umt

Cutting tools

THE UMT COMPANY

UMT is a modern cutting tool-making company situated in Bulgaria. The design of its processes incorporates the newest cutting tool machinery and manufacturing concepts, enabling UMT to satisfy vast range of industrial needs. The company follows quality standards according to ISO 9001:2015 and prides itself with the quality, efficiency and responsibility of its work. UMT has built expertise on variety of international and local markets, fulfilling large range of requirements for standard and special carbide tools.

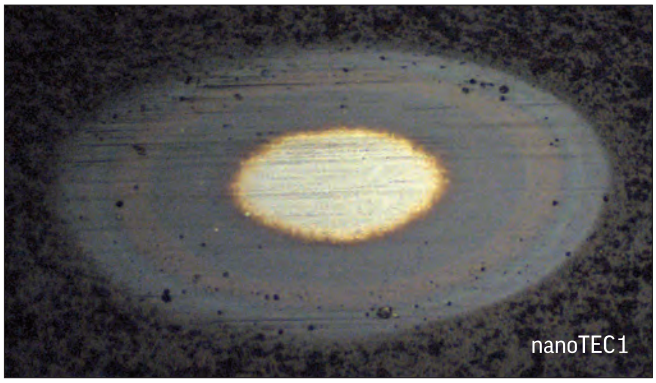
THE CAPABILITIES

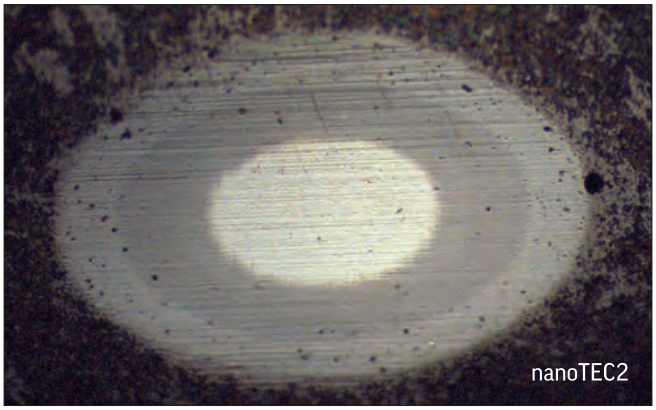
UMT possess cutting-edge machine tool park, enabling it to produce exceptionally high quality cutting tools. For precision face and flute grinding, the company uses range of the latest WALTER and ANCA CNC grinding machines, while for cylinder grinding, ROLLOMATIC and REINECKER CNC grinding machines are being used.

UMT also performs variety of latest generation PVD coatings, making an excellent use of its vacuum coating system PLATIT. Its own multilayer nanocomposite coatings named nanoTEC1, nanoTEC2 and nanoTEC3, deliver excellent qualities in terms of hardness, wear and heat resistance, as well as friction and chipping resistance.

For measuring, control and inspection, WALTER HELICHECK PRO and ALICONA, as well as various microscopes and measuring equipment are being used, enabling three-dimensional optical and micro scanning to be applied at any moment on any cutting tool.

HELITRONIC TOOL STUDIO (provided by WALTER Machinenbau) as well as ToolRoom (provided by ANCA) are the superior quality 3D software products used throughout the design to production process. The software allows for almost unlimited testing, adjustments and virtual representation of the entire grinding process, before the process really begin, including immediate start of the production cycle.





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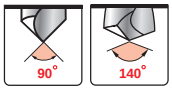
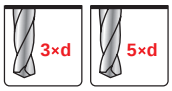
umt

SOLID CARBIDE TOOLS

SYMBOL LEGEND



Point angle



Drilling depth

Internal cooling

2, 3, 4, 5, 6 Flutes

Irregular teeth

Multiple teeth

Ball nose

Corner radius

Square

Chamfer

Production radius

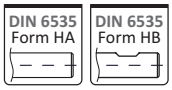
All directions possible

Contouring and angular plunging

Contouring only

Helix angle

Standard



Shank type

Hard metal without coating

High hardness nanocomposite coating (4000 - 4500 HV)

Nanocomposite coating with high tensile strength and wear resistance (≈4000 HV)

1

SOLID CARBIDE CUTTING TOOLS

END MILLS

UMT manufactures generous range of standard carbide milling cutters, including DIN – standard end mills. Combining the know-how and exceptional quality, the UMT milling cutters are delivering optimal machining performance at affordable price.

UMT is also producing and delivering special milling cutters according to customer's requirements.

Type	Size range	Number of flutes	Helix angle	Code	Shape	Coating	Work material												Page number
							P		M	K		N		S				H	
							Carbon steel, Alloy steel	High alloyed steel < 45 HRC	Stainless steel	Cast iron	Nodular cast iron	Aluminium alloy	Copper alloy	Titanium	Titanium alloy	Heat resistant alloy	3Hardened steel < 60 HRC		
Square	Ø3 - Ø20	2	30°	**9202**		nanoTEC2	●	●	—	●	●	—	—	—	—	—	—		10
	Ø3 - Ø20	3	30°	**9203**		nanoTEC2	●	●	—	●	●	—	—	—	—	—	—		10
	Ø3 - Ø20	4	30°	**9204**		nanoTEC2	●	●	—	●	●	—	—	—	—	—	—		10
	Ø3 - Ø16	2	30°	**9302**		nanoTEC2	●	●	—	●	●	—	—	—	—	—	—		12
	Ø3 - Ø16	4	30°	**9304**		nanoTEC2	●	●	—	●	●	—	—	—	—	—	—		12
	Ø3 - Ø20	4	36°/38°	**9264**	**NEW** Geometry	nanoTEC2	●	●	○	●	●	—	—	—	—	—	—		13
	Ø6 - Ø20	4	36°/38°	**9364**		nanoTEC2	●	●	○	●	●	—	—	—	—	—	—		14

● 1st recommend ○ 2nd recommend — not recommend

Type	Size range	Number of flutes	Helix angle	Code	Форма / Shape	Coating	Work material: P – Carbon steel, Alloy steel	P – High alloyed steel < 45 HRC	M – Stainless steel	K – Cast iron	K – Nodular cast iron	N – Aluminium alloy	N – Copper alloy	S – Titanium	S – Titanium alloy	S – Heat resistant alloy	H – Hardened steel < 60 HRC	Page number
Square	Ø3 - Ø20	5	37°	**9265**		nanoTEC2	●	●	○	●	●	—	—	○	○	○	—	15
Square	Ø6 - Ø20	4	36°/38°	**9764**	NEW	nanoTEC1	●	●	○	●	●	—	—	○	○	○	—	16
Chamfer 90°	Ø5 - Ø12	4	0°	**9104**	NEW	nanoTEC1	●	●	○	●	●	—	—	○	○	○	—	17
Ball nose	Ø3 - Ø20	2	30°	**9612**		nanoTEC1	●	●	○	●	●	—	—	—	—	—	—	18
Ball nose	Ø3 - Ø20	4	30°	**9614**		nanoTEC1	●	●	○	●	●	—	—	—	—	—	—	18
Ball nose	Ø3 - Ø20	4	39°/42°	**9644**		nanoTEC2	○	○	●	○	○	—	—	●	●	●	—	19
Square Corner radius R0.5-5.0	Ø3 - Ø20	4	45°	**9224**		nanoTEC2	○	○	●	○	○	—	—	○	●	○	—	20
Squar	Ø6 - Ø20	4	45°	**9324**		nanoTEC2	○	○	●	○	○	—	—	○	●	○	—	22
Squar	Ø6 - Ø20	3	42°-45°	**9243**	NEW	nanoTEC2	○	○	●	○	○	—	—	○	●	○	—	23

● 1st recommend ○ 2nd recommend — not recommend

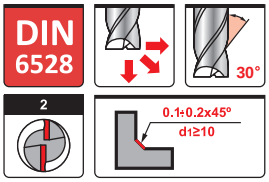
Type		Size range	Number of flutes	Helix angle	Code	Shape	Coating	Work material: P		M	K		N		S			H	Page number
								Carbon steel, Alloy steel	High alloyed steel < 45 HRC	Stainless steel	Cast iron	Nodular cast iron	Aluminium alloy	Copper alloy	Titanium	Titanium alloy	Heat resistant alloy	Hardened steel < 60 HRC	
Square		Ø3 - Ø20	4	39°/42°	**9244**		nanoTEC2	○	○	●	○	○	—	—	○	●	○	—	24
Square / Corner radius	R0.5-3.0	Ø6 - Ø20	4	39°/42°	**9544**		nanoTEC2	○	○	●	○	○	—	—	●	●	●	—	25
		Ø6 - Ø20	4	39°/42°	**9554**		nanoTEC2	○	○	●	○	○	—	—	●	●	●	—	26
Square		Ø6 - Ø20	4	39°-42°	**9744**	NEW	nanoTEC2	○	○	●	○	○	—	—	●	●	●	—	27
Corner radius	R0.2-0.5	Ø3 - Ø20	5	37°	**9545**		nanoTEC2	○	○	●	○	○	—	—	●	●	●	—	28
Square		Ø6 - Ø20	6	45°	**9226**	NEW Geometry	nanoTEC2	○	○	●	○	○	—	—	○	●	○	—	29
		Ø6 - Ø20	6	45°	**9326**	NEW Geometry	nanoTEC2	○	○	●	○	○	—	—	○	●	○	—	29
		Ø6 - Ø16	6-10	50°	**9060**		nanoTEC1	—	—	—	—	—	—	—	—	—	—	●	30
Ball nose		Ø3 - Ø12	4	30°	**9654**		nanoTEC1	—	—	—	—	—	—	—	—	—	—	●	31

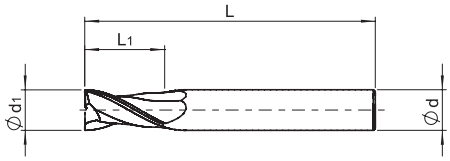
● 1st recommend ○ 2nd recommend — not recommend

Type		Size range	Number of flutes	Helix angle	Code	Shape	Coating	Work material P: Carbon steel, Alloy steel	P: High alloyed steel < 45 HRC	M: Stainless steel	K: Cast iron	K: Nodular cast iron	N: Aluminium alloy	N: Copper alloy	S: Titanium	S: Titanium alloy	S: Heat resistant alloy	H: Hardened steel < 60 HRC	Page number
Square		Ø3 - Ø20	2	45°	**9412**		HM	—	—	—	—	—	●	●	—	—	—	—	32
Square		Ø3 - Ø20	3	45°	**9413**		HM	—	—	—	—	—	●	●	—	—	—	—	32
Corner radius	R0.3-2.0	Ø4 - Ø12	2	45°	**9512**		HM	—	—	—	—	—	●	●	—	—	—	—	32
Square		Ø3 - Ø16	2	45°	**9422**		HM	—	—	—	—	—	●	●	—	—	—	—	34
Square		Ø3 - Ø16	3	45°	**9423**		HM	—	—	—	—	—	●	●	—	—	—	—	34
Square Corner radius	R0.5-3.0	Ø6 - Ø20	3	45°	**9453**		HM	—	—	—	—	—	●	●	—	—	—	—	35
Ball nose		Ø3 - Ø20	2	45°	**9652**		HM	—	—	—	—	—	●	●	—	—	—	—	36

● 1st recommend ○ 2nd recommend — not recommend

UMT 9202 Z=2
End mills



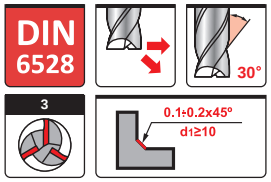


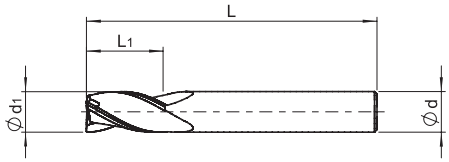
nano TEC2

d1 (e8)	L1	d (h6)	L	Stock	ART No
3	7	3	38	●	9202030003800-2
4	8	4	50	●	9202040005000-2
5	10	5	50	●	9202050005000-2
6	10	6	57	●	9202060005700-2
8	16	8	63	●	9202080006300-2
10	19	10	72	●	9202100007200-2
12	22	12	83	●	9202120008300-2
14	22	14	83	●	9202140008300-2
16	26	16	92	●	9202160009200-2
18	26	18	92	●	9202180009200-2
20	32	20	104	●	9202200010400-2

● In stock

UMT 9203 Z=3
End mills



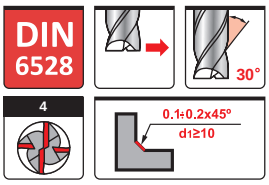


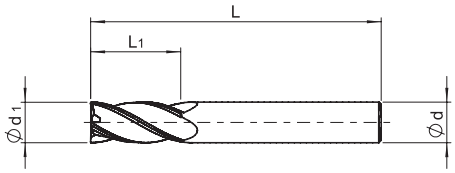
nano TEC2

d1 (e8)	L1	d (h6)	L	Stock	ART No
3	7	3	38	●	9203030003800-2
4	8	4	50	●	9203040005000-2
5	10	5	50	●	9203050005000-2
6	10	6	57	●	9203060005700-2
8	16	8	63	●	9203080006300-2
10	19	10	72	●	9203100007200-2
12	22	12	83	●	9203120008300-2
14	22	14	83	●	9203140008300-2
16	26	16	92	●	9203160009200-2
18	26	18	92	●	9203180009200-2
20	32	20	104	●	9203200010400-2

● In stock

UMT 9204 Z=4
End mills



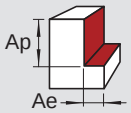


nano TEC2

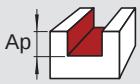
d1 (e8)	L1	d (h6)	L	Stock	ART No
3	10	3	38	●	9204030003800-2
4	11	4	50	●	9204040005000-2
5	13	5	50	●	9204050005000-2
6	13	6	57	●	9204060005700-2
8	19	8	63	●	9204080006300-2
10	22	10	72	●	9204100007200-2
12	26	12	83	●	9204120008300-2
14	26	14	83	●	9204140008300-2
16	32	16	92	●	9204160009200-2
18	32	18	92	●	9204180009200-2
20	38	20	104	●	9204200010400-2

● In stock

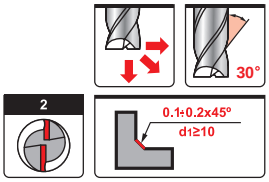
Recommended cutting conditions for end mills 9202, 9203, 9204 - Shoulder milling

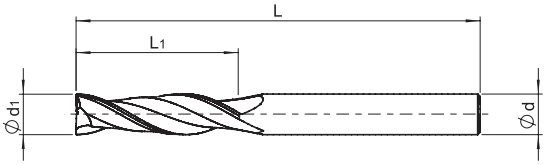
Work material				Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	Ae	nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅14	∅14 - ∅16	∅16 - ∅20
P	Carbon steel and Alloy steel < 25 HRC	<1d1	<0.2d1	70-90	0.01-0.025	0.03-0.04	0.035-0.05	0.04-0.06	0.05-0.07	0.06-0.09
P	Alloy steel and Tool steel 25-45 HRC	<1d1	<0.1d1	30-50	0.01-0.02	0.03-0.04	0.035-0.05	0.04-0.06	0.05-0.07	0.06-0.09
M	Stainless steel	<1d1	<0.1d1	40-60	0.01-0.02	0.025-0.04	0.03-0.04	0.04-0.06	0.05-0.07	0.06-0.08
K	Cast iron GG	<1d1	<0.2d1	100-120	0.01-0.025	0.03-0.04	0.035-0.05	0.04-0.06	0.05-0.07	0.06-0.09
K	Nodular cast iron GGG	<1d1	<0.2d1	80-100	0.01-0.02	0.03-0.04	0.035-0.05	0.04-0.06	0.05-0.07	0.06-0.09

Recommended cutting conditions for end mills 9202, 9203 - Slotting

Work material			Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅14	∅14 - ∅16	∅16 - ∅20
P	Carbon steel and Alloy steel < 25 HRC	<0.5d1	60-80	0.008-0.02	0.018-0.04	0.02-0.05	0.025-0.06	0.03-0.07	0.04-0.08
P	Alloy steel and Tool steel 25-45 HRC	<0.2d1	25-45	0.006-0.018	0.015-0.03	0.02-0.04	0.02-0.05	0.025-0.06	0.03-0.07
M	Stainless steel	<0.2d1	30-50	0.006-0.02	0.015-0.03	0.02-0.04	0.03-0.07	0.025-0.06	0.03-0.07
K	Cast iron GG	<0.5d1	90-110	0.01-0.025	0.02-0.05	0.025-0.07	0.026-0.07	0.035-0.08	0.035-0.11
K	Nodular cast iron GGG	<0.3d1	70-90	0.01-0.02	0.02-0.04	0.02-0.06	0.02-0.05	0.027-0.07	0.03-0.10

UMT 9302 Z=2
Long end mills



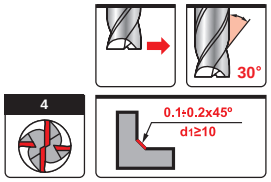


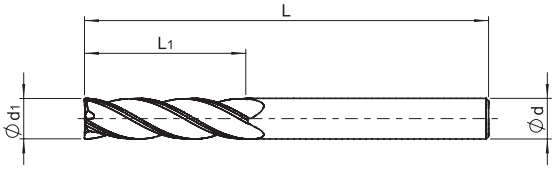
nano TEC2

d1 (e8)	L1	d (h6)	L	Stock	ART No
3	18	3	60	●	9302030006000-2
4	24	4	60	●	9302040006000-2
5	26	5	75	●	9302050007500-2
6	30	6	75	●	9302060007500-2
8	30	8	75	●	9302080007500-2
10	40	10	100	●	9302100010000-2
12	45	12	100	●	9302120010000-2
16	45	16	100	●	9302160010000-2

● In stock

UMT 9304 Z=4
Long end mills





nano TEC2

d1 (e8)	L1	d (h6)	L	Stock	ART No
3	18	3	60	●	9304030006000-2
4	24	4	60	●	9304040006000-2
5	26	5	75	●	9304050007500-2
6	30	6	75	●	9304060007500-2
8	30	8	75	●	9304080007500-2
10	40	10	100	●	9304100010000-2
12	45	12	100	●	9304120010000-2
16	45	16	100	●	9304160010000-2

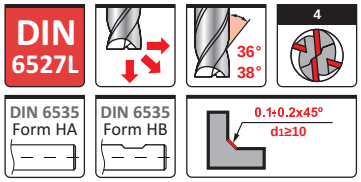
● In stock

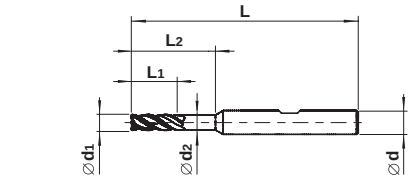
Recommended cutting conditions for end mills 9302, 9304 - Shoulder milling

Work material		Ap	Ae	Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm	
		Ap	Ae	nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16
P	Carbon steel and Alloy steel < 25 HRC	<1d1	<0.1d1	50-60	0.005-0.01	0.01-0.02	0.02-0.03	0.02-0.04	0.03-0.06
P	Alloy steel and Tool steel 25-45 HRC	<1d1	<0.1d1	30-50	0.005-0.01	0.005-0.01	0.01-0.02	0.01-0.03	0.02-0.05
M	Stainless steel	<1d1	<0.1d1	30-40	0.005-0.01	0.005-0.01	0.01-0.02	0.01-0.03	0.02-0.05
K	Cast iron GG	<1d1	<0.1d1	30-70	0.005-0.01	0.01-0.02	0.02-0.03	0.02-0.04	0.03-0.06
K	Nodular cast iron GGG	<1d1	<0.1d1	30-40	0.005-0.01	0.005-0.01	0.01-0.02	0.01-0.03	0.02-0.05

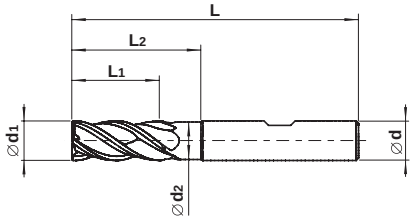
UMT 9264 Z=4 NEW Geometry

End mills with different helix angles, irregular teeth and relieved neck





Type 1



Type 2

d1 (h10)	L1	L2	d2	d (h6)	L	Type	Stock	ART No (nano TEC2)	Stock	ART No (nano TEC2)
							Shank Style DIN 6535 HA		Shank Style DIN 6535 HB	
3	8	18	2.8	6	57	1	●	9264030005700-2	○	9264030005700-2-HB
4	11	21	3.6	6	57	1	●	9264040005700-2	○	9264040005700-2-HB
5	13	21	4.6	6	57	1	●	9264050005700-2	○	9264050005700-2-HB
6	13	21	5.5	6	57	2	●	9264060005700-2	○	9264060005700-2-HB
8	19	27	7.5	8	63	2	●	9264080006300-2	○	9264080006300-2-HB
10	22	32	9.5	10	72	2	●	9264100007200-2	○	9264100007200-2-HB
12	26	38	11.5	12	83	2	●	9264120008300-2	○	9264120008300-2-HB
14	26	38	13.5	14	83	2	○	9264140008300-2	○	9264140008300-2-HB
16	32	44	15.5	16	92	2	●	9264160009200-2	○	9264160009200-2-HB
18	32	44	17.5	18	92	2	○	9264180009200-2	○	9264180009200-2-HB
20	38	54	19.5	20	104	2	●	9264200010400-2	○	9264200010400-2-HB

● In stock

○ Produced to order only

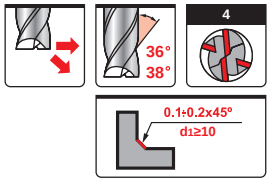
Recommended cutting conditions for end mills 9264 - Shoulder milling and slotting

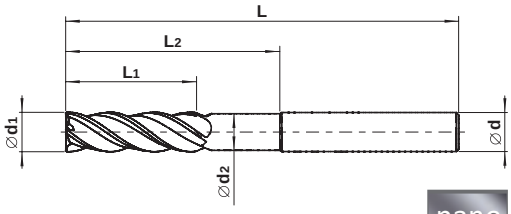
Work material	Cutting speed (Ap, Ae)		Vc (m/min)	Cutting speed (Ap)	Vc (m/min)	d1 - diameter in mm					fz - feed per tooth in mm
	Ap	Ae	nanoTEC2	Ap	nanoTEC2	∅3-∅6	∅6-∅8	∅8-∅10	∅10-∅14	∅14-∅16	∅16-∅20
P Carbon steel and Alloy steel < 25 HRC	<2d1	<0.5d1	140-180	<1d1 max 12mm	120-160	0.015-0.03	0.025-0.04	0.035-0.05	0.045-0.075	0.065-0.09	0.07-0.11
P Alloy steel and Tool steel 25-45 HRC	<2d1	<0.4d1	110-140	<0.7d1 max 12mm	90-120	0.015-0.03	0.025-0.04	0.035-0.05	0.045-0.075	0.065-0.09	0.07-0.11
M Stainless steel	<1.5d1	<0.3d1	45-55	<0.5d1	35-45	0.01-0.025	0.02-0.035	0.03-0.045	0.04-0.07	0.045-0.08	0.055-0.10
K Cast iron GG	<2d1	<0.5d1	100-120	<1d1 max 12mm	90-110	0.015-0.03	0.025-0.04	0.035-0.05	0.045-0.075	0.065-0.09	0.07-0.11
K Nodular cast iron GGG	<2d1	<0.4d1	90-110	<1d1 max 12mm	80-100	0.015-0.03	0.025-0.04	0.035-0.05	0.045-0.075	0.065-0.09	0.07-0.11

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. For high alloyed steels (>12% Cr), INOX, cutting speed must be reduced by 20-30% when used emulsion

UMT 9364 Z=4

Long end mills with different helix angles, irregular teeth and relieved neck





nano TEC2

d1 (h10)	L1	L2	d2	d (h6)	L	Stock	ART No
6	19	29	5.5	6	63	●	9364060006300-2
8	26	42	7.5	8	80	●	9364080008000-2
10	33	54	9.5	10	100	●	9364100010000-2
12	38	54	11.5	12	100	●	9364120010000-2
16	53	69	15.5	16	150	●	9364160015000-2
20	68	84	19.5	20	150	●	9364200015000-2

● In stock

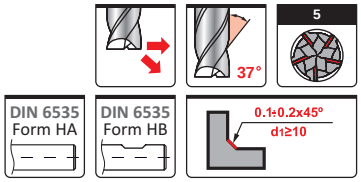
Recommended cutting conditions for end mills 9364 - Shoulder

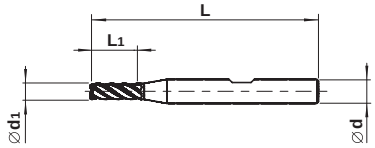
Work material		Ap	Ae	Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm		
		Ap	Ae	nanoTEC2	Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
P	Carbon steel and Alloy steel < 25 HRC	<2d1	<0.4d1	130-170	0.02-0.035	0.035-0.045	0.045-0.06	0.06-0.075	0.07-0.09	0.08-0.10
P	Alloy steel and Tool steel 25-45 HRC	<2d1	<0.3d1	100-130	0.02-0.035	0.035-0.045	0.045-0.06	0.06-0.075	0.07-0.09	0.08-0.10
M	Stainless steel	<1.5d1	<0.2d1	35-45	0.015-0.03	0.03-0.04	0.04-0.055	0.055-0.07	0.065-0.08	0.075-0.09
K	Cast iron GG	<2d1	<0.4d1	90-110	0.02-0.035	0.035-0.045	0.045-0.06	0.06-0.075	0.07-0.09	0.08-0.10
K	Nodular cast iron GGG	<2d1	<0.3d1	80-100	0.02-0.035	0.035-0.045	0.045-0.06	0.06-0.075	0.07-0.09	0.08-0.10

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. For high alloyed steels (>12% Cr), INOX, cutting speed must be reduced by 20-30% when used emulsion

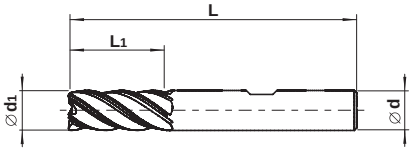
UMT 9265 Z=5

HPC end mills with irregular teeth for machining different types of steel





Type 1



Type 2

d1 (h10)	L1	d (h6)	L	Type	Stock	ART No (nano TEC2)	Stock	ART No (nano TEC2)
					Shank Style DIN 6535 HA		Shank Style DIN 6535 HB	
3	8	6	57	1	●	9265030005700-2	○	9265030005700-2-HB
4	11	6	57	1	●	9265040005700-2	○	9265040005700-2-HB
5	13	6	57	1	●	9265050005700-2	○	9265050005700-2-HB
6	13	6	57	2	●	9265060005700-2	○	9265060005700-2-HB
8	19	8	63	2	●	9265080006300-2	○	9265080006300-2-HB
10	22	10	72	2	○	9265100007200-2	●	9265100007200-2-HB
12	26	12	83	2	○	9265120008300-2	●	9265120008300-2-HB
16	32	16	92	2	○	9265160009200-2	●	9265160009200-2-HB
20	38	20	104	2	○	9265200010400-2	●	9265200010400-2-HB

● In stock
○ Produced to order only

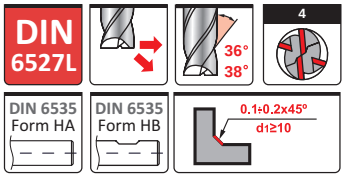
Recommended cutting conditions for end mills 9265 - Shoulder milling and slotting

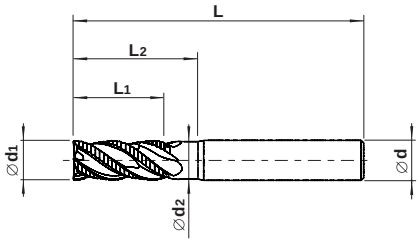
Work material	Cutting speed (Ap, Ae) Ap	Ae	Vc (m/min) nanoTEC2	Cutting speed (Ap) Ap	Vc (m/min) nanoTEC2	d1 - diameter in mm / fz - feed per tooth in mm ∅3	∅4	∅5	∅6	∅8	∅10	∅12	∅16	∅20
P Carbon steel and Alloy steel < 25 HRC	<1.5d1	<0.5d1	160-190	<1d1 max 12mm	130-150	0.012	0.018	0.022	0.029	0.049	0.06	0.074	0.087	0.095
P Alloy steel and Tool steel 25-45 HRC	<1.5d1	<0.4d1	90-110	<0.7d1 max 12mm	70-90	0.01	0.015	0.018	0.022	0.036	0.045	0.055	0.067	0.075
M Stainless steel	<1.5d1	<0.3d1	80-100	<0.5d1	60-80	0.008	0.01	0.014	0.017	0.03	0.037	0.043	0.05	0.058
K Cast iron GG	<1.5d1	<0.5d1	130-160	<1d1 max 12mm	100-120	0.01	0.015	0.018	0.026	0.045	0.056	0.067	0.079	0.09
K Nodular cast iron GGG	<1.5d1	<0.4d1	110-140	<0.7d1 max 12mm	80-100	0.009	0.012	0.015	0.02	0.034	0.043	0.05	0.059	0.067

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. For high alloyed steels (>12% Cr), INOX, cutting speed must be reduced by 20-30% when used emulsion

UMT 9764 Z=4 NEW

HPC Roughing end mills with different helix angles and irregular teeth for machining different types of steel





d1 (h10)	L1	L2	d2	d (h6)	L	Stock	ART No (nano TEC1)	Stock	ART No (nano TEC1)
						Shank Style DIN 6535 HA		Shank Style DIN 6535 HB	
6	13	21	5.5	6	57	●	9764060005700-1	○	9764060005700-1-HB
8	19	27	7.5	8	63	●	9764080006300-1	○	9764080006300-1-HB
10	22	32	9.3	10	72	○	9764100007200-1	●	9764100007200-1-HB
12	26	38	11.2	12	83	○	9764120008300-1	●	9764120008300-1-HB
14	26	38	13.2	14	83	○	9764140008300-1	○	9764140008300-1-HB
16	32	44	15.2	16	92	○	9764160009200-1	●	9764160009200-1-HB
18	32	44	17.2	18	92	○	9764180009200-1	○	9764180009200-1-HB
20	38	54	19.2	20	104	○	9764200010400-1	●	9764200010400-1-HB

● In stock
○ Produced to order only

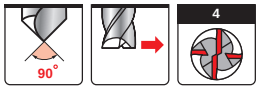
Recommended cutting conditions for end mills 9764 - Shoulder milling and slotting

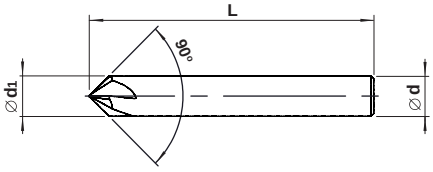
Work material	Cutting speed (Ap, Ae) Ap	Ae	Vc (m/min) nanoTEC1	Cutting speed (Ap) Ap	Vc (m/min) nanoTEC1	d1 - diameter in mm / fz - feed per tooth in mm ∅6	∅8	∅10	∅12	∅14	∅16	∅18	∅20
P Carbon steel and Alloy steel < 25 HRC	<1.8d1	<0.5d1	130-140	<1d1 max 12mm	100-120	0.03	0.04	0.047	0.052	0.058	0.061	0.063	0.067
P Alloy steel and Tool steel 25-45 HRC	<1.8d1	<0.4d1	70-80	<0.7d1 max 12mm	55-75	0.025	0.035	0.042	0.047	0.052	0.055	0.06	0.065
M Stainless steel	<1.8d1	<0.3d1	50-60	<0.5d1	40-50	0.022	0.033	0.04	0.045	0.048	0.052	0.057	0.062
K Cast iron GG	<1.8d1	<0.5d1	110-140	<1d1 max 12mm	80-100	0.03	0.04	0.047	0.052	0.058	0.061	0.063	0.067
K Nodular cast iron GGG	<1.8d1	<0.4d1	90-120	<0.7d1 max 12mm	60-80	0.025	0.035	0.042	0.047	0.052	0.055	0.06	0.065

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. For high alloyed steels (>12% Cr), INOX, cutting speed must be reduced by 20-30% when used emulsion

UMT 9104 Z=4 NEW

Chamfer end mill 90°





nano TEC1

d1 (h10)	d (h6)	L	Stock	ART No
5	5	50	●	9104050005000-1
6	6	57	●	9104060005700-1
8	8	63	●	9104080006300-1
10	10	65	●	9104100006500-1
12	12	65	●	9104120006500-1

● In stock

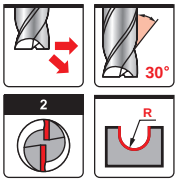
Recommended cutting conditions for end mills 9104 - Chamfer milling

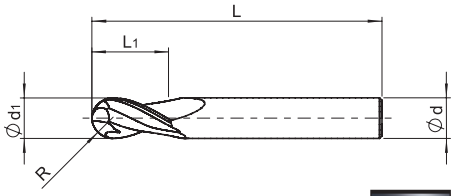
Work material		Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm	
		nanoTEC1	∅5	∅6	∅8	∅10	∅12
P	Carbon steel and Alloy steel < 25 HRC	110-150	0.025-0.035	0.035-0.045	0.045-0.05	0.05-0.06	0.06-0.07
P	Alloy steel and Tool steel 25-45 HRC	80-110	0.02-0.03	0.03-0.04	0.04-0.045	0.045-0.055	0.055-0.065
M	Stainless steel	40-60	0.02-0.03	0.03-0.04	0.04-0.045	0.045-0.055	0.055-0.065
K	Cast iron GG	70-90	0.025-0.035	0.035-0.045	0.045-0.05	0.05-0.06	0.06-0.07
K	Nodular cast iron GGG	60-80	0.02-0.03	0.03-0.04	0.04-0.045	0.045-0.055	0.055-0.065
S	Titanium alloy	40-50	0.02-0.03	0.03-0.04	0.04-0.045	0.045-0.055	0.055-0.065

For high alloyed steels (> 12 Cr), INOX, titanium alloys, cutting speed most be reduced by 20-30% when used emulsion

UMT 9612 Z=2

Ball nose end mills





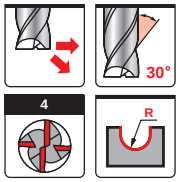
nano TEC1

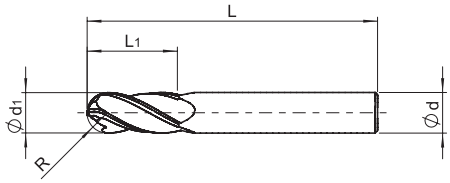
d1 (e8)	L1	d (h6)	L	R(d1/2)	Stock	ART No
3	7	3	38	1.5	●	9612030003800-1
4	8	4	50	2.0	●	9612040005000-1
5	10	5	50	2.5	●	9612050005000-1
6	10	6	57	3.0	●	9612060005700-1
8	16	8	63	4.0	●	9612080006300-1
10	19	10	72	5.0	●	9612100007200-1
12	22	12	83	6.0	●	9612120008300-1
14	22	14	83	7.0	●	9612140008300-1
16	26	16	92	8.0	●	9612160009200-1
20	32	20	104	10.0	●	9612200010400-1

● In stock

UMT 9614 Z=4

Ball nose end mills



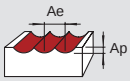


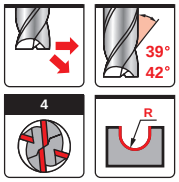
nano TEC1

d1 (e8)	L1	d (h6)	L	R(d1/2)	Stock	ART No
3	10	3	38	1.5	●	9614030003800-1
4	11	4	50	2.0	●	9614040005000-1
5	13	5	50	2.5	●	9614050005000-1
6	13	6	57	3.0	●	9614060005700-1
8	19	8	63	4.0	●	9614080006300-1
10	22	10	72	5.0	●	9614100007200-1
12	26	12	83	6.0	●	9614120008300-1
14	26	14	83	7.0	●	9614140008300-1
16	32	16	92	8.0	●	9614160009200-1
20	38	20	104	10.0	●	9614200010400-1

● In stock

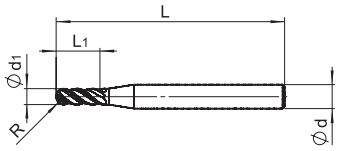
Recommended cutting conditions for end mills 9612, 9614 - Shoulder milling

Work material				Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm		
		Ap	Ae	nanoTEC1	∅3 - ∅4	∅5 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅14	∅14 - ∅20
P	Carbon steel and Alloy steel < 25 HRC	<0.1d1	<0.2d1	80-90	0.005-0.01	0.01-0.02	0.015-0.03	0.03-0.04	0.04-0.07	0.04-0.07
P	Alloy steel and Tool steel 25-45 HRC	<0.1d1	<0.1d1	50-70	0.004-0.01	0.01-0.02	0.015-0.03	0.03-0.04	0.04-0.06	0.04-0.06
M	Stainless steel	<0.1d1	<0.1d1	25-35	0.004-0.01	0.01-0.02	0.015-0.03	0.03-0.04	0.04-0.06	0.04-0.06
K	Cast iron GG	<0.1d1	<0.2d1	80-90	0.005-0.01	0.01-0.02	0.015-0.03	0.03-0.04	0.04-0.07	0.04-0.07
K	Nodular cast iron GGG	<0.1d1	<0.2d1	70-80	0.004-0.01	0.01-0.02	0.015-0.03	0.03-0.04	0.04-0.06	0.04-0.06

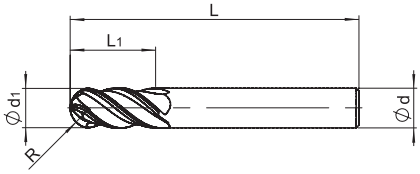


UMT 9644 Z=4

Ball nose end mills with different helix angles and irregular teeth for difficult to cut materials



Type 1



Type 2

nano TEC2

d1 (e8)	L1	d (h6)	L	R (d1/2)	Stock	Type	ART No
3	8	6	57	1.5	●	1	9644030005700-2
4	11	6	57	2.0	●	1	9644040005700-2
5	13	6	57	2.5	●	1	9644050005700-2
6	13	6	57	3.0	●	2	9644060005700-2
8	19	8	63	4.0	●	2	9644080006300-2
10	22	10	72	5.0	●	2	9644100007200-2
12	26	12	83	6.0	●	2	9644120008300-2
16	32	16	92	8.0	○	2	9644160009200-2
20	38	20	104	10.0	○	2	9644200010400-2

● In stock
○ Produced to order only

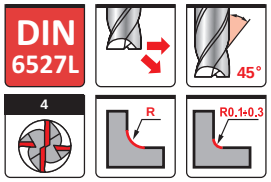
Recommended cutting conditions for end mills 9644

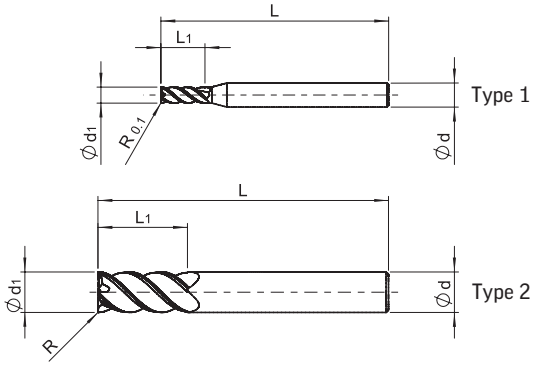
	Work material	Ap	Ae	Cutting speed Vc (m/min)	d1 - diameter in mm					fz - feed per tooth in mm			
		Ap	Ae	nanoTEC2	∅3	∅4	∅5	∅6	∅8	∅10	∅12	∅16	∅20
P	Carbon steel and Alloy steel < 25 HRC	<0.2d1	<0.3d1	110-130	0.02	0.025	0.03	0.035	0.05	0.06	0.065	0.075	0.09
P	Alloy steel and Tool steel 25-45 HRC	<0.2d1	<0.3d1	60-80	0.015	0.02	0.025	0.028	0.04	0.048	0.052	0.06	0.07
M	Stainless steel	<0.15d1	<0.2d1	55-75	0.015	0.02	0.025	0.028	0.04	0.048	0.052	0.06	0.07
S	Titanium alloy	<0.15d1	<0.2d1	55-75	0.015	0.02	0.025	0.028	0.04	0.048	0.052	0.06	0.07
S	Titanium	<0.1d1	<0.2d1	40-60	0.012	0.015	0.018	0.02	0.03	0.035	0.04	0.05	0.06
S	Heat resistant alloy	<0.1d1	<0.1d1	25-35	0.01	0.012	0.015	0.018	0.025	0.032	0.038	0.046	0.055

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. For high alloyed steels (>12% Cr), INOX, cutting speed must be reduced by 20-30% when used emulsion

UMT 9224 Z=4

End mills





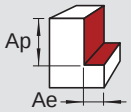
nano TEC2

d1 (e8)	L1	d (h6)	L	R (±0.02)	Stock	Type	ART No
3	10	3	38		●	2	9224030003800-2
3	8	6	57		●	1	9224030005700-2
4	11	4	50		●	2	9224040005000-2
4	11	6	57		●	1	9224040005700-2
5	13	5	50		●	2	9224050005000-2
5	13	6	57		●	1	9224050005700-2
6	13	6	57		●	2	9224060005700-2
6	13	6	57	0.5	○	2	9224060005705-2
6	13	6	57	1.0	○	2	9224060005710-2
6	13	6	57	1.5	○	2	9224060005715-2
8	19	8	63		●	2	9224080006300-2
8	19	8	63	0.5	○	2	9224080006305-2
8	19	8	63	1.0	○	2	9224080006310-2
8	19	8	63	1.5	○	2	9224080006315-2
10	22	10	72		●	2	9224100007200-2
10	22	10	72	0.5	○	2	9224100007205-2
10	22	10	72	1.0	○	2	9224100007210-2
10	22	10	72	1.5	○	2	9224100007215-2
10	22	10	72	2.0	○	2	9224100007220-2
12	26	12	83		●	2	9224120008300-2
12	26	12	83	0.5	○	2	9224120008305-2
12	26	12	83	1.0	○	2	9224120008310-2
12	26	12	83	1.5	○	2	9224120008315-2
12	26	12	83	2.0	○	2	9224120008320-2
12	26	12	83	3.0	○	2	9224120008330-2
14	26	14	83		●	2	9224140008300-2
16	32	16	92		●	2	9224160009200-2
16	32	16	92	1.5	○	2	9224160009215-2
16	32	16	92	2.0	○	2	9224160009220-2
16	32	16	92	3.0	○	2	9224160009230-2
16	32	16	92	4.0	○	2	9224160009240-2
18	32	18	92		●	2	9224180009200-2
20	38	20	104		●	2	9224200010400-2
20	38	20	104	3.0	○	2	9224200010430-2
20	38	20	104	4.0	○	2	9224200010440-2
20	38	20	104	5.0	○	2	9224200010450-2

