

DORMER PRAMET

NEW PRODUCTS

2021



 **DORMER**

 **PRAMET**

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- ECONOMICAL MILLING CUTTERS AND INSERTS



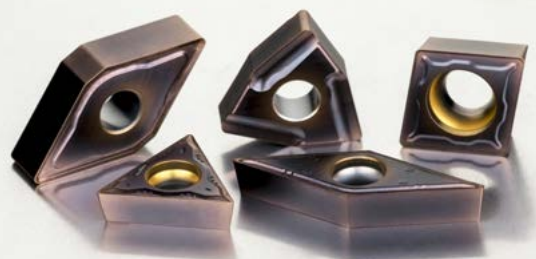
52 GL

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66 T8430

- NEW GENERATION PVD GRADE



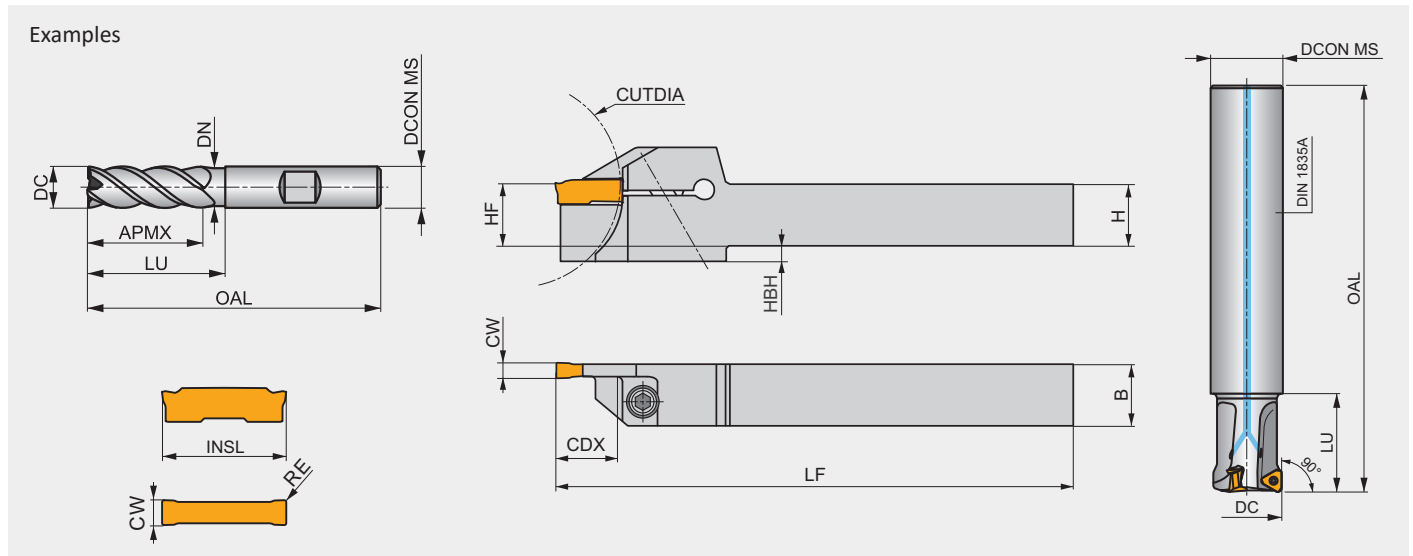
ISO group		WMG (Work Material Group)		Hardness (HB or HRC)	Ultimate Tensile Strength (MPa)	Examples of material (AISI, EN, DIN, SS, STN, BS, UNE, CN, AFNOR, GOST, UNI,...)		
P	P1	P1.1	Free machining steel (carbon steels with increased machinability)	sulfurized	< 240 HB	≤ 830	AISI 1108, EN 15522, DIN 1.0723, SS 1922, ČSN 11120, BS 210A15, UNE F.210F, GB Y15, AFNOR 10F1, GOST A30, UNI CF10520	
		P1.2		sulfurized and phosphorized	< 180 HB	≤ 620	AISI 1211, EN 115Mn30, DIN 1.0715, SS 1912, ČSN 11109, BS 230M7, UNE F.2111, GB Y15, AFNOR S250, GOST A40G, UNI CF95Mn28	
		P1.3		sulfurized/phosphorized and leaded	< 180 HB	≤ 620	AISI 12L13, EN 115MnPb30, DIN 1.0718, SS 1914, ČSN 12110, BS 210M16, UNE F.2114, GB Y15Pb, AFNOR S250Pb, GOST A53G62, UNI CF105Pb20	
	P2	P2.1	Plain carbon steel (steels comprised of mainly iron and carbon)	containing <0.25%C	< 180 HB	≤ 620	AISI 1015, EN C15, DIN 1.0401, SS 1350, ČSN 11301, BS 080A15, UNE F.111, GB 15, AFNOR C18RR, GOST S2ps, UNI Fe360	
		P2.2	containing <0.55%C	< 240 HB	≤ 830	AISI 1030, EN C30, DIN 1.0528, SS 1550, ČSN 12031, BS 080M32, UNE F.1130, GB 30, AFNOR AF50C30, GOST 30G, UNI Fe590		
		P2.3	containing >0.55%C	< 300 HB	≤ 1030	AISI 1060, EN C60, DIN 1.0601, SS 1655, ČSN 12061, BS 080A62, UNE F.513, GB 60, AFNOR 1C60, GOST 60G, UNI C60		
	P3	P3.1	Alloy steel (carbon steels with an alloying content ≤ 10%)	annealed	< 180 HB	≤ 620	AISI 5015, EN 16Mo3, DIN 1.5415, SS 2912, ČSN 15020, BS 1501-240, UNE F.2601, GB 16Mo, AFNOR 15D3, GOST 15M, UNI 16Mo3KW	
		P3.2		hardened and tempered	180 - 260 HB	> 620 ≤ 900	AISI 4140, EN 42CrMo4, DIN 1.7225, SS 2244, ČSN 15142, BS 708M40, UNE F.8232, GB 42CrMo, AFNOR 42CD4, GOST 40ChFA, UNI 42CrMo4	
		P3.3			260 - 360 HB	> 900 ≤ 1240	AISI 4140, EN 42CrMo4, DIN 1.7225, SS 2244, ČSN 15142, BS 708M40, UNE F.8232, GB 42CrMo, AFNOR 42CD4, GOST 40ChFA, UNI 42CrMo4	
	P4	P4.1	Tool steel (special alloy steel for tools, dies and molds)	annealed	< 26 HRC	≤ 900	AISI D2, EN X155GVMo12-1, DIN 1.2370, SS 2736, ČSN 19573, BS BD2, UNE F.520A, GB Cr12Mo1V1, AFNOR Z160CDV12, GOST Ch12MF, UNI X155GVMo121KU	
P4.2		hardened and tempered		26 - 39 HRC	> 900 ≤ 1240	AISI D2, EN X155GVMo12-1, DIN 1.2370, SS 2736, ČSN 19573, BS BD2, UNE F.520A, GB Cr12Mo1V1, AFNOR Z160CDV12, GOST Ch12MF, UNI X155GVMo121KU		
P4.3				39 - 45 HRC	> 1240 ≤ 1450	AISI D2, EN X155GVMo12-1, DIN 1.2370, SS 2736, ČSN 19573, BS BD2, UNE F.520A, GB Cr12Mo1V1, AFNOR Z160CDV12, GOST Ch12MF, UNI X155GVMo121KU		
M	M1	M1.1	Ferritic stainless steel (straight chromium non-hardenable alloys)		< 160 HB	≤ 520	AISI 5429, EN X7Cr14, DIN 1.4001, SS 2326, BS 434517, UNE F.3401, AFNOR Z8C12, GOST 08Ch13, UNI X6CrTi12	
		M1.2			160 - 220 HB	> 520 ≤ 700	AISI 446, EN X10CrAl24, DIN 1.4762, SS 2322, ČSN 17113, BS 430517, UNE F.3154, GB 10Cr17, AFNOR Z10CA524, GOST 12Ch17, UNI X16Cr26	
	M2	M2.1	Martensitic stainless steel (straight chromium hardenable alloys)	annealed	< 200 HB	≤ 670	AISI 430F, EN X14CrMoS17, DIN 1.4104, SS 2383, ČSN 17140, BS 410S21, UNE F.3117, AFNOR Z10CF17, UNI X10GCr17	
		M2.2		quenched and tempered	200 - 280 HB	> 670 ≤ 950	AISI 440C, EN X105CrMo17, DIN 1.4125, SS 2385, ČSN 17023, BS 425C11, UNE F.3402, GB 102Cr17Mo, AFNOR Z100CD17, GOST 95Ch18, UNI GX6CrNi 13 04	
	M3	M2.3	precipitation-hardened	280 - 380 HB	> 950 ≤ 1300	AISI 420, EN X45Cr13, DIN 1.4034, ČSN 17029, BS 425C11, UNE F.3405, AFNOR Z44C14, GOST 20X17H12, UNI X30Cr13		
		M3.1	Austenitic stainless steel (chromium-nickel and chromium-nickel-manganese alloys)		< 200 HB	≤ 750	AISI 308, EN X5CrNi18-12, DIN 1.4303, SS 2352, ČSN 17249, BS 305S17, UNE F.3513, GB 10Cr18Ni12, AFNOR Z8CN18.12, UNI X7CrNi18 10	
		M3.2			200 - 260 HB	> 750 ≤ 870	AISI 309, EN X15CrNiSi20-12, DIN 1.4828, ČSN 17251, BS 309S24, UNE F.3312, GB 1Cr23Ni13, AFNOR Z15CNS20.12, GOST 20Ch20N14S2, UNI 16CrNi23 14	
	M3.3			260 - 300 HB	> 870 ≤ 1040	AISI 5848, EN X45CrNiW18-9, DIN 1.4873, BS 331540, UNE F.3211, AFNOR Z35CNSW14-4, UNI X45CrNiW 18 9		
	M4	M4.1	Austenitic-ferritic (DUPLEX) or super-austenitic stainless steel		< 300 HB	≤ 990	AISI 329, EN X1-NiCr-MoCu25-20-5, DIN 1.4539, SS 2562, ČSN 17265, BS 318513, UNE F.3552, GB 022Cr25NiMo2N, AFNOR Z1NCDU25.20	
		M4.2	Precipitation hardening austenitic stainless steel		300 - 380 HB	≤ 1320	AISI 631 (17-7PH), EN X7CrNiAl17-7, DIN 1.4568, SS 2388, ČSN 17465, BS 301S13, UNE F.3217, GB 07Cr17Ni7Al, AFNOR Z9CNA17-07, GOST 09Ch17Ni7Al, UNI X53CrMnNiN12	
K	K1	K1.1	Gray iron (ASTM A48) or Automotive Gray iron (ASTM A159) (iron-carbon castings with a lamellar graphite microstructure)	ferritic or ferritic-pearlitic	< 180 HB	≤ 190	ASTM A48 Grade 20 (F11401), EN-JL-100, DIN GG-10 (0.6010), SS 0110, STN 422410, BS Grade 150, UNE FG10, GB HAT 100, AFNOR F110D, GOST SC 10, UNI G10	
		K1.2		ferritic-pearlitic or pearlitic	180 - 240 HB	> 190 ≤ 310	ASTM A48 Grade 30 (F12101), EN-JL-1030, DIN GG-20 (0.6020), SS 0120, STN 422420, BS Grade 220, UNE FG20, GB HT200, AFNOR F220D, GOST Č420, UNI G20	
		K1.3		pearlitic	240 - 280 HB	> 310 ≤ 390	ASTM A48 Grade 50 (F13501), EN-JL-1060, DIN GG-35 (0.6035), SS 0135, STN 422435, BS Grade 350, UNE FG35, GB HAT300, AFNOR F35D, GOST SC35, UNI G35	
	K2	K2.1	Malleable iron (ASTM A602) (iron-carbon castings with a graphite-free microstructure)	ferritic	< 160 HB	≤ 400	ASTM A602 Grade M3210 (F20000), EN-JM-1130, DIN GTS-35 (0.8135), SS 0815, BS B340/12, UNE Type A, AFNOR MN 35-10, GOST K435-10	
		K2.2		ferritic or pearlitic	160 - 200 HB	> 400 ≤ 550	ASTM A602 Grade M4504 (F20001), EN-JM-1040, DIN GTS-50-05 (0.8045), BS P50-05, AFNOR MB 45-7	
		K2.3		pearlitic	200 - 240 HB	> 550 ≤ 660	ASTM A602 Grade M7002 (F20004), EN-JM-1140, DIN GTS-45 (0.8145), SS 0854, STN 422540, BS P 45-06, UNE Typ B, AFNOR MP 50-5, GOST K445-7, UNI GMN 45	
	K3	K3.1	Ductile iron (ASTM A536) (iron-carbon castings with a nodular graphite microstructure)	ferritic	< 180 HB	≤ 560	ASTM A536 Grade 60-40-18 (F32800), EN-JS-1030, DIN GGG-40 (0.7040), SS 0717, STN 422304, BS 420/12, UNE FGE 42-12, GB QT 400, AFNOR FGS 400-12, GOST B440	
		K3.2		ferritic or pearlitic	180 - 220 HB	> 560 ≤ 680	ASTM A536 Grade 80-55-06 (F33800), EN-JS-1050, DIN GGG-50 (0.7050), SS 0727, STN 422305, BS 500/7, UNE FGE 50-7, GB QT 500-7, AFNOR FGS 500-7, GOST B450	
		K3.3		pearlitic	220 - 260 HB	> 680 ≤ 800	ASTM A536 Grade 100-70-03 (F34800), EN-JS-1060, DIN GGG-60 (0.7060), SS 0732, STN 422306, BS 600/3, UNE FG70-2, GB QT 600-3, AFNOR FGS 600-3, GOST B460	
	K4	K4.1	Austenitic gray iron (ASTM A436) (iron-carbon alloy castings with an austenitic lamellar graphite microstructure)		< 180 HB	≤ 190	ASTM A436 Type 1 (L-NiCuCr 15 6 2, F41000), EN-JL-3011, DIN GGL-NiMn 13 7 (0.6652), SS 0523, BS Grade F1, AFNOR FGL-Ni13Mn7, GOST S-NiMn 13 7	
K4.2		Austenitic ductile iron (ASTM A439 or ASTM A571) (iron-carbon alloy castings with an austenitic nodular graphite microstructure)			< 240 HB	≤ 740	ASTM A439 Type D-2B (S-NiCr 20 3, F43001), EN-JS-3021, DIN GGG-NiMn 23 4 5, SS 0776, BS Grade S2M, AFNOR FGS Ni23 Mn4, GOST 4H19X3W	
K4.3		Austempered ductile iron (ASTM A897) (iron-carbon alloy castings with an ausferrite microstructure)		< 280 HB	> 840 ≤ 980	ASTM A897 Grade 110-70-11		
K4.4				280 - 320 HB	> 980 ≤ 1130	ASTM A897 Grade 125-80-10, EN-JS-1100, DIN GGG-90 (5.3400)		
K4.5				320 - 360 HB	> 1130 ≤ 1280	ASTM A897 Grade 2 (150-110-07), EN-JS-1110, DIN GGG-100 (5.3403)		
K5	K5.1	Compacted graphite iron (CGI) (ASTM A842) (iron-carbon castings with a vermicular graphite structure)	ferritic	< 180 HB	≤ 400	ASTM A842 Grade 300, EN-GJV-300, DIN GGJ 30, GOST 4BF30,		
	K5.2		ferritic-pearlitic	180 - 220 HB	> 400 ≤ 450	ASTM A842 Grade 350, EN-GJV-350, DIN GGJ 35 (5.2200), GOST 4BF30,		
	K5.3		pearlitic	220 - 260 HB	> 450 ≤ 500	ASTM A842 Grade 450, EN-GJV-450, DIN GGJ 45, GOST 4BF45,		
N1	N1.1	Commercially pure wrought aluminum		< 60 HB	≤ 240	UNS A91200, EN AL99.0, DIN 3.0205, SS 4010, STN 424009, BS 1C, UNE L-3001, GB L5, AFNOR A4, GOST ALC, UNI 3567		
	N1.2		Wrought aluminum alloys	half hard tempered	60 - 100 HB	> 240 ≤ 400	UNS A93004, EN AlMn0.5Mg0.5, DIN 3.0505, SS 4054, STN 424432, BS N31, UNE L-3831, GB LF2, AFNOR A-M1, GOST AlMn, UNI 3568	
	N1.3			full hard tempered	100 - 150 HB	> 400 ≤ 590	UNS A95083, EN AlMg4.5Mn0.7, DIN 3.3547, SS 4140, STN 424415, BS N8, UNE L-3321, GB AlMg4.5Mn, AFNOR A-G4.5Mn, GOST Amg 4.5, UNI P-AlMg4.4	
N2	N2.1	Cast aluminium alloys		< 75 HB	≤ 240	UNS A02080, EN AlCu45, BS LM11, STN 424331, UNE Al Si7Cu, GOST Amg5K, UNI G-AlSi7Mg		
	N2.2			75 - 90 HB	> 240 ≤ 270	UNS A02420, EN AlCu4Ni2Mg2, SS AlSi7MgFe, BS LM6, STN 424519, UNE Al-7SiMg, AFNOR A-S7G, GOST AK7, UNI G-AlSi7Mg		
	N2.3			90 - 140 HB	> 270 ≤ 440	UNS A03360, EN G-ALCu4NiMg2, SS AlSi10Mg, STN 424336, BS LM 30, AFNOR A-S10G, UNI G-AlSi9Mg		
N3	N3.1	Free-cutting copper-alloys materials with excellent machining properties Short-chip copper-alloys with good to moderate machining properties Electrolytic copper and long-chip copper-alloys with moderate to poor machining properties				UNS C14700, EN CuPb1P, DIN 2.1498, STN 423214, BS C111, AFNOR CuZn35Pb2, GOST L63-3, UNI CuSP0.01		
	N3.2					UNS C81540, EN CuNi2SiCr, DIN 2.0857, STN 423220, BS N513, UNE CuSn12, AFNOR CuZn40, GOST L60, UNI P-CuZn-40		
	N3.3					UNS C10100, EN CuAg0.1, DIN 2.1203, SS 5010, UNE CUSi3Mn1, AFNOR Cu-C2, GOST M1f, UNI Cu-OF		
N4	N4.1	Thermoplastic polymers Thermosetting polymers Reinforced polymers or composites				ABS, Acryl, Duraplast, Elastomer, EP, Epoxid, FEP, Fluor, Gummi, Kautschuk, Latex, MF, MPF, PA, PAI, PC, PE, PEEK, PEI, PES, PET, PF, Phenolharze, PI, PMMA, Polyamide, Polyester, Polyolefine, Polysulfon, POM, PP, PPE, PPS, PS, PSU, PTFE, PU, PUR, PVDF, SAN, SI, Styrol, UF, Ureol		
	N4.2					Aramid, Epoxy, Fluoropolymer, Mehacrylate, Melamine, Phenolic, Polyester, Polyimide, Polymethacrylimide, Polyurethane		
	N4.3					CFK, GFK, GMT, Honeycomb, Kevlar, LFT, Organo, SMC		
N5	N5.1	Graphite				CGM-1, CM-00, GM-10, GM-11, GR030, GR030PI, GR060, GR060PI, GR125, MC-01, MC-01R0, MC-03, MC-03M		
S	S1	S1.1	Titanium or titanium alloys		< 200 HB	≤ 660	UNS R50250 (Grade 1), EN Ti99.6, DIN 3.7035, BS TA.2, UNETi-Pb2, AFNOR T-40, GOST BT1-00	
		S1.2			200 - 280 HB	> 660 ≤ 950	UNS R56404 (Grade 29), EN Ti2Cu, DIN 3.7124, BS TA.21, UNETi-P11, AFNOR T-U2	
		S1.3			280 - 360 HB	> 950 ≤ 1200	UNS R54250 (Grade 38), EN TiAl6V4, DIN 3.7165, ČSN TiAl6VELL, BS TA. 13, UNETi-P63, AFNOR T-A6V, GOST BT6	
	S2	S2.1	Fe-based high-temperature alloys		< 200 HB	≤ 690	UNS N08801 (Incoloy 801), EN X8 NiCrAlTi31-21, DIN 1.4959, BS NA 15, AFNOR Z8NC33-21	
		S2.2			200 - 280 HB	> 690 ≤ 970	UNS N19907, EN X6NiCrTiMoVB25-15-2, DIN 1.4980, SS 2570, BS HR52, AFNOR Z6NCTDV25.15B, GOST 36HX10	
		S2.3						UNS A09706 (Inconel 706), EN NiCr25FeAl, DIN 2.4856, BS HR 6, ČSN Inconel 625, UNE F.3313, GB 1Cr16Ni35, AFNOR NC22FeDNB, GOST XH38BT
S3	S3.1	Ni-based high-temperature alloys		< 280 HB	≤ 940	UNS N07001, EN NiCr20Co13Mo4Ti3Al, DIN 2.4654, BS HR 2, ČSN Waspaloy, AFNOR NCKD 20ATV, GOST XH80TB0		
	S3.2			280 - 360 HB	> 940 ≤ 1200	UNS R30016 (Stellite 6b), EN CoCr20W15Ni, DIN 2.4964, AFNOR KC 20 WN, GOST JIK52		
	S3.3			240 - 320 HB	> 800 ≤ 1070	UNS R30016 (Stellite 6b), EN CoCr20W15Ni, DIN 2.4964, AFNOR KC 20 WN, GOST JIK52		
H	H1	H1.1	Chilled cast iron		< 440 HB		UNS F45001, EN-GJS-1050-6, DIN 5.3406, SS 0512, BS Grade 2A	
		H2.1		Hardened cast iron		< 55 HRC		UNS F45003, EN-GJS-1400-1, DIN 5.3405, SS 0457, BS Grade 3D
		H2.2				> 55 HRC		UNS F45003, EN G-X260NiCr4-2, DIN 0.9620, SS 0466, BS Grade S
	H3	H3.1	Hardened steel <55HRC		< 51 HRC		AISI 4135, EN 34CrMo4, DIN 1.7220, SS 2234, STN 415131, BS 198, UNE F.1250, GB 35CrMo, AFNOR 35CD4, GOST AC38XTM, UNI 35CrMo4KB	
		H3.2			51 - 55 HRC		AISI 4135, EN 34CrMo4, DIN 1.7220, SS 2234, STN 415131, BS 198, UNE F.1250, GB 35CrMo, AFNOR 35CD4, GOST AC38XTM, UNI 35CrMo4KB	
		H3.3						
H4	H4.1	Hardened steel >55HRC		55 - 59 HRC		UNS T31501, EN 100MnCrW4, DIN 1.2510, SS 2140, STN 419413, BS B01, UNE F.5220, GB 9CrWMn, AFNOR 90MWCrvS, GOST 9XBf, UNI 95MnWCr5KU		
	H4.2			> 59 HRC		UNS T31501, EN 100MnCrW4, DIN 1.2510, SS 2140, STN 419413, BS B01, UNE F.5220, GB 9CrWMn, AFNOR 90MWCrvS, GOST 9XBf, UNI 95MnWCr5KU		

CUTTING TOOL PARAMETERS ACCORDING TO ISO 13399

All cutting tools are defined by a number of parameters according to the standard ISO 13399. This list contains all the parameters used in this catalogue and their definitions.

