (REDUCTION SLEEVE)

HYDRAULIK SPANNFUTTER SPANNZANGE (Geschlitzte Zwischenbuchse)

TOOL
HOLDERS



Hydraulic Chuck collet

CODE No.	d	D1	D2	L	L2
HK12	3	12	19	47	2
	4	12	19	47	2
	5	12	19	47	2
	6	12	19	47	2
	7	12	19	47	2
HK20	8	20	24	50.5	2
	3	20	24	50.5	2
	4	20	24	50.5	2
	5	20	24	50.5	2
	6	20	24	50.5	2
	7	20	24	50.5	2
	8	20	24	50.5	2
	9	20	24	50.5	2
	10	20	24	50.5	2
	11	20	24	50.5	2
	12	20	24	50.5	2
	13	20	24	50.5	2
	HK32	14	32	36	60.5
6		32	36	60.5	3
8		32	36	60.5	3
10		32	36	60.5	3
12		32	36	60.5	3
14		32	36	60.5	3
16		32	36	60.5	3
18		32	36	60.5	3
20	32	36	60.5	3	
25	32	36	60.5	3	

►Other special sizes of Hydraulic Chuck collets could be produced and supplied .

► **FEATURE**

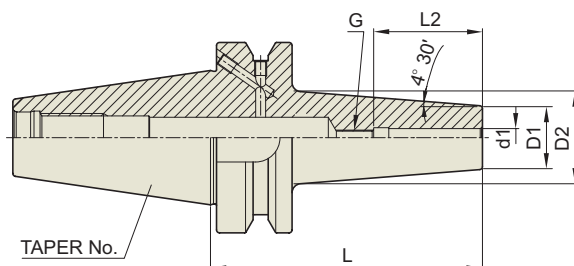
: Hydraulic Chuck collet(reduction sleeve) is divided into trisection by high precision wire cutting, which guarantees high precision ID.

► **CHUCKING METHOD**

: Please assemble cutting tool with collet firstly, and then insert collet into Hydraulic Chuck.

SHRINK FIT HOLDER SCHRUMPFUTTER

MAS403-BT FORM AD/B



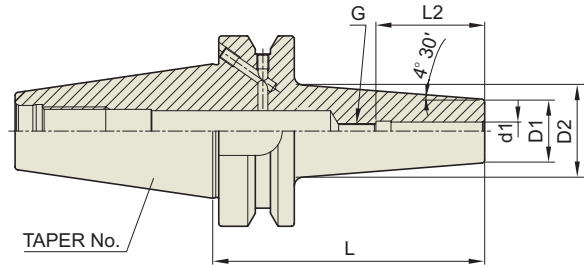
MAS403 -BT	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System AD/B
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TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
30	BT30AD/B-SFH3-60	3	11	17	60	19	-	0.40
	BT30AD/B-SFH4-60	4	11	17	60	22	-	0.40
	BT30AD/B-SFH5-60	5	13	19	60	28	-	0.40
	BT30AD/B-SFH6-60	6	21	27	60	36	M5×0.8	0.40
	BT30AD/B-SFH8-60	8	21	27	60	36	M6×1.0	0.40
	BT30AD/B-SFH10-80	10	24	33	80	42	M8×1.0	0.40
	BT30AD/B-SFH12-80	12	24	33	80	47	M10×1.0	0.42
	BT30AD/B-SFH16-80	16	27	36	80	50	M12×1.0	0.42
BT30AD/B-SFH20-90	20	33	44	90	52	M16×1.0	0.44	
40	BT40AD/B-SFH3-90	3	11	21	90	19	-	1.00
	BT40AD/B-SFH4-90	4	11	21	90	22	-	1.00
	BT40AD/B-SFH5-90	5	13	23	90	28	-	1.00
	BT40AD/B-SFH6-90	6	21	31	90	36	M5×0.8	1.10
	BT40AD/B-SFH6-160	6	21	31	160	36	M5×0.8	1.15
	BT40AD/B-SFH8-90	8	21	31	90	36	M6×1.0	1.11
	BT40AD/B-SFH8-160	8	21	31	160	36	M6×1.0	1.15
	BT40AD/B-SFH10-90	10	24	34	90	42	M8×1.0	1.10
	BT40AD/B-SFH10-160	10	24	34	160	42	M8×1.0	1.15
	BT40AD/B-SFH12-90	12	24	34	90	47	M10×1.0	1.10
	BT40AD/B-SFH12-160	12	24	34	160	47	M10×1.0	1.15
	BT40AD/B-SFH14-90	14	27	37	90	47	M10×1.0	1.20
	BT40AD/B-SFH14-160	14	27	37	160	47	M10×1.0	1.50
	BT40AD/B-SFH16-90	16	27	37	90	50	M12×1.0	1.20
	BT40AD/B-SFH16-160	16	27	37	160	50	M12×1.0	1.50
	BT40AD/B-SFH18-90	18	33	43	90	50	M12×1.0	1.30
	BT40AD/B-SFH18-160	18	33	43	160	50	M12×1.0	1.60
	BT40AD/B-SFH20-90	20	33	43	90	52	M16×1.0	1.40
BT40AD/B-SFH20-160	20	33	43	160	52	M16×1.0	1.70	
BT40AD/B-SFH25-100	25	44	55	100	58	M16×1.0	1.70	
BT40AD/B-SFH25-160	25	44	57	160	58	M16×1.0	2.00	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

**SHRINK FIT HOLDER
SCHRUMPFUTTER**

MAS403-BT FORM AD/B

MAS403
-BTTaper
Accuracy
AT3G Value
2.5RPM
20,000Coolant
System
AD/B

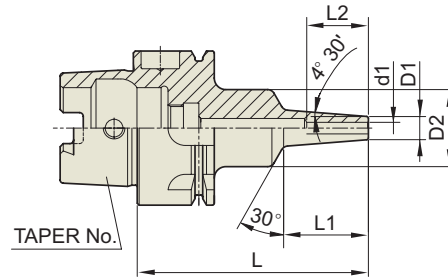
TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
50	BT50AD/B-SFH3-100	3	11	21	100	19	-	1.50
	BT50AD/B-SFH4-100	4	11	21	100	22	-	1.50
	BT50AD/B-SFH5-100	5	13	23	100	28	-	1.50
	BT50AD/B-SFH6-100	6	21	31	100	36	M5×0.8	1.50
	BT50AD/B-SFH6-160	6	21	31	160	36	M5×0.8	2.00
	BT50AD/B-SFH8-100	8	21	31	100	36	M6×1.0	1.50
	BT50AD/B-SFH8-160	8	21	31	160	36	M6×1.0	2.00
	BT50AD/B-SFH10-100	10	24	34	100	42	M8×1.0	1.50
	BT50AD/B-SFH10-160	10	24	34	160	42	M8×1.0	2.00
	BT50AD/B-SFH12-100	12	24	34	100	47	M10×1.0	1.50
	BT50AD/B-SFH12-160	12	24	34	160	47	M10×1.0	2.00
	BT50AD/B-SFH14-100	14	27	37	100	47	M10×1.0	1.60
	BT50AD/B-SFH14-160	14	27	37	160	47	M10×1.0	2.10
	BT50AD/B-SFH16-100	16	27	37	100	50	M12×1.0	1.60
	BT50AD/B-SFH16-160	16	27	37	160	50	M12×1.0	2.10
	BT50AD/B-SFH18-100	18	33	43	100	50	M12×1.0	1.60
	BT50AD/B-SFH18-160	18	33	43	160	50	M12×1.0	2.00
	BT50AD/B-SFH20-100	20	33	43	100	52	M16×1.0	1.80
BT50AD/B-SFH20-160	20	33	43	160	52	M16×1.0	2.20	
BT50AD/B-SFH25-100	25	44	54	100	58	M16×1.0	2.00	
BT50AD/B-SFH25-160	25	44	57	160	58	M16×1.0	2.40	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

SHRINK FIT HOLDER SCHRUMPFUTTER

TOOL
HOLDERS

DIN69893-HSK FORM A

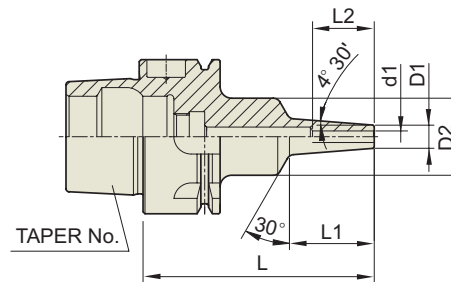


DIN69893 - HSK	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System
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TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	Weight (kg)
40A	HSK40A-SFH3-60	3	11	17	60	22	16	0.30
	HSK40A-SFH3-80	3	11	17	80	42	16	0.40
	HSK40A-SFH4-60	4	11	17	60	22	16.5	0.30
	HSK40A-SFH4-80	4	11	17	80	42	16.5	0.40
	HSK40A-SFH5-60	5	13	19	60	22	17	0.30
	HSK40A-SFH5-80	5	13	19	80	42	17	0.40
	HSK40A-SFH6-60	6	21	27	60	22	24	0.40
	HSK40A-SFH6-80	6	21	27	80	42	24	0.50
	HSK40A-SFH8-70	8	21	27	70	22	25	0.40
	HSK40A-SFH8-90	8	21	27	90	42	25	0.50
	HSK40A-SFH10-70	10	24	33	70	22	32	0.50
HSK40A-SFH10-90	10	24	33	90	42	32	0.60	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

DIN69893-HSK FORM E

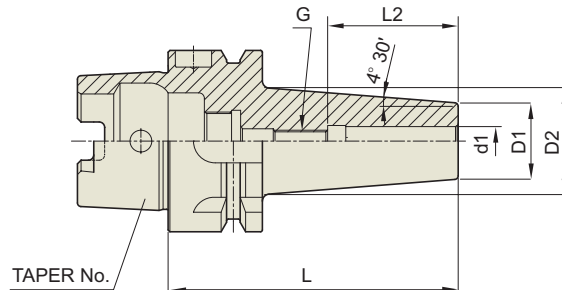


TAPER No.	CODE No.	d1	D1	D2	L	L1	L 2	Weight (kg)
40E	HSK40E-SFH3-50	3	11	17	50	22	16	0.30
	HSK40E-SFH3-70	3	11	17	70	42	16	0.40
	HSK40E-SFH4-50	4	11	17	50	22	16.5	0.30
	HSK40E-SFH4-70	4	11	17	70	42	16.5	0.40
	HSK40E-SFH5-50	5	13	19	50	22	17	0.30
	HSK40E-SFH5-70	5	13	19	70	42	17	0.40
	HSK40E-SFH6-50	6	21	27	50	22	24	0.40
	HSK40E-SFH6-70	6	21	27	70	42	24	0.50
	HSK40E-SFH8-60	8	21	27	60	22	25	0.40
	HSK40E-SFH8-80	8	21	27	80	42	25	0.50
	HSK40E-SFH10-60	10	24	33	60	22	32	0.50
	HSK40E-SFH10-80	10	24	33	80	42	32	0.60

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

SHRINK FIT HOLDER SCHRUMPFUTTER

DIN69893-HSK FORM A



DIN69893
- HSK

Taper
Accuracy
AT3

G Value
2.5

RPM
20,000

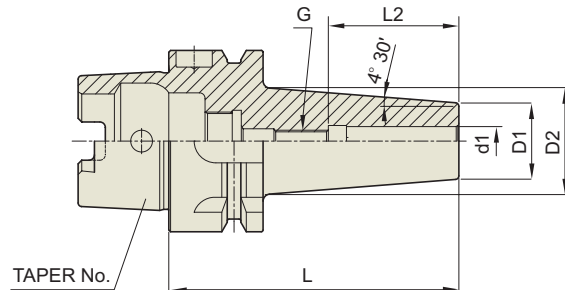
Coolant
System

TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
50A	HSK50A-SFH3-80	3	11	19.5	80	19	-	0.54
	HSK50A-SFH4-80	4	11	19.5	80	22	-	0.55
	HSK50A-SFH5-80	5	13	21.5	80	28	-	0.56
	HSK50A-SFH6-80	6	21	29.5	80	36	M5×0.8	0.57
	HSK50A-SFH8-80	8	21	29.5	80	36	M6×1.0	0.58
	HSK50A-SFH10-85	10	24	33	85	42	M8×1.0	0.65
	HSK50A-SFH12-90	12	24	34	90	47	M10×1.0	0.67
	HSK50A-SFH14-90	14	27	37	90	47	M10×1.0	0.72
	HSK50A-SFH16-95	16	27	38	95	50	M12×1.0	0.73
	HSK50A-SFH18-95	18	33	44	95	50	M12×1.0	0.90
HSK50A-SFH20-100	20	33	45	100	52	M16×1.0	0.92	
63A	HSK63A-SFH3-80	3	11	19.5	80	19	-	0.70
	HSK63A-SFH4-80	4	11	19.5	80	22	-	0.70
	HSK63A-SFH5-80	5	13	21.5	80	28	-	0.70
	HSK63A-SFH6-80	6	21	29.5	80	36	M5×0.8	0.83
	HSK63A-SFH6-160	6	21	32	160	36	M5×0.8	1.00
	HSK63A-SFH8-80	8	21	29.5	80	36	M6×1.0	0.83
	HSK63A-SFH8-160	8	21	32	160	36	M6×1.0	0.00
	HSK63A-SFH10-85	10	24	33	85	42	M8×1.0	0.83
	HSK63A-SFH10-160	10	24	34	160	42	M8×1.0	0.00
	HSK63A-SFH12-90	12	24	34	90	47	M10×1.0	0.83
	HSK63A-SFH12-160	12	24	34	160	47	M10×1.0	0.00
	HSK63A-SFH14-90	14	27	37	90	47	M10×1.0	0.91
	HSK63A-SFH14-160	14	27	38	160	47	M10×1.0	1.30
	HSK63A-SFH16-95	16	27	38	95	50	M12×1.0	0.98
	HSK63A-SFH16-160	16	27	38	160	50	M12×1.0	1.40
	HSK63A-SFH18-95	18	33	44	95	50	M12×1.0	0.98
	HSK63A-SFH18-160	18	33	45	160	50	M12×1.0	1.40
	HSK63A-SFH20-100	20	33	45	100	52	M16×1.0	1.00
HSK63A-SFH20-160	20	33	45	160	52	M16×1.0	1.40	
HSK63A-SFH25-115	25	44	58	115	58	M16×1.0	1.40	
HSK63A-SFH25-160	25	44	58	160	58	M16×1.0	1.80	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

SHRINK FIT HOLDER SCHRUMPFUTTER

DIN69893-HSK FORM A



DIN69893
- HSK

Taper
Accuracy
AT3

G Value
2.5

RPM
20,000

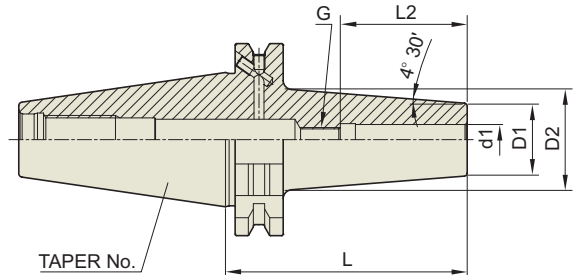
Coolant
System

TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
100A	HSK100A-SFH3-85	3	11	20	85	19	-	1.30
	HSK100A-SFH4-85	4	11	20	85	22	-	1.30
	HSK100A-SFH5-85	5	13	22	85	28	-	1.30
	HSK100A-SFH6-85	6	21	30	85	36	M5×0.8	1.30
	HSK100A-SFH6-160	6	21	32	160	36	M5×0.8	1.80
	HSK100A-SFH8-85	8	21	30	85	36	M6×1.0	1.30
	HSK100A-SFH8-160	8	21	32	160	36	M6×1.0	1.80
	HSK100A-SFH10-90	10	24	34	90	42	M8×1.0	1.30
	HSK100A-SFH10-160	10	24	35	160	42	M8×1.0	1.80
	HSK100A-SFH12-95	12	24	34	95	47	M10×1.0	1.30
	HSK100A-SFH12-160	12	24	35	160	47	M10×1.0	1.80
	HSK100A-SFH14-95	14	27	37	95	47	M10×1.0	1.40
	HSK100A-SFH14-160	14	27	39	160	47	M10×1.0	1.90
	HSK100A-SFH16-100	16	27	38	100	50	M12×1.0	1.40
	HSK100A-SFH16-160	16	27	39	160	50	M12×1.0	1.90
	HSK100A-SFH18-100	18	33	44	100	50	M12×1.0	1.50
	HSK100A-SFH18-160	18	33	45	160	50	M12×1.0	2.00
	HSK100A-SFH20-100	20	33	44	100	52	M16×1.0	1.50
	HSK100A-SFH20-160	20	33	45	160	52	M16×1.0	2.00
HSK100A-SFH25-115	25	44	53	115	58	M16×1.0	1.80	
HSK100A-SFH25-160	25	44	53	160	58	M16×1.0	2.30	



SHRINK FIT HOLDER
SCHRUMPFUTTER

DIN69871-SK FORM AD/B



DIN69871
-SK

Taper
Accuracy
AT3

G Value
2.5

RPM
20,000

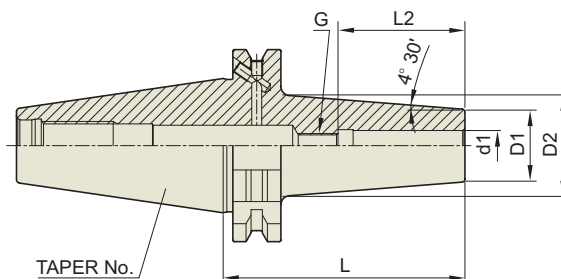
Coolant
System
AD/B

TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
30	SK30AD/B-SFH3-60	3	11	17	60	19	-	0.40
	SK30AD/B-SFH4-60	4	11	17	60	22	-	0.40
	SK30AD/B-SFH5-60	5	13	19	60	28	-	0.40
	SK30AD/B-SFH6-60	6	21	27	60	36	M5×0.8	0.40
	SK30AD/B-SFH8-60	8	21	27	60	36	M6×1.0	0.40
	SK30AD/B-SFH10-80	10	24	34	80	42	M8×1.0	0.40
	SK30AD/B-SFH12-80	12	24	34	80	47	M10×1.0	0.42
	SK30AD/B-SFH16-80	16	27	37	80	50	M12×1.0	0.42
40	SK40AD/B-SFH3-80	3	11	21	80	19	-	1.00
	SK40AD/B-SFH4-80	4	11	21	80	22	-	1.00
	SK40AD/B-SFH5-80	5	13	23	80	28	-	1.00
	SK40AD/B-SFH6-80	6	21	31	80	36	M5×0.8	1.10
	SK40AD/B-SFH6-160	6	21	32	160	36	M5×0.8	1.15
	SK40AD/B-SFH8-80	8	21	31	80	36	M6×1.0	1.11
	SK40AD/B-SFH8-160	8	21	32	160	36	M6×1.0	1.15
	SK40AD/B-SFH10-80	10	24	34	80	42	M8×1.0	1.10
	SK40AD/B-SFH10-160	10	24	34	160	42	M8×1.0	1.15
	SK40AD/B-SFH12-80	12	24	34	80	47	M10×1.0	1.10
	SK40AD/B-SFH12-160	12	24	34	160	47	M10×1.0	1.15
	SK40AD/B-SFH14-80	14	27	37	80	47	M10×1.0	1.20
	SK40AD/B-SFH14-160	14	27	36	160	47	M10×1.0	1.50
	SK40AD/B-SFH16-80	16	27	37	80	50	M12×1.0	1.20
	SK40AD/B-SFH16-160	16	27	36	160	50	M12×1.0	1.50
	SK40AD/B-SFH18-80	18	33	43	80	50	M12×1.0	1.30
	SK40AD/B-SFH18-160	18	33	44	160	50	M12×1.0	1.60
	SK40AD/B-SFH20-80	20	33	43	80	52	M16×1.0	1.40
	SK40AD/B-SFH20-160	20	33	44	160	52	M16×1.0	1.70
	SK40AD/B-SFH25-90	25	44	55	90	58	M16×1.0	1.70
SK40AD/B-SFH25-160	25	44	53	160	58	M16×1.0	2.00	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

SHRINK FIT HOLDER SCHRUMPFUTTER

DIN69871-SK FORM AD/B



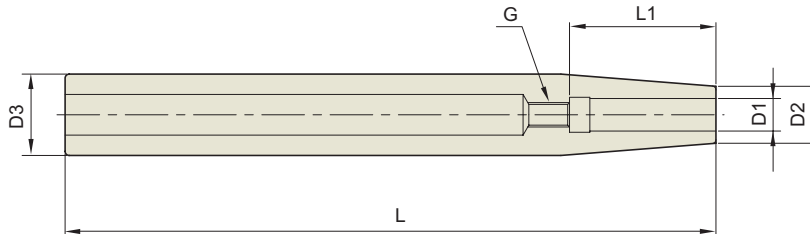
DIN69871 -SK	Taper Accuracy AT3	G Value 2.5	RPM 20,000	Coolant System AD/B
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TAPER No.	CODE No.	d1	D1	D2	L	L 2	G	Weight (kg)
50	SK50AD/B-SFH3-80	3	11	21	80	19	-	1.50
	SK50AD/B-SFH4-80	4	11	21	80	22	-	1.50
	SK50AD/B-SFH5-80	5	13	23	80	28	-	1.50
	SK50AD/B-SFH6-80	6	21	31	80	36	M5×0.8	1.50
	SK50AD/B-SFH6-160	6	21	32	160	36	M5×0.8	2.00
	SK50AD/B-SFH8-80	8	21	31	80	36	M6×1.0	1.50
	SK50AD/B-SFH8-160	8	21	32	160	36	M6×1.0	2.00
	SK50AD/B-SFH10-80	10	24	34	80	42	M8×1.0	1.50
	SK50AD/B-SFH10-160	10	24	34	160	42	M8×1.0	2.00
	SK50AD/B-SFH12-80	12	24	34	80	47	M10×1.0	1.50
	SK50AD/B-SFH12-160	12	24	34	160	47	M10×1.0	2.00
	SK50AD/B-SFH14-80	14	27	37	80	47	M10×1.0	1.60
	SK50AD/B-SFH14-160	14	27	36	160	47	M10×1.0	2.10
	SK50AD/B-SFH16-80	16	27	37	80	50	M12×1.0	1.60
	SK50AD/B-SFH16-160	16	27	36	160	50	M12×1.0	2.10
	SK50AD/B-SFH18-80	18	33	43	80	50	M12×1.0	1.60
	SK50AD/B-SFH18-160	18	33	44	160	50	M12×1.0	2.00
	SK50AD/B-SFH20-80	20	33	43	80	52	M16×1.0	1.80
SK50AD/B-SFH20-160	20	33	44	160	52	M16×1.0	2.20	
SK50AD/B-SFH25-90	25	44	53	90	58	M16×1.0	2.00	
SK50AD/B-SFH25-160	25	44	53	160	58	M16×1.0	2.40	

► Higher balancing grade product up to G2.5/40,000(G6.3/100,000rpm) could be supplied by customer's request.

SHRINK FIT HOLDER SCHRUMPFUTTER

EXTENSION (VERLÄNGERUNG)



EXT.	Taper Accuracy AT3	G Value	RPM	Coolant System
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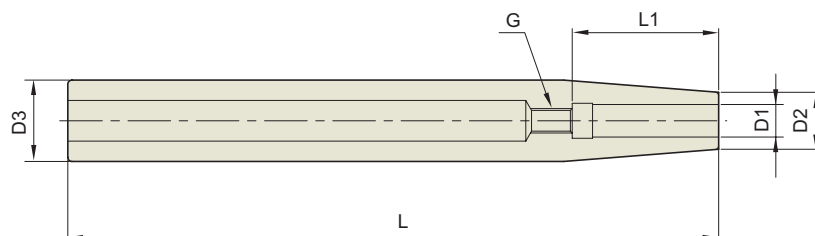
STANDARD

TAPER No.	CODE No.	D1	D2	D3	L	L 1	G	Weight (kg)
12	ST12-SFH3-120	3	8	12	120	19	-	
	ST12-SFH4-120	4	8	12	120	22	-	
	ST12-SFH5-120	5	10	12	120	28	-	
	ST12-SFH6-120	6	10	12	120	36	M5×0.8	
16	ST16-SFH3-120	3	10	16	120	19	-	
	ST16-SFH4-120	4	10	16	120	22	-	
	ST16-SFH5-120	5	10	16	120	28	-	
	ST16-SFH6-120	6	10	16	120	36	M5×0.8	
20	ST16-SFH8-120	8	12	16	120	36	M6×1.0	
	ST20-SFH3-120	3	10	20	120	19	-	
	ST20-SFH4-120	4	10	20	120	22	-	
	ST20-SFH5-120	5	10	20	120	28	-	
	ST20-SFH6-120	6	10	20	120	36	M5×0.8	
	ST20-SFH8-120	8	12	20	120	36	M6×1.0	
	ST20-SFH10-120	10	14	20	120	42	M8×1.0	
	ST20-SFH12-120	12	16	20	120	47	M10×1.0	

► Notice when ordering – Please inform us whether it is for shrink fit holder or for ordinary holder.

SHRINK FIT HOLDER SCHRUMPFUTTER

EXTENSION (VERLÄNGERUNG)



EXTENDED

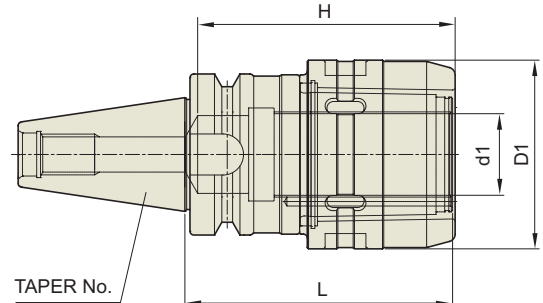
TAPER No.	CODE No.	D1	D2	D3	L	L 1	G	Weight (kg)	
12	ST12-SFH3-160	3	8	12	160	19	-		
	ST12-SFH4-160	4	8	12	160	22	-		
	ST12-SFH5-160	5	10	12	160	28	-		
	ST12-SFH6-160	6	10	12	160	36	M5×0.8		
16	ST16-SFH3-160	3	10	16	160	19	-		
	ST16-SFH4-160	4	10	16	160	22	-		
	ST16-SFH5-160	5	10	16	160	28	-		
	ST16-SFH6-160	6	10	16	160	36	M5×0.8		
16	ST16-SFH8-160	8	12	16	160	36	M6×1.0		
	20	ST20-SFH3-160	3	10	20	160	19	-	
		ST20-SFH4-160	4	10	20	160	22	-	
		ST20-SFH5-160	5	10	20	160	28	-	
ST20-SFH6-160		6	10	20	160	36	M5×0.8		
20	ST20-SFH8-160	8	12	20	160	36	M6×1.0		
	ST20-SFH10-160	10	14	20	160	42	M8×1.0		
	ST20-SFH12-160	12	16	20	160	47	M10×1.0		
	25	ST25-SFH3-160	3	10	25	160	19	-	
ST25-SFH4-160		4	10	25	160	22	-		
ST25-SFH5-160		5	15	25	160	28	-		
ST25-SFH6-160		6	20	25	160	36	M5×0.8		
ST25-SFH8-160		8	20	25	160	36	M6×1.0		
ST25-SFH10-160		10	20	25	160	42	M8×1.0		
ST25-SFH12-160		12	20	25	160	47	M10×1.0		
ST25-SFH14-160		14	20	25	160	47	M10×1.0		
32	ST25-SFH16-160	16	22	25	160	50	M12×1.0		
	ST32-SFH6-160	6	20	32	160	36	M5×0.8		
	ST32-SFH8-160	8	20	32	160	36	M6×1.0		
	ST32-SFH10-160	10	24	32	160	42	M8×1.0		
	ST32-SFH12-160	12	24	32	160	47	M10×1.0		
	ST32-SFH14-160	14	27	32	160	47	M10×1.0		
	ST32-SFH16-160	16	27	32	160	50	M12×1.0		
	ST32-SFH18-160	18	27	32	160	50	M12×1.0		
ST32-SFH20-160	20	27	32	160	52	M16×1.0			

► Notice when ordering – Please inform us whether it is for shrink fit holder or for ordinary holder.



HIGH SPEED MILLING CHUCK
HOCHGESCHWINDIGKEITS FRÄSERFUTTER

MAS403-BT FORM AD



MAS403
-BT

Taper
Accuracy
AT3

G Value
6.3

RPM
20,000

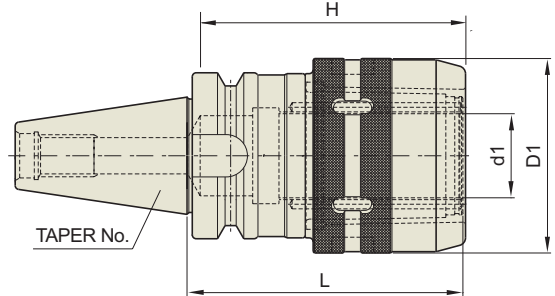
Coolant
System

TAPER No.	CODE No.	d1	D1	L	H	Weight (kg)
30	BT30-C20-75HS	20	54	75	70	1.50
	BT30-C25-80HS	25	62.5	80	80	2.00
40	BT40-C20-80HS	20	54	80	70	2.00
	BT40-C20-105HS	20	54	105	70	2.10
	BT40-C25-105HS	25	62.5	105	80	2.50
	BT40-C32-90HS	32	74	90	100	3.00
	BT40-C32-105HS	32	74	105	100	3.10
50	BT40-C32-135HS	32	74	135	100	3.30
	BT50-C20-105HS	20	54	105	70	4.50
	BT50-C20-135HS	20	54	135	70	4.90
	BT50-C20-165HS	20	54	165	70	5.40
	BT50-C25-105HS	25	62.5	105	80	5.20
	BT50-C25-135HS	25	62.5	135	80	5.80
	BT50-C25-165HS	25	62.5	165	80	6.20
	BT50-C32-105HS	32	74	105	100	6.00
	BT50-C32-135HS	32	74	135	100	6.70
	BT50-C32-165HS	32	74	165	100	7.40
	BT50-C42-115HS	42	92	115	110	6.70
	BT50-C42-135HS	42	92	135	110	7.60
	BT50-C42-165HS	42	92	165	110	8.30

MILLING CHUCK FRÄSERSPANNFUTTER

TOOL
HOLDERS



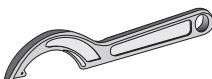
MAS403-BT



MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	d1	D1	L	H	Applicable collet	Weight (kg)
30	BT30-C20- 75	20	54	75	70	K20, CK20	1.5
	BT30-C25- 80	25	62.5	80	80	K25, CK25	2.0
40	BT40-C20- 80	20	54	80	70	K20, CK20	2.0
	BT40-C20-105	20	54	105	70	K20, CK20	2.1
	BT40-C25-105	25	62.5	105	80	K25, CK25	2.5
	BT40-C32- 90	32	72	90	100	K32, CK32	3
	BT40-C32-105	32	72	105	100	K32, CK32	3.1
50	BT40-C32-135	32	72	135	100	K32, CK32	3.3
	BT50-C20-105	20	54	105	70	K20, CK20	4.5
	BT50-C20-135	20	54	135	70	K20, CK20	4.9
	BT50-C20-165	20	54	165	70	K20, CK20	5.4
	BT50-C25-105	25	62.5	105	80	K25, CK25	5.2
	BT50-C25-135	25	62.5	135	80	K25, CK25	5.8
	BT50-C25-165	25	62.5	165	80	K25, CK25	6.2
	BT50-C32-105	32	72	105	100	K32, CK32	6
	BT50-C32-115	32	72	115	100	K32, CK32	6.2
	BT50-C32-135	32	72	135	100	K32, CK32	6.7
	BT50-C32-165	32	72	165	100	K32, CK32	7.4
50	BT50-C42-115	42	92	115	110	K42, CK42	6.7
	BT50-C42-135	42	92	135	110	K42, CK42	7.6
	BT50-C42-165	42	92	165	110	K42, CK42	8.3

SPARE PARTS

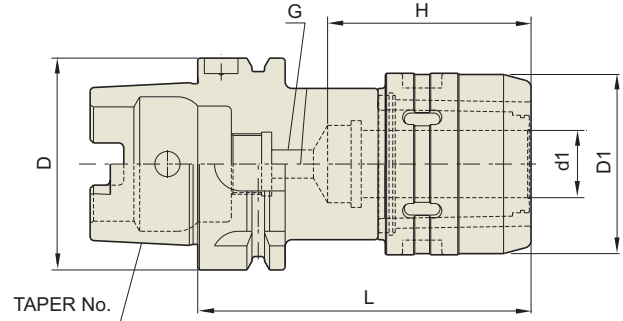
END MILL COLLET	CODE No.	SET
	K20 - 6, 8, 10, 12, 16	5PCS
	K25 - 6, 8, 10, 12, 16, 20	6PCS
	K32 - 6, 8, 10, 12, 16, 20, 25	7PCS
	K42 - 6, 8, 10, 12, 16, 20, 25, 32	8PCS
END MILL COLLET	CODE No.	SET
	CK20 - 6, 8, 10, 12, 16	5PCS
	CK25 - 6, 8, 10, 12, 16, 20	6PCS
	CK32 - 6, 8, 10, 12, 16, 20, 25	7PCS
	CK42 - 6, 8, 10, 12, 16, 20, 25, 32	8PCS
SPANNER	CODE No.	
	C20 SP	
	C25 SP	
	C32 SP	
	C42 SP	



HIGH SPEED MILLING CHUCK
HOCHGESCHWINDIGKEITS FRÄSERFUTTER

DIN69893-HSK FORM A

TOOL
HOLDERS



DIN69893
- HSK

Taper
Accuracy
AT3

G Value
6.3

RPM
20,000

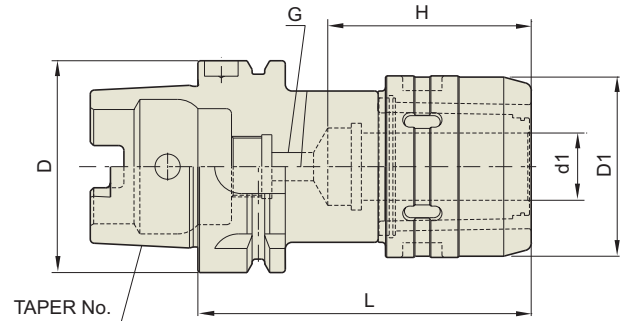
Coolant
System

TAPER No.	CODE No.	d1	D1	L	H	Weight (kg)
50A	HSK50A-C20-100HS	20	54	100	70	1.30
	HSK63A-C20-105HS	20	54	105	70	1.50
63A	HSK63A-C25-120HS	25	62.5	120	80	2.20
	HSK63A-C32-130HS	32	74	130	100	2.70
100A	HSK100A-C20-110HS	20	54	110	70	3.50
	HSK100A-C25-130HS	25	62.5	130	80	3.80
	HSK100A-C32-135HS	32	74	135	100	4.20
	HSK100A-C42-135HS	42	74	135	100	5.30

MILLING CHUCK FRÄSERSPANNFUTTER

TOOL
HOLDERS



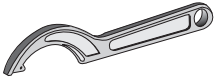
HSK FORM A



DIN69893 - HSK	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	D	d1	D1	L	H	G	Weight (kg)
50A	HSK 50A-C20-100	50	20	54	100	70	M12	1.30
63A	HSK 63A-C20-105	63	20	54	105	70	M12	1.50
	HSK 63A-C32-130	63	32	72	130	100	M12	2.70
100A	HSK100A-C20-110	100	20	54	110	70	M12	3.50
	HSK100A-C32-135	100	32	72	135	100	M12	4.20
	HSK100A-C42-135	100	42	92	135	100	M12	5.30

SPARE PARTS

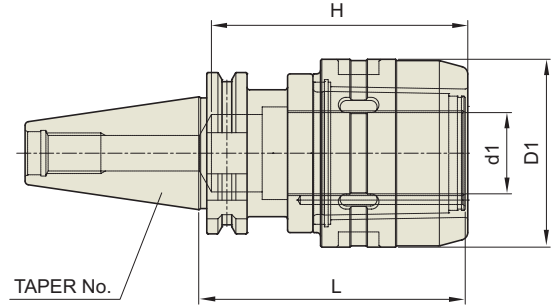
END MILL COLLET	CODE No.	SET
	K20 - 6, 8, 10, 12, 16	5PCS
	K32 - 6, 8, 10, 12, 16, 20, 25	7PCS
	K42 - 6, 8, 10, 12, 16, 20, 25, 32	8PCS
END MILL COLLET	CODE No.	SET
	CK20 - 6, 8, 10, 12, 16	5PCS
	CK25 - 6, 8, 10, 12, 16, 20	6PCS
	CK32 - 6, 8, 10, 12, 16, 20, 25	7PCS
	CK42 - 6, 8, 10, 12, 16, 20, 25, 32	8PCS
SPANNER	CODE No.	
	C20 SP	
	C25 SP	
	C32 SP	
	C42 SP	



HIGH SPEED MILLING CHUCK
HOCHGESCHWINDIGKEITS FRÄSERFUTTER

DIN 69871-SK FORM AD

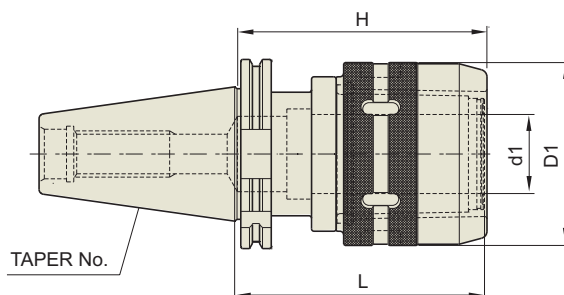
TOOL
HOLDERS



DIN69871 -SK	Taper Accuracy AT3	G Value 6.3	RPM 20,000	Coolant System
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TAPER No.	CODE No.	d1	D1	L	H	Weight (kg)
30	SK30-C20-80HS	20	54	80	70	1.15
	SK30-C25-80HS	25	62.5	80	80	1.48
40	SK40-C20-105HS	20	54	105	70	1.77
	SK40-C25-105HS	25	62.5	105	80	2.10
	SK40-C32-105HS	32	74	105	100	2.40
	SK40-C32-135HS	32	74	135	100	3.10
50	SK50-C20-105HS	20	54	105	70	3.40
	SK50-C25-105HS	25	62.5	105	80	3.80
	SK50-C32-105HS	32	74	105	100	4.30
	SK50-C32-135HS	32	74	135	100	4.90
	SK50-C32-165HS	32	74	165	100	5.60
	SK50-C42-115HS	42	92	115	110	4.60
	SK50-C42-135HS	42	92	135	110	5.60
SK50-C42-165HS	42	92	165	110	6.10	

MILLING CHUCK FRÄSERSPANNFUTTER



DIN69871 -SK	Taper Accuracy AT3	G Value	RPM	Coolant System
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STUB

TAPER No.	CODE No.	d1	D1	L	H	Weight (kg)
30	SK30-C20-80	20	54	80	70	1.15
	SK30-C25-80	25	62.5	80	80	1.48
40	SK40-C20-90	20	54	90	70	1.60
	SK40-C32-90	32	72	90	100	2.00
50	SK50-C20-80	20	54	80	70	3.22
	SK50-C25-90	25	62.5	90	80	3.61
	SK50-C32-90	32	72	90	100	3.87

STANDARD

TAPER No.	CODE No.	d1	D1	L	H	Weight (kg)
40	SK40-C20-105	20	54	105	70	1.77
	SK40-C25-105	25	62.5	105	80	2.01
	SK40-C32-105	32	72	105	100	2.42
50	SK50-C20-105	20	54	105	70	3.39
	SK50-C25-105	25	62.5	105	80	3.78
	SK50-C32-105	32	72	105	100	4.31
	SK50-C42-115	42	92	115	110	4.53

EXTENDED

TAPER No.	CODE No.	d1	D1	L	H	Weight (kg)
40	SK40-C32-135	32	72	135	100	3.11
50	SK50-C32-135	32	72	135	100	4.94
	SK50-C42-135	42	92	135	110	5.62

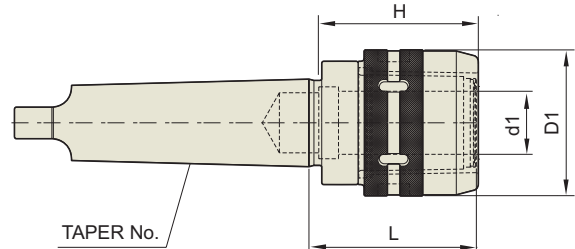
EXTRA EXTENDED

TAPER No.	CODE No.	d1	D1	L	H	Weight (kg)
50	SK50-C32-165	32	72	165	100	5.59
	SK50-C42-165	42	92	165	110	6.10



MILLING CHUCK FRÄSERSPANNFUTTER

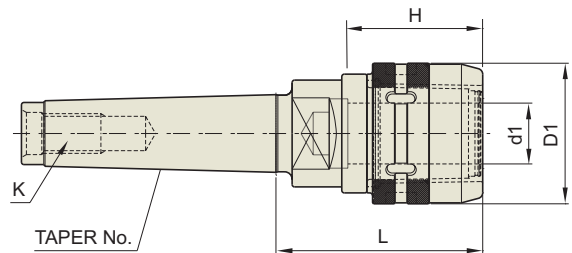
TOOL HOLDERS



DIN 228 - MTA	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	d1	D1	L	H	Applicable collet	Weight (kg)
MT4	MTA4-C32	32	72	98	100	K32, CK32	2.57
MT5	MTA5-C32	32	72	85	100	K32, CK32	3.06
	MTA5-C42	42	92	114	110	K42, CK42	3.45
MT6	MTA6-C42	42	92	99	110	K42, CK42	4.14

► In case of MT16 ,please inform us of machine model number and company name for selection of cutter groove.