● In stock

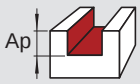
○ Produced to order only

Recommended cutting conditions for end mills 9224 - Shoulder milling

Work material				Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	Ae	nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅14	∅14 - ∅16	∅16 - ∅20
P	Carbon steel and Alloy steel < 25 HRC	<1.5d_1	<0.2d_1	90-100	0.01-0.03	0.03-0.06	0.04-0.08	0.045-0.10	0.06-0.12	0.07-0.14
P	Alloy steel and Tool steel 25-45 HRC	<1.5d_1	<0.2d_1	40-60	0.01-0.02	0.025-0.05	0.035-0.065	0.04-0.08	0.045-0.08	0.055-0.10
M	Stainless steel	<1.5d_1	<0.1d_1	50-60	0.01-0.02	0.025-0.05	0.035-0.065	0.04-0.08	0.045-0.08	0.055-0.10
K	Cast iron GG	<1.5d_1	<0.2d_1	90-110	0.01-0.03	0.03-0.06	0.04-0.08	0.045-0.10	0.06-0.12	0.07-0.14
K	Nodular cast iron GGG	<1.5d_1	<0.1d_1	80-100	0.01-0.02	0.025-0.05	0.035-0.065	0.04-0.08	0.045-0.08	0.055-0.10
S	Titanium alloy	<1.5d_1	<0.1d_1	50-60	0.01-0.02	0.025-0.05	0.035-0.065	0.04-0.08	0.045-0.08	0.055-0.10

For high alloyed steel (> 12% Cr), INOX, titanium alloy, cutting speed must be reduced by 20-30% when used emulsion

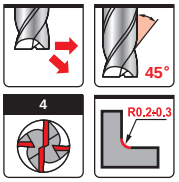
Recommended cutting conditions for end mills 9224 - Slotting

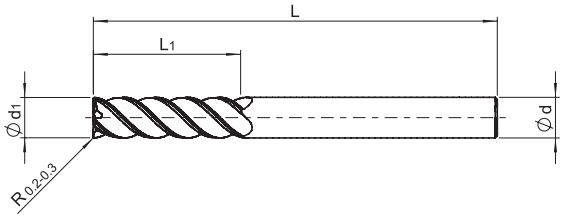
Work material			Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅14	∅14 - ∅16	∅16 - ∅20
P	Carbon steel and Alloy steel < 25 HRC	<1d_1	70-80	0.008-0.02	0.018-0.04	0.02-0.05	0.025-0.06	0.03-0.07	0.04-0.08
P	Alloy steel and Tool steel 25-45 HRC	<1d_1	30-50	0.006-0.018	0.015-0.03	0.02-0.04	0.02-0.05	0.025-0.06	0.03-0.07
M	Stainless steel	<0.5d_1	40-50	0.006-0.02	0.015-0.03	0.02-0.04	0.02-0.05	0.025-0.06	0.03-0.07
K	Cast iron GG	<1d_1	90-110	0.01-0.025	0.02-0.05	0.025-0.07	0.03-0.07	0.035-0.08	0.035-0.11
K	Nodular cast iron GGG	<1d_1	80-100	0.01-0.02	0.02-0.04	0.02-0.06	0.026-0.07	0.027-0.07	0.03-0.10
S	Titanium alloy	<0.5d_1	40-50	0.003-0.015	0.005-0.04	0.008-0.04	0.01-0.05	0.015-0.06	0.015-0.08

For high alloyed steel (> 12% Cr), INOX, titanium alloy, cutting speed must be reduced by 20-30% when used emulsion

UMT 9324 Z=4

Long end mills





nano TEC2

d1 (e8)	L1	d (h6)	L	Stock	ART No
6	24	6	75	●	9324060007500-2
8	30	8	75	●	9324080007500-2
10	36	10	100	●	9324100010000-2
12	45	12	100	●	9324120010000-2
16	50	16	115	●	9324160011500-2
20	55	20	120	●	9324200012000-2

● In stock

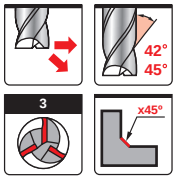
Recommended cutting conditions for end mills 9324 - Shoulder milling

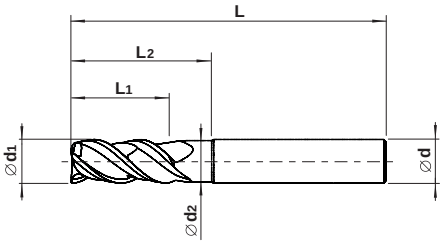
Work material		Ap	Ae	Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm		
		Ap	Ae	nanoTEC2	∅6	∅8	∅10	∅12	∅16	∅20
P	Carbon steel and Alloy steel < 25 HRC	<2.5d1	<0.05d1	70-80	0.03-0.04	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09	0.09-0.10
P	Alloy steel and Tool steel 25-45 HRC	<2d1	<0.05d1	40-50	0.025-0.035	0.045-0.055	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09
M	Stainless steel	<2d1	<0.02d1	40-50	0.025-0.035	0.045-0.055	0.05-0.06	0.06-0.065	0.065-0.07	0.07-0.08
K	Cast iron GG	<2.5d1	<0.05d1	90-110	0.03-0.04	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09	0.09-0.10
K	Nodular cast iron GGG	<2.5d1	<0.05d1	80-100	0.03-0.04	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09	0.09-0.10
S	Titanium alloy	<2d1	<0.02d1	40-50	0.025-0.035	0.045-0.055	0.05-0.06	0.06-0.065	0.065-0.07	0.07-0.08

For high alloyed steel (> 12% Cr), INOX, titanium alloy, cutting speed must be reduced by 20-30% when used emulsion

UMT 9243 Z=3 NEW

End mills with different helix angles, irregular teeth and relieved neck





nano TEC2

d1 (h10)	L1	L2	d2	d (h6)	L	Stock	ART No
6	13	21	5.5	6	57	●	9243060005700-2
8	19	27	7.5	8	63	●	9243080006300-2
10	22	32	9.5	10	72	●	9243100007200-2
12	26	38	11.5	12	83	●	9243120008300-2
14	26	38	13.5	14	83	○	9243140008300-2
16	32	44	15.5	16	92	●	9243160009200-2
18	32	44	17.5	18	92	○	9243180009200-2
20	38	54	19.5	20	104	●	9243200010400-2

● In stock

○ Produced to order only

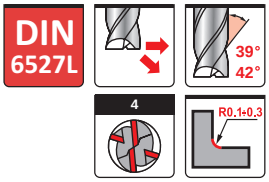
Recommended cutting conditions for end mills 9243 - Shoulder milling and slotting

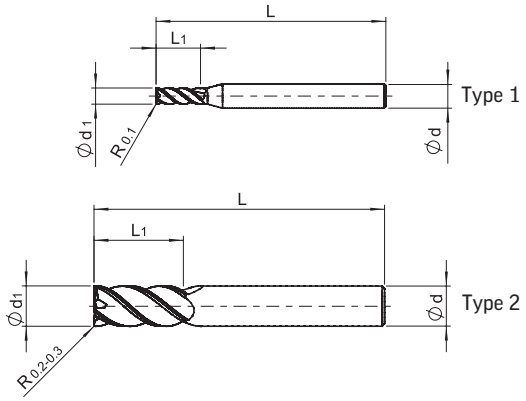
Work material	Cutting speed (Ap, Ae)		Vc (m/min)	Cutting speed (Ap)	Vc (m/min)	d1 - diameter in mm / fz - feed per tooth in mm							
	Ap	Ae	nanoTEC2	Ap	nanoTEC2	∅6	∅8	∅10	∅12	∅14	∅16	∅18	∅20
P Carbon steel and Alloy steel < 25 HRC	<1.5d1	<0.5d1	100-160	<1d1 max 12mm	90-130	0.029	0.049	0.061	0.074	0.086	0.10	0.103	0.107
P Alloy steel and Tool steel 25-45 HRC	<1.5d1	<0.4d1	60-90	<0.7d1 max 12mm	50-80	0.022	0.036	0.045	0.055	0.063	0.074	0.077	0.08
M Stainless steel	<1.5d1	<0.3d1	60-90	<0.7d1 max 12mm	50-80	0.019	0.032	0.04	0.048	0.056	0.064	0.066	0.069
K Cast iron GG	<1.5d1	<0.5d1	90-120	<1d1 max 12mm	70-100	0.029	0.049	0.061	0.074	0.086	0.10	0.103	0.107
K Nodular cast iron GGG	<1.5d1	<0.4d1	70-100	<0.7d1 max 12mm	50-80	0.022	0.036	0.045	0.055	0.063	0.074	0.077	0.08
S Titanium alloy	<1.5d1	<0.4d1	40-60	<0.7d1 max 12mm	35-50	0.019	0.032	0.04	0.048	0.056	0.064	0.066	0.069

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. For high alloyed steels (>12% Cr), INOX, cutting speed must be reduced by 20-30% when used emulsion

UMT 9244 Z=4

End mills with different helix angles and irregular teeth





nano TEC2

d1 (e8)	L1	d (h6)	L	Stock	Type	ART No
3	8	6	57	●	1	9244030005700-2
4	11	6	57	●	1	9244040005700-2
5	13	6	57	●	1	9244050005700-2
6	13	6	57	●	2	9244060005700-2
8	19	8	63	●	2	9244080006300-2
10	22	10	72	●	2	9244100007200-2
12	26	12	83	●	2	9244120008300-2
14	26	14	83	●	2	9244140008300-2
16	32	16	92	●	2	9244160009200-2
18	32	18	92	●	2	9244180009200-2
20	38	20	104	●	2	9244200010400-2

● In stock

Recommended cutting conditions for end mills 9244 - Shoulder milling

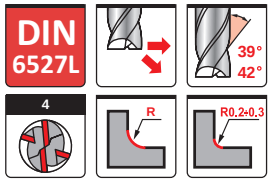
	Work material	Ap	Ae	Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm		
		Ap	Ae	nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅14	∅14 - ∅16	∅16 - ∅20
P	Carbon steel and Alloy steel < 25 HRC	<2d1	<0.4d1	120-150	0.015-0.05	0.03-0.07	0.04-0.09	0.045-0.10	0.06-0.12	0.07-0.16
P	Alloy steel and Tool steel 25-45 HRC	<2d1	<0.3d1	60-80	0.012-0.04	0.025-0.06	0.035-0.075	0.04-0.08	0.045-0.09	0.055-0.11
M	Stainless steel	<1.5d1	<0.3d1	70-80	0.012-0.04	0.025-0.06	0.035-0.07	0.04-0.08	0.045-0.09	0.055-0.11
K	Cast iron GG	<2d1	<0.4d1	130-160	0.025-0.07	0.045-0.10	0.06-0.13	0.07-0.15	0.08-0.18	0.10-0.20
K	Nodular cast iron GGG	<2d1	<0.3d1	100-120	0.021-0.06	0.038-0.09	0.05-0.11	0.06-0.13	0.07-0.15	0.08-0.18
S	Titanium alloy	<1.5d1	<0.2d1	30-50	0.015-0.04	0.03-0.06	0.04-0.09	0.045-0.10	0.06-0.12	0.07-0.16

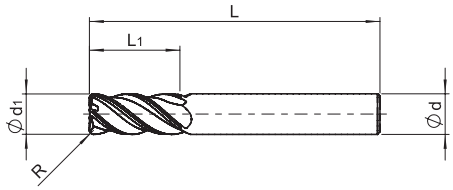
Recommended cutting conditions for end mills 9244 - Slotting

	Work material	Ap	Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm		
		Ap	nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅14	∅14 - ∅16	∅16 - ∅20
P	Carbon steel and Alloy steel < 25 HRC	<1d1	100-130	0.008-0.03	0.017-0.04	0.02-0.05	0.025-0.06	0.03-0.07	0.04-0.08
P	Alloy steel and Tool steel 25-45 HRC	<0.7d1	50-70	0.006-0.02	0.015-0.03	0.02-0.04	0.02-0.05	0.025-0.06	0.03-0.07
M	Stainless steel	<0.7d1	50-70	0.006-0.02	0.015-0.03	0.02-0.04	0.02-0.05	0.025-0.06	0.03-0.07
K	Cast iron GG	<1d1	120-140	0.01-0.04	0.02-0.05	0.025-0.07	0.03-0.07	0.035-0.08	0.035-0.11
K	Nodular cast iron GGG	<1d1	90-110	0.01-0.03	0.02-0.04	0.02-0.06	0.026-0.07	0.027-0.07	0.03-0.10
S	Titanium alloy	<0.3d1	20-40	0.003-0.015	0.005-0.04	0.008-0.04	0.01-0.05	0.015-0.06	0.015-0.08

UMT 9544 Z=4

End mills with different helix angles and irregular teeth for difficult to cut materials





nano TEC2

d1 (e8)	L1	d (h6)	L	R(±0.02)	Stock	ART No
6	13	6	57		●	9544060005700-2
6	13	6	57	0.5	○	9544060005705-2
6	13	6	57	1.0	○	9544060005710-2
8	19	8	63		●	9544080006300-2
8	19	8	63	0.5	○	9544080006305-2
8	19	8	63	1.0	○	9544080006310-2
10	22	10	72		●	9544100007200-2
10	22	10	72	0.5	○	9544100007205-2
10	22	10	72	1.0	○	9544100007210-2
10	22	10	72	2.0	○	9544100007220-2
12	26	12	83		●	9544120008300-2
12	26	12	83	0.5	○	9544120008305-2
12	26	12	83	1.0	○	9544120008310-2
12	26	12	83	2.0	○	9544120008320-2
16	32	16	92		●	9544160009200-2
16	32	16	92	1.0	○	9544160009210-2
16	32	16	92	2.0	○	9544160009220-2
16	32	16	92	3.0	○	9544160009230-2
20	38	20	104		●	9544200010400-2
20	38	20	104	1.0	○	9544200010410-2
20	38	20	104	2.0	○	9544200010420-2
20	38	20	104	3.0	○	9544200010430-2

● In stock
○ Produced to order only

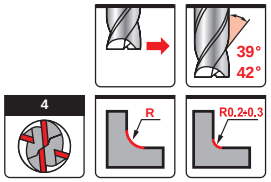
Recommended cutting conditions for end mills 9544 - Shoulder milling and slotting

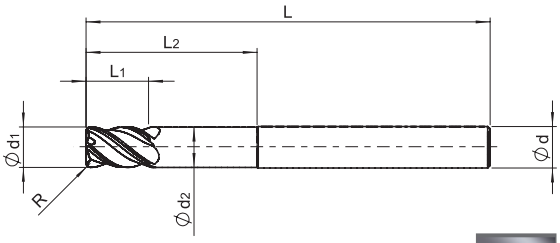
Work material	Cutting speed (Ap, Ae)			Cutting speed (Ap)		d1 - diameter in mm					fz - feed per tooth in mm
	Ap	Ae	Vc (m/min) nanoTEC2	Ap	Vc (m/min) nanoTEC2	∅6	∅8	∅10	∅12	∅16	∅20
P Carbon steel and Alloy steel < 25 HRC	<2d1	<0.4d1	120-150	<1d1 max 12mm	90-120	0.03-0.04	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09	0.09-0.10
P Alloy steel and Tool steel 25-45 HRC	<2d1	<0.3d1	60-80	<0.7d1 max 12mm	50-70	0.025-0.035	0.045-0.055	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09
M Stainless steel	<1.5d1	<0.3d1	70-80	<0.5d1	50-70	0.025-0.035	0.035-0.055	0.055-0.06	0.06-0.065	0.065-0.07	0.07-0.08
S Titanium alloy	<1.5d1	<0.2d1	40-50	<0.5d1	30-40	0.015-0.035	0.045-0.055	0.05-0.06	0.06-0.065	0.065-0.07	0.07-0.08
S Titanium	<1.5d1	<0.1d1	45-60	<0.3d1	35-45	0.012	0.015	0.019	0.025	0.034	0.042
S Heat resistant alloy	<1.5d1	0.05d1	30-40	<0.3d1	20-25	0.015	0.018	0.023	0.028	0.037	0.043

1. Cutting conditions to be adjusted according to cutting style, rigidity of machine and work clamping
2. For high alloyed steel (> 12% Cr), INOX, titanium alloy, cutting speed must be reduced by 20-30% when used emulsion

UMT 9554 Z=4

End mills with different helix angles, irregular teeth, short cutting length and relieved neck for difficult to cut materials





nano TEC2

d1 (e8)	L1	L2	d2	d (h6)	L	R(±0.02)	Stock	ART No
6	9	26	5.8	6	75		●	9554060007500-2
6	9	26	5.8	6	75	0.5	○	9554060007505-2
6	9	26	5.8	6	75	1.0	○	9554060007510-2
8	12	34	7.8	8	75		●	9554080007500-2
8	12	34	7.8	8	75	0.5	○	9554080007505-2
8	12	34	7.8	8	75	1.0	○	9554080007510-2
10	15	42	9.7	10	100		●	9554100010000-2
10	15	42	9.7	10	100	0.5	○	9554100010005-2
10	15	42	9.7	10	100	1.0	○	9554100010010-2
10	15	42	9.7	10	100	2.0	○	9554100010020-2
12	18	50	11.7	12	100		●	9554120010000-2
12	18	50	11.7	12	100	0.5	○	9554120010005-2
12	18	50	11.7	12	100	1.0	○	9554120010010-2
12	18	50	11.7	12	100	2.0	○	9554120010020-2
16	24	65	15.5	16	115		●	9554160011500-2
16	24	65	15.5	16	115	1.0	○	9554160011510-2
16	24	65	15.5	16	115	2.0	○	9554160011520-2
16	24	65	15.5	16	115	3.0	○	9554160011530-2
20	30	82	19.5	20	140		●	9554200014000-2
20	30	82	19.5	20	140	1.0	○	9554200014010-2
20	30	82	19.5	20	140	2.0	○	9554200014020-2
20	30	82	19.5	20	140	3.0	○	9554200014030-2

● In stock

○ Produced to order only

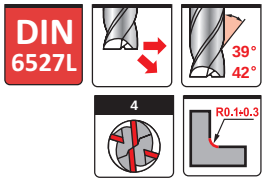
Recommended cutting conditions for end mills 9554 - Shoulder milling and slotting

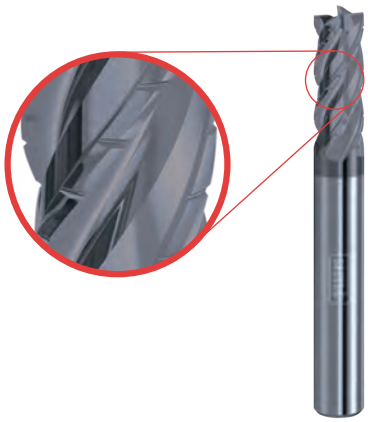
Work material	Cutting speed			Cutting speed		d1 - diameter in mm					fz - feed per tooth in mm
	Ap, Ae		Vc (m/min)	Ap	Vc (m/min)						
	Ap	Ae	nanoTEC2	Ap	nanoTEC2	∅6	∅8	∅10	∅12	∅16	∅20
P Carbon steel and Alloy steel < 25 HRC	<1d1	<0.4d1	100-130	<1d1 max 12mm	70-100	0.03-0.04	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09	0.09-0.10
P Alloy steel and Tool steel 25-45 HRC	<1d1	<0.3d1	50-70	<0.7d1 max 12mm	40-60	0.025-0.035	0.045-0.055	0.05-0.06	0.06-0.07	0.07-0.08	0.08-0.09
M Stainless steel	<1d1	<0.2d1	60-70	<0.5d1	40-60	0.025-0.035	0.035-0.055	0.055-0.06	0.06-0.065	0.065-0.07	0.07-0.08
S Titanium alloy	<1d1	<0.2d1	30-40	<0.5d1	25-35	0.015-0.035	0.045-0.055	0.05-0.06	0.06-0.065	0.065-0.07	0.07-0.08
S Titanium	<1d1	<0.1d1	35-50	<0.3d1	30-40	0.012	0.015	0.019	0.025	0.034	0.042
S Heat resistant alloy	<1d1	<0.05d1	25-35	<0.3d1	15-20	0.015	0.018	0.023	0.028	0.037	0.043

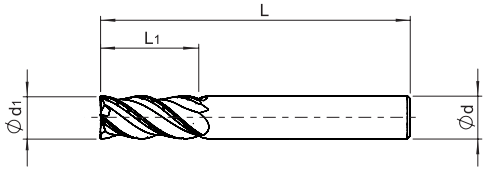
1. Cutting conditions to be adjusted according to cutting style, rigidity of machine and work clamping
2. For high alloyed steel (> 12% Cr), INOX, titanium alloy, cutting speed must be reduced by 20-30% when used emulsion

UMT 9744 Z=4 NEW

HPC Roughing end mills with different helix angles and irregular teeth for difficult to cut materials







nano TEC2

d1 (e10)	L1	d (h6)	L	Stock	ART No
6	13	6	57	●	9744060005700-2
8	19	8	63	●	9744080006300-2
10	22	10	72	●	9744100007200-2
12	26	12	83	●	9744120008300-2
16	32	16	92	●	9744160009200-2
20	38	20	104	●	9744200010400-2

● In stock

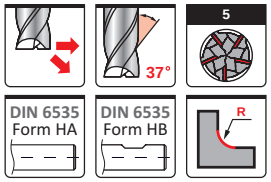
Recommended cutting conditions for end mills 9744 - Shoulder milling and slotting

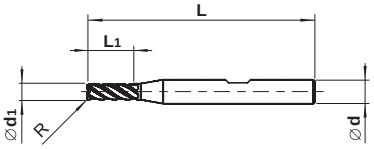
Work material		Cutting speed			Cutting speed		d1 - diameter in mm			fz - feed per tooth in mm		
		Ap, Ae		Vc (m/min)	Ap	Vc (m/min)						
		Ap	Ae	nanoTEC2	Ap	nanoTEC2	∅6	∅8	∅10	∅12	∅16	∅20
P	Carbon steel and Alloy steel < 25 HRC	<1.8d1	<0.4d1	80-140	<1d1 max 12mm	70-110	0.034	0.044	0.052	0.054	0.064	0.075
P	Alloy steel and Tool steel 25-45 HRC	<1.8d1	<0.3d1	60-90	<0.7d1 max 12mm	50-80	0.022	0.028	0.034	0.04	0.052	0.064
M	Stainless steel	<1.8d1	<0.25d1	50-90	<0.5d1	40-70	0.02	0.025	0.028	0.032	0.038	0.05
S	Titanium alloy	<1.8d1	<0.3d1	45-70	<1d1 max 12mm	30-50	0.025	0.034	0.04	0.05	0.065	0.074
S	Titanium	<1.8d1	<0.3d1	50-75	<0.8d1 max 12mm	35-55	0.025	0.034	0.04	0.05	0.065	0.074
S	Heat resistant alloy	<1.8d1	<0.15d1	20-40	<0.3d1	20-25	0.02	0.025	0.028	0.032	0.038	0.05

1. Cutting conditions to be adjusted according to cutting style, rigidity of machine and work clamping
2. For high alloyed steel (> 12% Cr), INOX, titanium alloy, cutting speed must be reduced by 20-30% when used emulsion

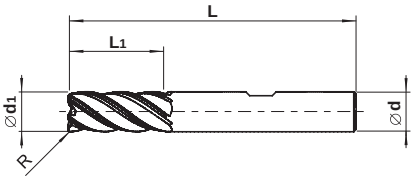
UMT 9545 Z=5

HPC end mills with irregular teeth for stainless steel and difficult to cut materials





Type 1



Type 2

d1 (h10)	L1	d (h6)	L	R(±0.02)	Type	Stock	ART No (nano TEC2) Shank Style DIN 6535 HA	Stock	ART No (nano TEC2) Shank Style DIN 6535 HB
3	8	6	57	0.2	1	●	9545030005702-2	○	9545030005702-2-HB
4	11	6	57	0.2	1	●	9545040005702-2	○	9545040005702-2-HB
5	13	6	57	0.3	1	●	9545050005703-2	○	9545050005703-2-HB
6	13	6	57	0.3	2	●	9545060005703-2	○	9545060005703-2-HB
8	19	8	63	0.4	2	●	9545080006304-2	○	9545080006304-2-HB
10	22	10	72	0.5	2	○	9545100007205-2	●	9545100007205-2-HB
12	26	12	83	0.5	2	○	9545120008305-2	●	9545120008305-2-HB
16	32	16	92	0.5	2	○	9545160009205-2	●	9545160009205-2-HB
20	38	20	104	0.5	2	○	9545200010405-2	●	9545200010405-2-HB

● In stock
○ Produced to order only

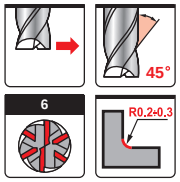
Recommended cutting conditions for end mills 9545 - Shoulder milling and slotting

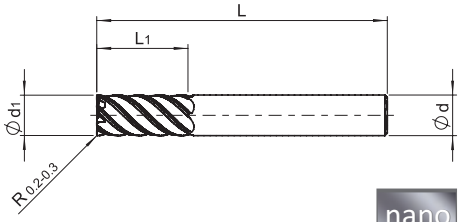
Work material		Cutting speed Ap	Ae	Vc (m/min) nanoTEC2	Cutting speed Ap	Vc (m/min) nanoTEC2	d1 - diameter in mm / fz - feed per tooth in mm ∅3	∅4	∅5	∅6	∅8	∅10	∅12	∅16	∅20
P	Carbon steel and Alloy steel < 25 HRC	<1.5d1	<0.4d1	150-180	<1d1 max 12mm	120-140	0.012	0.018	0.022	0.029	0.049	0.06	0.074	0.087	0.095
P	Alloy steel and Tool steel 25-45 HRC	<1.5d1	<0.4d1	80-100	<0.7d1 max 12mm	70-90	0.01	0.015	0.018	0.022	0.036	0.045	0.055	0.067	0.075
M	Stainless steel	<1.5d1	<0.4d1	90-110	<0.5d1	70-90	0.008	0.01	0.014	0.017	0.03	0.037	0.043	0.05	0.058
S	Titanium alloy	<1d1	<0.3d1	60-70	<0.4d1	40-50	0.009	0.011	0.015	0.019	0.032	0.04	0.048	0.056	0.064
S	Titanium	<1d1	<0.3d1	60-70	<0.4d1	40-50	0.007	0.009	0.013	0.016	0.025	0.034	0.04	0.046	0.052
S	Heat resistant alloy	<1d1	<0.2d1	30-40	<0.4d1	20-25	0.006	0.008	0.01	0.012	0.02	0.024	0.028	0.034	0.04

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. For high alloyed steels (>12% Cr), INOX, cutting speed must be reduced by 20-30% when used emulsion

UMT 9226 Z=6 NEW Geometry

End mills with especially designed irregular teeth for excellent high speed semi-finishing and finishing.





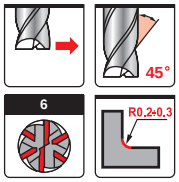
nano TEC2

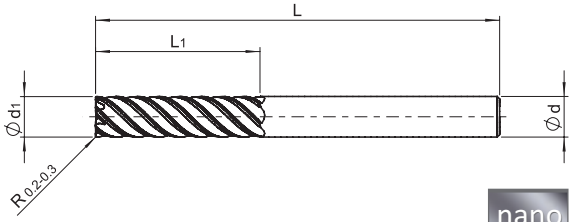
d1 (e8)	L1	d (h6)	L	Stock	ART No
6	13	6	57	●	9226060005700-2
8	19	8	63	●	9226080006300-2
10	22	10	72	●	9226100007200-2
12	26	12	83	●	9226120008300-2
16	32	16	92	●	9226160009200-2
20	38	20	104	●	9226200010400-2

● In stock

UMT 9326 Z=6 NEW Geometry

Long end mills with especially designed irregular teeth for excellent high speed semi-finishing and finishing.





nano TEC2

d1 (e8)	L1	d (h6)	L	Stock	ART No
6	30	6	75	●	9326060007500-2
8	30	8	75	●	9326080007500-2
10	40	10	100	●	9326100010000-2
12	45	12	100	●	9326120010000-2
16	55	16	115	●	9326160011500-2
20	65	20	120	●	9326200012000-2

● In stock

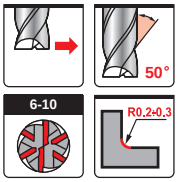
Recommended cutting conditions for end mills 9226, 9326 - Shoulder milling

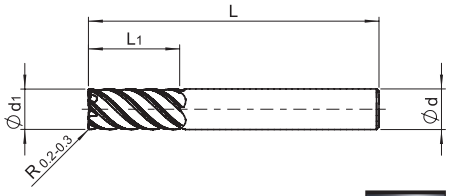
Work material		Cutting speed - 9226			Cutting speed - 9326			d1 - diameter in mm			fz - feed per tooth in mm		
		Ap	Ae	Vc (m/min)	Ap	Ae	Vc (m/min)						
		Ap	Ae	nanoTEC2	Ap	Ae	nanoTEC2	∅6	∅8	∅10	∅12	∅16	∅20
P	Carbon steel and Alloy steel < 25 HRC	<1.5d1	<0.1d1	150-180	<2.5d1	<0.05d1	100-120	0.03-0.04	0.04-0.05	0.05-0.055	0.055-0.065	0.065-0.075	0.075-0.085
P	Alloy steel and Tool steel 25-45 HRC	<1.5d1	<0.05d1	80-100	<2d1	<0.05d1	50-70	0.025-0.035	0.035-0.045	0.045-0.05	0.05-0.06	0.06-0.07	0.07-0.08
M	Stainless steel	<1.5d1	<0.05d1	90-110	<2d1	<0.02d1	50-60	0.025-0.035	0.035-0.045	0.045-0.05	0.05-0.06	0.06-0.07	0.07-0.08
K	Cast iron GG	<1.5d1	<0.1d1	130-160	<2.5d1	<0.05d1	110-130	0.03-0.04	0.04-0.05	0.05-0.055	0.055-0.065	0.065-0.075	0.075-0.085
K	Nodular cast iron GGG	<1.5d1	<0.1d1	110-140	<2.5d1	<0.05d1	100-120	0.025-0.035	0.035-0.045	0.045-0.05	0.05-0.06	0.06-0.07	0.07-0.08
S	Titanium alloy	<1.5d1	<0.05d1	60-70	<2d1	<0.02d1	35-45	0.025-0.035	0.035-0.045	0.045-0.05	0.05-0.06	0.06-0.07	0.07-0.08

For high alloyed steel (>12% Cr), INOX, titanium alloy, cutting speed must be reduced by 20-30% when used emulsion

UMT 9060 Z=6-10

End mills for hardened materials



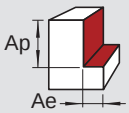
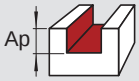


nano TEC1

d1 (e8)	L1	d (h6)	L	Z	Stock	ART No
6	13	6	57	6	●	9060060005700-1
8	19	8	63	6	●	9060080006300-1
10	22	10	72	6	●	9060100007200-1
12	26	12	83	8	●	9060120008300-1
16	32	16	92	10	●	9060160009200-1

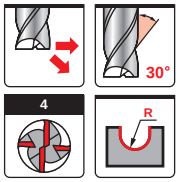
● In stock

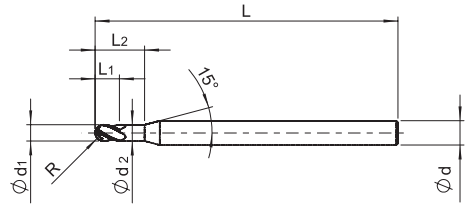
Recommended cutting conditions for end mills 9060 - Shoulder milling and slotting

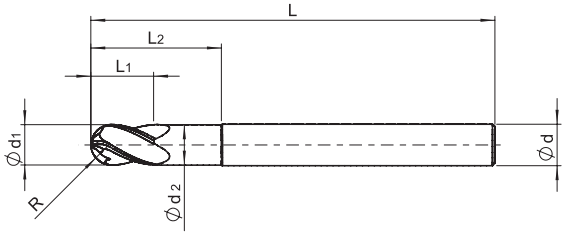
Work material	Ap 		Ap 	Cutting speed Vc (m/min)	d1 - diameter in mm		fz - feed per tooth in mm	
	Ap	Ae	Ap	nanoTEC1	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16
H Hardened steel 45-55 HRC	<1d1	<0.05d1	<0.1d1	30-50	0.02-0.025	0.025-0.03	0.03-0.04	0.03-0.05
Hardened steel 55-60 HRC	<1d1	<0.05d1	<0.05d1	25-35	0.01-0.02	0.02-0.03	0.03-0.04	0.03-0.04

UMT 9654 Z=4

Ball nose end mills with short cutting length and relieved neck for hardened materials







nano TEC1

d1 (e8)	L1	L2	d2	d (h6)	L	R(d1/2)	Stock	Type	ART No
3	5	10	2.9	6	75	1.5	●	1	9654030007500-1
4	6	13	3.9	6	75	2.0	●	1	9654040007500-1
5	8	16	4.9	6	75	2.5	●	1	9654050007500-1
6	9	20	5.8	6	75	3.0	●	2	9654060007500-1
8	12	25	7.8	8	100	4.0	●	2	9654080010000-1
10	15	32	9.7	10	100	5.0	●	2	9654100010000-1
12	18	38	11.7	12	100	6.0	●	2	9654120010000-1

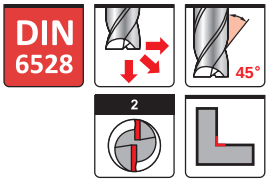
● In stock

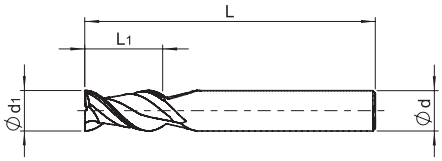
Recommended cutting conditions for end mills 9654

Work material	Ae / Ap		Cutting speed V_c (m/min)	d_1 - diameter in mm				f_z - feed per tooth in mm		
	Ap	Ae	nanoTEC1	∅3	∅4	∅5	∅6	∅8	∅10	∅12
H Hardened steel 45-55 HRC	<0.02d1	<0.03d1	200-250	0.04	0.048	0.05	0.054	0.057	0.057	0.059
Hardened steel 55-60 HRC	<0.015d1	<0.02d1	100-150	0.038	0.045	0.046	0.052	0.056	0.056	0.058

UMT 9412 Z=2

End mills for aluminium





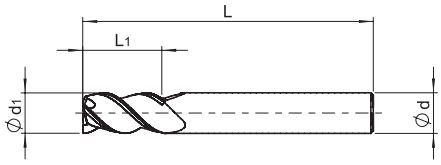
HM

d1 (e8)	L1	d (h6)	L	Stock	ART No
3	7	3	38	●	9412030003800-0
4	8	4	50	●	9412040005000-0
5	10	5	50	●	9412050005000-0
6	10	6	57	●	9412060005700-0
8	16	8	63	●	9412080006300-0
10	19	10	72	●	9412100007200-0
12	22	12	83	●	9412120008300-0
14	22	14	83	●	9412140008300-0
16	26	16	92	●	9412160009200-0
18	26	18	92	●	9412180009200-0
20	32	20	104	●	9412200010400-0

● In stock

UMT 9413 Z=3

End mills for aluminium



HM

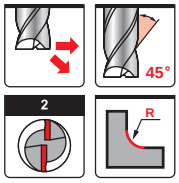
d1 (e8)	L1	d (h6)	L	R(±0.02)	Stock	ART No
3	7	3	38		●	9413030003800-0
4	8	4	50		●	9413040005000-0
5	10	5	50		●	9413050005000-0
6	10	6	57		●	9413060005700-0
8	16	8	63		●	9413080006300-0
10	19	10	72		●	9413100007200-0
10	19	10	72	0.5	○	9413100007205-0
10	19	10	72	1.0	○	9413100007210-0
12	22	12	83		●	9413120008300-0
12	22	12	83	0.5	○	9413120008305-0
12	22	12	83	1.0	○	9413120008310-0
14	22	14	83		●	9413140008300-0
16	26	16	92		●	9413160009200-0
16	26	16	92	0.5	○	9413160009205-0
16	26	16	92	1.0	○	9413160009210-0
18	26	18	92		●	9413180009200-0
20	32	20	104		●	9413200010400-0

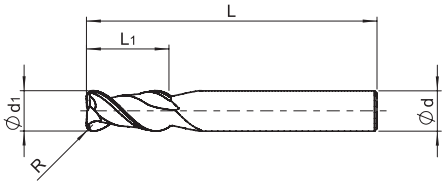
● In stock

○ Produced to order only

UMT 9512 Z=2

End mills with corner radius for aluminium



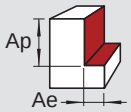


HM

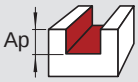
d1 (e8)	L1	d (h6)	L	R(±0.02)	Stock	ART No
4	8	4	50	0.3	●	9512040005003-0
6	12	6	57	0.5	●	9512060005705-0
8	16	8	63	0.5	●	9512080006305-0
8	16	8	63	1.0	●	9512080006310-0
8	16	8	63	1.5	●	9512080006315-0
10	20	10	72	0.5	●	9512100007205-0
10	20	10	72	1.0	●	9512100007210-0
10	20	10	72	1.5	●	9512100007215-0
12	24	12	83	1.0	●	9512120008310-0
12	24	12	83	1.5	●	9512120008315-0
12	24	12	83	2.0	●	9512120008320-0

● In stock

Recommended cutting conditions for end mills 9412, 9413, 9512 - Shoulder milling

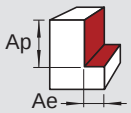
Work material				Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	Ae	HM	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16	∅16 - ∅20
N	Aluminium alloy Si<8%	<1.5d_1	<0.3d_1	220-230	0.05-0.06	0.06-0.08	0.08-0.11	0.11-0.14	0.14-0.18	0.18-0.20
	Cast aluminium Si>8%	<1.5d_1	<0.3d_1	180-190	0.04-0.06	0.06-0.07	0.07-0.10	0.10-0.13	0.13-0.16	0.16-0.18
	Copper alloy	<1.5d_1	<0.3d_1	140-155	0.04-0.06	0.06-0.07	0.07-0.10	0.10-0.13	0.13-0.16	0.16-0.18

Recommended cutting conditions for end mills 9412, 9413, 9512 - Slotting

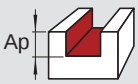
Work material			Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	HM	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16	∅16 - ∅20
N	Aluminium alloy Si<8%	<1d_1	180-190	0.02-0.04	0.04-0.06	0.06-0.08	0.08-0.11	0.11-0.13	0.13-0.16
	Cast aluminium Si>8%	<1d_1	160-170	0.02-0.04	0.04-0.06	0.06-0.08	0.08-0.11	0.11-0.13	0.13-0.16
	Copper alloy	<1d_1	130-140	0.02-0.04	0.04-0.06	0.06-0.08	0.08-0.11	0.11-0.13	0.13-0.16

1. Cutting conditions to be adjusted according to cutting style, rigidity of machine and work clamping
2. In case of ramping, reduction of the above data by 30-60% is recommended

High speed cutting conditions for end mills 9412, 9413, 9512 - Shoulder milling

Work material				Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	Ae	HM	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16	∅16 - ∅20
N	Aluminium alloy Si<8%	<0.8d_1	<0.3d_1	360-400	0.04-0.055	0.055-0.08	0.08-0.11	0.11-0.13	0.13-0.18	0.18-0.20
	Cast aluminium Si>8%	<0.8d_1	<0.3d_1	330-350	0.035-0.045	0.045-0.07	0.07-0.10	0.10-0.12	0.12-0.15	0.15-0.17
	Copper alloy	<0.8d_1	<0.3d_1	260-280	0.035-0.045	0.045-0.07	0.07-0.10	0.10-0.12	0.12-0.15	0.15-0.17

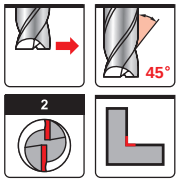
High speed cutting conditions for end mills 9412, 9413, 9512 - Slotting

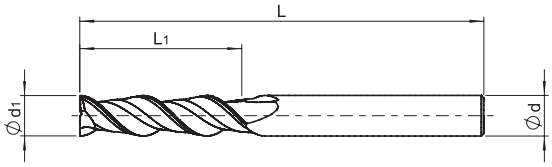
Work material			Cutting speed V_c (m/min)	d_1 - diameter in mm			f_z - feed per tooth in mm		
		Ap	HM	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16	∅16 - ∅20
N	Aluminium alloy Si<8%	<0.5d_1	360-380	0.02-0.04	0.04-0.06	0.06-0.07	0.07-0.08	0.08-0.11	0.11-0.125
	Cast aluminium Si>8%	<0.5d_1	290-300	0.02-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.09	0.09-0.11
	Copper alloy	<0.5d_1	210-230	0.02-0.04	0.04-0.05	0.05-0.06	0.06-0.07	0.07-0.09	0.09-0.11