ISO 13399 is an international cutting tool information standard. It provides dimensions and parameters in a neutral format that is independent of any particular system or company nomenclature. When cutting tools are clearly defined according to a global standard, all types of software can process the electronic data more quickly, improving the quality of communication and helping to make the exchange of

information run smoothly. By supporting a common language in our cutting tool descriptions will assist this system to system communication. It will save you significant amount of time, providing an easier gathering of high-quality data across our 40,000 solid and indexable tools. By using a ISO 13399 compliant system, there will be no need to manually interpret data and key-enter it into your system.



ISO 13399	Description
APMX	Depth of cut maximum
B	Shank width
CDX	Cutting depth maximum
CUTDIA	Work piece parting diameter maximum
CW	Cutting width
D1	Fixing hole diameter
DBC1	Diameter bolt circle
DC	Cutting diameter
DCCB	Counterbore diameter connection bore
DCON MS	Connection diameter
DN	Neck diameter
GAMF	Radial rake angle
GAMP	Axial rake angle
H	Shank height
HBH	Head bottom offset height

ISO 13399	Description
HF	Corner chamfer width
CHW	Functional height
IC	Inscribed circle diameter
INSL	Insert length
KWD	Keyway depth
KWW	Keyway width
L	Cutting edge length
LF	Functional length
LU	Usable length
NOF	Number of flutes
OAL	Overall length
PRFRAD(2)	Profile radius
RE	Corner radius
S	Insert thickness
TDZ	Thread diameter size

ICONS OVERVIEW

General features of tools

	Primary use		Finishing – very good surface quality		Suitable for stable working conditions
	Possible use		Medium machining – good surface quality		Suitable for unstable working conditions
			Roughing – unlimited surface roughness		Suitable for very unstable working conditions

Possible applications

	Contoured Surfaces (copy milling)		Plunge Milling		Copy turning (multi directional machining)
	Deep shoulder milling		Progressive Plunging		Deep radial groove
	Deep slot milling		Ramping		Parting off
	Drilling		Shallow shoulder milling		Shallow radial groove
	Face milling		Shallow slot milling		Tube parting off
	Helical interpolation		Trochoidal Milling		Wide radial groove (with following expansion)
	Helical interpolation in a pre-drilled hole		Turn-milling		

Shank type

	DIN 6535 HB Weldon Shank		DIN 1835B Weldon Shank
	DIN 6535 HA Cylindrical Shank		Threaded coupling
	DIN 1835A Cylindrical Shank		Arbor DIN 8030

Direction of cut

	Direction of cut - left
	Direction of cut - right

Basic standard group (BSG)

	Dormer Standards
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Material code (BMC)

	Hard Material (Solid Carbide)
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Cooling

	Through Tool Coolant
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ICONS OVERVIEW

Flute Helix (FHA)

	40° Helix Angle (Flute)
	Unequal (Variable) Helix
	30° Helix Angle (Flute)

Radial rake angle (GAMF)

	10° Radial Rake Angle (cutting)		-6° Radial Rake Angle (cutting)
	20° Radial Rake Angle (cutting)		8° Radial Rake Angle (cutting)
	15° Radial Rake Angle (cutting)		13° Radial Rake Angle (cutting)
	7° Radial Rake Angle (cutting)		

Cutting diameter tolerance class (TCDC)

	h9 - Industry Standard Tool Tolerance Zone (based on diameter range)
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Milling Direction

	Plunging, Ramping, Side Cutting		Side Cutting
	Ramping, Side Cutting		

Cut length

	Extra short		Medium		Extra long
	Short		Long		

Mill Profile

	General Purpose Cutter Type for Low to High Resistance Materials		Coarse Pitch Asymmetrical Rounded Profile Chipbreaker		Non-ferrous Cutter Type with Coarse Pitch Asymmetrical Rounded Profile Chipbreaker
	Semi-finishing Profile Chipbreaker		Non-ferrous Cutter Type for Soft Malleable Materials		

Number of flutes

	Number of Flutes = 2 (teeth)		Number of Flutes = 3 (differential pitch)		Number of Flutes = 4 (differential pitch)
	Number of Flutes = 3 (teeth)		Number of Flutes = 3-4 (teeth)		Number of Flutes = 5 (teeth)



SOLID MILLING CUTTERS

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INTRODUCTION

We have launched a new generation of solid carbide five-flute end mills, specifically for dynamic milling applications in general machining and die and mold. The S7 assortment covers a wide range of operations, including profiling, trochoidal slotting, semi-finishing and narrow pocketing in a variety of materials, including stainless steels and super-alloys.

SEE TOOL
IN ACTION



S770HB / S772HB FEATURES & BENEFITS

- Suitable for profiling, trochoidal slotting, and semi-finishing applications.
- A five-flute design for **increased feed rates up to 25%**, compared with four-flute tools.
- Positive rake angle for **smooth cutting action** in stainless steel and super-alloys, reducing the risk of work-hardening.
- Small corner radius and a specific cutting edge design
- to provide a **stable performance**, reduce chipping and prolong tool life.
- Unequal helix for **chatter free machining and excellent surface finishing**.
- AlCrN coating for thermal stability, reduced friction, excellent wear resistance and **prolonged durability**.
- **Maximum productivity** due to optimal metal removal rate and reduced machining time.

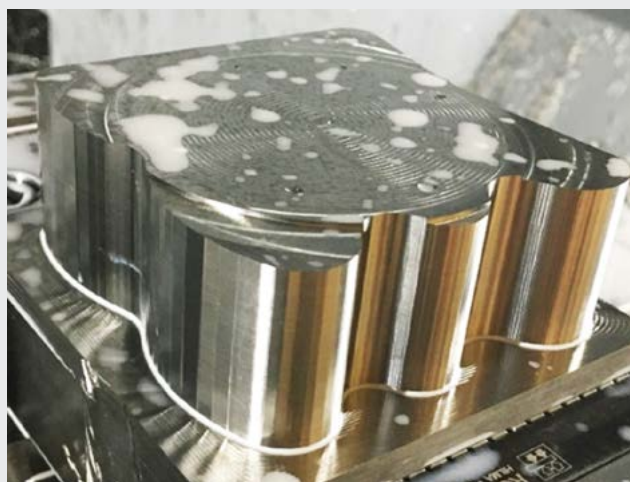
Specific cutting
edge design



S772HB MACHINING EXAMPLE

Workpiece material: Ti4Al6V (WMG S1.3)
 Tool: S772HB10.0
 Operation: Outside contouring
 Coolant: External coolant (emulsion)

Cutting speed	V_c	m/min	60
Feed	V_f	mm/min	668
Axial depth of cut	a_p	mm	35
Radial depth of cut	a_e	mm	0,7
Time in cut		min	13



S771HB / S773HB FEATURES & BENEFITS

- Suitable for narrow pocketing, trochoidal slotting and profiling applications.
- A five-flute design for **increased feed rates** up to 25%, compared with four-flute tools.
- Through coolant to **improve welding resistance** and enable a wide range of processes, especially for difficult-to-machine materials.
- FS chip divider to break swarf into manageable smaller pieces, helping to **reduce spindle load and increase metal removal rates**. Also, this provides a 50% bigger width of cut compared to tools without a chip divider.
- Positive rake angle for **smooth cutting action** in stainless steel and super-alloys, reducing the risk of work-hardening.
- AlCrN coating for thermal stability, reduced friction, excellent wear resistance and **prolonged durability**.
- Neck recess feature to **avoid contact with the wall** in shoulder operations.
- Unequal helix for **chatter free machining and excellent surface finishing**.
- Small corner radius and a specific cutting edge design to provide a **stable performance, reduce chipping and prolong tool life**.
- **Maximum productivity** due to optimal metal removal rate and reduced machining time.

NEW ASSORTMENT – FIVE-FLUTE END MILLS

Feature	 S770HB	 S771HB	 S772HB	 S773HB
Cutting Length	Short	Short	Long	Long
FS Chip Divider	-	Yes	-	Yes
Through Coolant	-	Yes	-	Yes
Neck Recess	-	Yes	-	Yes
Unequal Helix	35° / 36° / 37°			

S771HB MACHINING EXAMPLE

Workpiece material: Inconel 718 (WMG S3.1)
 Tool: S771HB10.0
 Operation: Trochoidal slotting
 Coolant: Internal coolant (emulsion)

Cutting speed	V_c	m/min	35
Feed	V_f	mm/min	160
Axial depth of cut	a_p	mm	20
Radial depth of cut	a_e	mm	0,5
Time in cut		min	60



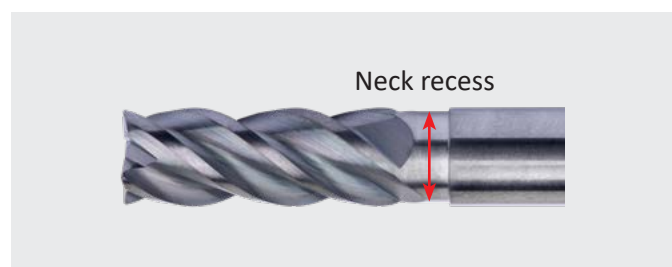


INTRODUCTION

We have expanded our S7 assortment of multi-application high performance cutters for use on both CNC and conventional machine tools. The new additions support most common operations, such as slotting, plunging, contour milling, ramping and copy milling in various materials, including medium strength steels, stainless steels and super alloys.

FEATURES & BENEFITS

- The four-flute cutters have a specific tooth design for **improved chip evacuation**.
- An unequal helix option for **chatter free machining and excellent surface finishing**.
- Positive rake angle for a **smooth cutting action**, reducing the risk of work-hardening.
- AlCrN and Titanium Silicon Nitride (TiSiN) coatings for **longer tool life**; enabling higher cutting speeds and increased heat resistance, making them ideal for dry machining.
- A long version for **higher depth of cut**.
- NRA profile to break swarf into manageable smaller pieces, helping to **reduce spindle load and increase metal removal rates**.
- Neck recess feature to **avoid contact with the wall** in shoulder operations.



NEW FAMILIES

	 S722HB	 S765HB	 S768
Feature			
Unequal Helix	-	-	Yes
Positive Rake Angle	7°	10°	10°
NRA Profile	-	Yes	-
Cutting Length	Medium	Short	Long
Coating	AlCrN	AlCrN	TiSiN
Neck Recess	Yes	-	Yes
Shank Design	DIN 6535 HB	DIN 6535 HB	DIN 6535 HA



S791 BARREL END MILL

SOLID MILLING CUTTERS

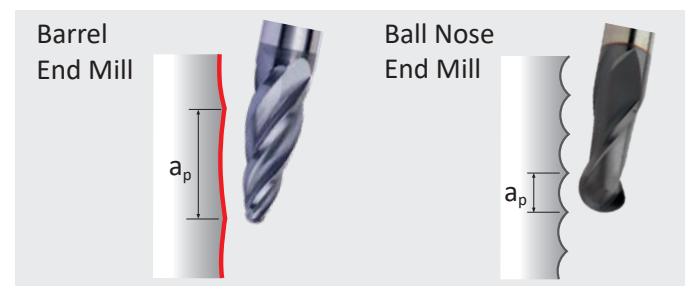
INTRODUCTION

We have launched an advanced barrel-shaped end mill for efficient five-axis machining in die and mold and aerospace applications. The new S791 cutter provides excellent surface quality and is suitable for semi-finishing and finishing in steels, stainless steels, cast iron and super-alloys. Its design includes a nose radius for fillet milling and a tangential form radius for curved and deep wall surface machining.



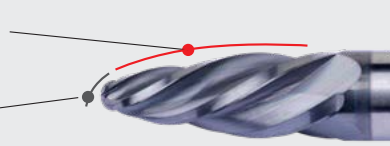
FEATURES & BENEFITS

- A larger tangential radius with more overlap compared with conventional ball nose end mills. This enables:
 - A greater area of contact with the workpiece, **increasing tool life and reducing cycle time.**
 - Fewer passes, leading to more than 50% **time savings.**
- Better surface quality and characteristics, minimizing the time spent polishing.
- All the benefits usually associated with a robust ball nose end mill.



- An AlCrN coating for thermal stability, reduced friction, excellent wear resistance and **prolonged durability.**
- Positive rake angle for **smooth cutting action** in stainless steels and super-alloys, reducing the risk of work-hardening.
- Several three or four-flutes options for **more productivity** (compared to common two-flute ball nose cutters).

Larger tangential radius
Nose radius



MACHINING EXAMPLE

Workpiece material: DIN 1.2311 (WGM P3.3), 300-320 HB
Tool diameter: 10 mm
Operation: Finishing angled wall 10°
Coolant: Air

			S791 Barrel End Mill	Ballnose End Mill
Tool radius		mm	85	5
No.of flutes			4	2
Cutting speed	v_c	m/min	150	120
Feed	f	mm	0,05	0,05
Depth of cut	a_p	mm	2,5	0,5
Width of cut	a_e	mm	0,5	0,5
No.of passes			33	165
Time in cut		min	4:30	21:10





INTRODUCTION

We have launched a range of S6 solid carbide end mills for aluminium and non-ferrous materials. The additions include new three-flute and four-flutes cutters, along with several smaller diameters in our existing two-flutes.

The S6 assortment is particularly suited for precision and high-speed machining of aluminium parts in air frame assembly, automotive applications and die and mold, particularly for prototyping.

FEATURES & BENEFITS

- A three-flute design for **smooth cutting action** and **reduced stress on the spindle**.
- A four-flute option with various corner radius designs, **reinforcing the end teeth for a stronger performance**.
- Differential pitch to reduce vibration and **maximize productivity and tool life**.
- Positive rake angle for a **smooth cutting action**, reducing the risk of work-hardening.
- All geometries specifically designed to provide a **high performance and quality surface finish** on aluminium and its alloys.
- Neck recess feature to **avoid contact with the wall** in shoulder operations.
- NRA profile to break swarf into manageable smaller pieces, helping to **reduce spindle load and increase metal removal rates**.

NEW FAMILIES

	 S650	 S614	 S654	 S662
Feature				
Number of Flutes	3	3	3	4
Differential Pitch	Yes	-	Yes	Yes
Neck Recess	-	-	Yes	-
Corner Radius	-	-	-	Yes
NRA Profile	-	-	Yes	-
Cutting edge chipbreaker	Yes	-	-	-



S561 HARD MILLING CUTTER

SOLID MILLING CUTTERS

INTRODUCTION

We have launched a new solid carbide cutter to enhance our assortment of end mills for hardened steel above 49HRC. The S561 is specifically for high performance milling in a variety of applications, including die and mold machining.



S561

FEATURES & BENEFITS

- The four-flute end mills feature a specific tooth design for **improved chip evacuation**.
- A differential pitch design provides **chatter free machining and an excellent surface finish**.
- Titanium Silicon Nitride (TiSiN) coatings for **longer tool life**; enabling higher cutting speeds and increased heat resistance, making them ideal for dry machining.
- **Robust cutting geometry** due to negative rake angle.
- A sharp cutter for hardened steel (52-70HRC), providing **excellent finishing** in die and mold applications.
- Cutting edge preparation for excellent surface finish.
- Gash land design to **improve strength and better chipping resistance**.

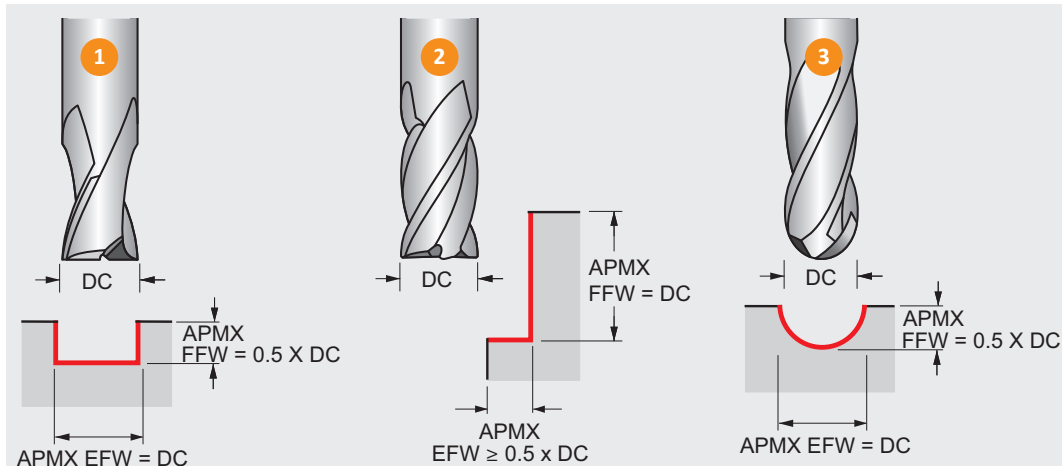
Gash land design



Material code (BMC)	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM
Mill Profile	N	NRA	N	N	FS	N	FS	N	N	W	W	W	W
Number of flutes (NOF)	NOF 4±	NOF 4±	NOF 4±	NOF 5	NOF 5	NOF 5	NOF 5	NOF 3-4	NOF 4±	NOF 2	NOF 2	NOF 3	NOF 2
Cut length													
Flute Helix (FHA)	λ 40°	λ 40°	λ ≠	λ ≠	λ ≠	λ ≠	λ ≠	λ 30°	λ 40°	λ 30°	λ 30°	λ 40°	λ 30°
Radial rake angle (GAMF)	γ 7°	γ 10°	γ 10°	γ 10°	γ 10°	γ 10°	γ 10°	γ 8°	γ -6°	γ 20°	γ 20°	γ 13°	γ 15°
Shank	 DIN 6535HB	 DIN 6535HB	 DIN 6535HA	 DIN 6535HB	 DIN 6535HB	 DIN 6535HB	 DIN 6535HB	 DIN 6535HA	 DIN 6535HA	 DIN 6535HA	 DIN 6535HA	 DIN 6535HA	 DIN 6535HA
Coating	AICN	AICN	TSIN	AICN	AICN	AICN	AICN	AICN	TSIN	HI	HI		
Cutting diameter tolerance class (TDC)	DC h9	DC h9	DC h9	DC h9	DC h9	DC h9	DC h9		DC h9	DC h9	DC h9	DC h9	DC h9
Direction													
Basic standard group (BSG)													
Cooling (CSP)													
Product Family Code	S722HB	S765HB	S768	S770HB	S771HB	S772HB	S773HB	S791	S561	S610	S611	S614	S629
	3.00 - 20.00	6.00 - 20.00	4.00 - 20.00	10.00 - 20.00	10.00 - 20.00	10.00 - 20.00	10.00 - 20.00	6.00 - 16.00	1.00 - 20.00	2.00 - 20.00	3.00 - 20.00	3.00 - 16.00	1.00 - 20.00
	26	27	28	29	30	31	32	33	34	35	36	37	38
P	P1	■	■	■	■	■	■	■					
	P2	■	■	■	■	■	■	■					
	P3	■	■	■	■	■	■	■					
	P4	■	■	■	■	■	■	■					
M	M1	■	■	■	■	■	■	■					
	M2	■	■	■	■	■	■	■					
	M3	■	■	■	■	■	■	■					
	M4							■					
K	K1	■	■	■	■	■	■	■					
	K2	■	■	■	■	■	■	■					
	K3	■	■	■	■	■	■	■					
	K4	■	■	■	■	■	■	■					
	K5	■	■	■	■	■	■	■					
N	N1							■		■	■	■	■
	N2							■		■	■	■	■
	N3							■		■	■	■	■
	N4							■		■	■	■	■
	N5									■	■	■	■
S	S1	■	■	■	■	■	■	■					
	S2	■	■	■	■	■	■	■					
	S3	■	■	■	■	■	■	■					
	S4	■	■	■	■	■	■	■					
H	H1								■				
	H2								■				
	H3								■				
	H4								■				

■ Primary use ■ Possible use

SOLID MILLING CUTTERS



Feed per tooth (f_z in mm/rev)
Depending on the working conditions it might be necessary to adjust these values $\pm 25\%$
ONLY if plunging into solid material with a center cutting end mill the values in this table should be considered as f_n (feed per revolution)

How to use this table to find the feed per tooth (f_z):

1. Find your Alpha Code on the product page (example: 199K, "K" is the Alpha Code).
2. Find the closest diameter for your cutting application in the top row of the table.
3. Find your Alpha Code in the left column of the table.
4. The intersection (cell) of the Diameter and Alpha Code is the feed per tooth (f_z).