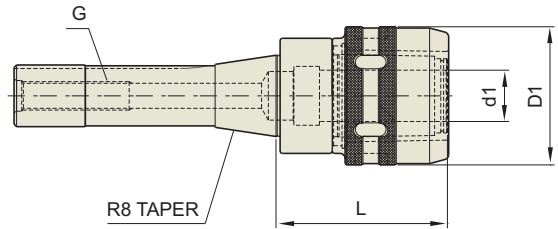


DIN 228 - MTB	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	d1	D1	L	H	K	Applicable collet	Weight (kg)
MT3	MTB3-C20	20	54	74	70	M12	K20, CK20	2.10
MT4	MTB4-C32	32	72	98	100	M16	K32, CK32	2.57
	MTB5-C32	32	72	85	100	M20	K32, CK32	3.06
MT5	MTB5-C42	42	92	114	110	M20	K42, CK42	3.45

MILLING CHUCK
FRÄSERSPANNFUTTER

TOOL HOLDERS



R8	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	d1	D1	L	G	Applicable collet	Weight (kg)
R8	R8-C20	20	54	69	U7/16-20	K20, CK20	1.40

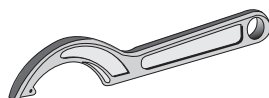
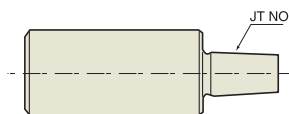
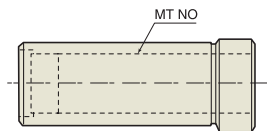
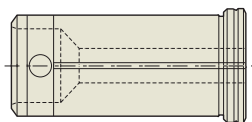
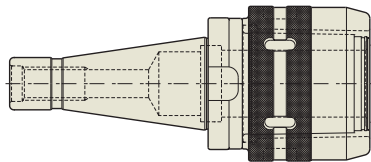


MILLING CHUCK STANDARD SET GEGENSTUCK FUR FRASERSPANNFUTTER

TOOL HOLDERS



MACHINE SPINDLE TAPER	STANDARD SET CODE No.	MILLING CHUCK	END MILL COLLET	MORSE TAPER COLLET	DRILL CHUCK BAR
R8	SR8-C20	R8-C20	K20-(6-16)(5PCS)	K20-MT1,2	K20-JTA6
NT30	SNT30-20	NT30-C20	K20-(6-16)(5PCS)	K20-MT1,2	K20-JTA6
NT40	SNT40-32A	NT40-C32	K32-(6-25)(7PCS)	-	-
	SNT40-32	NT40-C32	K32-(6-25)(7PCS)	K32-MT1,2,3	K32-JTA6
NT50	SNT50-32A	NT50-C32	K32-(6-25)(7PCS)	-	K32-JTA6
	SNT50-32	NT50-C32	K32-(6-25)(7PCS)	K32-MT1,2,3	K32-JTA6
	SNT50-42A	NT50-C42	K42-(6-32)(8PCS)	-	-
	SNT50-42	NT50-C42	K42-(6-32)(8PCS)	K42-MT1,2,3,4	K42-JTA6



MILLING CHUCK

CODE No.
NT30 - C20
NT40 - C32
NT50 - C32
NT50 - C42

END MILL COLLET

CODE No.	SET
K20 - 6, 8, 10, 12, 16	5PCS
K25 - 6, 8, 10, 12, 16, 20	6PCS
K32 - 6, 8, 10, 12, 16, 20, 25	7PCS
K42 - 6, 8, 10, 12, 16, 20, 25, 32	8PCS

MT COLLET

CODE No.
K20 - MT1, 2
K25 - MT1, 2, 3
K32 - MT1, 2, 3
K42 - MT1, 2, 3, 4

DRILL CHUCK ARBOR

CODE No.
K20 - JTA6
K25 - JTA6
K32 - JTA6
K42 - JTA6

SPANNER

CODE No.
C20 SP
C25 SP
C32 SP
C42 SP

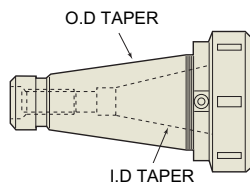
Q.C MILLING CHUCK SET

SCHNELLWECHSEL GEGENSTUCK FÜR FRASERSPANNFUTTER

TOOL
HOLDERS

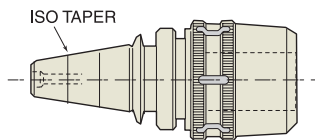


MACHINE SPINDLE TAPER	Q.C MILLING HOLDER SET CODE No.	Q.C MASTER HOLDER	Q.C MILLING CHUCK	END MILL COLLETS	Q.C FACE MILL ARBOR	Q.C DRILL CHUCK BAR	DRILL CHUCK ARBOR	Q.C TAPER SLEEVE
NT40	SMH40-T35-32 A	MH40-T35	QT35-32	K32-(6-25)(7PCS)	QT35-4R	—	K32-J6	—
	SMH40-T35-32 B	MH40-T35	QT35-32	K32-(6-25)(7PCS)	QT35-4R	QT35-J6	—	QT35-MT2,3,4
NT50	SMH50-T45-32 A	MH50-T45	QT45-32	K32-(6-25)(7PCS)	QT45-5R	—	K32-J6	—
	SMH50-T45-32 B	MH50-T45	QT45-32	K32-(6-25)(7PCS)	QT45-5R	QT45-J6	—	QT45-MT2,3,4
	SMH50-T45-42 A	MH50-T45	QT45-42	K42-(6-32)(8PCS)	QT45-5R	—	K42-J6	—
	SMH50-T45-42 B	MH50-T45	QT45-42	K42-(6-32)(8PCS)	QT45-5R	QT45-J6	—	QT45-MT2,3,4



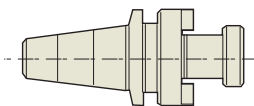
Q.C MASTER HOLDER

CODE No.	O.D TAPER	I.D TAPER	DRAW THREADS
MH40-T35	NT40	NT35	U5/8-11(M16-2)
MH50-T45	NT50	NT45	U1-8(M24-3)



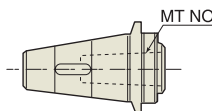
Q.C MILLING CHUCK

CODE No.	Q.C MASTER HOLDER
QT35-C32	MH40
QT45-C32	MH50
QT45-C42	MH50



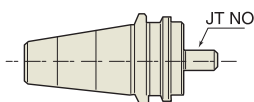
Q.C FACE MILL ARBOR

CODE No.	Q.C MASTER HOLDER
QT35-3,4,5R	MH40
QT45-3,4,5,6R	MH50



Q.C TAPER SLEEVE

CODE No.	Q.C MASTER HOLDER
QT35 - MT1, 2, 3	MH40
QT45 - MT1, 2, 3, 4	MH50



Q.C DRILL CHUCK ARBOR

CODE No.	Q.C MASTER HOLDER	DRILL Ø
QT35-J6	MH40	1-13mm
QT45-J6	MH50	1-13mm



COLLET & SPANNER

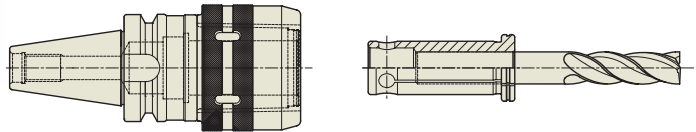
SPANNZANGE UND MAULSCHLÜSSEL

TOOL
HOLDERS



**END MILL COLLET (K TYPE)
SPANNZANGEN**

CODE No.	SET
K20-6,8,10,12,16	5pcs
K25-6,8,10,12,16,20	6pcs
K32-6,8,10,12,16,20,25	7pcs
K42-6,8,10,12,16,20,25,32	8pcs



**END MILL COLLET (CK TYPE)
SPANNZANGEN MIT VERSTELLSCHRAUBE**

CODE No.	SET
CK20-6,8,10,12,16	5pcs
CK25-6,8,10,12,16,20	6pcs
CK32-6,8,10,12,16,20,25	7pcs
CK42-6,8,10,12,16,20,25,32	8pcs



MT COLLET

CODE No.
K20-MT1,2
K25-MT1,2
K32-MT1,2,3
K42-MT1,2,3,4

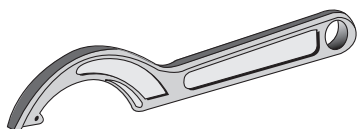


DRILL CHUCK ARBOR

CODE No.
K20-JTA6
K25-JTA6
K32-JTA6
K42-JTA6

**SPANNER
MAULSCHLÜSSEL**

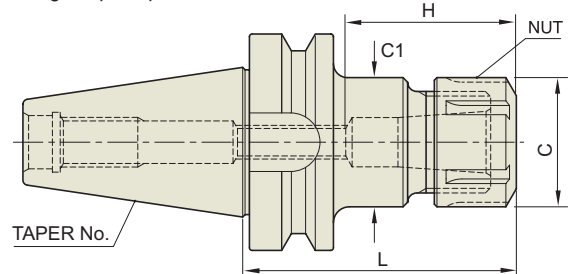
CODE No.
C20 SP
C25 SP
C32 SP
C42 SP



SK SLIM CHUCK SK SCHLANKE FUTTER

MAS403-BT

- ▶ Realizing highest precision .
- ▶ Applicable to various tools such as end mill, drill, reamer, tap, and etc.
- ▶ Usable for long hours with use of nut produced by Switzerland manufacturer
- ▶ Creating maximum effect with slim type when machining deep shape



MAS403-BT	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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TAPER No.	CODE No.	RANGE	L	C	C1	H		COLLET	Weight (kg)
						Min	Max		
30	BT30-SKA06-60	0.9-6.0	60	20	19.5	21	35	SKC6	0.7
	BT30-SKA06-90	0.9-6.0	90	20	19.5	21	35	SKC6	0.8
	BT30-SKA10-60	1.75-10.0	60	28	27.5	30	50	SKC10	0.9
	BT30-SKA10-90	1.75-10.0	90	28	27.5	30	50	SKC10	1
	BT30-SKA13-60	2.75-13.0	60	33	33	31	65	SKC13	1
	BT30-SKA13-90	2.75-13.0	90	33	33	31	65	SKC13	1.1
	BT30-SKA16-60	2.75-16.0	60	40	40	45	60	SKC16	1.1
	BT30-SKA16-90	2.75-16.0	90	40	40	45	60	SKC16	1.2
	BT30-SKA20-60	4.0-20.0	60	48.5	48.5	65	75	SKC20	1.3
	BT30-SKA20-90	4.0-20.0	90	48.5	48.5	65	75	SKC20	1.4
BT30-SKA25-90	16.0-25.4	90	55	55	55	75	SKC25	1.5	
40	BT40-SKA06-90	0.9-6.0	90	20	19.5	21	35	SKC6	1.1
	BT40-SKA06-120	0.9-6.0	120	20	19.5	21	35	SKC6	1.4
	BT40-SKA06-150	0.9-6.0	150	20	19.5	21	35	SKC6	1.5
	BT40-SKA10-90	1.75-10.0	90	28	27.5	30	50	SKC10	1.2
	BT40-SKA10-120	1.75-10.0	120	28	27.5	30	50	SKC10	1.4
	BT40-SKA10-150	1.75-10.0	150	28	27.5	30	50	SKC10	1.6
	BT40-SKA13-90	2.75-13.0	90	33	33	31	65	SKC13	1.4
	BT40-SKA13-120	2.75-13.0	120	33	33	31	65	SKC13	1.6
	BT40-SKA13-150	2.75-13.0	150	33	40	31	65	SKC13	1.8
	BT40-SKA16-90	2.75-16.0	90	40	40	45	70	SKC16	1.5
	BT40-SKA16-120	2.75-16.0	120	40	40	45	70	SKC16	1.7
	BT40-SKA16-150	2.75-16.0	150	40	40	45	70	SKC16	1.9
	BT40-SKA20-90	4.0-20.0	90	48.5	48.5	47	80	SKC20	1.6
	BT40-SKA20-120	4.0-20.0	120	48.5	48.5	47	80	SKC20	2
	BT40-SKA20-150	4.0-20.0	150	48.5	48.5	47	80	SKC20	2.4
	BT40-SKA25-90	16.0-25.4	90	55	55	55	85	SKC25	1.8
BT40-SKA25-120	16.0-25.4	120	55	55	55	85	SKC25	2	
BT40-SKA25-150	16.0-25.4	150	55	55	55	85	SKC25	2.3	

- ▶ For usable SK collet, please refer to page 1103 and 1104.
- ▶ Higher balancing grade product could be supplied by customer's request.

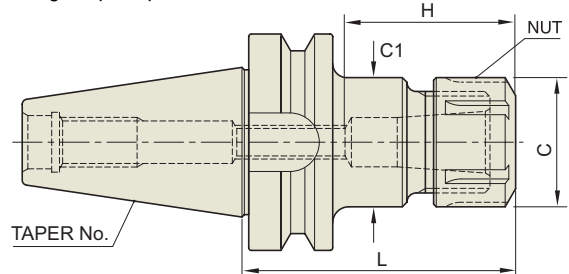


SK SLIM CHUCK SK SCHLANKE FUTTER

TOOL
HOLDERS

MAS403-BT

- ▶ Realizing highest precision .
- ▶ Applicable to various tools such as end mill, drill, reamer, tap, and etc.
- ▶ Usable for long hours with use of nut produced by Switzerland manufacturer
- ▶ Creating maximum effect with slim type when machining deep shape



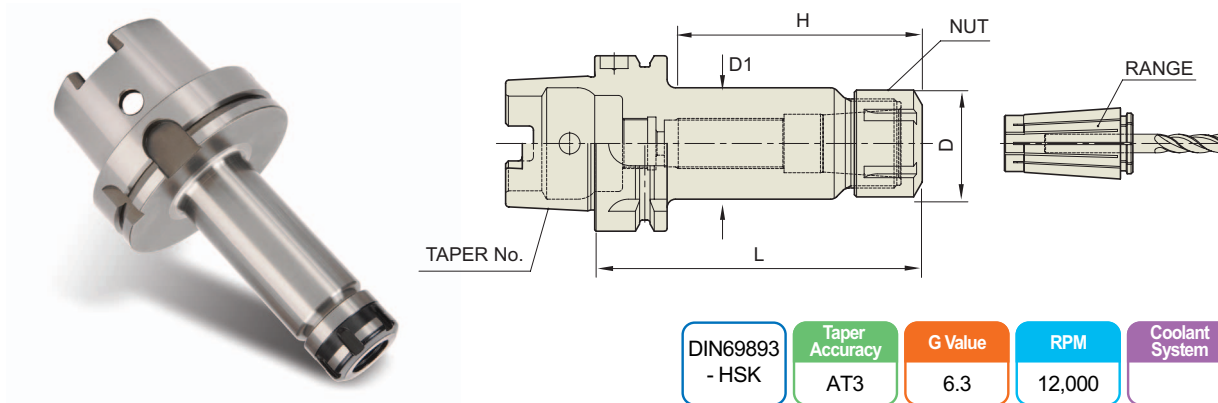
MAS403 -BT	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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TAPER No.	CODE No.	RANGE	L	C	C1	H		COLLET	Weight (kg)
						Min	Max		
50	BT50-SKA06-105	0.9-6.0	105	20	19.5	21	35	SKC6	3.8
	BT50-SKA06-135	0.9-6.0	135	20	19.5	21	35	SKC6	3.9
	BT50-SKA06-165	0.9-6.0	165	20	32.5	21	35	SKC6	4
	BT50-SKA06-195	0.9-6.0	195	20	32.5	21	35	SKC6	4.2
	BT50-SKA10-105	1.75-10.0	105	28	27.5	30	50	SKC10	4.2
	BT50-SKA10-135	1.75-10.0	135	28	27.5	30	50	SKC10	4.4
	BT50-SKA10-165	1.75-10.0	165	28	37.4	30	50	SKC10	4.6
	BT50-SKA10-195	1.75-10.0	195	28	37.4	30	50	SKC10	4.8
	BT50-SKA13-105	2.75-13.0	105	33	33	31	65	SKC13	4.5
	BT50-SKA13-135	2.75-13.0	135	33	33	31	65	SKC13	4.7
	BT50-SKA13-165	2.75-13.0	165	33	45	31	65	SKC13	4.9
	BT50-SKA13-195	2.75-13.0	195	33	45	31	65	SKC13	5.2
	BT50-SKA16-105	2.75-16.0	105	40	40	45	70	SKC16	4.7
	BT50-SKA16-135	2.75-16.0	135	40	40	45	70	SKC16	4.9
	BT50-SKA16-165	2.75-16.0	165	40	40	45	70	SKC16	5.1
	BT50-SKA16-195	2.75-16.0	195	40	40	45	70	SKC16	5.5
	BT50-SKA20-105	4.0-20.0	105	48.5	48.5	47	80	SKC20	4.3
	BT50-SKA20-135	4.0-20.0	135	48.5	48.5	47	80	SKC20	4.6
	BT50-SKA20-165	4.0-20.0	165	48.5	48.5	47	80	SKC20	5
	BT50-SKA20-195	4.0-20.0	195	48.5	48.5	47	80	SKC20	5.4
BT50-SKA25-105	16.0-25.4	105	55	55	55	85	SKC25	5.2	
BT50-SKA25-135	16.0-25.4	135	55	55	55	85	SKC25	5.4	
BT50-SKA25-165	16.0-25.4	165	55	55	55	85	SKC25	5.6	
BT50-SKA25-195	16.0-25.4	195	55	55	55	85	SKC25	6	

- ▶ For usable SK collet, please refer to page 1103 and 1104.
- ▶ Higher balancing grade product could be supplied by customer's request.

SK SLIM CHUCK SK SCHLANKE FUTTER

DIN 69893-HSK FORM A



DIN69893 - HSK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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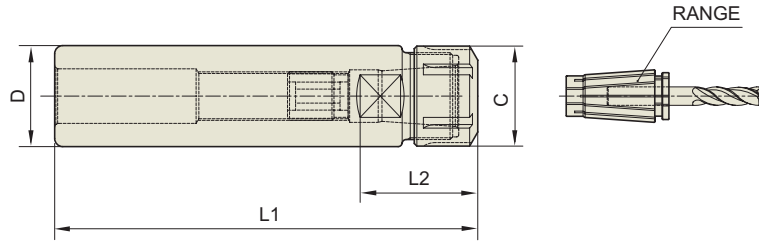
TAPER No.	CODE No.	RANGE	D	D1	L	H		COLLET	Weight (kg)
						Min	Max		
HSK 50	HSK50A-SKA06-80	0.75 - 6.0	20	19.5	80	21	35	SKC06	0.9
	HSK50A-SKA10-100	1.75 - 10.0	28	27.5	100	30	50	SKC10	1.1
	HSK50A-SKA13-100	2.75-13.0	33	33	100	31	65	SKC13	1.2
HSK 63	HSK63A-SKA06-100	0.75 - 6.0	20	19.5	100	21	35	SKC06	1.4
	HSK63A-SKA10-100	1.75 - 10.0	28	27.5	100	30	50	SKC10	1.6
	HSK63A-SKA13-100	2.75-13.0	33	33	100	31	65	SKC13	1.7
	HSK63A-SKA16-120	2.75 - 16.0	40	40	120	45	70	SKC16	1.7
	HSK63A-SKA20-120	4.0-20.0	48.5	48.5	120	65	75	SKC20	2.1
HSK 100	HSK63A-SKA25-150	16.0 - 25.4	55	55	150	55	85	SKC25	2.4
	HSK100A-SKA06-120	0.75 - 6.0	20	19.5	120	21	35	SKC06	4
	HSK100A-SKA10-150	1.75 - 10.0	28	27.5	150	30	50	SKC10	4.5
	HSK100A-SKA13-150	2.75-13.0	33	40	150	31	65	SKC13	4.6
	HSK100A-SKA16-150	2.75 - 16.0	40	40	150	45	70	SKC16	5.1
	HSK100A-SKA20-150	4.0-20.0	48.5	48.5	150	65	75	SKC20	5.4
	HSK100A-SKA25-160	16.0 - 25.4	55	55	160	55	85	SKC25	5.5

- ▶ For usable SK collet, please refer to page 1103 and 1104.
- ▶ Higher balancing grade product could be supplied by customer's request.



SK SLIM CHUCK - STRAIGHT SHANK SK SCHLANKE FUTTER -- GERADEAUS SCHAFT

TOOL
HOLDERS



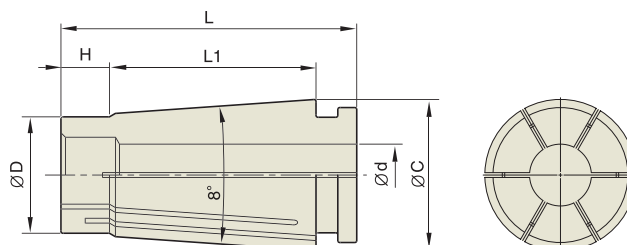
K	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	RANGE	D	C	L1	L2	COLLET	Weight (kg)
K20	K20-SKA06-100	0.75 - 6.0	20	28	100	21 - 35	SKC06	0.2
	K20-SKA06-140	0.75 - 6.0	20	28	140	21 - 35	SKC06	0.3
	K20-SKA10-100	1.75 - 10.0	28	28	100	30 - 50	SKC10	0.2
	K20-SKA10-140	1.75 - 10.0	28	28	140	30 - 50	SKC10	0.3
K25	K25-SKA06-100	0.75 - 6.0	20	28	100	21 - 35	SKC06	0.3
	K25-SKA06-140	0.75 - 6.0	20	28	140	21 - 35	SKC06	0.5
	K25-SKA10-100	1.75 - 10.0	28	28	100	30 - 50	SKC10	0.3
	K25-SKA10-150	1.75 - 10.0	28	28	150	30 - 50	SKC10	0.5
	K25-SKA13-100	2.75-13.0	33	37	100	31 - 65	SKC13	0.4
	K25-SKA13-150	2.75-13.0	33	37	150	31 - 65	SKC13	0.6
K32	K32-SKA10-100	1.75 - 10.0	28	28	100	30 - 50	SKC10	0.5
	K32-SKA10-150	1.75 - 10.0	28	28	150	30 - 50	SKC10	0.7
	K32-SKA13-100	2.75-13.0	33	37	100	31 - 65	SKC13	1
	K32-SKA13-150	2.75-13.0	33	37	150	31 - 65	SKC13	1.2
	K32-SKA16-100	2.75 - 16.0	40	47	100	40 - 70	SKC16	1
	K32-SKA16-150	2.75 - 16.0	40	47	150	40 - 70	SKC16	1.2
	K32-SKA20-100	4.0-20.0	48.5	47	100	47 - 80	SKC20	1.1
	K32-SKA20-150	4.0-20.0	48.5	47	150	47 - 80	SKC20	1.3
	K32-SKA25-150	16.0 - 25.4	55	47	150	50 - 85	SKC25	1.3

► For usable SK collet, please refer to page 1103 and 1104.

SK SLIM CHUCK COLLET SK SCHLANKE FUTTER SPANNZANGE

- ▶ Ensuring strong chucking power of 8° Taper and high precision
- ▶ Able to use various tools ranging from 0.9 to 25.4mm dia.
- ▶ Applicable to various tools such as end mill, drill, tap, reamer
- ▶ Collet of 3 μ m or 5 μ m T.I.R at 3D available by customer's request



Style	Code No.	Chucking (d)	Style	Code No.	Chucking (d)	Style	Code No.	Chucking (d)
SKC 6	SKC 6 - 1	0.9 - 1.0	SKC 10	SKC10 - 2	1.75 - 2.0	SKC 13	SKC 13 - 3	2.75 - 3.0
	SKC 6 - 1.5	1.3 - 1.5		SKC10 - 2.5	2.25 - 2.5		SKC 13 - 3.5	3.0 - 3.5
	SKC 6 - 2	1.8 - 2.0		SKC10 - 3	2.75 - 3.0		SKC 13 - 4	3.5 - 4.0
	SKC 6 - 2.5	2.3 - 2.5		SKC10 - 3.5	3.0 - 3.5		SKC 13 - 4.5	4.0 - 4.5
	SKC 6 - 3	2.8 - 3.0		SKC10 - 4	3.5 - 4.0		SKC 13 - 5	4.5 - 5.0
	SKC 6 - 3.5	3.0 - 3.5		SKC10 - 4.5	4.0 - 4.5		SKC 13 - 5.5	5.0 - 5.5
	SKC 6 - 4	3.5 - 4.0		SKC10 - 5	4.5 - 5.0		SKC 13 - 6	5.5 - 6.0
	SKC 6 - 4.5	4.0 - 4.5		SKC10 - 5.5	5.0 - 5.5		SKC 13 - 6.5	6.0 - 6.5
	SKC 6 - 5	4.5 - 5.0		SKC10 - 6	5.5 - 6.0		SKC 13 - 7	6.5 - 7.0
SKC 6 - 5.5	5.0 - 5.5	SKC10 - 6.5		6.0 - 6.5	SKC 13 - 7.5		7.0 - 7.5	
SKC 6 - 6	5.5 - 6.0	SKC10 - 7	6.5 - 7.0	SKC 13 - 8	7.5 - 8.0			
		SKC10 - 7.5	7.0 - 7.5	SKC 13 - 8.5	8.0 - 8.5			
		SKC10 - 8	7.5 - 8.0	SKC 13 - 9	8.5 - 9.0			
		SKC10 - 8.5	8.0 - 8.5	SKC 13 - 9.5	9.0 - 9.5			
		SKC10 - 9	8.5 - 9.0	SKC 13 - 10	9.5 - 10.0			
		SKC10 - 9.5	9.0 - 9.5	SKC 13 - 10.5	10.0 - 10.5			
		SKC10 - 10	9.5 - 10.0	SKC 13 - 11	10.5 - 11.0			
				SKC 13 - 11.5	11.0 - 11.5			
				SKC 13 - 12	11.5 - 12.0			
				SKC 13 - 12.5	12.0 - 12.5			
				SKC 13 - 13	12.5 - 13.0			

SKC COLLET DIMENSION

STYLE	D	L	L1	H	C	Weight (kg)
SKC 6	7.5	25.7	17.6	3.8	10	0.03
SKC 10	12	32	21.3	5	15	0.04
SKC 13	15.4	39	28.3	5.5	20	
SKC 16	18.8	46	32	8	24	0.06
SKC 20	22.5	54.2	41	8	29	
SKC 25	28.9	58.2	43	8.5	35	0.10

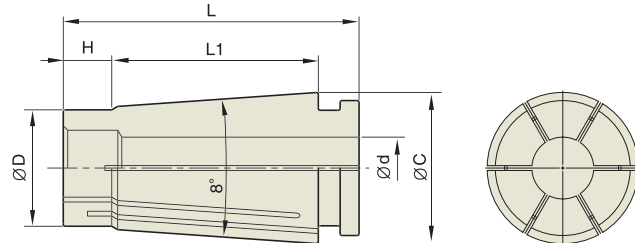


SK SLIM CHUCK COLLET

SK SCHLANKE FUTTER SPANNZANGE

TOOL
HOLDERS

- ▶ Ensuring strong chucking power of 8° Taper and high precision
- ▶ Able to use various tools ranging from 0.9 to 25.4mm dia.
- ▶ Applicable to various tools such as end mill, drill, tap, reamer
- ▶ Collet of 3 μ m or 5 μ m T.I.R at 3D available by customer's request



Style	Code No.	Chucking (d)	Style	Code No.	Chucking (d)	Style	Code No.	Chucking (d)
SKC 16	SKC16 - 3	2.75 - 3.0	SKC 20	SKC 20 - 4	3.5 - 4.0	SKC 25	SKC25 - 16.5	16.0 - 16.5
	SKC16 - 3.5	3.0 - 3.5		SKC 20 - 4.5	4.0 - 4.5		SKC25 - 17	16.5 - 17.0
	SKC16 - 4	3.5 - 4.0		SKC 20 - 5	4.5 - 5.0		SKC25 - 17.5	17.0 - 17.5
	SKC16 - 4.5	4.0 - 4.5		SKC 20 - 5.5	5.0 - 5.5		SKC25 - 18	17.5 - 18.0
	SKC16 - 5	4.5 - 5.0		SKC 20 - 6	5.5 - 6.0		SKC25 - 18.5	18.0 - 18.5
	SKC16 - 5.5	5.0 - 5.5		SKC 20 - 6.5	6.0 - 6.5		SKC25 - 19	18.5 - 19.0
	SKC16 - 6	5.5 - 6.0		SKC 20 - 7	6.5 - 7.0		SKC25 - 19.5	19.0 - 19.5
	SKC16 - 6.5	6.0 - 6.5		SKC 20 - 7.5	7.0 - 7.5		SKC25 - 20	19.5 - 20.0
	SKC16 - 7	6.5 - 7.0		SKC 20 - 8	7.5 - 8.0		SKC25 - 20.5	20.0 - 20.5
	SKC16 - 7.5	7.0 - 7.5		SKC 20 - 8.5	8.0 - 8.5		SKC25 - 21	20.5 - 21.0
	SKC16 - 8	7.5 - 8.0		SKC 20 - 9	8.5 - 9.0		SKC25 - 21.5	21.0 - 21.5
	SKC16 - 8.5	8.0 - 8.5		SKC 20 - 9.5	9.0 - 9.5		SKC25 - 22	21.5 - 22.0
	SKC16 - 9	8.5 - 9.0		SKC 20 - 10	9.5 - 10.0		SKC25 - 22.5	22.0 - 22.5
	SKC16 - 9.5	9.0 - 9.5		SKC 20 - 10.5	10.0 - 10.5		SKC25 - 23	22.5 - 23.0
	SKC16 - 10	9.5 - 10.0		SKC 20 - 11	10.5 - 11.0		SKC25 - 23.5	23.0 - 23.5
	SKC16 - 10.5	10.0 - 10.5		SKC 20 - 11.5	11.0 - 11.5		SKC25 - 24	23.5 - 24.0
SKC16 - 11	10.5 - 11.0	SKC 20 - 12	11.5 - 12.0	SKC25 - 24.5	24.0 - 24.5			
SKC16 - 11.5	10.0 - 11.5	SKC 20 - 12.5	12.0 - 12.5	SKC25 - 25	24.5 - 25.0			
SKC16 - 12	11.5 - 12.0	SKC 20 - 13	12.5 - 13.0	SKC25 - 25.4	25.0 - 25.4			
SKC16 - 12.5	12.0 - 12.5	SKC 20 - 13.5	13.0 - 13.5					
SKC16 - 13	12.5 - 13.0	SKC 20 - 14	13.5 - 14.0					
SKC16 - 13.5	13.0 - 13.5	SKC 20 - 14.5	14.0 - 14.5					
SKC16 - 14	13.5 - 14.0	SKC 20 - 15	14.5 - 15.0					
SKC16 - 14.5	14.0 - 14.5	SKC 20 - 15.5	15.0 - 15.5					
SKC16 - 15	14.5 - 15.0	SKC 20 - 16	15.5 - 16.0					
SKC16 - 15.5	15.0 - 15.5	SKC 20 - 16.5	16.0 - 16.5					
SKC16 - 16	15.5 - 16.0	SKC 20 - 17	16.5 - 17.0					
		SKC 20 - 17.5	17.0 - 17.5					
		SKC 20 - 18	17.5 - 18.0					
		SKC 20 - 18.5	18.0 - 18.5					
		SKC 20 - 19	18.5 - 19.0					
		SKC 20 - 19.5	19.0 - 19.5					
		SKC 20 - 20.0	19.5 - 20.0					

SKN NUT SKN NUSS

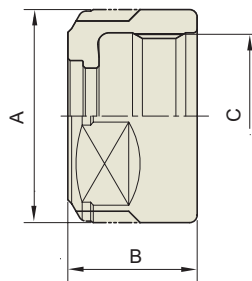


FIG 1

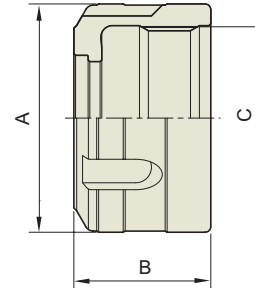
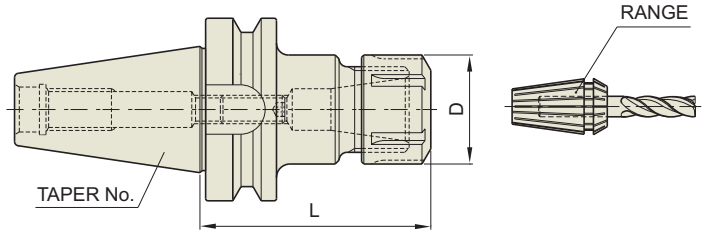


FIG 2

TYPE	FIG	A	B	C	Weight (kg)
SKN 06	1	20	15	M15.5X1.0	0.02
SKN 10	1	28	17	M21.5X1.0	0.04
SKN 13	2	33	21	M27X1.0	0.05
SKN 16	2	40	24	M32X1.5	0.06
SKN 20	2	48.5	24	M40X1.0	0.08
SKN 25	2	55	30	M42X1.5	0.10

ER COLLET CHUCK FRÄSERSPANNFUTTE

MAS403-BT



MAS403-BT	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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STANDARD TYPE

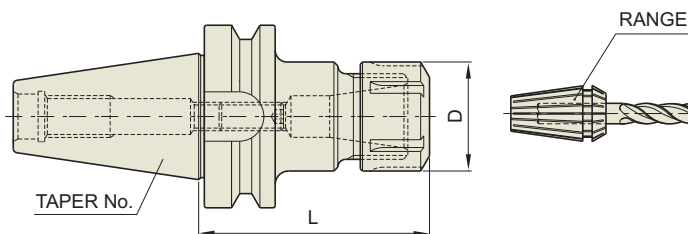
TAPER No.	CODE No.	RANGE	D	L	M	NUT	COLLET	Weight (kg)
30	BT30-ER11- 70	0.5~7.0	19	70	M6	ER11	ER11 +ET1-12	0.5
	BT30-ER11-100	0.5~7.0	19	100	M6	ER11	ER11 +ET1-12	0.5
	BT30-ER16- 70	0.5~10.0	28	70	M10	ER16	ER16 +ET1-16	1.0
	BT30-ER16-100	0.5~10.0	28	100	M10	ER16	ER16 +ET1-16	1.1
	BT30-ER20- 80	1.0~13.0	34	80	M12	ER20	ER20 +ET1-20	1.2
	BT30-ER20-100	1.0~13.0	34	100	M12	ER20	ER20 +ET1-20	1.3
	BT30-ER25- 70	1.0~16.0	42	70	M12	ER25	ER25 +ET1-25	1.2
	BT30-ER25-100	1.0~16.0	42	100	M12	ER25	ER25 +ET1-25	1.3
	BT30-ER32- 60	2.0~20.0	50	60	M12	ER32	ER32 +ET1-32	1.4
BT30-ER32- 90	2.0~20.0	50	90	M12	ER32	ER32 +ET1-32	1.9	
40	BT40-ER11- 75	0.5~7.0	19	75	M6	ER11	ER11 +ET1-12	1.0
	BT40-ER11-100	0.5~7.0	19	100	M6	ER11	ER11 +ET1-12	1.1
	BT40-ER16- 75	0.5~10.0	28	75	M10	ER16	ER16 +ET1-16	1.1
	BT40-ER16-100	0.5~10.0	28	100	M10	ER16	ER16 +ET1-16	1.2
	BT40-ER16-120	0.5~10.0	28	120	M10	ER16	ER16 +ET1-16	1.4
	BT40-ER20- 75	1.0~13.0	34	75	M12	ER20	ER20 +ET1-20	1.4
	BT40-ER20-100	1.0~13.0	34	100	M12	ER20	ER20 +ET1-20	1.8
	BT40-ER20-135	1.0~13.0	34	135	M12	ER20	ER20 +ET1-20	2.2
	BT40-ER25- 75	1.0~16.0	42	75	M12	ER25	ER25 +ET1-25	1.4
	BT40-ER25-100	1.0~16.0	42	100	M12	ER25	ER25 +ET1-25	1.8
	BT40-ER25-135	1.0~16.0	42	135	M12	ER25	ER25 +ET1-25	2.2
	BT40-ER25-150	1.0~16.0	42	150	M12	ER25	ER25 +ET1-25	2.4
	BT40-ER32- 60	2.0~20.0	50	60	M12	ER32	ER32 +ET1-32	1.8
	BT40-ER32-100	2.0~20.0	50	100	M12	ER32	ER32 +ET1-32	2.2
	BT40-ER32-120	2.0~20.0	50	120	M12	ER32	ER32 +ET1-32	2.4
BT40-ER32-150	2.0~20.0	50	150	M12	ER32	ER32 +ET1-32	2.6	
BT40-ER40- 80	3.0~30.0	63	80	M12	ER40	ER40 +ET1-40	1.5	

- ▶ For usable collet, please refer to page 1118 and 1119
- ▶ Higher balancing grade product could be supplied by customer's request.