1. Cutting conditions to be adjusted according to cutting style, rigidity of machine and work clamping
2. In case of ramping, reduction of the above data by 30-60% is recommended

UMT 9422 Z=2

Long end mills for aluminium





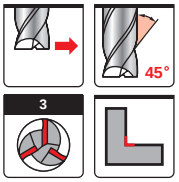
HM

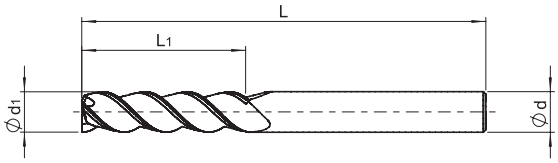
d1 (e8)	L1	d (h6)	L	Stock	ART No
3	18	3	60	●	9422030006000-0
4	24	4	60	●	9422040006000-0
5	26	5	75	●	9422050007500-0
6	30	6	75	●	9422060007500-0
8	30	8	75	●	9422080007500-0
10	40	10	100	●	9422100010000-0
12	45	12	100	●	9422120010000-0
16	45	16	100	●	9422160010000-0

● In stock

UMT 9423 Z=3

Long end mills for aluminium





HM

d1 (e8)	L1	d (h6)	L	Stock	ART No
3	18	3	60	●	9423030006000-0
4	24	4	60	●	9423040006000-0
5	26	5	75	●	9423050007500-0
6	30	6	75	●	9423060007500-0
8	30	8	75	●	9423080007500-0
10	40	10	100	●	9423100010000-0
12	45	12	100	●	9423120010000-0
16	45	16	100	●	9423160010000-0

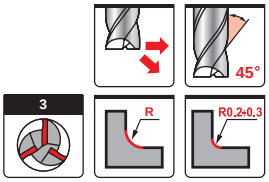
● In stock

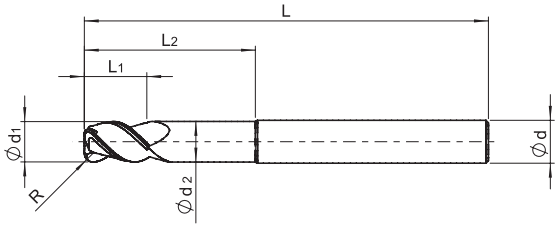
Recommended cutting conditions for end mills 9422, 9423 - Shoulder milling

Work material		Ap	Ae	Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm	
		Ap	Ae	HM	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16
N	Aluminium alloy Si<8%	<1.5d1	<0.15d1	170-180	0.03-0.05	0.06-0.08	0.085-0.10	0.10-0.125	0.125-0.15
	Cast aluminium Si>8%	<1.5d1	<0.15d1	140-150	0.025-0.05	0.06-0.08	0.08-0.10	0.10-0.125	0.125-0.15
	Copper alloy	<1.5d1	<0.15d1	90-100	0.025-0.05	0.06-0.08	0.08-0.09	0.09-0.12	0.12-0.15

UMT 9453 Z=3

End mills with short cutting length and relieved neck for aluminium





HM

d1 (e8)	L1	L2	d2	d (h6)	L	R(±0.02)	Stock	ART No
6	10	26	5.6	6	75		●	9453060007500-0
6	10	26	5.6	6	75	0.5	○	9453060007505-0
6	10	26	5.6	6	75	1.0	○	9453060007510-0
8	12	34	7.4	8	75		●	9453080007500-0
8	12	34	7.4	8	75	0.5	○	9453080007505-0
8	12	34	7.4	8	75	1.0	○	9453080007510-0
10	15	42	9.4	10	100		●	9453100010000-0
10	15	42	9.4	10	100	0.5	○	9453100010005-0
10	15	42	9.4	10	100	1.0	○	9453100010010-0
10	15	42	9.4	10	100	2.0	○	9453100010020-0
12	18	50	11.4	12	100		●	9453120010000-0
12	18	50	11.4	12	100	0.5	○	9453120010005-0
12	18	50	11.4	12	100	1.0	○	9453120010010-0
12	18	50	11.4	12	100	2.0	○	9453120010020-0
16	24	65	15.2	16	115		●	9453160011500-0
16	24	65	15.2	16	115	1.0	○	9453160011510-0
16	24	65	15.2	16	115	2.0	○	9453160011520-0
16	24	65	15.2	16	115	3.0	○	9453160011530-0
20	30	82	18.0	20	150		●	9453200015000-0
20	30	82	18.0	20	150	1.0	○	9453200015010-0
20	30	82	18.0	20	150	2.0	○	9453200015020-0
20	30	82	18.0	20	150	3.0	○	9453200015030-0

● In stock
○ Produced to order only

Recommended cutting conditions for end mills 9453 - Shoulder milling

Work material	Cutting speed			High Speed Cutting			d1 - diameter in mm				fz - feed per tooth in mm	
	Ap / Ae		Vc (m/min)	Ap / Ae		Vc (m/min)						
	Ap	Ae	HM	Ap	Ae	HM	∅6	∅8	∅10	∅12	∅16	∅20
N Aluminium alloy Si<8%	<1.2d1	<0.1d1	165-175	<1d1	<0.1d1	270-310	0.05	0.08	0.10	0.12	0.16	0.18
Cast aluminium Si>8%	<1.2d1	<0.1d1	135-145	<1d1	<0.1d1	250-270	0.045	0.07	0.09	0.11	0.14	0.16
Copper alloy	<1.2d1	<0.1d1	105-120	<1d1	<0.1d1	195-215	0.045	0.07	0.09	0.11	0.14	0.16

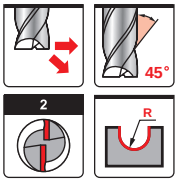
Recommended cutting conditions for end mills 9453 - Slotting

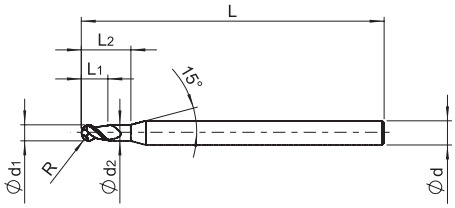
Work material	Cutting speed		High Speed Cutting		d1 - diameter in mm				fz - feed per tooth in mm	
	Ap	Vc (m/min)	Ap	Vc (m/min)						
	Ap	HM	Ap	HM	∅6	∅8	∅10	∅12	∅16	∅20
N Aluminium alloy Si<8%	<0.8d1	135-145	<0.4d1	270-290	0.04	0.06	0.07	0.08	0.11	0.125
Cast aluminium Si>8%	<0.8d1	120-130	<0.4d1	220-230	0.04	0.05	0.06	0.07	0.09	0.11
Copper alloy	<0.8d1	100-110	<0.4d1	160-180	0.04	0.05	0.06	0.07	0.09	0.11

1. The figures to be adjusted according to machining shape, rigidity of machine and work clamping
2. If the overhang length is more than 4d, cutting speed should be reduced
3. In case of ramping, reduction of the above data by 30-60% is recommended

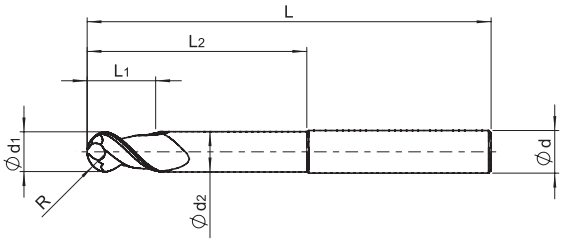
UMT 9652 Z=2

Ball nose end mills with short cutting length and relieved neck for aluminium





Type 1



Type 2

HM

d1 (e8)	L1	L2	d2	d (h6)	L	R(d1/2)	Stock	Type	ART No
3	5	9	2.7	6	75	1.5	●	1	9652030007500-0
4	6	12	3.7	6	75	2.0	●	1	9652040007500-0
5	8	15	4.7	6	75	2.5	●	1	9652050007500-0
6	10	54	5.7	6	100	3.0	●	2	9652060010000-0
8	12	54	7.4	8	100	4.0	●	2	9652080010000-0
10	15	54	9.4	10	100	5.0	●	2	9652100010000-0
12	18	80	11.4	12	150	6.0	●	2	9652120015000-0
16	24	80	15.2	16	150	8.0	●	2	9652160015000-0
20	30	80	19.0	20	150	10.0	●	2	9652200015000-0

● In stock

Recommended cutting conditions for end mills 9652

Work material		Ae / Ap		Cutting speed Vc (m/min)	d1 - diameter in mm			fz - feed per tooth in mm		
		Ap	Ae	HM	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅16	∅16 - ∅20
N	Aluminium alloy Si<8%	<0.2d1	<0.3d1	130-180	0.018-0.04	0.036-0.06	0.05-0.08	0.06-0.12	0.08-0.15	0.10-0.20
	Cast aluminium Si>8%	<0.2d1	<0.3d1	100-130	0.018-0.04	0.036-0.06	0.05-0.08	0.06-0.12	0.08-0.15	0.10-0.20
	Copper alloy	<0.1d1	<0.3d1	90-130	0.011-0.03	0.022-0.06	0.03-0.08	0.04-0.12	0.05-0.15	0.06-0.20

1. If the overhang length is more than 4d, cutting speed should be reduced
2. In case of ramping, reduction of the above data by 30-60% is recommended

2

SOLID CARBIDE CUTTING TOOLS

DRILLS

UMT produces general range of standard solid carbide drills with 3D and 5D lengths, with and without internal cooling. The UMT drills are also being produced according to DIN standard – with reinforced shank. Thanks to the improved UMT cutting geometry, the drills are fit to machine variety of materials.

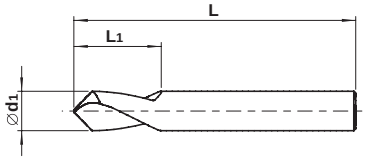
The company is able to produce special carbide drills upon request.

DRILLS SELECTION CHART

Size range	Drilling depth	Code	Shape	Cooling	Coating	Work material										Page number
						P		M	K		N		S			
						Carbon steel, Alloy steel	High alloyed steel < 45 HRC	Stainless steel	Cast iron	Nodular cast iron	Aluminium alloy	Copper alloy	Titanium	Titanium alloy	Heat resistant alloy	
Ø3 - Ø12	-	**8101**		External	nanoTEC 1	●	●	●	●	●	●	●	○	●	○	41
Ø3 - Ø16	3xd	**8211**		External	nanoTEC1	●	●	—	●	●	○	○	—	—	—	42
Ø3 - Ø16	5xd	**8221**		External	nanoTEC1	●	●	—	●	●	○	○	—	—	—	43
Ø3 - Ø16	5xd	**8222**		Internal	nanoTEC1	●	●	○	●	●	●	●	○	○	○	44
Ø3 - Ø16	3xd	**8311**		External	nanoTEC2	○	○	●	○	○	○	○	○	●	○	45
Ø3 - Ø16	5xd	**8322**		Internal	nanoTEC2	○	○	●	○	○	○	○	●	●	●	46
Ø5 - Ø16	3xd	**8411**		External	nanoTEC1	●	●	—	●	●	○	○	—	—	—	47

● 1st recommend ○ 2nd recommend — not recommend

UMT 8101
NC center drills



nano TEC1

d1 (h7)	L1	L	Stock	ART No
3	9	38	●	81010300038-1
4	10	50	●	81010400050-1
5	13	50	●	81010500050-1
6	13	57	●	81010600057-1
8	20	63	●	81010800063-1
10	22	72	●	81011000072-1
12	22	83	●	81011200083-1

● In stock

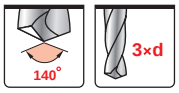
Recommended cutting conditions for drills 8101

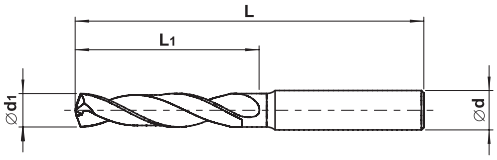
Work material		Cutting speed Vc (m/min)	d1 - diameter in mm			f - feed per revolution in mm/rev.		
		nanoTEC1	∅3 - ∅4	∅4 - ∅5	∅5 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12
P	Carbon steel and Alloy steel < 25 HRC	50-70	0.05-0.08	0.06-0.10	0.08-0.12	0.09-0.14	0.12-0.20	0.16-0.26
P	Alloy steel and Tool steel 25-45 HRC	30-50	0.04-0.07	0.05-0.09	0.07-0.11	0.07-0.12	0.10-0.16	0.13-0.20
M	Stainless steel	30-40	0.03-0.07	0.04-0.09	0.06-0.11	0.06-0.12	0.09-0.12	0.12-0.18
K	Cast iron GG	60-80	0.04-0.07	0.05-0.09	0.07-0.11	0.07-0.12	0.10-0.16	0.13-0.20
K	Nodular cast iron GGG	40-60	0.03-0.07	0.04-0.09	0.06-0.11	0.06-0.12	0.09-0.12	0.12-0.18
N	Aluminium alloy	100-140	0.06-0.10	0.08-0.12	0.09-0.14	0.10-0.18	0.14-0.26	0.18-0.32
N	Copper alloy	70-100	0.06-0.09	0.08-0.11	0.09-0.13	0.10-0.16	0.12-0.20	0.15-0.26
S	Titanium alloy	20-30	0.017-0.04	0.027-0.05	0.033-0.055	0.037-0.063	0.042-0.07	0.047-0.08

UMT 8211

Twist drills with reinforced shank

DIN 6537K





nano TEC1

d1 (m7)	L1	d (h6)	L	Stock	ART No
3.0	20	6	62	●	82110300062-1
3.1	20	6	62	○	82110310062-1
3.2	20	6	62	○	82110320062-1
3.3	20	6	62	●	82110330062-1
3.4	20	6	62	○	82110340062-1
3.5	20	6	62	●	82110350062-1
3.6	20	6	62	○	82110360062-1
3.7	20	6	62	●	82110370062-1
3.8	24	6	66	○	82110380066-1
3.9	24	6	66	○	82110390066-1
4.0	24	6	66	●	82110400066-1
4.1	24	6	66	○	82110410066-1
4.2	24	6	66	●	82110420066-1
4.3	24	6	66	○	82110430066-1
4.4	24	6	66	○	82110440066-1
4.5	24	6	66	●	82110450066-1
4.6	24	6	66	●	82110460066-1
4.7	24	6	66	○	82110470066-1
4.8	28	6	66	○	82110480066-1
4.9	28	6	66	○	82110490066-1
5.0	28	6	66	●	82110500066-1
5.1	28	6	66	○	82110510066-1
5.2	28	6	66	●	82110520066-1
5.3	28	6	66	○	82110530066-1
5.4	28	6	66	○	82110540066-1
5.5	28	6	66	○	82110550066-1
5.6	28	6	66	●	82110560066-1
5.7	28	6	66	○	82110570066-1
5.8	28	6	66	○	82110580066-1
5.9	28	6	66	○	82110590066-1
6.0	28	6	66	●	82110600066-1
6.1	34	8	79	○	82110610079-1
6.2	34	8	79	○	82110620079-1
6.3	34	8	79	○	82110630079-1
6.4	34	8	79	○	82110640079-1
6.5	34	8	79	○	82110650079-1
6.6	34	8	79	○	82110660079-1
6.7	34	8	79	○	82110670079-1
6.8	34	8	79	●	82110680079-1
6.9	34	8	79	○	82110690079-1
7.0	34	8	79	○	82110700079-1
7.1	41	8	79	○	82110710079-1
7.2	41	8	79	○	82110720079-1
7.3	41	8	79	○	82110730079-1

nano TEC1

d1 (m7)	L1	d (h6)	L	Stock	ART No
7.4	41	8	79	●	82110740079-1
7.5	41	8	79	○	82110750079-1
7.6	41	8	79	○	82110760079-1
7.7	41	8	79	○	82110770079-1
7.8	41	8	79	●	82110780079-1
7.9	41	8	79	○	82110790079-1
8.0	41	8	79	●	82110800079-1
8.1	47	10	89	○	82110810089-1
8.2	47	10	89	○	82110820089-1
8.3	47	10	89	○	82110830089-1
8.4	47	10	89	○	82110840089-1
8.5	47	10	89	●	82110850089-1
8.6	47	10	89	○	82110860089-1
8.7	47	10	89	○	82110870089-1
8.8	47	10	89	●	82110880089-1
8.9	47	10	89	○	82110890089-1
9.0	47	10	89	●	82110900089-1
9.1	47	10	89	○	82110910089-1
9.2	47	10	89	○	82110920089-1
9.3	47	10	89	●	82110930089-1
9.4	47	10	89	○	82110940089-1
9.5	47	10	89	●	82110950089-1
9.6	47	10	89	○	82110960089-1
9.7	47	10	89	○	82110970089-1
9.8	47	10	89	○	82110980089-1
9.9	47	10	89	○	82110990089-1
10.0	47	10	89	●	82111000089-1
10.2	55	12	102	●	82111020102-1
10.3	55	12	102	○	82111030102-1
10.5	55	12	102	●	82111050102-1
10.8	55	12	102	●	82111080102-1
11.0	55	12	102	●	82111100102-1
11.2	55	12	102	●	82111120102-1
11.5	55	12	102	○	82111150102-1
12.0	55	12	102	●	82111200102-1
12.4	60	14	107	○	82111240107-1
12.5	60	14	107	●	82111250107-1
12.7	60	14	107	○	82111270107-1
13.0	60	14	107	●	82111300107-1
13.5	60	14	107	○	82111350107-1
14.0	60	14	107	●	82111400107-1
14.5	65	16	115	●	82111450115-1
16.0	65	16	115	●	82111600115-1

● In stock

○ Produced to order only

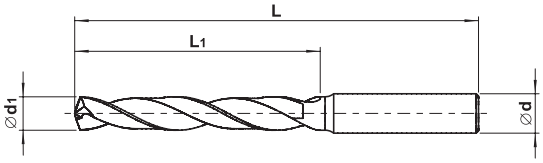
Recommended cutting conditions for drills 8211

Work material		Cutting speed V_c (m/min)	d1 - diameter in mm				f - feed per revolution in mm/rev.	
		nanoTEC1	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅14	∅14 - ∅16
P	Carbon steel and Alloy steel < 25 HRC	80-110	0.08-0.15	0.14-0.20	0.15-0.20	0.18-0.25	0.20-0.28	0.22-0.30
P	Alloy steel and Tool steel 25-45 HRC	60-90	0.07-0.14	0.12-0.18	0.14-0.19	0.16-0.23	0.18-0.26	0.20-0.28
K	Cast iron GG	90-130	0.10-0.18	0.17-0.24	0.20-0.30	0.22-0.35	0.26-0.40	0.28-0.42
K	Nodular cast iron GGG	60-90	0.08-0.16	0.15-0.22	0.18-0.26	0.20-0.30	0.22-0.35	0.24-0.38
N	Aluminium alloy	130-160	0.10-0.16	0.16-0.22	0.20-0.26	0.22-0.28	0.24-0.30	0.28-0.36

UMT 8221

Twist drills with reinforced shank

DIN 6537L | 140° | 5×d



nano TEC1

d1 (m7)	L1	d (h6)	L	Stock	ART No
3.0	28	6	66	●	82210300066-1
3.1	28	6	66	○	82210310066-1
3.2	28	6	66	○	82210320066-1
3.3	28	6	66	●	82210330066-1
3.4	28	6	66	○	82210340066-1
3.5	28	6	66	●	82210350066-1
3.6	28	6	66	○	82210360066-1
3.7	28	6	66	●	82210370066-1
3.8	36	6	74	○	82210380074-1
3.9	36	6	74	○	82210390074-1
4.0	36	6	74	●	82210400074-1
4.1	36	6	74	○	82210410074-1
4.2	36	6	74	●	82210420074-1
4.3	36	6	74	○	82210430074-1
4.4	36	6	74	○	82210440074-1
4.5	36	6	74	●	82210450074-1
4.6	36	6	74	●	82210460074-1
4.7	36	6	74	○	82210470074-1
4.8	44	6	82	○	82210480082-1
4.9	44	6	82	○	82210490082-1
5.0	44	6	82	●	82210500082-1
5.1	44	6	82	○	82210510082-1
5.2	44	6	82	●	82210520082-1
5.3	44	6	82	○	82210530082-1
5.4	44	6	82	○	82210540082-1
5.5	44	6	82	○	82210550082-1
5.6	44	6	82	●	82210560082-1
5.7	44	6	82	○	82210570082-1
5.8	44	6	82	○	82210580082-1
5.9	44	6	82	○	82210590082-1
6.0	44	6	82	●	82210600082-1
6.1	53	8	91	○	82210610091-1
6.2	53	8	91	○	82210620091-1
6.3	53	8	91	○	82210630091-1
6.4	53	8	91	○	82210640091-1
6.5	53	8	91	○	82210650091-1
6.6	53	8	91	○	82210660091-1
6.7	53	8	91	○	82210670091-1
6.8	53	8	91	●	82210680091-1
6.9	53	8	91	○	82210690091-1
7.0	53	8	91	○	82210700091-1
7.1	53	8	91	○	82210710091-1
7.2	53	8	91	○	82210720091-1
7.3	53	8	91	○	82210730091-1

nano TEC1

d1 (m7)	L1	d (h6)	L	Stock	ART No
7.4	53	8	91	●	82210740091-1
7.5	53	8	91	○	82210750091-1
7.6	53	8	91	○	82210760091-1
7.7	53	8	91	○	82210770091-1
7.8	53	8	91	●	82210780091-1
7.9	53	8	91	○	82210790091-1
8.0	53	8	91	●	82210800091-1
8.1	61	10	103	○	82210810103-1
8.2	61	10	103	○	82210820103-1
8.3	61	10	103	○	82210830103-1
8.4	61	10	103	○	82210840103-1
8.5	61	10	103	●	82210850103-1
8.6	61	10	103	○	82210860103-1
8.7	61	10	103	○	82210870103-1
8.8	61	10	103	●	82210880103-1
8.9	61	10	103	○	82210890103-1
9.0	61	10	103	●	82210900103-1
9.1	61	10	103	○	82210910103-1
9.2	61	10	103	○	82210920103-1
9.3	61	10	103	●	82210930103-1
9.4	61	10	103	○	82210940103-1
9.5	61	10	103	●	82210950103-1
9.6	61	10	103	○	82210960103-1
9.7	61	10	103	○	82210970103-1
9.8	61	10	103	○	82210980103-1
9.9	61	10	103	○	82210990103-1
10.0	61	10	103	●	82211000103-1
10.2	71	12	118	●	82211020118-1
10.5	71	12	118	●	82211050118-1
10.8	71	12	118	●	82211080118-1
11.0	71	12	118	●	82211100118-1
11.2	71	12	118	●	82211120118-1
12.0	71	12	118	●	82211200118-1
12.5	77	14	124	●	82211250124-1
13.0	77	14	124	●	82211300124-1
14.0	77	14	124	●	82211400124-1
14.5	83	16	133	●	82211450133-1
16.0	83	16	133	●	82211600133-1

● In stock

○ Produced to order only

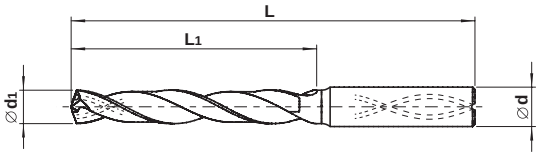
Recommended cutting conditions for drills 8221

	Work material	Cutting speed V_c (m/min)	d1 - diameter in mm				f - feed per revolution in mm/rev.	
		nanoTEC1	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅14	∅14 - ∅16
P	Carbon steel and Alloy steel < 25 HRC	80-110	0.08-0.15	0.14-0.20	0.15-0.20	0.18-0.25	0.20-0.28	0.22-0.30
P	Alloy steel and Tool steel 25-45 HRC	60-90	0.07-0.14	0.12-0.18	0.14-0.19	0.16-0.23	0.18-0.26	0.20-0.28
K	Cast iron GG	90-130	0.10-0.18	0.17-0.24	0.20-0.30	0.22-0.35	0.26-0.40	0.28-0.42
K	Nodular cast iron GGG	60-90	0.08-0.16	0.15-0.22	0.18-0.26	0.20-0.30	0.22-0.35	0.24-0.38
N	Aluminium alloy	130-160	0.10-0.16	0.16-0.22	0.20-0.26	0.22-0.28	0.24-0.30	0.28-0.36

UMT 8222

Twist drills with reinforced shank and internal cooling

DIN 6537L | 140° | 5×d



nano TEC1

d1 (m7)	L1	d (h6)	L	Stock	ART No
3.0	28	6	66	●	82220300066-1
3.1	28	6	66	○	82220310066-1
3.2	28	6	66	○	82220320066-1
3.3	28	6	66	●	82220330066-1
3.4	28	6	66	○	82220340066-1
3.5	28	6	66	●	82220350066-1
3.6	28	6	66	○	82220360066-1
3.7	28	6	66	●	82220370066-1
3.8	36	6	74	○	82220380074-1
3.9	36	6	74	○	82220390074-1
4.0	36	6	74	●	82220400074-1
4.1	36	6	74	○	82220410074-1
4.2	36	6	74	●	82220420074-1
4.3	36	6	74	○	82220430074-1
4.4	36	6	74	○	82220440074-1
4.5	36	6	74	●	82220450074-1
4.6	36	6	74	●	82220460074-1
4.7	36	6	74	○	82220470074-1
4.8	44	6	82	○	82220480082-1
4.9	44	6	82	○	82220490082-1
5.0	44	6	82	●	82220500082-1
5.1	44	6	82	○	82220510082-1
5.2	44	6	82	●	82220520082-1
5.3	44	6	82	○	82220530082-1
5.4	44	6	82	○	82220540082-1
5.5	44	6	82	○	82220550082-1
5.6	44	6	82	●	82220560082-1
5.7	44	6	82	○	82220570082-1
5.8	44	6	82	○	82220580082-1
5.9	44	6	82	○	82220590082-1
6.0	44	6	82	●	82220600082-1
6.1	53	8	91	○	82220610091-1
6.2	53	8	91	○	82220620091-1
6.3	53	8	91	○	82220630091-1
6.4	53	8	91	○	82220640091-1
6.5	53	8	91	○	82220650091-1
6.6	53	8	91	○	82220660091-1
6.7	53	8	91	○	82220670091-1
6.8	53	8	91	●	82220680091-1
6.9	53	8	91	○	82220690091-1
7.0	53	8	91	○	82220700091-1
7.1	53	8	91	○	82220710091-1
7.2	53	8	91	○	82220720091-1
7.3	53	8	91	○	82220730091-1

nano TEC1

d1 (m7)	L1	d (h6)	L	Stock	ART No
7.4	53	8	91	●	82220740091-1
7.5	53	8	91	○	82220750091-1
7.6	53	8	91	○	82220760091-1
7.7	53	8	91	○	82220770091-1
7.8	53	8	91	●	82220780091-1
7.9	53	8	91	○	82220790091-1
8.0	53	8	91	●	82220800091-1
8.1	61	10	103	○	82220810103-1
8.2	61	10	103	○	82220820103-1
8.3	61	10	103	○	82220830103-1
8.4	61	10	103	○	82220840103-1
8.5	61	10	103	●	82220850103-1
8.6	61	10	103	○	82220860103-1
8.7	61	10	103	○	82220870103-1
8.8	61	10	103	●	82220880103-1
8.9	61	10	103	○	82220890103-1
9.0	61	10	103	●	82220900103-1
9.1	61	10	103	○	82220910103-1
9.2	61	10	103	○	82220920103-1
9.3	61	10	103	●	82220930103-1
9.4	61	10	103	○	82220940103-1
9.5	61	10	103	●	82220950103-1
9.6	61	10	103	○	82220960103-1
9.7	61	10	103	○	82220970103-1
9.8	61	10	103	○	82220980103-1
9.9	61	10	103	○	82220990103-1
10.0	61	10	103	●	82221000103-1
10.2	71	12	118	●	82221020118-1
10.5	71	12	118	●	82221050118-1
10.8	71	12	118	●	82221080118-1
11.0	71	12	118	●	82221100118-1
11.2	71	12	118	●	82221120118-1
11.7	71	12	118	○	82221170118-1
12.0	71	12	118	●	82221200118-1
12.5	77	14	124	●	82221250124-1
13.0	77	14	124	●	82221300124-1
14.0	77	14	124	●	82221400124-1
14.5	83	16	133	●	82221450133-1
15.0	83	16	133	○	82221500133-1
16.0	83	16	133	●	82221600133-1

● In stock

○ Produced to order only

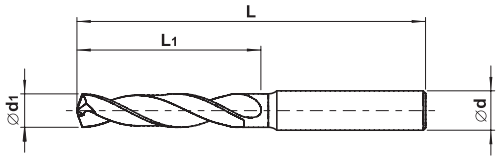
Recommended cutting conditions for drills 8222

Work material		Cutting speed V_c (m/min)	d1 - diameter in mm				f - feed per revolution in mm/rev.	
		nanoTEC1	⌀3 - ⌀6	⌀6 - ⌀8	⌀8 - ⌀10	⌀10 - ⌀12	⌀12 - ⌀14	⌀14 - ⌀16
P	Carbon steel and Alloy steel < 25 HRC	90-130	0.08-0.15	0.14-0.20	0.15-0.20	0.18-0.25	0.20-0.28	0.22-0.30
	Alloy steel and Tool steel 25-45 HRC	70-100	0.07-0.14	0.12-0.18	0.14-0.19	0.16-0.23	0.18-0.26	0.20-0.28
K	Cast iron GG	100-140	0.10-0.18	0.17-0.24	0.20-0.30	0.22-0.35	0.26-0.40	0.28-0.42
	Nodular cast iron GGG	80-110	0.08-0.16	0.15-0.22	0.18-0.26	0.20-0.30	0.22-0.35	0.24-0.38
N	Aluminium alloy	150-180	0.10-0.16	0.16-0.22	0.20-0.26	0.22-0.28	0.24-0.30	0.28-0.36

UMT 8311

Twist drills with reinforced shank
for difficult to cut materials

DIN 6537K | 140° | 3×d



nano TEC2

d1 (m7)	L1	d (h6)	L	Stock	ART No
3.0	20	6	62	o	83110300062-2
3.1	20	6	62	o	83110310062-2
3.2	20	6	62	o	83110320062-2
3.3	20	6	62	o	83110330062-2
3.4	20	6	62	o	83110340062-2
3.5	20	6	62	o	83110350062-2
3.6	20	6	62	o	83110360062-2
3.7	20	6	62	o	83110370062-2
3.8	24	6	66	o	83110380066-2
3.9	24	6	66	o	83110390066-2
4.0	24	6	66	o	83110400066-2
4.1	24	6	66	o	83110410066-2
4.2	24	6	66	o	83110420066-2
4.3	24	6	66	o	83110430066-2
4.4	24	6	66	o	83110440066-2
4.5	24	6	66	o	83110450066-2
4.6	24	6	66	o	83110460066-2
4.7	24	6	66	o	83110470066-2
4.8	28	6	66	o	83110480066-2
4.9	28	6	66	o	83110490066-2
5.0	28	6	66	o	83110500066-2
5.1	28	6	66	o	83110510066-2
5.2	28	6	66	o	83110520066-2
5.3	28	6	66	o	83110530066-2
5.4	28	6	66	o	83110540066-2
5.5	28	6	66	o	83110550066-2
5.6	28	6	66	o	83110560066-2
5.7	28	6	66	o	83110570066-2
5.8	28	6	66	o	83110580066-2
5.9	28	6	66	o	83110590066-2
6.0	28	6	66	o	83110600066-2
6.1	34	8	79	o	83110610079-2
6.2	34	8	79	o	83110620079-2
6.3	34	8	79	o	83110630079-2
6.4	34	8	79	o	83110640079-2
6.5	34	8	79	o	83110650079-2
6.6	34	8	79	o	83110660079-2
6.7	34	8	79	o	83110670079-2
6.8	34	8	79	o	83110680079-2
6.9	34	8	79	o	83110690079-2
7.0	34	8	79	o	83110700079-2
7.1	41	8	79	o	83110710079-2
7.2	41	8	79	o	83110720079-2
7.3	41	8	79	o	83110730079-2

nano TEC2

d1 (m7)	L1	d (h6)	L	Stock	ART No
7.4	41	8	79	o	83110740079-2
7.5	41	8	79	o	83110750079-2
7.6	41	8	79	o	83110760079-2
7.7	41	8	79	o	83110770079-2
7.8	41	8	79	o	83110780079-2
7.9	41	8	79	o	83110790079-2
8.0	41	8	79	o	83110800079-2
8.1	47	10	89	o	83110810089-2
8.2	47	10	89	o	83110820089-2
8.3	47	10	89	o	83110830089-2
8.4	47	10	89	o	83110840089-2
8.5	47	10	89	o	83110850089-2
8.6	47	10	89	o	83110860089-2
8.7	47	10	89	o	83110870089-2
8.8	47	10	89	o	83110880089-2
8.9	47	10	89	o	83110890089-2
9.0	47	10	89	o	83110900089-2
9.1	47	10	89	o	83110910089-2
9.2	47	10	89	o	83110920089-2
9.3	47	10	89	o	83110930089-2
9.4	47	10	89	o	83110940089-2
9.5	47	10	89	o	83110950089-2
9.6	47	10	89	o	83110960089-2
9.7	47	10	89	o	83110970089-2
9.8	47	10	89	o	83110980089-2
9.9	47	10	89	o	83110990089-2
10.0	47	10	89	o	83111000089-2
10.2	55	12	102	o	83111020102-2
10.3	55	12	102	o	83111030102-2
10.5	55	12	102	o	83111050102-2
10.8	55	12	102	o	83111080102-2
11.0	55	12	102	o	83111100102-2
11.2	55	12	102	o	83111120102-2
11.5	55	12	102	o	83111150102-2
12.0	55	12	102	o	83111200102-2
12.4	60	14	107	o	83111240107-2
12.5	60	14	107	o	83111250107-2
12.7	60	14	107	o	83111270107-2
13.0	60	14	107	o	83111300107-2
13.5	60	14	107	o	83111350107-2
14.0	60	14	107	o	83111400107-2
14.5	65	16	115	o	83111450115-2
16.0	65	16	115	o	83111600115-2

o Produced to order only

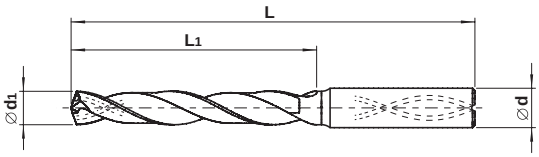
Recommended cutting conditions for drills 8311

	Work material	Cutting speed V_c (m/min)	d1 - diameter in mm				f - feed per revolution in mm/rev.	
		nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅14	∅14 - ∅16
M	Stainless steel Low alloy austenitic	30-50	0.04-0.10	0.08-0.12	0.09-0.14	0.12-0.20	0.16-0.22	0.18-0.24
	Stainless steel High alloy austenitic	25-45	0.04-0.10	0.08-0.12	0.09-0.14	0.12-0.20	0.16-0.22	0.18-0.24
S	Titanium alloy	25-40	0.033-0.07	0.07-0.10	0.084-0.12	0.094-0.13	0.10-0.14	0.12-0.14
	Titanium	25-40	0.033-0.07	0.07-0.10	0.084-0.12	0.094-0.13	0.10-0.14	0.12-0.14
	Heat resistant alloy	15-25	0.025-0.055	0.055-0.084	0.063-0.094	0.07-0.10	0.08-0.12	0.09-0.13

UMT 8322

Twist drills with reinforced shank and internal cooling for difficult to cut materials

DIN 6537L | 140° | 5×d



nano TEC2

d1 (m7)	L1	d (h6)	L	Stock	ART No
3.0	28	6	66	●	83220300066-2
3.1	28	6	66	○	83220310066-2
3.2	28	6	66	○	83220320066-2
3.3	28	6	66	●	83220330066-2
3.4	28	6	66	○	83220340066-2
3.5	28	6	66	●	83220350066-2
3.6	28	6	66	○	83220360066-2
3.7	28	6	66	●	83220370066-2
3.8	36	6	74	○	83220380074-2
3.9	36	6	74	○	83220390074-2
4.0	36	6	74	●	83220400074-2
4.1	36	6	74	○	83220410074-2
4.2	36	6	74	●	83220420074-2
4.3	36	6	74	○	83220430074-2
4.4	36	6	74	○	83220440074-2
4.5	36	6	74	●	83220450074-2
4.6	36	6	74	●	83220460074-2
4.7	36	6	74	○	83220470074-2
4.8	44	6	82	○	83220480082-2
4.9	44	6	82	○	83220490082-2
5.0	44	6	82	●	83220500082-2
5.1	44	6	82	○	83220510082-2
5.2	44	6	82	●	83220520082-2
5.3	44	6	82	○	83220530082-2
5.4	44	6	82	○	83220540082-2
5.5	44	6	82	○	83220550082-2
5.6	44	6	82	●	83220560082-2
5.7	44	6	82	○	83220570082-2
5.8	44	6	82	○	83220580082-2
5.9	44	6	82	○	83220590082-2
6.0	44	6	82	●	83220600082-2
6.1	53	8	91	○	83220610091-2
6.2	53	8	91	○	83220620091-2
6.3	53	8	91	○	83220630091-2
6.4	53	8	91	○	83220640091-2
6.5	53	8	91	○	83220650091-2
6.6	53	8	91	○	83220660091-2
6.7	53	8	91	○	83220670091-2
6.8	53	8	91	●	83220680091-2
6.9	53	8	91	○	83220690091-2
7.0	53	8	91	○	83220700091-2
7.1	53	8	91	○	83220710091-2
7.2	53	8	91	○	83220720091-2
7.3	53	8	91	○	83220730091-2

nano TEC2

d1 (m7)	L1	d (h6)	L	Stock	ART No
7.4	53	8	91	●	83220740091-2
7.5	53	8	91	○	83220750091-2
7.6	53	8	91	○	83220760091-2
7.7	53	8	91	○	83220770091-2
7.8	53	8	91	●	83220780091-2
7.9	53	8	91	○	83220790091-2
8.0	53	8	91	●	83220800091-2
8.1	61	10	103	○	83220810103-2
8.2	61	10	103	○	83220820103-2
8.3	61	10	103	○	83220830103-2
8.4	61	10	103	○	83220840103-2
8.5	61	10	103	●	83220850103-2
8.6	61	10	103	○	83220860103-2
8.7	61	10	103	○	83220870103-2
8.8	61	10	103	●	83220880103-2
8.9	61	10	103	○	83220890103-2
9.0	61	10	103	●	83220900103-2
9.1	61	10	103	○	83220910103-2
9.2	61	10	103	○	83220920103-2
9.3	61	10	103	●	83220930103-2
9.4	61	10	103	○	83220940103-2
9.5	61	10	103	●	83220950103-2
9.6	61	10	103	○	83220960103-2
9.7	61	10	103	○	83220970103-2
9.8	61	10	103	○	83220980103-2
9.9	61	10	103	○	83220990103-2
10.0	61	10	103	●	83221000103-2
10.2	71	12	118	●	83221020118-2
10.5	71	12	118	●	83221050118-2
10.8	71	12	118	●	83221080118-2
11.0	71	12	118	●	83221100118-2
11.2	71	12	118	●	83221120118-2
11.7	71	12	118	○	83221170118-2
12.0	71	12	118	●	83221200118-2
12.5	77	14	124	○	83221250124-2
13.0	77	14	124	○	83221300124-2
14.0	77	14	124	○	83221400124-2
14.5	83	16	133	○	83221450133-2
15.0	83	16	133	○	83221500133-2
16.0	83	16	133	○	83221600133-2

● In stock

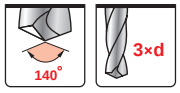
○ Produced to order only

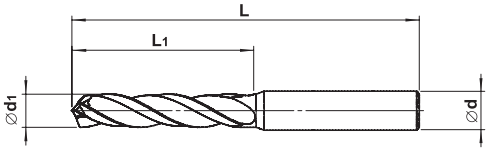
Recommended cutting conditions for drills 8322

	Work material	Cutting speed V_c (m/min)	d1 - diameter in mm				f - feed per revolution in mm/rev.	
		nanoTEC2	∅3 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅14	∅14 - ∅16
M	Low alloy austenitic	40-60	0.04-0.10	0.08-0.12	0.09-0.14	0.12-0.20	0.16-0.22	0.18-0.24
	Stainless steel High alloy austenitic	35-55	0.04-0.10	0.08-0.12	0.09-0.14	0.12-0.20	0.16-0.22	0.18-0.24
S	Titanium alloy	35-45	0.033-0.07	0.07-0.10	0.084-0.12	0.094-0.13	0.10-0.14	0.12-0.14
	Titanium	35-45	0.033-0.07	0.07-0.10	0.084-0.12	0.094-0.13	0.10-0.14	0.12-0.14
	Heat resistant alloy	15-30	0.025-0.055	0.055-0.084	0.063-0.094	0.07-0.10	0.08-0.12	0.09-0.13

UMT 8411 Z=3

Twist drills with reinforced shank





d1 (m7)	L1	d (h6)	L	Stock	ART No (nano TEC1)
5.0	28	6	66	○	84110500066-1
5.1	28	6	66	○	84110510066-1
5.2	28	6	66	○	84110520066-1
5.3	28	6	66	○	84110530066-1
5.4	28	6	66	○	84110540066-1
5.5	28	6	66	○	84110550066-1
5.6	28	6	66	○	84110560066-1
5.7	28	6	66	○	84110570066-1
5.8	28	6	66	○	84110580066-1
5.9	28	6	66	○	84110590066-1
6.0	28	6	66	○	84110600066-1
6.1	34	8	79	○	84110610079-1
6.2	34	8	79	○	84110620079-1
6.3	34	8	79	○	84110630079-1
6.4	34	8	79	○	84110640079-1
6.5	34	8	79	○	84110650079-1
6.6	34	8	79	○	84110660079-1
6.7	34	8	79	○	84110670079-1
6.8	34	8	79	○	84110680079-1
6.9	34	8	79	○	84110690079-1
7.0	34	8	79	○	84110700079-1
7.1	41	8	79	○	84110710079-1
7.2	41	8	79	○	84110720079-1
7.3	41	8	79	○	84110730079-1
7.4	41	8	79	○	84110740079-1
7.5	41	8	79	○	84110750079-1
7.6	41	8	79	○	84110760079-1
7.7	41	8	79	○	84110770079-1
7.8	41	8	79	○	84110780079-1
7.9	41	8	79	○	84110790079-1
8.0	41	8	79	○	84110800079-1
8.1	47	10	89	○	84110810089-1
8.2	47	10	89	○	84110820089-1
8.3	47	10	89	○	84110830089-1
8.4	47	10	89	○	84110840089-1

d1 (m7)	L1	d (h6)	L	Stock	ART No (nano TEC1)
8.5	47	10	89	○	84110850089-1
8.6	47	10	89	○	84110860089-1
8.7	47	10	89	○	84110870089-1
8.8	47	10	89	○	84110880089-1
8.9	47	10	89	○	84110890089-1
9.0	47	10	89	○	84110900089-1
9.1	47	10	89	○	84110910089-1
9.2	47	10	89	○	84110920089-1
9.3	47	10	89	○	84110930089-1
9.4	47	10	89	○	84110940089-1
9.5	47	10	89	○	84110950089-1
9.6	47	10	89	○	84110960089-1
9.7	47	10	89	○	84110970089-1
9.8	47	10	89	○	84110980089-1
9.9	47	10	89	○	84110990089-1
10.0	47	10	89	○	84111000089-1
10.2	55	12	102	○	84111020102-1
10.3	55	12	102	○	84111030102-1
10.5	55	12	102	○	84111050102-1
10.8	55	12	102	○	84111080102-1
11.0	55	12	102	○	84111100102-1
11.2	55	12	102	○	84111120102-1
11.5	55	12	102	○	84111150102-1
12.0	55	12	102	○	84111200102-1
12.4	60	14	107	○	84111240107-1
12.5	60	14	107	○	84111250107-1
12.7	60	14	107	○	84111270107-1
13.0	60	14	107	○	84111300107-1
13.5	60	14	107	○	84111350107-1
14.0	60	14	107	○	84111400107-1
14.5	65	16	115	○	84111450115-1
16.0	65	16	115	○	84111600115-1

● In stock
○ Produced to order only

Recommended cutting conditions for drills 8411

Work material		Cutting speed Vc (m/min)	d1 - diameter in mm			f - feed per revolution in mm/rev.		
		nanoTEC1	∅5 - ∅6	∅6 - ∅8	∅8 - ∅10	∅10 - ∅12	∅12 - ∅14	∅14 - ∅16
P	Carbon steel and Alloy steel < 25 HRC	80-100	0.30-0.35	0.35-0.42	0.42-0.50	0.50-0.55	0.55-0.60	0.60-0.66
P	Alloy steel and Tool steel 25-45 HRC	55-70	0.24-0.29	0.29-0.34	0.34-0.40	0.40-0.44	0.44-0.48	0.48-0.52
K	Cast iron GG	80-100	0.30-0.38	0.35-0.46	0.42-0.55	0.50-0.60	0.55-0.66	0.60-0.70
K	Nodular cast iron GGG	60-80	0.26-0.32	0.30-0.38	0.36-0.46	0.44-0.52	0.48-0.56	0.50-0.58
N	Aluminium alloy	120-160	0.32-0.38	0.37-0.46	0.44-0.55	0.52-0.60	0.58-0.66	0.64-0.70

umt

3

ON REQUEST

SPECIAL TOOLS

SPECIAL END MILLS

Date: .....