**FOR SOLID
CARBIDE
MILLING
CUTTERS ONLY**

Feed rates	ø DC [mm]																	
	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	25.00	
	A	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.014	0.015	0.017	0.019	0.021	0.025	0.028
	B	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.014	0.015	0.017	0.019	0.021	0.025	0.028
	C	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.014	0.015	0.017	0.019	0.021	0.025	0.028
	D	0.002	0.003	0.004	0.005	0.007	0.008	0.009	0.010	0.011	0.012	0.014	0.015	0.017	0.019	0.021	0.025	0.028
	E	0.002	0.003	0.004	0.008	0.009	0.012	0.013	0.014	0.015	0.016	0.019	0.021	0.024	0.026	0.028	0.030	0.034
	F	0.002	0.003	0.006	0.010	0.013	0.016	0.017	0.019	0.021	0.022	0.026	0.029	0.032	0.035	0.039	0.042	0.047
	G	0.002	0.005	0.008	0.014	0.018	0.022	0.024	0.026	0.028	0.031	0.035	0.040	0.044	0.048	0.053	0.057	0.064
	I	0.003	0.006	0.011	0.019	0.024	0.030	0.032	0.036	0.039	0.042	0.049	0.054	0.061	0.066	0.073	0.079	0.088
	J	0.004	0.009	0.014	0.026	0.033	0.041	0.044	0.048	0.053	0.057	0.066	0.074	0.083	0.090	0.099	0.107	0.120
	K	0.006	0.012	0.019	0.035	0.044	0.054	0.059	0.064	0.070	0.076	0.088	0.098	0.110	0.120	0.132	0.142	0.160
	N	0.008	0.016	0.025	0.047	0.058	0.072	0.078	0.086	0.094	0.101	0.117	0.131	0.146	0.160	0.175	0.189	0.212
	O	0.010	0.021	0.034	0.062	0.078	0.096	0.104	0.114	0.124	0.135	0.156	0.174	0.195	0.213	0.233	0.252	0.283
	P	0.014	0.028	0.045	0.083	0.104	0.128	0.138	0.152	0.166	0.180	0.207	0.231	0.259	0.283	0.311	0.335	0.376
	R	0.018	0.037	0.060	0.110	0.138	0.170	0.184	0.202	0.221	0.239	0.276	0.308	0.345	0.377	0.414	0.446	0.501
	S	0.024	0.049	0.080	0.147	0.183	0.226	0.245	0.269	0.294	0.318	0.367	0.410	0.459	0.502	0.550	0.593	0.667

1 Slot Milling

Correction factors for cutting speed V_c and feed per tooth f_z for slot milling operations at different depths of cut

APMX FFW / DC	25%	50%	100%	150%				
	1.25	1.00	0.75	0.50				
	1.25	1.00	0.75	0.50				

2 Shoulder Milling

Correction factors for cutting speed V_c and feed per tooth f_z for square shoulder milling with <50% radial immersion

APMX EFW / DC	5%	10%	15%	20%	25%	30%	40%	≥ 50%
	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.00
	2.29	1.67	1.40	1.25	1.15	1.09	1.02	1.00

We recommend to avoid milling with 50% radial immersion

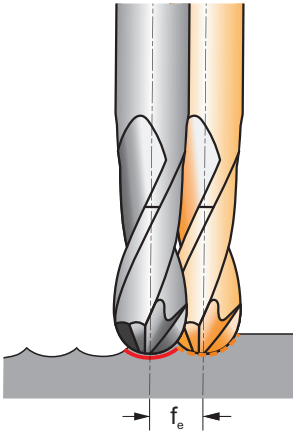
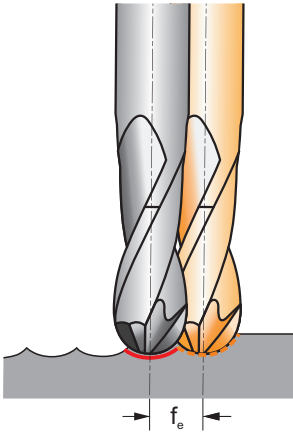
3a Plain Copy Milling (with Ball Nose Cutters)

Correction factors for cutting speed V_c for plain copy milling at different depths of cut

APMX FFW / DC	5%	10%	15%	20%	25%	30%	40%	50%
	2.29	1.67	1.40	1.25	1.15	1.09	1.02	1.00

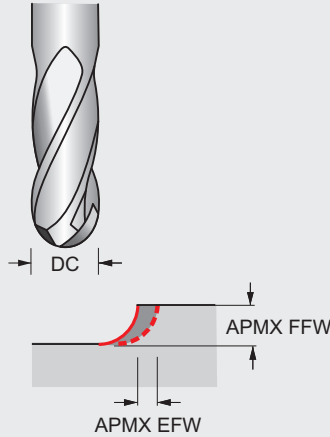
3b

Line offset f_e (step-over distance) for achieving a theoretical surface roughness R_z

Ø DC		2	4	8	16	32	63	125	250
2		0.13	0.18	0.25	0.36	0.50	0.70	0.97	1.32
3		0.15	0.22	0.31	0.44	0.62	0.86	1.20	1.66
4		0.18	0.25	0.36	0.50	0.71	1.00	1.39	1.94
5		0.20	0.28	0.40	0.56	0.80	1.12	1.56	2.18
6		0.22	0.31	0.44	0.62	0.87	1.22	1.71	2.40
8		0.25	0.36	0.51	0.71	1.01	1.41	1.98	2.78
10		0.28	0.40	0.57	0.80	1.13	1.58	2.22	3.12
12		0.31	0.44	0.62	0.88	1.24	1.73	2.44	3.43
14		0.33	0.47	0.67	0.95	1.34	1.87	2.63	3.71
16		0.36	0.51	0.72	1.01	1.43	2.00	2.82	3.97
18		0.38	0.54	0.76	1.07	1.52	2.13	2.99	4.21
20		0.40	0.57	0.80	1.13	1.60	2.24	3.15	4.44
22		0.42	0.59	0.84	1.19	1.68	2.35	3.31	4.66
25		0.45	0.63	0.89	1.26	1.79	2.51	3.53	4.97
28		0.47	0.67	0.95	1.34	1.89	2.65	3.73	5.27

Line offset dimensions shown are Metric (mm) only

3c



How to use this table to find the correction factor for the feed per tooth (f_z or IPT) for plain copy milling:

1. Find the closest radial immersion (APMX EFW / DC) for your cutting application in the top row of the table.
3. Find your closest immersion (APMX FFW / DC) for your cutting application in the left column of the table.
3. The intersection (cell) of the radial and axial immersions is the correction factor for the feed per tooth.

Example for plain copy milling:

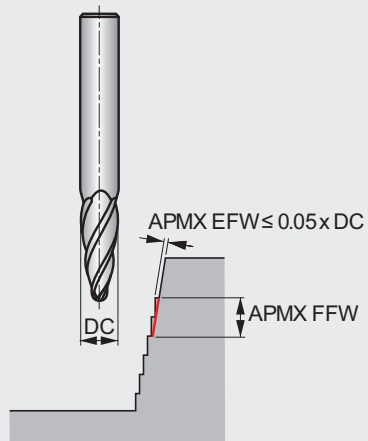
1. Applying an 8mm ball nose cutter with a depth of cut of 0,8mm (APMX FFW), the aim is to achieve a theoretical surface roughness of 32 μm .
2. The correction factor for cutting speed with an axial immersion of 10% = 1,67 can be found in table 3a.
3. The step-over distance for a R_z of 32 μm = 1,01mm can be found in table 3b.
4. The correction factor for feed per tooth with an axial immersion of 10% and a radial immersion of 1,01 / 8 = 12.6% can be found in table 3c and is in this case 2,33.

Correction factors for feed per tooth f_z for plain copy milling with a line offset $< 50\% \times D$ at different depths of cut

APMX FFW	APMX EFW	5%	10%	15%	20%	25%	30%	35%	40%	50%
5%	x.f →	5.26	3.82	3.21	2.87	2.65	2.50	2.40	2.34	2.29
10%		3.82	2.78	2.33	2.08	1.92	1.82	1.75	1.70	1.67
15%		3.21	2.33	1.96	1.75	1.62	1.53	1.47	1.43	1.40
20%		2.87	2.08	1.75	1.56	1.44	1.36	1.31	1.28	1.25
25%		2.65	1.92	1.62	1.44	1.33	1.26	1.21	1.18	1.15
30%		2.50	1.82	1.53	1.36	1.26	1.19	1.14	1.11	1.09
35%		2.40	1.75	1.47	1.31	1.21	1.14	1.10	1.07	1.05
40%		2.34	1.70	1.43	1.28	1.18	1.11	1.07	1.04	1.02
45%		2.31	1.68	1.41	1.26	1.16	1.10	1.05	1.03	1.01
50%		2.29	1.67	1.40	1.25	1.15	1.09	1.05	1.02	1.00

To increase the surface quality, the tool or surface should be inclined with a tilt angle of 10-15°

BARREL END MILLS



Feed per tooth
(f_z in mm/rev)
Depended of the working conditions it might be needed to adjust these values $\pm 25\%$

How to use this table to find the feed per tooth (f_z):

1. Find your Alpha Code on the product page (example: 121F, "F" is the Alpha Code).
2. Find the closest diameter for your cutting application in the top row of the table.
3. Find your Alpha Code in the left column of the table.
4. The intersection (cell) of the Diameter and Alpha Code is the feed per tooth (f_z).

**FOR SOLID CARBIDE
BARREL CUTTERS ONLY**

		$\phi\ DC\ [mm]$				
Feed rates		6.00	8.00	10.00	12.00	16.00
	E	0.030	0.039	0.053	0.067	0.096
	F	0.037	0.050	0.064	0.083	0.118
	I	0.062	0.084	0.111	0.141	0.203

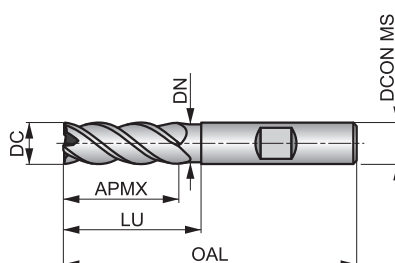
S722HB



4-Flute Solid Carbide End Mill

Medium cutting length 4-flute design with 40° helix and neck recess and weldon shank provides high rigidity for profile milling deep walls. Premium carbide with AlCrN coating increases service life and improves performance. For plunging, ramping and profile milling.

HM	N	NOF 4#
	λ 40°	γ 7°
	AlCrN	DC h9



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

P1.1 ■ 199 J	P1.2 ■ 223 J	P1.3 ■ 230 J	P2.1 ■ 170 J	P2.2 ■ 150 J	P2.3 ■ 133 I	P3.1 ■ 138 J	P3.2 ■ 111 I	P3.3 ■ 94 I	P4.1 ■ 82 I	P4.2 ■ 70 I	M1.1 ■ 115 J	M1.2 ■ 97 J	M2.1 ■ 102 J
M2.2 ■ 84 I	M3.1 ■ 94 I	M3.2 ■ 81 I	K1.1 ■ 196 J	K1.2 ■ 145 J	K1.3 ■ 109 J	K2.1 ■ 202 J	K2.2 ■ 164 J	K2.3 ■ 131 I	K3.1 ■ 178 J	K3.2 ■ 136 J	K3.3 ■ 110 I	K4.1 ■ 165 I	K4.2 ■ 125 I
K4.3 ■ 91 I	K4.4 ■ 78 I	K4.5 ■ 65 I	K5.1 ■ 187 I	K5.2 ■ 141 I	K5.3 ■ 109 I	S1.2 ■ 69 I	S2.1 ■ 53 I	S3.1 ■ 40 I	S4.1 ■ 31 I				

DCON MS tolerance h6; RE ±0.02 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF	LU	DN
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]
S722HB3.0	3.00	0.10	6.00	9.00	50.0	4	15.00	2.80
S722HB4.0	4.00	0.10	6.00	11.00	57.0	4	20.00	3.70
S722HB5.0	5.00	0.10	6.00	13.00	57.0	4	20.00	4.60
S722HB6.0	6.00	0.10	6.00	20.00	60.0	4	25.00	5.50
S722HB8.0	8.00	0.20	8.00	20.00	64.0	4	26.00	7.40
S722HB10.0	10.00	0.20	10.00	27.00	70.0	4	32.00	9.20
S722HB12.0	12.00	0.20	12.00	26.00	83.0	4	37.00	11.00
S722HB14.0	14.00	0.20	14.00	26.00	83.0	4	37.00	13.00
S722HB16.0	16.00	0.20	16.00	32.00	92.0	4	42.00	15.00
S722HB18.0	18.00	0.20	18.00	32.00	92.0	4	42.00	17.00
S722HB20.0	20.00	0.20	20.00	38.00	104.0	4	50.00	19.00

S765HB

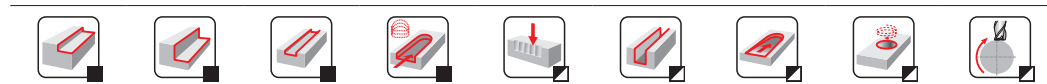
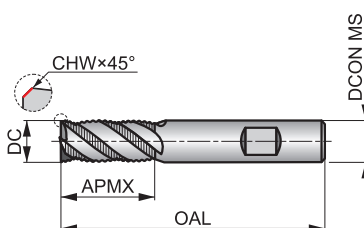
DORMER



4-Flute Solid Carbide Roughing End Mill

Short cutting length 4-flute design with NRA profile and 40° helix is designed to break chips for efficient roughing applications. AlCrN coating improves performance. For plunging, ramping and profile milling.

HM	NRA	NOF 4±
	40°	10°
DIN 6535HB	AlCrN	DC h9



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

P1.1 ■ 211 J	P1.2 ■ 236 J	P1.3 ■ 243 J	P2.1 ■ 180 J	P2.2 ■ 158 J	P2.3 ■ 140 J	P3.1 ■ 146 J	P3.2 ■ 117 J	P3.3 ■ 99 J	P4.1 ■ 86 J	P4.2 ■ 74 J	M1.1 ■ 122 J	M1.2 ■ 103 J	M2.1 ■ 108 J
M2.2 ■ 89 J	M3.1 ■ 100 J	M3.2 ■ 86 J	K1.1 ■ 208 J	K1.2 ■ 154 J	K1.3 ■ 116 J	K2.1 ■ 214 J	K2.2 ■ 174 J	K2.3 ■ 139 J	K3.1 ■ 189 J	K3.2 ■ 145 J	K3.3 ■ 117 J	K4.1 ■ 176 J	K4.2 ■ 132 J
K4.3 ■ 97 J	K4.4 ■ 83 J	K4.5 ■ 69 J	K5.1 ■ 199 J	K5.2 ■ 149 J	K5.3 ■ 116 J	S1.2 ■ 72 J	S2.1 ■ 56 J	S3.1 ■ 42 J	S4.1 ■ 33 J				

DCON MS tolerance h6; CHW ± 0.02X45° mm.

Product	DC	CHW	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	[mm]	
S765HB6.0	6.00	0.10	6.00	16.00	50.0	4
S765HB8.0	8.00	0.20	8.00	20.00	64.0	4
S765HB10.0	10.00	0.20	10.00	22.00	70.0	4
S765HB12.0	12.00	0.20	12.00	26.00	75.0	4
S765HB14.0	14.00	0.30	14.00	32.00	90.0	4
S765HB16.0	16.00	0.30	16.00	32.00	90.0	4
S765HB18.0	18.00	0.30	18.00	38.00	100.0	4
S765HB20.0	20.00	0.40	20.00	38.00	100.0	4

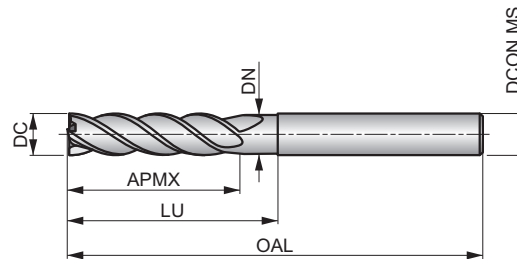
S768

DORMER



4-Flute Solid Carbide End Mill, Long Series

Long cutting length 4-flute design with unequal helix provides high rigidity for profile milling deep walls. TiSiN coating increases service life and improves performance. For plunging, ramping and profile milling.



HM	N	NOF 4#
	$\lambda \neq$	$\gamma 10^\circ$
DIN 6535HA	TiSiN	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

P1.1 ■ 148 I	P1.2 ■ 165 I	P1.3 ■ 170 I	P2.1 ■ 126 I	P2.2 ■ 111 I	P2.3 ■ 98 G	P3.1 ■ 102 I	P3.2 ■ 82 G	P3.3 ■ 69 G	P4.1 ■ 60 G	P4.2 ■ 52 G	M1.1 ■ 85 I	M1.2 ■ 72 I	M2.1 ■ 76 I
M2.2 ■ 62 I	M3.1 ■ 70 I	M3.2 ■ 60 I	K1.1 ■ 146 I	K1.2 ■ 108 I	K1.3 ■ 81 I	K2.1 ■ 150 I	K2.2 ■ 122 I	K2.3 ■ 97 G	K3.1 ■ 132 I	K3.2 ■ 102 I	K3.3 ■ 82 G	K4.1 ■ 123 G	K4.2 ■ 92 G
K4.3 ■ 68 G	K4.4 ■ 58 I	K4.5 ■ 48 I	K5.1 ■ 139 G	K5.2 ■ 104 G	K5.3 ■ 81 G	S1.2 ■ 50 I	S2.1 ■ 39 G	S3.1 ■ 29 G	S4.1 ■ 23 G				

DCON MS tolerance h6; RE ± 0.01 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF	LU	DN
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]
S7684.0	4.00	0.10	6.00	19.00	75.0	4	32.00	3.70
S7685.0	5.00	0.10	6.00	19.00	75.0	4	32.00	4.60
S7686.0	6.00	0.10	6.00	25.00	75.0	4	32.00	5.50
S7688.0	8.00	0.20	8.00	30.00	75.0	4	38.00	7.40
S76810.0	10.00	0.20	10.00	40.00	100.0	4	50.00	9.20
S76812.0	12.00	0.30	12.00	45.00	100.0	4	55.00	11.00
S76816.0	16.00	0.30	16.00	65.00	125.0	4	75.00	15.00
S76820.0	20.00	0.30	20.00	65.00	125.0	4	75.00	19.00

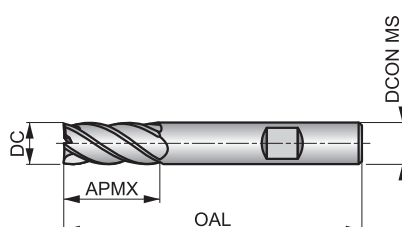
S770HB



5-Flute Solid Carbide End Mill

Short cutting length 5-flute design with unequal helix provides high rigidity for pocketing, trochoidal and profile milling. AlCrN coating increases service life and improves performance. For interpolating, ramping and profile milling.

HM	N	NOF 5
	λ ≠	γ 10°
DIN 6535HB	AlCrN	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

P1.1 ■ 211 l	P1.2 ■ 236 l	P1.3 ■ 243 l	P2.1 ■ 180 l	P2.2 ■ 158 l	P2.3 ■ 140 l	P3.1 ■ 146 l	P3.2 ■ 117 l	P3.3 ■ 99 l	P4.1 ■ 86 l	P4.2 ■ 74 l	M1.1 ■ 122 l	M1.2 ■ 103 l	M2.1 ■ 108 l
M2.2 ■ 89 l	M3.1 ■ 100 l	M3.2 ■ 86 l	K1.1 ■ 208 l	K1.2 ■ 154 l	K1.3 ■ 116 l	K2.1 ■ 214 l	K2.2 ■ 174 l	K2.3 ■ 139 l	K3.1 ■ 189 l	K3.2 ■ 145 l	K3.3 ■ 117 l	K4.1 ■ 176 l	K4.2 ■ 132 l
K4.3 ■ 97 l	K4.4 ■ 83 G	K4.5 ■ 69 G	K5.1 ■ 199 l	K5.2 ■ 149 l	K5.3 ■ 116 l	S1.2 ■ 72 l	S2.1 ■ 56 G	S3.1 ■ 42 G	S4.1 ■ 33 G				

DCON MS tolerance h6; RE ±0.01 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	[mm]	
S770HB10.0	10.00	0.20	10.00	22.00	72.0	5
S770HB12.0	12.00	0.30	12.00	26.00	83.0	5
S770HB16.0	16.00	0.30	16.00	32.00	92.0	5
S770HB20.0	20.00	0.30	20.00	38.00	104.0	5

S771HB

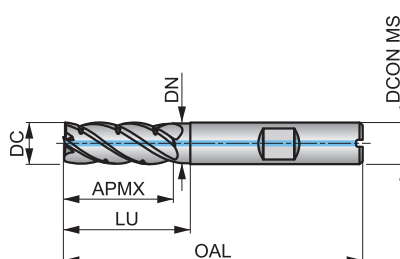
DORMER



5-Flute Solid Carbide End Mill with Chip Dividers

Short cutting length 5-flute design with chip dividers and unequal helix provides high rigidity for pocketing, trochoidal and profile milling. AlCrN coating increases service life and improves performance. For interpolating, ramping and profile milling.

HM	FS	NOF 5
	$\lambda \neq$	$\gamma 10^\circ$
DIN 6535HB	AlCrN	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

P1.1 ■ 222 J	P1.2 ■ 248 J	P1.3 ■ 255 J	P2.1 ■ 189 J	P2.2 ■ 166 J	P2.3 ■ 147 I	P3.1 ■ 153 J	P3.2 ■ 123 I	P3.3 ■ 104 I	P4.1 ■ 90 I	P4.2 ■ 78 I	M1.1 ■ 128 I	M1.2 ■ 108 I	M2.1 ■ 113 I
M2.2 ■ 93 I	M3.1 ■ 105 I	M3.2 ■ 90 I	K1.1 ■ 218 J	K1.2 ■ 162 J	K1.3 ■ 122 J	K2.1 ■ 225 J	K2.2 ■ 183 J	K2.3 ■ 146 I	K3.1 ■ 198 J	K3.2 ■ 152 I	K3.3 ■ 123 I	K4.1 ■ 185 I	K4.2 ■ 139 I
K4.3 ■ 102 I	K4.4 ■ 87 I	K4.5 ■ 72 I	K5.1 ■ 209 I	K5.2 ■ 156 I	K5.3 ■ 122 I	S1.2 ■ 76 I	S2.1 ■ 59 I	S3.1 ■ 44 G	S4.1 ■ 35 G				

DCON MS tolerance h6; RE ± 0.01 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF	LU	DN
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]
S771HB10.0	10.00	0.20	10.00	25.00	72.0	5	30.00	9.70
S771HB12.0	12.00	0.20	12.00	30.00	83.0	5	38.00	11.70
S771HB16.0	16.00	0.30	16.00	39.00	92.0	5	44.00	15.70
S771HB20.0	20.00	0.30	20.00	48.00	104.0	5	54.00	19.70

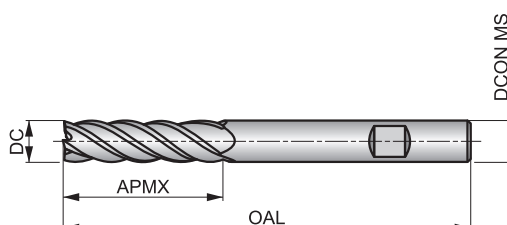
S772HB



5-Flute Solid Carbide End Mill, Long Series

Long cutting length 5-flute design with unequal helix provides high rigidity for pocketing, trochoidal and profile milling. AlCrN coating increases service life and improves performance. For interpolating, ramping and profile milling.