ER COLLET CHUCK FRÄSERSPANNFUTTE

TOOL
HOLDERS

MAS403-BT



MAS403 -BT	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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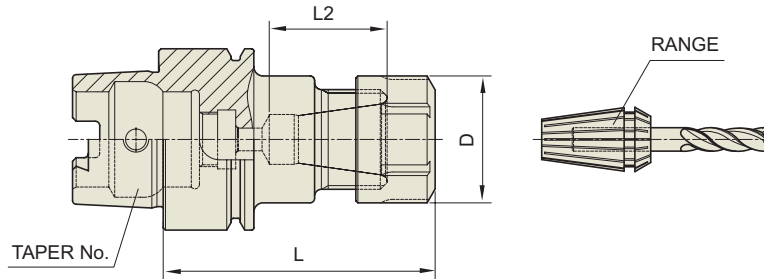
STANDARD TYPE

TAPER No.	CODE No.	RANGE	D	L	M	NUT	COLLET	Weight (kg)
50	BT50-ER16-100	0.5~10.0	28	100	M10	ER16	ER16+ET1-16	4.2
	BT50-ER16-120	0.5~10.0	28	120	M10	ER16	ER16+ET1-16	4.4
	BT50-ER16-165	0.5~10.0	28	165	M10	ER16	ER16+ET1-16	4.6
	BT50-ER20-100	1.0~13.0	34	100	M12	ER20	ER20+ET1-20	4.6
	BT50-ER20-135	1.0~13.0	34	135	M12	ER20	ER20+ET1-20	4.8
	BT50-ER20-165	1.0~13.0	34	165	M12	ER20	ER20+ET1-20	5.0
	BT50-ER25-100	1.0~16.0	42	100	M12	ER25	ER25+ET1-25	4.7
	BT50-ER25-135	1.0~16.0	42	135	M12	ER25	ER25+ET1-25	4.8
	BT50-ER25-165	1.0~16.0	42	165	M12	ER25	ER25+ET1-25	5.0
	BT50-ER32-100	2.0~20.0	50	100	M12	ER32	ER32+ET1-32	5.2
	BT50-ER32-135	2.0~20.0	50	135	M12	ER32	ER32+ET1-32	5.7
	BT50-ER32-165	2.0~20.0	50	165	M12	ER32	ER32+ET1-32	5.8
	BT50-ER40-100	3.0~30.0	63	100	M12	ER40	ER40+ET1-40	5.6
	BT50-ER40-150	3.0~30.0	63	150	M12	ER40	ER40+ET1-40	6.1
BT50-ER50-100	12.0~34.0	78	100	M12	ER50	ER40+ET1-40	5.8	
BT50-ER50-150	12.0~34.0	78	150	M12	ER50	ER40+ET1-40	6.3	

- ▶ For usable collet, please refer to page 1118 and 1119
- ▶ Higher balancing grade product could be supplied by customer's request.

ER COLLET CHUCK FRÄSERSPANNFUTTE

DIN69893-HSK FORM A



DIN69893 - HSK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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STANDARD TYPE

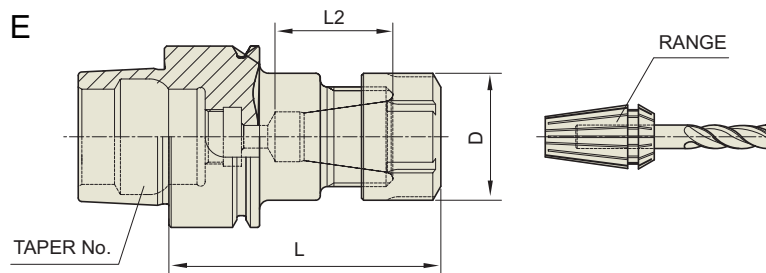
TAPER No.	CODE No.	RANGE	D	L	L2	NUT	Weight (kg)
40A	HSK40A-ER11-60	0.5 ~ 7.0	19	60	22	ER 11	0.40
	HSK40A-ER16-60	0.5 ~ 10.0	28	60	26	ER 16	0.50
	HSK40A-ER20-70	1.0 ~ 13.0	34	70	33	ER 20	0.80

SLIM TYPE

TAPER No.	CODE No.	RANGE	D	L	L2	NUT	Weight (kg)
40A	HSK40A-ER11M-75	0.5 ~ 7.0	16	75	22	ER11M	0.40
	HSK40A-ER16M-80	0.5 ~ 10.0	22	80	26	ER16M	0.50
	HSK40A-ER20M-80	1.0 ~ 13.0	28	80	33	ER20M	0.70
	HSK40A-ER25M-80	1.0 ~ 16.0	35	80	40	ER25M	0.80

► Higher balancing grade product could be supplied by customer's request.

DIN69893-HSK FORM E



STANDARD TYPE

TAPER No.	CODE No.	RANGE	D	L	L2	NUT	Weight (kg)
40E	HSK40E-ER11-60	0.5 ~ 7.0	19	60	22	ER 11	0.40
	HSK40E-ER16-60	0.5 ~ 10.0	28	60	26	ER 16	0.50
	HSK40E-ER20-70	1.0 ~ 13.0	34	70	33	ER 20	0.80

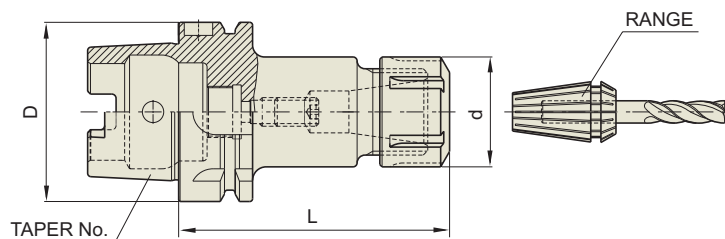
SLIM TYPE

TAPER No.	CODE No.	RANGE	D	L	L2	NUT	Weight (kg)
40E	HSK40E-ER11M-75	0.5 ~ 7.0	16	75	22	ER11M	0.40
	HSK40E-ER16M-80	0.5 ~ 10.0	22	80	26	ER16M	0.50
	HSK40E-ER20M-80	1.0 ~ 13.0	28	80	33	ER20M	0.70
	HSK40E-ER25M-80	1.0 ~ 16.0	35	80	40	ER25M	0.80

► Higher balancing grade product could be supplied by customer's request.

ER COLLET CHUCK FRÄSERSPANNFUTTE

DIN69893-HSK FORM A

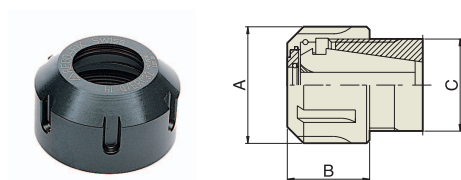


DIN69893 - HSK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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TAPER No.	CODE No.	RANGE	d	D	L	Weight (kg)
50A	HSK 50A-ER16-100	0.5-10	28	50	100	0.70
	HSK 50A-ER20-100	1-13	35	50	100	0.90
	HSK 50A-ER25-100	1-16	42	50	100	1.20
	HSK 50A-ER32-100	2-20	50	50	100	1.50
63A	HSK 63A-ER16-100	0.5-10	28	63	100	1.20
	HSK 63A-ER20-100	1-13	35	63	100	1.50
	HSK 63A-ER25-100	1-16	42	63	100	1.80
	HSK 63A-ER32-100	2-20	50	63	100	2.00
	HSK 63A-ER40-120	3-26	63	63	120	2.30
100A	HSK100A-ER16-100	0.5-10	28	100	100	2.60
	HSK100A-ER20-100	1-13	35	100	100	2.70
	HSK100A-ER25-100	1-16	42	100	100	2.90
	HSK100A-ER32-100	2-20	50	100	100	3.10
	HSK100A-ER40-120	3-26	63	100	120	3.30

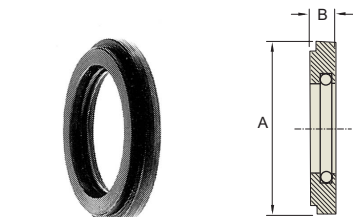
- ▶ Higher balancing grade product could be supplied by customer's request.
- ▶ Internal oil supply mode is applicable when using ERC nut.

ERC NUT



TYPE
HI-Q/ERC16
HI-Q/ERC20
HI-Q/ERC25
HI-Q/ERC32
HI-Q/ERC40

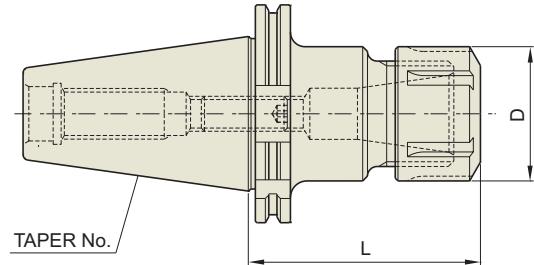
SEALING DISK



TYPE
DS/ER16
DS/ER20
DS/ER25
DS/ER32
DS/ER40

**ER COLLET CHUCK
FRÄSERSPANNFUTTE**

DIN69871-SK

DIN69871
-SKTaper
Accuracy
AT3G Value
6.3RPM
12,000Coolant
System**STANDARD**

TAPER No.	CODE No.	RANGE	D	L	NUT	Weight (kg)
30	SK30-ER11-55	0.5~7.0	19	55	ER11	
	SK30-ER16-55	0.5~10.0	28	55	ER16	
	SK30-ER20-55	1.0~13.0	34	55	ER20	
	SK30-ER25-55	1.0~16.0	42	55	ER25	
	SK30-ER32-60	2.0~20.0	50	60	ER32	
40	SK40-ER11-70	0.5~7.0	19	70	ER11	
	SK40-ER16-70	0.5~10.0	28	70	ER16	
	SK40-ER20-70	1.0~13.0	34	70	ER20	
	SK40-ER25-70	1.0~16.0	42	70	ER25	
	SK40-ER32-70	2.0~20.0	50	70	ER32	
	SK40-ER40-80	3.0~30.0	63	80	ER40	
50	SK50-ER16-70	0.5~10.0	28	70	ER16	
	SK50-ER20-70	1.0~13.0	34	70	ER20	
	SK50-ER25-70	1.0~16.0	42	70	ER25	
	SK50-ER32-70	2.0~20.0	50	70	ER32	
	SK50-ER40-80	3.0~30.0	63	80	ER40	

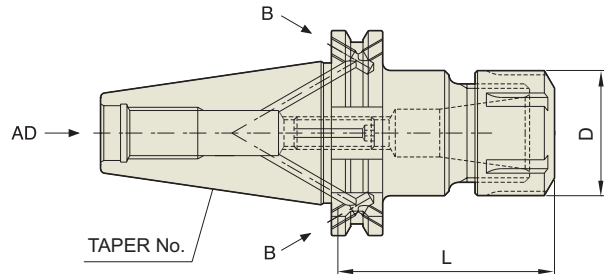
EXTENDED

TAPER No.	CODE No.	RANGE	D	L	NUT	Weight (kg)
40	SK40-ER16-100	0.5~10.0	28	100	ER16	
	SK40-ER20-100	1.0~13.0	34	100	ER20	
	SK40-ER25-100	1.0~16.0	42	100	ER25	
	SK40-ER32-100	2.0~20.0	50	100	ER32	
50	SK50-ER16-100	0.5~10.0	28	100	ER16	
	SK50-ER20-100	1.0~13.0	34	100	ER20	
	SK50-ER25-100	1.0~16.0	42	100	ER25	
	SK50-ER32-100	2.0~20.0	50	100	ER32	
	SK50-ER40-100	3.0~30.0	63	100	ER40	

- ▶ For usable collet, please refer to page 1118 and 1119
- ▶ Higher balancing grade product could be supplied by customer's request.

ER COLLET CHUCK FRÄSERSPANNFUTTE

DIN69871-SK(AD/B)



DIN69871 -SK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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STANDARD

TAPER No.	CODE No.	RANGE	D	L	NUT	Weight (kg)
40	SK40AD/B-ER11-70	0.5~7.0	19	70	ER11	0.80
	SK40AD/B-ER16-70	0.5~10.0	28	70	ER16	0.90
	SK40AD/B-ER20-70	1.0~13.0	34	70	ER20	1.20
	SK40AD/B-ER25-70	1.0~16.0	42	70	ER25	1.30
	SK40AD/B-ER32-70	2.0~20.0	50	70	ER32	1.50
50	SK40AD/B-ER40-80	3.0~30.0	63	80	ER40	1.70
	SK50AD/B-ER16-70	0.5~10.0	28	70	ER16	2.80
	SK50AD/B-ER20-70	1.0~13.0	34	70	ER20	2.90
	SK50AD/B-ER25-70	1.0~16.0	42	70	ER25	3.10
	SK50AD/B-ER32-70	2.0~20.0	50	70	ER32	3.30
	SK50AD/B-ER40-80	3.0~30.0	63	80	ER40	3.50

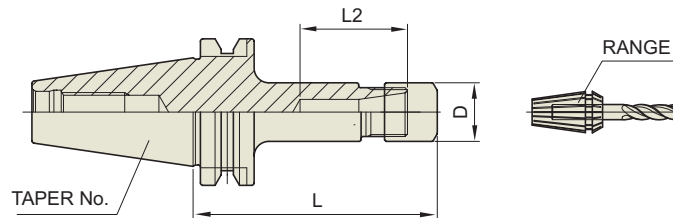
EXTENDED

TAPER No.	CODE No.	RANGE	D	L	NUT	Weight (kg)
40	SK40AD/B-ER16-100	0.5~10.0	28	100	ER16	1.05
	SK40AD/B-ER20-100	1.0~13.0	34	100	ER20	1.13
	SK40AD/B-ER25-100	1.0~16.0	42	100	ER25	1.35
	SK40AD/B-ER32-100	2.0~20.0	50	100	ER32	1.43
50	SK50AD/B-ER16-100	0.5~10.0	28	100	ER16	2.90
	SK50AD/B-ER20-100	1.0~13.0	34	100	ER20	3.10
	SK50AD/B-ER25-100	1.0~16.0	42	100	ER25	3.30
	SK50AD/B-ER32-100	2.0~20.0	50	100	ER32	3.50
	SK50AD/B-ER40-100	3.0~26.0	63	100	ER40	3.80

- ▶ For usable collet, please refer to page 1118 and 1119
- ▶ Higher balancing grade product could be supplied by customer's request.

ER COLLET CHUCK FRÄSERSPANNFUTTE

MAS403-BT



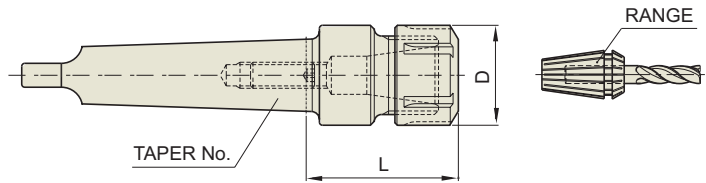
MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	RANGE	D	L	L2	Weight (kg)
BT20	BT20-ER8M-50	0.5 ~ 5.0	12	50	22	
	BT20-ER11M-50	0.5 ~ 7.0	16	50	22	
	BT20-ER16M-50	0.5 ~ 10.0	22	50	26	
	BT20-ER11-50	0.5 ~ 7.0	19	50	22	
	BT20-ER16-50	0.5 ~ 10.0	28	50	26	
BT25	BT25-ER8M-50	0.5 ~ 5.0	12	50	22	
	BT25-ER11M-50	0.5 ~ 7.0	16	50	22	
	BT25-ER16M-50	0.5 ~ 10.0	22	50	26	
	BT25-ER11-50	0.5 ~ 7.0	19	50	22	
	BT25-ER16-50	0.5 ~ 10.0	28	50	26	

ER COLLET CHUCK FRÄSERSPANNFUTTE

TOOL
HOLDERS

MTA



DIN228 - MTA	Taper Accuracy AT3	G Value	RPM	Coolant System
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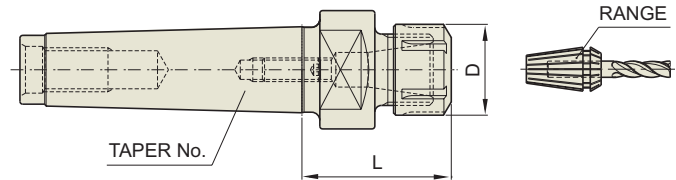
STANDARD TYPE

TAPER No.	CODE No.	RANGE	D	L	NUT	COLLET	Weight (kg)
1	MTA1-ER11	0.5-7.0	19	35	ER11	ER11	0.30
	MTA1-ER16	0.5-10	28	40	ER16	ER16	0.35
2	MTA2-ER20	1-13	34	50	ER20	ER20	0.50
	MTA2-ER25	1-16	42	50	ER25	ER25	0.60
3	MTA3-ER25	1-16	42	60	ER25	ER25	0.60
	MTA3-ER32	2-20	50	70	ER32	ER32	0.65
4	MTA4-ER20	1-13	34	60	ER20	ER20	1.00
	MTA4-ER25	1-16	42	60	ER25	ER25	1.10
	MTA4-ER32	2-20	50	65	ER32	ER32	1.30
	MTA4-ER40	3-30	63	80	ER40	ER40	1.50
5	MTA5-ER32	2-20	50	70	ER32	ER32	2.20
	MTA5-ER40	3-30	63	80	ER40	ER40	2.40
	MTA5-ER50	6-34	78	80	ER50	ER50	2.80

ER COLLET CHUCK FRÄSERSPANNFUTTE

TOOL
HOLDERS

MTB



DIN228
- MTB

Taper
Accuracy
AT3

G Value

RPM

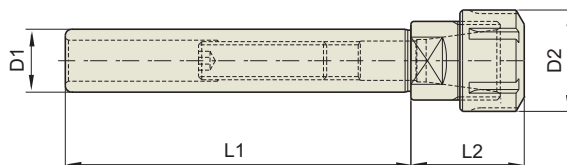
Coolant
System

■ STANDARD TYPE

TAPER No.	CODE No.	RANGE	D	L	NUT	COLLET	Weight (kg)
1	MTB1-ER16	1-10	28	40	ER16	ER16	0.35
2	MTB2-ER20	1-13	34	50	ER20	ER20	0.50
	MTB2-ER25	1-16	42	50	ER25	ER25	0.60
3	MTB3-ER25	1-16	42	60	ER25	ER25	0.60
	MTB3-ER32	2-20	50	70	ER32	ER32	0.65
4	MTB4-ER32	2-20	50	70	ER32	ER32	1.10
	MTB4-ER40	3-30	63	80	ER40	ER40	1.30
5	MTB5-ER32	2-20	50	70	ER32	ER32	2.00
	MTB5-ER40	3-30	63	80	ER40	ER40	2.20
	MTB5-ER50	6-34	78	80	ER50	ER50	2.60

ER CHUCK FRASERSPANNFUTTER

K



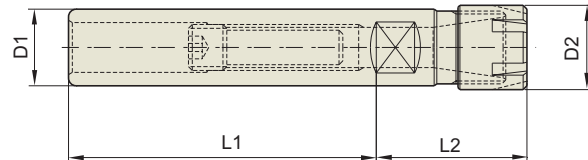
K	Taper Accuracy AT3	G Value	RPM	Coolant System
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STANDARD TYPE

TAPER No.	CODE No.	RANGE	D1	D2	L1	L2	NUT	COLLET	Weight (kg)
16	K16-ER11-100	0.5-7.0	16	19	100	32	ER11	ER11	0.15
	K16-ER16-100	0.5-10.0	16	28	100	36	ER16	ER16	0.18
20	K20-ER16-100	0.5-10.0	20	28	100	36	ER16	ER16	0.25
	K20-ER20-100	1.0-13.0	20	34	100	40	ER20	ER20	0.29
25	K25-ER25-100	1.0-16.0	20	42	100	50	ER25	ER25	0.35
	K25-ER20-100	1.0-13.0	25	34	100	40	ER20	ER20	0.40
32	K32-ER25-100	1.0-16.0	25	42	100	50	ER25	ER25	0.45
	K32-ER16-100	0.5-10.0	32	28	100	36	ER16	ER16	0.50
32	K32-ER20-100	1.0-13.0	32	34	100	40	ER20	ER20	0.66
	K32-ER25-100	1.0-16.0	32	42	100	50	ER25	ER25	0.75
	K32-ER32-100	2.0-20.0	32	50	100	58	ER32	ER32	1.00

EXTENSION ER COLLET CHUCK - SLIM TYPE VERLÄNGERUNG FRÄSERSPANNFUTTER -SCHLANKER TYP

TOOL HOLDERS

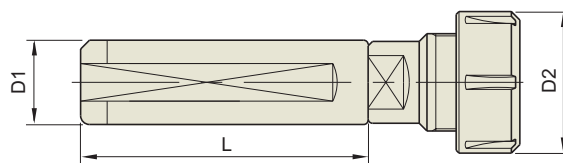


K	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	RANGE	D1	D2	L1	L2	NUT	Weight (kg)
12	K12-ER8M-70	0.5-5.0	12	12	70	25	ERM 8	0.10
16	K16-ER11M-140	0.5-7.0	16	16	140	32	ERM11	0.22
20	K20-ER16M-140	0.5-10.0	20	22	140	41	ERM16	0.32
	K20-ER20M-140	1.0-13.0	20	28	140	41	ERM20	0.35
25	K25-ER16M-140	0.5-10.0	25	22	140	41	ERM16	0.45
	K25-ER20M-140	1.0-13.0	25	28	140	41	ERM20	0.52
	K25-ER25M-140	1.0-16.0	25	35	140	45	ERM25	0.55

ERT

TENSION ER CHUCK - Exclusive use for tapping SPANNUNG FRÄSERSPANNFUTTER - für GEWINDESCHNEID

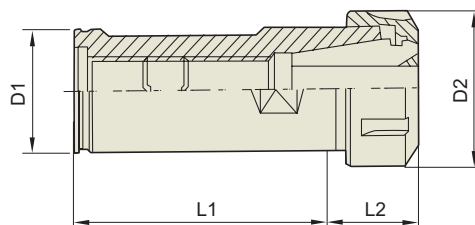


K	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	RANGE	D1	D2	L	NUT	Weight (kg)
20	K20-ERT16-70	0.5-10.0	20	28	70	ER16	0.4
25	K25-ERT16-70	0.5-10.0	25	28	70	ER16	0.45
	K25-ERT20-80	1.0-13.0	25	34	80	ER20	0.50
32	K32-ERT16-70	0.5-10.0	32	28	70	ER16	0.70
	K32-ERT20-80	1.0-13.0	32	34	80	ER20	0.80
	K32-ERT25-80	1.0-16.0	32	42	80	ER25	1.00
	K32-ERT32-80	2.0-20.0	32	50	80	ER32	1.20

ER COLLET CHUCK for CNC LATHE - NC FRÄSERSPANNFUTTER FÜR CNC DREHBANK

TOOL
HOLDERS

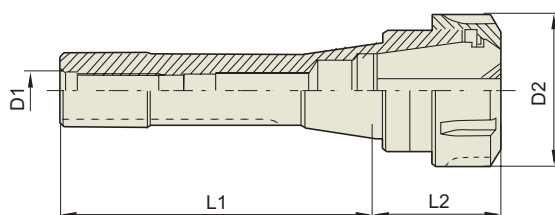


NC	Taper Accuracy AT3	G Value	RPM	Coolant System
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STANDARD TYPE

TAPER No.	CODE No.	RANGE	D1	D2	L1	L2	NUT	COLLET	Weight (kg)
25	NC25-ER11	0.5-7.0	25	19	65	32	ER11	ER11	0.30
	NC25-ER16	0.5-10.0	25	28	65	32	ER16	ER16	0.45
	NC25-ER20	1.0-13.0	25	34	65	32	ER20	ER20	0.50
	NC25-ER25	1.0-16.0	25	42	65	32	ER25	ER25	0.55
32	NC32-ER20	1.0-13.0	32	34	70	32	ER20	ER20	0.60
	NC32-ER25	1.0-16.0	32	42	70	38	ER25	ER25	0.70
	NC32-ER32	2.0-20.0	32	50	60	38	ER32	ER32	0.75
40	NC40-ER32	2.0-20.0	40	50	75	53	ER32	ER32	1.25
	NC40-ER40	3.0-30.0	40	63	75	53	ER40	ER40	1.30

ER COLLET CHUCK for BRIDGEPORT - R8 FRÄSERSPANNFUTTER für R8

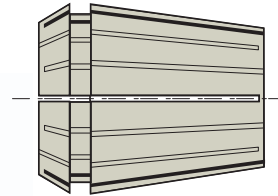


TAPER No.	CODE No.	RANGE	D1	D2	L1	L2	NUT	COLLET	Weight (kg)
R8	R8-ER32	2-20.0	U7/16	50	101.5	50	ER32	ER32	1.00
	R8-ER40	3-30.0	U7/16	63	101.5	75	ER40	ER40	1.20



ER COLLET - UF ER SPANNZANGE -UF

TOOL HOLDERS



TYPE ER 8		TYPE ER11		TYPE ER16		TYPE ER20	
CLAMPING CAPACITY	ITEM No.	CLAMPING CAPACITY	ITEM No.	CLAMPING CAPACITY	ITEM No.	CLAMPING CAPACITY	ITEM No.
1.0-0.5	208010	1.0-0.5	211010	1.0-0.5	216010	2-1	220020
1.5-1.0	208015	1.5-1.0	211015	2.0-1.0	216020	3-2	220030
2.0-1.5	208020	2.0-1.5	211020	3.0-2.0	216030	4-3	220040
2.5-2.0	208025	2.5-2.0	211025	4.0-3.0	216040	5-4	220050
3.0-2.5	208030	3.0-2.5	211030	5.0-4.0	216050	6-5	220060
3.5-3.0	208035	3.5-3.0	211035	6.0-5.0	216060	7-6	220070
4.0-3.5	208040	4.0-3.5	211040	7.0-6.0	216070	8-7	220080
4.5-4.0	208045	4.5-4.0	211045	8.0-7.0	216080	9-8	220090
5.0-4.5	208050	5.0-4.5	211050	9.0-8.0	216090	10-9	220100
		5.5-5.0	211055	10.0-9.0	216100	11-10	220120
		6.0-5.5	211060	1.5-1.0	216015	12-11	220130
		6.5-6.0	211065	2.5-2.0	216025	13-12	220140
		7.0-6.5	211070			1.0-0.5	220010
						1.5-1.0	220015
						2.5-2.0	220025
STANDARD SET	208000	STANDARD SET	211000	STANDARD SET	216000	STANDARD SET	220000
Ø 1.0-5.0mm 9PCS		Ø 1.0-7.0mm 13PCS		Ø 1.0-10.0mm 10PCS		Ø 2.0-13.0mm 12PCS	
WOODEN TRAY ZWT 8	108110	WOODEN TRAY ZWT 11	011110	WOODEN TRAY ZWT 16	016110	WOODEN TRAY ZWT 20	020110

ER COLLET - UF

ER SPANNZANGE -UF

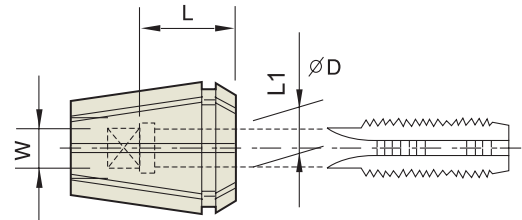


TYPE ER25		TYPE ER32		TYPE ER40		TYPE ER50	
CLAMPING CAPACITY	ITEM No.	CLAMPING CAPACITY	ITEM No.	CLAMPING CAPACITY	ITEM No.	CLAMPING CAPACITY	ITEM No.
2-1	225020	3-2	232030	4-3	240040	12-10	250120
3-2	225030	4-3	232040	5-4	240050	14-12	250140
4-3	225040	5-4	232050	6-5	240060	16-14	250160
5-4	225050	6-5	232060	7-6	240070	18-16	250180
6-5	225060	7-6	232070	8-7	240080	20-18	250200
7-6	225070	8-7	232080	9-8	240090	22-20	250220
8-7	225080	9-8	232090	10-9	240100	24-22	250240
9-8	225090	10-9	232100	11-10	240110	26-24	250260
10-9	225100	11-10	232110	12-11	240120	28-26	250280
11-10	225110	12-11	232120	13-12	240130	30-28	250300
12-11	225120	13-12	232130	14-13	240140	32-30	250320
13-12	225130	14-13	232140	15-14	240150	34-32	250340
14-13	225140	15-14	232150	16-15	240160	6-4	250060
15-14	225150	16-15	232160	17-16	240170	8-6	250080
16-15	225160	17-16	232170	18-17	240180	10-8	250100
1.0-1.5	225010	18-17	232180	19-18	240190	25-23	250250
1.5-1.0	225015	19-18	232190	20-19	240200		
2.5-2.0	225025	20-19	232200	21-20	240210		
		2.0-1.0	232020	22-21	240220		
		2.5-2.0	232025	23-22	240230		
				24-23	240240		
				25-24	240250		
				26-25	240260		
				3-2	240030		
				27-26	240270		
				28-27	240280		
				29-28	240290		
				30-29	240300		
STANDARD SET	225000	STANDARD SET	232000	STANDARD SET	240000	STANDARD SET	250000
Ø 2.0-16.0mm 15PCS		Ø 3.0-20.0mm 18PCS		Ø 4.0-26.0mm 23PCS		Ø 12.0-34.0mm 12PCS	
WOODEN TRAY ZWT 25	025110	WOODEN TRAY ZWT 32	032110	WOODEN TRAY ZWT 40	040110	WOODEN TRAY ZWT50	050110



ER COLLET FOR EXCLUSIVE USE FOR TAP ER SPANNZANGE FÜR GEWINDESCHNEID

TOOL
HOLDERS



RDT 16				RDT 20				RDT 25				RDT 32				RDT 40			
TAP	Ø	W	L	TAP	Ø	W	L	TAP	Ø	W	L	TAP	Ø	W	L	TAP	Ø	W	L
M2	3.0	2.5	15																
M3	4.0	3.2	15	M3	4.0	3.2	15	M3	4.0	3.2	15								
M4	5.0	4.0	15	M4	5.0	4.0	15	M4	5.0	4.0	15	M4	5.0	4.0	15				
M5	5.5	4.5	15	M5	5.5	4.5	15	M5	5.5	4.5	15	M5	5.5	4.5	15				
M6	6.0	4.5	15	M6	6.0	4.5	15	M6	6.0	4.5	15	M6	6.0	4.5	15				
M8	6.2	5.0	15	M8	6.2	5.0	20	M8	6.2	5.0	20	M8	6.2	5.0	20	M8	6.2	5.0	20
				M10	7.0	5.5	20	M10	7.0	5.5	20	M10	7.0	5.5	20	M10	7.0	5.5	20
								M12	8.5	6.5	20	M12	8.5	6.5	20	M12	8.5	6.5	25
								M14	10.5	8.0	20	M14	10.5	8.0	20	M14	10.5	8.0	25
												M16	12.5	10.0	20	M16	12.5	10.0	25
												M18	14.0	11.0	20	M18	14.0	11.0	25
																M20	15.0	12.0	28
																M22	17.0	13.0	28
																M24	19.0	15.0	28

- ▶ These ER collets are for exclusive use for tap.
- ▶ Various sizes of taps ranging from M2 to M24 can be used.

ER SPANNER / WRENCH

ER MAULSCHLÜSSEL

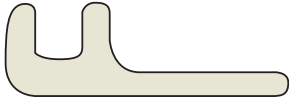


FIG. 1



FIG. 2

SPANNER FOR ER/SKN NUT

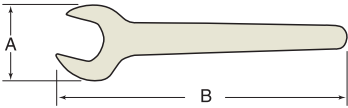
TYPE	ITEM No.	A	B	APPLICABLE NUT
ER16 SP	916 181	50	160	ER16, SKN10 (FIG 1.)
ER20 SP	920 181	55	180	ER20 (FIG 1.)
ER25 SP	925 180	65	210	ER25, SKN16 (FIG 2.)
ER32 SP	932 180	75	250	ER32 (FIG 2.)
ER40 SP	940 180	90	290	ER40 (FIG 2.)
ER50 SP	950 180	110	350	ER50 (FIG 2.)