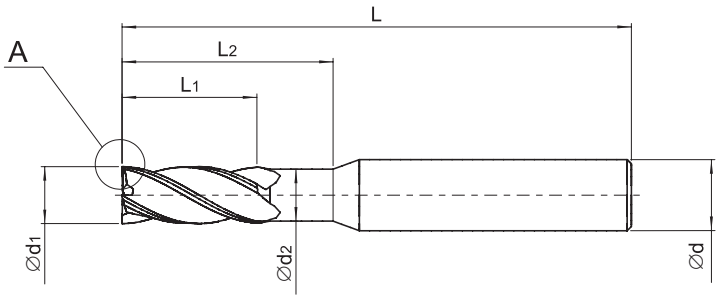
Customer: .....

Attn: .....

Phone: .....

e-mail: .....

Select type of tool



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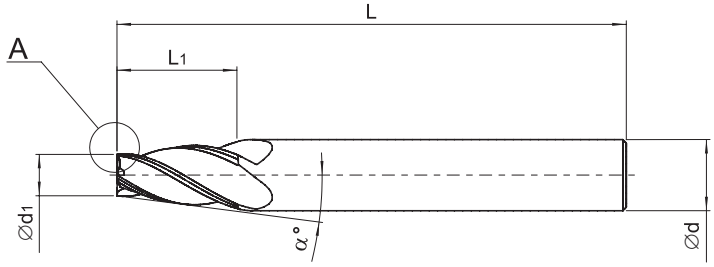

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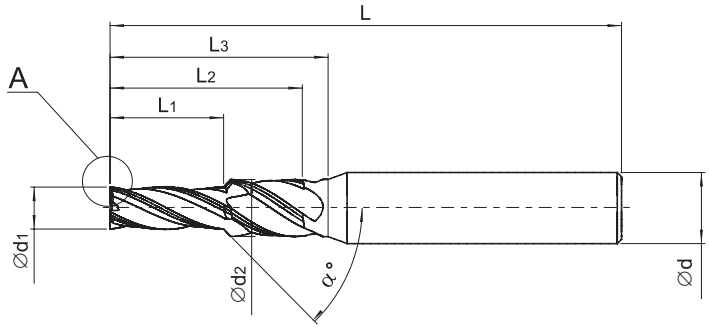
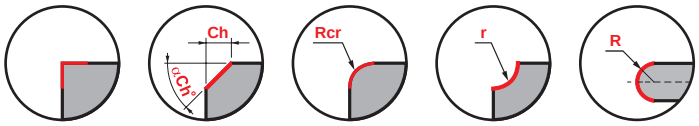


☐

Ød	mm
Ød1	mm
Ød2	mm
L	mm
L1	mm
L2	mm
L3	mm
α	°
Ch	mm
αCh	°
Rcr	mm
R	mm
r	mm

Select shape A



☐ ☐ ☐ ☐ ☐

Material to be machined: .....

Internal cooling: ☐ Yes ☐ No

Number of flutes: .....

Helix angle: .....

Coating: ☐ Yes ☐ No

Quantity, pcs.: .....

Notes: .....

STEP DRILLS

Date: .....

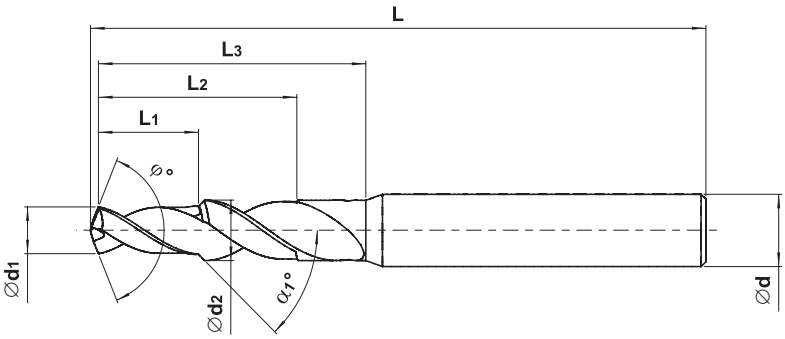
Customer: .....

Attn: .....

Phone: .....

e-mail: .....

Select type of tool



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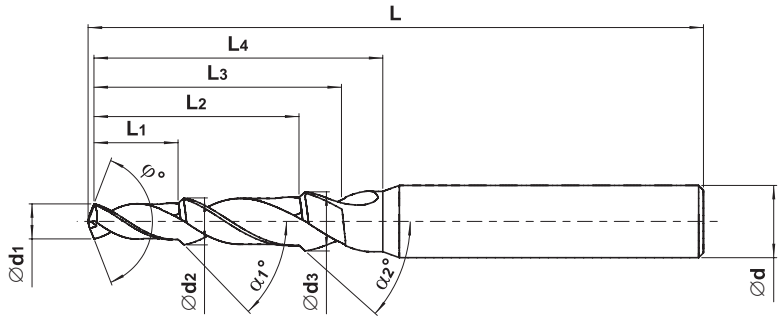

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Ød	mm
Ød1	mm
Ød2	mm
Ød3	mm
L	mm
L1	mm
L2	mm
L3	mm
L4	mm
φ	°
α1	°
α2	°

Material to be machined: .....

Internal cooling: ☐ Yes ☐ No

Number of flutes: .....

Helix angle: .....

Coating: ☐ Yes ☐ No

Quantity, pcs.: .....

Notes: .....

.....

T-SLOT END MILLS

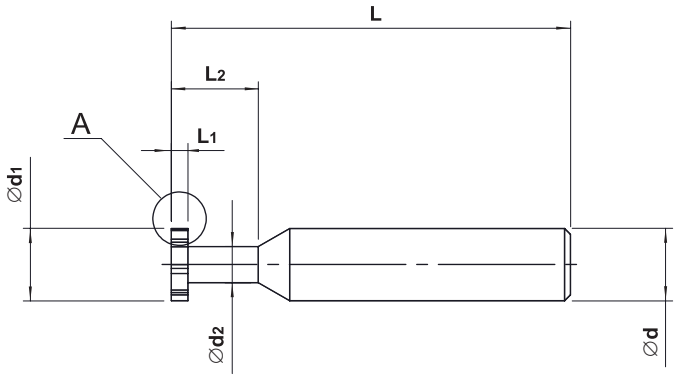
Date: .....

Customer: .....

Attn: .....

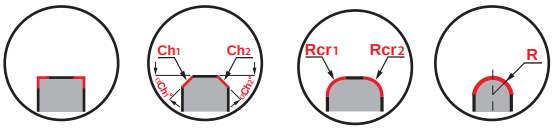
Phone: .....

e-mail: .....



Ød	mm
Ød1	mm
Ød2	mm
L	mm
L1	mm
L2	mm
R	mm
Ch1	mm
Ch2	mm
αCh1	°
αCh2	°
Rcr1	mm
Rcr2	mm
R	mm

Select shape A



☐ ☐ ☐ ☐

Material to be machined: .....

Internal cooling: ☐ Yes ☐ No

Number of flutes: .....

Helix angle: .....

Coating: ☐ Yes ☐ No

Quantity, pcs.: .....

Notes: .....

.....

REAMERS

Date: .....

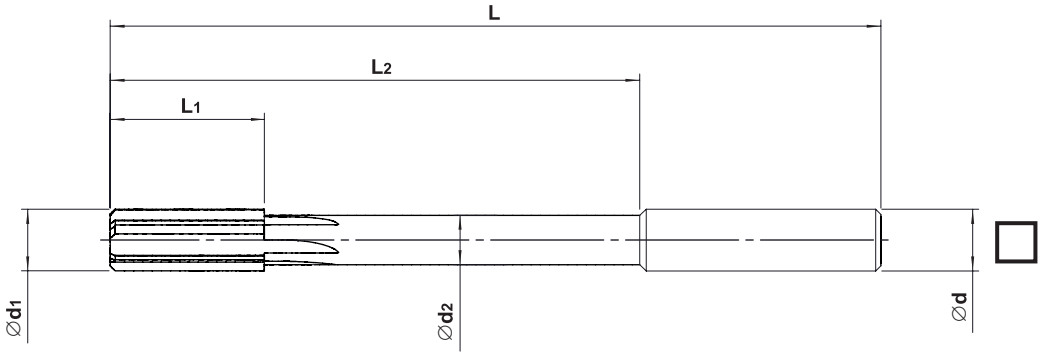
Customer: .....

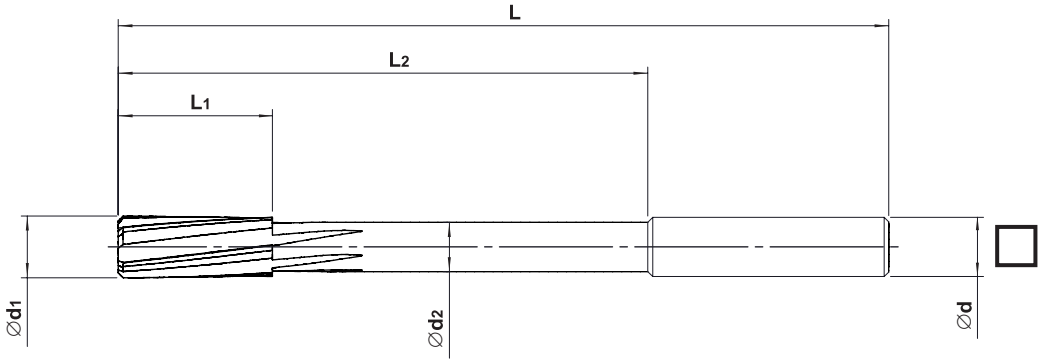
Attn: .....

Phone: .....

e-mail: .....

Select type of tool:





Ød	mm
Ød1	mm
Ød2	mm
L	mm
L1	mm
L2	mm

Material to be machined: .....

Internal cooling: ☐ Yes ☐ No

Number of flutes: .....

Helix angle: .....

Coating: ☐ Yes ☐ No

Quantity, pcs.: .....

Notes: .....

.....

TOOLS WITH CARBIDE INSERTS

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4

TOOLS WITH CARBIDE INSERTS

TURNING CARBIDE INSERTS

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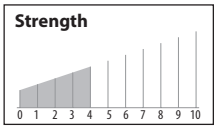
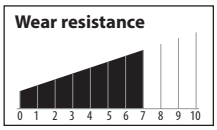
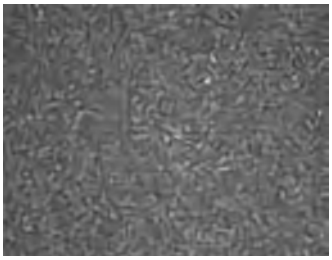
TC10 HT-P15 | HT-M10 | HT-K10

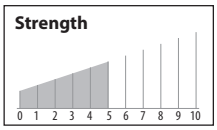


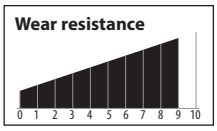


Specification:
Composition: Cermet Co/Ni 12.2 %; WC 15.0 %; TaNbC 10.0 %; TiCN balance | Hardness: HV30 1620
Recommended application: The uncoated cermet grade for the finishing of hardened steel.

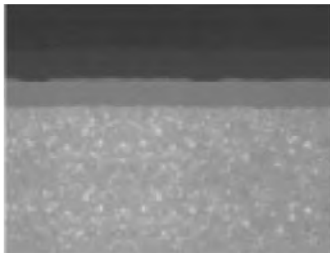


P115T HC-P15 | HC-K25 | HC-M10

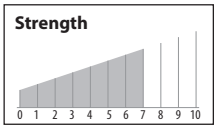


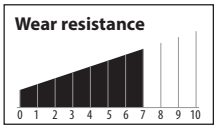


Specification:
Composition: Co 5.8 %; mixed carbides 6.4 %; WC balance | Grain size: 1 - 2 µm | Hardness: HV30 1550 |
Coating specification: CVD TiCN-Al2O3
Recommended application: The wear-resistant high-performance grade for steel machining.

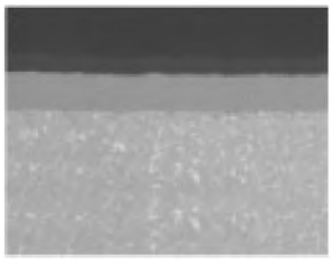


P125T HC-P25 | HC-K30 | HC-M20

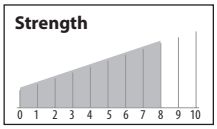


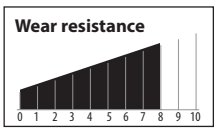


Specification:
Composition: Co 7.0 %; mixed carbides 8.0 %; WC balance | Grain size: 1 - 2 µm | Hardness: HV30 1450 | Coating specification: CVD TiCN-Al2O3
Recommended application: The first choice for the universal machining of steel.

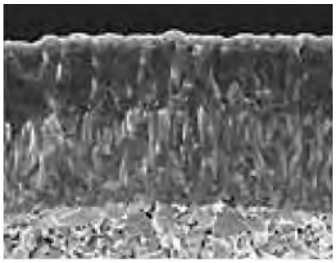


P125GP HC-P25 | HC-K30 | HC-20

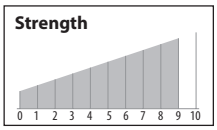


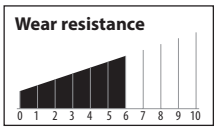


Specification:
Composition: Co 7.6 %; mixed carbides 7.0 %; others 0.4 %; WC balance | Grain size: 1-2mm | Hardness: HV30 1470 | Coating specification: CVD TiCN-Al2O3 Top layer
Recommended application: The first and premium choice for the universal machining of steel.

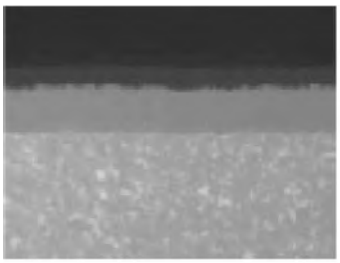


P135T HC-P35 | HC-M25 | HC-S25

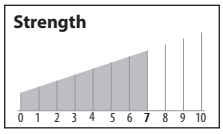


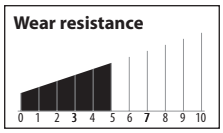


Specification:
Composition: Co 9.6 %; mixed carbides 6.7 %; WC balance | Grain size: 1 - 2 µm | Hardness: HV30 1460 | Coating specification: CVD TiCN-Al2O3 multi-layer
Recommended application: The tough alternative for heavily interrupted cutting action.

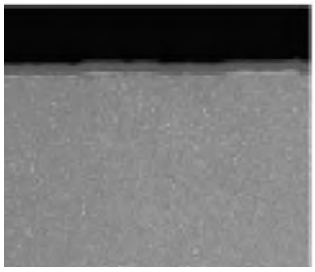


M120T HC-M20 | HC-K20

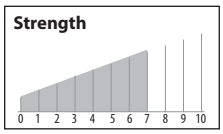


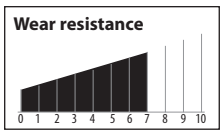


Specification:
Composition: Co 10.5 %; mixed carbide 2.0 %; WC balance | Grain size: 1-2 µm | Hardness: HV30 1400 | Coating specification: PVD TiAlTaN
Recommended application: Particularly suitable for the wet machining of steels..

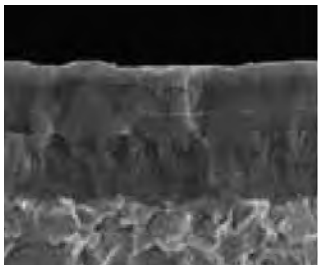


M120GP HC-M20 | HC-P30

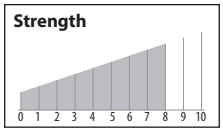


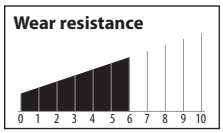


Specification:
Composition: Co 9.6 %; mixed carbides 7.8 %; others 0.4 %; WC balance |
Grain size: 1 - 2 µm | Hardness: HV30 1460 | Coating specification: PVD TiAlTaN
Recommended application: The first choice for the machining of austenitic steels.

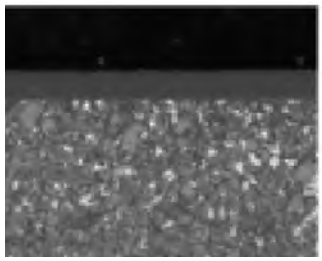


M125T HC-M20 | HC-K20

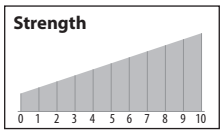


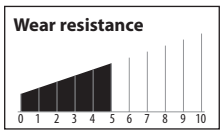


Specification:
Composition: Co 9.6 %; mixed carbides 7,8%; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1460 | Coating specifications: PVD TiAlTaN
Recommended application: Universal stainless steel turning grade. The best in difficult situations.

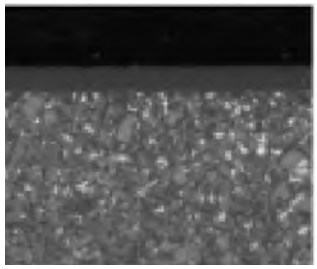


M135T HC-P35 | HC-M35

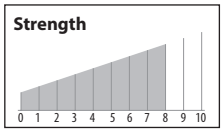


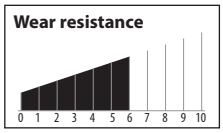


Specification:
Composition: Co 8.0 %; WC balance; mixed carbides 4.2 % ; Grain size: 1.5-3.0 µm | Hardness: HV30 1330
Recommended application: Universal stainless steel turning grade. The best in difficult situations.



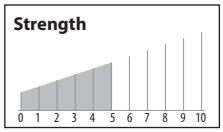
M217T HC-M15 | HC-S15

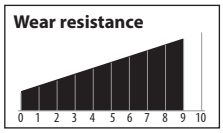




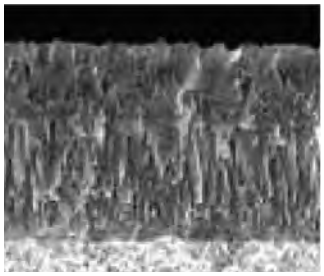
Specification:
Composition: Co 6.0 %; WC balance | Grain size 0.8-1.3 µm | Hardness HV30 1630 | Coating specification PVD TiAlN
Recommended application: The first choice for the machining of Stainless Steels and Exotic.

K110GP HC-K10 | HC-P05

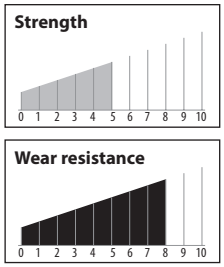




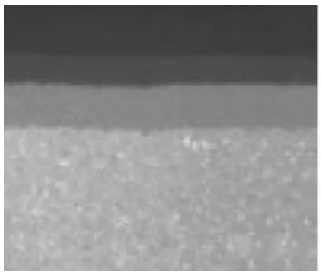
Specification:
Composition: Co 5.0 %; mixed carbide 2.0 %; WC balance | Grain size: submicron | Hardness: HV30 1810 | Coating specification: CVD TiCN-Al2O3
Recommended application: The wear-resistant grade for the machining of cast iron at highcutting speed with continuous cut.



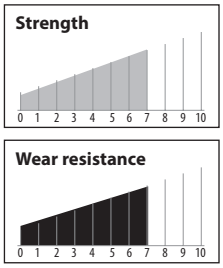
K120T HC-K20 | HC-P10



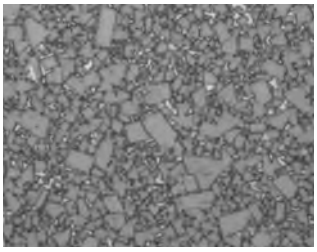
Specification:
Composition: Co 6.0 %; TaC 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV30 1630 | Coating specification: CVD TiCN-Al2O3
Recommended application:
The first choice for the machining of cast iron at high cutting speeds and where high toughness is required.



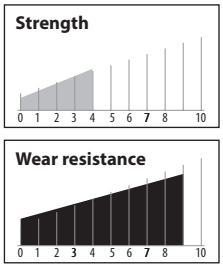
N216T HW-N15 | HW-K15



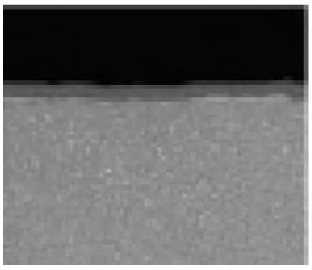
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV30 1630
Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals



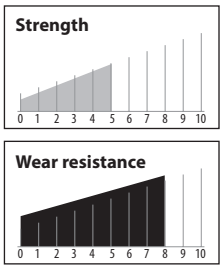
S110T HC-S15 | HC-M15



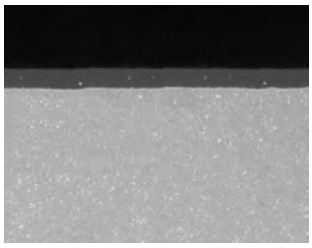
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV30 1820 |
Coating specification: PVD TiAlN
Recommended application:
The alternative when machining heat-resistant materials



S115T HC-S15 | HC-M15



Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV30 1820 |
Coating specification: PVD TiAlN-TiN
Recommended application:
The first choice for the machining of heat-resistant materials

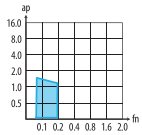
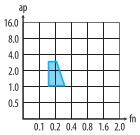
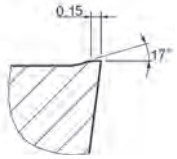
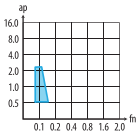
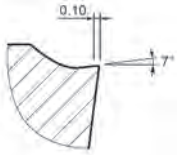
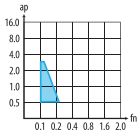
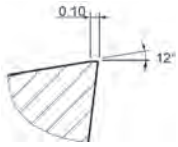
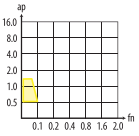
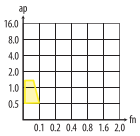


Grades	ISO	Cutting material	Application 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Aluminium	S Superalloy
TC 10	HC-P15	T		●				
	HC-M10	T			●			
	HC-K10	T				○		
P115T	HC-P15	C		●				
	HC-K25	C				●		
	HC-M10	C			○			
P125T	HC-P25	C		●				
	HC-K30	C				●		
	HC-M20	C			○			
P125GP	HC-P25	C		●		●		
	HC-K30	C						
	HC-M20	C						
P135T	HC-P35	C		●				
	HC-M25	C			○			
	HC-S25	C						○
M120T	HC-M20	P			●			
	HC-K20	P				○	○	
M125T	HC-M25	P			●			
	HC-P35	P		●				
	HC-S25	P						○
M120GP	HC-M20	P			●			
	HC-P25	P		●				
M135T	HC-P35	P			●			
	HC-S35	P		○				
M217T	HC-M15	P			●			
	HC-S15	P					○	○
K110GP	HC-K10	C				●		
	HC-P05	C		○				
K120T	HC-K20	C				●		
	HC-P10	C		○				
N216T	HW-N15	W					●	
	HW-K15	W				●		
S110T	HC-S15	P						●
	HC-M15	P			○			
S115T	HC-S15	P						●
	HC-M15	P			○			

*** CUTTING MATERIAL**
T - cermet
C - with CVD coating
P - with PVD coating
W - without coating

● First choise
○ Second choise

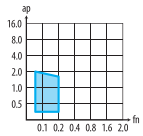
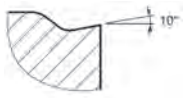
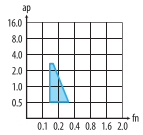
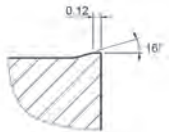
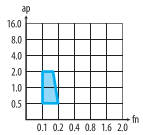
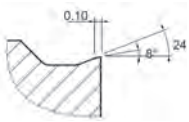
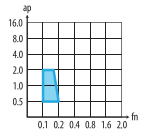
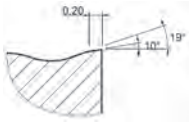
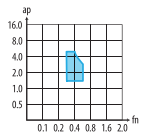
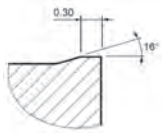
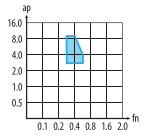
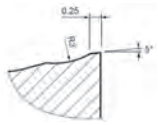
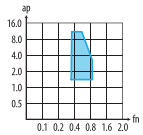
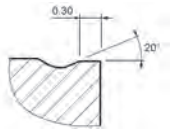
Positive angle

Insert picture	Chipbreaker	Description	Grades	Types of cutting: Consistent cutting depth	Types of cutting: Inconsistent cutting depth	Types of cutting: Interrupted cut	Types of machining: Roughing	Types of machining: Medium	Types of machining: Finishing	Depth of cut and feed rate (mm)	
	UJF	Finishing machining of steel and stainless steel. High surface quality. Good chip control at small depths of cut. Reduce temperature and stress.	TC10	●	X	X			▲		
	FA	Fine finishing machining of steel and stainless steel. High surface quality.	P125T	●	○	X			▲		
		With the same feed rate an insert with Masterfinish cutting edge reaches a roughness value Ra which is many times higher than the one of a conventional insert.	M135T	●	○	○					
	WF+	Finishing and semi-finishing machining Of steel and stainless steel. Great capabilities with dual chipbraker.	P115T	●	○	X		△	▲		
			P125T	●	○	X		△	▲		
			M125T	●	○	X		△	▲		
	W+	Semi-finishing-finishing machining Universal application. Reduce temperature and stress	P115T	●	○	X		▲	△		
			P125T	●	●	○		▲	△		
			P135T	●	●	○		▲			
			M125T	●	●	X		▲	△		
			M135T	●	●	●		▲	▲		
			K120T	●	●	X		▲	△		
	FN-F*	Finishing machining of steel. High quality of the processed surface.	M120T	●	X	X			▲		
	FN-MF+	Finishing machining of stainless steel. Increased life expectancy. Semi-finishing of aluminum. Small feedrate in bar turning. Low tendency to vibration Easy chip removal.	M217T	●	○	X			▲		
			N216T	●	●	○		▲	▲		

● First application
○ Possible application
X Not recommended

▲ First application
△ Possible application

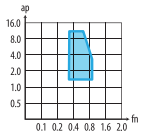
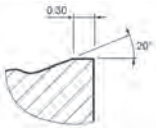
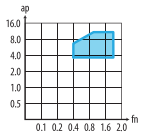
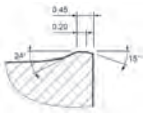
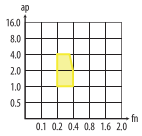
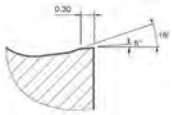
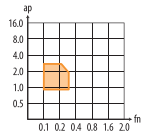
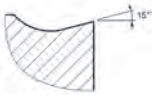
Negative angle

Insert picture	Chipbreaker	Description	Grades	Types of cutting: Consistent cutting depth	Types of cutting: Inconsistent cutting depth	Types of cutting: Interrupted cut	Types of machining: Roughing	Types of machining: Medium	Types of machining: Finishing	Depth of cut and feed rate (mm)	
	UJF	Finishing machining of steel and stainless steel. Increased life expectancy. Cermet inserts. Good chip control at small depth of cut.	TC10	●	X	X			▲		
	FA	Fine finishing machining of steel.	P115T	●	X	X			▲		
	WL+	Semi-finishing-finishing machining of steel. Increase life time	P115T	●	○	X		△	▲		
			P125T	●	○	X		△	▲		
	W+	The first choice for semi-finishing machining steel.	P115T	●	○	X		▲			
			P125T	●	●	○		▲			
			P125GP	●	●	○		▲			
			P135T	●	●	●		▲			
			K120T	●	○	X		▲			
	UWR+	Roughing steel.	P115T	●	●	○	▲	▲			
			P125T	●	●	○	▲	▲			
			P135T	●	●	○	▲	△			
	EN-T	Semi-finishing machining steel.	P125T	●	●	○			△		
	EN-H2	One-way insert. Single Sided roughing geometry Good chip control. For steels with high strength (800N/mm^2)	P115T	●	●	○	△	▲			
			P125T	●	●	●	△	▲			
			P135T	●	●	●	△	▲			

● First application
○ Possible application
X Not recommended

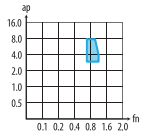
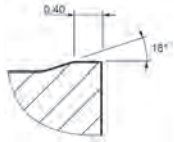
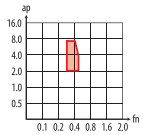
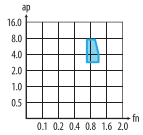
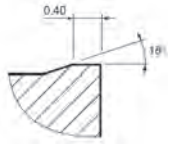
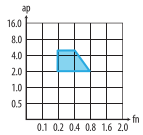
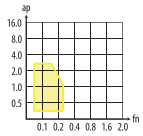
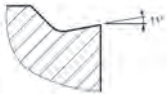
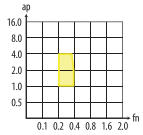
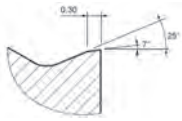
▲ First application
△ Possible application

Negative angle

Insert picture	Chipbreaker	Description	Grades	Types of cutting: Consistent cutting depth	Types of cutting: Inconsistent cutting depth	Types of cutting: Interrupted cut	Types of machining: Roughing	Types of machining: Medium	Types of machining: Finishing	Depth of cut and feed rate (mm)	
	EN-H5	One-way insert. Medium and roughing machining. Low cutting force. Universal geometry for almost all materials. Suitable for unstable working conditions due to low cutting force.	P115T	●	●	○	▲	▲			
			P125T	●	●	○	▲	▲			
			P135T	●	●		▲	▲			
	SN-H8	One-way insert. Heavy steel turning. Work at a deep cutting depth. Designed for heavy, intermittent handling.	P125T	●	●	●	▲				
	R+	Roughing stainless steel processing. Low cutting force.	M125T	●	●	○	▲	▲			
	E+	Low cutting force. The first choice for semi-finishing processing of superalloys.	S110T	●	○	X		▲	△		
			S115T	●	○	X		▲	△		

● First application ▲ First application
○ Possible application △ Possible application
X Not recommended

Negative angle

Insert picture	Chipbreaker	Description	Grades	Types of cutting: Consistent cutting depth	Types of cutting: Inconsistent cutting depth	Types of cutting: Interrupted cut	Types of machining: Roughing	Types of machining: Medium	Types of machining: Finishing	Depth of cut and feed rate (mm)	
	90	Roughing and semi-finishing steel. Universal use.	P125T	●	○	X	▲	▲			
			P135T	●	●	○	▲	▲			
			K120T	●	○	X	▲	▲			
	UEN	Semi-finish, easy roughing of nodular cast iron.	K120T	●	●	○	△	▲			
	SN-R	Rough and semi-finishing steel processing. Universal application.	P125T	●	○	X	△	▲			
			P135T	●	●	○	▲	▲			
	M1	Semi-finishing machining of steel.	P125T	●	○	X		▲			
	XK	Finishing machining of stainless steel and titanium alloys.	M120T	●	○	X			▲		
	K+	Semi-finishing stainless steel processing. Low probability of formation of surface defects. High quality of the processed surface. Low cutting force. High cutting parameters with constant cooling.	M125T	●	●	○		▲			
			M120GP	●	●	○		▲			

● First application
○ Possible application
X Not recommended

▲ First application
△ Possible application

Top angle	35°	V
	55°	D
	75°	E
	80°	C
	86°	M
Top angle	55°	K
	82°	B
	85°	A
Other hapes	90°	L
	108°	P
	120°	H
	135°	O
	-	R
	90°	S
	60°	T
	80°	W

Insert shape

	d±	m±	s±
	0,025	0,005	0,025
F	0,013	0,005	0,025
C	0,025	0,013	0,025
H	0,013	0,013	0,025
E	0,025	0,025	0,025
G	**0,025**	**0,025**	**0,13**
J	0,05-0,15*	0,005	0,025
K	0,05-0,15*	0,013	0,025
L	0,05-0,15*	0,025	0,025
M	**0,05-0,15***	**0,08-0,20**	**0,13**
N	0,05-0,15*	0,08-0,20	0,025
U	0,08-0,25*	0,13-0,238	0,013

Tolerance

C N M G

Normal clearance angle

3°	A	25°	F
5°	B	30°	G
7°	**C**	**0°**	**N**
15°	D	11°	P
20°	E		

Back angle not included in standard, necessary specify additionally O

Type of chip breaker/clamping

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	special shape

d mm	
06 08 10 12	16 20 25 32

mm	Inch	mm	mm
06	5/32	3,96	03
09	7/32	5,56	05
11	1/4	6,35	06
16	3/8	9,52	09
22	1/2	12,7	12
27	5/8	15,8	15
33	3/4	19,0	19
44	1	25,4	25

Insert size

	Radius rounding, mm
00	≤ 0,05
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
24	2,4
32	3,2

RN 00
RC MO

Nose radius

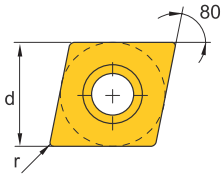
12 04 08

Insert thickness

Inch	mm	Index
1/16	1,59	01
3/32	2,38	02
1/8	3,18	03
5/32	3,97	T3
3/16	4,76	04
7/32	5,56	05
1/4	6,35	06
5/16	7,94	07
3/8	9,52	09

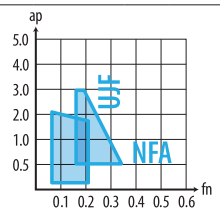
CN...

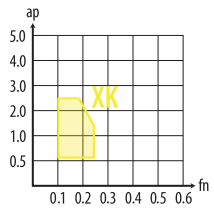
Negative angle

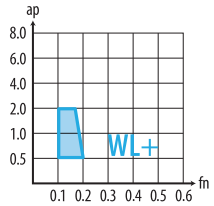


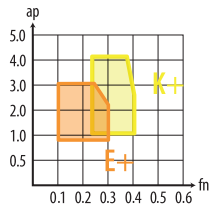
Designation	d	s
CN... 090...	9.52	3.18
CN... 120...	12.70	4.76
CN... 190...	19.05	6.35

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	TC10	M120T	M120GP	M125T	S110T	S115T	S240T
					Grades								
	Finishing	UJF	CNMG 120404-UJF	0.40			●						
			CNMG 120408-UJF	0.80			●						
	Fine finishing	NFA	CNMX 120404-NFA+	0.40	●								
			CNMX 120408-NFA+	0.80	●								
	Finishing	XK	CNGP 120402-XK	0.20				●					
			CNGP 120404-XK	0.40				●					
			CNGP 120408-XK	0.80				●					
			CNGP 120412-XK	1.20				●					
	Finishing - Medium	WL+	CNMG 090304-WL+	0.40	●								
			CNMG 120404-WL+	0.40	●	●							
			CNMG 120408-WL+	0.8	●	●							
	Medium-finishing	E+	CNMG 120404-E+	0.40							●	●	
			CNMG 120408-E+	0.80							●	●	
	Medium-finishing	K+	CNMG 090304-K+	0.40					●	●			
			CNMG 090308-K+	0.80					●	●			
			CNMG 120404-K+	0.40					●	●			
			CNMG 120408-K+	0.80					●	●			





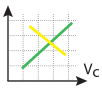




	P115T	P125T	TC10	M120T	M120GP	M125T	S110T	S115T	S240T
P Steel	★	★	★		★	★			
M Stainless steel aust.	☆	☆	★	★	★	★	☆	☆	☆
K Cast iron	★	★	☆	☆					
N Aluminium				☆					
S Hig. temp. alloy						☆	★	★	★

★ Best choice

☆ Second choice



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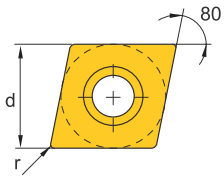
p. 123-132

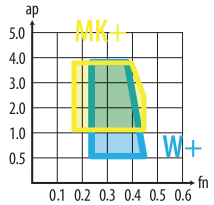
CN...

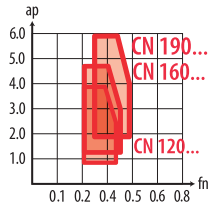
Negative angle

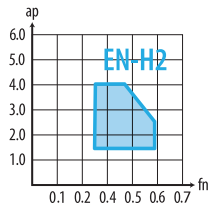


Designation	d	s
CN... 120...	12.70	4.76
CN... 160...	15.88	6.35
CN... 190...	19.05	6.35

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P125GP	P135T	M125T	K110GP	K120T
					Grades						
	Medium-finishing	W+	CNMG 120404-W+	0.40	●	●	●				
			CNMG 120408-W+	0.80	●	●	●	●			●
			CNMG 120412-W+	1.20	●	●	●	●			●
	Medium-roughing	90+	CNMG 120408-90+	0.80						●	●
			CNMG 120412-90+	1.20						●	●
			CNMG 160608-90+	0.80				●			●
			CNMG160612-90+	1.20		●		●		●	●
			CNMG 190612-90+	1.20		●		●			●
			CNMG 190616-90+	1.60		●		●			
	Medium-roughing	UEN	CNMA 120408-UEN	0.80						●	●
			CNMA 120412-UEN	1.20							●
			CNMA 120416-UEN	1.60							●
	Medium-roughing	EN-H2	CNMM 120408-EN-H2	0.80	●	●		●			
			CNMM 120412-EN-H2	1.20		●					

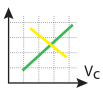






	P115T	P125T	P125GP	P135T	M125T	K110GP	K120T
P Steel	★	★	★	★	★	☆	☆
M Stainless steel aust.	☆	☆	☆	☆	★		
K Cast iron	★	★				★	★
N Aluminium							
S Hig. temp. alloy				☆	☆		

★ Best choice
☆ Second choice



p. 88-89

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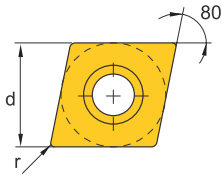
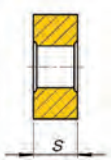
CN...