HM	N	NOF 5
	λ	γ 10°
DIN 6535HB	AlCrN	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

P1.1 ■ 148 G	P1.2 ■ 165 G	P1.3 ■ 170 G	P2.1 ■ 126 G	P2.2 ■ 111 G	P2.3 ■ 98 F	P3.1 ■ 102 G	P3.2 ■ 82 F	P3.3 ■ 69 F	P4.1 ■ 60 F	P4.2 ■ 52 F	M1.1 ■ 85 G	M1.2 ■ 72 G	M2.1 ■ 76 G
M2.2 ■ 62 G	M3.1 ■ 70 G	M3.2 ■ 60 G	K1.1 ■ 146 G	K1.2 ■ 108 G	K1.3 ■ 81 G	K2.1 ■ 150 G	K2.2 ■ 122 G	K2.3 ■ 97 F	K3.1 ■ 132 G	K3.2 ■ 102 G	K3.3 ■ 82 F	K4.1 ■ 123 F	K4.2 ■ 92 F
K4.3 ■ 68 F	K4.4 ■ 58 G	K4.5 ■ 48 G	K5.1 ■ 139 F	K5.2 ■ 104 F	K5.3 ■ 81 F	S1.2 ■ 50 F	S2.1 ■ 39 F	S3.1 ■ 29 F	S4.1 ■ 23 F				

DCON MS tolerance h6; RE ± 0.01 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	[mm]	
S772HB10.0	10.00	0.20	10.00	38.00	100.0	5
S772HB12.0	12.00	0.30	12.00	45.00	100.0	5
S772HB16.0	16.00	0.30	16.00	55.00	125.0	5
S772HB20.0	20.00	0.30	20.00	65.00	125.0	5

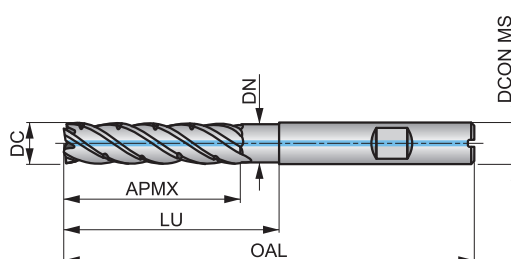
S773HB

DORMER



5-Flute Solid Carbide End Mill with Chip Dividers, Long Series

Long cutting length 5-flute design with chip dividers and unequal helix provides high rigidity for pocketing, trochoidal and profile milling. AlCrN coating increases service life and improves performance. For interpolating, ramping and profile milling.



HM	FS	NOF 5
	$\lambda \neq$	$\gamma 10^\circ$
DIN 6535HB	AlCrN	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	M1.1	M1.2	M2.1
■ 155 G	■ 173 G	■ 179 G	■ 132 G	■ 117 G	■ 103 F	■ 107 G	■ 86 F	■ 72 F	■ 63 F	■ 55 F	■ 89 F	■ 76 F	■ 80 F
M2.2	M3.1	M3.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3	K3.1	K3.2	K3.3	K4.1	K4.2
■ 65 F	■ 74 F	■ 63 F	■ 153 G	■ 113 G	■ 85 G	■ 158 G	■ 128 G	■ 102 F	■ 139 G	■ 107 G	■ 86 F	■ 129 F	■ 97 F
K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	S1.2	S2.1	S3.1	S4.1				
■ 71 F	■ 61 F	■ 50 F	■ 146 F	■ 109 F	■ 85 F	■ 53 F	■ 41 F	■ 30 F	■ 24 F				

DCON MS tolerance h6; RE ± 0.01 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF	LU	DN
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]
S773HB10.0	10.00	0.20	10.00	42.00	100.0	5	52.00	9.70
S773HB12.0	12.00	0.20	12.00	42.00	100.0	5	54.00	11.70
S773HB16.0	16.00	0.30	16.00	60.00	125.0	5	68.00	15.70
S773HB20.0	20.00	0.30	20.00	67.00	125.0	5	75.00	19.70

S791

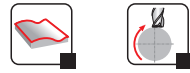
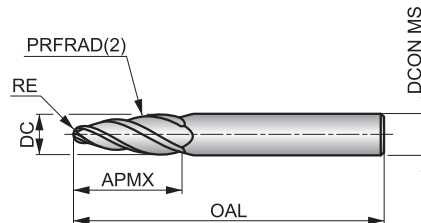
DORMER



3 & 4 - Flute Solid Carbide Barrel End Mill

Medium cutting length 3 & 4-flute design with large tangential radius and ball nose to increase contact with workpiece to reduce cycle time and improve surface finish of steep walls. AlCrN coating increases service life and improves performance. For semi-finishing and finishing.

HM	N	NOF 3-4
	λ 30°	γ 8°
DIN 6535HA	AlCrN	
DORMER		



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

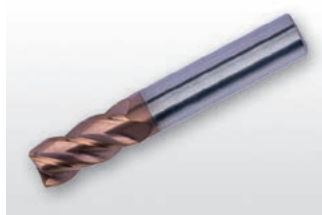
P1.1 ■ 161 F	P1.2 ■ 181 F	P1.3 ■ 186 F	P2.1 ■ 138 F	P2.2 ■ 121 F	P2.3 ■ 108 E	P3.1 ■ 112 F	P3.2 ■ 90 E	P3.3 ■ 76 E	P4.1 ■ 66 E	P4.2 ■ 57 E	P4.3 ■ 46 E	M1.1 ■ 94 F	M1.2 ■ 79 F
M2.1 ■ 83 F	M2.2 ■ 69 E	M3.1 ■ 77 E	M3.2 ■ 66 E	M3.3 ■ 59 E	M4.1 ■ 58 E	K1.1 ■ 161 F	K1.2 ■ 119 F	K1.3 ■ 89 F	K2.1 ■ 165 F	K2.2 ■ 134 F	K2.3 ■ 107 E	K3.1 ■ 146 F	K3.2 ■ 112 F
K3.3 ■ 90 E	K4.1 ■ 136 E	K4.2 ■ 102 E	K4.3 ■ 75 E	K4.4 ■ 64 E	K4.5 ■ 54 E	K5.1 ■ 154 E	K5.2 ■ 115 E	K5.3 ■ 89 E	N1.1 ■ 355 I	N1.2 ■ 267 I	N1.3 ■ 179 I	N2.1 ■ 179 F	N2.2 ■ 160 F
N2.3 ■ 115 F	N3.1 ■ 187 F	N3.2 ■ 109 F	N3.3 ■ 56 F	N4.1 ■ 187 F	N4.2 ■ 72 F	S1.1 ■ 58 E	S1.2 ■ 56 E	S2.1 ■ 43 E	S3.1 ■ 33 E	S4.1 ■ 26 E			

DCON MS tolerance h6; RE ±0.01 mm; PRFRAD(2) ±0.01 mm.

Product	DC	RE	PRFRAD(2)	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
S7916.0	6.00	1.00	95.0	6.00	22.00	67.0	3
S7918.0	8.00	1.00	90.0	8.00	25.00	75.0	3
S79110.0	10.00	2.00	85.0	10.00	26.00	75.0	4
S79112.0	12.00	2.00	80.0	12.00	28.00	83.0	4
S79116.0	16.00	3.00	75.0	16.00	31.00	90.0	4

S561

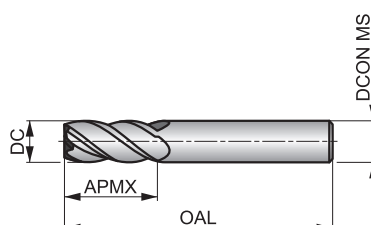
DORMER



4-Flute Solid Carbide End Mill

Medium cutting length 4-flute design provides high rigidity for standard profile milling. TiSiN coating improves performance and 40° helix is designed for high performance profiling on CNC machines. For high speed machining.

HM	N	NOF 4#
	λ 40°	γ -6°
DIN 6535HA	TiSiN	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

H1.1 ■ 119 I	H2.1 ■ 70 G	H2.2 ■ 60 E	H3.1 ■ 78 G	H3.2 ■ 64 G	H4.1 ■ 50 E	H4.2 ■ 42 B
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DCON MS tolerance h6.

Product	DC	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	
S5611.0	1.00	6.00	3.00	50.0	4
S5611.5	1.50	6.00	4.50	50.0	4
S5612.0	2.00	6.00	6.50	50.0	4
S5612.5	2.50	6.00	6.50	50.0	4
S5613.0	3.00	6.00	9.00	50.0	4
S5614.0	4.00	6.00	12.00	50.0	4
S5615.0	5.00	6.00	15.00	50.0	4
S5616.0	6.00	6.00	20.00	60.0	4
S5618.0	8.00	8.00	20.00	64.0	4
S56110.0	10.00	10.00	22.00	70.0	4
S56112.0	12.00	12.00	25.00	75.0	4
S56114.0	14.00	14.00	32.00	90.0	4
S56116.0	16.00	16.00	32.00	90.0	4
S56118.0	18.00	18.00	38.00	100.0	4
S56120.0	20.00	20.00	38.00	100.0	4

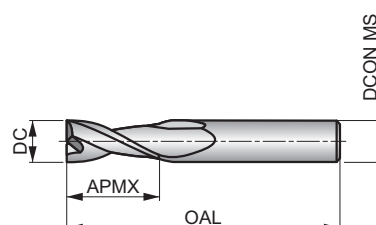
S610



2-Flute Solid Carbide End Mill

Short cutting length 2-flute design provides high rigidity for milling standard slots and profiling. S610 with high hook geometry is designed for high performance machining. Bright polished finish prevents work piece material from sticking to the cutting edge.

HM	W	NOF 2
	λ 30°	γ 20°
DIN 6535HA	Hi	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	N4.1	N4.2
■ 709 P	■ 533 P	■ 357 P	■ 357 O	■ 320 O	■ 229 O	■ 373 O	■ 219 O	■ 112 O	■ 373 R	■ 144 R

DCON MS tolerance h6; RE ±0.02 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	[mm]	
S6102.0	2.00	0.10	4.00	6.50	40.0	2
S6103.0XD3	3.00	0.10	3.00	9.00	40.0	2
S6103.0XD6	3.00	0.10	6.00	9.00	50.0	2
S6104.0XD4	4.00	0.10	4.00	12.00	50.0	2
S6104.0XD6	4.00	0.10	6.00	12.00	50.0	2
S6105.0	5.00	0.10	6.00	15.00	50.0	2
S6106.0	6.00	0.10	6.00	20.00	50.0	2
S6108.0	8.00	0.10	8.00	20.00	64.0	2
S61010.0	10.00	0.10	10.00	22.00	75.0	2
S61012.0	12.00	0.10	12.00	25.00	75.0	2
S61014.0	14.00	0.10	14.00	32.00	90.0	2
S61016.0	16.00	0.10	16.00	32.00	90.0	2
S61020.0	20.00	0.10	20.00	38.00	100.0	2

S611

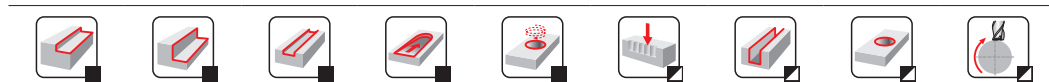
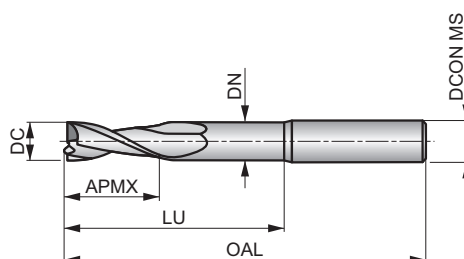
DORMER



2-Flute Solid Carbide End Mill, Long Reach

Short cutting length and long reach 2-flute design provides high rigidity for milling and profiling in hard to reach areas. S611 with high hook geometry is designed for high performance machining. Bright polished finish prevents work piece material from sticking to the cutting edge.

HM	W	NOF 2
	λ 30°	γ 20°
DIN 6535HA	Hi	DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	N4.1	N4.2
■ 638 P	■ 480 P	■ 321 P	■ 321 O	■ 288 O	■ 206 O	■ 336 O	■ 197 O	■ 101 O	■ 336 R	■ 130 R

DCON MS tolerance h6; RE ± 0.02 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF	LU	DN
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]
S6113.0XD3	3.00	0.10	3.00	9.00	40.0	2	15.00	2.80
S6113.0XD6	3.00	0.10	6.00	9.00	50.0	2	15.00	2.80
S6114.0XD4	4.00	0.10	4.00	12.00	50.0	2	20.00	3.70
S6114.0XD6	4.00	0.10	6.00	12.00	50.0	2	20.00	3.70
S6115.0	5.00	0.10	6.00	15.00	50.0	2	20.00	4.60
S6116.0	6.00	0.10	6.00	16.00	80.0	2	40.00	5.50
S6118.0	8.00	0.10	8.00	20.00	80.0	2	40.00	7.40
S61110.0	10.00	0.10	10.00	22.00	100.0	2	60.00	9.20
S61112.0	12.00	0.10	12.00	25.00	100.0	2	60.00	11.00
S61114.0	14.00	0.10	14.00	32.00	125.0	2	75.00	13.00
S61116.0	16.00	0.10	16.00	32.00	125.0	2	75.00	15.00
S61120.0	20.00	0.10	20.00	38.00	125.0	2	75.00	19.00

S614

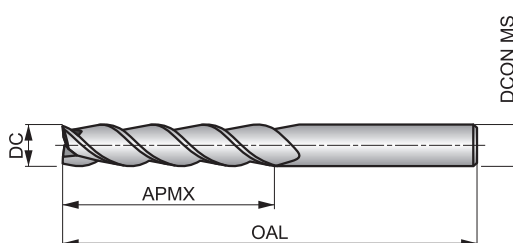
DORMER



3-Flute Solid Carbide End Mill, Long Series

Extra long cutting length and long reach 3-flute design provides high rigidity for milling and profiling in hard to reach areas. S614 with high hook geometry is designed for high performance machining. Bright finish prevents work piece material from sticking to the cutting edge.

HM	W	NOF 3
	λ 40°	γ 13°
DIN 6535HA		DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	N4.1	N4.2
■ 638 G	■ 480 G	■ 321 G	■ 321 F	■ 288 F	■ 206 F	■ 336 F	■ 197 F	■ 101 F	■ 336 I	■ 130 I

DCON MS tolerance h6.

Product	DC	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	
S6143.0XD3	3.00	3.00	19.00	60.0	3
S6143.0XD6	3.00	6.00	19.00	75.0	3
S6144.0XD4	4.00	4.00	19.00	60.0	3
S6144.0XD6	4.00	6.00	19.00	75.0	3
S6145.0	5.00	6.00	19.00	75.0	3
S6146.0	6.00	6.00	31.00	75.0	3
S6148.0	8.00	8.00	41.00	100.0	3
S61410.0	10.00	10.00	50.00	100.0	3
S61412.0	12.00	12.00	50.00	100.0	3
S61414.0	14.00	14.00	57.00	125.0	3
S61416.0	16.00	16.00	57.00	125.0	3

S629

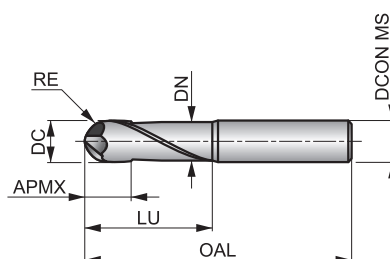
DORMER



2-Flute Solid Carbide End Mill, Ball-Nosed

Extra short cutting length 2-flute design reduces vibrations and provides high rigidity. Ball nose geometry is designed for high performance contouring of complex surfaces. Bright finish prevents work piece material from sticking to the cutting edge.

HM	W	NOF 2
	λ 30°	γ 15°
DIN 6535HA		DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	N4.1	N4.2
■ 709 N	■ 533 N	■ 357 N	■ 357 N	■ 320 N	■ 229 N	■ 373 N	■ 219 N	■ 112 N	■ 373 0	■ 144 0

DCON MS tolerance h6; RE +0/-0.02 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF	LU	DN
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]
S6291.0 ¹⁾	1.00	0.50	4.00	0.80	50.0	2	10.00	0.90
S6291.5 ¹⁾	1.50	0.75	4.00	1.20	50.0	2	12.00	1.40
S6292.0 ¹⁾	2.00	1.00	4.00	1.60	60.0	2	18.00	1.90
S6293.0	3.00	1.50	6.00	5.00	57.0	2	20.00	2.80
S6294.0	4.00	2.00	6.00	6.00	57.0	2	20.00	3.70
S6295.0	5.00	2.50	6.00	7.00	57.0	2	20.00	4.60
S6296.0	6.00	3.00	6.00	8.00	57.0	2	20.00	5.50
S6298.0	8.00	4.00	8.00	10.00	64.0	2	25.00	7.40
S62910.0	10.00	5.00	10.00	12.00	75.0	2	35.00	9.20
S62912.0	12.00	6.00	12.00	14.00	75.0	2	35.00	11.00
S62916.0	16.00	8.00	16.00	18.00	90.0	2	45.00	15.00
S62920.0	20.00	10.00	20.00	22.00	100.0	2	50.00	19.00

¹⁾ rake angle 11°

S650

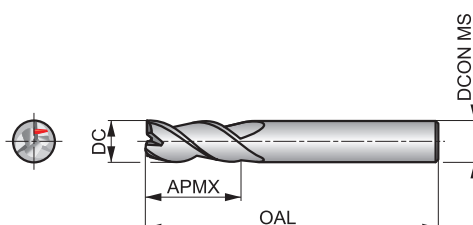
DORMER



3-Flute Solid Carbide End Mill

Short cutting length 3-flute design provides high rigidity for milling and profiling. S650 with high hook geometry is designed for high performance machining. Bright finish prevents work piece material from sticking to the cutting edge.

HM	W	NOF 3#
	λ 40°	γ 13°
DIN 6535HA		DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

N1.1 ■ 780 O	N1.2 ■ 608 O	N1.3 ■ 393 O	N2.1 ■ 393 N	N2.2 ■ 352 N	N2.3 ■ 252 N	N3.1 ■ 410 N	N3.2 ■ 241 N	N3.3 ■ 123 N	N4.1 ■ 410 P	N4.2 ■ 158 P
------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------

DCON MS tolerance h6.

Product	DC	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	
S6501.0	1.00	4.00	3.00	40.0	3
S6501.5	1.50	4.00	4.50	40.0	3
S6502.0	2.00	4.00	6.50	40.0	3
S6502.5	2.50	4.00	6.50	40.0	3
S6503.0XD3	3.00	3.00	9.00	40.0	3
S6503.0XD6	3.00	6.00	9.00	50.0	3
S6504.0XD4	4.00	4.00	12.00	50.0	3
S6504.0XD6	4.00	6.00	12.00	50.0	3
S6505.0	5.00	6.00	15.00	50.0	3
S6506.0	6.00	6.00	16.00	50.0	3
S6508.0	8.00	8.00	20.00	64.0	3
S65010.0	10.00	10.00	22.00	70.0	3
S65012.0	12.00	12.00	25.00	75.0	3
S65014.0	14.00	14.00	32.00	90.0	3
S65016.0	16.00	16.00	32.00	90.0	3
S65020.0 ¹⁾	20.00	20.00	38.00	100.0	3

¹⁾ No differential pitch

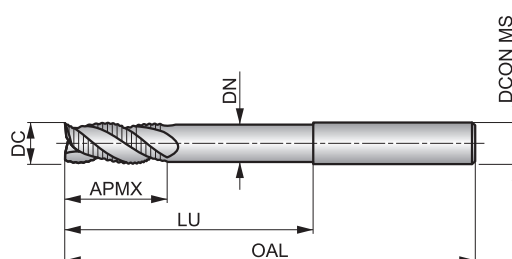
S654

DORMER



3-Flute Solid Carbide Roughing End Mill, Long Reach

Short cutting length and long reach 3-flute roughing design provides high rigidity for milling and profiling. S654 with NRA profile is designed for high performance roughing. Bright finish prevents work piece material from sticking to the cutting edge.



HM	W NRA	NOF 3 $\neq$
	λ 40°	γ 15°
DIN 6535HA		DC h9
	DORMER	



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	N4.1	N4.2
■ 709 O	■ 533 O	■ 357 O	■ 357 N	■ 320 N	■ 229 N	■ 373 N	■ 219 N	■ 112 N	■ 373 P	■ 144 P

DCON MS tolerance h6; RE ± 0.02 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF	LU	DN
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]
S6546.0	6.00	0.10	6.00	13.00	75.0	3	40.00	5.50
S6548.0	8.00	0.10	8.00	20.00	75.0	3	40.00	7.40
S65410.0	10.00	0.10	10.00	22.00	100.0	3	60.00	9.20
S65412.0	12.00	0.12	12.00	26.00	100.0	3	60.00	11.00
S65416.0	16.00	0.16	16.00	32.00	125.0	3	75.00	15.00
S65420.0	20.00	0.20	20.00	40.00	150.0	3	100.00	19.00

S662

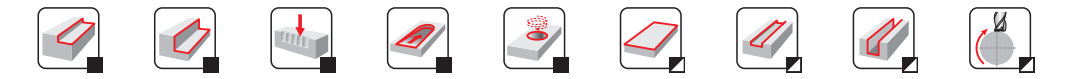
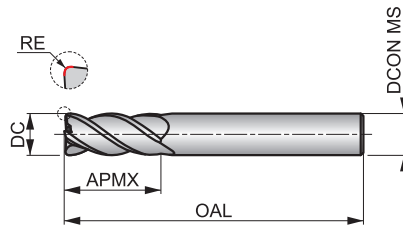
DORMER

4-Flute Solid Carbide Corner Radius End Mill

Short cutting length 4-flute design with corner radius for profile milling where a fillet radius is required. S662 with high hook geometry is designed for high performance machining. Bright finish prevents work piece material from sticking to the cutting edge.