SPANNER FOR EM NUT



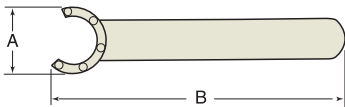
TYPE	ITEM No.	A	B	APPLICABLE NUT
E 8M	908 160	12.4	70	HI-Q/ERM 8
E 11M	911 160	16.8	90	HI-Q/ERM 11
E 16M	916 160	22.5	110	HI-Q/ERM 16
E 20M	920 160	29.0	120	HI-Q/ERM 20
E 25M	925 160	36.0	130	HI-Q/ERM 25

SPANNER FOR GS NUT



TYPE	ITEM No.	A	B	APPLICABLE NUT
GS17	911 180	32.0	95	HI-Q/ER11
GS25	916 180	44.0	144	HI-Q/ER16
GS30	920 180	52.5	172	HI-Q/ER20

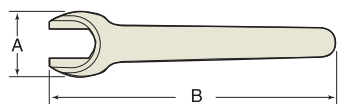
EM NUT (FOR FLOATING CHUCK)



Type EAX

TYPE	ITEM No.	A	B	APPLICABLE NUT
E 11AX	711 170	16.5	108	ER 11-AXC
E 16AX	716 170	22.5	131	ER 16-AXC
E 20AX	720 170	26	148	ER 20-AXC
E 25AX	725 170	29.5	162	ER 25-AXC
E 32AX	732 170	37.5	196	ER 32-AXC

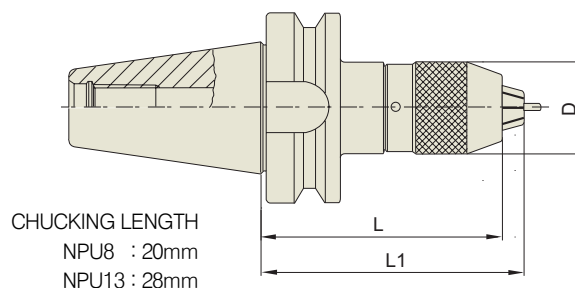
SPANNER FOR EM NUT



TYPE	ITEM No.	A	B	APPLICABLE NUT
E 8MS	908 161	19.2	76	ER 8-MS
E 11MS	911 161	22.0	100	ER 11-MS
E 16MS	916 161	33.0	130	ER 16-MS
E 20MS	920 161	42.0	140	ER 20-MS

NC DRILL CHUCK NC - BOHRFUTTER

MAS403-BT

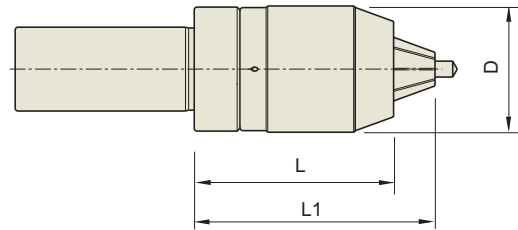


MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	CAPACITY	D	L(MIN)	L1(MAX)	Weight (kg)
30	BT30-NPU 8- 70	0.3~8	36.5	70	75.7	0.80
	BT30-NPU13-100	1~13	50.4	100	110	1.80
40	BT40-NPU 8- 70	0.3~8	36.5	70	75.7	1.50
	BT40-NPU 8-110	0.3~8	36.5	110	115.7	1.80
	BT40-NPU 8-150	0.3~8	36.5	150	155.7	2.60
	BT40-NPU13- 90	1~13	50.4	90	95.7	2.10
	BT40-NPU13-130	1~13	50.4	130	140	2.70
	BT40-NPU13-150	1~13	50.4	150	160	3.40
50	BT50-NPU 8- 90	0.3~8	36.5	90	95.7	4.20
	BT50-NPU 8-110	0.3~8	36.5	110	115.7	4.50
	BT50-NPU 8-170	0.3~8	36.5	170	180.7	5.20
	BT50-NPU13-100	1~13	50.4	100	110	4.80
	BT50-NPU13-130	1~13	50.4	130	140	5.20
	BT50-NPU13-150	1~13	50.4	150	160	5.50
	BT50-NPU13-190	1~13	50.4	190	200	5.90

NC DRILL CHUCK - K NC - BOHRFUTTER - K

TOOL
HOLDERS



K	Taper Accuracy AT3	G Value	RPM	Coolant System
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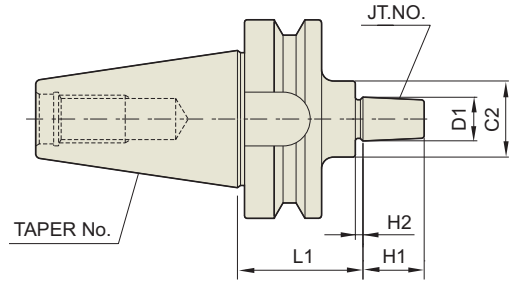
TAPER No.	CODE No.	CAPACITY	D	L(MIN)	L1(MAX)	d	Weight (kg)
32	K32-NPU 8- 70	0.3~8	36.5	70	75.7	32	0.70
	K32-NPU13-100	1~13	50.4	100	110	32	1.50
42	K42-NPU 8- 70	0.3~8	36.5	70	75.7	42	0.80
	K42-NPU13-100	1~13	50.4	100	110	42	1.60



JACOBS TAPER ADAPTER JACOBS KEGELZAPFEN ADAPTER

TOOL
HOLDERS

MAS403-BT

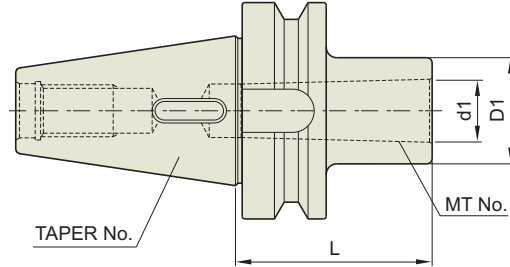


MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	JT. No.	D1	L1	H1	H2	C1	Weight (kg)
30	BT30-JTA 1-45	1	9.754	45	14	3	30	0.9
	BT30-JTA 2-45	2	14.199	45	20	4	30	1.0
	BT30-JTA 6-45	6	17.17	45	24	4	30	1.0
40	BT40-JTA 1-45	1	9.754	45	14	3	30	1.1
	BT40-JTA 1-90	1	9.754	90	14	3	30	1.1
	BT40-JTA2S-45	2Shot	13.94	45	18	3	30	1.4
	BT40-JTA2S-90	2Shot	13.94	90	18	3	30	1.4
	BT40-JTA 2-45	2	14.199	45	20	4	30	1.1
	BT40-JTA 2-90	2	14.199	90	20	4	30	1.4
	BT40-JTA33-45	33	15.85	45	24	4	30	1.1
	BT40-JTA33-90	33	15.85	90	24	4	30	1.4
	BT40-JTA 6-45	6	17.17	45	24	4	30	1.1
	BT40-JTA 6-90	6	17.17	90	24	4	30	1.4
	BT40-JTA 3-45	3	20.599	45	28	5	35	1.2
	BT40-JTA 3-90	3	20.599	90	28	5	35	1.5
50	BT50-JTA 1-45	1	9.754	45	14	3	30	4.0
	BT50-JTA 1-105	1	9.754	105	14	3	30	4.4
	BT50-JTA2S-45	2Shot	13.94	45	18	3	30	4.0
	BT50-JTA2S-105	2Shot	13.94	105	18	3	30	4.4
	BT50-JTA 2-45	2	14.199	45	20	4	30	4.0
	BT50-JTA 2-105	2	14.199	105	20	4	30	4.4
	BT50-JTA33-45	33	15.85	45	24	4	30	4.0
	BT50-JTA33-105	33	15.85	105	24	4	30	4.4
	BT50-JTA 6-45	6	17.17	45	24	4	30	4.0
	BT50-JTA 6-105	6	17.17	105	24	4	30	4.4
BT50-JTA 3-45	3	20.599	45	28	5	35	4.0	
BT50-JTA 3-105	3	20.599	105	28	5	35	4.6	

MORSE TAPER ADAPTER EINSATZHÜLSEN FÜR MORSEKEGEL

MAS403-BT



MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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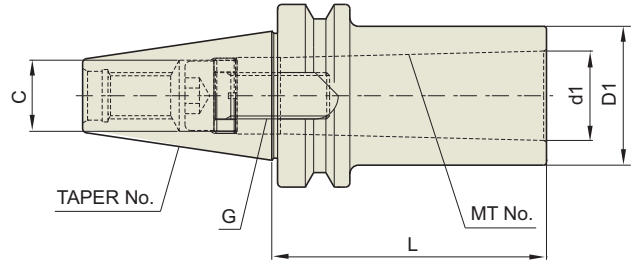
TAPER No.	CODE No.	MT No.	L	d1	D1	Weight (kg)
30	BT30-MTA1- 45	1	45	12.065	25	0.4
	BT30-MTA2- 60	2	60	17.780	32	0.5
	BT30-MTA2- 120	2	120	17.780	32	0.6
	BT30-MTA3- 75	3	75	23.825	40	0.7
40	BT40-MTA1- 45	1	45	12.065	25	1.0
	BT40-MTA1-120	1	120	12.065	25	1.3
	BT40-MTA2- 60	2	60	17.780	32	1.0
	BT40-MTA2-120	2	120	17.780	32	1.4
	BT40-MTA3- 75	3	75	23.825	40	1.2
	BT40-MTA3-135	3	135	23.825	40	1.8
	BT40-MTA4- 95	4	95	31.267	50	1.1
	BT40-MTA4-165	4	165	31.267	50	2.4
50	BT50-MTA1- 45	1	45	12.065	25	4.0
	BT50-MTA1-120	1	120	12.065	25	4.3
	BT50-MTA1-180	1	180	12.065	25	4.3
	BT50-MTA2- 45	2	45	17.780	32	4.0
	BT50-MTA2-135	2	135	17.780	32	4.4
	BT50-MTA2-180	2	180	17.780	32	4.6
	BT50-MTA3- 45	3	45	23.825	40	3.9
	BT50-MTA3-150	3	150	23.825	40	4.7
	BT50-MTA3-180	3	180	23.825	40	4.9
	BT50-MTA4- 75	4	75	31.267	50	4.0
	BT50-MTA4-105	4	105	31.267	50	4.5
	BT50-MTA4-180	4	180	31.267	50	5.4
	BT50-MTA5-105	5	105	44.399	65	4.5
	BT50-MTA5-210	5	210	44.399	65	7.2
BT50-MTA5-270	5	270	44.399	65	7.5	



MORSE TAPER ADAPTER EINSATZHÜLSEN FÜR MORSEKEGEL

TOOL
HOLDERS

MAS403-BT

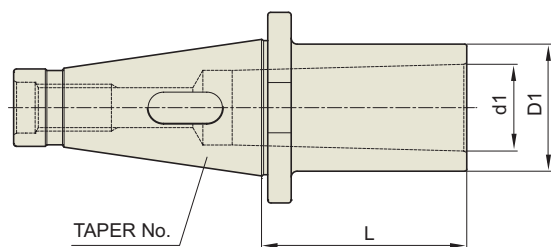


MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	MT No.	L	d1	D1	C	G	Weight (kg)
30	BT30-MTB1-45	1	45	12.065	25	10	M6×1.0	0.8
	BT30-MTB2-45	2	45	17.780	32	–	M10×1.5	0.8
40	BT40-MTB1-45	1	45	12.065	25	10	M6×1.0	1.0
	BT40-MTB2-45	2	45	17.780	32	13.5	M10×1.5	1.1
	BT40-MTB3-60	3	60	23.825	40	–	M12×1.75	1.1
	BT40-MTB4-85	4	85	31.267	50	–	M16×2.0	1.3
50	BT50-MTB1-45	1	45	12.065	25	10	M6×1.0	3.9
	BT50-MTB2-45	2	45	17.780	32	16	M10×1.5	3.9
	BT50-MTB3-60	3	60	23.825	40	18	M12×1.75	3.9
	BT50-MTB4-75	4	75	31.267	50	20.5	M16×2.0	3.9

MORSE TAPER ADAPTER EINSATZHÜLSEN FÜR MORSEKEGEL

NT



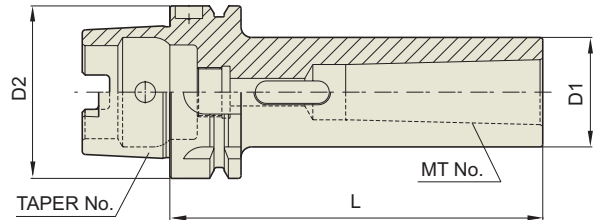
Taper Accuracy	G Value	RPM	Coolant System
AT3			

TAPER No.	CODE No.	MT No.	Range of drill		D1	L	DRAW THREAD	Weight (kg)
			MIN	MAX				
40	NT40-MTA1-30	1	2.0	14.0	25	30	U 5/8-11(M16×2)	0.90
	NT40-MTA2-30	2	14.1	23.0	32	30	U 5/8-11(M16×2)	1.00
	NT40-MTA3-35	3	23.1	32.0	40	45	U 5/8-11(M16×2)	1.00
	NT40-MTA4-90	4	32.1	50.0	50	90	U 5/8-11(M16×2)	1.20
50	NT50-MTA1-30	1	2.0	14.0	25	30	U 1-8(M24×3)	3.50
	NT50-MTA2-30	2	14.1	23.0	32	30	U 1-8(M24×3)	3.50
	NT50-MTA3-30	3	23.1	32.0	40	30	U 1-8(M24×3)	3.50
	NT50-MTA4-45	4	32.1	50.0	50	45	U 1-8(M24×3)	3.50
	NT50-MTA5-105	5	50.1	75.0	60	105	U 1-8(M24×3)	4.00



MORSE TAPER ADAPTER EINSATZHÜLSEN FÜR MORSEKEGEL

DIN69893-HSK FORM A



DIN69893
- HSK

Taper
Accuracy
AT3

G Value

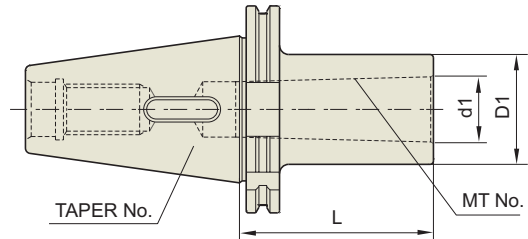
RPM

Coolant
System

TAPER No.	CODE No.	MT No.	D1	D2	L	Weight (kg)
50A	HSK 50A-MTA1-100	1	25	50	100	0.67
	HSK 50A-MTA2-120	2	32	50	120	0.78
	HSK 50A-MTA3-140	3	40	50	140	0.91
63A	HSK 63A-MTA1-100	1	25	63	100	0.87
	HSK 63A-MTA2-120	2	32	63	120	1.28
	HSK 63A-MTA3-140	3	40	63	140	1.44
	HSK 63A-MTA4-160	4	48	63	160	1.86
100A	HSK100A-MTA1-110	1	25	100	110	2.12
	HSK100A-MTA2-120	2	32	100	120	2.41
	HSK100A-MTA3-150	3	40	100	150	2.82
	HSK100A-MTA4-170	4	48	100	170	3.63
	HSK100A-MTA5-200	5	63	100	200	4.80

MORSE TAPER ADAPTER EINSATZHÜLSEN FÜR MORSEKEGEL

DIN69871-SK



DIN69871-SK	Taper Accuracy AT3	G Value	RPM	Coolant System
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STANDARD

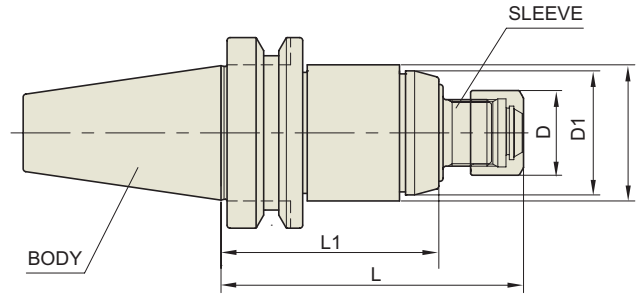
TAPER No.	CODE No.	MT No.	d1	D1	L	Weight (kg)
30	SK30-MTA1-50	1	12.065	25	50	0.72
	SK30-MTA2-60	2	17.78	32	60	0.87
	SK30-MTA3-80	3	23.825	40	80	1.02
40	SK40-MTA1-50	1	12.065	25	50	1.49
	SK40-MTA2-50	2	17.78	32	50	1.62
	SK40-MTA3-70	3	23.825	40	70	1.65
	SK40-MTA4-95	4	31.267	48	95	1.90
50	SK50-MTA1-45	1	12.065	25	45	2.60
	SK50-MTA2-60	2	17.78	32	60	2.66
	SK50-MTA3-65	3	23.825	40	65	2.75
	SK50-MTA4-95	4	31.267	48	95	3.00
	SK50-MTA5-105	5	44.399	63	105	3.30



TAPPING ER CHUCK ER - GEWINDESCHNEIDFUTTER

TOOL
HOLDERS

MAS403-BT



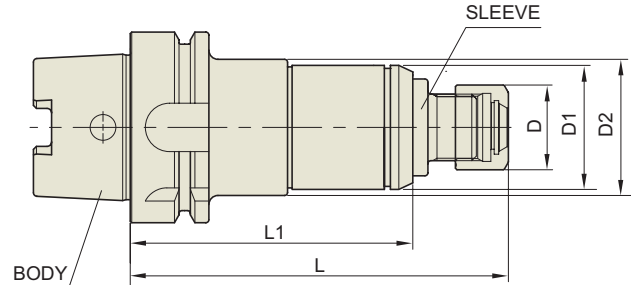
MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	D	D1	D2	L	L1	NUT	Weight (kg)
40	BT40-TER16-100	28	41	45	100	68.4	ER16	1.45
	BT40-TER16-150	28	41	45	150	118.4	ER16	2.00
	BT40-TER32-110	50	58	63	110	72	ER32	2.20
	BT40-TER32-150	50	58	63	150	112	ER32	2.70
50	BT50-TER16-115	28	41	45	115	79.4	ER16	3.95
	BT50-TER16-150	28	41	45	150	114.4	ER16	4.35
	BT50-TER32-120	50	58	63	120	83	ER32	4.70
	BT50-TER32-150	50	58	63	150	113	ER32	5.20

► ER collet of page 1118 and 1119, and Tap ER collet of page 1120 are usable.

TAPPING ER CHUCK ER - GEWINDESCHNEIDFUTTER

DIN69893-HSK



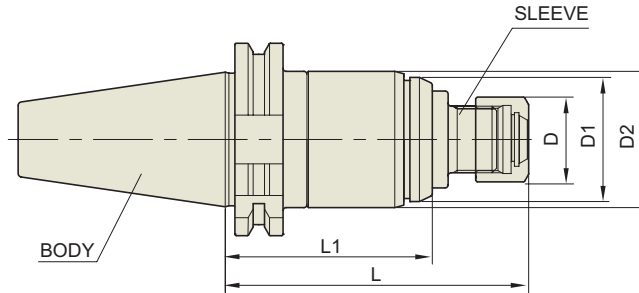
DIN69893 - HSK	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	D	D1	D2	L	L1	NUT	Weight (kg)
50	HSK50A-TER16-125	28	41	45	125	93.4	ER16	1.20
	HSK50A-TER16-150	28	41	45	150	118.4	ER16	1.30
63	HSK63A-TER16-125	28	41	45	125	93.4	ER16	1.70
	HSK63A-TER16-150	28	41	45	150	118.4	ER16	1.85
	HSK63A-TER32-150	50	58	63	150	112	ER32	2.10
	HSK63A-TER32-180	50	58	63	180	142	ER32	2.30
100	HSK100A-TER16-130	28	41	45	130	98.4	ER16	4.00
	HSK100A-TER16-150	28	41	45	150	118.4	ER16	4.20
	HSK100A-TER32-150	50	58	63	150	112	ER32	4.40
	HSK100A-TER32-180	50	58	63	180	142	ER32	4.60

► ER collet of page 1118 and 1119, and Tap ER collet of page 1120 are usable.

TAPPING ER CHUCK ER - GEWINDESCHNEIDFUTTER

DIN69871-SK



DIN69871 -SK	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	D	D1	D2	L	L1	NUT	Weight (kg)
40	SK40-TER16-100	28	41	45	100	68.4	ER16	1.65
	SK40-TER16-150	28	41	45	150	118.4	ER16	1.85
	SK40-TER32-130	50	58	63	130	92	ER32	2.10
	SK40-TER32-150	50	58	63	150	112	ER32	2.30
50	SK50-TER16-115	28	41	45	115	79.4	ER16	4.30
	SK50-TER16-150	28	41	45	150	114.4	ER16	4.50
	SK50-TER32-120	50	58	63	120	83	ER32	4.65
	SK50-TER32-150	50	58	63	150	113	ER32	4.85

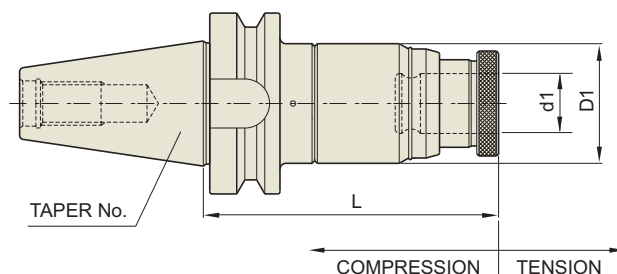
► ER collet of page 1118 and 1119, and Tap ER collet of page 1120 are usable.

TAP CHUCK

GEWINDESCHNEID-SCHNELLWECHSELFUTTER

TOOL
HOLDERS

MAS403-BT



MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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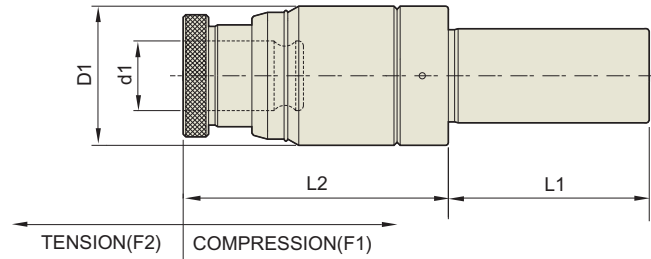
TAPER No.	CODE No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	TAP ADAPTER CODE	Weight (kg)
			COMP.	TEN.					
30	BT30-TC12-100	M3~M12	5	15	19	45	100	TCS12	1.0
	BT40-TC12-90	M3~M12	5	15	19	45	90	TCS12	1.5
40	BT40-TC12-130	M3~M12	5	15	19	45	130	TCS12	1.6
	BT40-TC24-100	M6~M24	5	20	31	63	100	TCS24	2.1
	BT40-TC24-142	M6~M24	5	20	31	63	142	TCS24	2.9
50	BT50-TC12-130	M3~M12	5	15	19	45	130	TCS12	4.2
	BT50-TC12-175	M3~M12	5	15	19	45	175	TCS12	4.8
	BT50-TC12-220	M3~M12	5	15	19	45	220	TCS12	5.1
	BT50-TC24-142	M6~M24	5	20	31	63	142	TCS24	5.8
	BT50-TC24-187	M6~M24	5	20	31	63	187	TCS24	6.0
	BT50-TC38-175	M18~M38	10	25	48	98	175	TCS38	8.3



TAP CHUCK - STRAIGHT SHANK

GEWINDESCHNEID-SCHNELLWECHSELFUTTER - GERADEAUS SCHAFT

TOOL
HOLDERS



K	Taper Accuracy AT3	G Value	RPM	Coolant System
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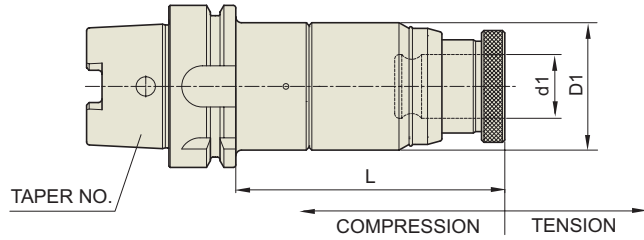
TAPER No.	CODE No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L1	L2	TAP ADAPTER CODE	Weight (kg)
			COMP.	TEN.						
32	K32-TC12-100	M3-M12	15	5	32	45	60	100	TCS12	0.90
	K32-TC24-120	M6-M24	20	5	32	63	60	120	TCS24	1.40
42	K42-TC12-100	M3-M12	15	5	42	45	70	100	TCS12	1.10
	K42-TC24-120	M6-M24	20	5	42	63	70	120	TCS24	1.60

TAP CHUCK

GEWINDESCHNEID-SCHNELLWECHSELFUTTER

TOOL
HOLDERS

DIN69893-HSK



DIN69893 - HSK	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	TAP ADAPTER CODE	Weight (kg)
			COMP.	TEN.					
63A	HSK63A-TC12-120	M3 ~ M12	5	15	19	45	120	TCS12	1.00
	HSK63A-TC12-150	M3 ~ M12	5	15	19	45	150	TCS12	1.70
	HSK63A-TC24-142	M6 ~ M24	5	20	31	63	142	TCS24	2.40
	HSK63A-TC24-172	M6 ~ M24	5	20	31	63	172	TCS24	2.70
100A	HSK100A-TC12-130	M3 ~ M12	5	15	19	45	130	TCS12	4.30
	HSK100A-TC12-175	M3 ~ M12	5	15	19	45	175	TCS12	4.80
	HSK100A-TC12-220	M3 ~ M12	5	15	19	45	220	TCS12	5.30
	HSK100A-TC24-142	M6 ~ M24	5	20	31	63	142	TCS24	5.20
	HSK100A-TC24-187	M6 ~ M24	5	20	31	63	187	TCS24	6.60
	HSK100A-TC38-200	M18 ~ M38	10	25	48	98	200	TCS38	8.00

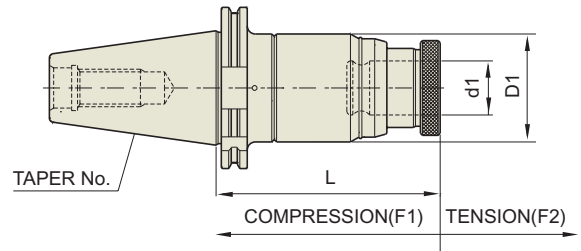


TAP CHUCK

GEWINDESCHNEID-SCHNELLWECHSELFUTTER

TOOL
HOLDERS

DIN69871-SK

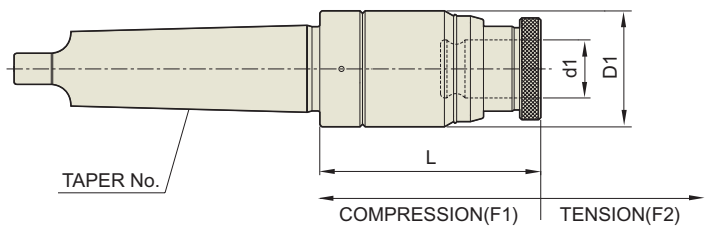


DIN69871 -SK	Taper Accuracy AT3	G Value	RPM	Coolant System
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■ STANDARD

TAPER No.	CODE No.	TAP SIZE	d1	D1	L	F1	F2	Weight (kg)
40	SK40-TC12-90	M3-M12	19	45	90	5	15	1.30
	SK40-TC12-130	M3-M12	19	45	130	5	15	1.80
	SK40-TC24-120	M6-M24	31	63	120	5	20	2.50
	SK40-TC24-142	M6-M24	31	63	142	5	20	2.80
50	SK50-TC12-130	M3-M12	19	45	130	5	15	4.30
	SK50-TC12-175	M3-M12	19	45	175	5	15	5.50
	SK50-TC24-142	M6-M24	31	63	142	5	20	5.30
	SK50-TC24-187	M6-M24	31	63	187	5	20	7.80
	SK50-TC38-175	M18-M38	48	98	175	10	25	7.50

MTA

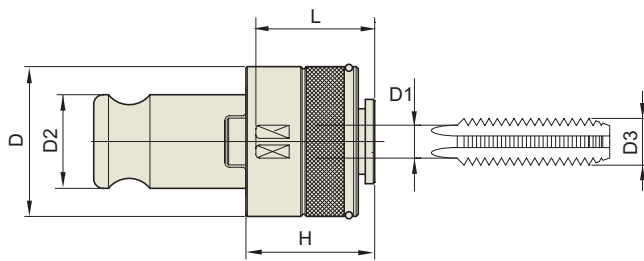


DIN228 -MTA	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	TAP SIZE	LENGTH COMPENSATION		d1	D1	L	TAP ADAPTER CODE	Weight (kg)
			COMP.	TEN.					
3	MTA3-TC12- 90	M3-M12	5	15	19	45	90	TCS12	1.00
	MTA3-TC24-115	M6-M24	5	20	31	63	115	TCS24	2.00
4	MTA4-TC12-105	M3-M12	5	15	19	45	105	TCS12	1.20
	MTA4-TC24-115	M6-M24	5	20	31	63	115	TCS24	2.20
5	MTA5-TC12-145	M3-M12	5	15	19	45	145	TCS12	1.50
	MTA5-TC24-175	M6-M24	5	20	31	63	175	TCS24	2.60

TAP ADAPTER SCHNELLWECHSEL-EINSATZ

JIS



TAPER No.	CODE No.	D	D1	D2	D3	H	W	L	Weight (kg)
TCS12	TCS12-M3	32	4	19	3	25	3.2	24	0.18
	TCS12-M4	32	5	19	4	25	4.	24	0.18
	TCS12-M5	32	5.5	19	5	25	4.5	24	0.18
	TCS12-M6, U1/4	32	6	19	6	25	4.5	24	0.18
	TCS12-M8	32	6.2	19	8	25	5	25	0.18
	TCS12-M10, U3/8	32	7	19	10	25	5.5	25	0.18
	TCS12-M12	32	8.5	19	12	25	6.5	26	0.18
TCS24	TCS24-M6	52	6	31	6	33	4.5	38	0.60
	TCS24-M8	52	6.2	31	8	33	5	38	0.60
	TCS24-M10	52	7	31	10	33	5.5	38	0.60
	TCS24-M12	52	8.5	31	12	33	6.5	39	0.60
	TCS24-M14, U3/4	52	10.5	31	14	33	8	41	0.60
	TCS24-M16	52	12.5	31	16	33	10	43	0.60
	TCS24-M18, P3/8	52	14	31	18	33	11	43	0.60
	TCS24-M20	52	15	31	20	33	12	43.5	0.60
	TCS24-M22, U7/8	52	17	31	22	33	13	46	0.60
	TCS24-M24, PF5/8	52	19	31	24	33	15	46	0.60
TCS38	TCS38-M18	72	14	48	18	45	11	43	1.80
	TCS38-M20	72	15	48	20	45	12	43.5	1.80
	TCS38-M22	72	17	48	22	45	13	45	1.80
	TCS38-M24	72	19	48	24	45	15	45	1.80
	TCS38-M27, U1"	72	20	48	27	45	15	62	1.80
	TCS38-M30, PT3/4	72	23	48	30	45	17	64	1.80
	TCS38-M33	72	25	48	33	45	19	66	1.80
	TCS38-M36	72	28	48	36	45	19	68	1.80
	TCS38-M38	72	28	48	38	45	21	68	1.80

FEATURES

1. Type of built-in torque safety device with rapid exchange mode
2. Tap size(\varnothing x \square) and range designation are needed.

END MILL HOLDER FRÄSERFUTTER

DIN69871-SK

TOOL
HOLDERS



FIG.1

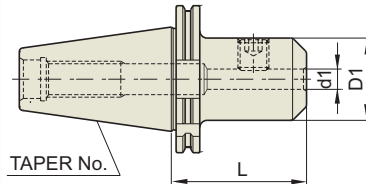
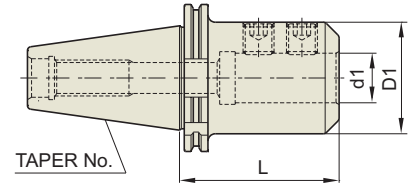


FIG.2



DIN69871
-SK

Taper
Accuracy
AT3

G Value
6.3

RPM
12,000

Coolant
System

■ STUB

TAPER No.	CODE No.	d1	D1	L	FIG.	Weight (kg)
40	SK40-EMH16-35	16	44	35	1	0.86
	SK40-EMH20-35	20	44	35	1	0.91
	SK40-EMH25-60	25	50	60	1	0.97

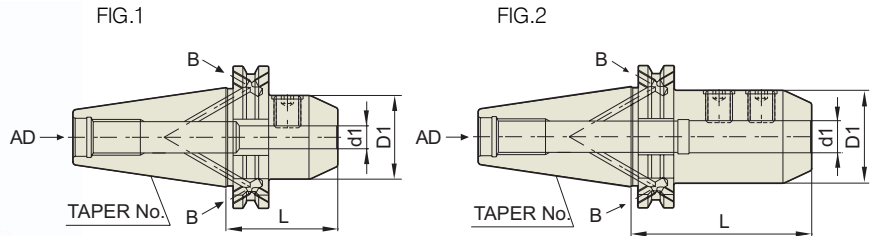
■ STANDARD

TAPER No.	CODE No.	d1	D1	L	FIG.	Weight (kg)
30	SK30-EMH6-50	6	25	50	1	0.73
	SK30-EMH8-50	8	28	50	1	0.83
	SK30-EMH10-50	10	35	50	1	0.90
	SK30-EMH12-50	12	42	50	1	0.90
	SK30-EMH16-63	16	48	63	1	1.10
40	SK40-EMH6-50	6	25	50	1	0.86
	SK40-EMH8-50	8	28	50	1	0.89
	SK40-EMH10-50	10	35	50	1	0.95
	SK40-EMH12-50	12	42	50	1	1.03
	SK40-EMH16-63	16	48	63	1	1.26
	SK40-EMH20-63	20	52	63	1	1.28
	SK40-EMH25-100	25	65	100	2	2.28
	SK40-EMH32-100	32	72	100	2	2.50
50	SK50-EMH6-63	6	25	63	1	2.70
	SK50-EMH8-63	8	28	63	1	2.70
	SK50-EMH10-63	10	35	63	1	2.90
	SK50-EMH12-63	12	42	63	1	2.90
	SK50-EMH16-63	16	48	63	1	3.00
	SK50-EMH20-63	20	52	63	1	3.05
	SK50-EMH25-80	25	65	80	2	3.73
	SK50-EMH32-100	32	72	100	2	4.53
	SK50-EMH40-100	40	80	100	2	4.77
	SK50-EMH50-100	50	98	120	2	7.03

► Higher balancing grade product could be supplied by customer's request.

END MILL HOLDER FRÄSERFUTTER

DIN69871-SK FORM AD/B



DIN69871 -SK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System AD/B
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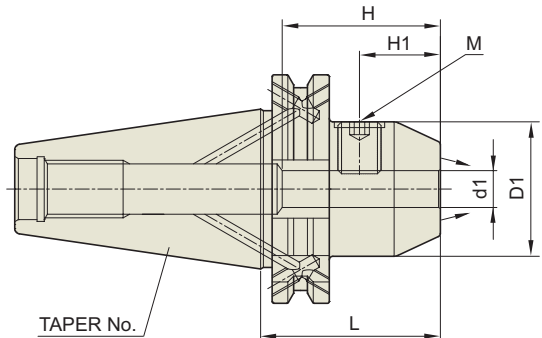
STANDARD

TAPER No.	CODE No.	d1	D1	L	FIG.	Weight (kg)
40	SK40AD/B-EMH6-50	6	25	50	1	0.86
	SK40AD/B-EMH8-50	8	28	50	1	0.89
	SK40AD/B-EMH10-50	10	35	50	1	0.95
	SK40AD/B-EMH12-50	12	42	50	1	1.03
	SK40AD/B-EMH16-63	16	48	63	1	1.26
	SK40AD/B-EMH20-63	20	52	63	1	1.28
	SK40AD/B-EMH25-100	25	65	100	2	2.29
	SK40AD/B-EMH32-100	32	72	100	2	2.50
50	SK50AD/B-EMH6-63	6	25	63	1	2.70
	SK50AD/B-EMH8-63	8	28	63	1	2.70
	SK50AD/B-EMH10-63	10	35	63	1	2.90
	SK50AD/B-EMH12-63	12	42	63	1	2.90
	SK50AD/B-EMH16-63	16	48	63	1	3.00
	SK50AD/B-EMH20-63	20	52	63	1	3.05
	SK50AD/B-EMH25-80	25	65	80	1	3.73
	SK50AD/B-EMH32-100	32	72	100	1	4.53
	SK50AD/B-EMH40-100	40	80	100	1	4.77
	SK50AD/B-EMH50-100	50	98	100	1	7.03

► Higher balancing grade product could be supplied by customer's request.

**END MILL HOLDER (SPRAY NOZZLE)
FRÄSERFUTTER (SPRAYDÜSE)**

DIN 69871 - SK FORM AD/B

 TOOL
HOLDERS

 DIN69871
-SK

 Taper
Accuracy
AT3

 G Value
6.3

 RPM
12,000

 Coolant
System
AD/B

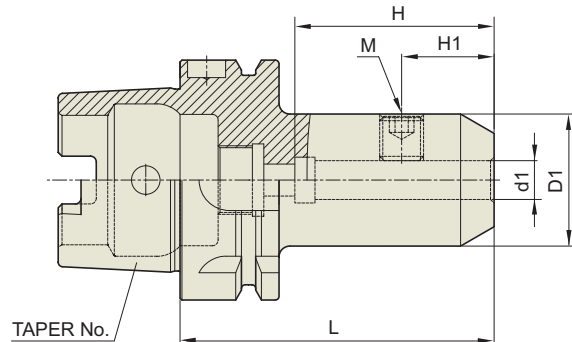
TAPER No.	CODE No.	d1	D1	L	H	H1	M	Weight (kg)
40	SK40AD/B-EMH6C-50	6	25	50	35	18	M6	0.86
	SK40AD/B-EMH8C-50	8	28	50	35	18	M8	0.89
	SK40AD/B-EMH10C-50	10	35	50	35.5	20	M10	0.95
	SK40AD/B-EMH12C-50	12	42	50	36	22.5	M12	1.03
	SK40AD/B-EMH14C-50	14	44	50	36	22.5	M12	1.26
	SK40AD/B-EMH16C-63	16	48	63	46	24	M14	1.28
	SK40AD/B-EMH18C-63	18	50	63	46	24	M14	1.35
	SK40AD/B-EMH20C-63	20	52	63	48	25	M16	1.40
	SK40AD/B-EMH25C-100	25	65	100	55	25	M18	2.29
SK40AD/B-EMH32C-100	32	72	100	57	28	M20	2.50	
50	SK50AD/B-EMH6C-63	6	25	63	35	18	M6	2.70
	SK50AD/B-EMH8C-63	8	28	63	35	18	M8	2.70
	SK50AD/B-EMH10C-63	10	35	63	35.5	20	M10	2.90
	SK50AD/B-EMH12C-63	12	42	63	36	22.5	M12	2.90
	SK50AD/B-EMH14C-63	14	44	63	36	22.5	M12	3.00
	SK50AD/B-EMH16C-63	16	48	63	46	24	M14	3.00
	SK50AD/B-EMH18C-63	18	50	63	46	24	M14	3.00
	SK50AD/B-EMH20C-63	20	52	63	48	25	M16	3.05
	SK50AD/B-EMH25C-80	25	65	80	55	25	M18	3.73
	SK50AD/B-EMH32C-100	32	72	100	57	28	M20	4.53
SK50AD/B-EMH40C-120	40	90	120	68	32	M20	4.80	

▶ Higher balancing grade product could be supplied by customer's request.