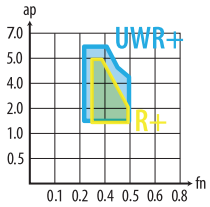
Negative angle

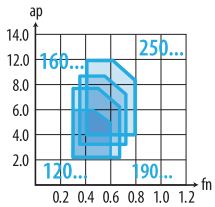


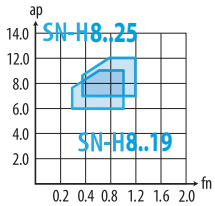


Designation	d	s
CN... 120...	12.70	4.76
CC... 160...	15.88	6.35
CC... 190...	19.05	6.35
CC... 2507...	25.40	7.94
CC... 2509...	25.40	9.52

Image of inserts	Type of cutting	Chipbreaker	Description	r	Grades P115T	P125T	P125GP	P135T	M125T
	Medium-roughing	UWR+	CNMG 120408-UWR+	0.80	●	●			
			CNMG 120412-UWR+	1.20		●			
	Roughing	R+	CNMG 120408-R+	0.80					●
			CNMG 120412-R+	1.20					●
	Medium-roughing	EN-H5	CNMM 120412-EN-H5	1.20	●	●		●	
			CNMM 120416-EN-H5	1.60		●		●	
			CNMM 160612-EN-H5	1.20	●	●		●	
			CNMM 190612-EN-H5	1.20	●	●			
			CNMM 190616-EN-H5	1.60		●			
			CNMM 250724-EN-H5	2.40		●			
			CNMM 250924-EN-H5	2.40		●			
	Roughing	SN-H8	CNMM 190616-SN-H8	1.6		●			
			CNMM 190624-SN-H8	2.4		●			
			CNMM 250924-SN-H8	2.4		●			
			CNMM 250932-SN-H8	3.2		●			



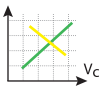




	P115T	P125T	P125GP	P135T	M125T
P Steel	★	★	★	★	★
M Stainless steel aust.	☆	☆	☆	☆	★
K Cast iron	★	★			
N Aluminium					
S Hig. temp. alloy				☆	☆
H Hard materials			☆		

★ Best choice

☆ Second choice



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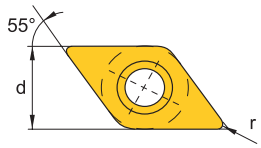
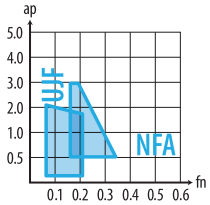
DN...

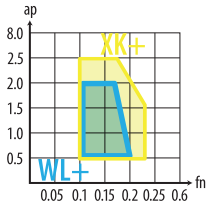
Negative angle

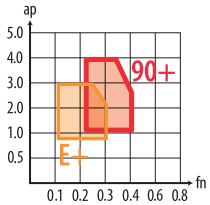


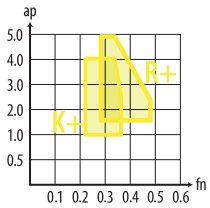
Designation	d	s
DN... 110...	9.52	4.76
DN... 150...	12.70	6.35

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	TC10	M120T	M125T	M120GP	K120T	S110T	S115T
			Grades											
	Finishing	UJF	DNMG 110404-UJF	0.40				●						
			DNMG 150604-UJF	0.40				●						
	Fine finishing	NFA+	DNMX 150604-NFA+	0.40	●									
			DNMX 150608-NFA+	0.80	●									
	Medium-finishing	WL+	DNMG 110404-WL+	0.40	●	●								
			DNMG 150604-WL+	0.40	●									
			DNMG 150608-WL+	0.80	●									
	Finishing	XK	DNGP 150404-XK	0.40					●					
			DNGP 150602-XK	0.20					●					
			DNGP 150604-XK	0.40					●					
			DNGP 150608-XK	0.80					●					
	Medium-roughing	90+	DNMG 150608-90+	0.80								●		
	Medium-finishing	E+	DNMG 150608-E+	0.80									●	●
	Medium-finishing	K+	DNMG 110404-K+	0.40						●	●			
			DNMG 110408-K+	0.80						●	●			
			DNMG 150404-K+	0.40						●	●			
			DNMG 150408-K+	0.80						●	●			
			DNMG 150604-K+	0.40						●	●			
			DNMG 150608-K+	0.80						●	●			
	Roughing	R+	DNMG 150608-R+	0.80						●				
			DNMG 150612-R+	1.20						●				



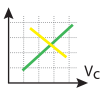






	P115T	P125T	P135T	TC10	M120T	M125T	M120GP	K120T	S110T	S115T
P Steel	★	★	★	★		★	★			
M Stainless steel aust.	☆	☆	☆	★	★	★	★			
K Cast iron	★	★		☆	☆			★		
N Aluminium					☆					
S Hig. temp. alloy			☆				☆		★	★

★ Best choice
☆ Second choice



p. 88-89

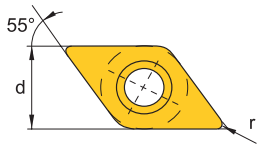
p. 62-64

p. 91-111

p. 123-132

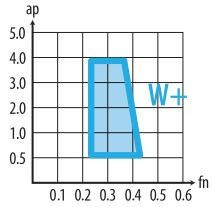
DN...

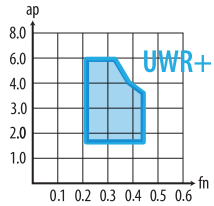
Negative angle

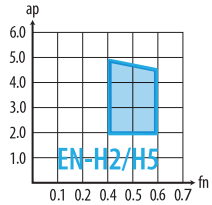


Designation	d	s
DN... 110...	9.52	4.76
DN... 150...	12.7	6.35

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	P125GP	M125T	K120T
					Grades					
	Medium-finishing	W+	DNMG 110404-W+	0.40	●	●				
			DNMG 110408-W+	0.80	●	●	●	●		
			DNMG 150404-W+	0.40		●		●		
			DNMG 150408-W+	0.80		●		●		
			DNMG 150604-W+	0.40	●	●		●		
			DNMG 150608-W+	0.80	●	●	●	●		●
			DNMG 150612-W+	1.20	●	●	●	●		●
	Medium-roughing	UWR+	DNMG 150608-UWR+	0.80	●	●	●			
			DNMG 150612-UWR+	1.20	●	●	●			
	Medium-roughing	EN-H5	DNMM 150612-EN-H5	1.2	●	●	●			
	Medium-roughing	EN-H2	DNMM 150608-EN-H2	0.80	●	●	●			

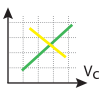






	P115T	P125T	P135T	P125GP	M125T	K120T
P Steel	★	★	★	★	★	☆
M Stainless steel aust.	☆	☆	☆	☆	★	
K Cast iron	★	★				★
N Aluminium				☆		
S Hig. temp. alloy			☆		☆	

★ Best choice
☆ Second choice



p. 88-89

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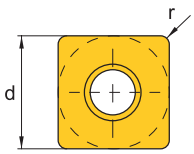
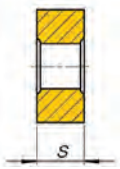
SN...

Negative angle

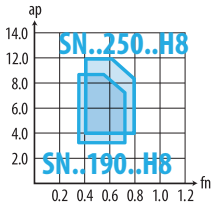


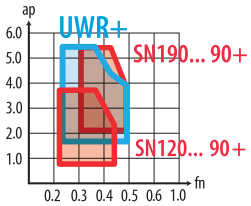


Designation	d	s
SN... 120...	12.70	4.76
SN... 190...	19.05	6.35
SN... 2507..	25.40	7.94

Designation	d	s
SN... 150...	15.88	6.35
SN... 2509..	25.40	9.52

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	M120T	M125T	K110GP	K120T	N216T
					Grades							
	Medium-roughing	EN-H5	SNMM 190612-EN-H5	1.20		●						
			SNMM 190616-EN-H5	1.60		●						
			SNMM 250724-EN-H5	2.40		●						
			SNMM 250924-EN-H5	2.40		●						
	Medium-roughing	UWR+	SNMG 120408-UWR+	0.80		●						
			SNMG 120412-UWR+	1.20		●						
	Medium-roughing	90+	SNMG120408-90+	0.80							●	
			SNMG 120412-90+	1.20						●		
			SNMG 150612-90+	1.20		●	●					
			SNMG 190612-90+	1.20		●	●					
	Roughing	SN-H8	SNMM 190616-SN-H8	1.60		●						
			SNMM 190624-SN-H8	2.40		●						
			SNMM 250924-SN-H8	2.40		●						
			SNMM 250932-SN-H8	3.20		●						

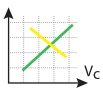




	P115T	P125T	P135T	M120T	M125T	K110GP	K120T	N216T
P Steel	★	★	★		★	☆	☆	
M Stainless steel aust.	☆	☆	☆	★	★			
K Cast iron	★	★		☆		★	★	★
N Aluminium				☆				★
S Hig. temp. alloy			☆		☆			

★ Best choice

☆ Second choice



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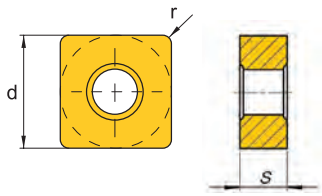
SN...

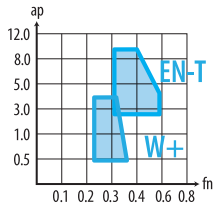
Negative angle

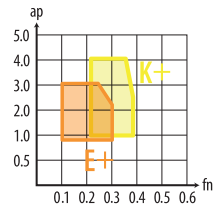


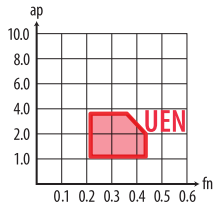
Designation	d	s
SN... 120...	12.70	4.76
SN... 190...	19.05	6.35
SN... 250...	25.40	9.52

Grades

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	P125GP	M120GP	M125T	K120T	S110T	S115T
	Medium-finishing	W+	SNMG 120408-W+	0.80	●	●	●	●			●		
			SNMG 120412-W+	1.20	●	●	●						
	Medium-finishing	EN-T	SNMM 190616-EN-T	1.60		●							
			SNMM 250924-EN-T	2.40		●							
	Medium-finishing	E+	SNMG 120408-E+	0.80								●	●
	Medium-finishing	K+	SNMG 120408-K+	0.80					●	●			
	Medium-roughing	UEN	SNMA 120408-UEN	0.80							●		

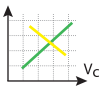






	P115T	P125T	P135T	P125GP	M120GP	M125T	K120T	S110T	S115T
P Steel	★	★	★	★	★	★	☆		
M Stainless steel aust.	☆	☆	☆	☆	★	★		☆	☆
K Cast iron	★	★					★		
N Aluminium									
S Hig. temp. alloy			☆			☆		★	★

★ Best choice
☆ Second choice



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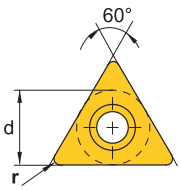
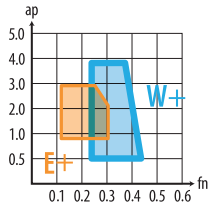
TN...

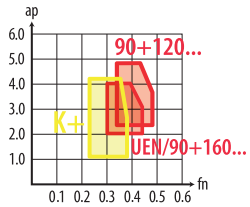
Negative angle

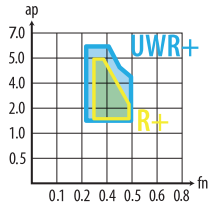


Designation	d	s
TN... 160...	9.52	4.76
TN... 220...	12.70	4.76

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P125GP	P135T	M120GP	M125T	K120T	S110T	S115T
					Grades								
	Medium-finishing	W+	TNMG 160404-W+	0.40	●	●							
			TNMG 160408-W+	0.80	●	●	●	●			●		
			TNMG 160412-W+	1.20	●	●					●		
			TNMG 220404-W+	0.40		●							
			TNMG 220408-W+	0.80		●					●		
	Medium-finishing	E+	TNMG 160408-E+	0.80								●	●
	Medium-finishing	K+	TNMG 160404-K+	0.40					●	●			
			TNMG 160408-K+	0.80					●	●			
	Medium-roughing	90+	TNMG 160408-90+	0.80							●		
			TNMG 220412-90+	1.20		●							
	Medium-roughing	UEN	TNMA 160408-UEN	0.80							●		
	Medium-roughing	UWR+	TNMG 160408-UWR+	0.80		●							
			TNMG 160412-UWR+	1.20		●							
	Medium-roughing	R+	TNMG 160408-R+	0.80						●			
			TNMG 160412-R+	1.20						●			

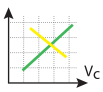






	P115T	P125T	P125GP	P135T	M120GP	M125T	K120T	S110T	S115T
P Steel	★	★	★	★	★	★	☆		
M Stainless steel aust.	☆	☆	☆	☆	★	★		☆	☆
K Cast iron	★	★					★		
N Aluminium									
S Hig. temp. alloy				☆		☆		★	★

★ Best choice
☆ Second choice



p. 88-89

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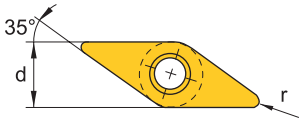
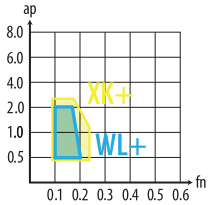
VN...

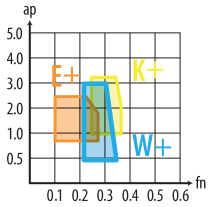
Negative angle



Designation	d	s
VN... 160...	9.52	4.76

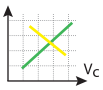
Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	TC10	M120T	M120GP	M125T	M135T	S110T	S115T
					Grades									
	Medium-Finishing	WL+	VNMG 160404-WL+	0.40	●									
	Finishing	XK	VNGP 160402-XK	0.20					●					
			VNGP 160404-XK	0.40					●					
	Medium-finishing	W+	VNMG 160404-W+	0.40	●	●								
			VNMG 160408-W+	0.80	●	●								
	Medium-finishing	E+	VNMG 160408-E+	0.80									●	●
	Medium-finishing	K+	VNMG 160408-K+	0.80						●	●			





	P115T	P125T	P135T	TC10	M120T	M120GP	M125T	M135T	S110T	S115T
P Steel	★	★	★	★		★	★	☆		
M Stainless steel aust.	☆	☆	☆	★	★	★	★	★	☆	☆
K Cast iron	★	★		☆	☆				★	
N Aluminium					☆					
S Hig. temp. alloy			☆		☆		☆		★	★

★ Best choice
☆ Second choice

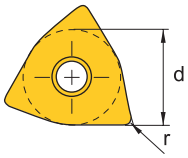


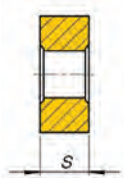
p. 88-89

p. 62-64

WN...

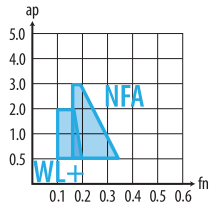
Negative angle

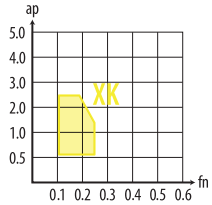


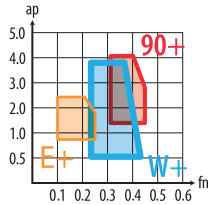


Designation	d	s
WN... 060...	9.52	4.76
WN... 080...	12.7	4.76

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P125GP	P135T	M120T	K110GP	K120T	S110T	S115T
					Grades								
	Medium-Finishing	WL+	WNMG 060404-WL+	0.40	●								
			WNMG 080404-WL+	0.40	●								
	Fine finishing	NFA+	WNMX 080404-NFA+	0.40	●								
			WNMX 080408-NFA+	0.80	●								
	Finishing	XK	WNGP 080404-XK	0.40					●				
			WNGP 080408-XK	0.80					●				
	Medium-finishing	W+	WNMG 060404-W+	0.40	●	●							
			WNMG 060408-W+	0.80	●	●							
			WNMG 080404-W+	0.40	●	●	●						
			WNMG 080408-W+	0.80	●	●	●	●			●		
			WNMG 080412-W+	1.20	●	●	●	●			●		
	Medium-roughing	90+	WNMG 080408-90+	0.80						●	●		
			WNMG 080412-90+	1.20						●	●		
	Medium-finishing	E+	WNMG 080408-E+	0.80								●	●

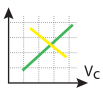






	P115T	P125T	P125GP	P135T	M120T	K110GP	K120T	S110T	S115T
P Steel	★	★	★	★	☆	☆	☆		
M Stainless steel aust.	☆	☆	☆	☆	★			☆	☆
K Cast iron	★	★		★	☆	★	★		
N Aluminium									
S Hig. temp. alloy					☆			★	★

★ Best choice
☆ Second choice



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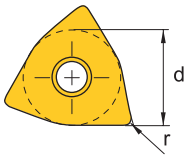
p. 91-111

p. 123-132

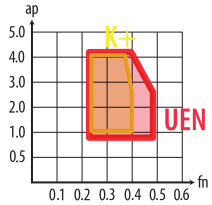
WN...

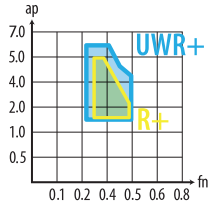
Negative angle



Designation	d	s
WN... 060...	9.53	3.97
WN... 080...	12.70	4.76

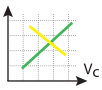
Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	M120T	M120GP	M125T	M135T	K110GP	K120T	N216T
					Grades								
	Medium-finishing	K+	WNMG 060404-K+	0.40				●	●				
			WNMG 060408-K+	0.80				●	●				
			WNMG 080404-K+	0.40				●	●				
			WNMG 080408-K+	0.80				●	●				
			WNMG 080412 K+	1.20					●				
	Medium-roughing	UEN	WNMA 080408-UEN	0.80							●	●	
	Medium-roughing	UWR+	WNMG 080408-UWR+	0.80		●							
			WNMG 080412-UWR+	1.20		●							
	Roughing	R+	WNMG 080408-R+	0.80					●				
			WNMG 080412-R+	1.20					●				





	P115T	P125T	M120T	M120GP	M125T	M135T	K110GP	K120T	N216T
P Steel	★	★		★	★	☆		☆	
M Stainless steel aust.	☆	☆	★	★	★	★			
K Cast iron	★	★	☆				★	★	
N Aluminium			☆						
S Hig. temp. alloy					☆				

★ Best choice
☆ Second choice



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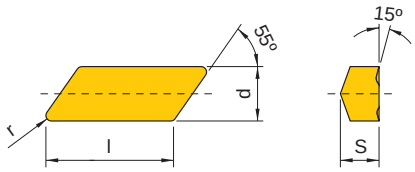
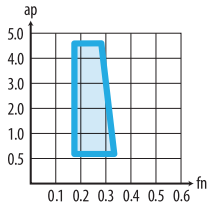
KN...

Negative angle



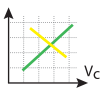
Designation	d	s	L
KN... 160...	9.52	4.76	16.0

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	TC10	M120T	M125T	M135T	M217T	S110T	S115T
					Grades									
	Medium-finishing	M1	KNUX 160405L-M1	0.50		●			●	●				
			KNUX 160405R-M1	0.50		●			●	●				
			KNUX 160410L-M1	1.00		●								
			KNUX 160410R-M1	1.00		●								



	P115T	P125T	P135T	TC10	M120T	M125T	M135T	M217T	S110T	S115T
P Steel	★	★	★			★				
M Stainless steel aust.	☆	☆	☆		★	★			☆	☆
K Cast iron	☆	★	★		☆					
N Aluminium					☆					
S Hig. temp. alloy						☆			★	★

★ Best choice
☆ Second choice



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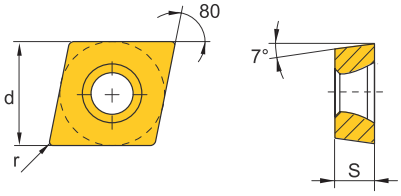
p. 97

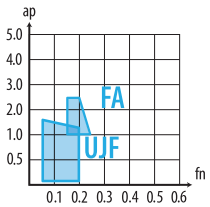
CC...

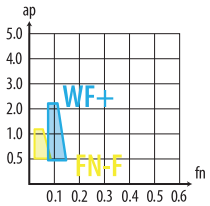
Positive angle

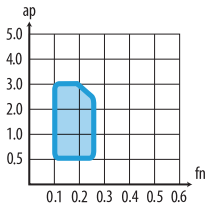


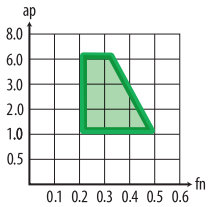
Designation	d	s
CC... 0602...	6.35	2.38
CC... 09T3...	9.52	3.97
CC... 1204...	12.7	4.76

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P125GP	P135T	TC10	M120T	M120GP	M125T	M135T	K120T	N216T	M217T
					Grades											
	Finishing	UJF	CCMT 060204-UJF	0.40					●							
			CCMT 09T304-UJF	0.40					●							
	Fine finishing	FA	CCMX 09T304-FA	0.40		●							●			
			CCMX 09T308-FA	0.80		●							●			
	Finishing-Medium	WF+	CCMT 060202-WF+	0.20		●	●				●	●				
			CCMT 060204-WF+	0.40	●	●	●				●	●				
			CCMT 09T302-WF+	0.20		●	●				●	●				
			CCMT 09T304-WF+	0.40	●	●	●				●	●				
			CCMT 09T308-WF+	0.80	●	●	●					●				
			CCMT 120404-WF+	0.40	●											
	Finishing	FN-F	CCGT 060200-FN-F	0.05						●						
			CCGT 060201-FN-F	0.10						●						
			CCGT 09T300-FN-F	0.05						●						
			CCGT 09T301-FN-F	0.10						●						
	Medium-finishing	W+	CCMT 060204-W+	0.40	●	●	●	●			●	●		●		
			CCMT 060208-W+	0.80	●	●	●	●			●	●				
			CCMT 09T304-W+	0.40	●	●	●	●			●	●	●	●		
			CCMT 09T308-W+	0.80	●	●	●	●			●	●	●	●		
			CCMT 120404-W+	0.40		●	●				●	●				
			CCMT 120408-W+	0.80		●	●				●	●		●		
			CCMT 120412-W+	1.20		●	●					●				
	Medium-finishing	FN-MF+	CCGT 060201-FN-MF+	0.10											●	●
			CCGT 060202-FN-MF+	0.20											●	●
			CCGT 060204-FN-MF+	0.40											●	●
			CCGT 09T302-FN-MF+	0.20											●	●
			CCGT 09T304-FN-MF+	0.40											●	●
			CCGT 09T308-FN-MF+	0.80											●	●
			CCGT 120404-FN-MF+	0.40											●	●
			CCGT 120408-FN-MF+	0.80											●	●



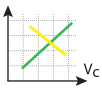






	P115T	P125T	P125GP	P135T	TC10	M120T	M120GP	M125T	M135T	K120T	N216T	M217T
P Steel	★	★	★	★	★		★	★	☆	☆		
M Stainless steel aust.	☆	☆	☆	☆	★	★	★	★	★			★
K Cast iron	★	★	★		☆	☆				★	★	
N Aluminium						☆					★	
S Hig. temp. alloy				☆				☆				★

★ Best choice
☆ Second choice



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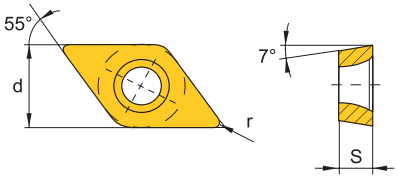
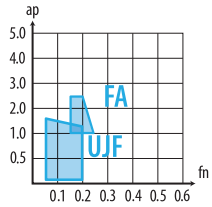
DC...

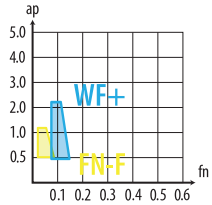
Positive angle

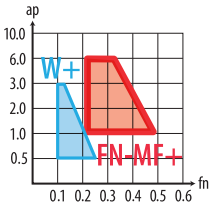


Designation	d	s
DC... 070...	6.35	2.48
DC... 11T...	9.52	3.97

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P125GP	P135T	TC10	M120T	M120GP	M125T	M135T	K120T	N216T	M217T
					Grades											
	Finishing	UJF	DCMT 070204-UJF	0.40					●							
			DCMT 11T304-UJF	0.40					●							
	Fine finishing	FA	DCMX 070204-FA	0.40		●										
			DCMX 11T304-FA	0.40		●							●			
			DCMX 11T308-FA	0.80		●							●			
	Finishing-Medium	WF+	DCMT 070202-WF+	0.20		●	●				●	●				
			DCMT 070204-WF+	0.40	●	●	●				●	●				
			DCMT 11T302-WF+	0.20		●	●				●	●				
			DCMT 11T304-WF+	0.40	●	●	●				●	●				
			DCMT 11T308-WF+	0.80		●	●					●				
	Finishing	FN-F	DCGT 070200-FN-F	0.05						●						
			DCGT 070201-FN-F	0.10						●						
			DCGT 11T300-FN-F	0.05						●						
			DCGT 11T301-FN-F	0.10						●						
	Medium-finishing	W+	DCMT 070204-W+	0.40		●	●	●			●	●		●		
			DCMT 070208-W+	0.80		●		●			●	●				
			DCMT 11T304-W+	0.40	●	●	●	●			●	●	●	●		
			DCMT 11T308-W+	0.80	●	●	●	●			●	●	●	●		
	Medium-finishing	FN-MF+	DCGT 070201-FN-MF+	0.10											●	●
			DCGT 070202-FN-MF+	0.20											●	●
			DCGT 070204-FN-MF+	0.40											●	●
			DCGT 070208-FN-MF+	0.80											●	
			DCGT 11T302-FN-MF+	0.20											●	●
			DCGT 11T304-FN-MF+	0.40											●	●
			DCGT 11T308-FN-MF+	0.80											●	●

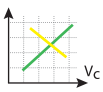






	P115T	P125T	P125GP	P135T	TC10	M120T	M120GP	M125T	M135T	K120T	N216T	M217T
P Steel	★	★	★	★	★		★	★	☆	☆		
M Stainless steel aust.	☆	☆	☆	☆	★	★	★	★	★			★
K Cast iron	★	★	★		☆	☆				★	★	
N Aluminium						☆					★	
S Hig. temp. alloy				☆				☆				★

★ Best choice
☆ Second choice



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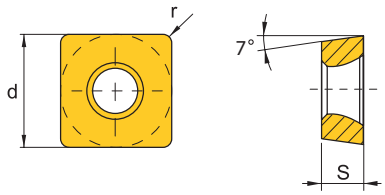
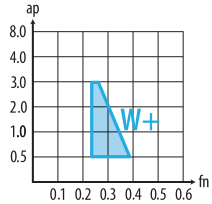
SC...

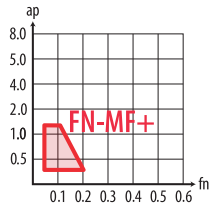
Positive angle



Designation	d	s
SC... 09T...	9.52	3.97
SC... 120...	12.7	4.76

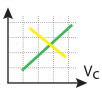
Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	TC10	M120T	M120GP	M125T	M135T	K120T	N216T	M217T
					Grades										
	Medium-finishing	W+	SCMT 09T304-W+	0.40		●				●	●		●		
			SCMT 09T308-W+	0.80		●	●			●	●		●		
			SCMT 120404-W+	0.40	●	●				●	●				
			SCMT 120408-W+	0.80		●	●			●	●		●		
			SCMT 120412-W+	1.20		●	●				●				
	Medium-finishing	FN-MF+	SCGT 09T304-FN-MF+	0.40										●	●
			SCGT 09T308-FN-MF+	0.80										●	●
			SCGT 120408-FN-MF+	0.80											●





	P115T	P125T	P135T	TC10	M120T	M120GP	M125T	M135T	K120T	N216T	M217T
P Steel	★	★	★	★		★	★	☆	☆		
M Stainless steel aust.	☆	☆	☆	★	★	★	★	★			★
K Cast iron	★	★		☆	☆				★	★	
N Aluminium					☆					★	
S Hig. temp. alloy			☆				☆				☆

★ Best choice
☆ Second choice



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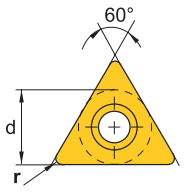
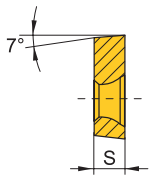
TC...

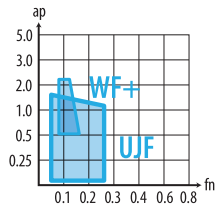
Positive angle

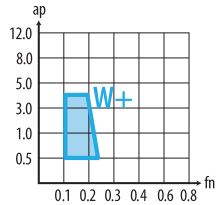


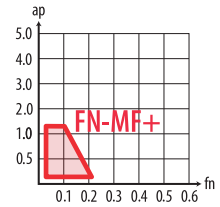


Designation	d	s
TC... 090...	5.56	2.38
TC... 110...	6.35	2.38
TC... 16T..	9.52	3.97

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	TC10	M120GP	M125T	M135T	K120T	N216T	M217T
					Grades									
	Medium-finishing	UJF	TCGT 110202-UJF	0.20				●						
			TCMT 110204-UJF	0.40				●						
	Medium-finishing	WF+	TCMT 110202-WF+	0.20						●				
	Medium-finishing	W+	TCMT 090204-W+	0.40		●			●	●		●		
			TCMT 110204-W+	0.40	●	●	●			●	●	●		
			TCMT 110208-W+	0.80		●	●			●	●	●		
			TCMT 16T304-W+	0.40		●	●		●	●		●		
			TCMT 16T308-W+	0.80		●	●		●	●		●		
			TCMT 16T312-W+	1.20		●				●				
	Medium-finishing	FN-MF+	TCGT 110204-FN-MF+	0.40									●	●
			TCGT 16T304-FN-MF+	0.40									●	
			TCGT 16T308-FN-MF+	0.80									●	

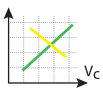






	P115T	P125T	P135T	TC10	M120GP	M125T	M135T	K120T	N216T	M217T
P Steel	★	★	★	★	★	★	☆	☆		
M Stainless steel aust.	☆	☆	☆	★	★	★	★			☆
K Cast iron	★	★		☆				★	★	
N Aluminium				☆					★	
S Hig. temp. alloy			☆			☆				★

★ Best choice
☆ Second choice



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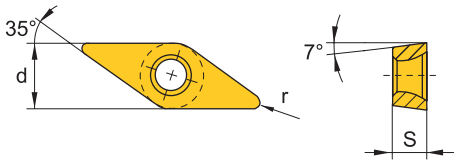
p. 112-122

p. 133-141

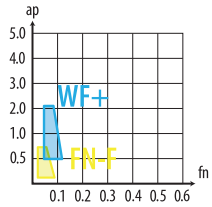
VC...

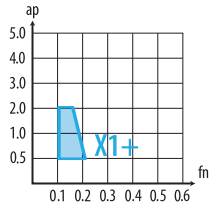
Positive angle

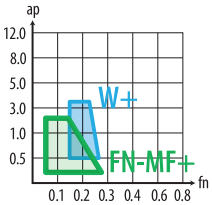


Designation	d	s
VC... 110...	6.35	3.18
VC/B... 160...	9.52	4.76

Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	TC10	M120T	M120GP	M125T	M135T	N216T	M217T
					Grades									
	Finishing-Medium	WF+	VCMT 110302-WF+	0.20		●				●	●			
			VCMT 110304-WF+	0.40		●				●	●			
			VCMT 160404-WF+	0.40		●				●	●			
			VCMT 160408-WF+	0.80		●				●				
	Finishing	FN-F	VCGT 110300-FN-F	0.05					●					
			VCGT 110301-FN-F	0.10					●					
			VCGT 160400-FN-F	0.05					●					
			VCGT 160401-FN-F	0.10					●					
	Medium-Finishing	X1+	VBMT 160404-X1+	0.40	●	●								
			VBMT 160408-X1+	0.80		●								
	Medium-finishing	W+	VCMT 110304-W+	0.40		●	●			●	●	●		
			VCMT 110308-W+	0.80		●	●			●	●	●		
			VCMT 160404-W+	0.40		●	●			●	●			
			VCMT 160408-W+	0.80		●	●			●	●			
	Medium-finishing	FN-MF+	VCGT 110302-FN-MF+	0.20									●	●
			VCGT 110304-FN-MF+	0.40									●	●
			VCGT 130302-FN-MF+	0.20									●	●
			VCGT 130304-FN-MF+	0.40									●	●
			VCGT 160404-FN-MF+	0.40									●	●
			VCGT 160408-FN-MF+	0.80									●	●
			VCGT 160412-FN-MF+	1.20									●	●
			VCGT 220530-FN-MF+	3.00									●	

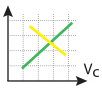






	P115T	P125T	P135T	TC10	M120T	M120GP	M125T	M135T	N216T	M217T
P Steel	★	★	★	★		★	★	☆		
M Stainless steel aust.	☆	☆	☆	★	★	★	★	★		★
K Cast iron	★	★		☆	☆				★	
N Aluminium					☆				★	
S Hig. temp. alloy			☆				☆			☆

★ Best choice
☆ Second choice



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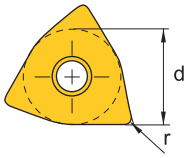
p. 62-64

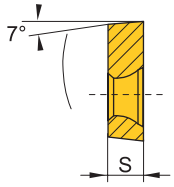
p. 112-122

p. 133-141

WC...

Positive angle

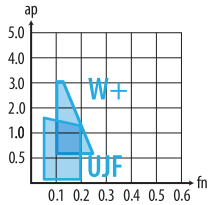




Designation	d	s
WC... 020...	3.97	1.59
WC... 040...	6.35	2.38

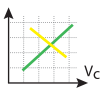
Designation	d	s
WC... 06T...	9.53	3.97
WC... 080...	12.70	4.76

Image of inserts	Type of cutting	Chipbreaker	Description	r	Grades P115T	P125T	P135T	TC10	M120T	M125T	M135T	K120T
	Finishing	UJF	WCGT 020102-UJF	0.20				●				
	Medium-finishing	W+	WCMT 040204-W+	0.40		●				●		
			WCMT 040208-W+	0.80		●				●		
			WCMT 06T304-W+	0.40		●				●		
			WCMT 06T308-W+	0.80		●				●		
			WCMT 080404-W+	0.40		●				●		
			WCMT 080408-W+	0.80		●				●		
			WCMT 080412-W+	1.20		●				●		



	P115T	P125T	P135T	TC10	M120T	M125T	M135T	K120T
P Steel	★	★	★	★		★	☆	☆
M Stainless steel aust.	☆	☆	☆	★	★	★	★	
K Cast iron	★	★		☆	☆			★
N Aluminium					☆			
S Hig. temp. alloy			☆			☆		

★ Best choice
☆ Second choice



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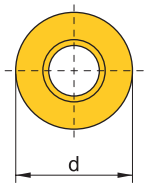
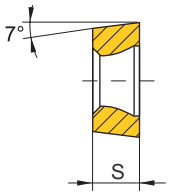
p. 62-64

RC...

Positive angle

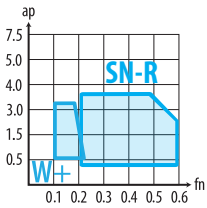




Designation	d	s
RC... 080...	8.00	3.18
RC... 100...	10.0	4.40
RC... 120...	12.0	4.76

Designation	d	s
RC... 160...	16.0	6.35
RC... 200...	20.0	6.35

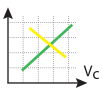
Image of inserts	Type of cutting	Chipbreaker	Description	r	P115T	P125T	P135T	TC10	M120T	N216T	M217T	S115T
					Grades							
	Medium-finishing	W+	RCMT 0803MO-W+				●					
			RCMT 1003MO-W+				●					
			RCMT 1204MO-W+				●					
	Roughing	SN-R	RCMT 1606-SN-R			●	●					
			RCMT 2006-SN-R			●	●					



	P115T	P125T	P135T	TC10	M120T	N216T	M217T	S115T
P Steel		★	★					
M Stainless steel aust.		☆	☆					
K Cast iron		★						
N Aluminium								
S Hig. temp. alloy			☆					

★ Best choice

☆ Second choice



p. 88-89

p. 62-64

p. 112-122

	Work material	Hardness HB	Cutting speed Vc (m/min)						
			P115T	P125T	P125GP	P135T	TC10	M120T	M125T
P	Non-alloyed steel	125	255-500	190-290	190-290	190-230	280-350		125-280
		150-250	220-400	165-240	160-270	170-190	225-270		135-255
		300	175-300	125-200	125-210	125-150	190-110		100-180
	Low-alloyed steel	180	155-400	165-250	165-250	165-190	255-300		130-200
		250-300	200-320	100-190	100-210	90-150	180-230		60-175
		350	150-280	80-170	90-190	70-130	140-220		50-155
	High-alloyed steel	200	175-320	125-210	125-210	125-200	165-200		75-200
		350	125-280	80-160	130-230	50-100	165-200		40-140
	Corrosion-resistant steel	200	200-320	125-220	130-230	140-180	230-270		100-200
		350	150-280	110-190	130-210	110-160	170-250		75-150
M	Stainless steel	200	220-300	135-210	140-210	135-200	165-200	150-200	125-250
		180		100-210	100-210	110-190	200-245	125-200	100-220
		230-260				80-150		90-155	55-160
		330		75-100	75-100	50-75	125-160	55-80	40-100
K	Gray cast iron	180	135-370	125-210				120-155	
		260	135-330	125-200				90-130	
	Spheroidal cast iron	160	190-430	120-240			225-300		
		-	140-270	120-240			180-250		
	Malleable / tempered iron	130	175-520	155-250			255-350		
		230	145-330	125-200			265-250		
N	Aluminium wrought alloys	60							
		100							
	Aluminum cast alloys	80							
		90							
		130							
	Copper and copper alloys	-							
		-							
		90							
		100							
	Non-metal materials	100							
		-							
		-							
S	Heat resistant alloys	200						25-50	
		280						25-50	
		250						15-45	
		-						20-35	
		-						10-25	
	Titanium alloys	Rm 440*						75-140	
		Rm 1050*						25-45	

*Rm - ultimate tensile strength, MPa

Cutting speed Vc (m/min)								Work material	
M120GP	M135T	K110GP	K120T	N216T	M217T	S110T	S115T		
125-280	175-230	250-500	225-450					Non-alloyed steel	P
135-260	165-190	220-400	200-350						
100-180	125-150	170-340	165-270						
130-200	165-190	200-400	200-365					Low-alloyed steel	
60-175	90-150	170-340	150-290						
50-155	70-130	150-300	125-260						
75-200	125-200	170-340	150-290					High-alloyed steel	
40-140	50-100	125-260	100-260						
100-200	140-180	170-300	165-290					Corrosion-resistant steel	
75-150	110-160	150-270	130-250						
125-280	135-200				120-180	150-225	125-220	Stainless steel	M
100-240	110-190				120-180	135-190	120-175		
55-160	80-155				80-145	60-100	50-90		
40-100	50-75				50-70				
		170-450	145-400					Gray cast iron	K
		145-400	175-350						
		220-450	200-450					Spheroidal cast iron	
			155-300						
		220-550	200-550					Malleable / tempered iron	
		155-400	155-350						
				300-2500				Aluminium wrought alloys	N
				200-2000					
				400-1500				Aluminum cast alloys	
				400-1500					
				200-800					
				250-600				Copper and copper alloys	
				200-600					
				150-400					
				150-300					
				80-180				Non-metal materials	
				60-150					
				100-250					
					30-45	80-120	80-120	Heat resistant alloys	S
					20-35	55-100	55-100		
					20-35	30-90	30-90		
					18-30	30-50	30-50		
						30-45	30-45		
					60-120	65-120	65-120	Titanium alloys	
						40-75	40-75		

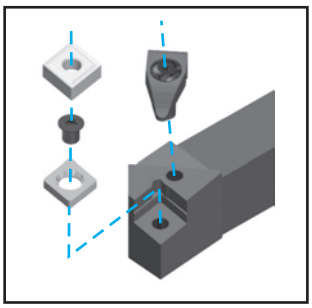
*Rm - ultimate tensile strength, MPa

umt

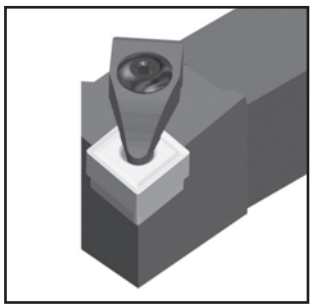
5

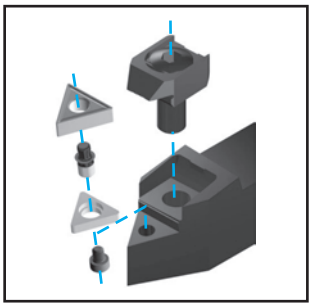
TOOLS WITH CARBIDE INSERTS

EXTERNAL TOOLHOLDERS

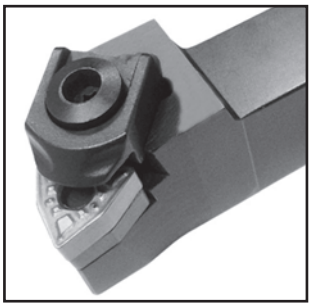


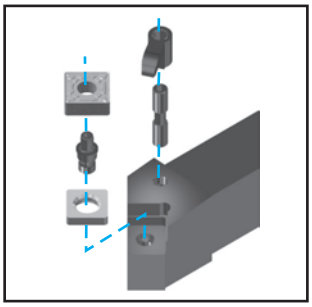
«D» Dimple lock



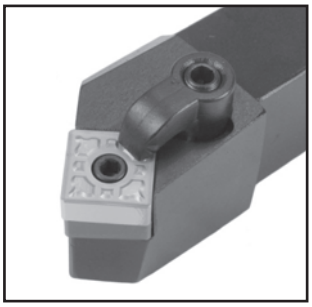


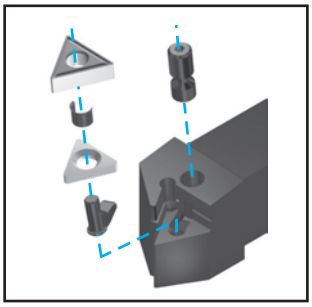
«M» Wedge clamp



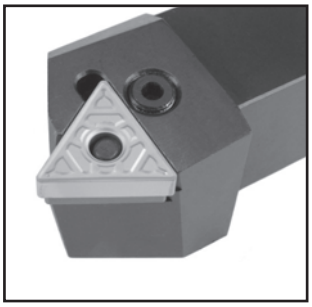


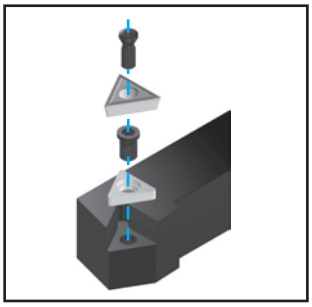
«M-K» Double lock



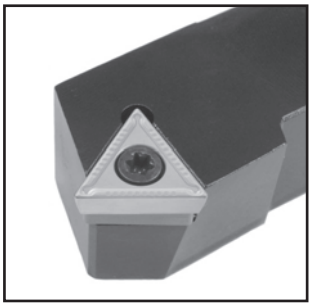


«P» Lever lock





«S» Screw lock



P	C	L	N	R	25	25	M	12
1	2	3	4	5	6	7	8	9

1

C	D	M	P	S

2

80° C	55° D	75° E	55° K
R	S	T	35° V
80° W			

3

90° A	75° B	90° C
45° D	60° E	90° F
90° G	107°30' H	93° J
75° K	95° 95° L	63° N
117°30' Q	75° R	45° S
60° T	72°30' V	113° X
100° Z		

4

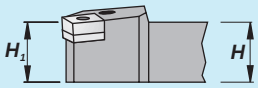
5° B	7° C	0° N	11° P

5

R	L	N

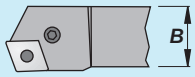
6

Shank height, mm.