HM	W	NOF 4±
	λ 40°	γ 10°



Workpiece material group suitability and starting values for cutting speed (m/min). Letter code feed table can be found on page 22.

N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	N4.1	N4.2
■ 709 0	■ 533 0	■ 357 0	■ 357 N	■ 320 N	■ 229 N	■ 373 N	■ 219 N	■ 112 N	■ 373 P	■ 144 P

DCON MS tolerance h6; RE ±0.01 mm.

Product	DC	RE	DCON MS	APMX	OAL	NOF
	[mm]	[mm]	[mm]	[mm]	[mm]	
S6623.0XR0.3	3.00	0.30	6.00	9.00	57.0	4
S6624.0XR0.3	4.00	0.30	6.00	12.00	57.0	4
S6624.0XR0.5	4.00	0.50	6.00	12.00	57.0	4
S6625.0XR0.3	5.00	0.30	6.00	15.00	57.0	4
S6625.0XR0.5	5.00	0.50	6.00	15.00	57.0	4
S6626.0XR0.5	6.00	0.50	6.00	16.00	57.0	4
S6626.0XR1.0	6.00	1.00	6.00	16.00	57.0	4
S6626.0XR2.0	6.00	2.00	6.00	16.00	57.0	4
S6628.0XR0.5	8.00	0.50	8.00	20.00	64.0	4
S6628.0XR1.0	8.00	1.00	8.00	20.00	64.0	4
S6628.0XR2.0	8.00	2.00	8.00	20.00	64.0	4
S66210.0XR0.5	10.00	0.50	10.00	22.00	72.0	4
S66210.0XR1.0	10.00	1.00	10.00	22.00	72.0	4
S66210.0XR2.0	10.00	2.00	10.00	22.00	72.0	4
S66212.0XR1.0	12.00	1.00	12.00	26.00	83.0	4
S66212.0XR2.0	12.00	2.00	12.00	26.00	83.0	4
S66212.0XR2.5	12.00	2.50	12.00	26.00	83.0	4
S66212.0XR3.0	12.00	3.00	12.00	26.00	83.0	4
S66216.0XR1.0	16.00	1.00	16.00	32.00	92.0	4
S66216.0XR2.0	16.00	2.00	16.00	32.00	92.0	4
S66216.0XR3.0	16.00	3.00	16.00	32.00	92.0	4
S66216.0XR4.0	16.00	4.00	16.00	32.00	92.0	4
S66220.0XR2.0	20.00	2.00	20.00	38.00	104.0	4
S66220.0XR4.0	20.00	4.00	20.00	38.00	104.0	4





INTRODUCTION

We have expanded our offer for true 90° shoulder milling in various materials. This includes a range of TNGX16 inserts, with improved cost per edge, and an assortment of STN16 cutters. The larger inserts provide greater depths of cut (up to 10mm) and higher feed on the existing TNGX10 range.

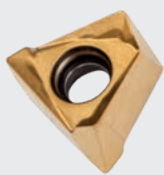
SEE TOOL
IN ACTION



INSERTS FEATURES & BENEFITS

- Double-sided robust inserts with six-cutting edges offering **improved cost savings**.
- Reduced cutting forces, leading to smooth and quiet machining for **process security**.
- Low cutting resistance to improve the connection between passes for true 90° milling and creating an **excellent surface quality**.
- Positive geometry and through coolant for **improved chip evacuation**.
- Reduced **vibrations and lower power consumption**.
- Suitable for **various materials**, including steels, stainless steels, cast iron and non-ferrous, **and applications**: face, slot and shoulder milling.
- Radii from 0.4 to 1.6mm.
- Available alongside a wide range of grades.

INSERTS GEOMETRIES

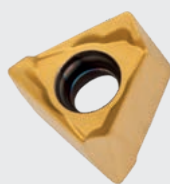


F

GEOMETRY F

First choice for low to medium carbon content steel.

- High positive geometry with narrow peripheral land.
- Particularly suited to light and medium machining.

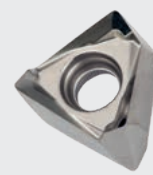


M

GEOMETRY M

Machining carbon steel, standard stainless steels and cast iron.

- High positive geometry with medium T-land.
- Particularly suited to light and medium machining.



FA

GEOMETRY FA

Particularly suited for non-ferrous metals.

- High positive geometry with a sharp cutting edge.
- Polished insert face to reduce sticking of the machined material.

STN16 CUTTERS FEATURES & BENEFITS

- Higher number of teeth for **greater productivity**, compared to original assortment.
- Differential pitch available for **smooth machining** of cutter (from 50mm diameter).
- **Through coolant** for all cutter diameters.
- Precision machined pocket design for **repeatability and security**.
- Coarse-tooth and fine-tooth cutter options available.
- Large and strong clamping screws for **easier handling and stability**.
- Manufactured from coated tool steel for better **resistance against corrosion** and helps to **reduce friction**.

CUTTERS RANGE

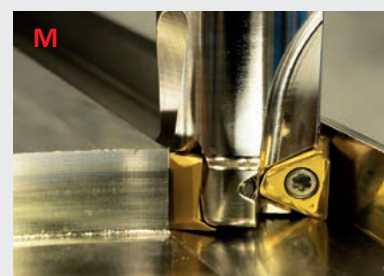


* 5.0 inch available on request only.

MACHINING EXAMPLE

Workpiece material: Rib (wall thickness 1mm)
Cutter: 32A3R042B32-STN16-C
Coolant: Air

Insert geometry			M	FA
Material			DIN 1.2343 / X37CrMoV5-1	EN AW-2017A
Insert			TNGX 160608SR-M:M8330	TNGX 160608FR-FA:M0315
Cutting speed	V_c	m/min	220	650
Feed	f	mm	0,15	0,10
Depth of cut	a_p	mm	3 x 5,0	3 x 5,0



STN16

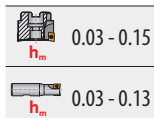
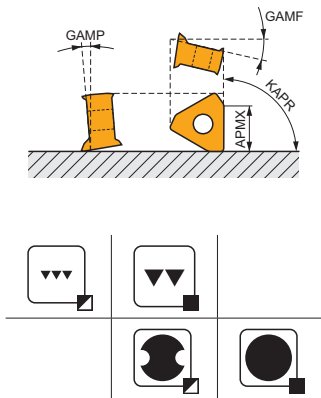


PRAMET

S



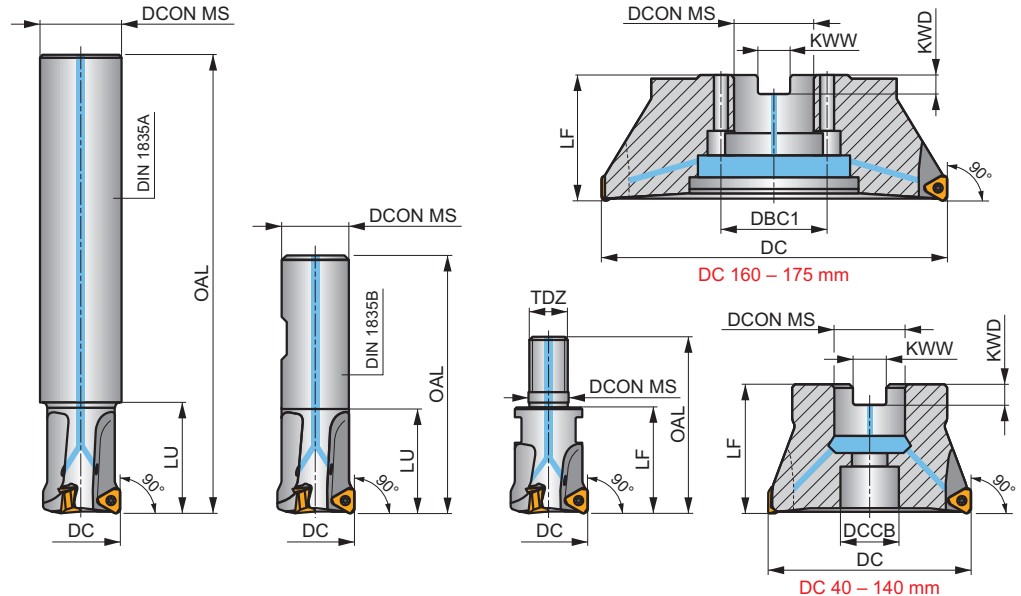
KAPR	90°
APMX	10.0 mm



ECON TN Square Shoulder End Mill for TNGX 16 Insert with Coolant Through

90° end-, or shell mill for double sided TNGX 16 inserts with 6 cutting edges APMX of 10mm. Suited for wide range of applications. Available in cylindrical, weldon, modular and arbor mounting, in Ø25 up to 175mm. Available with differential tooth setting. Body treated for longer tool life.

ECON TN



Product	DC	OAL	DCON MS	DCCB	DBC	LU	LF	TDZ	KWW	KWD	GAMF	GAMP								
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[°]	[°]								
 DIN 1835A	25A2R034A25-STN16-C	25	170	25	—	—	34	—	—	—	—	-18.5	-9.5	2	—	20000	✓	0.54	GI340	C0382
	32A2R034A32-STN16-C	32	195	32	—	—	34	—	—	—	—	-16	-9.5	2	—	17500	✓	1.05	GI340	C0382
	25A2R080A25-STN16-C	25	170	25	—	—	80	—	—	—	—	-18.5	-9.5	2	—	20000	✓	0.48	GI340	C0382
	32A2R080A32-STN16-C	32	195	32	—	—	80	—	—	—	—	-16	-9.5	2	—	17500	✓	0.96	GI340	C0382
	32A3R034A32-STN16-C	32	195	32	—	—	34	—	—	—	—	-16	-9.5	3	—	17500	✓	1.04	GI340	C0382
	35A3R034A32-STN16-C	32	195	32	—	—	34	—	—	—	—	-16	-9.5	3	—	17000	✓	1.07	GI340	C0382
 DIN 1835B	25A2R042B25-STN16-C	25	55	25	—	—	42	—	—	—	—	-18.5	-9.5	2	—	20000	✓	0.30	GI340	C0382
	32A3R042B32-STN16-C	32	110	32	—	—	42	—	—	—	—	-16	-9.5	3	—	17500	✓	0.52	GI340	C0382
	40A4R050B32-STN16-C	40	120	32	—	—	50	—	—	—	—	-16	-9.5	4	—	16000	✓	0.67	GI340	C0382
 MODULAR	25A2R033M12-STN16-C	25	55	12.5	—	—	33	—	M12	—	—	-18.5	-9.5	2	—	20000	✓	0.08	GI340	C0382
	32A2R043M16-STN16-C	32	66	17	—	—	43	—	M16	—	—	-16	-9.5	2	—	17500	✓	0.18	GI340	C0382
	32A3R043M16-STN16-C	32	66	17	—	—	43	—	M16	—	—	-16	-9.5	3	—	17500	✓	0.17	GI340	C0382
	40A3R043M16-STN16-C	40	66	17	—	—	43	—	M16	—	—	-16	-9.5	3	—	16000	✓	0.20	GI340	C0382
	40A4R043M16-STN16-C	40	66	17	—	—	43	—	M16	—	—	-16	-9.5	4	—	16000	✓	0.21	GI340	C0382
 ISO 6462 DIN 8030	40A03R-S90TN16-C	40	40	16	12.4	—	—	—	8.4	5.6	-16	-9.5	4	—	16000	✓	0.20	GI340	C0384	
	40A04R-S90TN16-C	40	40	16	12.4	—	—	—	8.4	5.6	-16	-9.5	4	—	16000	✓	0.20	GI340	C0384	
	50A04R-S90TN16-C	50	40	22	18.1	—	—	—	10.4	6.3	-16	-9.5	4	✓	14000	✓	0.34	GI340	C0386	
	50A05R-S90TN16-C	50	40	22	18.1	—	—	—	10.4	6.3	-16	-9.5	5	✓	14000	✓	0.32	GI340	C0386	
	63A04R-S90TN16-C	63	40	22	18.1	—	—	—	10.4	6.3	-16	-9.5	4	✓	12500	✓	0.47	GI340	C0386	
	63A06R-S90TN16-C	63	40	22	18.1	—	—	—	10.4	6.3	-16	-9.5	6	✓	12500	✓	0.48	GI340	C0386	
	80A05R-S90TN16-C	80	50	27	22.1	—	—	—	12.4	7	-16	-9.5	5	✓	11000	✓	1.02	GI340	C0388	
	80A07R-S90TN16-C	80	50	27	22.1	—	—	—	12.4	7	-16	-9.5	7	✓	11000	✓	1.05	GI340	C0388	
	100A06R-S90TN16-C	100	50	32	45.1	—	—	—	14.4	8	-16	-9.5	6	✓	10000	✓	1.79	GI340	C0390	
	100A08R-S90TN16-C	100	50	32	45.1	—	—	—	14.4	8	-16	-9.5	8	✓	10000	✓	1.66	GI340	C0390	
	115A06R-S90TN16-C	115	50	32	45.1	—	—	—	14.4	8	-16	-9.5	6	✓	9500	✓	2.04	GI340	C0390	
	125A07R-S90TN16-C	125	63	40	56.1	—	—	—	16.4	9	-16	-9.5	7	✓	9000	✓	3.05	GI340	C0390	
125A09R-S90TN16-C	125	63	40	56.1	—	—	—	16.4	9	-16	-9.5	9	✓	9000	✓	3.14	GI340	C0390		

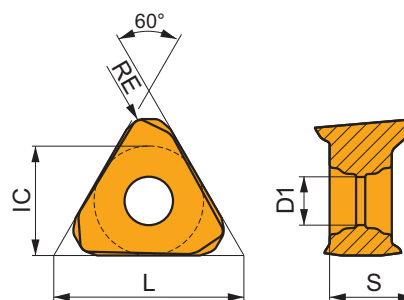
Product	DC	OAL	DCON MS	DCB	DBC	LU	LF	TDZ	KWW	KWD	GAMF	GAMP					
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[°]	[°]					
140A08R-S90TN16-C	140	63	40	56.1	—	—	—	—	16.4	9	-16	-9.5	8	✓	8500	✓	3.69 GI340 C0390
160C10R-S90TN16-C	160	63	40	—	66.7	—	—	—	16.4	9.2	-16	-9.5	10	✓	8000	✓	5.16 GI340 C0394
175C10R-S90TN16-C	175	63	40	—	66.7	—	—	—	16.4	9.2	-16	-9.5	10	✓	7500	✓	5.99 GI340 C0394

	TNGX1606..
--	------------

C0382	US 44010-T15P	3.5	M 4	10	—	—	Flag T15P	—	—	—	—	—	—
C0384	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	—	HS 90835	—	—	—	—	—
C0386	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	—	HS 1030C	—	—	—	—	—
C0388	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	—	HS 1230C	—	—	—	—	—
C0390	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	—	—	—	—	—	—	—
C0394	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	—	HS 1240C	HSD 0825C	CAC 160C	—	—	—

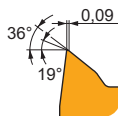
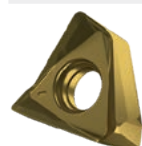
TNGX 16

	IC	D1	L	S
	[mm]	[mm]	[mm]	[mm]
1606	9.525	4.4	16.5	6.58



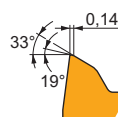
Suitability and starting values for cutting speed (vc), feed (f) and depth of cut (ap). Refer to our Machining Calculator app for further calculations.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]



F geometry with highly positive design for light machining.

TNGX 160604SR-F	M8330	0.40	■	205	0.10	3.0	■	120	0.09	3.0	■	190	0.10	3.0	—	—	—	—	—	—
	M8340	0.40	■	190	0.10	3.0	■	110	0.09	3.0	■	180	0.10	3.0	—	—	—	—	—	—
TNGX 160608SR-F	8215	0.80	■	250	0.10	3.0	■	150	0.09	3.0	■	235	0.10	3.0	—	—	—	—	—	—
	M6330	0.80	■	215	0.10	3.0	■	150	0.09	3.0	—	—	—	—	—	—	—	—	—	—
	M8310	0.80	■	280	0.10	3.0	■	140	0.09	3.0	■	265	0.10	3.0	—	—	—	—	—	—
	M8330	0.80	■	245	0.10	3.0	■	145	0.09	3.0	■	230	0.10	3.0	—	—	—	—	—	—
	M8340	0.80	■	225	0.10	3.0	■	135	0.09	3.0	■	210	0.10	3.0	—	—	—	—	—	—

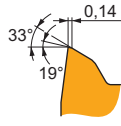
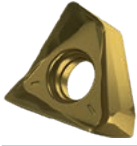


M geometry with positive design for light to medium machining.

TNGX 160604SR-M	8215	0.40	■	190	0.15	3.0	■	110	0.14	3.0	■	180	0.15	3.0	—	—	—	■	45	0.11	2.4
	M6330	0.40	■	165	0.15	3.0	■	115	0.14	3.0	—	—	—	—	—	—	—	■	45	0.11	2.4
	M8310	0.40	■	205	0.15	3.0	■	100	0.14	3.0	■	190	0.15	3.0	—	—	—	—	—	—	—
	M8330	0.40	■	190	0.15	3.0	■	110	0.14	3.0	■	180	0.15	3.0	—	—	—	■	45	0.11	2.4
	M8340	0.40	■	170	0.15	3.0	■	100	0.14	3.0	■	160	0.15	3.0	—	—	—	■	40	0.11	2.4

Suitability and starting values for cutting speed (vc), feed (f) and depth of cut (ap). Refer to our Machining Calculator app for further calculations.

Product		RE [mm]	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
			[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]



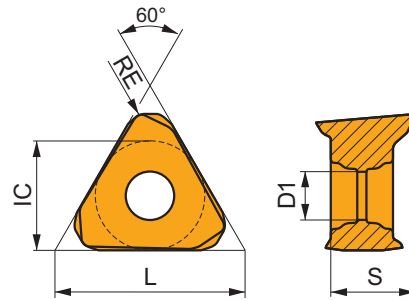
M geometry with positive design for light to medium machining.

TNGX 160608SR-M	8215	0.80	230	0.15	3.0	135	0.14	3.0	215	0.15	3.0	—	—	—	55	0.11	2.4	—	—	—
	M6330	0.80	195	0.15	3.0	135	0.14	3.0	—	—	—	—	—	—	55	0.11	2.4	—	—	—
	M8310	0.80	245	0.15	3.0	120	0.14	3.0	230	0.15	3.0	—	—	—	—	—	—	—	—	—
	M8330	0.80	225	0.15	3.0	135	0.14	3.0	210	0.15	3.0	—	—	—	55	0.11	2.4	—	—	—
	M8340	0.80	205	0.15	3.0	120	0.14	3.0	190	0.15	3.0	—	—	—	50	0.11	2.4	—	—	—
	M8345	0.80	160	0.15	3.0	95	0.14	3.0	—	—	—	—	—	—	40	0.11	2.4	—	—	—
	M9325	0.80	285	0.15	3.0	—	—	—	270	0.15	3.0	—	—	—	—	—	—	—	—	—
TNGX 160612SR-M	M9340	0.80	260	0.15	3.0	155	0.14	3.0	—	—	—	—	—	—	65	0.11	2.4	—	—	—
	M8330	1.20	235	0.15	3.0	140	0.14	3.0	220	0.15	3.0	—	—	—	55	0.11	2.4	—	—	—
TNGX 160616SR-M	M8340	1.20	215	0.15	3.0	125	0.14	3.0	200	0.15	3.0	—	—	—	50	0.11	2.4	—	—	—
	M8310	1.60	275	0.15	3.0	140	0.14	3.0	260	0.15	3.0	—	—	—	—	—	—	—	—	—
	M8330	1.60	250	0.15	3.0	150	0.14	3.0	235	0.15	3.0	—	—	—	60	0.11	2.4	—	—	—
	M8340	1.60	225	0.15	3.0	135	0.14	3.0	210	0.15	3.0	—	—	—	55	0.11	2.4	—	—	—

TNGX 16-FA

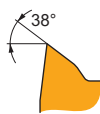
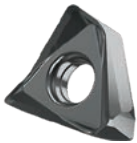
PRAMET

	IC	D1	L	S
	[mm]	[mm]	[mm]	[mm]
1606	9.525	4.4	16.5	6.58



Suitability and starting values for cutting speed (vc), feed (f) and depth of cut (ap). Refer to our Machining Calculator app for further calculations.

Product		RE [mm]	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
			[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]	[m/min]	[mm/tooth]	[mm]



FA geometry with highly positive design for fine finish to medium machining.