END MILL HOLDER FRÄSERFUTTER

TOOL
HOLDERS

DIN69893-HSK FORM A

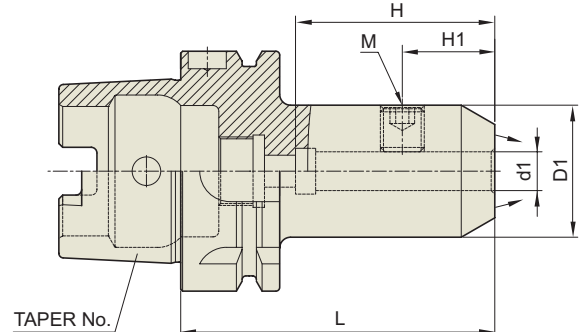


DIN69893 - HSK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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TAPER No.	CODE No.	d1	D1	L	H	H1	M	Weight (kg)
40A	HSK40A-EMH6-60	6	25	60	35	18	M6	0.30
	HSK40A-EMH8-60	8	28	60	35	18	M8	0.30
	HSK40A-EMH10-60	10	35	60	35.5	20	M10	0.30
	HSK40A-EMH12-70	12	42	70	36	22.5	M12	0.40
	HSK40A-EMH14-70	14	44	70	36	22.5	M12	0.40
50A	HSK40A-EMH16-80	16	48	80	46	24	M14	0.60
	HSK50A-EMH6-65	6	25	65	35	18	M6	0.70
	HSK50A-EMH8-65	8	28	65	35	18	M8	0.80
	HSK50A-EMH10-65	10	35	65	35.5	20	M10	0.80
	HSK50A-EMH12-80	12	42	80	36	22.5	M12	1.20
	HSK50A-EMH14-80	14	44	80	36	22.5	M12	1.30
	HSK50A-EMH16-80	16	48	80	46	24	M14	1.30
63A	HSK50A-EMH18-80	18	50	80	46	24	M14	1.40
	HSK50A-EMH20-80	20	52	80	48	25	M16	1.50
	HSK63A-EMH6-65	6	25	65	35	18	M6	0.80
	HSK63A-EMH8-65	8	28	65	35	18	M8	0.80
	HSK63A-EMH10-65	10	35	65	35.5	20	M10	0.90
	HSK63A-EMH12-80	12	42	80	36	22.5	M12	1.10
	HSK63A-EMH14-80	14	44	80	36	22.5	M12	1.20
	HSK63A-EMH16-80	16	48	80	46	24	M14	1.30
	HSK63A-EMH18-80	18	50	80	46	24	M14	1.40
	HSK63A-EMH20-80	20	52	80	48	25	M16	1.50
100A	HSK63A-EMH25-110	25	65	110	55	25	M18	2.30
	HSK63A-EMH32-110	32	72	110	57	28	M20	2.60
	HSK100A-EMH6-80	6	25	80	35	18	M6	2.15
	HSK100A-EMH8-80	8	28	80	35	18	M8	2.20
	HSK100A-EMH10-80	10	35	80	35.5	20	M10	2.35
	HSK100A-EMH12-80	12	42	80	36	22.5	M12	2.45
	HSK100A-EMH14-80	14	44	80	36	22.5	M12	2.65
	HSK100A-EMH16-100	16	48	100	46	24	M14	2.85
	HSK100A-EMH18-100	18	50	100	46	24	M14	2.90
HSK100A-EMH20-100	20	52	100	48	25	M16	2.95	
	HSK100A-EMH25-100	25	65	100	55	25	M18	3.45
	HSK100A-EMH32-100	32	72	100	57	28	M20	3.65
	HSK100A-EMH40-120	40	90	120	68	32	M20	5.50

**END MILL HOLDER (SPRAY NOZZLE)
FRÄSERFUTTER (SPRAYDÜSE)**

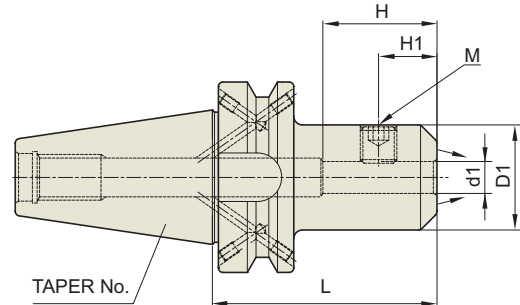
DIN69893-HSK FORM A

DIN69893
- HSKTaper
Accuracy
AT3G Value
6.3RPM
12,000Coolant
System

TAPER No.	CODE No.	d1	D1	L	H	H1	M	Weight (kg)
40A	HSK40A-EMH6C-60	6	25	60	35	18	M6	0.30
	HSK40A-EMH8C-60	8	28	60	35	18	M8	0.30
	HSK40A-EMH10C-60	10	35	60	35.5	20	M10	0.30
	HSK40A-EMH12C-70	12	42	70	36	22.5	M12	0.40
	HSK40A-EMH14C-70	14	44	70	36	22.5	M12	0.40
50A	HSK40A-EMH16C-80	16	48	80	46	24	M14	0.60
	HSK50A-EMH6C-65	6	25	65	35	18	M6	0.70
	HSK50A-EMH8C-65	8	28	65	35	18	M8	0.80
	HSK50A-EMH10C-65	10	35	65	35.5	20	M10	0.80
	HSK50A-EMH12C-80	12	42	80	36	22.5	M12	1.20
	HSK50A-EMH14C-80	14	44	80	36	22.5	M12	1.30
	HSK50A-EMH16C-80	16	48	80	46	24	M14	1.30
63A	HSK50A-EMH18C-80	18	50	80	46	24	M14	1.40
	HSK50A-EMH20C-80	20	52	80	48	25	M16	1.50
	HSK63A-EMH6C-65	6	25	65	35	18	M6	0.80
	HSK63A-EMH8C-65	8	28	65	35	18	M8	0.80
	HSK63A-EMH10C-65	10	35	65	35.5	20	M10	0.90
	HSK63A-EMH12C-80	12	42	80	36	22.5	M12	1.10
	HSK63A-EMH14C-80	14	44	80	36	22.5	M12	1.20
	HSK63A-EMH16C-80	16	48	80	46	24	M14	1.30
	HSK63A-EMH18C-80	18	50	80	46	24	M14	1.40
100A	HSK63A-EMH20C-80	20	52	80	48	25	M16	1.50
	HSK63A-EMH25C-110	25	65	110	55	25	M18	2.30
	HSK63A-EMH32C-110	32	72	110	57	28	M20	2.60
	HSK100A-EMH6C-80	6	25	80	35	18	M6	2.15
	HSK100A-EMH8C-80	8	28	80	35	18	M8	2.20
	HSK100A-EMH10C-80	10	35	80	35.5	20	M10	2.35
	HSK100A-EMH12C-80	12	42	80	36	22.5	M12	2.45
	HSK100A-EMH14C-80	14	44	80	36	22.5	M12	2.65
	HSK100A-EMH16C-100	16	48	100	46	24	M14	2.85
	HSK100A-EMH18C-100	18	50	100	46	24	M14	2.90
	HSK100A-EMH20C-100	20	52	100	48	25	M16	2.95
	HSK100A-EMH25C-100	25	65	100	55	25	M18	3.45
	HSK100A-EMH32C-100	32	72	100	57	28	M20	3.65
	HSK100A-EMH40C-120	40	90	120	68	32	M20	5.50

END MILL HOLDER (SPRAY NOZZLE) FRÄSERFUTTER (SPRAYDÜSE)

MAS403-BT FORM AD/B



MAS403 -BT	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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TAPER No.	CODE No.	d1	D1	L	H	H1	M	Weight (kg)
40	BT40-EMH6C-50	6	25	50	35	18	M6	1.00
	BT40-EMH8C-50	8	28	50	35	18	M8	1.00
	BT40-EMH10C-63	10	35	63	35.5	20	M10	1.10
	BT40-EMH12C-63	12	42	63	36	22.5	M12	1.30
	BT40-EMH14C-63	14	44	63	36	22.5	M12	1.40
	BT40-EMH16C-63	16	48	63	46	24	M14	1.70
	BT40-EMH18C-63	18	50	63	46	24	M14	1.70
	BT40-EMH20C-63	20	52	63	48	25	M16	1.80
	BT40-EMH25C-90	25	65	90	55	25	M18	1.80
BT40-EMH32C-100	32	72	100	57	28	M20	2.00	
50	BT50-EMH6C-63	6	25	63	35	18	M6	3.30
	BT50-EMH8C-63	8	28	63	35	18	M8	3.60
	BT50-EMH10C-65	10	35	65	35.5	20	M10	3.80
	BT50-EMH12C-80	12	42	80	36	22.5	M12	3.80
	BT50-EMH14C-80	14	44	80	36	22.5	M12	4.00
	BT50-EMH16C-80	16	48	80	46	24	M14	4.00
	BT50-EMH18C-80	18	50	80	46	24	M14	4.20
	BT50-EMH20C-80	20	52	80	48	25	M16	4.20
	BT50-EMH25C-100	25	65	100	55	25	M18	4.60
BT50-EMH32C-105	32	72	105	57	28	M20	4.70	
BT50-EMH40C-120	40	90	120	68	32	M20	4.90	

► Higher balancing grade product could be supplied by customer's request.

SIDE LOCK ARBOR FLÄCHENSPIANNFUTTER

TOOL
HOLDERS

MAS403-BT



FIG.1

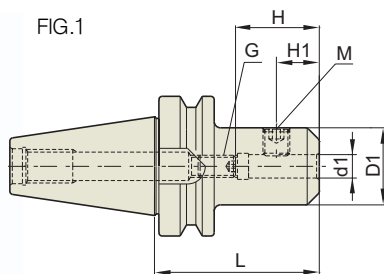
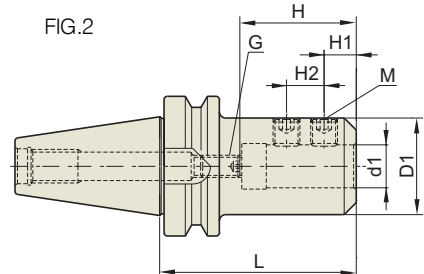


FIG.2



MAS403
-BT

Taper
Accuracy
AT3

G Value
6.3

RPM
12,000

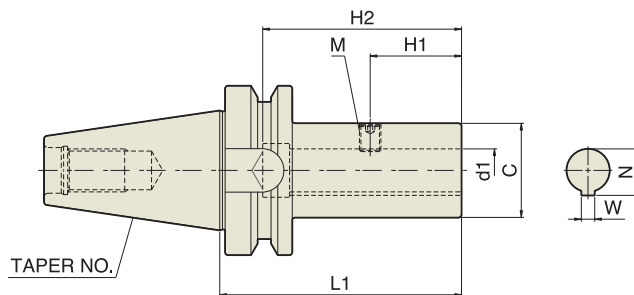
Coolant
System

TAPER No.	CODE No.	d1	L	D1	H		H1	H2	M	G	Weight (kg)
					MIN	MAX					
30	BT30-SLA 6-60	6	60	25	20	35	18	—	M5	M5	0.7
	BT30-SLA 8-60	8	60	28	20	35	18	—	M6	M6	0.8
	BT30-SLA10-60	10	60	35	35	50	14	13	M8	M8	0.9
	BT30-SLA12-60	12	60	40	35	50	14	13	M10	M10	1.1
	BT30-SLA14-60	14	60	40	35	50	14	13	M10	M10	1.2
	BT30-SLA16-75	16	75	40	55	70	25	20	M12	M12	1.3
	BT30-SLA20-75	20	75	50	55	70	25	20	M12	M12	1.4
	BT30-SLA25-75	25	75	50	55	70	25	20	M14	M12	1.5
40	BT30-SLA32-105	32	105	60	65	80	30	20	M16	M12	1.6
	BT40-SLA 6-60	6	60	25	20	35	18	—	M5	M5	1.1
	BT40-SLA 8-60	8	60	28	20	35	18	—	M6	M6	1.1
	BT40-SLA10-60	10	60	35	35	50	14	13	M8	M8	1.2
	BT40-SLA12-60	12	60	40	35	50	14	13	M10	M10	1.4
	BT40-SLA16-90	16	90	40	55	70	25	20	M12	M12	1.5
	BT40-SLA20-90	20	90	50	55	70	25	20	M12	M12	1.8
	BT40-SLA25-90	25	90	50	55	70	25	20	M14	M12	1.7
	BT40-SLA32-90	32	90	60	65	80	30	20	M16	M12	1.9
50	BT40-SLA40-90	40	90	70	65	80	30	20	M16	M12	1.8
	BT40-SLA42-90	42	90	70	65	80	30	20	M16	M12	1.8
	BT50-SLA 6-90	6	90	25	25	40	18	—	M5	M5	3.7
	BT50-SLA 8-90	8	90	28	25	40	18	—	M6	M6	3.9
	BT50-SLA10-90	10	90	35	35	50	15	15	M8	M8	4.1
	BT50-SLA12-90	12	90	40	40	55	15	15	M10	M10	4.3
	BT50-SLA14-90	14	90	40	40	55	15	15	M10	M10	4.3
	BT50-SLA16-105	16	105	40	55	70	25	20	M12	M12	4.4
	BT50-SLA20-105	20	105	50	55	70	25	20	M12	M12	4.8
	BT50-SLA25-105	25	105	50	55	70	25	20	M14	M12	4.7
	BT50-SLA32-105	32	105	60	65	80	25	25	M16	M12	4.0
BT50-SLA40-105	40	105	70	65	80	25	25	M16	M12	4.5	
BT50-SLA42-105	42	105	70	65	80	25	25	M16	M12	4.7	
BT50-SLA50.8-121	50.8	121	95	—	87	34	36	M20	—	5.0	

SIDE LOCK ARBOR FLÄCHENSPIANNFUTTER

TOOL
HOLDERS

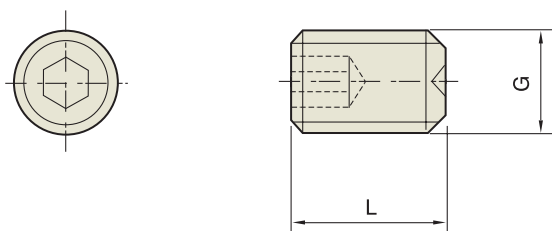
MAS403-BT



MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	d1	D1	L1	H1	H2	M	W	N	Weight (kg)
40	BT40-SLB26-105	26	50	105	40	85	M10	5	28.2	1.3
	BT40-SLB35-135	35	60	135	55	105	M10	6	37.6	2.2
	BT40-SLB35T-135	35	60	135	55	105	M10	7	38.2	2.2
50	BT50-SLB26-105	26	50	105	40	85	M10	5	28.2	4.4
	BT50-SLB35-135	35	60	135	55	106	M10	6	37.6	4.7
	BT50-SLB35T-135	35	60	135	55	106	M10	7	38.2	4.7
	BT50-SLB48-165	48	80	165	65	129	M10	8	51.0	6.5

SCREW FOR SIDE LOCK ARBOR



Taper Accuracy AT3	G Value	RPM	Coolant System
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CODE No.	G	L	HOLDER SIZE	Weight (kg)
M5×08 SL	M5×0.8	8	SLA6	
M6×10 SL	M6×1.0	10	SLA8	
M8×10 SL	M8×1.25	10	SLA10	
M10×12 SL	M10×1.5	12	SLA12/SLA14	
M12×16 SL	M12×1.75	16	SLA16/SLA20	
M14×16 SL	M14×2.0	16	SLA25	
M16×16 SL	M16×2.0	16	SLA32/SLA40/SLA42	
M20×25 SL	M20×2.5	25	SLA50.8	

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE

TOOL HOLDERS

MAS403-BT



FIG.1

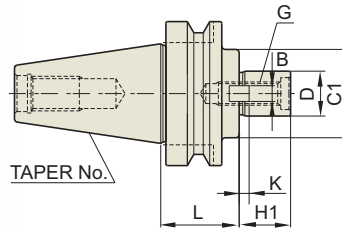
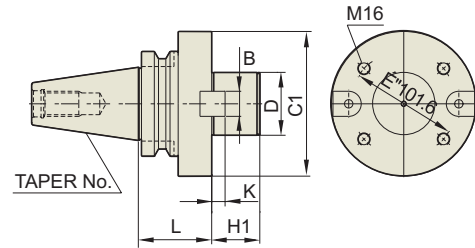


FIG.2



MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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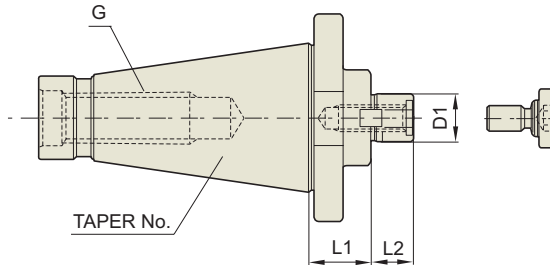
TAPER No.	CODE No.	D	L1	C1	H1	B	K	G	FIG.	Weight (kg)
30	BT30-FMA25.4 -45	25.4	45	50	22	9.5	5	M12	1	1.1
	BT30-FMA31.75-45	31.75	45	60	30	12.7	7	M16	1	1.2
40	BT40-FMA25.4 -45	25.4	45	50	22	9.5	5	M12	1	1.5
	BT40-FMA25.4 -90	25.4	90	50	22	9.5	5	M12	1	3.1
	BT40-FMA31.75-45	31.75	45	60	30	12.7	7	M16	1	1.9
	BT40-FMA31.75-75	31.75	75	60	30	12.7	7	M16	1	2.7
	BT40-FMA38.1 -60	38.1	60	80	34	15.9	9	M20	1	2.9
50	BT50-FMA25.4 -45	25.4	45	50	22	9.5	5	M12	1	3.7
	BT50-FMA25.4 -90	25.4	90	50	22	9.5	5	M12	1	4.6
	BT50-FMA25.4 -150	25.4	150	50	22	9.5	5	M12	1	5.5
	BT50-FMA31.75-45	31.75	45	60	30	12.7	7	M16	1	4.5
	BT50-FMA31.75-75	31.75	75	60	30	12.7	7	M16	1	5.3
	BT50-FMA31.75-105	31.75	105	60	30	12.7	7	M16	1	5.8
	BT50-FMA31.75-150	31.75	150	60	30	12.7	7	M16	1	6.3
	BT50-FMA38.1 -45	38.1	45	80	34	15.9	9	M20	1	4.3
	BT50-FMA38.1 -75	38.1	75	80	34	15.9	9	M20	1	5.6
	BT50-FMA38.1 -105	38.1	105	80	34	15.9	9	M20	1	6.0
	BT50-FMA38.1 -150	38.1	150	80	34	15.9	9	M20	1	6.5
	BT50-FMA50.8 -45	50.8	45	100	36	19.05	10	M24	1	4.9
BT50-FMA50.8 -75	50.8	75	100	36	19.05	10	M24	1	6.8	
BT50-FMA47.625-75	47.625	75	128.57	38	25.4	12.5	-	2	7.7	

SPARE PARTS

TYPE	KEY	KEY BOLT	MOUNTING BOLT
3R(FMA 25.4)	W9.52	M4 × 10	MB12
4R(FMA 31.75)	W12.7	M5 × 12	MB16
5R(FMA 38.1)	W15.87	M6 × 16	MB20
6R(FMA 50.8)	W19	M6 × 18	MB24
8R(FMA 47.625)	-	-	-

FACE MILL ARBOR AUFNAHMEDORN FÜR MESSERKÖPFE

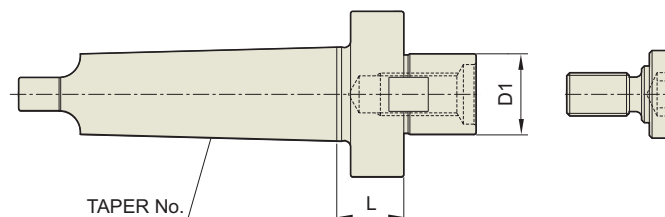
DIN 2080-NT



DIN2080 - NT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	CUTTERØ	D1	L1	L2	DRAW THREAD	Old Code No.	Weight (kg)
40	NT40-FMA25.4	3" (75Ø)	25.4	30	22	U5/8-11 (M16 × 2)	NT40-3R	1.45
	NT40-FMA31.75	4" (100Ø)	31.75	30	30	U5/8-11 (M16 × 2)	NT40-4R	1.75
	NT40-FMA38.1	5" (125Ø)	38.1	30	34	U5/8-11 (M16 × 2)	NT40-5R	1.93
	NT40-FMA50.8	6" (150Ø)	50.8	30	36	U5/8-11 (M16 × 2)	NT40-6R	2.55
50	NT50-FMA25.4	3" (75Ø)	25.4	30	22	U1-8 (M24 × 3)	NT50-3R	3.30
	NT50-FMA31.75	4" (100Ø)	31.75	30	30	U1-8 (M24 × 3)	NT50-4R	3.40
	NT50-FMA38.1	5" (125Ø)	38.1	30	34	U1-8 (M24 × 3)	NT50-5R	3.60
	NT50-FMA50.8	6" (150Ø)	50.8	30	36	U1-8 (M24 × 3)	NT50-6R	3.90
	NT50-FMA47.625	8" (200Ø)	47.625	45	38	U1-8 (M24 × 3)	NT50-8R	4.90

MT



DIN228 - MTA	Taper Accuracy AT3	G Value	RPM	Coolant System
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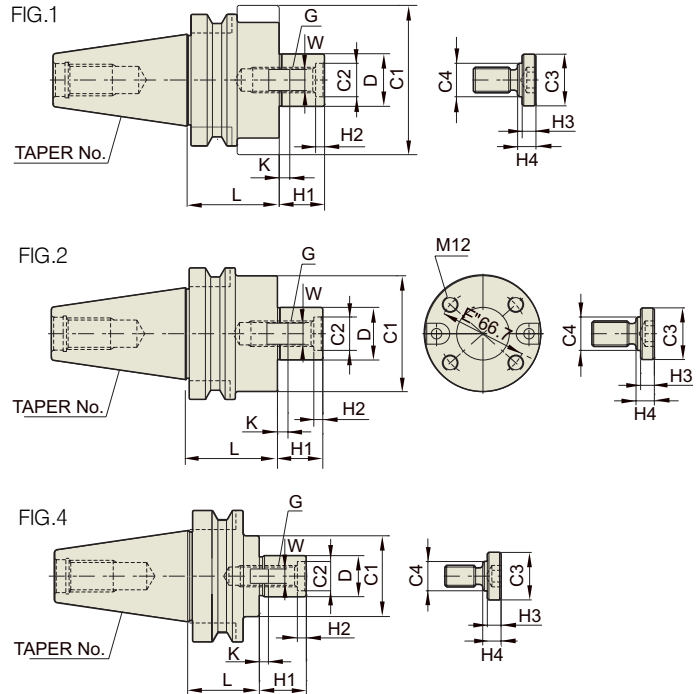
TAPER No.	CODE No.	CUTTERØ	D1	L	Weight (kg)
5	MT5-FMA25.4	3" (75Ø)	40	22	1.60
	MT5-FMA31.75	4" (100Ø)	41.5	30	1.90
	MT5-FMA38.1	5" (125Ø)	45	34	2.20
6	MT6-FMA25.4	3" (75Ø)	45	22	3.50
	MT6-FMA31.75	4" (100Ø)	45	30	3.80
	MT6-FMA38.1	5" (125Ø)	45	34	4.10
	MT6-FMA50.8	6" (150Ø)	45	36	4.60
	MT6-FMA47.625	8" (200Ø)	48	38	5.40

FACE MILL ARBOR

AUFNAHMEDORN FÜR MESSERKÖPFE

TOOL HOLDERS

MAS403-BT



MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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METRIC TYPE

TAPER No.	CODE No.	FIG.	D	L	C1	C2	H1	H2	W	K	G	C3	C4	H3	H4	Weight (kg)
30	BT30-FMB27- 40	4	27	40	80	-	26	-	12	6	M12	33	23	10	10	2.1
	BT40-FMB27- 60	4	27	60	80	-	26	-	12	6	M12	33	23	10	10	2.5
40	BT40-FMB27- 90	4	27	90	80	-	26	-	12	6	M12	33	23	10	10	4.7
	BT40-FMB40- 60	4	40	60	85	28	26	6	16	8.5	M20	50	27	14	20	7.4
50	BT50-FMB27- 45	1	27	45	80	-	26	-	12	6	M12	33	23	10	12	4.0
	BT50-FMB27- 90	1	27	90	80	-	26	-	12	6	M12	33	23	10	12	5.8
	BT50-FMB27-150	1	27	150	80	-	26	-	12	6	M12	33	23	10	12	8.2
	BT50-FMB40- 45	1	40	45	85	28	26	6	16	8.5	M20	50	27	14	20	4.7
	BT50-FMB40- 75	1	40	75	85	28	26	6	16	8.5	M20	50	27	14	20	6.1
	BT50-FMB40- 105	1	40	105	85	28	26	6	16	8.5	M20	50	27	14	20	8.1
	BT50-FMB40F-75	2	40	75	110	28	26	6	16	8.5	M20	50	27	14	20	6.6
BT50-FMB60- 75	3	60	75	140	-	25	-	25.4	12.5	-	-	-	-	-	7.9	

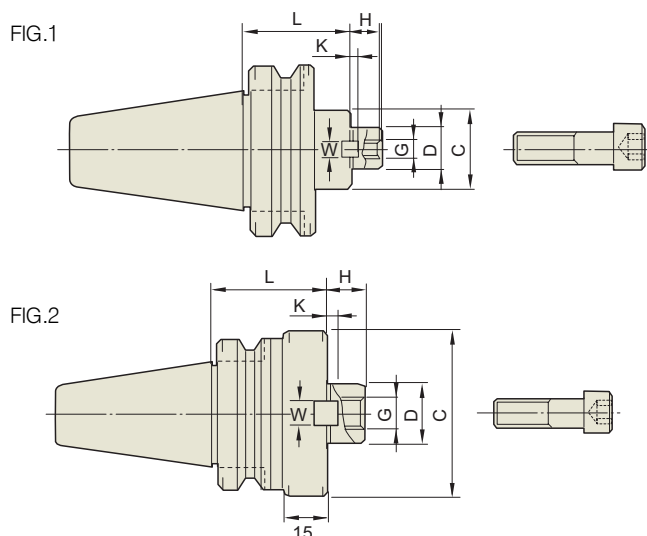
INCH TYPE

TAPER No.	CODE No.	FIG.	D	L	C1	C2	H1	H2	W	K	G	C3	C4	H3	H4	Weight (kg)
30	BT30-FMB25.4-40	4	25.4	40	80	-	26	-	9.5	5	M12	33	23	10	12	2.1
	BT40-FMB25.4-60	4	25.4	60	80	-	26	-	9.5	5	M12	33	23	10	12	2.5
40	BT40-FMB25.4-90	4	25.4	90	80	-	26	-	9.5	5	M12	33	23	10	12	4.7
	BT40-FMB38.1-60	4	38.1	60	85	28	26	6	15.9	9	M20	60	27	14	20	7.4
50	BT50-FMB25.4-45	1	25.4	45	80	-	26	-	9.5	5	M12	33	23	10	12	4.0
	BT50-FMB25.4-90	1	25.4	90	80	-	26	-	9.5	5	M12	33	23	10	12	5.8
	BT50-FMB25.4-150	1	25.4	150	80	-	26	-	9.5	5	M12	33	23	10	12	8.2
	BT50-FMB38.1-45	1	38.1	45	85	28	26	6	15.9	9	M20	50	27	14	20	4.7
	BT50-FMB38.1-75	1	38.1	75	85	28	26	6	15.9	9	M20	50	27	14	20	6.1
	BT50-FMB38.1-105	1	38.1	105	85	28	26	6	15.9	9	M20	50	27	14	20	8.7
	BT50-FMB38.1F-75	2	38.1	75	110	28	26	6	15.9	9	M20	50	27	14	20	6.6

FACE MILL ARBOR AUFNAHMEDORN FÜR MESSERKÖPFE

TOOL HOLDERS

MAS403-BT



MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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■ METRIC TYPE

TAPER No.	CODE No.	D	L	C	H	W	K	G	FIG.	Weight (kg)
30	BT30-FMC22- 45	22	45	45	18	10	5	M10	2	0.8
40	BT40-FMC22- 45	22	45	45	18	10	5	M10	1	1.3
	BT40-FMC27- 60	27	60	70	20	12	6	M12	2	1.5
50	BT40-FMC32- 60	32	60	85	22	14	7	M16	2	2.3
	BT50-FMC22- 60	22	60	45	18	10	5	M10	1	4.2
	BT50-FMC22-105	22	105	45	18	10	5	M10	1	4.7
	BT50-FMC22-150	22	150	45	18	10	5	M10	1	5.3
	BT50-FMC27- 45	27	45	70	20	12	6	M12	1	4.1
	BT50-FMC27- 90	27	90	70	20	12	6	M12	1	5.5
	BT50-FMC27-150	27	150	70	20	12	6	M12	1	7.3
	BT50-FMC32- 60	32	60	85	22	14	7	M16	1	4.2
	BT50-FMC32-105	32	105	85	22	14	7	M16	1	5.5
BT50-FMC32-150	32	150	85	22	14	7	M16	1	7.0	

■ INCH TYPE

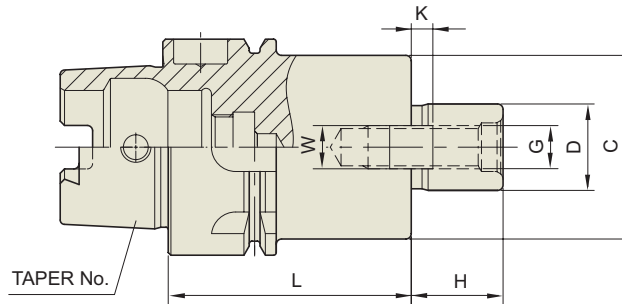
TAPER No.	CODE No.	D	L	C	H	W	K	G	FIG.	Weight (kg)
30	BT30-FMC25.4- 45	25.4	45	70	20	9.5	6	M12	2	1.1
40	BT40-FMC25.4- 60	25.4	60	70	20	9.5	6	M12	2	1.5
	BT40-FMC25.4- 90	25.4	90	70	20	9.5	6	M12	2	2.2
	BT40-FMC38.1- 60	38.1	60	85	22	15.9	7	M16	2	2.3
50	BT40-FMC38.1- 75	38.1	75	85	22	15.9	7	M16	2	2.6
	BT50-FMC25.4- 45	25.4	45	70	20	9.5	6	M12	1	4.1
	BT50-FMC25.4- 90	25.4	90	70	20	9.5	6	M12	1	5.5
	BT50-FMC25.4-150	25.4	150	70	20	9.5	6	M12	1	7.3
	BT50-FMC38.1- 45	38.1	45	85	22	15.9	7	M16	1	4.2
	BT50-FMC38.1- 75	38.1	75	85	22	15.9	7	M16	1	5.5
BT50-FMC38.1-105	38.1	105	85	22	15.9	7	M16	1	7.0	

SPARE PARTS

TYPE	KEY	KEY BOLT	CLAMP BOLT		
FMC 22					
FMC 27				M4 × 10	M10
FMC 32				M5 × 12	M12
		M6 × 16	M16		

FACE MILL ARBOR
AUFNAHMEDORN FÜR MESSERKÖPFE

DIN69893-HSK FORM A



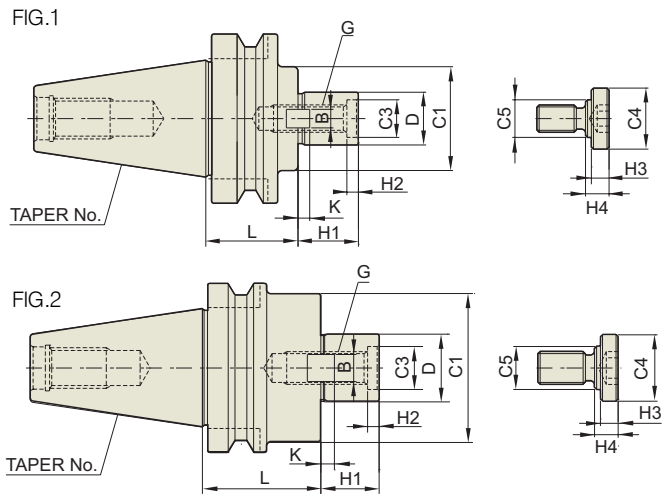
DIN69893 - HSK	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	D	C	L	H	W	K	G	Weight (kg)
40A	HSK40A-FMC16-45	16	34	45	17	8	4	M8	0.40
	HSK40A-FMC22-50	22	45	50	18	10	5	M10	0.50
	HSK40A-FMC27-60	27	68	60	20	12	7	M12	0.70

SHELL MILL ARBOR AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG

TOOL
HOLDERS

MAS403-BT



MAS403-BT	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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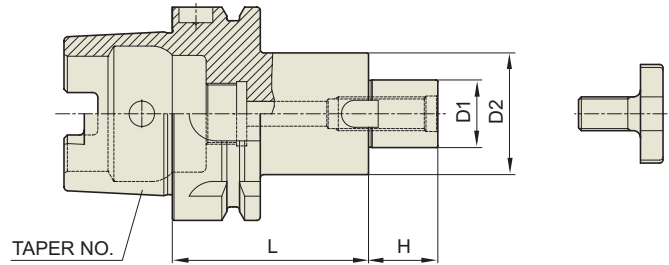
TAPER No.	CODE No.	FIG.	D	L	C1	C2	C3	H1	H2	B	K	G	C4	C5	H3	H4	Weight (kg)
30	BT30-SMA16-30	1	16	30	38	-	-	17	-	8	3	M8	20	15	7	9	0.9
	BT30-SMA22-30	1	22	30	42	-	-	27	-	8	3.5	M10	28	18	9	11	1.0
40	BT40-SMA16-60	1	16	60	38	-	-	17	-	8	3	M8	20	15	7	9	1.3
	BT40-SMA16-120	1	16	120	38	-	-	17	-	8	3	M8	20	15	7	9	1.7
	BT40-SMA22-60	1	22	60	42	-	-	27	-	8	3.5	M10	28	18	9	11	1.4
	BT40-SMA22-120	1	22	120	42	-	-	27	-	8	3.5	M10	28	18	9	11	2.1
	BT40-SMA27-45	2	27	45	50	-	-	36	-	10	4	M12	33	23	10	12	1.4
	BT40-SMA27-105	2	27	105	50	-	-	36	-	10	4	M12	33	23	10	12	2.3
	BT40-SMA32-45	2	32	45	60	-	-	38	-	10	4.5	M16	40	23	10	16	1.6
	BT40-SMA32-75	2	32	75	60	-	-	38	-	10	4.5	M16	40	23	10	16	2.3
50	BT40-SMA40-60	2	40	60	80	-	28	38	6	12	5	M20	50	27	14	20	2.0
	BT50-SMA16-75	1	16	75	38	-	-	17	-	8	3	M8	20	15	7	9	4.2
	BT50-SMA16-120	1	16	120	38	-	-	17	-	8	3	M8	20	15	7	9	5.8
	BT50-SMA22-75	1	22	75	42	-	-	27	-	8	3.5	M10	28	18	9	11	4.3
	BT50-SMA22-120	1	22	120	42	-	-	27	-	8	3.5	M10	28	18	9	11	4.8
	BT50-SMA22-180	1	22	180	42	-	-	27	-	8	3.5	M10	28	18	9	11	5.5
	BT50-SMA27-60	2	27	60	50	-	-	36	-	10	4	M12	33	23	10	12	4.3
	BT50-SMA27-105	2	27	105	50	60	-	36	-	10	4	M12	33	23	10	12	5.2
	BT50-SMA27-150	2	27	150	50	60	-	36	-	10	4	M12	33	23	10	12	5.8
	BT50-SMA32-45	2	32	45	60	-	24	38	6	10	4.5	M16	40	23	10	16	4.2
	BT50-SMA32-75	2	32	75	60	70	24	38	6	10	4.5	M16	40	23	10	16	5.2
	BT50-SMA32-105	2	32	105	60	70	24	38	6	10	4.5	M16	40	23	10	16	6.2
BT50-SMA40-45	2	40	45	80	-	28	38	6	12	5	M20	50	27	14	20	4.3	
BT50-SMA40-75	2	40	75	80	-	28	38	6	12	5	M20	50	27	14	20	5.5	

SPARE PARTS

TYPE	KEY		KEY BOLT		MOUNTING BOLT	
SMA 16		W8		M3 × 8		MB 8
SMA 22		W10		M4 × 10		MB10
SMA 27		W12		M5 × 12		MB12
SMA 32		W14		M6 × 16		MB16
SMA 40		W16		M6 × 16		MB20

**SHELL MILL ARBOR****AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG**

DIN69893-HSK FORM A

DIN69893
- HSKTaper
Accuracy
AT3G Value
6.3RPM
12,000Coolant
System

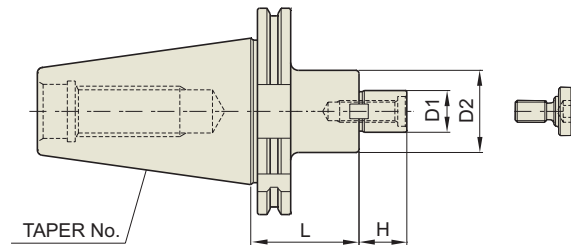
TAPER No.	CODE No.	D1	D2	L	H	Weight (kg)
40A	HSK40A-SMA16-50	16	32	50	17	0.40
	HSK40A-SMA22-50	22	40	50	19	0.50
	HSK40A-SMA27-60	27	48	60	21	0.60
50A	HSK 50A-SMA16-50	16	38	50	17	0.50
	HSK 50A-SMA22-60	22	48	60	19	0.57
	HSK 50A-SMA27-60	27	58	60	21	0.75
	HSK 50A-SMA32-60	32	63	60	24	0.90
63A	HSK 63A-SMA16-50	16	38	50	17	0.81
	HSK 63A-SMA22-50	22	48	50	19	0.93
	HSK 63A-SMA27-60	27	58	60	21	1.22
	HSK 63A-SMA32-60	32	78	60	24	1.46
	HSK 63A-SMA40-60	40	88	60	27	1.80
100A	HSK100A-SMA16-50	16	38	50	17	2.14
	HSK100A-SMA22-50	22	48	50	19	2.25
	HSK100A-SMA27-50	27	58	50	21	2.40
	HSK100A-SMA32-50	32	78	50	24	2.60
	HSK100A-SMA40-60	40	88	60	27	3.25
	HSK100A-SMA50-70	50	129	70	30	5.40