7

Shank width, mm.

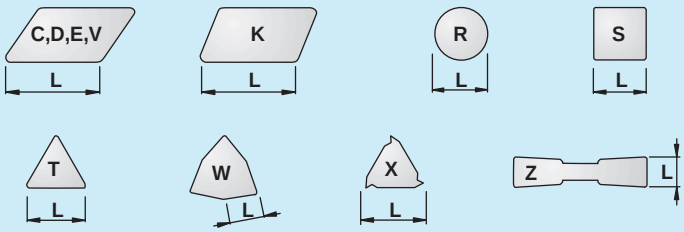


8

D	60	P	170
E	70	R	200
F	80	S	250
H	100	T	300
K	125	U	350
L	140	V	400
M	150	X	Special

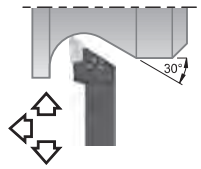
9

Cutting edge length, mm.



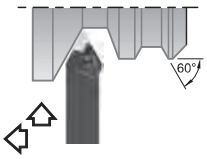
Top clamp

CKJN 93°



Page 97 KNUX 1604..

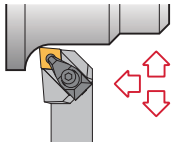
CKNN 63°



Page 97 KNUX 1604..

Dimple lock

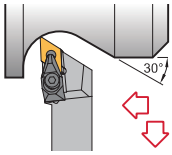
DCLN 95º-N



CN.. 1204..
CN.. 1906..

Page 98

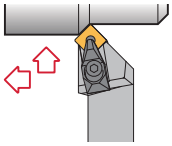
DDJN 93º-N



DN.. 1104..
DN.. 1506..

Page 98

DSSN 45º-N



SNM.. 1204..
SNM.. 1906..

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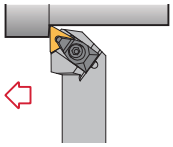
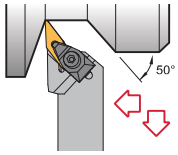
DTGN 90º-N



TNM.. 1604..
TNM.. 2204..

Page 99

DVJN 93º-N



VN.. 1604..

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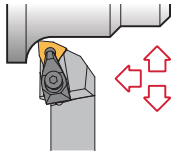
DWLN 95º-N



WNMG 0804..

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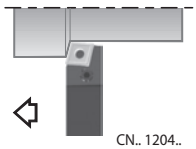
Lever lock

PCBN 75°



CN.. 1204..
CN.. 1606..
CN.. 1906..

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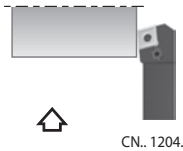
PCKN 75°



CN.. 1204..
CN.. 1906..
CN.. 2509..

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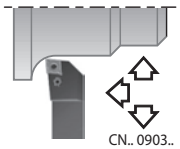
PCLN 95°



CN.. 0903..
...
CN.. 2509..

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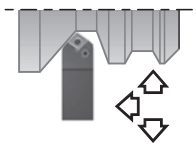
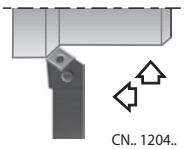
PCMN 50º



CN.. 1204..
CN.. 1906..

Page 103

PCSN 45°



CN.. 1204..
CN.. 1606..
CN.. 1906..

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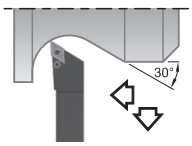
PDJN 93°



DN.. 1104..
DN.. 1506..

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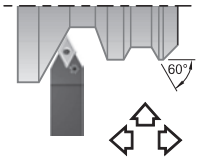
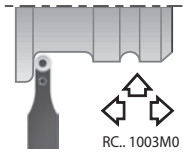
PDNN 63°



DN.. 1506..

Page 105

PRDC



RC.. 1003M0
...
RC.. 3209M0

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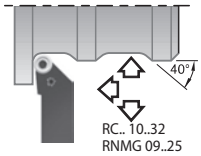
PRSC / PRSN



RC.. 10..32
RNMG 09..25

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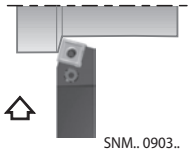
PSBN 75°



SNM.. 0903..
...
SNM.. 2507..

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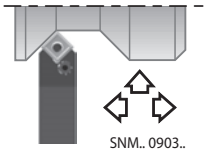
PSDN 45°



SNM.. 0903..
...
SNM 2507..

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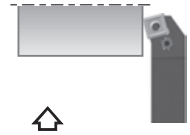
PSKN 75°



SNM.. 0903..
...
SNM.. 2507..

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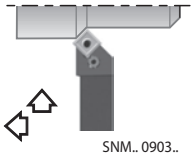
PSSN 45°



SNM.. 0903..
...
SNM.. 2507..

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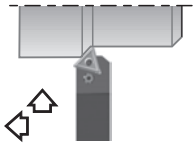
PTDN 45°



TNM.. 2204..

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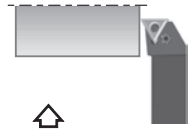
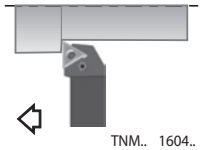
PTFN 90°



TNM.. 1604..
TNM.. 2204..
TNM.. 2706..

Page 109

PTGN 90°



TNM.. 1604..
...
TNM.. 3307..

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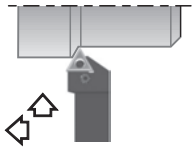
PTTN 60°



TNM.. 1604..
TNM.. 2204..

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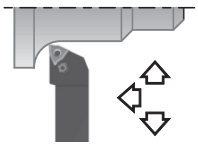
PWLN 95°



WNM.. 0604..
WNM.. 0804..

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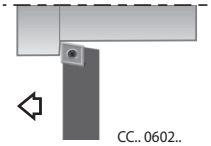
Screw lock

SCAC 90°



CC.. 0602..
CC.. 09T3..
CC.. 1204..

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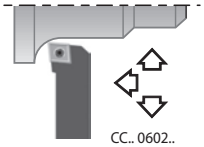
SCLC 95°



CC.. 0602..
CC.. 09T3..
CC.. 1204..

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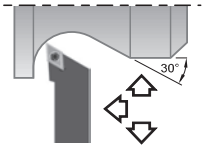
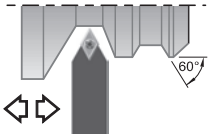
SDJC 93°



DC.. 0702..
DC.. 11T3..

Page 113

SDNC 62°30'



DC.. 0702..
DC.. 11T3..

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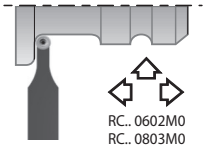
SRDC



RC.. 0602M0
RC.. 0803M0
RC.. 10T3M0
RC.. 1204M0

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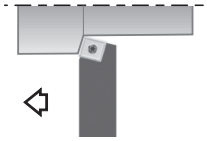
SSBC 75°



SC.. 09T3..
SC.. 1204..

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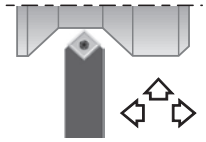
SSDC 45°



SC.. 09T3..
SC.. 1204..

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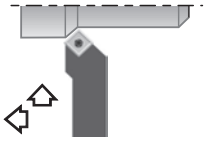
SSSC 45°



SC.. 09T3..
SC.. 1204..

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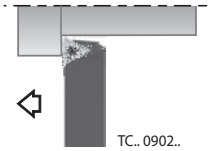
STAC 90°



TC.. 0902..
TC.. 1102..
TC.. 16T3..

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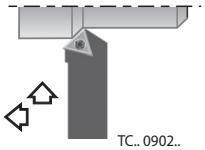
STDC 45°



TC.. 0902..
TC.. 1102..
TC.. 16T3..

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STFC 90°

TC.. 0902..
TC.. 1102..
TC.. 16T3..

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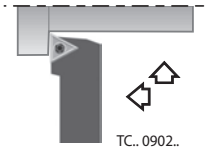
STGC 90°



TC.. 0902..
TC.. 1102..
TC.. 16T3..

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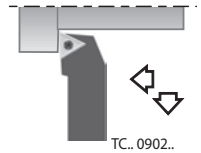
STJC 93°



TC.. 0902..
TC.. 1102..
TC.. 16T3..

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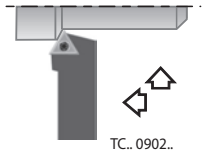
STTC 60°



TC.. 0902..
TC.. 1102..
TC.. 16T3..

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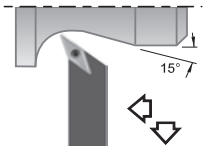
SVHC 107°30'



VC.. 1604..

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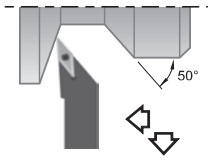
SVJB 93°



VBMT 1604..

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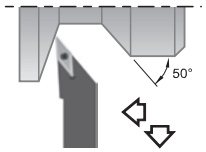
SVJC 93°



VC.. 1103..
VC.. 1604..

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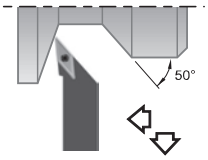
SVLC 95°



VCMT 1303..

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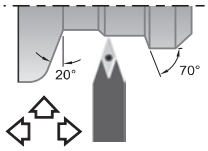
SVVB 72°30'



VBMT 1604..

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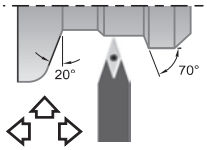
SVVC 72°30'



VC.. 1103..
VC.. 1604..

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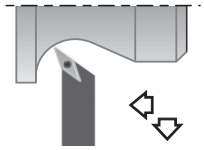
SVXC 113°



VCMT 1303..

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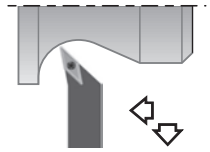
SVZC 100°



VC.. 1604..

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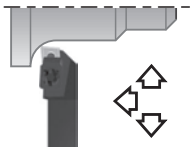
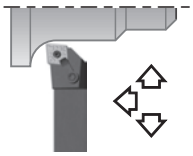
Toolholders with wedge and double clamping (on request)

MCLN 95°



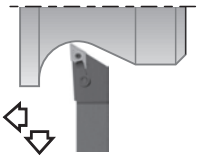
CN.. 1204..
CN.. 1906..

MCLN-K 95°



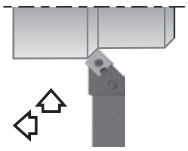
CN.. 1204..
CN.. 1906..

MDJN-K 93°



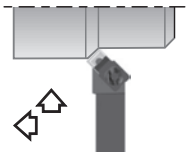
DN.. 1506..

MSSN-K 45°



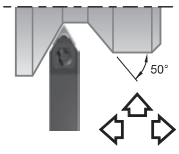
SNM.. 1204..

MSSN 45°



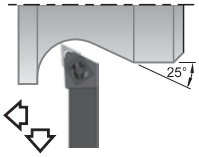
SNM.. 1204..
SNM.. 1906..

MTEN 60°



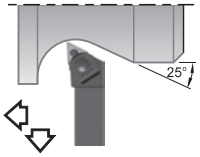
TNM.. 1604..
TNM.. 2204..

MTJN 93°



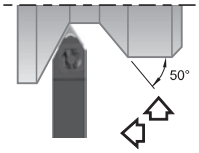
TNM.. 1604..
TNM.. 2204..

MTJN-K 93°



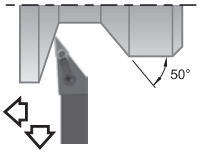
TNM.. 1604..
TNM.. 2204..

MTNN 63°



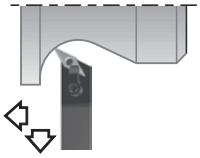
TNM.. 1604..
TNM.. 2204..

MVJN-K 93°



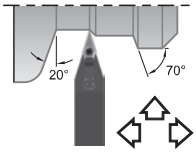
VN.. 1604..

MVQN-K 117° 30'



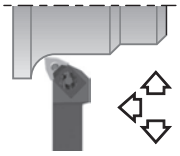
VN.. 1604..

MVVN-K 72° 30'



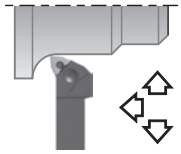
VN.. 1604..

MWLN 95°

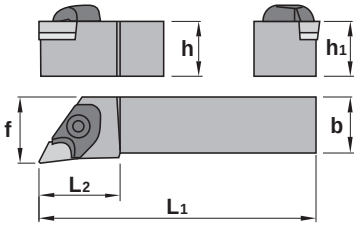


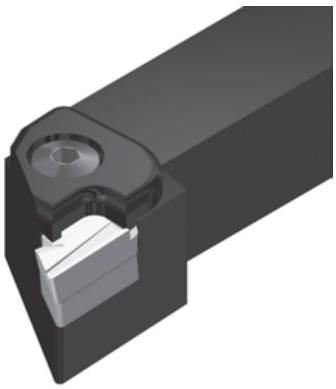
WNMG 0604..
WNMG 0804..

MWLN-K 95°



WNM.. 0804..

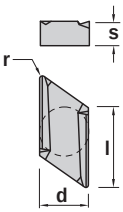




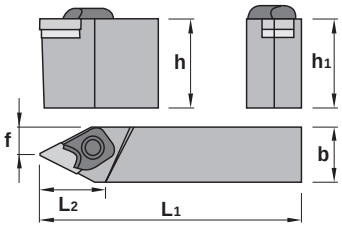
General angle 93°

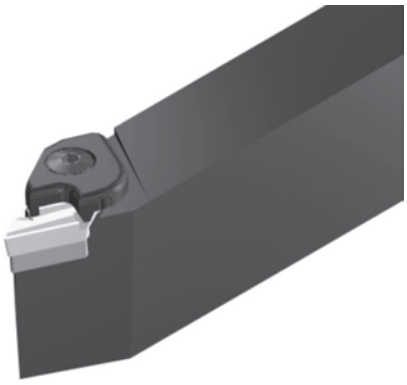
CKJN

	h=h1	b	L1	L2	f	Plates	Kg	R	L					R	L	
CKJN R/L 2020 K16	20	20	125	34	30	KNUX 1604..	0,390	2316	2326	1614	5004	4295	4203	3226	3236	4012
CKJN R/L 2525 M16	25	25	150	34	32	KNUX 1604..	0,700	2316	2326	1614	5004	4295	4204	3226	3236	4012
CKJN R/L 3225 P16	32	25	170	34	32	KNUX 1604..	1,000	2316	2326	1614	5004	4295	4204	3226	3236	4012
CKJN R/L 3232 P16	32	32	170	34	40	KNUX 1604..	1,250	2316	2326	1614	5004	4295	4204	3226	3236	4012
CKJN R/L 4025 R16	40	25	200	38	32	KNUX 1604..	1,500	2316	2326	1614	5004	4295	4204	3226	3236	4012



KNUX	l	s	d	KNUX
KNUX 1604..	16,00	4,76	9,52	

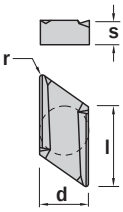




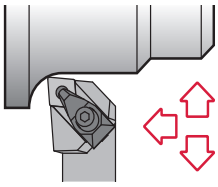
General angle 63°

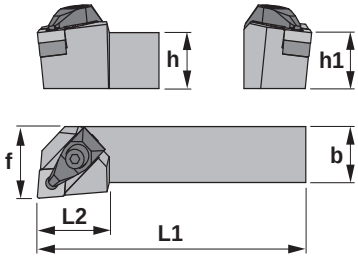
CKNN

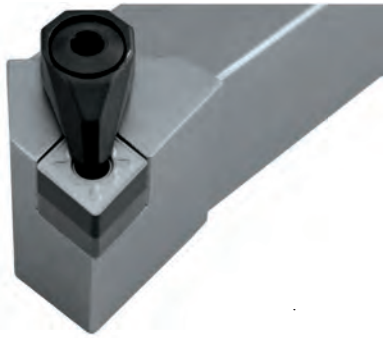
	h=h1	b	L1	L2	f	Plates	Kg	R	L					R	L	
CKNN R/L 4025 R16	40	25	200	37	14,3	KNUX 1604..	1,500	2316	2326	1614	5004	4295	4204	3226	3236	4012
CKNN R/L 5032 S16	50	32	250	37	16,8	KNUX 1604..	3,000	2316	2326	1614	5004	4295	4204	3226	3236	4012



KNUX	l	s	d	KNUX
KNUX 1604..	16,00	4,76	9,52	



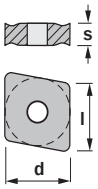




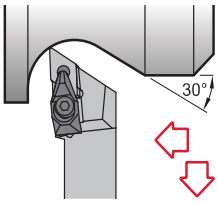
General angle 95 °

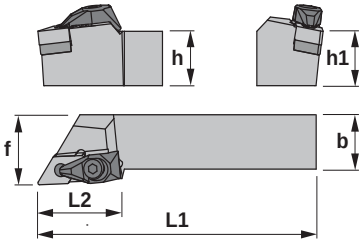
DCLN 95°

	h=h1	b	L1	L2	f	Plates	Kg						
DCLN R/L 2020 K12-N	20	20	125	34	25	CN.. 1204..	0,400	ICSN-442	1766	2712	1696	4295	5004
DCLN R/L 2525 M12-N	25	25	150	34	32	CN.. 1204..	0,750	ICSN-442	1766	2712	1696	4295	5004
DCLN R/L 3232 P12-N	32	32	170	34	40	CN.. 1204..	1,300	ICSN-442	1766	2712	1696	4295	5004
DCLN R/L 2525 M16-N	25	25	150	42	32	CN.. 1606..	0,750	ICSN-533	1768	2716	1696	4295	5004
DCLN R/L 3232 P16-N	32	32	170	42	40	CN.. 1606..	1,300	ICSN-533	1768	2716	1696	4295	5004
DCLN R/L 3232 P19-N	32	32	170	42	40	CN.. 1906..	1,300	ICSN-633	1770	2719	1696	4295	5004
DCLN R/L 4040 S19-N	40	40	250	45	50	CN.. 1906..	3,050	ICSN-633	1770	2719	1696	4295	5004



CN..	l	s	d	CNMG	CNMA	CNMM
CN.. 1204..	12,90	4,76	12,70			
CN.. 1606..	16,10	6,35	15,88			
CN.. 1906..	19,30	6,35	19,05			

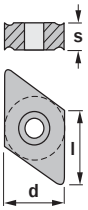




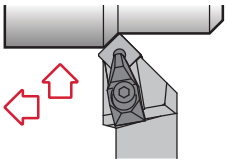
General angle 93 °

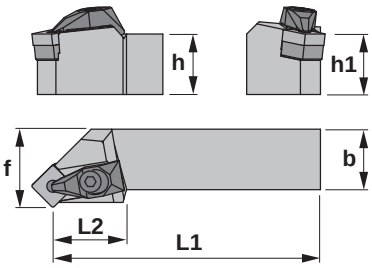
DDJN 93°

	h=h1	b	L1	L2	f	Plates	Kg						
DDJN R/L 2020 K11-N	20	20	125	34	25	DN.. 1104..	0,400	IDSN-322	1764	2708	1695	4294	5004
DDJN R/L 2525 M11-N	25	25	150	34	32	DN.. 1104..	0,740	IDSN-322	1764	2708	1695	4294	5004
DDJN R/L 2020 K15-N	20	20	125	42	25	DN.. 1506..	0,400	IDSN-432	1766	2712	1696	4295	5004
DDJN R/L 2525 M15-N	25	25	150	42	32	DN.. 1506..	0,750	IDSN-432	1766	2712	1696	4295	5004
DDJN R/L 3232 P15-N	32	32	170	42	40	DN.. 1506..	1,300	IDSN-432	1766	2712	1696	4295	5004



DN..	l	s	d	DNMA	DNMG	DNMM
DN.. 1104..	11,60	4,76	9,52			
DN.. 1506..	15,50	6,35	12,70			

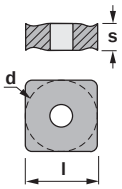




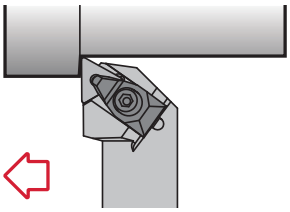
General angle 45 °

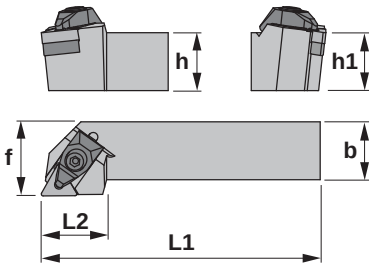
DSSN 45°

	h=h1	b	L1	L2	f	Plates	Kg						
DSSN R/L 2020 K12-N	20	20	125	28	25	SNM.. 1204..	0,400	ISSN-442	1766	2712	1696	4295	5004
DSSN R/L 2525 M12-N	25	25	150	28	32	SNM.. 1204..	0,750	ISSN-442	1766	2712	1696	4295	5004
DSSN R/L 3225 P12-N	32	25	170	42	32	SNM.. 1204..	1,140	ISSN-442	1766	2712	1696	4295	5004
DSSN R/L 2525 M15-N	25	25	150	42	32	SNM.. 1506..	0,820	ISSN-533	1768	2716	1696	4295	5004
DSSN R/L 3232 P15-N	32	32	170	45	40	SNM.. 1506..	1,440	ISSN-533	1768	2716	1696	4295	5004
DSSN R/L 3232 P19-N	32	32	170	45	40	SNM.. 1906..	1,300	ISSN-633	1770	2719	1696	4295	5004
DSSN R/L 4040S 19-N	40	40	250	45	50	SNM.. 1906..	3,100	ISSN-633	1770	2719	1696	4295	5004



SNM	l	s	d	SNMG-MHC	SNMM
SNM.. 1204..	12,70	4,76	12,70		
SNM.. 1506..	15,88	6,35	15,88		
SNM.. 1906..	19,05	6,35	19,05		

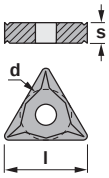




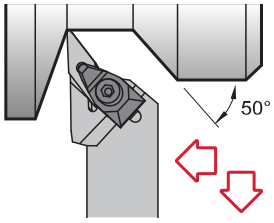
General angle 90 °

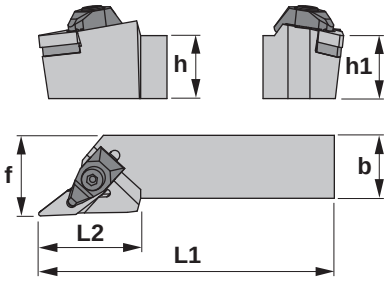
DTGN 90°

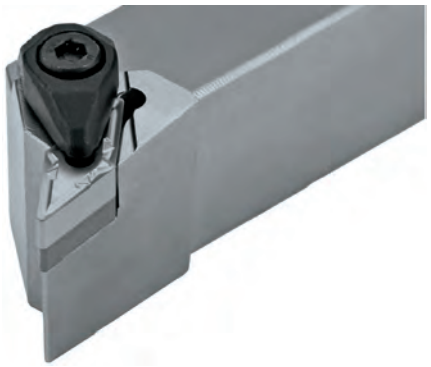
	h=h1	b	L1	L2	f	Plates	Kg						
DTGN R/L 2020 K16-N	20	20	125	28	25	TNM.. 1604..	0,400	ITSN-342	1764	2708	1695	4294	5004
DTGN R/L 2525 M16-N	25	25	150	28	32	TNM.. 1604..	0,750	ITSN-342	1764	2708	1695	4294	5004
DTGN R/L 2525 M22-N	25	25	150	34	32	TNM.. 2204..	0,750	ITSN-433	1766	2712	1696	4295	5004
DTGN R/L 3232 P22-N	32	32	170	34	40	TNM.. 2204..	1,300	ITSN-433	1766	2712	1696	4295	5004



TNM	l	s	d	TNMA	TNMG
TNM.. 1604..	16,50	4,76	9,52		
TNM.. 2204..	22,00	4,76	12,70		



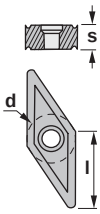




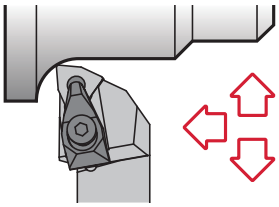
General angle 93 °

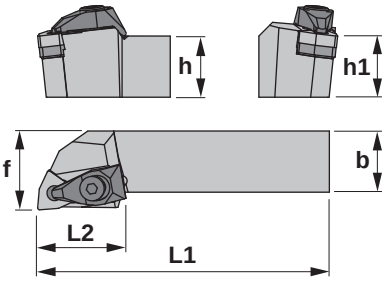
DVJN 93°

	h=h1	b	L1	L2	f	Plates	Kg						
DVJN R/L 2020 K16-N	20	20	125	34	25	VN.. 1604..	0,400	IVSN-322	1764	2708	1695	4294	5004
DVJN R/L 2525 M16-N	25	25	150	34	32	VN.. 1604..	0,700	IVSN-322	1764	2708	1695	4294	5004
DVJN R/L 3225 P16-N	32	25	170	34	32	VN.. 1604..	1,040	IVSN-322	1764	2708	1695	4294	5004
DVJN R/L 3232 P16-N	32	32	170	34	40	VN.. 1604..	1,250	IVSN-322	1764	2708	1695	4294	5004



VN...	l	s	d	VNGP	VNMG
VN.. 1604..	16,50	4,76	9,52		

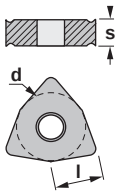




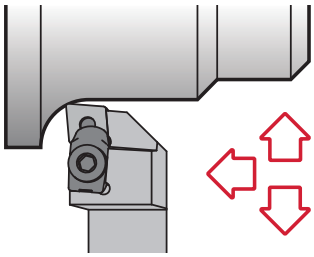
General angle 95 °

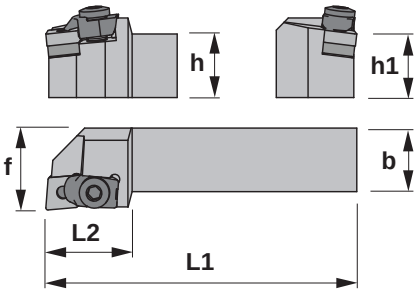
DWLN 95°

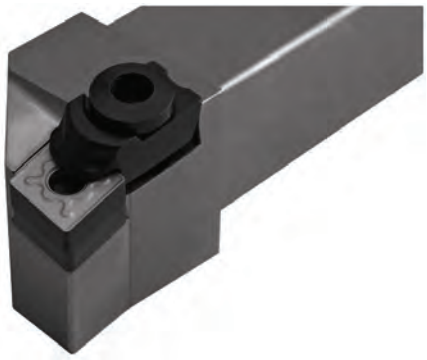
	h=h1	b	L1	L2	f	Plates	Kg						
DWLN R/L 2020 K06-N	20	20	125	34	25	WNMG 0604..	0,400	IWSN-322	1764	2708	1695	4294	5004
DWLN R/L 2525 M06-N	25	25	150	34	32	WNMG 0604..	0,700	IWSN-322	1764	2708	1695	4294	5004
DWLN R/L 2020 K08-N	20	20	125	34	25	WNMG 0804..	0,400	IWSN-433	1766	2712	1696	4295	5004
DWLN R/L 2525 M08-N	25	25	150	34	32	WNMG 0804..	0,750	IWSN-433	1766	2712	1696	4295	5004
DWLN R/L 3232 P08-N	32	32	170	34	40	WNMG 0804..	1,300	IWSN-433	1766	2712	1696	4295	5004



WN...	l	s	d	WNMG
WNMG 0604..	6,45	4,76	9,52	
WNMG 0804..	8,14	4,76	12,70	

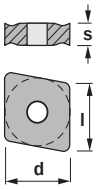




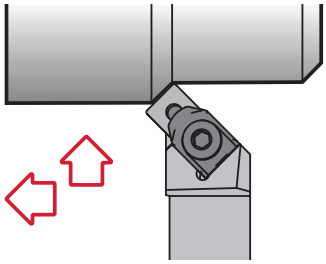


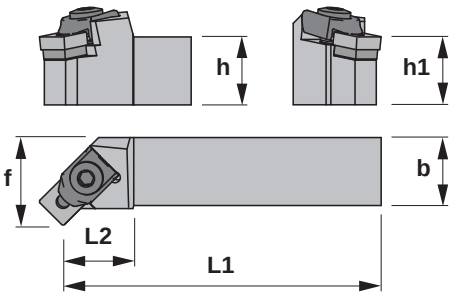
General angle 95 °

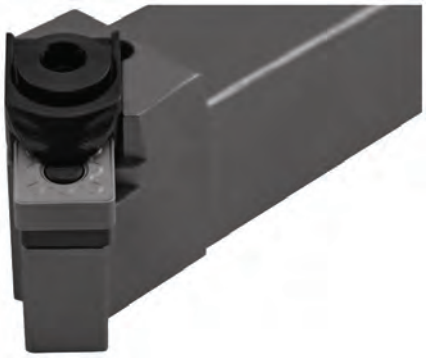
MCLN	h=h1	b	L1	L2	f	Plates	Kg					
MCLN R/L 2020 K12	20	20	125	34	25	CN...12...	0,450	2015	5005	ICSN-432	1661	1394
MCLN R/L 2525 M12	25	25	150	34	32	CN...12...	0,800	2015	5005	ICSN-432	1661	1394
MCLN R/L 3225 P12	32	25	170	34	32	CN...12...	1,200	2015	5005	ICSN-432	1661	1394
MCLN R/L 2525 M19	25	25	150	42	32	CN...19...	0,800	2024	5005	3619	1682	1296
MCLN R/L 3225 P19	32	25	170	42	32	CN...19...	1,200	2024	5005	3619	1682	1296
MCLN R/L 4040 S19	40	40	250	45	50	CN...19...	3,100	2024	5005	3619	1682	1296



CN...	l	s	d	CNMG	CNMA	CNMM
CN.. 1204..	12,90	4,76	12,70			
CN.. 1606..	16,10	6,35	15,88			
CN.. 1906..	19,30	6,35	19,05			

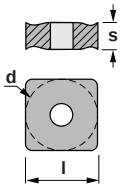




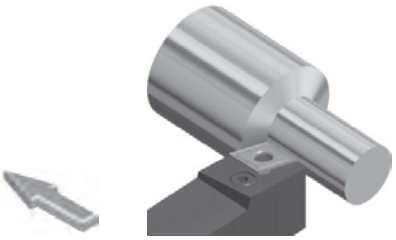


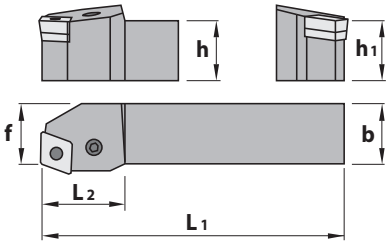
General angle 45 °

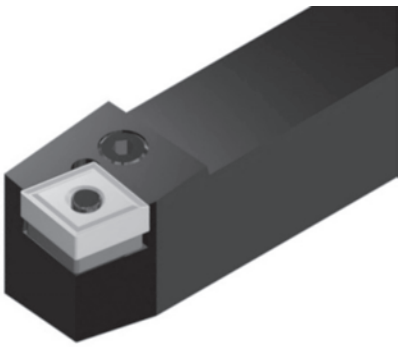
MSSN	h=h1	b	L 1	L 2	f	Plates	Kg					
MSSN R/L 2020 K12	20	20	125	34	27	SN...12...	0,450	2014	5005	3514	1661	1394
MSSN R/L 2525 M12	25	25	150	34	32	SN...12...	0,800	2014	5005	3514	1661	1394
MSSN R/L 3225 P12	32	25	170	34	32	SN...12...	1,200	2014	5005	3514	1661	1394
MSSN R/L 2525 M19	25	25	150	42	32	SN...19...	0,800	2024	5005	3519	1682	1296
MSSN R/L 3225 P19	32	25	170	42	32	SN...19...	1,200	2024	5005	3519	1682	1296
MSSN R/L 3232 P19	32	32	170	42	40	SN...19...	1,400	2024	5005	3519	1682	1296
MSSN R/L 4040 S19	40	40	250	42	50	SN...19...	3,100	2024	5005	3519	1682	1296



SN...	l	s	d	SNMG-MHC	SNMM
SNM.. 1204..	12,70	4,76	12,70		
SNM.. 1506..	15,88	6,35	15,88		
SNM.. 1906..	19,05	6,35	19,05		



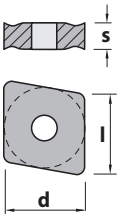




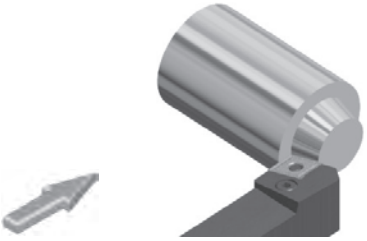
General angle 75 °

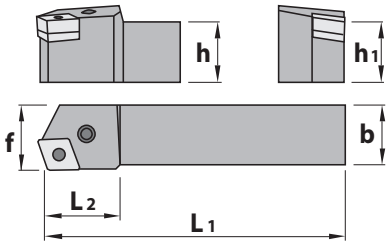
PCBN

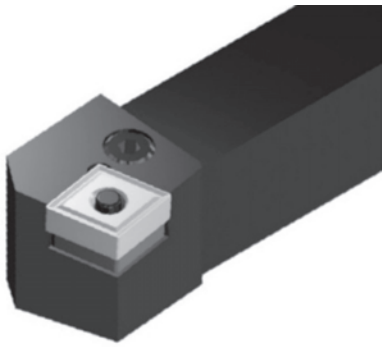
	h=h1	b	L1	L2	f	Plates	Kg						
PCBN R/L 2020 K12	20	20	125	28	17	CN.. 1204..	0,400	8012	1608	5003	3612	4112	0012
PCBN R/L 2525 M12	25	25	150	28	22	CN.. 1204..	0,750	8012	1608	5003	3612	4112	0012
PCBN R/L 2525 M16	25	25	150	34	22	CN.. 1606..	0,750	8016	1618	5003	3616	4115	0015
PCBN R/L 3225 P16	32	25	170	34	22	CN.. 1606..	1,050	8016	1618	5003	3616	4115	0015
PCBN R/L 3232 P16	32	32	170	34	27	CN.. 1606..	1,300	8016	1618	5003	3616	4115	0015
PCBN R/L 3225 P19	32	25	170	38	22	CN.. 1906..	1,050	8019	1610	5004	3619	4119	0019
PCBN R/L 3232 P19	32	32	170	42	27	CN.. 1906..	1,300	8019	1610	5004	3619	4119	0019
PCBN R/L 4040 S19	40	40	250	48	35	CN.. 1906..	3,050	8019	1610	5004	3619	4119	0019
PCBN R/L 4040 S25	40	40	250	48	41	CN.. 2509..	-	8025	1612	5005	3625	4125	0025
PCBN R/L 5050 T25	50	50	300	50	51	CN.. 2509..	-	8025	1612	5005	3625	4125	0025



CN..	l	s	d	CNGP	CNMA	CNMG	CNMM
CN.. 1204..	12,90	4,76	12,70				
CN.. 1606..	16,10	6,35	15,88				
CN.. 1906..	19,30	6,35	19,05				
CN.. 2509..	25,80	9,52	25,40				



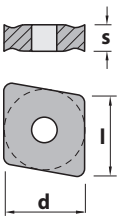




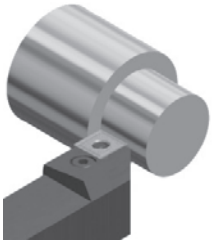
General angle 75 °

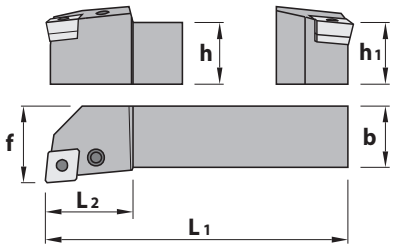
PCKN

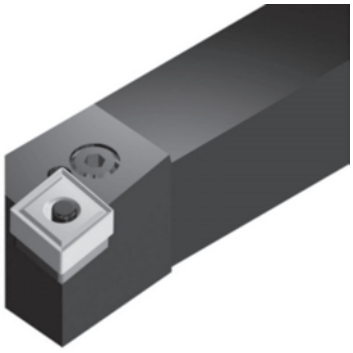
	h=h1	b	L1	L2	f	Plates	Kg						
PCKN R/L 2020 K12	20	20	125	28	25	CN.. 1204..	0,400	8012	1608	5003	3612	4112	0012
PCKN R/L 2525 M12	25	25	150	28	32	CN.. 1204..	0,750	8012	1608	5003	3612	4112	0012
PCKN R/L 3225 P12	32	25	170	28	32	CN.. 1204..	1,050	8012	1608	5003	3612	4112	0012
PCKN R/L 3232 P19	32	32	170	42	40	CN.. 1906..	1,300	8019	1610	5004	3619	4119	0019
PCKN R/L 4040 S19	40	40	250	45	50	CN.. 1906..	3,050	8019	1610	5004	3619	4119	0019
PCKN R/L 4040 S25	40	40	250	45	50	CN.. 2509..	3,050	8025	1612	5005	3625	4125	0025
PCKN R/L 5050 T25	50	50	300	50	60	CN.. 2509..	5,850	8025	1612	5005	3625	4125	0025



CN..	l	s	d	CNGP	CNMA	CNMG	CNMM
CN.. 1204..	12,90	4,76	12,70				
CN.. 1906..	19,30	6,35	19,05				
CN.. 2509..	25,80	9,52	25,40				



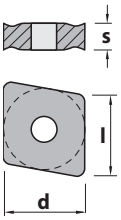




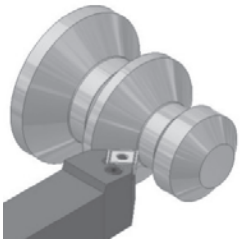
General angle 95 °

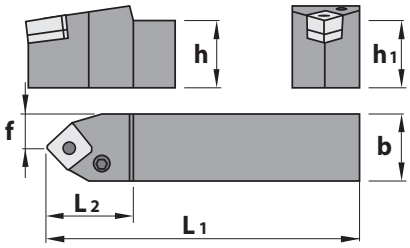
PCLN

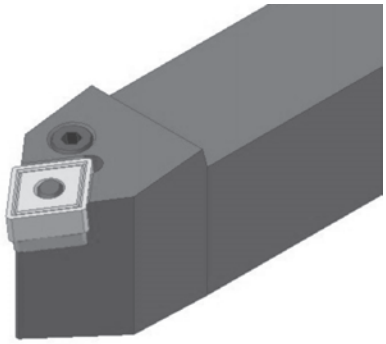
	h=h1	b	L1	L2	f	Plates	Kg						
PCLN R/L 1616 H09	16	16	100	25	20	CN.. 0903..	0,250	8009	1606	5025	3609	4109	0009
PCLN R/L 2020 K09	20	20	125	28	25	CN.. 0903..	0,400	8009	1606	5025	3609	4109	0009
PCLN R/L 2525 M09	25	25	150	28	32	CN.. 0903..	0,750	8009	1606	5025	3609	4109	0009
PCLN R/L 1616 H12	16	16	100	25	20	CN.. 1204..	0,250	8312	1648	5003	3612	4112	0012
PCLN R/L 2020 K12	20	20	125	28	25	CN.. 1204..	0,400	8012	1608	5003	3612	4112	0012
PCLN R/L 2525 M12	25	25	150	28	32	CN.. 1204..	0,750	8012	1608	5003	3612	4112	0012
PCLN R/L 3225 P12	32	25	170	28	32	CN.. 1204..	1,050	8012	1608	5003	3612	4112	0012
PCLN R/L 3232 P12	32	32	170	28	40	CN.. 1204..	1,300	8012	1608	5003	3612	4112	0012
PCLN R/L 2525 M16	25	25	150	34	32	CN.. 1606..	0,750	8016	1618	5003	3616	4115	0015
PCLN R/L 3225 P16	32	25	170	34	32	CN.. 1606..	1,050	8016	1618	5003	3616	4115	0015
PCLN R/L 3232 P16	32	32	170	34	40	CN.. 1606..	1,300	8016	1618	5003	3616	4115	0015
PCLN R/L 4040 S16	40	40	250	45	50	CN.. 1606..	3,050	8016	1618	5003	3616	4115	0015
PCLN R/L 2525 M19	25	25	150	42	32	CN.. 1906..	0,750	8019	1610	5004	3619	4119	0019
PCLN R/L 3225 P19	32	25	170	42	32	CN.. 1906..	1,050	8019	1610	5004	3619	4119	0019
PCLN R/L 3232 P19	32	32	170	42	40	CN.. 1906..	1,300	8019	1610	5004	3619	4119	0019
PCLN R/L 4040 S19	40	40	250	45	50	CN.. 1906..	3,050	8019	1610	5004	3619	4119	0019
PCLN R/L 4040 S25	40	40	250	45	50	CN.. 2509..	3,050	8025	1612	5005	3625	4125	0025
PCLN R/L 5050 T25	50	50	300	50	60	CN.. 2509..	5,850	8025	1612	5005	3625	4125	0025