TNGX 160604FR-FA	HF7	0.40	—	—	—	—	—	—	—	—	—	255	0.14	2.0	—	—	—	—	—	—
	M0315	0.40	—	—	—	—	—	—	—	—	—	585	0.14	2.0	—	—	—	—	—	—
TNGX 160608FR-FA	HF7	0.80	—	—	—	—	—	—	—	—	—	300	0.14	2.0	—	—	—	—	—	—
	M0315	0.80	—	—	—	—	—	—	—	—	—	690	0.14	2.0	—	—	—	—	—	—



AP	3,0	4,5	6,0
1 f	0,18	0,14	0,10

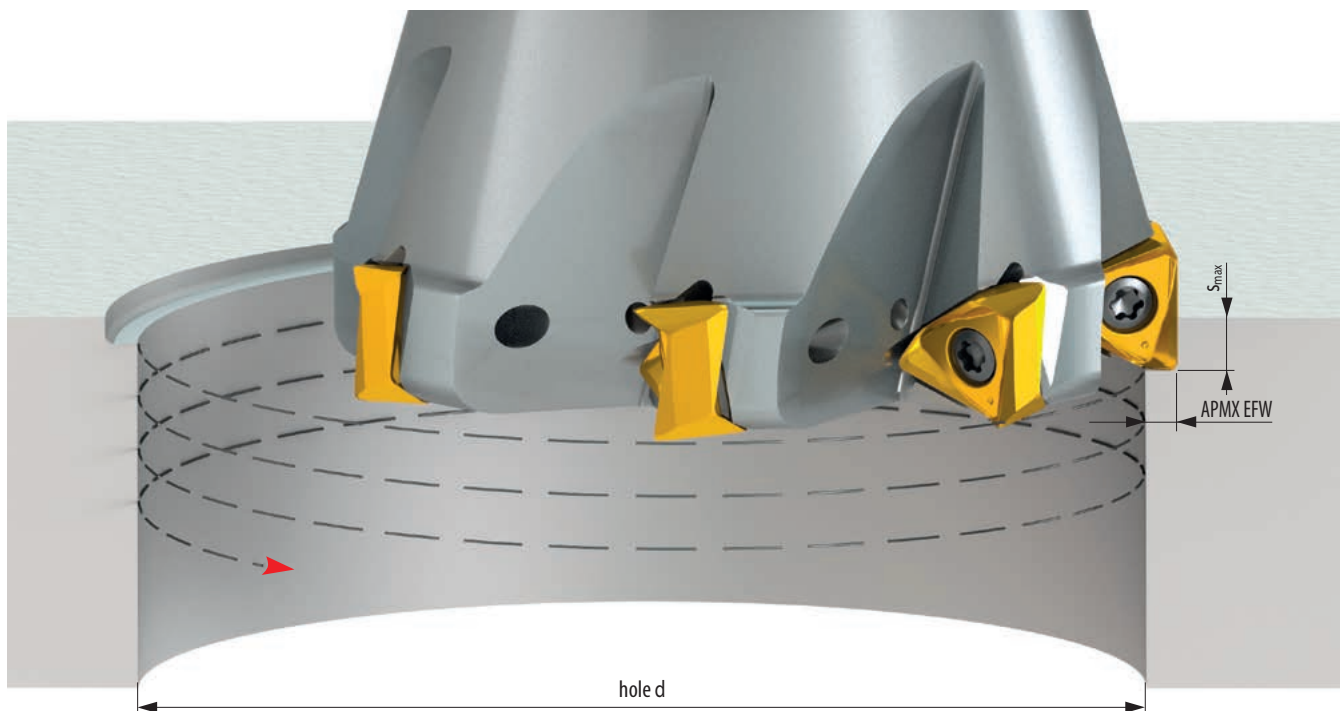
	TNGX 16-F		TNGX 16-M				TNGX 16-FA	
RE	0,4	0,8	0,4	0,8	1,2	1,6	0,4	0,8
BS	2,10	1,9	2,10	1,90	1,73	1,14	2,10	1,90



HELICAL INTERPOLATION INTO A PRE-DRILLED HOLE

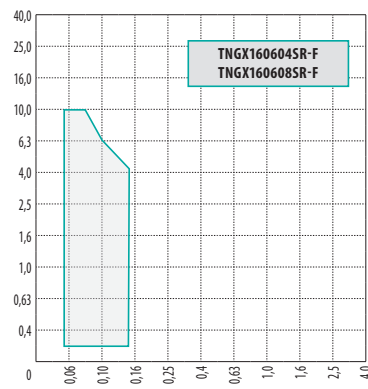
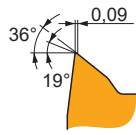
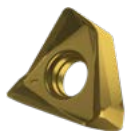
DC	hole d _{min}	d _{min} = DC *		hole d	d = 1,25 DC		hole d	d = 1,5 DC		hole d	d = 1,75 DC		hole d	d ≥ 2 DC	
		S _{max}	APMX EFW		S _{max}	APMX EFW		S _{max}	APMX EFW		S _{max}	APMX EFW		S _{max}	APMX EFW
25	25	0,14	1,3	31	0,22	2,2	38	0,33	3,0	44	0,60	4,0	50	0,70	5,0
32	32	0,16	1,5	40	0,33	2,8	48	0,44	4,0	56	0,70	5,0	64	0,90	6,5
40	40	0,22	2,0	50	0,38	3,5	60	0,55	5,0	70	0,90	6,5	80	1,15	8,0
50	50	0,27	2,5	63	0,50	4,5	75	0,70	6,5	88	1,00	8,0	100	1,40	10,0
63	63	0,33	3,2	80	0,60	5,5	95	0,90	8,0	110	1,45	10,0	125	1,80	12,5
80	80	0,55	4,0	100	1,00	7,0	120	1,45	10,0	140	2,15	13,0	160	2,60	16,0
100	100	0,70	5,0	125	1,20	9,0	150	1,80	12,5	175	2,70	16,5	200	3,30	20,0
115	115	0,85	6,0	145	1,50	10,0	175	1,90	14,5	200	2,80	19,0	230	3,80	23,0
125	125	0,90	6,5	155	1,60	11,0	190	2,30	15,5	220	3,10	20,0	250	4,10	25,0
140	140	1,00	7,0	175	1,80	12,5	210	2,60	17,5	245	3,70	23,0	280	4,60	28,0
160	160	1,20	8,0	200	2,00	14,0	240	2,90	20,0	280	4,30	26,0	320	5,30	32,0
175	175	1,30	8,8	220	2,20	15,5	265	3,20	22,0	305	4,70	29,0	350	5,80	35,0

* Check feed rate reduction when hole diameter is between d_{min} - 1,5 DC.



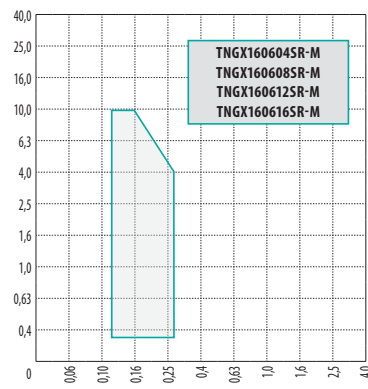
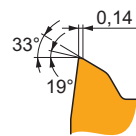
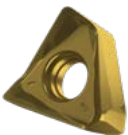
GEOMETRY OF CUTTING INSERTS

TNGX 16-F



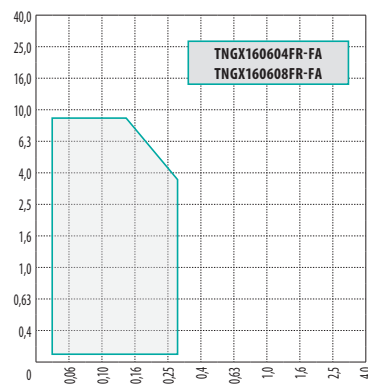
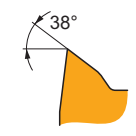
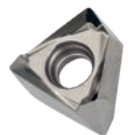
P	M	K	N	S	H
■	■	◼		◼	
	0,05 – 0,15				
	0,2 – 10,0				
					
					
 TNGX 160604SR-F, TNGX 160608SR-F					

TNGX 16-M



P	M	K	N	S	H
■	■	▣		▣	
	0,12 – 0,28				
	0,3 – 10,0				
 TNGX160604SR-M, TNGX160608SR-M, TNGX160612SR-M, TNGX160616SR-M					

TNGX 16-FA



P	M	K	N	S	H
			■		
	0,03 – 0,30				
	0,2 – 9,0				
					
					
	TNGX 160604FR-FA, TNGX 160608FR-FA				



INTRODUCTION

We have expanded our GL assortment for parting-off and deep grooving applications with a new range of tools, long double-edge inserts and geometries. The additions extend our offer for small part machining and grooving with a shorter overhang. These support copy profiling and longitudinal turning in a variety of materials.

SEE TOOL
IN ACTION



TOOLS FEATURES & BENEFITS

- New size (12x12) of tool holders for additional **radial operations**.
- **Same pocket** can accommodate various insert widths.
- Multiple options for **depth of cut capability** in all widths of inserts.
- Reinforced brace design provides high rigidity and vibration resistance for **good quality surface finish**.
- **Set-up time saving** due to accessible clamping screw [30° angled] and easy one-hand insert replacement.

TOOLS NEW ASSORTMENT



GLSF (RL) EXT

Universal tools

- Overhang 24-32mm



GLSF (RL) EXT-G

Grooving tools

- Overhang 10-12mm

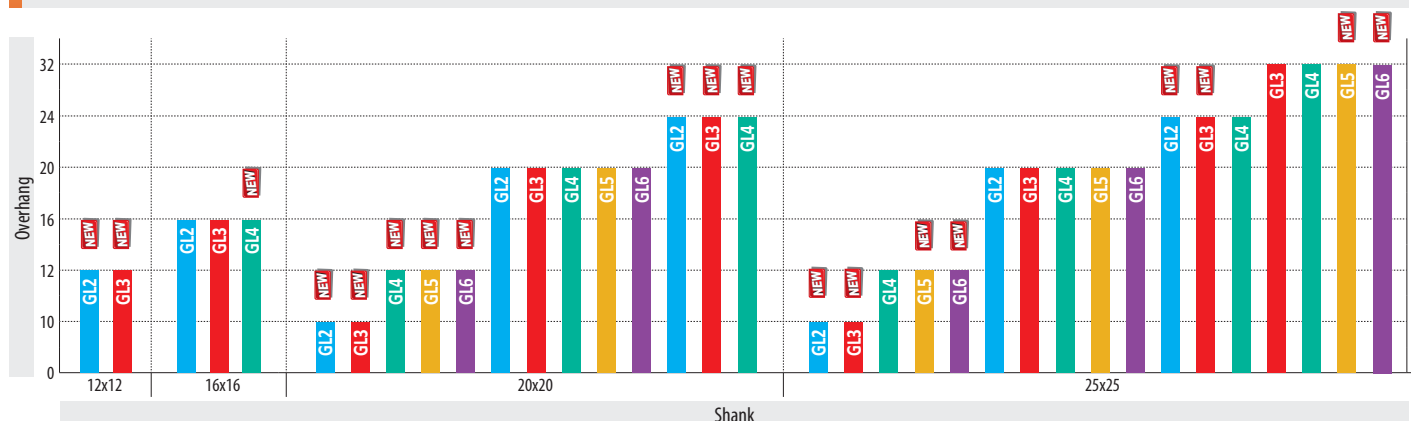


GLSF (RL) EXT-S

Small shank tools

- Small parts machining and Swiss lathes
- Shank 1212
- Insert GL4

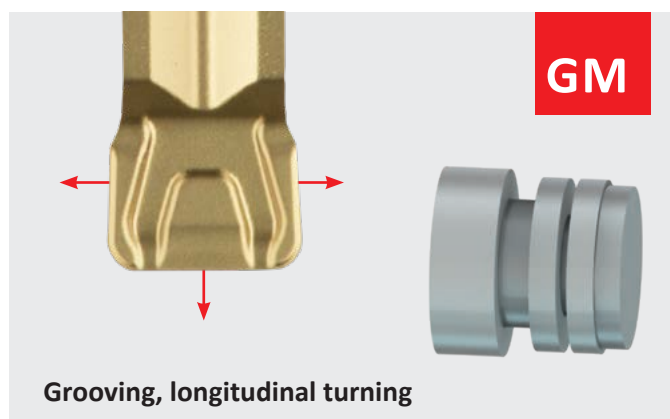
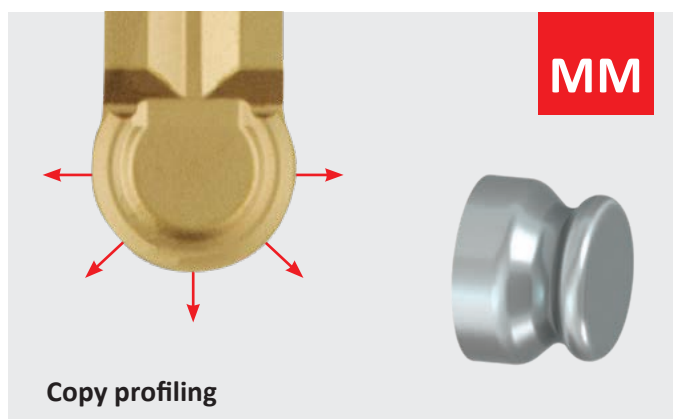
TOOLING CAPABILITIES / TOOL PERFORMANCE EXAMPLE



INSERTS FEATURES AND BENEFITS

- The 25mm double-edged inserts offer up to 60% **deeper grooving capacity**, compared with original assortment.
- New MM and GM geometries with positive T-land for **prolonged tool life** due to **low cutting forces** and reduced risk of build-up edge.
- Design of 5mm and 6mm MM inserts requires no **tool modification** for deeper cuts.
- All new inserts available in both CVD T7325 and PVD G8330 to cover a **wide range of materials**.
- More radii options to **machine different profiles**.
- Wider inserts available (up to 6mm) for small part machining.

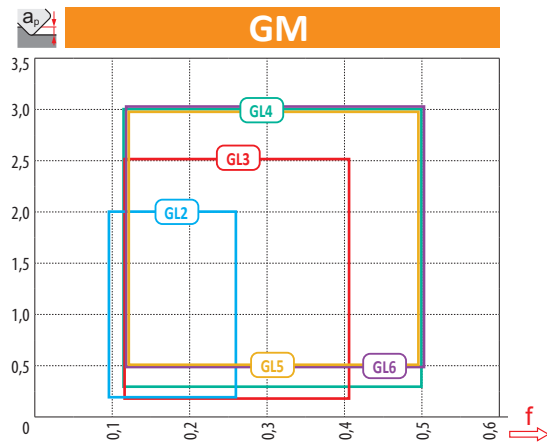
INSERTS NEW ASSORTMENT



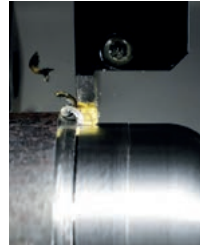
AREA OF APPLICATION

MACHINING EXAMPLES

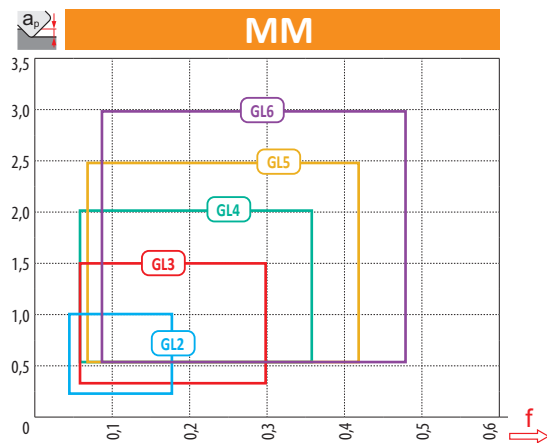
TURNING



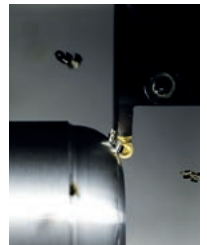
Workpiece: Bar
 Material: C45
 Material group: P2.2
 Operation: Longitudinal turning
 Tool: GL5-S2525MFL-12
 Insert: GL5-D500M08-GM; G8330
 Coolant: Yes



Insert Geometry			GM
Cutting speed	v_c	m/min	100
Feed	f	mm/rev	0,5
Depth of cut	a_p	mm	1,5

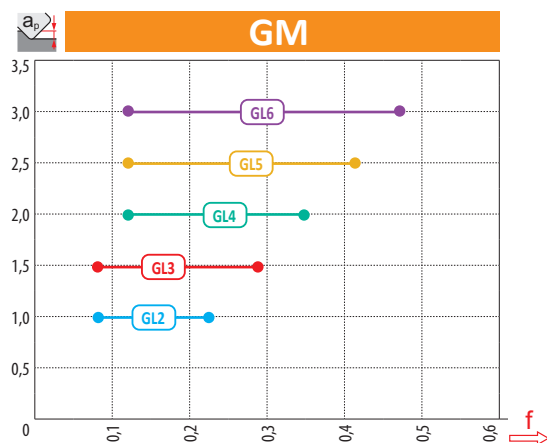


Workpiece: Bar
 Material: C45
 Material group: P2.2
 Operation: Copy profiling
 Tool: GL4-S2525MFL-12
 Insert: GL4-D400MMO-MM; G8330
 Coolant: Yes



Insert Geometry			MM
Cutting speed	v_c	m/min	100
Feed	f	mm/rev	0,4
Depth of cut	a_p	mm	1,0

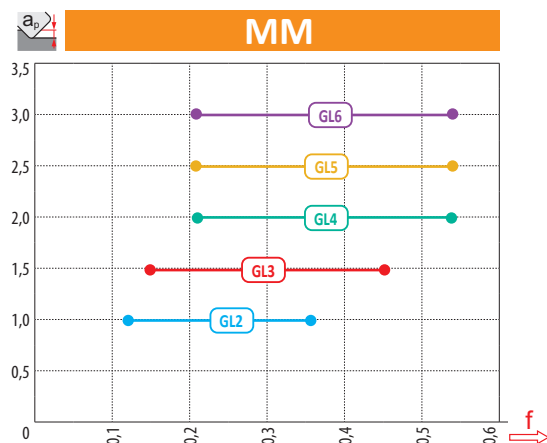
GROOVING



Workpiece: Bar
 Material: C45
 Material group: P2.2
 Operation: Grooving
 Tool: GL5-S2525MFL-12
 Insert: GL5-D500M08-GM; G8330
 Coolant: Yes



Insert Geometry			GM
Cutting speed	v_c	m/min	120
Feed	f	mm/rev	0,1
Depth of cut	a_p	mm	1,5



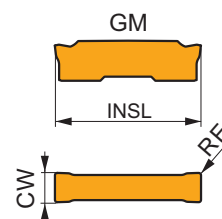
Workpiece: Bar
 Material: C45
 Material group: P2.2
 Operation: Grooving
 Tool: GL2-S2525MFL-10
 Insert: GL2-D200MMO-MM; G8330
 Coolant: Yes



Insert Geometry			MM
Cutting speed	v_c	m/min	120
Feed	f	mm/rev	0,1
Depth of cut	a_p	mm	1,0

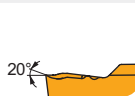
GL. D - GM

	CW	CWTOLL	CWTOLU	INSL
[mm]	[mm]	[mm]	[mm]	[mm]
200	2	-0.05	0.05	25
300	3	-0.05	0.05	25
400	4	-0.05	0.05	25
500	5	-0.05	0.05	25
600	6	-0.05	0.05	25



Suitability and starting values for cutting speed (vc), feed (f) and depth of cut (ap). Refer to our Machining Calculator app for further calculations.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]

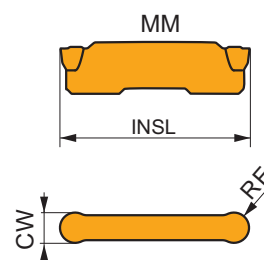


GM geometry for grooving and longitudinal turning, continuous to interrupted cuts.

GL2-D200M02-GM	G8330	0.20	■	190	0.10	0.8	■	110	0.09	0.8	■	180	0.10	0.8	■	45	0.08	0.6	■	—	—	—
	T7325	0.20	■	220	0.10	0.8	■	170	0.09	0.8	■	—	—	—	■	70	0.08	0.6	■	—	—	—
GL3-D300M02-GM	G8330	0.20	■	150	0.20	1.0	■	90	0.18	1.0	■	140	0.20	1.0	■	35	0.14	0.8	■	—	—	—
	T7325	0.20	■	175	0.20	1.0	■	135	0.18	1.0	■	—	—	—	■	55	0.14	0.8	■	—	—	—
GL3-D300M04-GM	G8330	0.40	■	160	0.20	1.0	■	95	0.18	1.0	■	150	0.20	1.0	■	40	0.14	0.8	■	—	—	—
	T7325	0.40	■	185	0.20	1.0	■	140	0.18	1.0	■	—	—	—	■	60	0.14	0.8	■	—	—	—
GL4-D400M04-GM	G8330	0.40	■	150	0.25	1.2	■	90	0.23	1.2	■	140	0.25	1.2	■	35	0.18	1.0	■	—	—	—
	T7325	0.40	■	170	0.25	1.2	■	130	0.23	1.2	■	—	—	—	■	55	0.18	1.0	■	—	—	—
GL4-D400M08-GM	G8330	0.80	■	180	0.25	1.2	■	105	0.23	1.2	■	170	0.25	1.2	■	45	0.18	1.0	■	—	—	—
	T7325	0.80	■	200	0.25	1.2	■	155	0.23	1.2	■	—	—	—	■	65	0.18	1.0	■	—	—	—
GL5-D500M08-GM	G8330	0.80	■	170	0.30	1.2	■	100	0.27	1.2	■	160	0.30	1.2	■	40	0.21	1.0	■	—	—	—
	T7325	0.80	■	190	0.30	1.2	■	145	0.27	1.2	■	—	—	—	■	60	0.21	1.0	■	—	—	—
GL6-D600M08-GM	G8330	0.80	■	170	0.30	1.2	■	100	0.27	1.2	■	160	0.30	1.2	■	40	0.21	1.0	■	—	—	—
	T7325	0.80	■	190	0.30	1.2	■	145	0.27	1.2	■	—	—	—	■	60	0.21	1.0	■	—	—	—

GL. D - MM

	CW	CWTOLL	CWTOLU	INSL
	[mm]	[mm]	[mm]	[mm]
200	2	-0.05	0.05	25
300	3	-0.05	0.05	25
400	4	-0.05	0.05	25
500	5	-0.05	0.05	26
600	6	-0.05	0.05	26



Suitability and starting values for cutting speed (vc), feed (f) and depth of cut (ap). Refer to our Machining Calculator app for further calculations.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]	[m/min]	[mm/rev]	[mm]



MM geometry with full radius shape for copy profiling and longitudinal turning, continuous to interrupted cuts.