SPARE PARTS

TYPE	KEY		KEY BOLT		MOUNTING BOLT	
SMA 16		W8		M3 × 8		MB 8
SMA 22		W10		M4 × 10		MB10
SMA 27		W12		M5 × 12		MB12
SMA 32		W14		M6 × 16		MB16
SMA 40		W16		M6 × 16		MB20

SHELL MILL ARBOR AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG

DIN69871-SK



DIN69871 -SK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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■ STANDARD

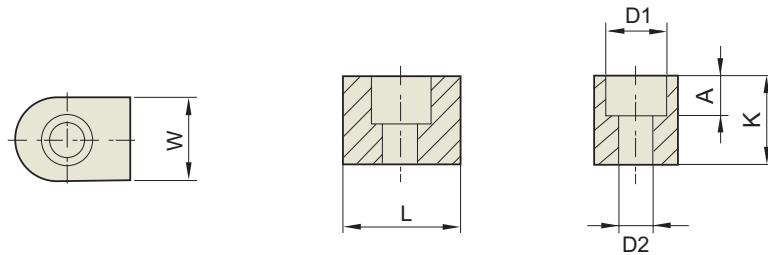
TAPER No.	CODE No.	D1	D2	L	H	Weight (kg)
30	SK30-SMA16-50	16	32	50	17	0.85
	SK30-SMA22-50	22	40	50	19	0.90
	SK30-SMA27-50	27	48	50	21	1.03
40	SK40-SMA16-60	16	32	60	17	0.35
	SK40-SMA22-60	22	40	60	19	1.45
	SK40-SMA27-60	27	48	60	21	1.70
	SK40-SMA32-60	32	58	60	24	1.80
50	SK40-SMA40-60	40	70	60	27	3.10
	SK50-SMA16-75	16	32	75	17	2.80
	SK50-SMA22-75	22	40	75	19	3.10
	SK50-SMA27-75	27	48	75	21	3.40
	SK50-SMA32-75	32	58	75	24	3.80
	SK50-SMA40-75	40	70	75	27	4.50
	SK50-SMA50-75	50	90	75	30	5.90

■ EXTENDED

TAPER No.	CODE No.	D1	D2	L	H	Weight (kg)
40	SK40-SMA16-120	16	32	120	17	1.70
	SK40-SMA22-120	22	40	120	19	1.80
	SK40-SMA27-120	27	48	120	21	2.40
	SK40-SMA32-120	32	58	120	24	3.70
50	SK50-SMA16-120	16	32	120	17	3.90
	SK50-SMA22-120	22	40	120	19	4.40
	SK50-SMA27-120	27	48	120	21	4.70
	SK50-SMA32-120	32	58	120	24	5.00
	SK50-SMA40-120	40	70	120	27	6.05

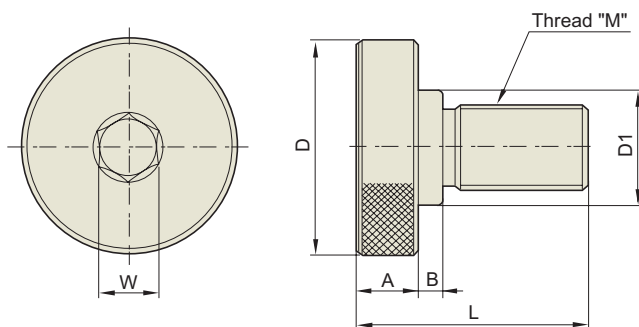


KEY FOR FACE MILL ARBOR



Size	W	K	L	D1	D2	A	Applicable arbor
8×7×12.8	8	7	12.8	5.8	3.2	3.2	SMA16
10×7.8×15.5	10	7.8	15.5	7.5	4.2	4.3	SMA22
9.52×9.52×10.2	9.52	9.52	10.2	7.5	4.5	5.2	FMA25.4 / FMB25.4
9.5×12×11	9.5	12	11	7.5	4.2	5	FMC25.4
12×9×18.5	12	9	18.5	9	5.3	5.5	SMA27
10×10×11	10	10	11	7.5	4.2	5	FMC22
14×11.5×20.5	14	11.5	20.5	10.5	6.5	6.5	SMA32
12×13×18	12	13	18	9	5.3	8	FMB27 / FMC27
16×13.5×23.5	16	13.5	23.5	10.5	6.5	6.5	SMA40
12.7×12.7×12.7	12.7	12.7	12.7	7.5	4.5	5.2	FMA31.75
15.87×15.87×18.5	15.87	15.87	18.5	10.3	6.6	7.5	FMA38.1 / FMB40 / FMB40F
14×15×20	14	15	20	10.5	6.3	8	FMC32
18×18×28.5	18	18	28.5	10.5	6.5	10	SMA50
19×18×22	19	18	22	10.5	6.3	7	FMA50.8

MOUNTING BOLT-MB

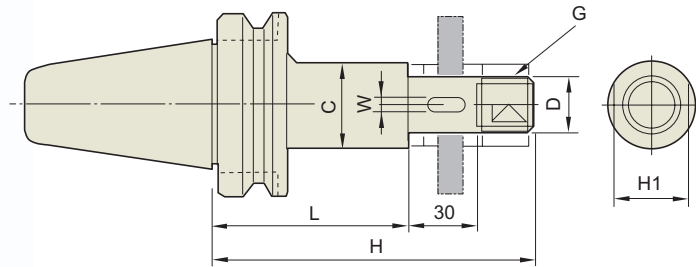


Size	M	D	D1	L	A	B	W	Applicable arbor
MB8	8X1.25	20	15	23	7	2	6	SMA16
MB10	10X1.5	28	18	29	9	2	8	SMA22
MB12	12×1.75	33	23	32	10	2	10	SMA27 / FMB27 / FMA25.4
MB16	16×2.0	40	23	42	10	6	12	SMA32 / FMA3.1.75
MB20	20×2.5	50	27	54	14	6	14	SMA40 / FMA38.1 / FMB40 / FMB40F
MB24	24×3.0	65	37	62	14	10	17	FMA50.8

SIDE CUTTER ARBOR SEITENSCHNEIDER LAUBE

TOOL
HOLDERS

MAS403-BT

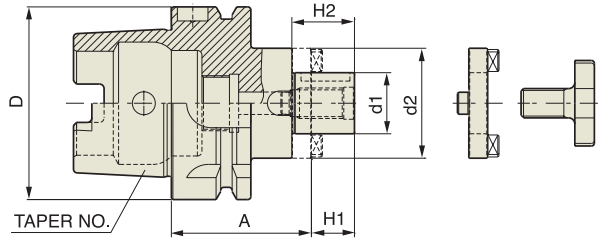


MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	H	H1	C	W	G	D	L	Weight (kg)
30	BT30-SCA12.7-60	105	17	20	–	M12	12.7	60	1.0
	BT30-SCA15.875-60	106	23	26	3.18	M14	15.875	60	1.1
	BT30-SCA22.225-60	110	29	34	3.18	M20	22.225	60	1.2
	BT30-SCA25.4-60	115	32	40	6.35	M24	25.4	60	1.3
40	BT40-SCA12.7-75	120	17	20	–	M12	12.7	75	1.2
	BT40-SCA12.7-105	150	17	20	–	M12	12.7	105	1.3
	BT40-SCA15.875-75	121	23	26	3.18	M14	15.875	75	1.4
	BT40-SCA15.875-120	151	23	26	3.18	M14	15.875	120	1.5
	BT40-SCA22.225-75	126	29	34	3.18	M20	22.225	75	1.7
	BT40-SCA22.225-120	171	29	34	3.18	M20	22.225	120	2.0
	BT40-SCA25.4-75	130	32	40	6.35	M24	25.4	75	2.0
	BT40-SCA25.4-120	175	32	40	6.35	M24	25.4	120	2.4
50	BT50-SCA31.75-90	150	41	46	7.92	M30	31.75	90	2.6
	BT50-SCA12.7-75	120	17	20	–	M12	12.7	75	4.1
	BT50-SCA12.7-105	150	17	20	–	M12	12.7	105	4.2
	BT50-SCA15.875-90	136	23	26	3.18	M14	15.875	90	4.2
	BT50-SCA15.875-120	166	23	26	3.18	M14	15.875	120	4.2
	BT50-SCA22.225-90	144	29	34	3.18	M20	22.225	90	4.4
	BT50-SCA22.225-135	186	29	34	3.18	M20	22.225	135	4.7
	BT50-SCA25.4-90	145	32	40	6.35	M24	25.4	90	4.5
	BT50-SCA25.4-135	190	32	40	6.35	M24	25.4	135	4.9
	BT50-SCA31.75-90	150	41	46	7.92	M30	31.75	90	4.7
	BT50-SCA31.75-135	195	41	46	7.92	M30	31.75	135	5.2
BT50-SCA38.1-90	156	46	55	9.52	M36	38.1	90	4.9	
BT50-SCA38.1-135	201	46	55	9.52	M36	38.1	135	5.9	

COMBI-SHELL MILL ARBOR
KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG

DIN69893-HSK FORM A


 DIN69893
-HSK

 Taper
Accuracy
AT3

 G Value
6.3

 RPM
12,000

 Coolant
System

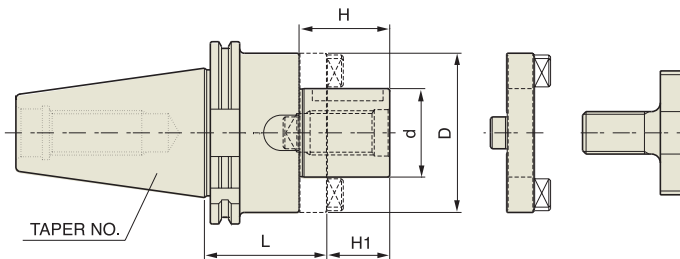
TAPER No.	CODE No.	D	d1	d2	A	H1	H2	PART No.	Weight (kg)
50A	HSK50A - CMA16 - 50	50	16	32	50	17	27	27,33,39	
	HSK50A - CMA22 - 50	50	22	40	50	19	31	28,34,40	
	HSK50A - CMA27 - 65	50	27	48	65	21	33	29,35,41	
	HSK50A - CMA32 - 65	50	32	58	65	24	38	30,36,42	
63A	HSK63A - CMA16 - 60	63	16	32	60	17	27	27,33,39	
	HSK63A - CMA22 - 60	63	22	40	60	19	31	28,34,40	
	HSK63A - CMA27 - 60	63	27	48	60	21	33	29,35,41	
	HSK63A - CMA32 - 60	63	32	58	60	24	38	30,36,42	
	HSK63A - CMA40 - 70	63	40	70	70	27	41	31,37,43	
100A	HSK100A - CMA16 - 60	100	16	32	60	17	27	27,33,39	
	HSK100A - CMA22 - 60	100	22	40	60	19	31	28,34,40	
	HSK100A - CMA27 - 60	100	27	48	60	21	33	29,35,41	
	HSK100A - CMA32 - 60	100	32	58	60	24	38	30,36,42	
	HSK100A - CMA40 - 70	100	40	70	70	27	41	31,37,43	
	HSK100A - CMA50 - 80	100	50	90	80	30	46	32,38,44	

- ▶ High Balanced combi-shell mill arbor are available on request
- ▶ Clutch drive ring, Collar bolt & key for CMA – part on page 1160

COMBI-SHELL MILL ARBOR KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG

TOOL
HOLDERS

DIN 69871-SK FORM A



DIN 69871 -SK	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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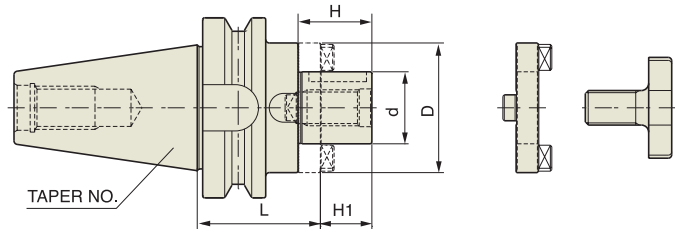
STANDARD

TAPER No.	CODE No.	d	L	D	H1	H	PART No.	Weight (kg)
30	SK30 - CMA16 - 50	16	50	32	17	27	27,33,39	
	SK30 - CMA22 - 50	22	50	40	19	31	28,34,40	
	SK30 - CMA27 - 55	27	55	48	21	33	29,35,41	
40	SK40 - CMA16 - 55	16	55	32	17	27	27,33,39	
	SK40 - CMA22 - 55	22	55	40	19	31	28,34,40	
	SK40 - CMA27 - 55	27	55	48	21	33	29,35,41	
	SK40 - CMA32 - 60	32	60	58	24	38	30,36,42	
	SK40 - CMA40 - 60	40	60	70	27	41	31,37,43	
50	SK50 - CMA16 - 55	16	55	32	17	27	27,33,39	
	SK50 - CMA22 - 55	22	55	40	19	31	28,34,40	
	SK50 - CMA27 - 55	27	55	48	21	33	29,35,41	
	SK50 - CMA32 - 55	32	55	58	24	38	30,36,42	
	SK50 - CMA40 - 55	40	55	70	27	41	31,37,43	
	SK50 - CMA50 - 70	50	70	90	30	46	32,38,44	

EXTENDED

TAPER No.	CODE No.	d	L	D	H1	H	PART No.	Weight (kg)
40	SK40 - CMA16 - 100	16	100	32	17	27	27,33,39	
	SK40 - CMA22 - 100	22	100	40	19	31	28,34,40	
	SK40 - CMA27 - 100	27	100	48	21	33	29,35,41	
	SK40 - CMA32 - 100	32	100	58	24	38	30,36,42	
50	SK50 - CMA16 - 100	16	100	32	17	27	27,33,39	
	SK50 - CMA22 - 100	22	100	40	19	31	28,34,40	
	SK50 - CMA27 - 100	27	100	48	21	33	29,35,41	
	SK50 - CMA32 - 100	32	100	58	24	38	30,36,42	
	SK50 - CMA40 - 100	40	100	70	27	41	31,37,43	

- ▶ High Balanced combi-shell mill arbor are available on request
- ▶ Clutch drive ring, Collar bolt & key for CMA – part on page 1160

COMBI-SHELL MILL ARBOR
KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG
MAS403-BT

**MAS403
-BT**
**Taper
Accuracy
AT3**
**G Value
6.3**
**RPM
12,000**
**Coolant
System**
STANDARD

TAPER No.	CODE No.	d	L	D	H1	H	PART No.	Weight (kg)
30	BT30 - CMA16 - 50	16	50	32	17	27	27,33,39	
	BT30 - CMA22 - 50	22	50	40	19	31	28,34,40	
	BT30 - CMA27 - 55	27	55	48	21	33	29,35,41	
40	BT40 - CMA16 - 55	16	55	32	17	27	27,33,39	
	BT40 - CMA22 - 55	22	55	40	19	31	28,34,40	
	BT40 - CMA27 - 55	27	55	48	21	33	29,35,41	
	BT40 - CMA32 - 60	32	60	58	24	38	30,36,42	
50	BT40 - CMA40 - 60	40	60	70	27	41	31,37,43	
	BT50 - CMA16 - 70	16	70	32	17	27	27,33,39	
	BT50 - CMA22 - 70	22	70	40	19	31	28,34,40	
	BT50 - CMA27 - 70	27	70	48	21	33	29,35,41	
	BT50 - CMA32 - 70	32	70	58	24	38	30,36,42	
	BT50 - CMA40 - 70	40	70	70	27	41	31,37,43	
	BT50 - CMA50 - 70	50	70	90	30	46	32,38,44	

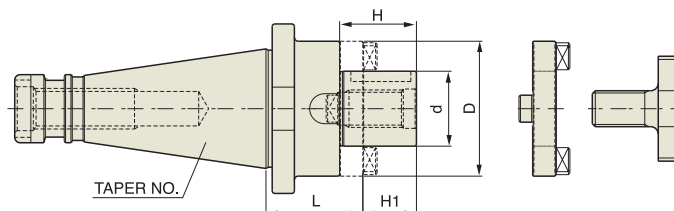
EXTENDED

TAPER No.	CODE No.	d	L	D	H1	H	PART No.	Weight (kg)
40	BT40 - CMA16 - 100	16	100	32	17	27	27,33,39	
	BT40 - CMA22 - 100	22	100	40	19	31	28,34,40	
	BT40 - CMA27 - 100	27	100	48	21	33	29,35,41	
	BT40 - CMA32 - 100	32	100	58	24	38	30,36,42	
50	BT50 - CMA16 - 100	16	100	32	17	27	27,33,39	
	BT50 - CMA22 - 100	22	100	40	19	31	28,34,40	
	BT50 - CMA27 - 100	27	100	48	21	33	29,35,41	
	BT50 - CMA32 - 100	32	100	58	24	38	30,36,42	
	BT50 - CMA40 - 100	40	100	70	27	41	31,37,43	

- ▶ High Balanced combi-shell mill arbor are available on request
- ▶ Clutch drive ring, Collar bolt & key for CMA – part on page 1160

COMBI-SHELL MILL ARBOR KOMBI-AUFNAHMEDORN FÜR FRÄSER MIT BOHRUNG

DIN2080-ISO



DIN2080 - ISO	Taper Accuracy AT3	G Value 6.3	RPM 12,000	Coolant System
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STANDARD

TAPER No.	CODE No.	d	L	D	H1	H	PART No.	Weight (kg)
30	ISO30 - CMA16 - 35	16	35	32	17	27	27,33,39	
	ISO30 - CMA22 - 35	22	35	40	19	31	28,34,40	
	ISO30 - CMA27 - 35	27	35	48	21	33	29,35,41	
40	ISO40 - CMA16 - 52	16	52	32	17	27	27,33,39	
	ISO40 - CMA22 - 52	22	52	40	19	31	28,34,40	
	ISO40 - CMA27 - 52	27	52	48	21	33	29,35,41	
	ISO40 - CMA32 - 52	32	52	58	24	38	30,36,42	
50	ISO40 - CMA40 - 52	40	52	70	27	41	31,37,43	
	ISO50 - CMA16 - 55	16	55	32	17	27	27,33,39	
	ISO50 - CMA22 - 55	22	55	40	19	31	28,34,40	
	ISO50 - CMA27 - 55	27	55	48	21	33	29,35,41	
	ISO50 - CMA32 - 55	32	55	58	24	38	30,36,42	
	ISO50 - CMA40 - 55	40	55	70	27	41	31,37,43	
	ISO50 - CMA50 - 55	50	55	90	30	46	32,38,44	

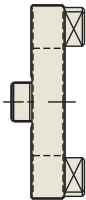
EXTENDED

TAPER No.	CODE No.	d	L	D	H1	H	PART No.	Weight (kg)
40	ISO40 - CMA16 - 125	16	125	32	17	27	27,33,39	
	ISO40 - CMA22 - 125	22	125	40	19	31	28,34,40	
	ISO40 - CMA27 - 125	27	125	48	21	33	29,35,41	
	ISO40 - CMA32 - 125	32	125	58	24	38	30,36,42	
50	ISO50 - CMA16 - 125	16	125	32	17	27	27,33,39	
	ISO50 - CMA22 - 125	22	125	40	19	31	28,34,40	
	ISO50 - CMA27 - 125	27	125	48	21	33	29,35,41	
	ISO50 - CMA32 - 125	32	125	58	24	38	30,36,42	
	ISO50 - CMA40 - 125	40	125	70	27	41	31,37,43	

► Clutch drive ring, Collar bolt & key for CMA – part on page 1160

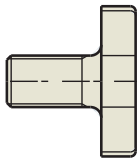
CMA - PART

CLUTCH DRIVE RING



N0.	CLUTCH DRIVE RING	Q' TY
27	#16	1
28	#22	1
29	#27	1
30	#32	1
31	#40	1
32	#50	1

COLLAR BOLT



N0.	COLLAR BOLT	Q' TY
33	M8×1.25	1
34	M10×1.5	1
35	M12×1.75	1
36	M16×2.0	1
37	M20×2.5	1
38	M24×3.0	1

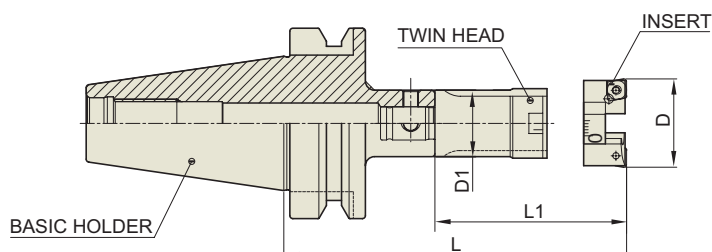
KEY



N0.	KEY	Q' TY	CMA DIA.
39	4×4×20	1	16
40	6×6×25	1	22
41	7×7×25	1	27
42	8×7×28	1	32
43	10×8×32	1	40
44	12×8×36	1	50

TWIN EDGE BORING BAR SET (Small Bore) DOPPELSCHNEIDER - BOHRSTANGE

MAS403-BT

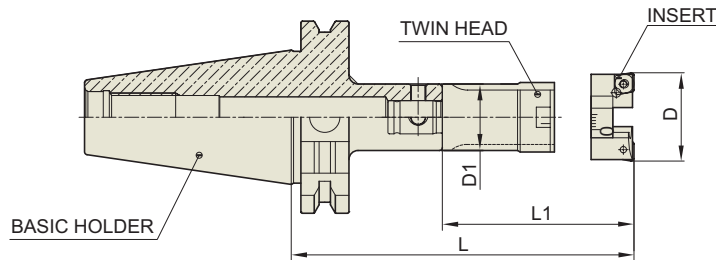


MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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CODE No.	D		L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT
	Min	Max						
BT30-TBH25-90	Ø25	Ø34	90	BT30-SAS22-40	SAS22-TBH25-50	22	50	CCMT060200
BT30-TBH25-140	Ø25	Ø34	140	BT30-SAS22-90	SAS22-TBH25-50	22	50	CCMT060200
BT30-TBH34-110	Ø34	Ø50	110	BT30-SAS31-50	SAS31-TBH34-60	31	60	CCMT060200
BT30-TBH34-150	Ø34	Ø50	150	BT30-SAS31-90	SAS31-TBH34-60	31	60	CCMT060200
BT40-TBH25-100	Ø25	Ø34	100	BT40-SAS22-50	SAS22-TBH25-50	22	50	CCMT060200
BT40-TBH25-140	Ø25	Ø34	140	BT40-SAS22-90	SAS22-TBH25-50	22	50	CCMT060200
BT40-TBH25-155	Ø25	Ø34	155	BT40-SAS22-105	SAS22-TBH25-50	22	50	CCMT060200
BT40-TBH34-120	Ø34	Ø50	120	BT40-SAS31-60	SAS31-TBH34-60	31	60	CCMT060200
BT40-TBH34-160	Ø34	Ø50	160	BT40-SAS31-100	SAS31-TBH34-60	31	60	CCMT060200
BT40-TBH34-180	Ø34	Ø50	180	BT40-SAS31-120	SAS31-TBH34-60	31	60	CCMT060200
BT40-TBH50-140	Ø50	Ø76	140	BT40-SAS42-60	SAS42-TBH50-80	42	80	CCMT09T300
BT40-TBH50-185	Ø50	Ø76	185	BT40-SAS42-105	SAS42-TBH50-80	42	80	CCMT09T300
BT40-TBH50-200	Ø50	Ø76	200	BT40-SAS42-120	SAS42-TBH50-80	42	80	CCMT09T300
BT40-TBH76-180	Ø76	Ø116	180	BT40-SAS65-70	SAS65-TBH76-110	65	110	CCMT120400
BT40-TBH76-200	Ø76	Ø116	200	BT40-SAS65-90	SAS65-TBH76-110	65	110	CCMT120400
BT40-TBH76-220	Ø76	Ø116	220	BT40-SAS65-110	SAS65-TBH76-110	65	110	CCMT120400
BT40-TBH76-240	Ø76	Ø116	240	BT40-SAS65-130	SAS65-TBH76-110	65	110	CCMT120400
BT50-TBH25-110	Ø25	Ø34	110	BT50-SAS22-60	SAS22-TBH25-50	22	50	CCMT060200
BT50-TBH25-130	Ø25	Ø34	130	BT50-SAS22-80	SAS22-TBH25-50	22	50	CCMT060200
BT50-TBH25-150	Ø25	Ø34	150	BT50-SAS22-100	SAS22-TBH25-50	22	50	CCMT060200
BT50-TBH34-130	Ø34	Ø50	130	BT50-SAS31-70	SAS31-TBH34-60	31	60	CCMT060200
BT50-TBH34-160	Ø34	Ø50	160	BT50-SAS31-100	SAS31-TBH34-60	31	60	CCMT060200
BT50-TBH34-190	Ø34	Ø50	190	BT50-SAS31-130	SAS31-TBH34-60	31	60	CCMT060200
BT50-TBH50-150	Ø50	Ø76	150	BT50-SAS42-70	SAS42-TBH50-80	42	80	CCMT09T300
BT50-TBH50-190	Ø50	Ø76	190	BT50-SAS42-110	SAS42-TBH50-80	42	80	CCMT09T300
BT50-TBH50-240	Ø50	Ø76	240	BT50-SAS42-150	SAS42-TBH50-80	42	80	CCMT09T300
BT50-TBH76-200	Ø76	Ø116	200	BT50-SAS65-90	SAS65-TBH76-110	65	110	CCMT120400
BT50-TBH76-240	Ø76	Ø116	240	BT50-SAS65-130	SAS65-TBH76-110	65	110	CCMT120400
BT50-TBH76-280	Ø76	Ø116	280	BT50-SAS65-170	SAS65-TBH76-110	65	110	CCMT120400
BT50-TBH116-225	Ø116	Ø156	225	BT50-SAS84-80	SAS84-TBH116-145	84	145	CCMT120400
BT50-TBH116-275	Ø116	Ø156	275	BT50-SAS84-130	SAS84-TBH116-145	84	145	CCMT120400
BT50-TBH116-325	Ø116	Ø156	325	BT50-SAS84-180	SAS84-TBH116-145	84	145	CCMT120400

**TWIN EDGE BORING BAR SET (Small Bore)**
DOPPELSCHNEIDER - BOHRSTANGE

DIN69871-SK

DIN69871
-SKTaper
Accuracy
AT3

G Value

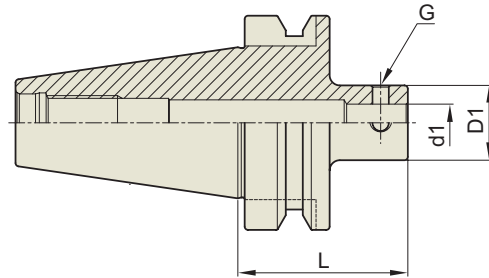
RPM

Coolant
System

CODE No.	D		L	BASIC HOLDER	TWIN HEAD	D1	L1	INSERT
	Min	Max						
SK30-TBH25-90	Ø25	Ø34	90	SK30-SAS22-40	SAS22-TBH25-50	22	50	CCMT060200
SK30-TBH25-140	Ø25	Ø34	140	SK30-SAS22-90	SAS22-TBH25-50	22	50	CCMT060200
SK30-TBH34-110	Ø34	Ø50	110	SK30-SAS31-50	SAS31-TBH34-60	31	60	CCMT060200
SK30-TBH34-150	Ø34	Ø50	150	SK30-SAS31-90	SAS31-TBH34-60	31	60	CCMT060200
SK40-TBH25-100	Ø25	Ø34	100	SK40-SAS22-50	SAS22-TBH25-50	22	50	CCMT060200
SK40-TBH25-140	Ø25	Ø34	140	SK40-SAS22-90	SAS22-TBH25-50	22	50	CCMT060200
SK40-TBH25-155	Ø25	Ø34	155	SK40-SAS22-105	SAS22-TBH25-50	22	50	CCMT060200
SK40-TBH34-120	Ø34	Ø50	120	SK40-SAS31-60	SAS31-TBH34-60	31	60	CCMT060200
SK40-TBH34-160	Ø34	Ø50	160	SK40-SAS31-100	SAS31-TBH34-60	31	60	CCMT060200
SK40-TBH34-180	Ø34	Ø50	180	SK40-SAS31-120	SAS31-TBH34-60	31	60	CCMT060200
SK40-TBH50-140	Ø50	Ø76	140	SK40-SAS42-60	SAS42-TBH50-80	42	80	CCMT09T300
SK40-TBH50-185	Ø50	Ø76	185	SK40-SAS42-105	SAS42-TBH50-80	42	80	CCMT09T300
SK40-TBH50-200	Ø50	Ø76	200	SK40-SAS42-120	SAS42-TBH50-80	42	80	CCMT09T300
SK40-TBH76-180	Ø76	Ø116	180	SK40-SAS65-70	SAS65-TBH76-110	65	110	CCMT120400
SK40-TBH76-200	Ø76	Ø116	200	SK40-SAS65-90	SAS65-TBH76-110	65	110	CCMT120400
SK40-TBH76-220	Ø76	Ø116	220	SK40-SAS65-110	SAS65-TBH76-110	65	110	CCMT120400
SK40-TBH76-240	Ø76	Ø116	240	SK40-SAS65-130	SAS65-TBH76-110	65	110	CCMT120400
SK50-TBH25-110	Ø25	Ø34	110	SK50-SAS22-60	SAS22-TBH25-50	22	50	CCMT060200
SK50-TBH25-130	Ø25	Ø34	130	SK50-SAS22-80	SAS22-TBH25-50	22	50	CCMT060200
SK50-TBH25-150	Ø25	Ø34	150	SK50-SAS22-100	SAS22-TBH25-50	22	50	CCMT060200
SK50-TBH34-130	Ø34	Ø50	130	SK50-SAS31-70	SAS31-TBH34-60	31	60	CCMT060200
SK50-TBH34-160	Ø34	Ø50	160	SK50-SAS31-100	SAS31-TBH34-60	31	60	CCMT060200
SK50-TBH34-190	Ø34	Ø50	190	SK50-SAS31-130	SAS31-TBH34-60	31	60	CCMT060200
SK50-TBH50-150	Ø50	Ø76	150	SK50-SAS42-70	SAS42-TBH50-80	42	80	CCMT09T300
SK50-TBH50-190	Ø50	Ø76	190	SK50-SAS42-110	SAS42-TBH50-80	42	80	CCMT09T300
SK50-TBH50-240	Ø50	Ø76	240	SK50-SAS42-150	SAS42-TBH50-80	42	80	CCMT09T300
SK50-TBH76-200	Ø76	Ø116	200	SK50-SAS65-90	SAS65-TBH76-110	65	110	CCMT120400
SK50-TBH76-240	Ø76	Ø116	240	SK50-SAS65-130	SAS65-TBH76-110	65	110	CCMT120400
SK50-TBH76-280	Ø76	Ø116	280	SK50-SAS65-170	SAS65-TBH76-110	65	110	CCMT120400
SK50-TBH116-225	Ø116	Ø156	225	SK50-SAS84-80	SAS84-TBH116-145	84	145	CCMT120400
SK50-TBH116-275	Ø116	Ø156	275	SK50-SAS84-130	SAS84-TBH116-145	84	145	CCMT120400
SK50-TBH116-325	Ø116	Ø156	325	SK50-SAS84-180	SAS84-TBH116-145	84	145	CCMT120400

BASIC HOLDER

MAS403-BT

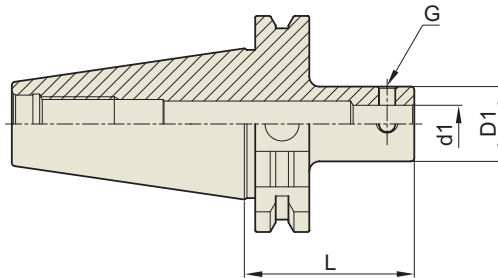


MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	d1	Dq	L	G	Weight (kg)
30	BT30-SAS22-40	Ø11	Ø22	40	M5	0.30
	BT30-SAS22-90	Ø11	Ø22	90	M5	0.40
	BT30-SAS31-50	Ø18	Ø31	50	M8	0.40
	BT30-SAS31-90	Ø18	Ø31	90	M8	0.50
40	BT40-SAS22-50	Ø11	Ø22	50	M5	1.70
	BT40-SAS22-90	Ø11	Ø22	90	M5	1.90
	BT40-SAS22-105	Ø11	Ø22	105	M5	1.90
	BT40-SAS31-60	Ø18	Ø31	60	M8	1.90
	BT40-SAS31-100	Ø18	Ø31	100	M8	2.30
	BT40-SAS31-120	Ø18	Ø31	120	M8	2.40
	BT40-SAS42-60	Ø24	Ø42	60	M10	2.70
	BT40-SAS42-105	Ø24	Ø42	105	M10	2.90
	BT40-SAS42-120	Ø24	Ø42	120	M10	3.10
	BT40-SAS65-70	Ø34	Ø65	70	M16	3.30
	BT40-SAS65-90	Ø34	Ø65	90	M16	3.60
	BT40-SAS65-110	Ø34	Ø65	110	M16	4.60
	BT40-SAS65-130	Ø34	Ø65	130	M16	4.70
	50	BT50-SAS22-60	Ø11	Ø22	60	M5
BT50-SAS22-80		Ø11	Ø22	80	M5	4.50
BT50-SAS22-100		Ø11	Ø22	100	M5	4.70
BT50-SAS31-70		Ø18	Ø31	70	M8	4.50
BT50-SAS31-100		Ø18	Ø31	100	M8	5.10
BT50-SAS31-130		Ø18	Ø31	130	M8	5.40
BT50-SAS42-70		Ø24	Ø42	70	M10	5.00
BT50-SAS42-110		Ø24	Ø42	110	M10	5.20
BT50-SAS42-150		Ø24	Ø42	150	M10	5.50
BT50-SAS65-90		Ø34	Ø65	90	M16	6.80
BT50-SAS65-130		Ø34	Ø65	130	M16	7.50
BT50-SAS65-170		Ø34	Ø65	170	M16	8.00
BT50-SAS84-80		Ø46	Ø84	80	M16	9.00
BT50-SAS84-130		Ø46	Ø84	130	M16	9.70
BT50-SAS84-180	Ø46	Ø84	180	M16	9.90	

BASIC HOLDER

DIN69871-SK



DIN69871
-SK

Taper
Accuracy

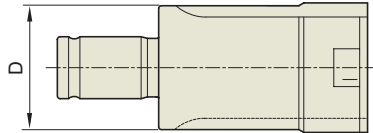
G Value

RPM

Coolant
System

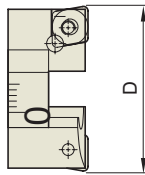
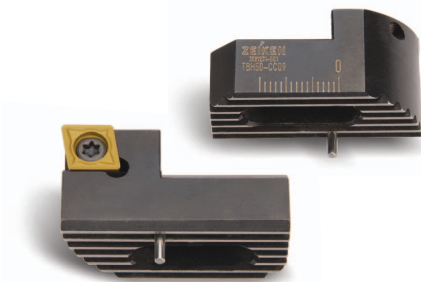
TAPER No.	CODE No.	d1	Dq	L	G	Weight (kg)
30	SK30-SAS22-40	Ø 11	Ø 22	40	M5	0.30
	SK30-SAS22-90	Ø 11	Ø 22	90	M5	0.40
	SK30-SAS31-50	Ø 18	Ø 31	50	M8	0.40
	SK30-SAS31-90	Ø 18	Ø 31	90	M8	0.50
40	SK40-SAS22-50	Ø 11	Ø 22	50	M5	1.70
	SK40-SAS22-90	Ø 11	Ø 22	90	M5	1.90
	SK40-SAS22-105	Ø 11	Ø 22	105	M5	1.90
	SK40-SAS31-60	Ø 18	Ø 31	60	M8	1.90
	SK40-SAS31-100	Ø 18	Ø 31	100	M8	2.30
	SK40-SAS31-120	Ø 18	Ø 31	120	M8	2.40
	SK40-SAS42-60	Ø 24	Ø 42	60	M10	2.70
	SK40-SAS42-105	Ø 24	Ø 42	105	M10	2.90
	SK40-SAS42-120	Ø 24	Ø 42	120	M10	3.10
	SK40-SAS65-70	Ø 34	Ø 65	70	M16	3.30
	SK40-SAS65-90	Ø 34	Ø 65	90	M16	3.60
	SK40-SAS65-110	Ø 34	Ø 65	110	M16	4.60
	SK40-SAS65-130	Ø 34	Ø 65	130	M16	4.70
	50	SK50-SAS22-60	Ø 11	Ø 22	60	M5
SK50-SAS22-80		Ø 11	Ø 22	80	M5	4.50
SK50-SAS22-100		Ø 11	Ø 22	100	M5	4.70
SK50-SAS31-70		Ø 18	Ø 31	70	M8	4.50
SK50-SAS31-100		Ø 18	Ø 31	100	M8	5.10
SK50-SAS31-130		Ø 18	Ø 31	130	M8	5.40
SK50-SAS42-70		Ø 24	Ø 42	70	M10	5.00
SK50-SAS42-110		Ø 24	Ø 42	110	M10	5.20
SK50-SAS42-150		Ø 24	Ø 42	150	M10	5.50
SK50-SAS65-90		Ø 34	Ø 65	90	M16	6.80
SK50-SAS65-130		Ø 34	Ø 65	130	M16	7.50
SK50-SAS65-170		Ø 34	Ø 65	170	M16	8.00
SK50-SAS84-80		Ø 46	Ø 84	80	M16	9.00
SK50-SAS84-130		Ø 46	Ø 84	130	M16	9.70
SK50-SAS84-180	Ø 46	Ø 84	180	M16	9.90	