CN..	l	s	d	CNGP	CNMA	CNMG	CNMM
CN.. 0903..	9,65	3,18	9,52				
CN.. 1204..	12,90	4,76	12,70				
CN.. 1606..	16,10	6,35	15,88				
CN.. 1906..	19,30	6,35	19,05				
CN.. 2509..	25,80	9,52	25,40				



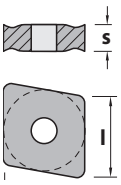




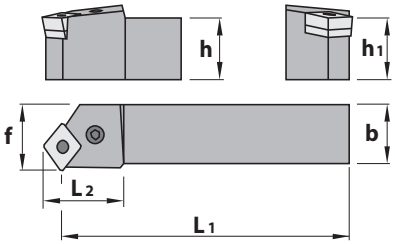
General angle 50 °

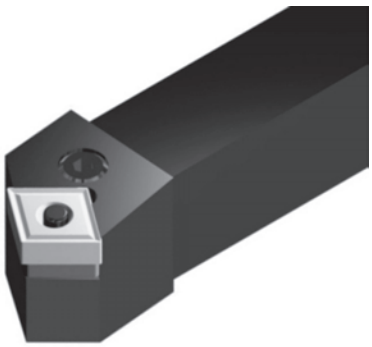
PCMN

	h=h1	b	L1	L2	f	Plates	Kg						
PCMN N 2020 K12	20	20	125	34	10,0	CN.. 1204..	0,400	8012	1608	5003	3612	4112	0012
PCMN N 2525 M12	25	25	150	34	12,5	CN.. 1204..	0,750	8012	1608	5003	3612	4112	0012
PCMN N 3225 P12	32	25	170	34	12,5	CN.. 1204..	1,050	8012	1608	5003	3612	4112	0012
PCMN N 3232 P19	32	32	170	42	16,0	CN.. 1906..	1,300	8019	1610	5004	3619	4119	0019
PCMN N 4040 S19	40	40	250	48	20,0	CN.. 1906..	3,050	8019	1610	5004	3619	4119	0019



CN..	l	s	d	CNGP	CNMA	CNMG	CNMM
CN.. 1204..	12,90	4,76	12,70				
CN.. 1906..	19,30	6,35	19,05				

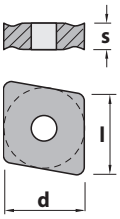




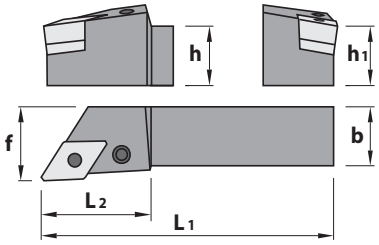
General angle 45 °

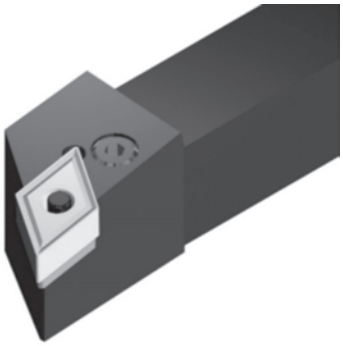
PCSN

	h=h1	b	L1	L2	f	Plates	Kg						
PCSN R/L 2020 K12	20	20	125	28	25	CN.. 1204..	0,400	8012	1608	5003	3612	4112	0012
PCSN R/L 2525 M12	25	25	150	28	32	CN.. 1204..	0,750	8012	1608	5003	3612	4112	0012
PCSN R/L 2525 M16	25	25	150	34	32	CN.. 1606..	0,750	8016	1618	5003	3616	4115	0015
PCSN R/L 3225 P16	32	25	170	34	32	CN.. 1606..	1,050	8016	1618	5003	3616	4115	0015
PCSN R/L 3232 P16	32	32	170	42	40	CN.. 1606..	1,300	8016	1618	5003	3616	4115	0015
PCSN R/L 3225 P19	32	25	170	42	32	CN.. 1906..	1,050	8019	1610	5004	3619	4119	0019
PCSN R/L 3232 P19	32	32	170	42	40	CN.. 1906..	1,300	8019	1610	5004	3619	4119	0019
PCSN R/L 4040 S19	40	40	250	42	50	CN.. 1906..	3,050	8019	1610	5004	3619	4119	0019



CN..	l	s	d	CNGP	CNMA	CNMG	CNMM
CN.. 1204..	12,90	4,76	12,70				
CN.. 1606..	16,10	6,35	15,88				
CN.. 1906..	19,30	6,35	19,05				

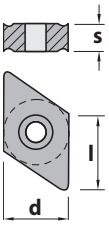




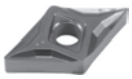
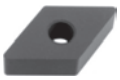
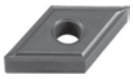
General angle 93 °

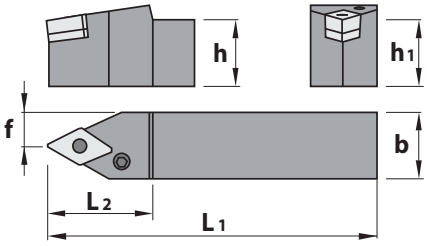
PDJN

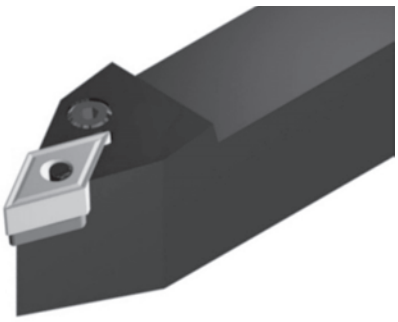
	h=h1	b	L1	L2	f	Plates	Kg								
PDJN R/L 1616 H11	16	16	100	25	20	DN.. 1104..	0,250	8009	1606	5025	3711	4109	0009	-	-
PDJN R/L 2020 K11	20	20	125	28	25	DN.. 1104..	0,400	8009	1606	5025	3711	4109	0009	-	-
PDJN R/L 2525 M11	25	25	150	28	32	DN.. 1104..	0,750	8009	1606	5025	3711	4109	0009	-	-
PDJN R/L 3225 P11	32	25	170	28	32	DN.. 1104..	1,050	8009	1606	5025	3711	4109	0009	-	-
PDJN R/L 2020 K15	20	20	125	34	25	DN.. 1506..	0,400	8415	1638	5003	3715	4112	0012	3725	4135
PDJN R/L 2525 M15	25	25	150	34	32	DN.. 1506..	0,750	8415	1638	5003	3715	4112	0012	3725	4135
PDJN R/L 3225 P15	32	25	170	34	32	DN.. 1506..	1,050	8415	1638	5003	3715	4112	0012	3725	4135
PDJN R/L 3232 P15	32	32	170	34	40	DN.. 1506..	1,300	8415	1638	5003	3715	4112	0012	3725	4135
PDJN R/L 4025 R15	40	25	200	34	32	DN.. 1506..	1,850	8415	1638	5003	3715	4112	0012	3725	4135
PDJN R/L 5032 S15	50	32	250	34	40	DN.. 1506..	2,900	8415	1638	5003	3715	4112	0012	3725	4135



DN..	l	s	d	DNGP	DNMA	DNMG	DNMX
DN.. 1104..	11,60	4,76	9,52				
DN.. 1504..	15,50	4,76	12,70				
DN.. 1506..	15,50	6,35	12,70				

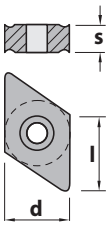




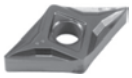
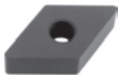
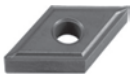
General angle 63 °

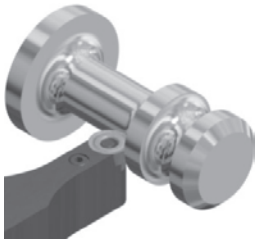
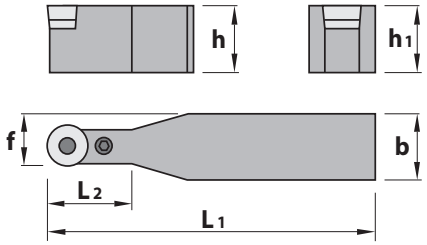
PDNN

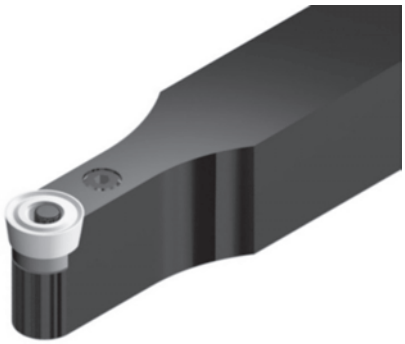
	h=h1	b	L1	L2	f	Plates	Kg								
PDNN R/L/N 2020 K15	20	20	125	34	10,0	DN.. 1506..	0,400	8415	1638	5003	3715	4112	0012	3725	4135
PDNN R/L/N 2525 M15	25	25	150	34	12,5	DN.. 1506..	0,750	8415	1638	5003	3715	4112	0012	3725	4135
PDNN R/L/N 3225 P15	32	25	170	34	12,5	DN.. 1506..	1,050	8415	1638	5003	3715	4112	0012	3725	4135
PDNN R/L/N 3232 P15	32	32	170	34	16,0	DN.. 1506..	1,300	8415	1638	5003	3715	4112	0012	3725	4135
PDNN R/L/N 4025 S15	40	25	250	34	12,5	DN.. 1506..	1,850	8415	1638	5003	3715	4112	0012	3725	4135
PDNN R/L/N 5032 S15	50	32	250	34	16,0	DN.. 1506..	2,900	8415	1638	5003	3715	4112	0012	3725	4135



DN..	l	s	d	DNGP	DNMA	DNMG	DNMX
DN.. 1504..	15,50	4,76	12,70				
DN.. 1506..	15,50	6,35	12,70				

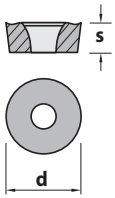




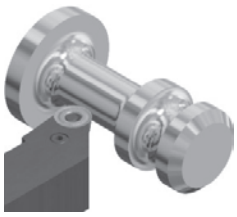


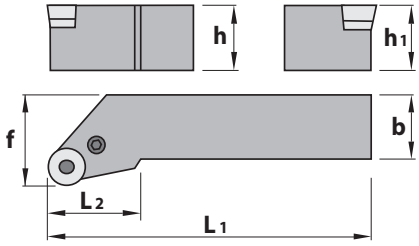
PRDC

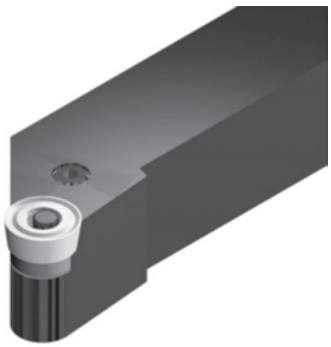
	h=h1	b	L1	L2	f	Plates	Kg						
PRDC N 2020 K10	20	20	125	22	15,0	RC.. 1003M0	0,400	8110	1705	5002	3810	4110	0009
PRDC N 2525 M10	25	25	150	22	18,5	RC.. 1003M0	0,750	8110	1705	5002	3810	4110	0009
PRDC N 3225 P10	32	25	170	22	18,5	RC.. 1003M0	1,050	8110	1705	5002	3810	4110	0009
PRDC N 2020 K12	20	20	125	28	16,0	RC.. 1204M0	0,400	8112	1606	5025	3812	4110	0009
PRDC N 2525 M12	25	25	150	28	18,5	RC.. 1204M0	0,750	8112	1606	5025	3812	4110	0009
PRDC N 3225 P12	32	25	170	28	18,5	RC.. 1204M0	1,050	8112	1606	5025	3812	4110	0009
PRDC N 4025 S12	40	25	250	28	18,5	RC.. 1204M0	1,850	8112	1606	5025	3812	4110	0009
PRDC N 3225 P16	32	25	170	34	20,5	RC.. 1606M0	1,050	8116	1706	5025	3816	4116	0012
PRDC N 3232 P16	32	32	170	34	24,0	RC.. 1606M0	1,300	8116	1706	5025	3816	4116	0012
PRDC N 3232 P20	32	32	170	42	26,0	RC.. 2006M0	1,300	8120	1708	5003	3820	4115	0015
PRDC N 4040 S20	40	40	250	42	30,0	RC.. 2006M0	3,050	8120	1708	5003	3820	4115	0015
PRDC N 4040 S25	40	40	250	45	32,5	RC.. 2507M0	3,050	8125	1710	5004	3825	4119	0019
PRDC N 4040 U25	40	40	350	45	32,5	RC.. 2507M0	3,050	8125	1710	5004	3825	4119	0019
PRDC N 5050 U25	50	50	350	45	37,5	RC.. 2507M0	5,850	8125	1710	5004	3825	4119	0019
PRDC N 5050 V32	50	50	400	52	41,0	RC.. 3209M0	5,850	8132	1612	5005	3832	4125	0025



RC..	s	d	RCGT	RCMT
RC.. 1003M0	3,18	10,00		
RC.. 1204M0	4,76	12,00		
RC.. 1606M0	6,35	16,00		
RC.. 2006M0	6,35	20,00		
RC.. 2507M0	7,94	25,00		
RC.. 3209M0	9,52	32,00		

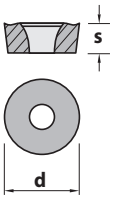






PRSC

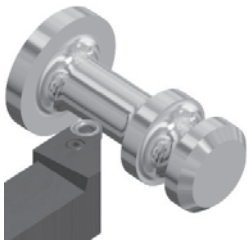
	h=h1	b	L1	L2	f	Plates	Kg						
PRSC R/L 2020 K10	20	20	125	28	25	RC.. 1003M0	0,400	8110	1705	5002	3810	4110	0009
PRSC R/L 2525 M10	25	25	150	28	32	RC.. 1003M0	0,750	8110	1705	5002	3810	4110	0009
PRSC R/L 3225 P10	32	25	170	28	32	RC.. 1003M0	1,050	8110	1705	5002	3810	4110	0009
PRSC R/L 2020 K12	20	20	125	28	25	RC.. 1204M0	0,400	8112	1606	5025	3812	4110	0009
PRSC R/L 2525 M12	25	25	150	28	32	RC.. 1204M0	0,750	8112	1606	5025	3812	4110	0009
PRSC R/L 3225 P12	32	25	170	28	32	RC.. 1204M0	1,050	8112	1606	5025	3812	4110	0009
PRSC R/L 2525 M16	25	25	150	34	32	RC.. 1606M0	0,750	8116	1706	5025	3816	4116	0012
PRSC R/L 3225 P16	32	25	170	34	32	RC.. 1606M0	1,050	8116	1706	5025	3816	4116	0012
PRSC R/L 3232 P20	32	32	170	42	40	RC.. 2006M0	1,300	8120	1708	5003	3820	4115	0015
PRSC R/L 4040 S20	40	40	250	48	50	RC.. 2006M0	3,050	8120	1708	5003	3820	4115	0015
PRSC R/L 4040 S25	40	40	250	48	50	RC.. 2507M0	3,050	8125	1710	5004	3825	4119	0019
PRSC R/L 5050 T32	50	50	300	50	63	RC.. 3209M0	5,850	8132	1612	5005	3832	4125	0025

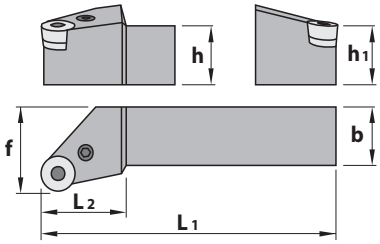


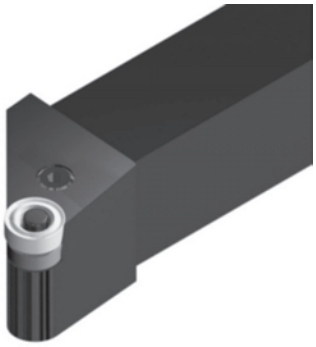
RC..	s	d
RC.. 1003M0	3,18	10,00
RC.. 1204M0	4,76	12,00
RC.. 1606M0	6,35	16,00
RC.. 2006M0	6,35	20,00
RC.. 2507M0	7,94	25,00
RC.. 3209M0	9,52	32,00

RCGT

RCMT



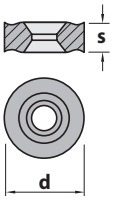




General angle 95 °

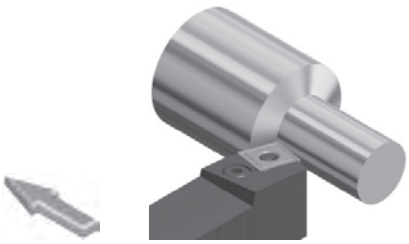
PRSN

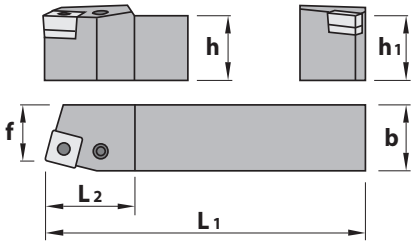
	h=h1	b	L1	L2	f	Plates	Kg						
PRSN R/L 2020 K09	20	20	125	22	25	RNMG 090300	0,400	8009	1606	5025	3909	4110	0009
PRSN R/L 2525 M12	25	25	150	28	32	RNMG 120400	0,750	8012	1608	5003	3912	4112	0012
PRSN R/L 3225 P15	32	25	170	34	32	RNMG 150600	1,050	8015	1708	5003	3915	4115	0015
PRSN R/L 3232 P19	32	32	170	42	40	RNMG 190600	1,300	8019	1610	5004	3919	4119	0019
PRSN R/L 4040 S25	40	40	250	45	50	RNMG 250900	3,050	8025	1612	5005	3925	4125	0025

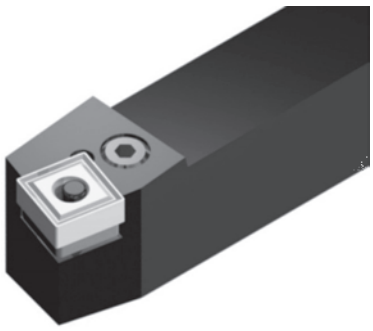


RNMG	s	d
RNMG 090300	3,18	9,52
RNMG 120400	4,76	12,70
RNMG 150600	6,35	15,88
RNMG 190600	6,35	19,05
RNMG 250900	9,52	25,40

RNMG



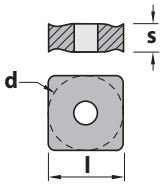




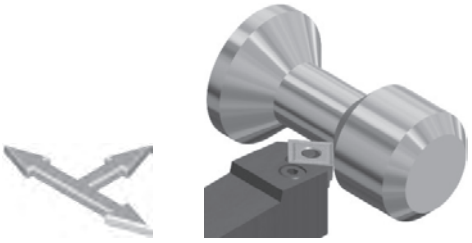
General angle 75 °

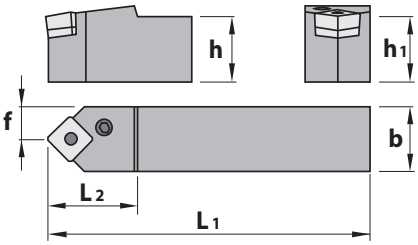
PSBN

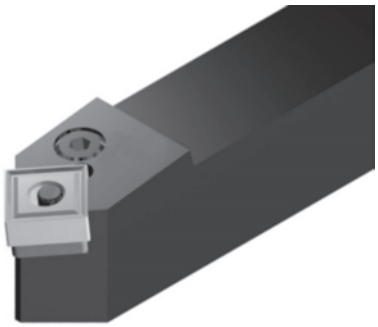
	h=h1	b	L1	L2	f	Plates	Kg						
PSBN R/L 1212 F09	12	12	80	18	11	SNM.. 0903..	0,100	8005	1715	5002	-	-	-
PSBN R/L 1616 H09	16	16	100	22	13	SNM.. 0903..	0,250	8009	1606	5025	3509	4110	0009
PSBN R/L 2020 K09	20	20	125	22	17	SNM.. 0903..	0,400	8009	1606	5025	3509	4110	0009
PSBN R/L 2020 K12	20	20	125	28	17	SNM.. 1204..	0,400	8012	1608	5003	3512	4112	0012
PSBN R/L 2525 M12	25	25	150	28	22	SNM.. 1204..	0,750	8012	1608	5003	3512	4112	0012
PSBN R/L 3225 P12	32	25	170	28	22	SNM.. 1204..	1,050	8012	1608	5003	3512	4112	0012
PSBN R/L 2525 M15	25	25	150	34	22	SNM.. 1506..	0,750	8016	1618	5003	3515	4115	0015
PSBN R/L 3232 P15	32	32	170	34	27	SNM.. 1506..	1,300	8016	1618	5003	3515	4115	0015
PSBN R/L 3232 P19	32	32	170	42	27	SNM.. 1906..	1,300	8019	1610	5004	3519	4119	0019
PSBN R/L 4040 S19	40	40	250	48	35	SNM.. 1906..	3,050	8019	1610	5004	3519	4119	0019
PSBN R/L 4040 S25	40	40	250	48	35	SNM.. 2507..	3,050	8025	1612	5005	3525	4125	0025
PSBN R/L 5050 T25	50	50	300	50	43	SNM.. 2507..	5,850	8025	1612	5005	3525	4125	0025



SNM..	l	s	d	SNMA	SNMG	SNMM
SNM.. 0903..	9,52	3,18	9,52			
SNM.. 1204..	12,70	4,76	12,70			
SNM.. 1506..	15,88	6,35	15,88			
SNM.. 1906..	19,05	6,35	19,05			
SNM.. 2507..	25,40	7,94	25,40			



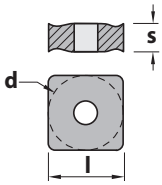




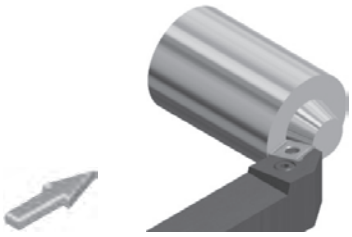
General angle 45 °

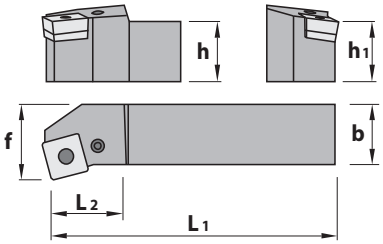
PSDN

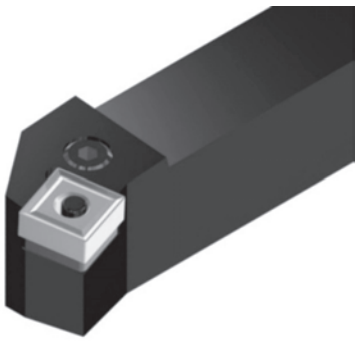
	h=h1	b	L1	L2	f	Plates	Kg						
PSDN N 1010 E09	10	10	70	16	5,0	SNM.. 0903..	0,070	8005	1715	5002	-	-	-
PSDN N 1212 F09	12	12	80	20	6,0	SNM.. 0903..	0,100	8005	1715	5002	-	-	-
PSDN N 1616 H09	16	16	100	22	8,0	SNM.. 0903..	0,250	8009	1606	5025	3509	4110	0009
PSDN N 2020 K12	20	20	125	28	10,0	SNM.. 1204..	0,400	8012	1608	5003	3512	4112	0012
PSDN N 2525 M12	25	25	150	28	12,5	SNM.. 1204..	0,750	8012	1608	5003	3512	4112	0012
PSDN N 3225 P12	32	25	170	34	12,5	SNM.. 1204..	1,050	8012	1608	5003	3512	4112	0012
PSDN N 3232 P12	32	32	170	34	16,0	SNM.. 1204..	1,300	8012	1608	5003	3512	4112	0012
PSDN N 3225 P19	32	25	170	34	12,5	SNM.. 1906..	1,050	8019	1610	5004	3519	4119	0019
PSDN N 3232 P19	32	32	170	42	16,0	SNM.. 1906..	1,300	8019	1610	5004	3519	4119	0019
PSDN N 4040 S25	40	40	250	48	20,0	SNM.. 2507..	3,050	8025	1612	5005	3525	4125	0025
PSDN N 5050 T25	50	50	300	50	25,0	SNM.. 2507..	5,850	8025	1612	5005	3525	4125	0025



SNM..	l	s	d	SNMA	SNMG	SNMM
SNM.. 0903..	9,52	3,18	9,52			
SNM.. 1204..	12,70	4,76	12,70			
SNM.. 1906..	19,05	6,35	19,05			
SNM.. 2507..	25,40	7,94	25,40			



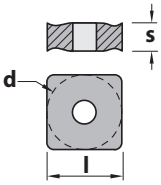




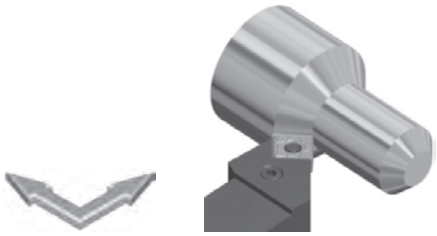
General angle 75 °

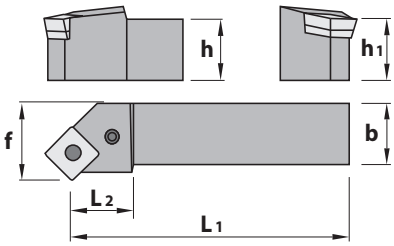
PSKN

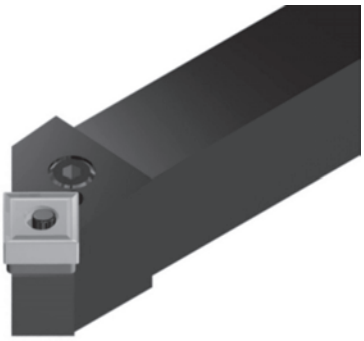
	h=h1	b	L1	L2	f	Plates	Kg						
PSKN R/L 1616 H09	16	16	100	22	20	SNM.. 0903..	0,250	8009	1606	5025	3509	4110	0009
PSKN R/L 2020 K09	20	20	125	22	25	SNM.. 0903..	0,400	8009	1606	5025	3509	4110	0009
PSKN R/L 2020 K12	20	20	125	28	25	SNM.. 1204..	0,400	8012	1608	5003	3512	4112	0012
PSKN R/L 2525 M12	25	25	150	28	32	SNM.. 1204..	0,750	8012	1608	5003	3512	4112	0012
PSKN R/L 3225 P12	32	25	170	34	32	SNM.. 1204..	1,050	8012	1608	5003	3512	4112	0012
PSKN R/L 2525 M15	25	25	150	34	32	SNM.. 1506..	0,750	8016	1618	5003	3515	4115	0015
PSKN R/L 3232 P15	32	32	170	42	40	SNM.. 1506..	1,300	8016	1618	5003	3515	4115	0015
PSKN R/L 3232 P19	32	32	170	42	40	SNM.. 1906..	1,300	8019	1610	5004	3519	4119	0019
PSKN R/L 4040 S19	40	40	250	45	50	SNM.. 1906..	3,050	8019	1610	5004	3519	4119	0019
PSKN R/L 4040 S25	40	40	250	45	50	SNM.. 2507..	3,050	8025	1612	5005	3525	4125	0025
PSKN R/L 5050 T25	50	50	300	50	60	SNM.. 2507..	5,850	8025	1612	5005	3525	4125	0025



SNM..	l	s	d	SNMA	SNMG	SNMM
SNM.. 0903..	9,52	3,18	9,52			
SNM.. 1204..	12,70	4,76	12,70			
SNM.. 1506..	15,88	6,35	15,88			
SNM.. 1906..	19,05	6,35	19,05			
SNM.. 2507..	25,40	7,94	25,40			



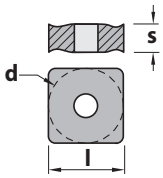




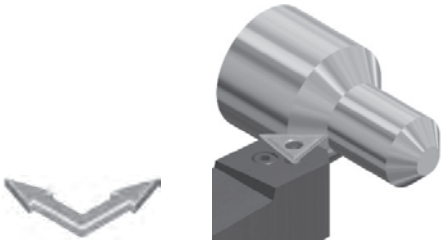
General angle 45 °

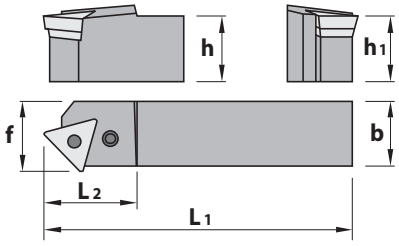
PSSN

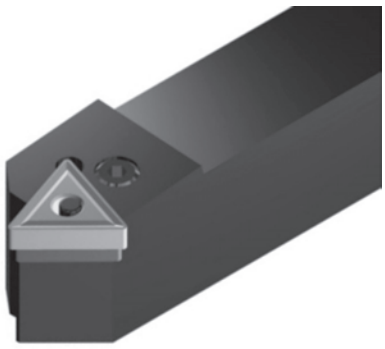
	h=h1	b	L1	L2	f	Plates	Kg						
PSSN R/L 1616 H09	16	16	100	22	20	SNM.. 0903..	0,250	8009	1606	5025	3509	4110	0009
PSSN R/L 2020 K09	20	20	125	25	25	SNM.. 0903..	0,400	8009	1606	5025	3509	4110	0009
PSSN R/L 2020 K12	20	20	125	28	25	SNM.. 1204..	0,400	8012	1608	5003	3512	4112	0012
PSSN R/L 2525 M12	25	25	150	28	32	SNM.. 1204..	0,750	8012	1608	5003	3512	4112	0012
PSSN R/L 3225 P12	32	25	170	28	32	SNM.. 1204..	1,050	8012	1608	5003	3512	4112	0012
PSSN R/L 2525 M15	25	25	150	34	32	SNM.. 1506..	0,750	8016	1618	5003	3515	4115	0015
PSSN R/L 3232 P15	32	32	170	42	40	SNM.. 1506..	1,300	8016	1618	5003	3515	4115	0015
PSSN R/L 3232 P19	32	32	170	45	40	SNM.. 1906..	1,300	8019	1610	5004	3519	4119	0019
PSSN R/L 4040 S19	40	40	250	45	50	SNM.. 1906..	3,050	8019	1610	5004	3519	4119	0019
PSSN R/L 5050 T19	50	50	300	50	60	SNM.. 1906..	5,850	8019	1610	5004	3519	4119	0019
PSSN R/L 4040 S25	40	40	250	45	50	SNM.. 2507..	3,050	8025	1612	5005	3525	4125	0025
PSSN R/L 5050 T25	50	50	300	50	60	SNM.. 2507..	5,850	8025	1612	5005	3525	4125	0025



SNM..	l	s	d	SNMA	SNMG	SNMM
SNM.. 0903..	9,52	3,18	9,52			
SNM.. 1204..	12,70	4,76	12,70			
SNM.. 1506..	15,88	6,35	15,88			
SNM.. 1906..	19,05	6,35	19,05			
SNM.. 2507..	25,40	7,94	25,40			



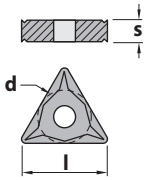




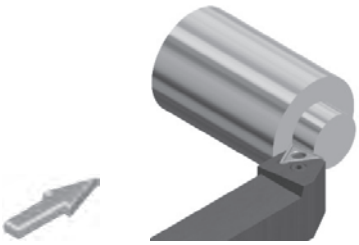
General angle 45 °

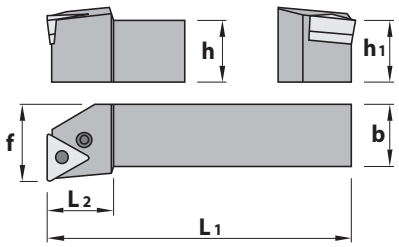
PTDN

	h=h1	b	L1	L2	f	Plates	Kg						
PTDN R/L 2525 M22	25	25	150	34	27	TNM.. 2204..	0,750	8012	1608	5003	3422	4112	0012
PTDN R/L 3225 P22	32	25	170	34	27	TNM.. 2204..	1,050	8012	1608	5003	3422	4112	0012



TNM..	l	s	d	TNMA	TNMG
TNM.. 2204..	22,00	4,76	12,70		

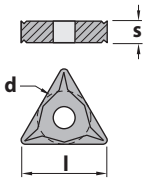




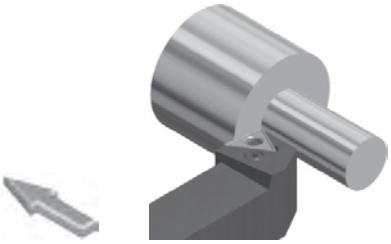
General angle 90 °

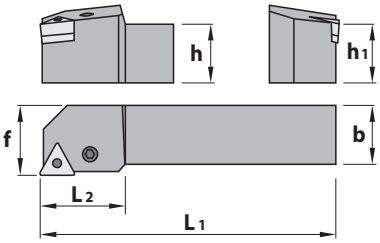
PTFN

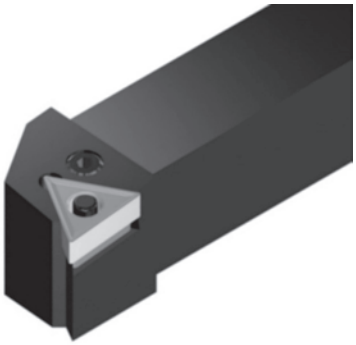
	h=h1	b	L1	L2	f	Plates	Kg						
PTFN R/L 1616 H16	16	16	100	22	20	TNM.. 1604..	0,250	8009	1606	5025	3416	4109	0009
PTFN R/L 2020 K16	20	20	125	22	25	TNM.. 1604..	0,400	8009	1606	5025	3416	4109	0009
PTFN R/L 2525 M16	25	25	150	28	32	TNM.. 1604..	0,750	8009	1606	5025	3416	4109	0009
PTFN R/L 3225 P16	32	25	170	28	32	TNM.. 1604..	1,050	8009	1606	5025	3416	4109	0009
PTFN R/L 2525 M22	25	25	150	28	32	TNM.. 2204..	0,750	8012	1608	5003	3422	4112	0012
PTFN R/L 3225 P22	32	25	170	28	32	TNM.. 2204..	1,050	8012	1608	5003	3422	4112	0012
PTFN R/L 3232 P22	32	32	170	28	40	TNM.. 2204..	1,300	8012	1608	5003	3422	4112	0012
PTFN R/L 3232 P27	32	32	170	42	40	TNM.. 2706..	1,300	8015	1708	5003	3427	4115	0015
PTFN R/L 4040 S27	40	40	250	45	50	TNM.. 2706..	3,050	8015	1708	5003	3427	4115	0015



TNM..	l	s	d	TNMA	TNMG
TNM.. 1604..	16,50	4,76	9,52		
TNM.. 2204..	22,00	4,76	12,70		
TNM.. 2706..	27,50	6,35	15,88		



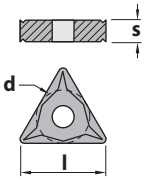




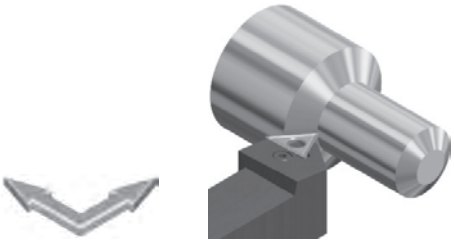
General angle 90 °

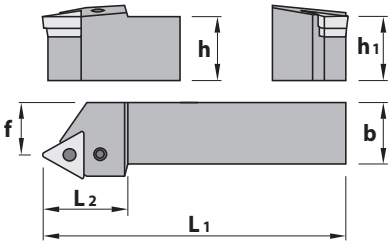
PTGN

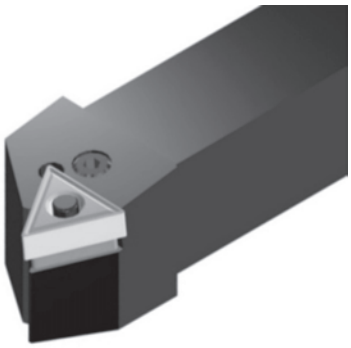
	h=h1	b	L1	L2	f	Plates	Kg						
PTGN R/L 1616 H16	16	16	100	22	20	TNM.. 1604..	0,250	8009	1606	5025	3416	4109	0009
PTGN R/L 2020 K16	20	20	125	22	25	TNM.. 1604..	0,400	8009	1606	5025	3416	4109	0009
PTGN R/L 2525 M16	25	25	150	28	32	TNM.. 1604..	0,750	8009	1606	5025	3416	4109	0009
PTGN R/L 3225 P16	32	25	170	28	32	TNM.. 1604..	1,050	8009	1606	5025	3416	4109	0009
PTGN R/L 2525 M22	25	25	150	28	32	TNM.. 2204..	0,750	8012	1608	5003	3422	4112	0012
PTGN R/L 3225 P22	32	25	170	28	32	TNM.. 2204..	1,050	8012	1608	5003	3422	4112	0012
PTGN R/L 3232 P22	32	32	170	28	40	TNM.. 2204..	1,300	8012	1608	5003	3422	4112	0012
PTGN R/L 4040 S22	40	40	250	45	50	TNM.. 2204..	3,050	8012	1608	5003	3422	4112	0012
PTGN R/L 3232 P27	32	32	170	42	40	TNM.. 2706..	1,300	8015	1708	5003	3427	4115	0015
PTGN R/L 4040 S27	40	40	250	45	50	TNM.. 2706..	3,050	8015	1708	5003	3427	4115	0015
PTGN R/L 5050 T33	50	50	300	50	60	TNM.. 3307..	5,850	8019	1610	5004	3433	4133	0019



TNM..	l	s	d	TNMA	TNMG	TNMX
TNM.. 1604..	16,50	4,76	9,52			
TNM.. 2204..	22,00	4,76	12,70			
TNM.. 2706..	27,50	6,35	15,88			
TNM.. 3307..	33,00	7,93	19,05			



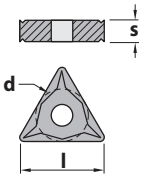




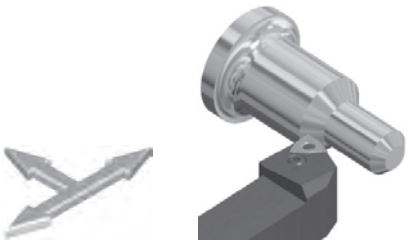
General angle 60 °

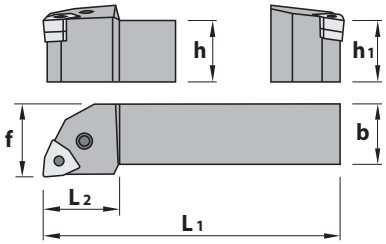
PTTN

	h=h1	b	L1	L2	f	Plates	Kg						
PTTN R/L 1616 H16	16	16	100	25	13	TNM.. 1604..	0,250	8009	1606	5025	3416	4109	0009
PTTN R/L 2020 K16	20	20	125	28	17	TNM.. 1604..	0,400	8009	1606	5025	3416	4109	0009
PTTN R/L 2525 M16	25	25	150	28	22	TNM.. 1604..	0,750	8009	1606	5025	3416	4109	0009
PTTN R/L 2525 M22	25	25	150	34	22	TNM.. 2204..	0,750	8012	1608	5003	3422	4112	0012
PTTN R/L 3225 P22	32	25	170	34	22	TNM.. 2204..	1,050	8012	1608	5003	3422	4112	0012