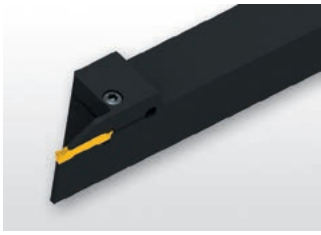
GL2-D200MM0-MM	G8330	1.00	■	250	0.10	1.0	■	150	0.09	1.0	■	235	0.10	1.0	■	60	0.08	0.8	■	—	—	—
	T7325	1.00	■	285	0.10	1.0	■	220	0.09	1.0	■	—	—	—	■	90	0.08	0.8	■	—	—	—
GL3-D300MM0-MM	G8330	1.50	■	210	0.20	1.2	■	125	0.18	1.2	■	195	0.20	1.2	■	50	0.14	1.0	■	—	—	—
	T7325	1.50	■	240	0.20	1.2	■	185	0.18	1.2	■	—	—	—	■	75	0.14	1.0	■	—	—	—
GL4-D400MM0-MM	G8330	2.00	■	220	0.20	1.2	■	130	0.18	1.2	■	205	0.20	1.2	■	55	0.14	1.0	■	—	—	—
	T7325	2.00	■	250	0.20	1.2	■	195	0.18	1.2	■	—	—	—	■	80	0.14	1.0	■	—	—	—
GL5-D500MM0-MM	G8330	2.50	■	205	0.25	1.2	■	120	0.23	1.2	■	190	0.25	1.2	■	50	0.18	1.0	■	—	—	—
	T7325	2.50	■	235	0.25	1.2	■	180	0.23	1.2	■	—	—	—	■	75	0.18	1.0	■	—	—	—
GL6-D600MM0-MM	G8330	3.00	■	195	0.30	1.2	■	115	0.27	1.2	■	185	0.30	1.2	■	45	0.21	1.0	■	—	—	—
	T7325	3.00	■	220	0.30	1.2	■	170	0.27	1.2	■	—	—	—	■	70	0.21	1.0	■	—	—	—

GLSF(RL) EXT



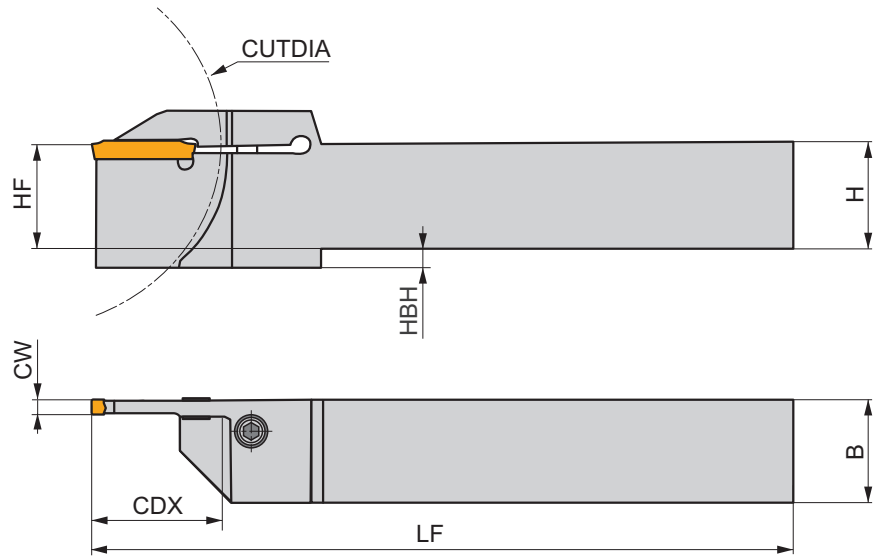
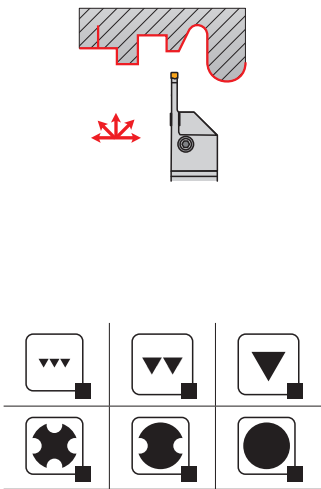
PRAMET

G



External V-Groove Top Clamp Grooving or Parting tool for GL Inserts

External R/L handed radial tool holder for grooving with double sided GL 2, 3, 4, 5, or 6 style inserts. Suited for radial grooving and parting-off applications up to 32mm depth of cut. Available in shank size 2020 or 2525mm. Reinforced body design for longer tool life and low vibrations.



Product		HF	HBH	H	B	LF	CW	CDX	CUTDIA	kg		
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			
R	GL2-S2020KFR-20-80	20	—	20	20	125	2	20	80	0.38	GI334	GL11
	GL2-S2020KFR-24-80	20	5	20	20	125	2	24	80	0.36	GI334	GL11
	GL2-S2525MFR-20-80	25	—	25	25	150	2	20	80	0.68	GI334	GL11
	GL2-S2525MFR-24-80	25	—	25	25	150	2	24	80	0.64	GI334	GL11
	GL3-S2020KFR-20-80	20	—	20	20	125	3	20	80	0.38	GI335	GL11
	GL3-S2020KFR-24-80	20	5	20	20	125	3	24	80	0.36	GI335	GL11
	GL3-S2525MFR-20-80	25	—	25	25	150	3	20	80	0.68	GI335	GL11
	GL3-S2525MFR-24-80	25	—	25	25	150	3	24	80	0.65	GI335	GL11
	GL3-S2525PFR-32-80	25	5	25	25	170	3	32	80	0.72	GI335	GL11
	GL4-S2020KFR-20-80	20	—	20	20	125	4	20	80	0.38	GI336	GL11
	GL4-S2020KFR-24-80	20	5	20	20	125	4	24	80	0.37	GI336	GL11
	GL4-S2525MFR-20-80	25	—	25	25	150	4	20	80	0.68	GI336	GL11
	GL4-S2525MFR-24-80	25	—	25	25	150	4	24	80	0.65	GI336	GL11
	GL4-S2525PFR-32-80	25	5	25	25	170	4	32	80	0.78	GI336	GL11
	GL5-S2020KFR-20-80	20	—	20	20	125	5	20	80	0.38	GI337	GL11
	GL5-S2525MFR-20-80	25	—	25	25	150	5	20	80	0.68	GI337	GL11
	GL5-S2525PFR-32-100	25	5	25	25	170	5	32	100	0.75	GI337	GL11
	GL6-S2020KFR-20-80	20	—	20	20	125	6	20	80	0.39	GI338	GL11
L	GL6-S2525MFR-20-80	25	—	25	25	150	6	20	80	0.68	GI338	GL11
	GL6-S2525PFR-32-100	25	5	25	25	170	6	32	100	0.75	GI338	GL11
	GL2-S2020KFL-20-80	20	—	20	20	125	2	20	80	0.38	GI334	GL11
	GL2-S2020KFL-24-80	20	5	20	20	125	2	24	80	0.36	GI334	GL11
	GL2-S2525MFL-20-80	25	—	25	25	150	2	20	80	0.70	GI334	GL11
	GL2-S2525MFL-24-80	25	—	25	25	150	2	24	80	0.64	GI334	GL11
	GL3-S2020KFL-20-80	20	—	20	20	125	3	20	80	0.38	GI335	GL11
	GL3-S2020KFL-24-80	20	5	20	20	125	3	24	80	0.36	GI335	GL11
	GL3-S2525MFL-20-80	25	—	25	25	150	3	20	80	0.68	GI335	GL11

Product		HF	HBH	H	B	LF	CW	CDX	CUTDIA			
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			
L	GL3-S2525MFL-24-80	25	—	25	25	150	3	24	80	0.65	GI335	GL11
	GL3-S2525PFL-32-80	25	5	25	25	170	3	32	80	0.78	GI335	GL11
	GL4-S2020KFL-20-80	20	—	20	20	125	4	20	80	0.38	GI336	GL11
	GL4-S2020KFL-24-80	20	5	20	20	125	4	24	80	0.37	GI336	GL11
	GL4-S2525MFL-20-80	25	—	25	25	150	4	20	80	0.68	GI336	GL11
	GL4-S2525MFL-24-80	25	—	25	25	150	4	24	80	0.65	GI336	GL11
	GL4-S2525PFL-32-80	25	5	25	25	170	4	32	80	0.72	GI336	GL11
	GL5-S2020KFL-20-80	20	—	20	20	125	5	20	80	0.38	GI337	GL11
	GL5-S2525MFL-20-80	25	—	25	25	150	5	20	80	0.71	GI337	GL11
	GL5-S2525PFL-32-100	25	5	25	25	170	5	32	100	0.75	GI337	GL11
	GL6-S2020KFL-20-80	20	—	20	20	125	6	20	80	0.39	GI338	GL11
	GL6-S2525MFL-20-80	25	—	25	25	150	6	20	80	0.71	GI338	GL11
	GL6-S2525PFL-32-100	25	5	25	25	170	6	32	100	0.75	GI338	GL11

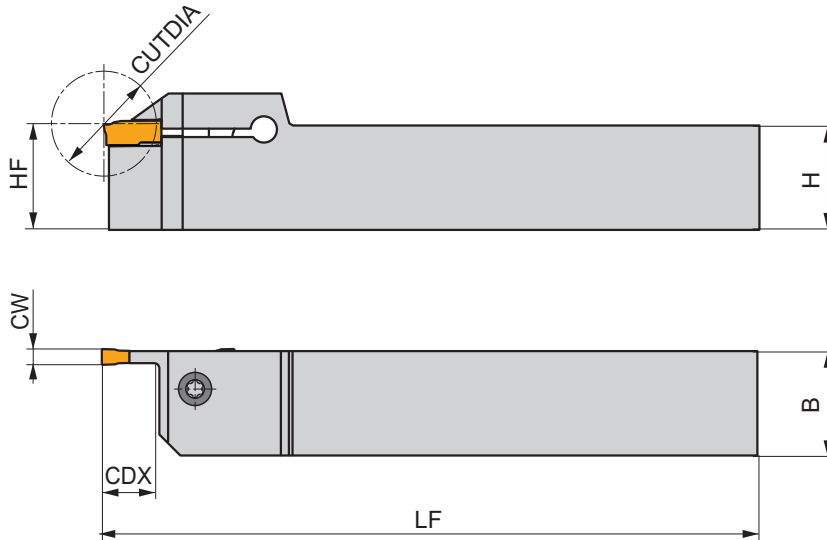
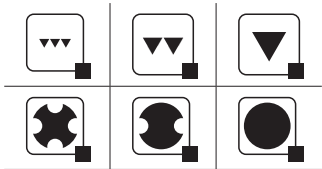
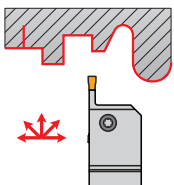
		
GI334		GL2..
GI335		GL3..
GI336		GL4..
GI337		GL5..
GI338		GL6..

					
GL11	US 5018-T20P	5.0	M 5	18.2	LK T20P

GLSF(RL) EXT-G



G



Product		H	H	B	L	CW	CDX	CUTDIA			
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			
R	GL2-S2020KFR-10	20	20	20	125	2	10	20	0.38	GI334	GL11
	GL2-S2525MFR-10	25	25	25	150	2	10	20	0.69	GI334	GL11
	GL3-S2020KFR-10	20	20	20	125	3	10	20	0.36	GI335	GL11
	GL3-S2525MFR-10	25	25	25	150	3	10	20	0.69	GI335	GL11
	GL4-S2020KFR-12	20	20	20	125	4	12	24	0.37	GI336	GL11
	GL4-S2525MFR-12	25	25	25	150	4	12	24	0.69	GI336	GL11
	GL5-S2020KFR-12	20	20	20	125	5	12	24	0.36	GI337	GL11
	GL5-S2525MFR-12	25	25	25	150	5	12	24	0.70	GI337	GL11
	GL6-S2020KFR-12	20	20	20	125	6	12	24	0.36	GI338	GL11
GL6-S2525MFR-12	25	25	25	150	6	12	24	0.68	GI338	GL11	
L	GL2-S2020KFL-10	20	20	20	125	2	10	20	0.37	GI334	GL11
	GL2-S2525MFL-10	25	25	25	150	2	10	20	0.70	GI334	GL11
	GL3-S2020KFL-10	20	20	20	125	3	10	20	0.36	GI335	GL11
	GL3-S2525MFL-10	25	25	25	150	3	10	20	0.70	GI335	GL11
	GL4-S2020KFL-12	20	20	20	125	4	12	24	0.37	GI336	GL11
	GL4-S2525MFL-12	25	25	25	150	4	12	24	0.69	GI336	GL11
	GL5-S2020KFL-12	20	20	20	125	5	12	24	0.36	GI337	GL11
	GL5-S2525MFL-12	25	25	25	150	5	12	24	0.69	GI337	GL11
	GL6-S2020KFL-12	20	20	20	125	6	12	24	0.36	GI338	GL11
GL6-S2525MFL-12	25	25	25	150	6	12	24	0.68	GI338	GL11	



GI334	GL2..
GI335	GL3..
GI336	GL4..
GI337	GL5..
GI338	GL6..



GL11	US 5018-T20P	5.0	M 5	18.2	LKT20P
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GLSF(RL) EXT-S



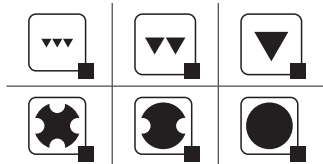
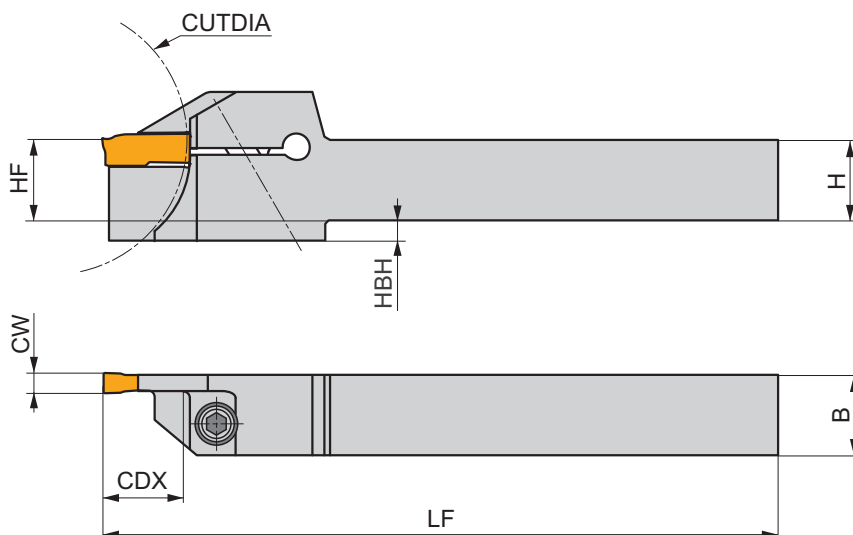
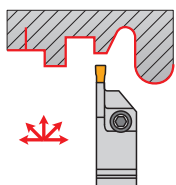
PRAMET

G



External Grooving or Parting tool for GL Inserts for Sliding head machines

External R/L handed radial tool holder for sliding head machines (small part machining) GL. 2, 3, 4 pocket widths. Suited for radial grooving, profiling and parting-off applications with 16mm max. depth of cut. Available in shank size 1212 or 1616. Reinforced body design for longer tool life and low vibrations, easy access clamping.



Product		HF	HBH	H	B	LF	CW	CDX	CUTDIA	kg		
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			
R	GL2-S1212HFR-12-40	12	3	12	12	100	2	12	40	0.11	GI334	GL13
	GL2-S1616KFR-16-45	16	3	16	16	125	2	16	45	0.23	GI334	GL12
	GL3-S1212HFR-12-40	12	3	12	12	100	3	12	40	0.11	GI335	GL13
	GL3-S1616KFR-16-45	16	3	16	16	125	3	16	45	0.23	GI335	GL12
	GL4-S1616KFR-16-45	16	4	16	16	125	4	16	45	0.26	GI336	GL12
L	GL2-S1212HFL-12-40	12	3	12	12	100	2	12	40	0.11	GI334	GL13
	GL2-S1616KFL-16-45	16	3	16	16	125	2	16	45	0.23	GI334	GL12
	GL3-S1212HFL-12-40	12	3	12	12	100	3	12	40	0.11	GI335	GL13
	GL3-S1616KFL-16-45	16	3	16	16	125	3	16	45	0.23	GI335	GL12
	GL4-S1616KFL-16-45	16	4	16	16	125	4	16	45	0.24	GI336	GL12

GI334		GL2..										
GI335		GL3..										
GI336		GL4..										

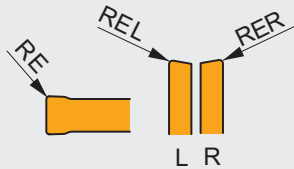
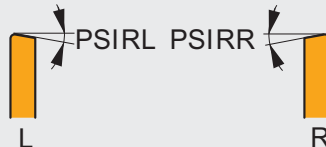
					
GL12	HS 0516	5.0	M 5	16	HXK 4
GL13	HS 0412	5.0	M 4	12	HXK 3

CODE DESIGNATION – PARTING OFF AND GROOVING INSERTS - GL

1	2	3	4	5	6	7	8
GL	3	-	D	300	G	02	L06 - PM



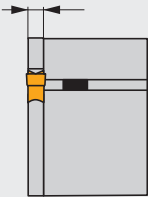
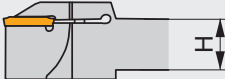
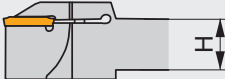
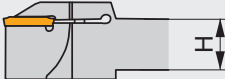
1	2	3	4																	
Tool group	Pocket size	Number of edges	Cutting width - CW																	
GL	1, 2, 3, 4, 5, 6																			
		<table><tr><td>S</td><td>One edge</td></tr><tr><td>D</td><td>Two edges</td></tr></table>	S	One edge	D	Two edges	 <table><tr><td></td><td>CW</td></tr><tr><td>200</td><td>2,00</td></tr><tr><td>250</td><td>2,50</td></tr><tr><td>300</td><td>3,00</td></tr><tr><td>400</td><td>4,00</td></tr><tr><td>500</td><td>5,00</td></tr><tr><td>600</td><td>6,00</td></tr></table>		CW	200	2,00	250	2,50	300	3,00	400	4,00	500	5,00	600
S	One edge																			
D	Two edges																			
	CW																			
200	2,00																			
250	2,50																			
300	3,00																			
400	4,00																			
500	5,00																			
600	6,00																			

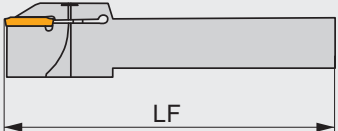
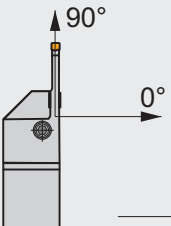
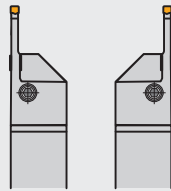
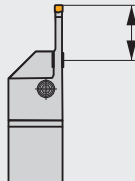
5	6	7	8																								
Edge design	Nose radius	Primary cutting edge angle	Chipbreaker designation																								
<table><tr><td>G</td><td>Ground</td></tr><tr><td>M</td><td>Direct pressed</td></tr></table>	G	Ground	M	Direct pressed	 <table><tr><td></td><td>RE, RER, REL [mm]</td></tr><tr><td>02</td><td>0,2</td></tr><tr><td>03</td><td>0,3</td></tr><tr><td>04</td><td>0,4</td></tr><tr><td>08</td><td>0,8</td></tr></table> ROUND GEOMETRY <table><tr><td>MO</td><td>RE [mm]</td></tr><tr><td></td><td>RE = CW/2</td></tr></table>		RE, RER, REL [mm]	02	0,2	03	0,3	04	0,4	08	0,8	MO	RE [mm]		RE = CW/2	 <table><tr><td></td><td>[°]</td></tr><tr><td>06</td><td>6</td></tr><tr><td>12</td><td>12</td></tr></table>		[°]	06	6	12	12	PM PR GM MM
G	Ground																										
M	Direct pressed																										
	RE, RER, REL [mm]																										
02	0,2																										
03	0,3																										
04	0,4																										
08	0,8																										
MO	RE [mm]																										
	RE = CW/2																										
	[°]																										
06	6																										
12	12																										