TWIN HEAD



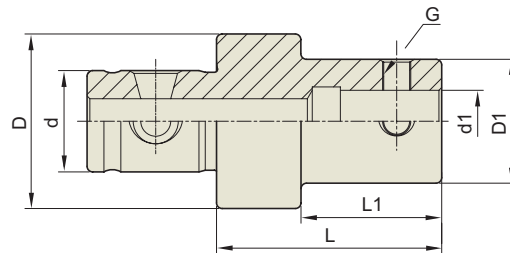
TWIN HEAD	D
SAS22-TBH25-50	22
SAS31-TBH34-60	31
SAS42-TBH50-80	42
SAS65-TBH76-110	65
SAS84-TBH116-145	84

INSERT HOLDER (CARTRIDGE)



INSERT HOLDER	D	
	MIN	MAZ
TBH25-CC06	Ø25 - Ø34	
TBH34-CC06	Ø34 - Ø50	
TBH50-CC09	Ø50 - Ø76	
TBH76-CC12	Ø76 - Ø116	
TBH116-CC12	Ø116 - Ø156	

REDUCTION BAR

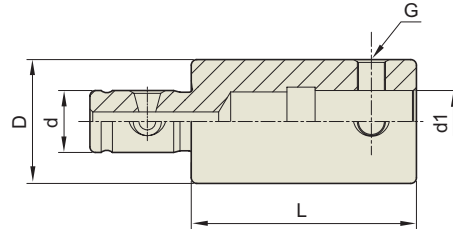


TWIN HEAD	d	d1	D	D1	L	L1	G
R-SAS31-22-40	Ø18	Ø11	Ø31	Ø22	40	25	M5
R-SAS42-22-45	Ø24	Ø11	Ø42	Ø22	45	25	M5
R-SAS42-31-50	Ø24	Ø18	Ø42	Ø31	50	30	M8
R-SAS65-22-50	Ø34	Ø11	Ø65	Ø22	50	25	M5
R-SAS65-31-55	Ø34	Ø18	Ø65	Ø31	55	30	M8
R-SAS65-42-65	Ø34	Ø24	Ø65	Ø42	65	40	M10
R-SAS84-22-55	Ø46	Ø11	Ø84	Ø22	55	25	M5
R-SAS84-31-60	Ø46	Ø18	Ø84	Ø31	60	30	M8
R-SAS84-42-65	Ø46	Ø24	Ø84	Ø42	65	40	M10
R-SAS84-65-70	Ø46	Ø34	Ø84	Ø65	70	40	M16



EXTENSION BAR

TOOL
HOLDERS

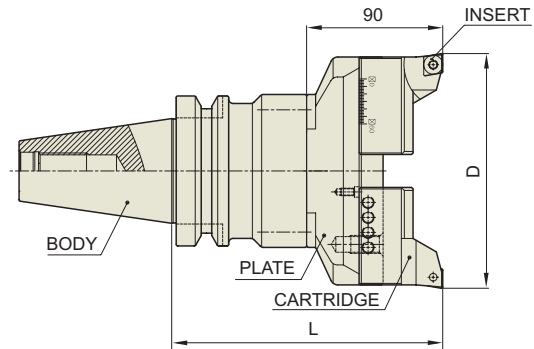


TWIN HEAD	d	d1	D	L	G
E-SAS22-40	Ø11	Ø11	Ø22	40	M5
E-SAS22-60	Ø11	Ø11	Ø22	60	M5
E-SAS31-50	Ø18	Ø18	Ø31	50	M8
E-SAS31-80	Ø18	Ø18	Ø31	80	M8
E-SAS42-60	Ø24	Ø24	Ø42	60	M10
E-SAS42-90	Ø24	Ø24	Ø42	90	M10
E-SAS65-70	Ø34	Ø34	Ø65	70	M16
E-SAS65-100	Ø34	Ø34	Ø65	100	M16
E-SAS84-90	Ø46	Ø46	Ø84	90	M16
E-SAS84-100	Ø46	Ø46	Ø84	100	M16

TWIN EDGE BORING BAR SET (Big Bore - For Rough Cutting) DOPPELSCHNEIDER - BOHRSTANGE

TOOL
HOLDERS

MAS403-BT

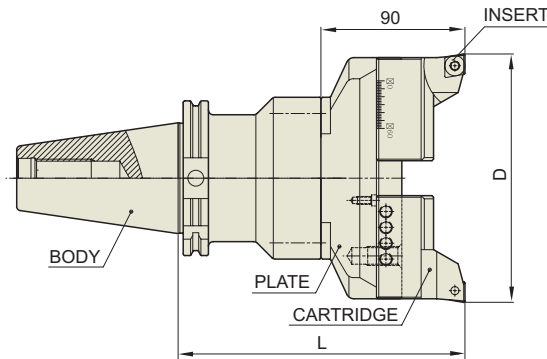


MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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CODE No.	D		L	BODY	PLATE	INSERT
	Min	Max				
BT50-TBH156-180	Ø156	Ø216	180	BT50-SAS102-90	PLA156	CCMT120400
BT50-TBH156-230	Ø156	Ø216	230	BT50-SAS102-140	PLA156	CCMT120400
BT50-TBH156-280	Ø156	Ø216	280	BT50-SAS102-190	PLA156	CCMT120400
BT50-TBH216-180	Ø216	Ø276	180	BT50-SAS102-90	PLA216	CCMT120400
BT50-TBH216-230	Ø216	Ø276	230	BT50-SAS102-140	PLA216	CCMT120400
BT50-TBH216-280	Ø216	Ø276	280	BT50-SAS102-190	PLA216	CCMT120400
BT50-TBH276-180	Ø276	Ø336	180	BT50-SAS102-90	PLA276	CCMT120400
BT50-TBH276-230	Ø276	Ø336	230	BT50-SAS102-140	PLA276	CCMT120400
BT50-TBH276-280	Ø276	Ø336	280	BT50-SAS102-190	PLA276	CCMT120400
BT50-TBH336-180	Ø336	Ø396	180	BT50-SAS102-90	PLA336	CCMT120400
BT50-TBH336-230	Ø336	Ø396	230	BT50-SAS102-140	PLA336	CCMT120400
BT50-TBH336-280	Ø336	Ø396	280	BT50-SAS102-190	PLA336	CCMT120400
BT50-TBH396-180	Ø396	Ø456	180	BT50-SAS102-90	PLA396	CCMT120400
BT50-TBH396-230	Ø396	Ø456	230	BT50-SAS102-140	PLA396	CCMT120400
BT50-TBH396-280	Ø396	Ø456	280	BT50-SAS102-190	PLA396	CCMT120400
BT50-TBH456-180	Ø456	Ø516	180	BT50-SAS102-90	PLA456	CCMT120400
BT50-TBH456-230	Ø456	Ø516	230	BT50-SAS102-140	PLA456	CCMT120400
BT50-TBH456-280	Ø456	Ø516	280	BT50-SAS102-190	PLA456	CCMT120400
BT50-TBH516-180	Ø516	Ø576	180	BT50-SAS102-90	PLA516	CCMT120400
BT50-TBH516-230	Ø516	Ø576	230	BT50-SAS102-140	PLA516	CCMT120400
BT50-TBH516-280	Ø516	Ø576	280	BT50-SAS102-190	PLA516	CCMT120400

TWIN EDGE BORING BAR SET (Big Bore - For Rough Cutting)
DOPPELSCHNEIDER - BOHRSTANGE

DIN69871-SK


 DIN69871
-SK

 Taper
Accuracy
AT3

G Value

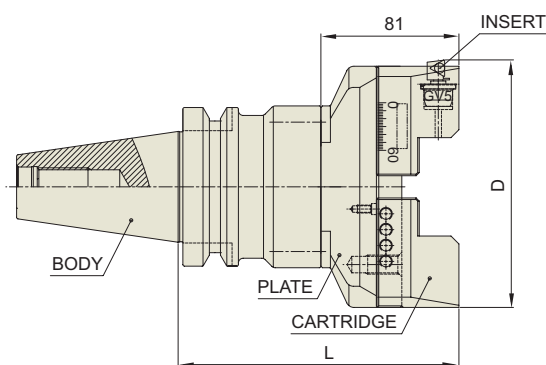
RPM

 Coolant
System

CODE No.	D		L	BODY	PLATE	INSERT
	Min	Max				
SK50-TBH156-180	Ø156	Ø216	180	SK50-SAS102-90	PLA156	CCMT120400
SK50-TBH156-230	Ø156	Ø216	230	SK50-SAS102-140	PLA156	CCMT120400
SK50-TBH156-280	Ø156	Ø216	280	SK50-SAS102-190	PLA156	CCMT120400
SK50-TBH216-180	Ø216	Ø276	180	SK50-SAS102-90	PLA216	CCMT120400
SK50-TBH216-230	Ø216	Ø276	230	SK50-SAS102-140	PLA216	CCMT120400
SK50-TBH216-280	Ø216	Ø276	280	SK50-SAS102-190	PLA216	CCMT120400
SK50-TBH276-180	Ø276	Ø336	180	SK50-SAS102-90	PLA276	CCMT120400
SK50-TBH276-230	Ø276	Ø336	230	SK50-SAS102-140	PLA276	CCMT120400
SK50-TBH276-280	Ø276	Ø336	280	SK50-SAS102-190	PLA276	CCMT120400
SK50-TBH336-180	Ø336	Ø396	180	SK50-SAS102-90	PLA336	CCMT120400
SK50-TBH336-230	Ø336	Ø396	230	SK50-SAS102-140	PLA336	CCMT120400
SK50-TBH336-280	Ø336	Ø396	280	SK50-SAS102-190	PLA336	CCMT120400
SK50-TBH396-180	Ø396	Ø456	180	SK50-SAS102-90	PLA396	CCMT120400
SK50-TBH396-230	Ø396	Ø456	230	SK50-SAS102-140	PLA396	CCMT120400
SK50-TBH396-280	Ø396	Ø456	280	SK50-SAS102-190	PLA396	CCMT120400
SK50-TBH456-180	Ø456	Ø516	180	SK50-SAS102-90	PLA456	CCMT120400
SK50-TBH456-230	Ø456	Ø516	230	SK50-SAS102-140	PLA456	CCMT120400
SK50-TBH456-280	Ø456	Ø516	280	SK50-SAS102-190	PLA456	CCMT120400
SK50-TBH516-180	Ø516	Ø576	180	SK50-SAS102-90	PLA516	CCMT120400
SK50-TBH516-230	Ø516	Ø576	230	SK50-SAS102-140	PLA516	CCMT120400
SK50-TBH516-280	Ø516	Ø576	280	SK50-SAS102-190	PLA516	CCMT120400

TWIN EDGE BORING BAR (Big Bore - For Finishing) DOPPELSCHNEIDER - BOHRSTANGE

MAS403-BT

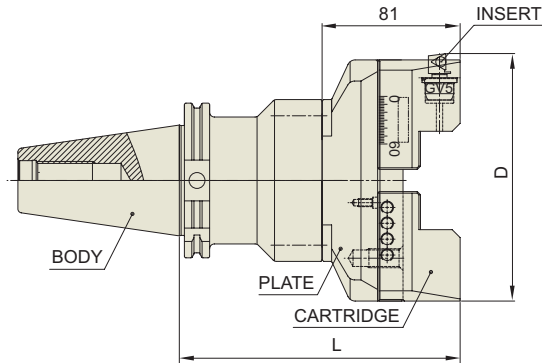


MAS403-BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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CODE No.	D		L	BODY	PLATE	INSERT
	Min	Max				
BT50-FBH156-171	Ø156	Ø216	171	BT50-SAS102-90	PLA156	TPGT110400
BT50-FBH156-221	Ø156	Ø216	221	BT50-SAS102-140	PLA156	TPGT110400
BT50-FBH156-271	Ø156	Ø216	271	BT50-SAS102-190	PLA156	TPGT110400
BT50-FBH216-171	Ø216	Ø276	171	BT50-SAS102-90	PLA216	TPGT110400
BT50-FBH216-221	Ø216	Ø276	221	BT50-SAS102-140	PLA216	TPGT110400
BT50-FBH216-271	Ø216	Ø276	271	BT50-SAS102-190	PLA216	TPGT110400
BT50-FBH276-171	Ø276	Ø336	171	BT50-SAS102-90	PLA276	TPGT110400
BT50-FBH276-221	Ø276	Ø336	221	BT50-SAS102-140	PLA276	TPGT110400
BT50-FBH276-271	Ø276	Ø336	271	BT50-SAS102-190	PLA276	TPGT110400
BT50-FBH336-171	Ø336	Ø396	171	BT50-SAS102-90	PLA336	TPGT110400
BT50-FBH336-221	Ø336	Ø396	221	BT50-SAS102-140	PLA336	TPGT110400
BT50-FBH336-271	Ø336	Ø396	271	BT50-SAS102-190	PLA336	TPGT110400
BT50-FBH396-171	Ø396	Ø456	171	BT50-SAS102-90	PLA396	TPGT110400
BT50-FBH396-221	Ø396	Ø456	221	BT50-SAS102-140	PLA396	TPGT110400
BT50-FBH396-271	Ø396	Ø456	271	BT50-SAS102-190	PLA396	TPGT110400
BT50-FBH456-171	Ø456	Ø516	171	BT50-SAS102-90	PLA456	TPGT110400
BT50-FBH456-221	Ø456	Ø516	221	BT50-SAS102-140	PLA456	TPGT110400
BT50-FBH456-271	Ø456	Ø516	271	BT50-SAS102-190	PLA456	TPGT110400
BT50-FBH516-171	Ø516	Ø576	171	BT50-SAS102-90	PLA516	TPGT110400
BT50-FBH516-221	Ø516	Ø576	221	BT50-SAS102-140	PLA516	TPGT110400
BT50-FBH516-271	Ø516	Ø576	271	BT50-SAS102-190	PLA516	TPGT110400

TWIN EDGE BORING BAR (Big Bore - For Finishing)
DOPPELSCHNEIDER - BOHRSTANGE

DIN69871-SK


 DIN69871
-SK

 Taper
Accuracy
AT3

G Value

RPM

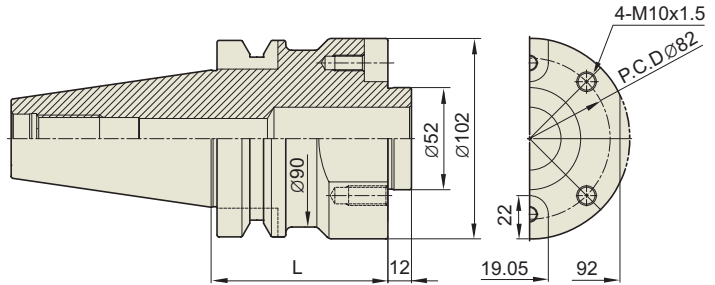
 Coolant
System

CODE No.	D		L	BODY	PLATE	INSERT
	Min	Max				
SK50-FBH156-171	Ø156	Ø216	171	SK50-SAS102-90	PLA156	TPGT110400
SK50-FBH156-221	Ø156	Ø216	221	SK50-SAS102-140	PLA156	TPGT110400
SK50-FBH156-271	Ø156	Ø216	271	SK50-SAS102-190	PLA156	TPGT110400
SK50-FBH216-171	Ø216	Ø276	171	SK50-SAS102-90	PLA216	TPGT110400
SK50-FBH216-221	Ø216	Ø276	221	SK50-SAS102-140	PLA216	TPGT110400
SK50-FBH216-271	Ø216	Ø276	271	SK50-SAS102-190	PLA216	TPGT110400
SK50-FBH276-171	Ø276	Ø336	171	SK50-SAS102-90	PLA276	TPGT110400
SK50-FBH276-221	Ø276	Ø336	221	SK50-SAS102-140	PLA276	TPGT110400
SK50-FBH276-271	Ø276	Ø336	271	SK50-SAS102-190	PLA276	TPGT110400
SK50-FBH336-171	Ø336	Ø396	171	SK50-SAS102-90	PLA336	TPGT110400
SK50-FBH336-221	Ø336	Ø396	221	SK50-SAS102-140	PLA336	TPGT110400
SK50-FBH336-271	Ø336	Ø396	271	SK50-SAS102-190	PLA336	TPGT110400
SK50-FBH396-171	Ø396	Ø456	171	SK50-SAS102-90	PLA396	TPGT110400
SK50-FBH396-221	Ø396	Ø456	221	SK50-SAS102-140	PLA396	TPGT110400
SK50-FBH396-271	Ø396	Ø456	271	SK50-SAS102-190	PLA396	TPGT110400
SK50-FBH456-171	Ø456	Ø516	171	SK50-SAS102-90	PLA456	TPGT110400
SK50-FBH456-221	Ø456	Ø516	221	SK50-SAS102-140	PLA456	TPGT110400
SK50-FBH456-271	Ø456	Ø516	271	SK50-SAS102-190	PLA456	TPGT110400
SK50-FBH516-171	Ø516	Ø576	171	SK50-SAS102-90	PLA516	TPGT110400
SK50-FBH516-221	Ø516	Ø576	221	SK50-SAS102-140	PLA516	TPGT110400
SK50-FBH516-271	Ø516	Ø576	271	SK50-SAS102-190	PLA516	TPGT110400

BASIC HOLDER (Big Bore)

TOOL HOLDERS

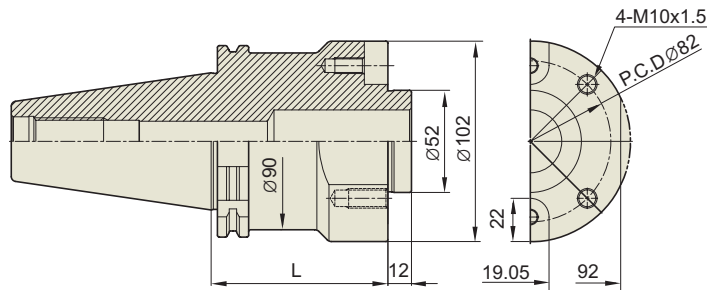
MAS403-BT



MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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CODE No.	L
BT50-SAS102-90	90
BT50-SAS102-140	140
BT50-SAS102-190	190

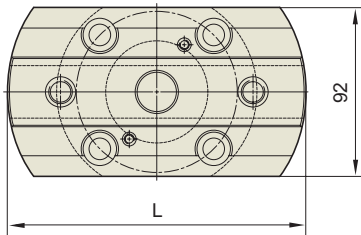
DIN69871-SK



DIN69871 -SK	Taper Accuracy AT3	G Value	RPM	Coolant System
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CODE No.	L
SK50-SAS102-90	90
SK50-SAS102-140	140
SK50-SAS102-190	190

PLATE

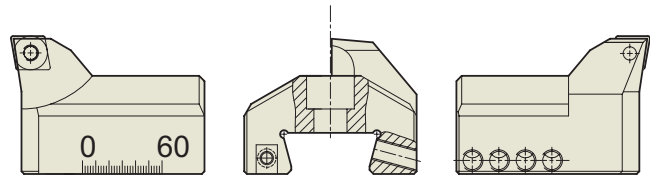
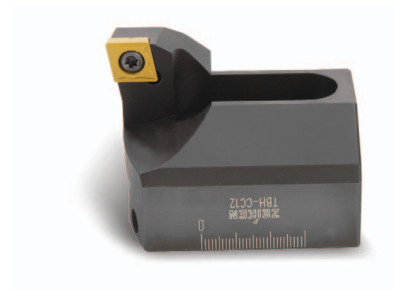


Taper Accuracy	G Value	RPM	Coolant System
AT3			

PLATE	L
PLA156	152
PLA216	212
PLA276	272
PLA336	332
PLA396	392
PLA456	452
PLA516	512

CARTRIDGE

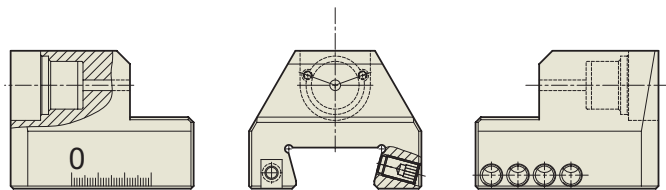
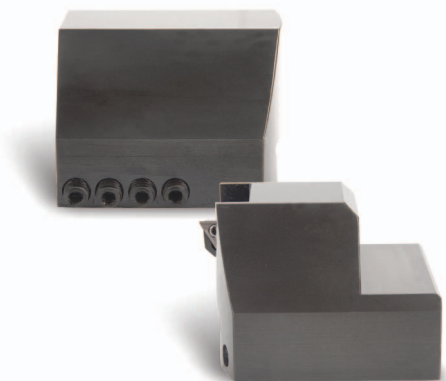
FOR ROUGH CUTTING



Taper Accuracy	G Value	RPM	Coolant System
AT3			

CARTRIDGE (For Rough Cutting) CN120
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FOR FINISHING



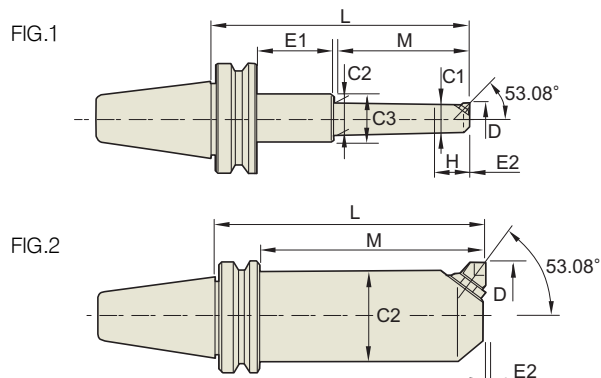
Taper Accuracy	G Value	RPM	Coolant System
AT3			

CARTRIDGE (For Finishing) FBH-GV5
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MICRO BORING BAR MIKRO - BOHRSTANGE

TOOL
HOLDERS

MAS403-BT



MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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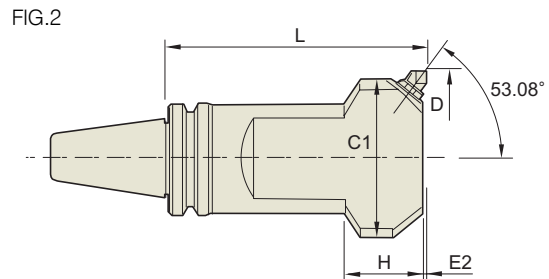
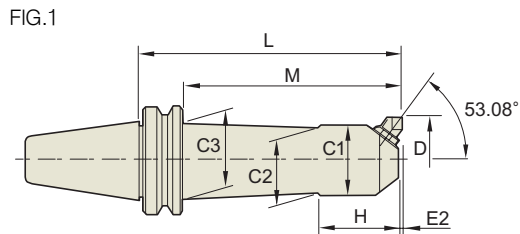
TAPER No.	CODE No.	FIG.	D		L	M	C1	C2	C3	H	E1	E2	UNIT	INSERT	Weight (kg)
			Min	Max											
30	BT30-BCA13.5-105	1	13.5	16	105	68	12	13.0	44	15	5	0.2	M1B2 E/F	BRAZED TYPE	
	BT30-BCA14.5-105	1	14.5	17	105	68	13	14.0	44	15	5	0.2	M1B2 E/F	BRAZED TYPE	
	BT30-BCA16-105	3	16	22.5	105	73	14	15	-	18	-	0.2	M1A2 E/F	BRAZED TYPE	
	BT30-BCA19-120	1	19	23	120	85	16	18	44	23	3	0.2	M2B 2XC	CCGT0401	0.70
	BT30-BCA23-135	3	23	29	135	105	19	22	-	24	-	0.2	M3B 2XT	TBGTO601	0.70
	BT30-BCA29-150	1	29	41	150	115	25	28	44	30	8	0.2	M3A 2XT	TBGTO601	0.90
	BT30-BCA29-195	1	29	41	195	115	25	28	44	30	53	0.2	M3A 2XT	TBGTO601	
	BT30-BCA38-150	1	38	49	150	115	33	35	55	41	8	0.2	M5B 2XT	TCMT1102	1.40
	BT30-BCA38-210	1	38	49	210	175	33	37	55	41	8	0.2	M5B 2XT	TCMT1102	
	BT30-BCA46-150	1	46	66	150	115	38	41	55	45	8	0.2	M5A 2XT	TCMT1102	2.10
	BT30-BCA46-210	1	46	66	210	175	38	45	55	45	8	0.2	M5A 2XT	TCMT1102	
BT30-BCA62-165	2	62	87	165	135	51	-	-	-	-	0.2	M7A 2XT	TCMT16T3		
40	BT40-BCA13.5-105	1	13.5	16	105	68	12	13.0	44	15	5	0.2	M1B2 E/F	BRAZED TYPE	
	BT40-BCA14.5-105	1	14.5	17	105	68	13	14.0	44	15	5	0.2	M1B2 E/F	BRAZED TYPE	
	BT40-BCA16-105	3	16	22.5	105	73	14	15	-	18	-	0.2	M1A2 E/F	BRAZED TYPE	
	BT40-BCA19-120	1	19	23	120	85	16	18	44	23	3	0.2	M2B2XC	CCGT0401	1.50
	BT40-BCA23-135	3	23	29	135	105	19	22	-	24	-	0.2	M3B2XT	TBGTO601	1.50
	BT40-BCA29-150	1	29	41	150	115	25	28	44	30	8	0.2	M3A2XT	TBGTO601	1.50
	BT40-BCA29-195	1	29	41	195	115	25	28	44	30	53	0.2	M3A2XT	TBGTO601	2.00
	BT40-BCA38-150	1	38	49	150	115	33	35	55	41	8	0.2	M5B2XT	TCMT1102	1.80
	BT40-BCA38-210	1	38	49	210	175	33	37	55	41	8	0.2	M5B2XT	TCMT1102	2.20
	BT40-BCA46-150	1	46	66	150	115	38	41	55	45	8	0.2	M5A2XT	TCMT1102	2.10
	BT40-BCA46-210	1	46	66	210	175	38	45	55	45	8	0.2	M5A2XT	TCMT1102	2.30
	BT40-BCA62-165	2	62	87	165	135	51	-	-	-	-	0.2	M7A2XT	TCMT16T3	2.90
	BT40-BCA62-210	2	62	87	210	180	51	-	-	-	-	0.2	M7A2XT	TCMT16T3	3.60
	BT40-BCA83-150	2	83	108	150	120	63	-	-	-	-	0.2	M7A2XT	TCMT16T3	
	BT40-BCA83-210	2	83	108	210	180	63	-	-	-	-	0.2	M7A2XT	TCMT16T3	
BT40-BCA98-150	4	98	142	150	120	83	-	-	85	-	0.2	M10A2XT	TCMT16T3		

MICRO BORING BAR

MIKRO - BOHRSTANGE

TOOL
HOLDERS

MAS403-BT

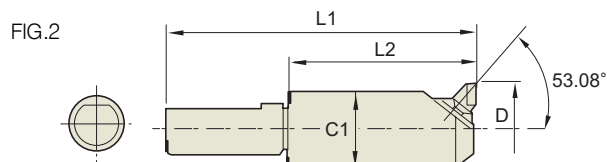
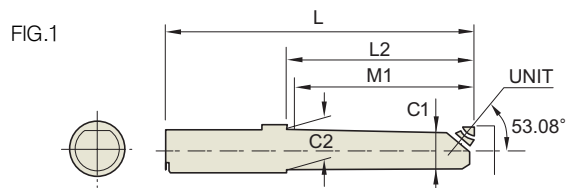


MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	FIG.	D		L	M	C1	C2	C3	H	E1	E2	UNIT	INSERT	Weight (kg)
			Min	Max											
50	BT50-BCA13.5-120	1	13.5	16	120	67	12	13	44	15	10	0.2	M1B2 E/F	-	
	BT50-BCA13.5-195	1	13.5	16	195	67	12	13	44	15	85	0.2	M1B2 E/F	-	
	BT50-BCA14.5-120	1	14.5	17	120	67	13	14	44	15	10	0.2	M1B2 E/F	-	
	BT50-BCA14.5-195	1	14.5	17	195	67	13	14	44	15	85	0.2	M1B2 E/F	-	
	BT50-BCA16-120	1	16	22.5	120	73	14	15	44	18	4	0.2	M1A2 E/F	-	
	BT50-BCA16-195	1	16	22.5	195	73	14	15	44	18	79	0.2	M1A2 E/F	-	
	BT50-BCA19-135	1	19	23	135	86	16	18	44	23	6	0.2	M2B2XC	CCGT0401	3.80
	BT50-BCA19-210	1	19	23	210	86	16	18	44	23	81	0.2	M2B2XC	CCGT0401	
	BT50-BCA23-150	1	23	29	150	105	19	22	44	24	2	0.2	M3B2XT	TBGT0601	3.90
	BT50-BCA23-225	1	23	29	225	105	19	22	44	24	77	0.2	M3B2XT	TBGT0601	
	BT50-BCA29-165	1	29	41	165	115	25	28	44	30	7	0.2	M3A2XT	TBGT0601	4.50
	BT50-BCA29-225	1	29	41	225	115	25	28	44	30	67	0.2	M3A2XT	TBGT0601	
	BT50-BCA38-165	1	38	49	165	115	33	35	55	41	7	0.2	M5B2XT	TCMT1102	
	BT50-BCA38-225	1	38	49	225	172	33	37	55	41	10	0.2	M5B2XT	TCMT1102	5.00
	BT50-BCA46-165	1	46	66	165	115	38	41	55	45	7	0.2	M5A2XT	TCMT1102	5.20
	BT50-BCA46-225	3	46	66	225	182	38	-	-	45	-	0.2	M5A2XT	TCMT1102	
	BT50-BCA46-255	1	46	66	255	206	38	-	55	45	6	0.2	M5A2XT	TCMT1102	5.70
	BT50-BCA62-180	2	62	87	180	137	51	-	-	-	-	0.2	M7A2XT	TCMT16T3	7.00
	BT50-BCA62-240	1	62	87	240	184	51	57	70	60	13	0.2	M7A2XT	TCMT16T3	7.60
	BT50-BCA62-330	1	62	87	330	280	51	60	70	60	7	0.2	M7A2XT	TCMT16T3	9.50
	BT50-BCA83-165	2	83	108	165	122	63	-	-	-	-	0.2	M7A2XT	TCMT16T3	
	BT50-BCA83-240	1	83	108	240	190	63	62	90	95	7	0.2	M7A2XT	TCMT16T3	
	BT50-BCA83-345	1	83	108	345	295	63	62	90	95	7	0.2	M7A2XT	TCMT16T3	
	BT50-BCA98-165	2	98	142	165	122	83	-	-	-	-	0.2	M10A2XT	TCMT16T3	
	BT50-BCA98-240	2	98	142	240	197	83	-	-	-	-	0.2	M10A2XT	TCMT16T3	
	BT50-BCA98-345	3	98	142	345	302	83	92	-	85	-	0.2	M10A2XT	TCMT16T3	
	BT50-BCA132-210	4	132	176	210	-	108	-	-	65	-	0.2	M10A2XT	TCMT16T3	
	BT50-BCA132-315	4	132	176	315	-	108	-	-	65	-	0.2	M10A2XT	TCMT16T3	
	BT50-BCA166-225	4	166	210	225	-	142	-	-	70	-	0.2	M10A2XT	TCMT16T3	
	BT50-BCA166-315	4	166	210	315	-	142	-	-	70	-	0.2	M10A2XT	TCMT16T3	
BT50-BCA200-210	4	200	244	210	-	176	-	-	75	-	0.2	M10A2XT	TCMT16T3		

MICRO BORING BAR MIKRO - BOHRSTANGE

ST

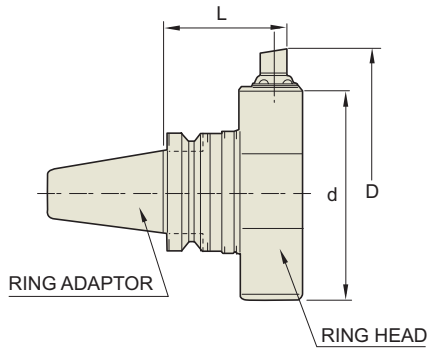


STYLE	CODE No.	FIG.	D		L1	L2	M1	C1	C2	MICRO UNIT	Weight (kg)
			Min	Max							
32	ST32-BCA13.5-75	1	13.5	16	135	75	67	12	13	M1B2E/F	0.5
	ST32-BCA14.5-75	1	14.5	17	145	75	67	12	14	M1B2E/F	0.5
	ST32-BCA16-90	1	16	22.5	160	90	82	14	15	M1A2E/F	0.5
	ST32-BCA19-90	1	19	23.0	160	90	82	16	18	M2B-2XC	0.5
	ST32-BCA23-120	1	23	29.0	190	120	110	19	22	M3B-2XT	1
	ST32-BCA29-120	1	29	41.0	190	120	110	25	28	M3A-2XT	1
	ST32-BCA38-120	2	38	49.0	190	120	115	33	35	M5B-2XT	1.5
	ST32-BCA46-120	2	46	66	190	120	115	38	-	M5A-2XT	1.5
42	ST32-BCA62-120	2	62	87.0	190	120	115	51	-	M7A-2XT	2.5
	ST42-BCA13.5-85	1	13.5	16	165	85	67	12	13	M1B2E or F	1.0
	ST42-BCA14.5-85	1	14.5	17	165	85	67	12	14	M1B2E or F	1.0
	ST42-BCA16-100	1	16	22.5	180	100	82	14	15	M1A2E or F	1.0
	ST42-BCA19-100	1	19	23.0	180	100	82	16	18	M2B2E or F	1.0
	ST42-BCA23-120	1	23	29.0	200	120	110	19	22	M3B-2XT	1.5
	ST42-BCA29-120	1	29	41.0	200	120	110	25	28	M3A-2XT	1.5
	ST42-BCA38-130	1	38	49.0	210	130	125	33	35	M5B-2XT	1.5
	ST42-BCA46-135	1	46	66.0	215	135	130	38	44	M5A-2XT	1.5
	ST42-BCA62-135	2	62	87.0	215	135	130	51	-	M7A-2XT	2.5
ST42-BCA83-150	2	83	108	230	150	145	63	-	M7A-2XT	3.0	

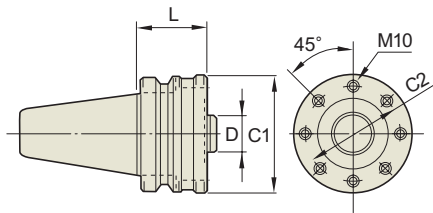
LARGE SIZE MICRO CUT BORING BAR(BRA)

MAS403-BT

■ BORING RING HOLDER

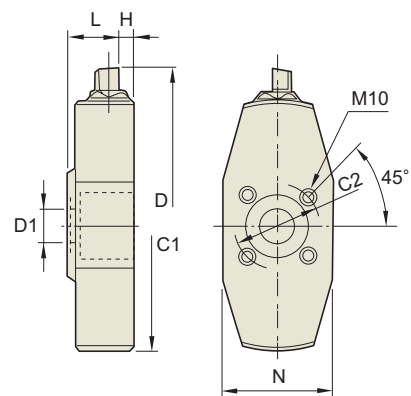


CODE NO.	d	D	L
BT50-BRA140-105	140	197	105
BT50-BRA140-165	140	197	165
BT50-BRA191-105	191	248	105
BT50-BRA191-165	191	248	165
BT50-BRA242-105	242	299	105
BT50-BRA242-165	242	299	165
BT50-BRA293-105	293	350	105
BT50-BRA293-165	293	350	165
BT50-BRA344-105	344	401	105
BT50-BRA344-165	344	401	165
BT50-BRA395-105	395	452	105
BT50-BRA395-165	395	452	165



■ RING ADAPTER

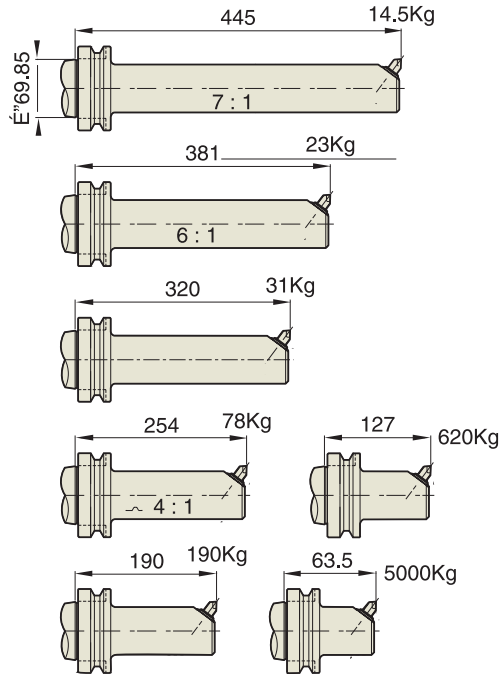
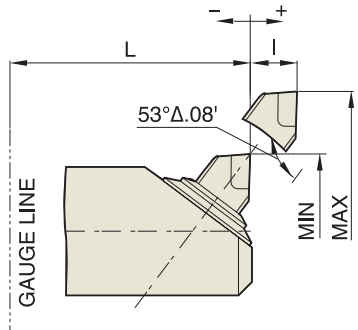
CODE NO.	D(h6)	L	C1	C2
BT50-RAA32- 60	32	60	102	82
BT50-RAA32-120	32	120	102	82