CODE DESIGNATION – PARTING OFF AND GROOVING HOLDERS (EXTERNAL TURNING) - GL

1	2		3	4	5	6	7		8		9	10	11
GL	3	-	S	2525	M	F	L	-	20	-	R	120	090



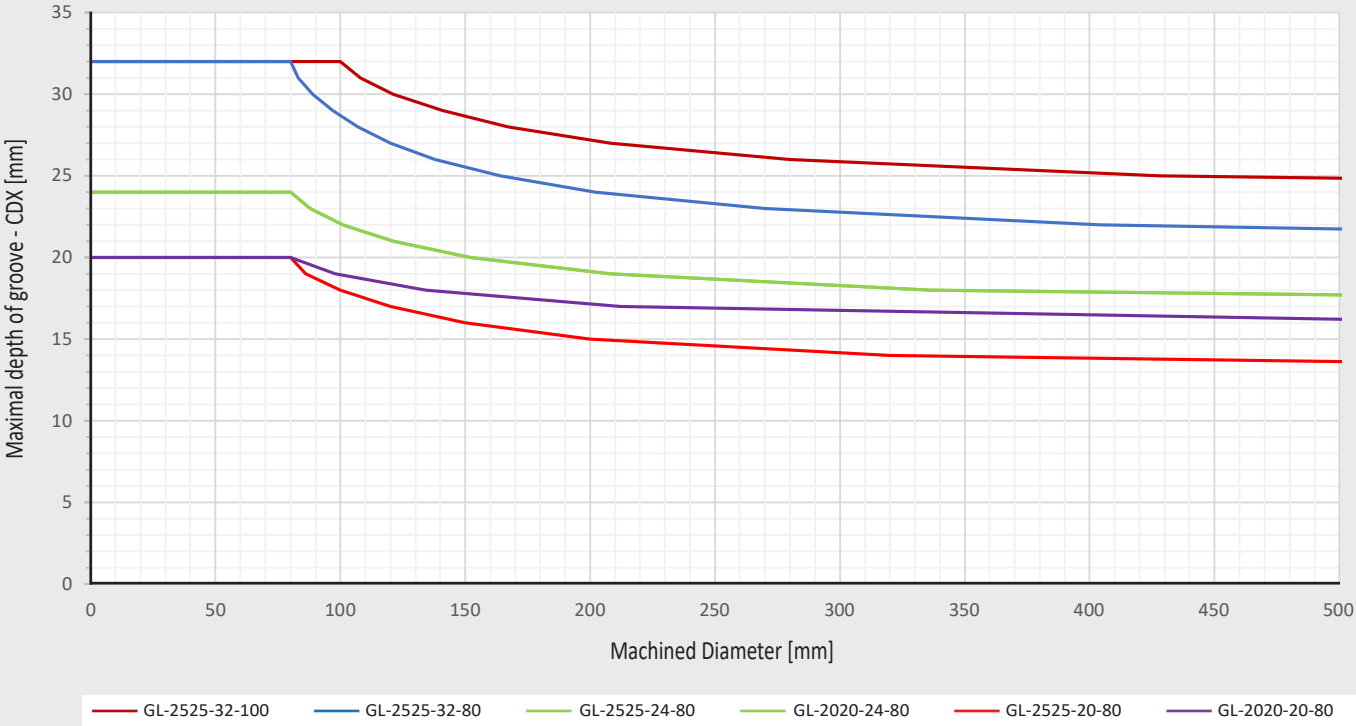
1	2	3	4																	
Tool group	Pocket size	Shank type	Shank dimensions																	
GL	1, 2, 3, 4, 5, 6																			
		<table><tr><td>A</td><td>steel shank with internal coolant</td></tr><tr><td>S</td><td>steel shank without internal coolant</td></tr></table>	A	steel shank with internal coolant	S	steel shank without internal coolant	<table><tr><td></td><td><table><tr><td></td><td>H/B</td></tr><tr><td></td><td>[mm]/[mm]</td></tr><tr><td>1212</td><td>- 12/12</td></tr><tr><td>1616</td><td>- 16/16</td></tr><tr><td>2020</td><td>- 20/20</td></tr><tr><td>2525</td><td>- 25/25</td></tr></table></td></tr></table>		<table><tr><td></td><td>H/B</td></tr><tr><td></td><td>[mm]/[mm]</td></tr><tr><td>1212</td><td>- 12/12</td></tr><tr><td>1616</td><td>- 16/16</td></tr><tr><td>2020</td><td>- 20/20</td></tr><tr><td>2525</td><td>- 25/25</td></tr></table>		H/B		[mm]/[mm]	1212	- 12/12	1616	- 16/16	2020	- 20/20	2525
A	steel shank with internal coolant																			
S	steel shank without internal coolant																			
	<table><tr><td></td><td>H/B</td></tr><tr><td></td><td>[mm]/[mm]</td></tr><tr><td>1212</td><td>- 12/12</td></tr><tr><td>1616</td><td>- 16/16</td></tr><tr><td>2020</td><td>- 20/20</td></tr><tr><td>2525</td><td>- 25/25</td></tr></table>		H/B		[mm]/[mm]	1212	- 12/12	1616	- 16/16	2020	- 20/20	2525	- 25/25							
	H/B																			
	[mm]/[mm]																			
1212	- 12/12																			
1616	- 16/16																			
2020	- 20/20																			
2525	- 25/25																			

5	6	7	8																
Holder total length - LF	Tool style - cutting edge angle	Version (right/left)	Cutting depth maximum - CDX																
 <table><tr><th></th><th>LF [mm]</th></tr><tr><td>H</td><td>100</td></tr><tr><td>K</td><td>125</td></tr><tr><td>M</td><td>150</td></tr><tr><td>P</td><td>170</td></tr></table>		LF [mm]	H	100	K	125	M	150	P	170	 <table><tr><th></th><th>[°]</th></tr><tr><td>G</td><td>0</td></tr><tr><td>F</td><td>90</td></tr></table>		[°]	G	0	F	90	 R L	
	LF [mm]																		
H	100																		
K	125																		
M	150																		
P	170																		
	[°]																		
G	0																		
F	90																		

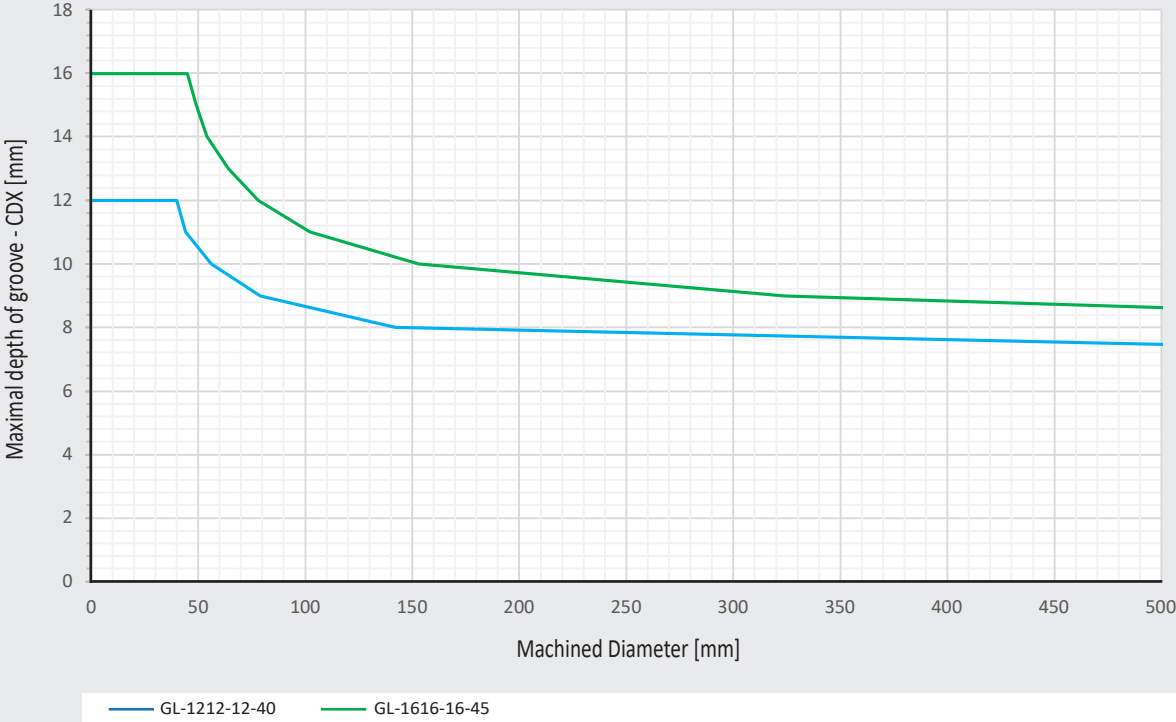
9	10	11
Blade curvature direction	Maximum diameter	Minimum diameter
L R Additional information for axial turning.	CUTDIA DAXX	DMIN DAXIN

CUTTING DEPTHS DEPENDING ON MACHINED DIAMETER

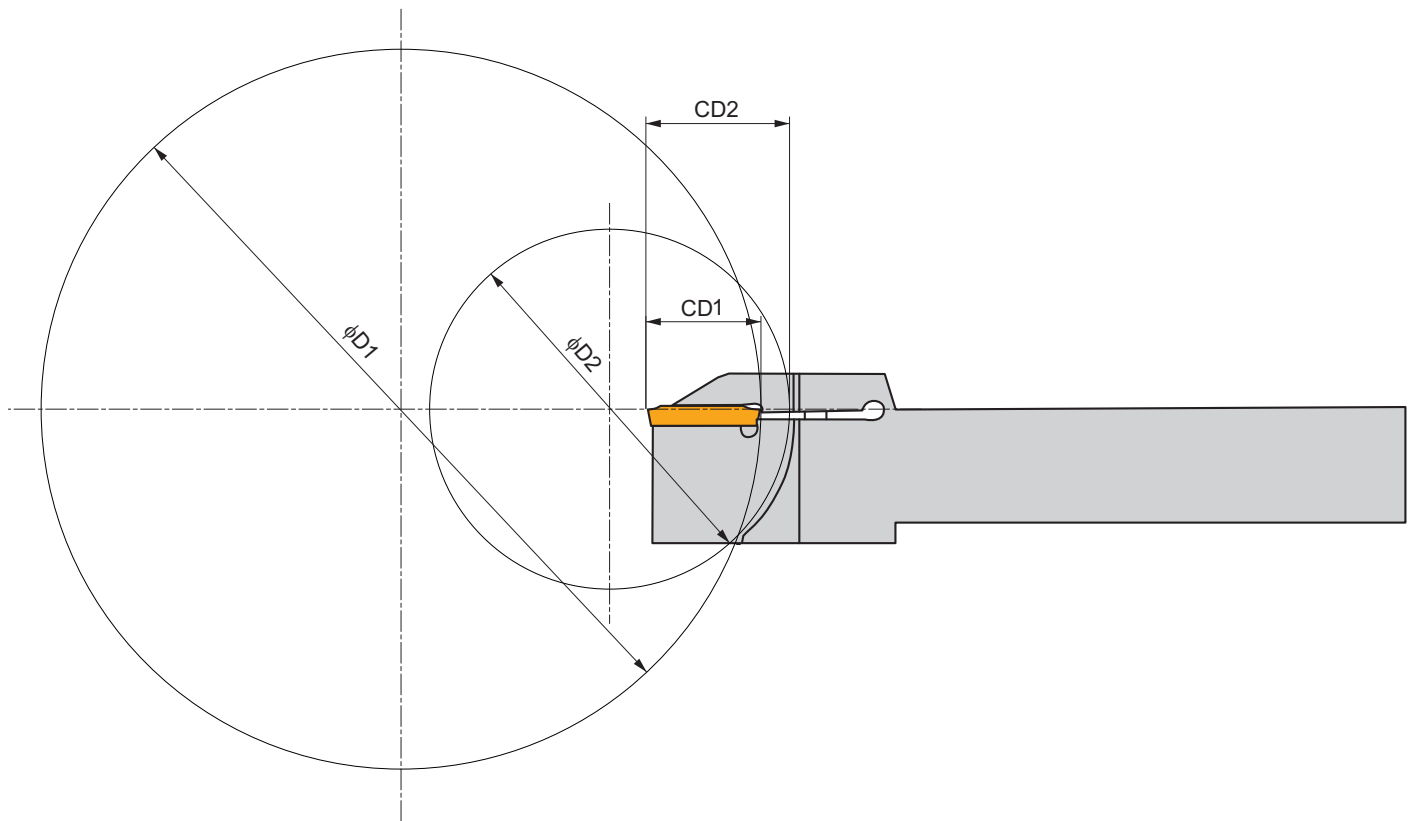
GLSF (RL) EXT



GLSF (RL) EXT-S



CUTTING DEPTHS DEPENDING ON MACHINED DIAMETER





T8430 NEW GENERATION PVD GRADE

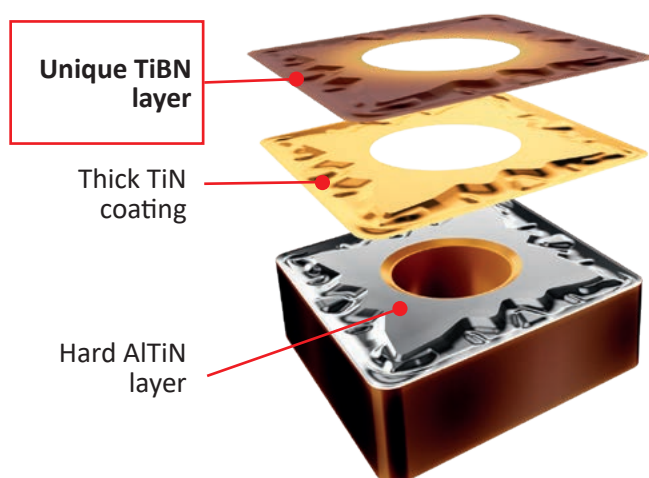
TURNING INSERTS

INTRODUCTION

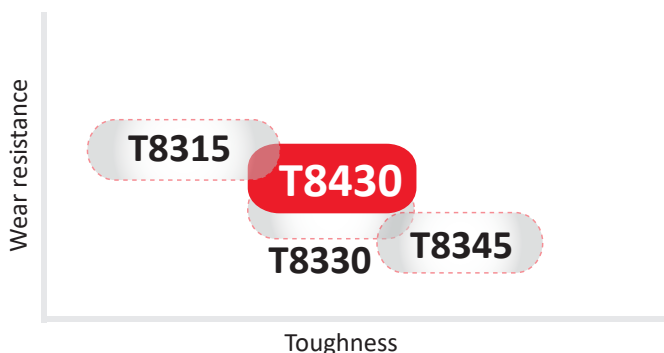
We have upgraded our flagship PVD grade T8330 with a new coating generation, providing increased durability and performance. The T8430 is the most versatile grade for general turning and heavy roughing, even in unfavourable conditions. Developed for steel and cast steel, the grade also performs well in stainless steel, cast-iron and super alloys. It offers a significant increase in durability compared with the existing grade, especially when machining raw steel blanks or difficult-to-machine materials, such as Inconel and Stellite.

FEATURES & BENEFITS

- A multi-layered PVD coating optimized for **increased productivity**, with up to 69% **more durability** compared to T8330.
- Unique Titanium-Boron-Nitride (TiBN) top layer for build-up edge reduction and **improved performance**.
- Thick TiN coating with low compressive stress for **crater wear resistance**.
- Hard AlTiN layer for **flank wear resistance**.
- A bright gold TiN layer to support wear detection.



AREA OF APPLICATION PVD TURNING GRADES



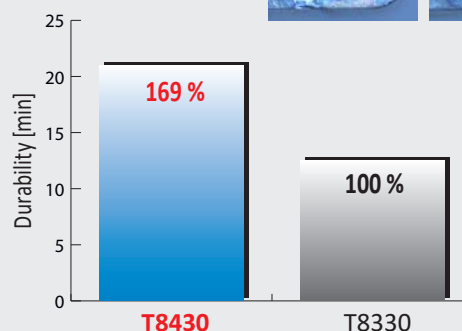
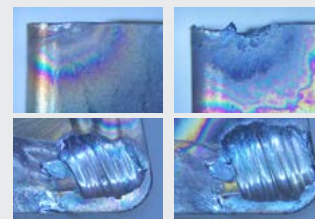
MACHINING EXAMPLE

Material: C45
Material group: P2.2
Insert: CNMG120408E-FM
Coolant: No

Grade			T8430	T8330
Cutting speed	v_c	m/min	170	170
Feed tooth	f_z	mm/tooth	0,35	0,35
Axial length of cut	a_p	mm	2,0	2,0
Durability	T	min	21,0	12,5

T8430
after 21 min

T8330
after 12,5 min



T8430 NEW GENERATION PVD GRADE

TURNING INSERTS

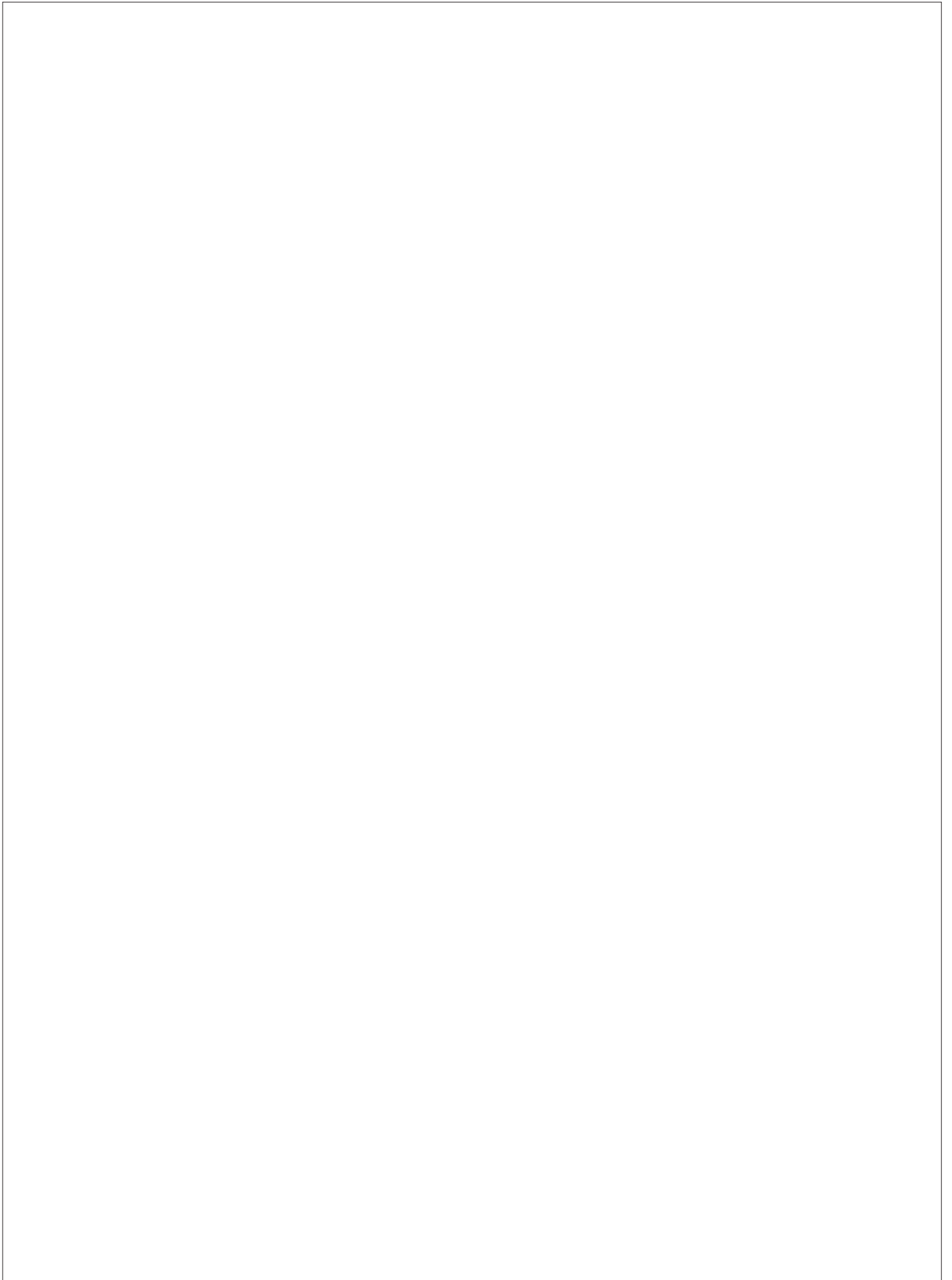
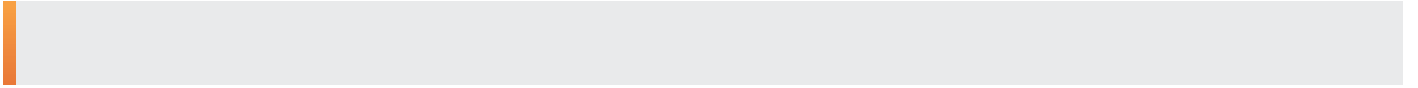
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CCGT 060202ER-SI	CNGG 120402E-SF	CNMM 190616E-NR2	DNMG 110408ER-SI
CCGT 060204EL-SI	CNMG 090304E-FM	CNMM 190616E-OR	DNMG 110408E-SF
CCGT 060204ER-SI	CNMG 090304E-NF	CNMM 250924E-NR2	DNMG 110408E-SM
CCGT 09T304EL-SI	CNMG 090308E-FM	CNMM 250924E-OR	DNMG 150404E-FM
CCGT 09T304ER-SI	CNMG 090308E-NF	CNMM 250924S-923	DNMG 150404EL-SI
CCGT 120408EL-SI	CNMG 120404E-FM	DCGT 11T302E-FF2	DNMG 150404E-NF
CCGT 120408ER-SI	CNMG 120404EL-SI	DCGT 11T304EL-SI	DNMG 150404ER-SI
CCMT 060202E-FF	CNMG 120404E-NF	DCGT 11T304ER-SI	DNMG 150404E-SF
CCMT 060202E-FF2	CNMG 120404E-NM	DCGT 11T308EL-SI	DNMG 150408E-FM
CCMT 060202E-FM	CNMG 120404E-NMR	DCGT 11T308ER-SI	DNMG 150408EL-SI
CCMT 060202E-NF2	CNMG 120404ER-SI	DCMT 070202E-FF2	DNMG 150408E-NF
CCMT 060202E-UR	CNMG 120404E-SF	DCMT 070202E-FM	DNMG 150408E-NM
CCMT 060204E-FF	CNMG 120404E-SM	DCMT 070202E-UR	DNMG 150408E-NMR
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CCMT 060204E-FM	CNMG 120408EL-SI	DCMT 070204E-FM	DNMG 150408E-SF
CCMT 060204E-NF2	CNMG 120408E-M	DCMT 070204E-FM2	DNMG 150604E-FM
CCMT 060204E-UR	CNMG 120408E-NF	DCMT 070204E-UR	DNMG 150604EL-SI
CCMT 060204W-FM	CNMG 120408E-NM	DCMT 070208E-FF2	DNMG 150604E-NF
CCMT 060208E-FM	CNMG 120408E-NMR	DCMT 11T302E-FF	DNMG 150604E-NM
CCMT 060208E-UR	CNMG 120408E-RM	DCMT 11T302E-FM	DNMG 150604E-NMR
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CCMT 080304E-FF2	CNMG 120408E-SF	DCMT 11T304E-FF	DNMG 150604E-SF
CCMT 080304E-FM2	CNMG 120408E-SM	DCMT 11T304E-FF2	DNMG 150604E-SM
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CCMT 080308E-FM2	CNMG 120412E-NF	DCMT 11T304E-FM2	DNMG 150608EL-SI
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CCMT 120408E-FM	CNMM 120412E-NR	DNMG 110404ER-SI	RCMT 0803MOE-UR
CCMT 120408E-FM2	CNMM 120412E-NR2	DNMG 110404E-SF	RCMT 10T3MOE-FM
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WNMG 080416E-RM
WNMM 080408E-NR
WNMM 080408E-OR



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As a professional you can judge the quality of work by just looking at the chip. Our chip is a clean and uncomplicated shape that in itself tells a story. It is a clear and consistent signal and that's why we use it as a symbol for being **Simply Reliable**.

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