■ RING HEAD

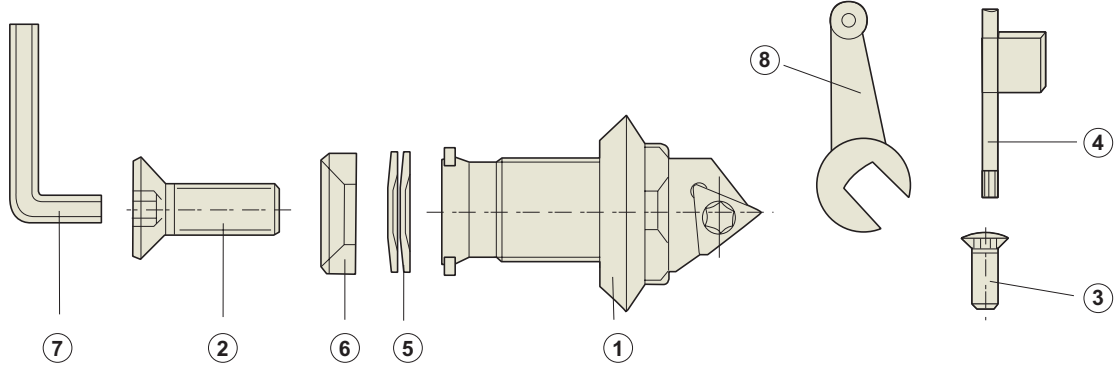
CODE No.	D1(H7)	D		L	C1	C2	H	N	MICRO UNIT
		Min	Max						
RH32-BCA140	32	140	197	45	102	82	14	—	M10A2XT
RH32-BCA191	32	191	248	45	136	82	14	—	M10A2XT
RH32-BCA242	32	242	299	45	184	82	14	103	M10A2XT
RH32-BCA293	32	293	350	45	234	82	14	103	M10A2XT
RH32-BCA344	32	344	401	45	284	82	14	103	M10A2XT
RH32-BCA395	32	395	452	45	36	82	14	103	M10A2XT

STRENGTH OF BORING BAR AND COMPARISON TABLE OF MICRO UNITS

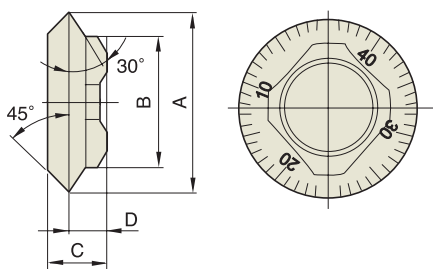


BORING BAR CODE NO.	BRAZED TYPE B EF		SCREW ON TYPE			Insert Spec
	MIN	MAX	MIN	MAX	∠L	
BCA 19	M2B2	M2B2				CCGT0401
	19	23			-1.9	CCGT0401
BCA 23	M3B2	M3B2	M3B2XT	M3B2XT	M3B2XT	TBGT 060102
	23	29	24.9	30.9	-1.9	TBGT 060102
BCA 29	M3A2	M3A2	M3A2XT	M3A2XT	M3A2XT	TBGT 060102
	29	41.8	30.9	43.8	-1.9	TBGT 060102
BCA 38	M5B2	M5B2	M5B2XT	M5B2XT	M5B2XT	TCMT 110204
	38	49.2	40.9	52.1	-1.9	TCMT 110204
BCA 46	M5A2	M5A2	M5A2XT	M5A2XT	M5A2XT	TCMT 110204
	46	66.6	48.9	69.5	-1.9	TCMT 110204
BCA 62	M7A2	M7A2	M7A2XT	M7A2XT	M7A2XT	TCMT 16T304
	62	87.4	62	87.4	0	TCMT 16T304
BCA 83	M7A2	M7A2	M7A2XT	M7A2XT	M7A2XT	TCMT 16T304
	83	108.4	83	108.4	0	TCMT 16T304
BCA 98	M10A2	M10A2	M10A2XT	M10A2XT	M10A2XT	TCMT 16T304
	98	142.4	98	142.4	0	TCMT 16T304
BCA 132	M10A2	M10A2	M10A2XT	M10A2XT	M10A2XT	TCMT 16T304
	132	176.4	132	176.4	0	TCMT 16T304
BCA 166	M10A2	M10A2	M10A2XT	M10A2XT	M10A2XT	TCMT 16T304
	166	210.4	166	210.4	0	TCMT 16T304
BCA 200	M10A2	M10A2	M10A2XT	M10A2XT	M10A2XT	TCMT 16T304
	200	244.4	200	244.4	0	TCMT 16T304

MICRO UNIT SPARE PART

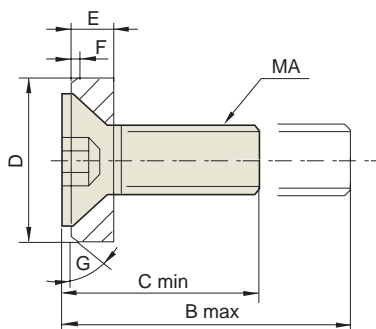


ORDER NO.		M1A-B	M2A-B	M3A-B	M5A-B	M5A-B	M7A-B	M10A-B	
PART NAME									
1	DIAL NUT	Slant Angle	1-40	2-40	3-40	5-40	5-40	7-80	10-80
		Right Angle	1-50	2-50	3-50	5-50	5-50	7-100	10-100
2	CARTRIDGE BOLT	M-A	F-M3-0.5-8	F-M3-0.5-12	F-M4-0.7-15	F-M6-1.0-25	F-M6-1.0-25	F-M10-1.5-30	M12-1,75-50
		M-B	M-M3-0.5-6	M-M3-0.5-10	M-M4-0.7-12	M-M6-1.0-20	M-M6-1.0-20	M-M10-1.5-25	M12-1,75-35
3	INSERT SCREW		S1845L5	S1845L5	S2045L6	S2555L6	S2555L6	S4095L6	S4095L6
4	T-WRENCH		T6	T6	T6	T8	T8	T15	T15
5	SPRING WASHER			CB-2	CB-3	CB-5	CB-5	CB-7	CB-10
6	MOUNTING WASHER			2306	3306	5306	5306	7306	10306
7	L-WRENCH		WR-2	WR-2	WR-2.5	WR-4	WR-4	WR-6	WR-8
8	SPANNER		GS12	GS12	GS35	GS35	GS35	GS710	GS710



GRADUATED DIAL UNIT

SIZE	A	B	C	D
M1	9.53	6.99	4.45	2.54
M2	12.7	9.53	5.08	3.30
M3	15.88	11.3	5.59	3.56
M5	25.4	19.05	8.76	4.83
M7	34.93	25.40	11.68	7.11
M10	44.45	34.93	13.84	7.49

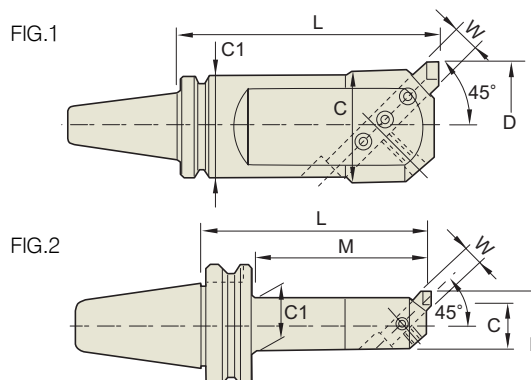


LOCK SCREW AND WASHER

SIZE	A	B	C	D	E	F	G
M1	M3	8	6	-	-	-	-
M2	M3	12	10	7.82	1.83	0.5	45°
M3	M4	15	12	10.9	2.46	1.0	45°
M5	M6	25	20	15.7	4.32	0.8	37°
M7	M10	30	25	23.7	6.35	1.30	37°
M10	M12	50	35	31.6	7.92	2.5	37°

SQUARE BORING BAR (45°) VIERKANT - BOHRSTANGE (45°)

MAS403-BT



MAS403 -BT	Taper Accuracy AT3	G Value	RPM	Coolant System
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TAPER No.	CODE No.	D		L	C	C1	W	M	Weight (kg)
		Min	Max						
30	BT30-BSA25-120	25	38	120	20	22	8	90	1.0
	BT30-BSA30-135	30	42	135	24	26	8	105	1.1
	BT30-BSA38-150	38	52	150	30	33	10	120	1.4
	BT30-BSA42-150	42	56	150	34	37	10	125	1.6
	BT30-BSA50-150	50	65	150	40	44	13	125	1.8
40	BT40-BSA25-135	25	38	135	20	22	8	108	1.3
	BT40-BSA30-165	30	42	165	24	26	8	138	1.5
	BT40-BSA38-180	38	52	180	30	33	10	153	1.8
	BT40-BSA42-210	42	56	210	34	37	10	183	2.3
	BT40-BSA50-180	50	65	180	40	44	13	153	2.4
	BT40-BSA50-225	50	65	225	40	44	13	198	2.9
	BT40-BSA62-180	62	90	180	50	54	16	153	3.2
	BT40-BSA62-240	62	90	240	50	54	16	213	4.2
	BT40-BSA72-180	72	110	180	60	63	19	153	4.4
	BT40-BSA72-240	72	110	240	60	63	19	213	5.7
	BT40-BSA90-180	90	125	180	75	63	19	153	5.4
50	BT50-BSA25-135	25	38	135	20	22	8	95	4.4
	BT50-BSA30-165	30	42	165	24	26	8	125	4.6
	BT50-BSA38-180	38	52	180	30	33	10	140	4.8
	BT50-BSA42-210	42	56	210	34	37	10	170	5.0
	BT50-BSA50-180	50	65	180	40	44	13	140	5.4
	BT50-BSA50-240	50	65	240	40	44	13	200	5.7
	BT50-BSA62-195	62	90	195	50	54	16	155	6.1
	BT50-BSA62-270	62	90	270	50	54	16	230	7.5
	BT50-BSA72-195	72	110	195	60	66	19	155	6.9
	BT50-BSA72-285	72	110	285	60	66	19	245	9.3
	BT50-BSA90-210	90	125	210	75	80	19	170	9.2
	BT50-BSA90-300	90	125	300	75	80	19	260	12.3
	BT50-BSA105-195	105	160	195	90	90	25	157	10.5
BT50-BSA105-285	105	160	285	90	90	25	247	14.8	

SQUARE BORING BAR (90°) VIERKANT - BOHRSTANGE (90°)

MAS403-BT

FIG.1

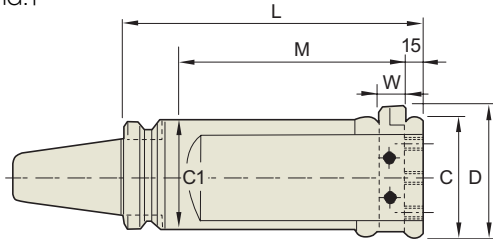
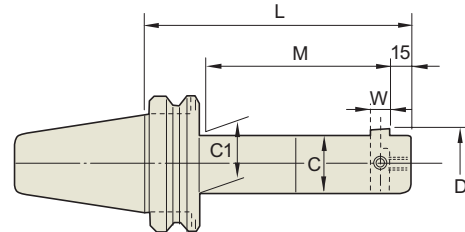


FIG.2


 MAS403
-BT

 Taper
Accuracy
AT3

G Value

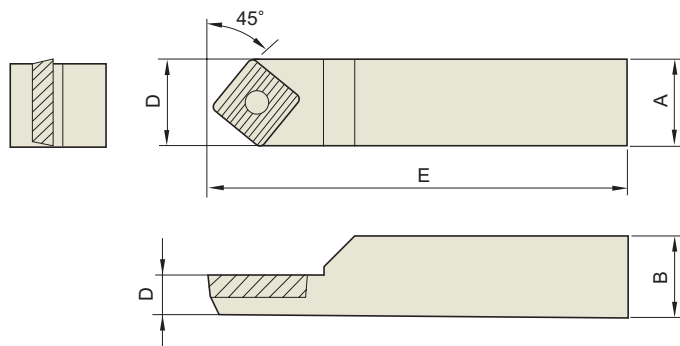
RPM

 Coolant
System

TAPER No.	CODE No.	D		L	C	C1	W	M	Weight (kg)
		Min	Max						
30	BT30-BSB25-120	25	50	120	20	22	8	90	1.1
	BT30-BSB38-150	38	70	150	30	33	10	120	1.5
	BT30-BSB50-150	50	90	150	40	44	13	125	2.2
40	BT40-BSB25-135	25	50	135	20	22	8	108	1.3
	BT40-BSB38-180	38	70	180	30	33	10	153	1.9
	BT40-BSB50-180	50	90	180	40	44	13	153	2.6
	BT40-BSB50-225	50	90	225	40	44	13	198	3.1
	BT40-BSB62-180	62	115	180	50	56	16	153	3.4
	BT40-BSB62-225	62	115	225	50	56	16	198	4.1
	BT40-BSB72-180	72	135	180	60	66	19	153	4.7
	BT40-BSB72-225	72	135	225	60	66	19	198	5.6
	BT40-BSB90-180	90	150	180	75	80	19	153	5.7
	BT40-BSB90-225	90	150	225	75	80	19	198	6.6
50	BT50-BSB25-135	25	50	135	20	22	8	95	4.1
	BT50-BSB38-180	38	70	180	30	33	10	140	4.8
	BT50-BSB50-180	50	90	180	40	44	13	140	5.5
	BT50-BSB50-240	50	50	240	40	44	13	200	5.7
	BT50-BSB62-195	62	115	195	50	56	16	155	6.4
	BT50-BSB62-270	62	115	270	50	56	16	230	7.9
	BT50-BSB72-195	72	135	195	60	66	19	155	7.3
	BT50-BSB72-285	72	135	285	60	66	19	245	9.6
	BT50-BSB90-210	90	150	210	75	80	19	170	9.6
	BT50-BSB90-300	90	150	300	75	80	19	260	12.6
	BT50-BSB105-195	105	190	195	90	-	25	155	11.1
BT50-BSB105-285	105	190	285	90	94	25	245	15.4	

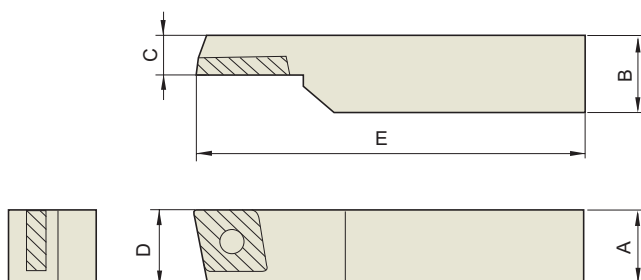
SQUARE BITE

TOOL
HOLDERS



classification Size	A	B	C	D	E	SCREW	WRENCH	INSERT
SBC08-45	08	08	6.3	8.39	70	SSB-2506	T7	CCMT0602
SBC10-45	10	10	7	10.39	70	SSB-2506	T7	CCMT0602
SBC13-45	13	13	10	13.6	80	SSB-4009	T15	CCMT09T3
SBC16-45	16	16	11	16.68	100	SSB-5012	T15	CCMT1204
SBC19-45	19	19	11	19.68	100	SSB-5012	T15	CCMT1204
SBC25-45	25	25	12.5	25.68	120	SSB-5012	T15	CCMT1204

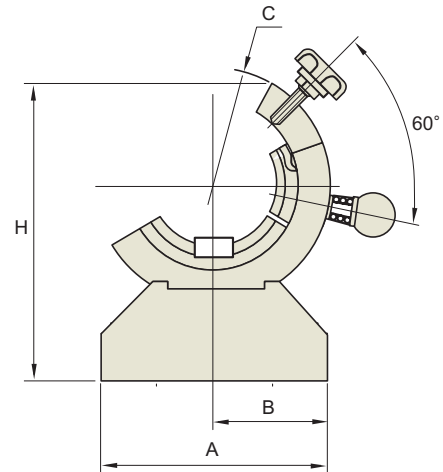
SQUARE BITE



classification Size	A	B	C	D	E	SCREW	WRENCH	INSERT
SBC08-90	08	08	6.3	8.4	70	SSB-2506	T7	CCMT0602
SBC10-90	10	10	7	10.4	70	SSB-2506	T7	CCMT0602
SBC13-90	13	13	10	13.6	80	SSB-4009	T15	CCMT09T3
SBC16-90	16	16	11	16.7	100	SSB-5012	T15	CCMT1204
SBC19-90	19	19	11	19.7	100	SSB-5012	T15	CCMT1204
SBC25-90	25	25	12.5	25.7	120	SSB-5012	T15	CCMT1204

TOOL CLAMPER MONTAGEVORRICHTUNGEN

TOOL
HOLDERS

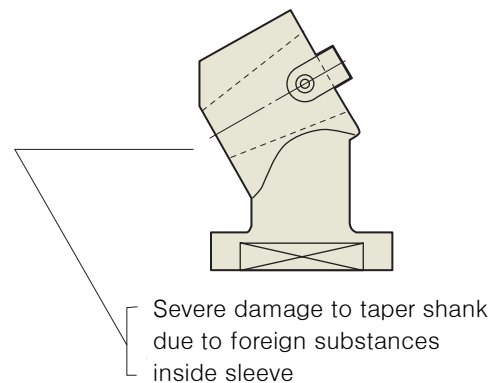


Flange Clamping	Taper Clamping
YES	NO

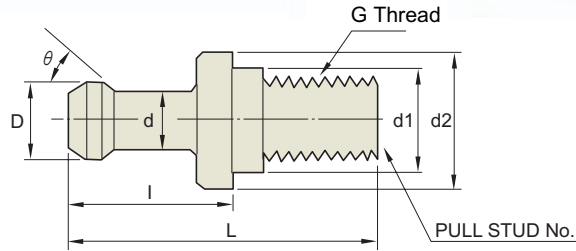
TAPER No.	CODE No.	A	B	C	H	Weight (kg)
BT30	TCP30	125	65	108	135	3.0
BT40	TCP40	160	80	138	180	7.6
BT50	TCP50	180	90	165	205	8.6
SK30	TSK30	125	65	108	135	3.0
SK40	TSK40	160	80	138	180	7.6
SK50	TSK50	180	90	165	205	8.6

FEATURES

1. No surface damage such as abrasion and scratch around taper shank closely associated with tool runout
2. Easy to assemble and disassemble pull stud bolt
3. Convenient and safe when using spanner wrench with milling chuck or ER collet chuck



PULL STUD BOLT ANZUGBOLZEN



CODE No.	D	d2	d1	d	L	l	G	θ	TYPE
PS-1	15	23	17	10	60	35	M16	45°	BT40- I standard type
PS-2	15	23	17	10	60	35	M16	60°	BT40- II standard type
PS-5	23	38	25	17	85	45	M24	45°	BT50- I standard type
PS-6	23	38	25	17	85	45	M24	60°	BT50- II standard type
PS-16	11	16.5	12.5	7	43	23	M12	45°	BT30- I standard type
PS-17	11	16.5	12.5	7	43	23	M12	60°	BT30- II standard type
PS-0	23	38	25	17	85	45	M24	90°	For BT50 OKK
PS-08	15	23	17	10	60	35	M16	90°	For BT40 OKK
PS-P	24	36	25	18	71	31	M24	90°	For BT50 MITISUI SEIKI
PS-P5	15	23	17	10	50	25	M16	90°	For BT40 MITISUI SEIKI
PS-G41	29	37	25	21	65.2	25.2	M24	45°	For BT50 MASAK
PS-G51	18.8	22	17	12	44.1	19.1	M16	45°	For BT40 MASAK
PS-S2	25	39	25	18	95	55	M24	60°	For SHIN NIPPON KOKI
PS-F1	23	39	25	18	104	64	M24	45°	For MITSUBISHI
PS-B1	22	38	25	16	112	72	M24	60°	For OKUMA
PSS-1	19	23	17	14	54	26	M16	75°	For SK40
PSS-5	28	36	25	21	74	34	M24	75°	For SK50

- ▶ Other special sizes of hydraulic chucks will be manufactured.
- ▶ Through hole type ("H" type) is available upon request .

COMPARISON TABLE OF PULL STUD

MACHINE MANUFACTURER	PS / BOLT	PS / BOLT	PS / BOLT	MACHINE MANUFACTURER	PS / BOLT	PS / BOLT	PS / BOLT
DOOSAN	ACE-TC400	BT30	PS-16	DOOSAN	NR 510M	BT50	PS-5
	ACE-TC320D	BT30	PS-16		NR 700	BT50	PS-5
	Mynx NM410	BT40	PS-1		VM560/50	BT50	PS-5
	Mynx 410	BT40	PS-5		VM 70(H)	BT50	PS-5
	Mynx 500	BT50	PS-5		VM 84	BT50	PS-5
	Mynx 650	BT50	PS-5		VM 925L	BT50	PS-5
	Mynx 750	BT50	PS-1		NX 5000	BT50	PS-5
	ACE-VM5410/510	BT40	PS-1		ACE-HC400/500	BT40	PS-1
	ACE-VM710	BT50	PS-5		ACE-HM500/630/800	BT50	PS-5
	ACE-VM900/950	BT50	PS-1		ACE-H100	BT50	PS-5
	ACE-V430	BT40	PS-1		ACE-HP4000/5100	BT40	PS-1
	ACE-VC500	BT40	PS-1		ACE-HP400	BT40	PS-1
	ACE-VMD450	BT40	PS-1		ACE-HP500/630	BT50	PS-5
	ACE-VMD600	BT40	PS-1				

PULL STUD BOLT

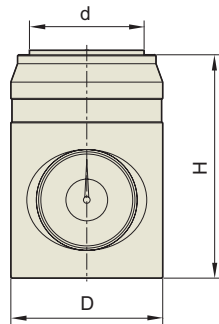
COMPARISON TABLE OF PULL STUD

MACHINE MANUFACTURER	PS / BOLT	PS / BOLT	PS / BOLT	MACHINE MANUFACTURER	PS / BOLT	PS / BOLT	PS / BOLT
WIA	VX380T/420T	BT30	PS-16	HWACHEON	SIRIUS-650/650N	BT50	PS-0
	MX380/420	BT30	PS-16		SIRIUS-850/850N	BT50	PS-0
	VX400/460	BT40	PS-1		SIRIUS-700	BT50	PS-0
	KV45/45P	BT40	PS-1		SIRIUS-12580	BT50	PS-0
	VX500	BT40	PS-1	S&T	TCH-45	BT40	PS-1
	VX510M/660M	BT40	PS-1		TCH-50	BT50	PS-6
	VX700/40	BT40	PS-1		TCH-80	BT50	PS-6
	VX700/50	BT50	PS-5		TCH-80TS	BT50	PS-6
	VX750	BT50	PS-5		FX-500H	BT40	PS-2
	VX500/50	BT50	PS-6		TNV-40A	BT40	PS-1
KV60N/90	BT50	PS-5	TNV-80A		BT40	PS-1	
SEMC	Any Mill LCV30A/B	BT30	PS-17	TNV-650V	BT50	PS-6	
	Any Mill LCV55S	BT50	PS-6	HASS	TM-1/2	BT40	PS-1
	Any Mill LCV650S	BT50	PS-5		VF-4SS/3SS/2SS	BT40	PS-1
	Any Mill ICV66	BT50	PS-5		VF-2TR	BT40	PS-1
	Any Mill ICV80	BT50	PS-5		VF-5/50TR	BT50	PS-5
	DMC-3000	BT50	PS-0		VF-9/50	BT50	PS-5
	PCH40	BT40	PS-1		VF-8/50	BT50	PS-5
	PCH50	BT50	PS-5		MAZAK		BT40
				BT50		PS-G41	
HWACHEON	SIRIUS-1	BT30	PS-16	MORI SEKI		BT40	PS-O8
	SIRIUS-550	BT40	PS-1			BT50	PS-51
	SIRIUS-UL/ULG	BT40	PS-1				
	SIRIUS-7040	BT50	PS-0				

MHP-100/HP-100

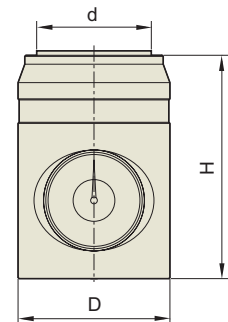
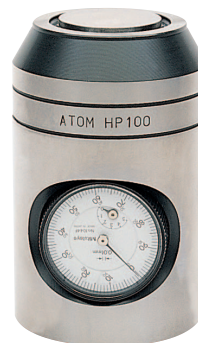
HEIGHT PRESETTER

· Magnetic Height Pesetter



- * Both vertical and horizontal type usable
- * Slim design

· Height Presetter



- * Exclusively for vertical

CODE NO.	D	H	d	DIAL
MHP-100 (magnetic)	98	100	62	0.01
HP-100	68	100 * /- 0.01	62	0.01

3D TESTER



◀ HOFFMANN (GERMANY)

1. Measurement of inner diameter and outer diameter in all 3 axes(X,Y,Z) with analogue values indicated by scale hand and quick zero setting. When measuring edge in all 3 axes(X,Y,Z) with scale hand indicating 12H, spindle axis is exactly situated at zero point of material to be cut. Calculation is not needed and there is no trial and error.
2. Wide common use : Such as functioning as calipers with single tool (Determining length, height, diameter and center)
3. Various use and quick exchange by 3 kinds of styluses : Special tool is not needed and screw doesn't need unfastening. So it is convenient and accurate plug-in fixed mechanism. (Readjustment is not needed when exchanging same styluses)
4. Max 0.01mm center is pre-adjusted before supplying.

TECHNICAL DETAILS

Display accuracy	Tolerance	0.01
Measuring accuracy	measured tolerance	0.01
Displacement travel x,y,z respectively	measurement range	7
Overall length (body and contact point)	Overall length	134
Display	Outer diameter size	50
Clamping shank	T8	16

ZERO MASTER



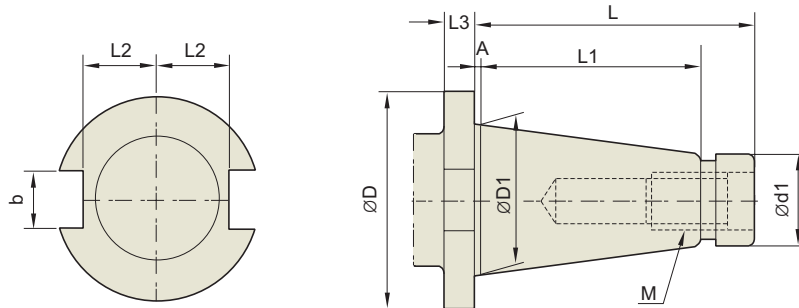
▲ HAIMER(GERMANY)

- ▶ QUICK ZERO SETTING FOR ALL MACHINES AND EDM
 - Easy to read and no detection error by special digital specifications
 - Measurement of inner and outer diameters in all 3 axes(X,Y,Z) and quick zero setting
 - Functioning as calipers with single tool (Determining length, height, diameter and center)
 - Reducing damage by 2 kinds of styluses with wide operation range
 - Reducing damage by 2 kinds of styluses with wide operation range

TECHNICAL DETAILS

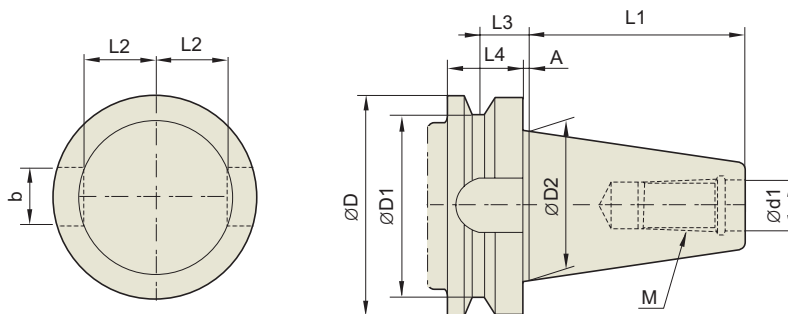
ACCURACY	0.01mm
SIZE	30×13mm
NOTCH	0.01mm
CLAMPING SHANK	∅12
RANGE	100mm
BATTERY DURATION	3.00/hr

DIN 2080 - NT



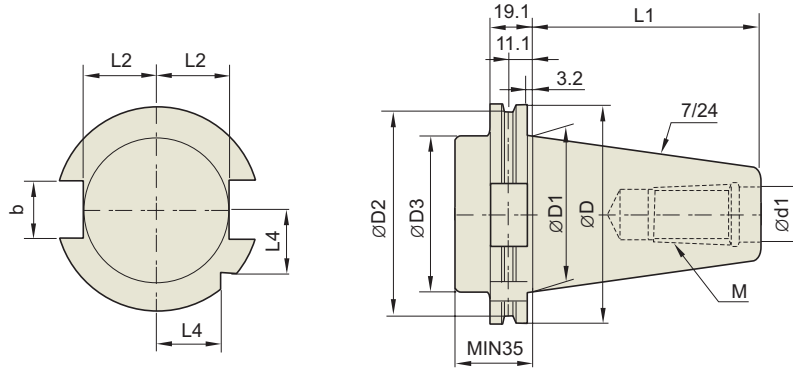
TAPER No.	ØD	ØD1	ØD2	L	L1	L2	L3	A	b	M
NT30	46	31.75	17.4	68.4	48.4	16.2	10	1.6	16.1	1/2-13UNC
NT40	63	44.45	25.3	93.4	65.4	22.5	10	1.6	16.1	UNC 5/8-11
NT50	100	69.85	39.6	126.8	101.8	35.3	12	3.2	25.7	UNC 1-8
NT60	155	107.95	60.2	206.8	161.8	60	15	3.2	25.7	UNC 1,1/4-7

MAS 403-BT Bottle Grip Taper



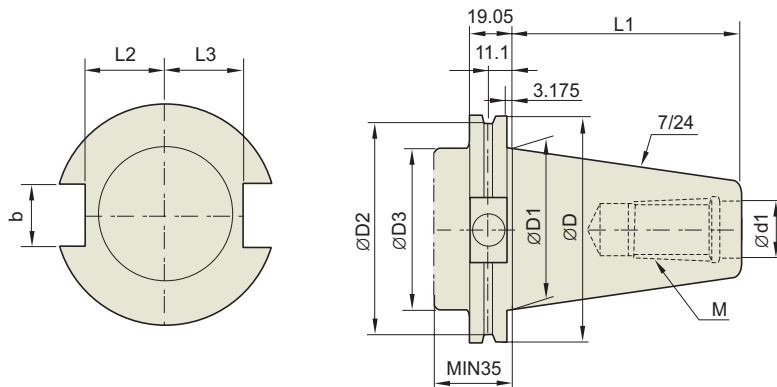
TAPER No.	ØD	ØD1	ØD2	Ød1	L1	L2	L3	L4	A	b	M
BT30	46	31.75	38	12.5	48.4	16.3	13.6	20	2	16.1	M12×1.75
BT40	63	44.45	53	17	65.4	22.6	16.6	25	2	16.1	M16×2
BT50	100	69.85	85	25	101.8	35.4	23.2	35	3	25.7	M24×3
BT60	155	107.95	135	31	161.8	60.1	28.2	45	3	25.7	M30×3.5

DIN 69871 - SK



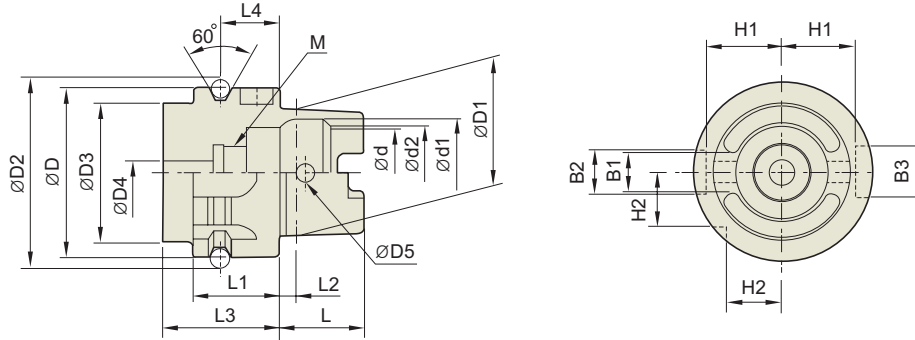
TAPER No.	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	L4	b	M
SK30	50	31.75	44.3	45	13	47.8	16.4	19	15	16.1	M12×1.75
SK40	63.55	44.45	56.25	50	17	68.4	22.8	25	18.5	16.1	M16×2.0
SK50	97.5	69.85	91.25	80	25	101.75	35.5	37.7	30	25.7	M24×3.0

CAT SHANK ANSI B5.50 CH



TAPER No.	ØD	ØD1	ØD2	ØD3	Ød1	L1	L2	L3	b	M
CAT30	50	31.75	44.3	31.75	13	47.625	16.25	18.67	16.1	UNC1/2-13
CAT40	63.55	44.45	56.25	44.45	17	68.25	22.60	25	16.1	UNC5/8-11
CAT50	97.5	69.85	91.25	70.1	25	101.6	35.3	37.7	25.7	UNC1-18
CAT60	155	107.95	132.56	108	32	161.93	54	59.3	25.7	UNC1,1/4-7

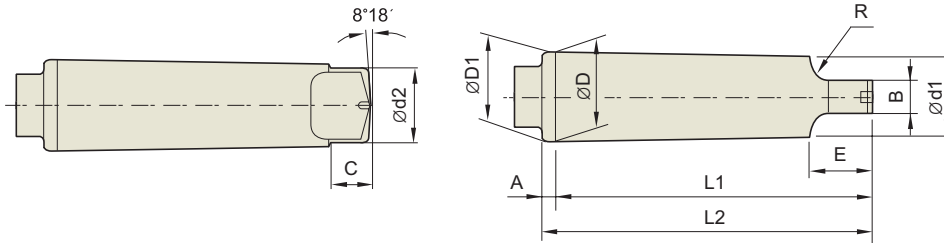
DIN69893 - HSK



TAPER No.	ØD	ØD1	ØD2	ØD3	ØD4	ØD5	L	L1	L2	L3	L4
HSK 40A	40	30	45.00	34	5.0	4.6	20	20	4.0	35	16
HSK 50A	50	38	59.30	42	6.8	6.0	25	26	5.0	42	18
HSK 63A	63	48	72.30	53	8.4	7.5	32	26	6.3	42	18
HSK100A	100	75	109.75	85	12.0	12.0	50	29	10.0	45	20

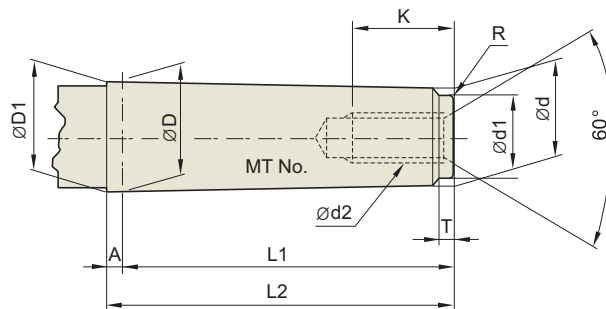
TAPER No.	Ød	Ød1	Ød2	B1	B2	B3	H1	H2	M
HSK 40A	21	25.5	23	8.05	11	9	17.0	12.0	M12×1.0
HSK 50A	26	32.0	29	10.54	14	12	21.0	15.5	M16×1.0
HSK 63A	34	40.0	37	12.54	18	16	26.5	20.0	M18×1.0
HSK100A	53	63.0	58	20.02	22	20	44.0	31.5	M24×1.5

MORSE TAPER - TANG TYPE



TAPER	TAPER	TAPER ANGLE(α)	$\varnothing D$	A	$\varnothing D1$	$\varnothing d1$	L1	L2	$\varnothing d2$	B	C	E	R
MT0	1/19.212	1°29'27"	9.045	3	9.201	6.104	56.5	59.5	6.0	3.9	6.5	10.5	4
MT1	1/20.047	1°25'43"	12.065	3.5	12.240	8.972	62.0	65.5	8.7	5.2	8.5	13.5	5
MT2	1/20.020	1°25'50"	17.780	5	18.030	14.034	75.0	80.0	13.5	6.3	10	16	6
MT3	1/19.922	1°26'16"	23.825	5	24.076	19.107	94.0	99.0	18.5	7.9	13	20	7
MT4	1/19.254	1°29'15"	31.267	6.5	31.605	25.164	117.5	124.0	24.5	11.9	16	24	8
MT5	1/19.002	1°30'26"	44.399	6.5	44.741	36.531	149.5	156.0	35.7	15.9	19	29	10
MT6	1/19.180	1°29'36"	63.348	8	63.765	52.399	210.0	218.0	51.0	19.0	27	40	13
MT7	1/19.231	1°29'22"	83.058	10	83.578	68.186	286.0	296.0	66.8	28.6	35	54	19

MORSE TAPER - SCREW TYPE



TAPER	TAPER	TAPER ANGLE(α)	$\varnothing D$	A	$\varnothing D1$	d	L1	L2	$\varnothing d1$	d2	K	T	R
MT0	1/19.212	1°29'27"	9.045	3	9.201	6.442	50	53	6.4	-	-	4	0.2
MT1	1/20.047	1°25'43"	12.065	3.5	12.230	9.396	53.5	57	9.4	M6	16	5	0.2
MT2	1/20.020	1°25'50"	17.780	5	18.030	14.583	64	69	14.6	M10	24	5	0.2
MT3	1/19.922	1°26'16"	23.825	5	24.076	19.759	81	86	19.8	M12	28	7	0.6
MT4	1/19.254	1°29'15"	31.267	6.5	31.605	25.943	102.5	109	25.9	M16	32	9	1
MT5	1/19.002	1°30'26"	44.399	6.5	44.741	37.584	129.5	136	37.6	M20	40	9	2.5
MT6	1/19.180	1°29'36"	63.348	8	63.765	53.859	182	190	53.9	M24	50	12	4
MT7	1/19.231	1°29'22"	83.058	10	83.578	70.058	250	260	70.0	M33	80	18.5	5

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DH453	70	E2757	940	E9A33	887	EM834	620
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