TNM..	l	s	d	TNMA	TNMG	TNMX
TNM.. 1604..	16,50	4,76	9,52			
TNM.. 2204..	22,00	4,76	12,70			

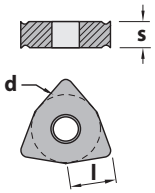




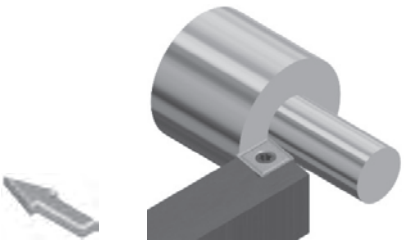
General angle 95 °

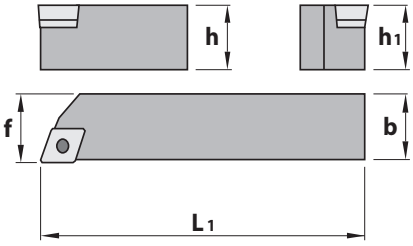
PWLN

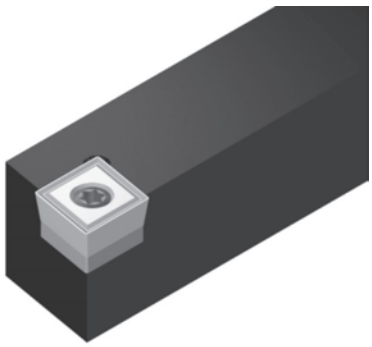
	h=h1	b	L1	L2	f	Plates	Kg						
PWLN R/L 1616 H06	16	16	100	22	20	WNM.. 0604..	0,250	8009	1606	5025	3007	4109	0009
PWLN R/L 2020 K06	20	20	125	22	25	WNM.. 0604..	0,400	8009	1606	5025	3007	4109	0009
PWLN R/L 2525 M06	25	25	150	25	32	WNM.. 0604..	0,750	8009	1606	5025	3007	4109	0009
PWLN R/L 2020 K08	20	20	125	28	25	WNM.. 0804..	0,400	8012	1608	5003	3008	4112	0012
PWLN R/L 2525 M08	25	25	150	28	32	WNM.. 0804..	0,750	8012	1608	5003	3008	4112	0012
PWLN R/L 3225 P08	32	25	170	34	32	WNM.. 0804..	1,050	8012	1608	5003	3008	4112	0012
PWLN R/L 3232 P08	32	32	170	34	40	WNM.. 0804..	1,300	8012	1608	5003	3008	4112	0012



WNM..	l	s	d	WNMA	WNMG
WNM.. 0604..	6,45	4,76	9,52		
WNM.. 0804..	8,14	4,76	12,70		



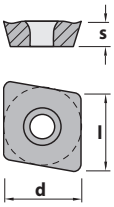




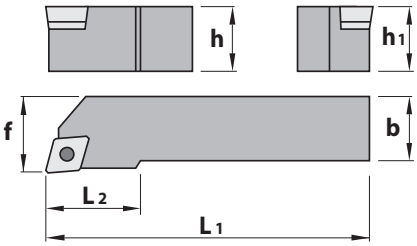
General angle 90 °

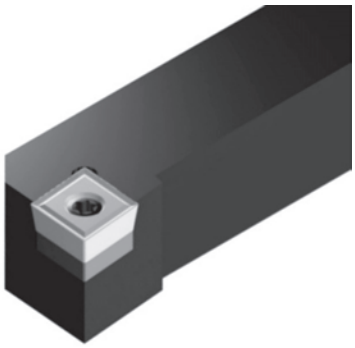
SCAC

	h=h1	b	L1	f	Plates	Kg				
SCAC R/L 0808 D06	8	8	60	8,5	CC.. 0602..	0,050	1225	5507	-	-
SCAC R/L 1010 E06	10	10	70	10,5	CC.. 0602..	0,070	1225	5507	-	-
SCAC R/L 1212 F09	12	12	80	12,5	CC.. 09T3..	0,100	1240	5515	-	-
SCAC R/L 1616 H09	16	16	100	16,5	CC.. 09T3..	0,200	1240	5515	-	-
SCAC R/L 2020 K12	20	20	125	20,5	CC.. 1204..	0,400	1540	5517	3614	1760
SCAC R/L 2525 M12	25	25	150	25,5	CC.. 1204..	0,700	1540	5517	3614	1760



CC..	l	s	d	CCGT	CCMT	CCMW
CC.. 0602..	6,45	2,38	6,35			
CC.. 09T3..	9,65	3,97	9,52			
CC.. 1204..	12,90	4,76	12,70			

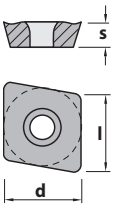




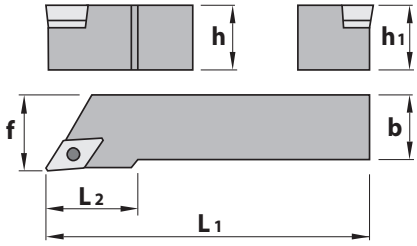
General angle 95 °

SCLC

	h=h1	b	L1	L2	f	Plates	Kg				
SCLC R/L 0808 D06	8	8	60	12	10	CC.. 0602..	0,050	1225	5507	-	-
SCLC R/L 1010 E06	10	10	70	14	12	CC.. 0602..	0,070	1225	5507	-	-
SCLC R/L 1212 F09	12	12	80	16	16	CC.. 09T3..	0,100	1240	5515	-	-
SCLC R/L 1616 H09	16	16	100	18	20	CC.. 09T3..	0,200	1240	5515	-	-
SCLC R/L 2020 K09	20	20	125	22	25	CC.. 09T3..	0,400	1240	5515	-	-
SCLC R/L 2020 K12	20	20	125	22	25	CC.. 1204..	0,400	1540	5517	3614	1760
SCLC R/L 2525 M12	25	25	150	28	32	CC.. 1204..	0,700	1540	5517	3614	1760



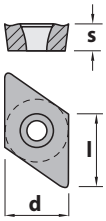
CC..	l	s	d	CCGT	CCMT	CCMW
CC.. 0602..	6,45	2,38	6,35			
CC.. 09T3..	9,65	3,97	9,52			
CC.. 1204..	12,90	4,76	12,70			



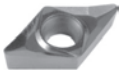
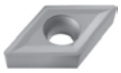
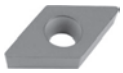
General angle 93 °

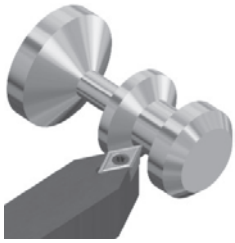
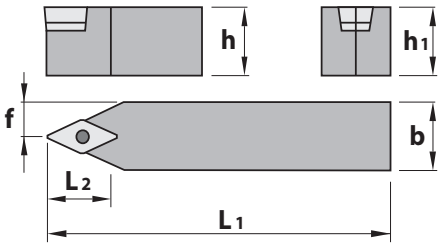
SDJC

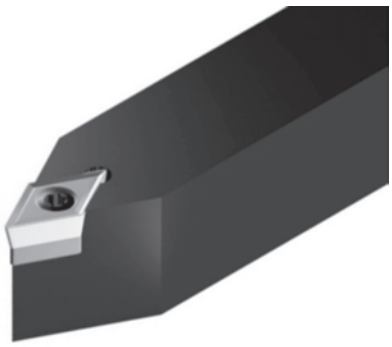
	h=h1	b	L1	L2	f	Plates	Kg				
SDJC R/L 1010 E07	10	10	70	14	12	DC.. 0702..	0,070	1225	5507	-	-
SDJC R/L 1212 F07	12	12	80	16	16	DC.. 0702..	0,100	1225	5507	-	-
SDJC R/L 1212 F11	12	12	80	18	16	DC.. 11T3..	0,100	1240	5515	-	-
SDJC R/L 1616 H11	16	16	100	18	20	DC.. 11T3..	0,200	1335	5516	3714	1750
SDJC R/L 2020 K11	20	20	125	22	25	DC.. 11T3..	0,400	1335	5516	3714	1750
SDJC R/L 2525 M11	25	25	150	28	32	DC.. 11T3..	0,700	1335	5516	3714	1750



DC..	l	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

DCGT

DCMT

DCMW


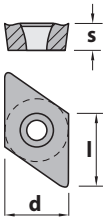





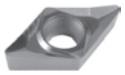
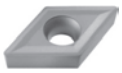
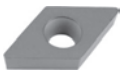
General angle 62°30´

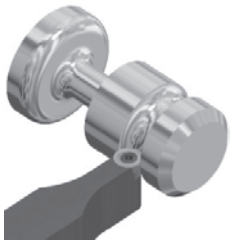
SDNC

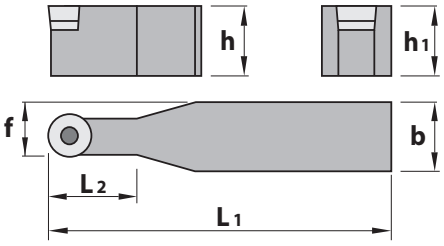
	h=h1	b	L1	L2	f	Plates	Kg				
SDNC N 0808 D07	8	8	60	16	4,0	DC.. 0702..	0,050	1225	5507	-	-
SDNC N 1010 E07	10	10	70	16	5,0	DC.. 0702..	0,070	1225	5507	-	-
SDNC N 1212 F07	12	12	80	18	6,0	DC.. 0702..	0,100	1225	5507	-	-
SDNC N 1616 H11	16	16	100	22	8,0	DC.. 11T3..	0,200	1335	5516	3714	1750
SDNC N 2020 K11	20	20	125	22	10,0	DC.. 11T3..	0,400	1335	5516	3714	1750
SDNC N 2525 M11	25	25	150	22	12,5	DC.. 11T3..	0,700	1335	5516	3714	1750

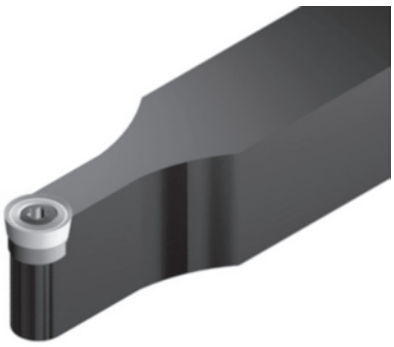


DC..	l	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

DCGT

DCMT

DCMW


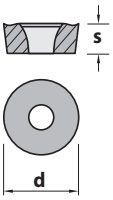




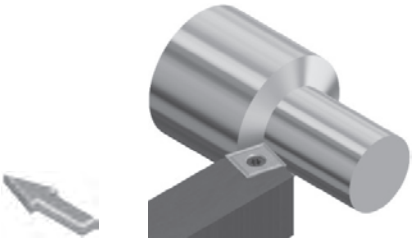


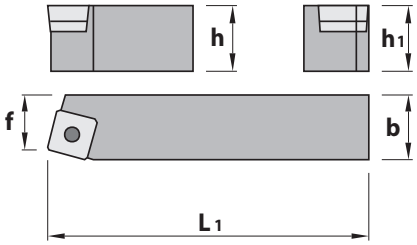
SRDC

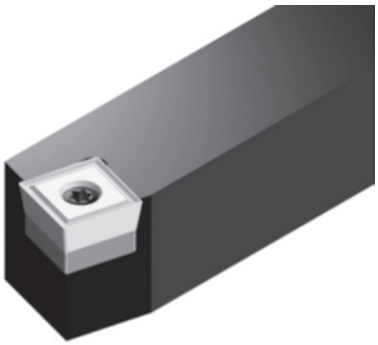
	h=h1	b	L1	L2	f	Plates	Kg				
SRDC N 1010 E06	10	10	70	10	8,0	RC.. 0602M0	0,070	1225	5507	-	-
SRDC N 1212 F06	12	12	80	12	11,0	RC.. 0602M0	0,100	1225	5507	-	-
SRDC N 1616 H06	16	16	100	16	13,0	RC.. 0602M0	0,200	1225	5507	-	-
SRDC N 2020 K06	20	20	125	20	15,0	RC.. 0602M0	0,400	1225	5507	-	-
SRDC N 2525 M06	25	25	150	25	17,5	RC.. 0602M0	0,700	1225	5507	-	-
SRDC N 1616 H08	16	16	100	16	13,0	RC.. 0803M0	0,200	1230	5508	-	-
SRDC N 2020 K08	20	20	125	20	15,0	RC.. 0803M0	0,400	1230	5508	-	-
SRDC N 2525 M08	25	25	150	25	17,5	RC.. 0803M0	0,700	1230	5508	-	-
SRDC N 2020 K10	20	20	125	22	15,0	RC.. 10T3M0	0,400	1335	5516	3811	1750
SRDC N 2525 M10	25	25	150	22	17,5	RC.. 10T3M0	0,700	1335	5516	3811	1750
SRDC N 2020 K12	20	20	125	28	16,0	RC.. 1204M0	0,400	1335	5516	3814	1750
SRDC N 2525 M12	25	25	150	28	18,5	RC.. 1204M0	0,700	1335	5516	3814	1750
SRDC N 3225 P12	32	25	170	28	18,5	RC.. 1204M0	0,900	1335	5516	3814	1750
SRDC N 3232 P12	32	32	170	28	22,0	RC.. 1204M0	1,200	1335	5516	3814	1750



RC..	s	d	RCGT	RCMT
RC.. 0602M0	2,38	6,00		
RC.. 0803M0	3,18	8,00		
RC.. 10T3M0	3,97	10,00		
RC.. 1204M0	4,76	12,00		



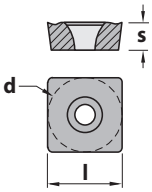




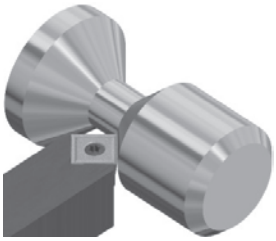
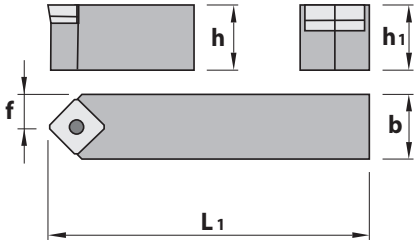
General angle 75°

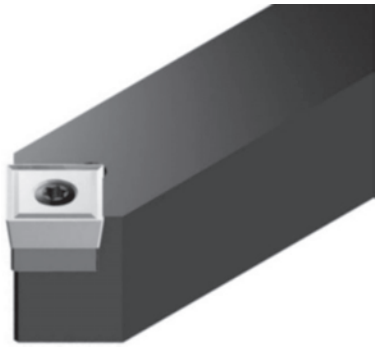
SSBC

	h=h1	b	L1	f	Plates	Kg				
SSBC R/L 1212 F09	12	12	80	11	SC.. 09T3..	0,100	1240	5515	-	-
SSBC R/L 1616 H09	16	16	100	13	SC.. 09T3..	0,200	1240	5515	-	-
SSBC R/L 2020 K12	20	20	125	17	SC.. 1204..	0,400	1540	5517	3514	1760
SSBC R/L 2525 M12	25	25	150	22	SC.. 1204..	0,700	1540	5517	3514	1760



SC..	l	s	d	SCGT	SCMT	SCMW
SC.. 09T3..	9,52	3,97	9,52			
SC.. 1204..	12,70	4,76	12,70			

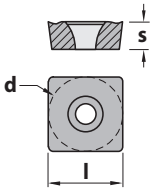





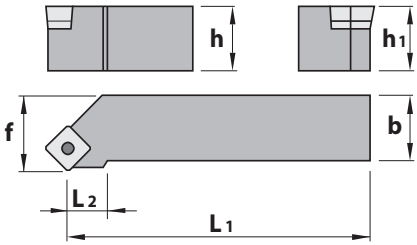
General angle 45°

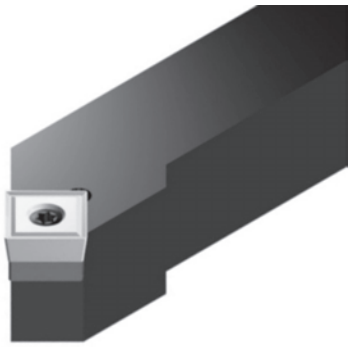
SSDC

	h=h1	b	L1	f	Plates	Kg				
SSDC N 1212 F09	12	12	80	6,0	SC.. 09T3..	0,100	1240	5515	-	-
SSDC N 1616 H09	16	16	100	8,0	SC.. 09T3..	0,200	1240	5515	-	-
SSDC N 2020 K12	20	20	125	10,0	SC.. 1204..	0,400	1540	5517	3514	1760
SSDC N 2525 M12	25	25	150	12,5	SC.. 1204..	0,700	1540	5517	3514	1760



SC..	l	s	d
SC.. 09T3..	9,52	3,97	9,52
SC.. 1204..	12,70	4,76	12,70

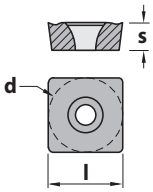
SCGT
SCMT
SCMW




General angle 45°

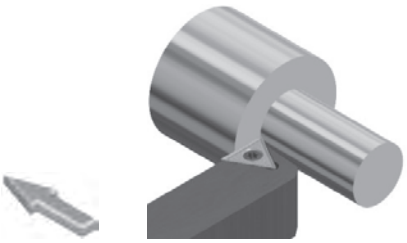
SSSC

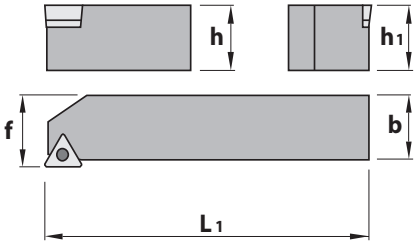
	h=h1	b	L1	L2	f	Plates	Kg				
SSSC R/L 1212 F09	12	12	80	20	16	SC.. 09T3..	0,100	1240	5515	-	-
SSSC R/L 1616 H09	16	16	100	22	20	SC.. 09T3..	0,200	1240	5515	-	-
SSSC R/L 2020 K12	20	20	125	25	25	SC.. 1204..	0,400	1540	5517	3514	1760
SSSC R/L 2525 M12	25	25	150	28	32	SC.. 1204..	0,700	1540	5517	3514	1760

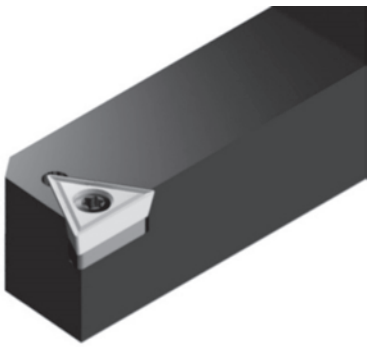


SC..	l	s	d
SC.. 09T3..	9,52	3,97	9,52
SC.. 1204..	12,70	4,76	12,70

SCGT
SCMT
SCMW



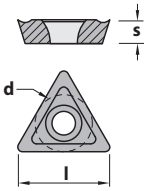




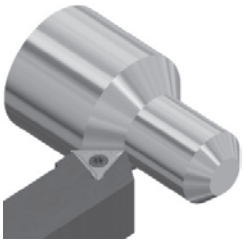
General angle 90 °

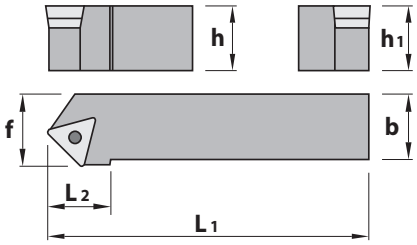
STAC

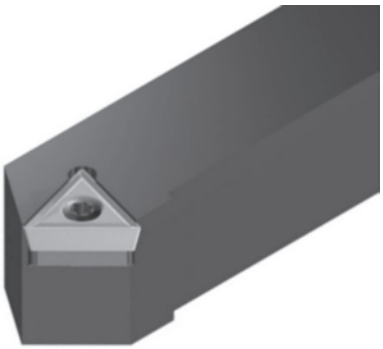
	h=h1	b	L1	f	Plates	Kg				
STAC R/L 0808 D09	8	8	60	8,5	TC.. 0902..	0,050	1222	5506	-	-
STAC R/L 1010 E09	10	10	70	10,5	TC.. 0902..	0,070	1222	5506	-	-
STAC R/L 1212 F11	12	12	80	12,5	TC.. 1102..	0,100	1225	5507	-	-
STAC R/L 1616 H11	16	16	100	16,5	TC.. 1102..	0,200	1225	5507	-	-
STAC R/L 1616 H16	16	16	100	16,5	TC.. 16T3..	0,200	1335	5516	3414	1750
STAC R/L 2020 K16	20	20	125	20,5	TC.. 16T3..	0,400	1335	5516	3414	1750
STAC R/L 2525 M16	25	25	150	25,5	TC.. 16T3..	0,700	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 0902..	9,62	2,38	5,55			
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			



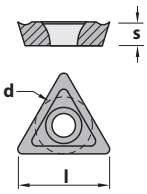




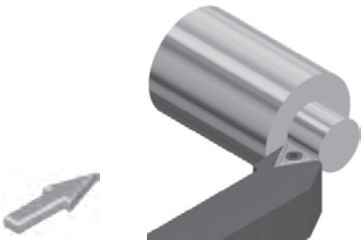
General angle 45 °

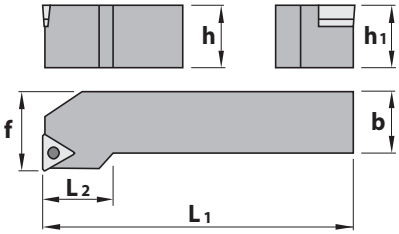
STDC

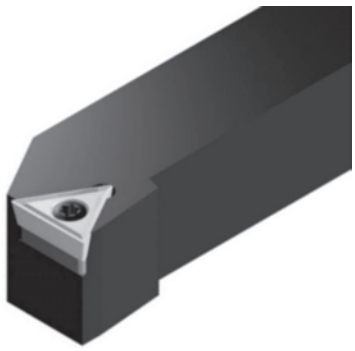
	h=h1	b	L1	L2	f	Plates	Kg				
STDC R/L 0808 D09	8	8	60	12	10	TC.. 0902..	0,050	1222	5506	-	-
STDC R/L 1010 E09	10	10	70	14	11	TC.. 0902..	0,070	1222	5506	-	-
STDC R/L 1212 F11	12	12	80	16	13	TC.. 1102..	0,100	1225	5507	-	-
STDC R/L 1616 H11	16	16	100	18	17	TC.. 1102..	0,200	1225	5507	-	-
STDC R/L 1212 F16	12	12	80	18	17	TC.. 16T3..	0,100	1240	5515	-	-
STDC R/L 1616 H16	16	16	100	18	17	TC.. 16T3..	0,200	1335	5516	3414	1750
STDC R/L 2020 K16	20	20	125	22	22	TC.. 16T3..	0,400	1335	5516	3414	1750
STDC R/L 2525 M16	25	25	150	28	27	TC.. 16T3..	0,700	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 0902..	9,62	2,38	5,55			
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			



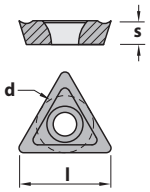




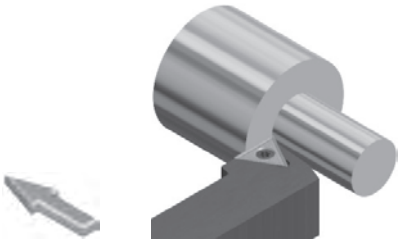
General angle 90 °

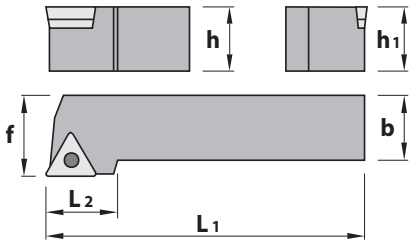
STFC

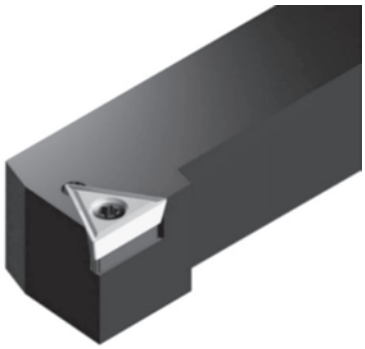
	h=h1	b	L1	L2	f	Plates	Kg				
STFC R/L 0808 D09	8	8	60	12	10	TC.. 0902..	0,050	1222	5506	-	-
STFC R/L 1010 E09	10	10	70	14	12	TC.. 0902..	0,070	1222	5506	-	-
STFC R/L 1212 F11	12	12	80	16	16	TC.. 1102..	0,100	1225	5507	-	-
STFC R/L 1616 H11	16	16	100	18	20	TC.. 1102..	0,200	1225	5507	-	-
STFC R/L 1212 F16	12	12	80	16	16	TC.. 16T3..	0,100	1240	5515	-	-
STFC R/L 1616 H16	16	16	100	22	20	TC.. 16T3..	0,200	1335	5516	3414	1750
STFC R/L 2020 K16	20	20	125	22	25	TC.. 16T3..	0,400	1335	5516	3414	1750
STFC R/L 2525 M16	25	25	150	28	32	TC.. 16T3..	0,700	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 0902..	9,62	2,38	5,55			
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			



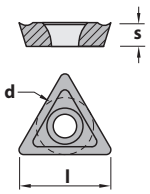




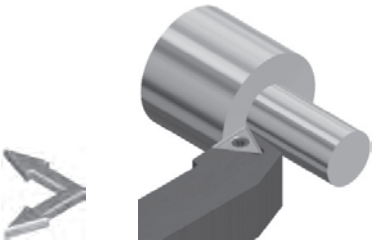
General angle 90 °

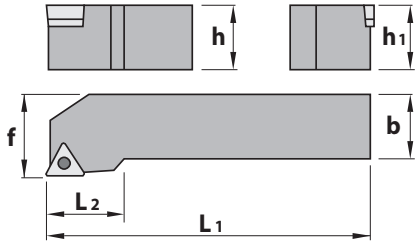
STGC

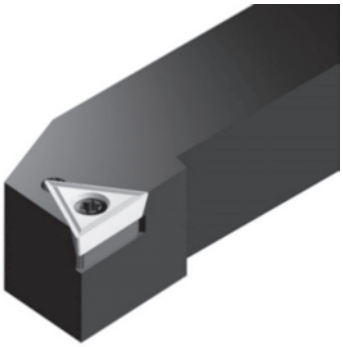
	h=h1	b	L1	L2	f	Plates	Kg				
STGC R/L 0808 D09	8	8	60	12	10	TC.. 0902..	0,050	1222	5506	-	-
STGC R/L 1010 E09	10	10	70	14	12	TC.. 0902..	0,070	1222	5506	-	-
STGC R/L 1212 F11	12	12	80	16	16	TC.. 1102..	0,100	1225	5507	-	-
STGC R/L 1616 H11	16	16	100	18	20	TC.. 1102..	0,200	1225	5507	-	-
STGC R/L 1212 F16	12	12	80	18	16	TC.. 16T3..	0,100	1240	5515	-	-
STGC R/L 1616 H16	16	16	100	18	20	TC.. 16T3..	0,200	1335	5516	3414	1750
STGC R/L 2020 K16	20	20	125	22	25	TC.. 16T3..	0,400	1335	5516	3414	1750
STGC R/L 2525 M16	25	25	150	28	32	TC.. 16T3..	0,700	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 0902..	9,62	2,38	5,55			
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			



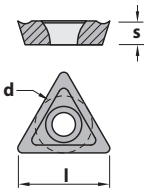




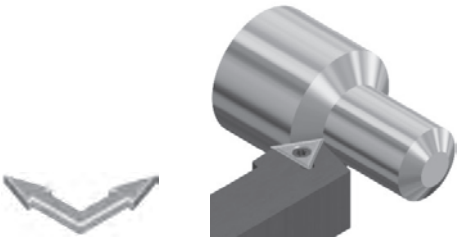
General angle 93 °

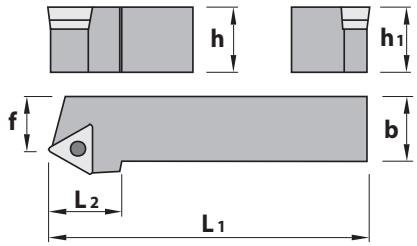
STJC

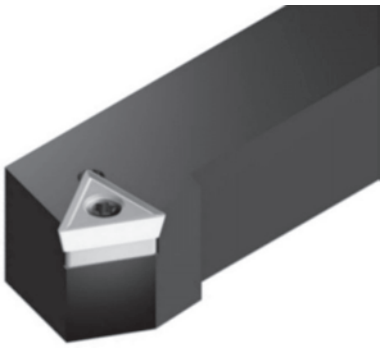
	h=h1	b	L1	L2	f	Plates	Kg				
STJC R/L 0808 D09	8	8	60	12	10	TC.. 0902..	0,050	1222	5506	-	-
STJC R/L 1010 E09	10	10	70	14	12	TC.. 0902..	0,070	1222	5506	-	-
STJC R/L 1212 F11	12	12	80	16	16	TC.. 1102..	0,100	1225	5507	-	-
STJC R/L 1616 H11	16	16	100	18	20	TC.. 1102..	0,200	1225	5507	-	-
STJC R/L 1212 F16	12	12	80	18	16	TC.. 16T3..	0,100	1240	5515	-	-
STJC R/L 1616 H16	16	16	100	18	20	TC.. 16T3..	0,200	1335	5516	3414	1750
STJC R/L 2020 K16	20	20	125	22	25	TC.. 16T3..	0,400	1335	5516	3414	1750
STJC R/L 2525 M16	25	25	150	28	32	TC.. 16T3..	0,700	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 0902..	9,62	2,38	5,55			
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			



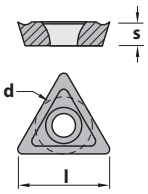




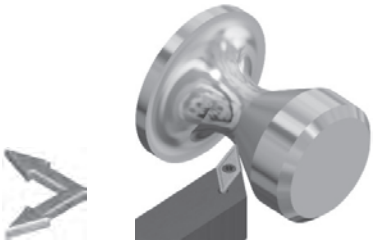
General angle 60 °

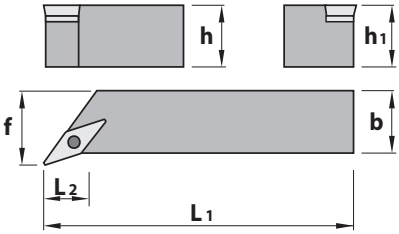
STTC

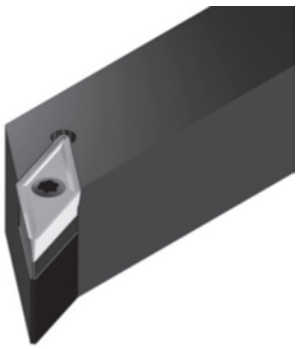
	h=h1	b	L1	L2	f	Plates	Kg				
STTC R/L 0808 D09	8	8	60	12	7	TC.. 0902..	0,050	1222	5506	-	-
STTC R/L 1010 E09	10	10	70	14	9	TC.. 0902..	0,070	1222	5506	-	-
STTC R/L 1212 F11	12	12	80	16	11	TC.. 1102..	0,100	1225	5507	-	-
STTC R/L 1616 H11	16	16	100	18	13	TC.. 1102..	0,200	1225	5507	-	-
STTC R/L 1212 F16	12	12	80	18	11	TC.. 16T3..	0,100	1240	5515	-	-
STTC R/L 1616 H16	16	16	100	18	13	TC.. 16T3..	0,200	1335	5516	3414	1750
STTC R/L 2020 K16	20	20	125	22	17	TC.. 16T3..	0,400	1335	5516	3414	1750
STTC R/L 2525 M16	25	25	150	28	22	TC.. 16T3..	0,700	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 0902..	9,62	2,38	5,55			
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			



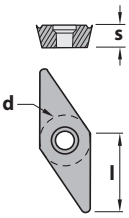




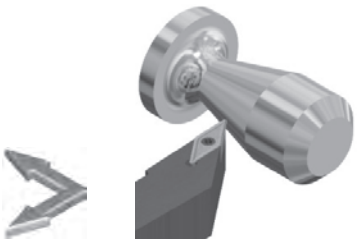
General angle 93 °

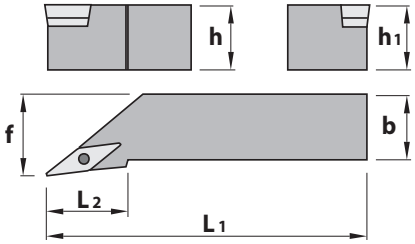
SVHC

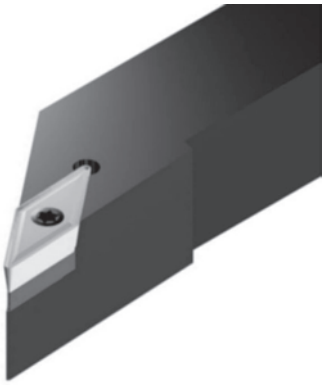
	h=h1	b	L1	L2	f	Plates	Kg				
SVHC R/L 2020 K16	20	20	125	28	25	VC.. 1604..	0,400	1335	5516	3718	1750
SVHC R/L 2525 M16	25	25	150	28	32	VC.. 1604..	0,700	1335	5516	3718	1750
SVHC R/L 3225 P16	32	25	170	34	32	VC.. 1604..	0,900	1335	5516	3718	1750
SVHC R/L 2525 M22	25	25	150	28	32	VC.. 2205..	0,700	1540	5520	3722	1760
SVHC R/L 3225 P22	32	25	170	34	32	VC.. 2205..	0,900	1540	5520	3722	1760



VC..	l	s	d	VCGT	VCMT
VC.. 1604..	16,50	4,76	9,52		
VC.. 2205..	22,10	5,56	12,70		



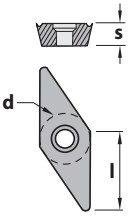




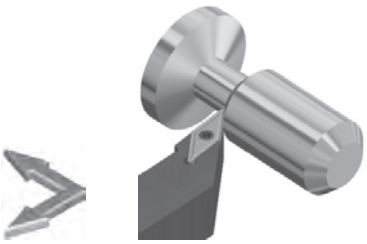
General angle 93 °

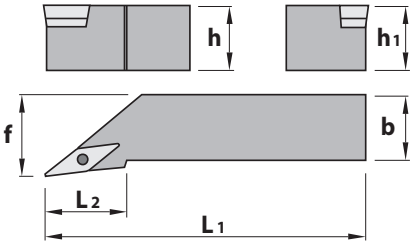
SVJB

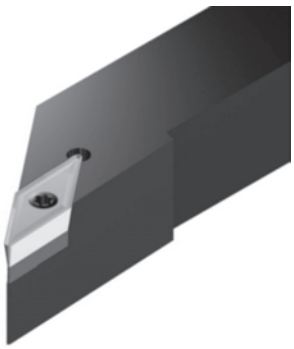
	h=h1	b	L1	L2	f	Plates	Kg				
SVJB R/L 2020 K16	20	20	125	34	25	VBMT 1604..	0,400	1335	5516	3718	1750
SVJB R/L 2525 M16	25	25	150	34	32	VBMT 1604..	0,700	1335	5516	3718	1750
SVJB R/L 3225 P16	32	25	170	38	32	VBMT 1604..	0,900	1335	5516	3718	1750



VBMT	l	s	d	VBMT
VBMT 1604..	16,50	4,76	9,52	



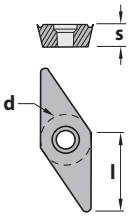




General angle 93 °

SVJC

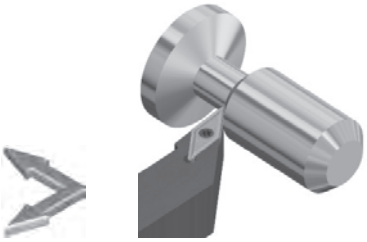
	h=h1	b	L1	L2	f	Plates	Kg				
SVJC R/L 1212 F11	12	12	80	20	16	VC.. 1103..	0,100	1225	5507	-	-
SVJC R/L 1616 H11	16	16	100	25	20	VC.. 1103..	0,200	1225	5507	-	-
SVJC R/L 2020 K11	20	20	125	28	25	VC.. 1103..	0,400	1225	5507	-	-
SVJC R/L 2020 K16	20	20	125	34	25	VC.. 1604..	0,400	1335	5516	3718	1750
SVJC R/L 2525 M16	25	25	150	34	32	VC.. 1604..	0,700	1335	5516	3718	1750
SVJC R/L 3225 P16	32	25	170	34	32	VC.. 1604..	0,900	1335	5516	3718	1750

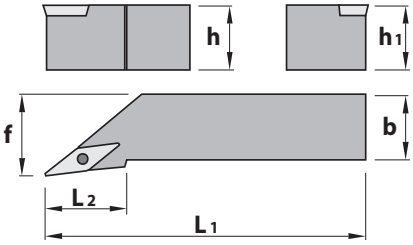


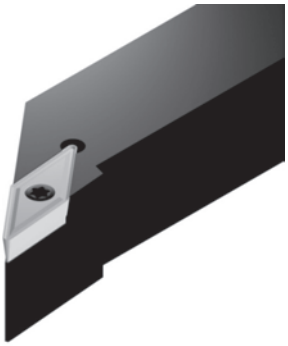
VC..	l	s	d
VC.. 1103..	11,00	3,18	6,35
VC.. 1604..	16,50	4,76	9,52

VCGT

VCMT



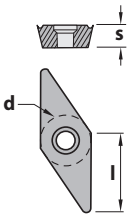




General angle 95 °

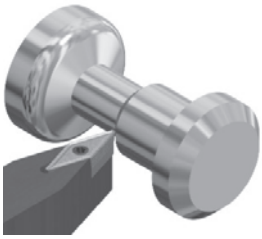
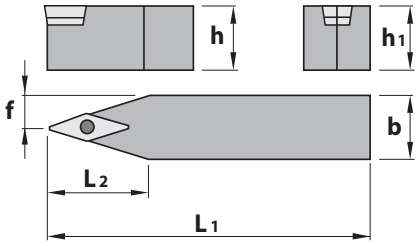
SVLC

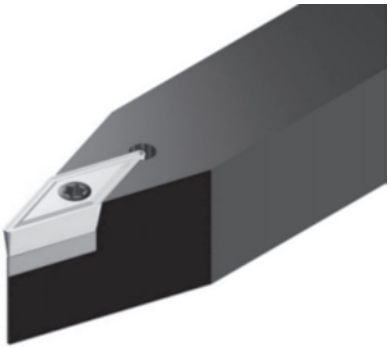
	h=h1	b	L1	L2	f	Plates	Kg		
SVLC R/L 1212 G13	12	12	90	25	16	VCMT 1303..	0,100	1230	5508
SVLC R/L 1616 H13	16	16	100	25	20	VCMT 1303..	0,200	1230	5508
SVLC R/L 2020 K13	20	20	125	28	25	VCMT 1303..	0,400	1230	5508
SVLC R/L 2525 M13	25	25	150	28	32	VCMT 1303..	0,700	1230	5508



VCMT	l	s	d
VC.. 1303..	13,00	3,18	8,00

VCMT

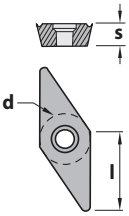





General angle 72°30´

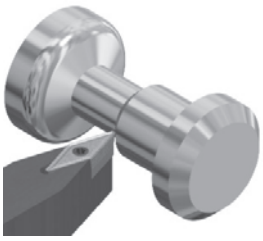
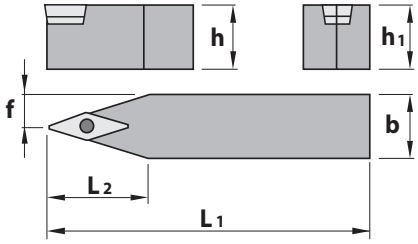
SVVB

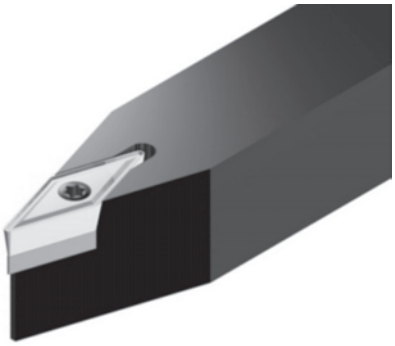
	h=h1	b	L1	L2	f	Plates	Kg				
SVVB N 2020 K16	20	20	125	37	10,6	VBMT 1604..	0,400	1335	5516	3718	1750
SVVB N 2525 M16	25	25	150	37	13,1	VBMT 1604..	0,700	1335	5516	3718	1750
SVVB N 3225 P16	32	25	170	37	13,1	VBMT 1604..	0,900	1335	5516	3718	1750



VBMT	l	s	d
VBMT 1604..	16,50	4,76	9,52

VBMT

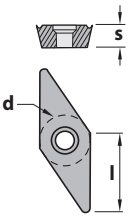





General angle 72°30´

SVVC

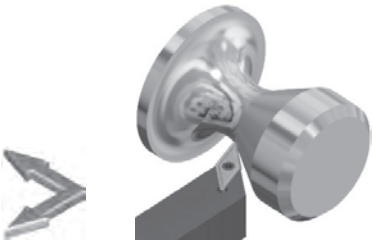
	h=h1	b	L1	L2	f	Plates	Kg				
SVVC N 1212 F11	12	12	80	25	6,6	VC.. 1103..	0,100	1225	5507	-	-
SVVC N 1616 H11	16	16	100	25	8,6	VC.. 1103..	0,200	1225	5507	-	-
SVVC N 2020 K11	20	20	125	25	10,6	VC.. 1103..	0,400	1225	5507	-	-
SVVC N 2020 K16	20	20	125	37	10,6	VC.. 1604..	0,400	1335	5516	3718	1750
SVVC N 2525 M16	25	25	150	37	13,1	VC.. 1604..	0,700	1335	5516	3718	1750
SVVC N 3225 P16	32	25	170	37	13,1	VC.. 1604..	0,900	1335	5516	3718	1750

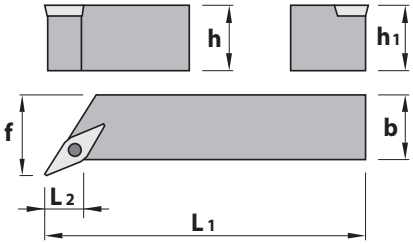


VC..	l	s	d
VC.. 1103..	11,00	3,18	6,35
VC.. 1604..	16,50	4,76	9,52

VCGT

VCMT

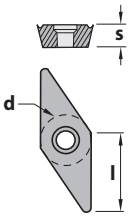




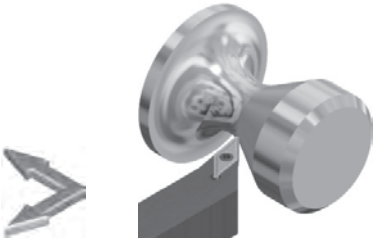
General angle 113 °

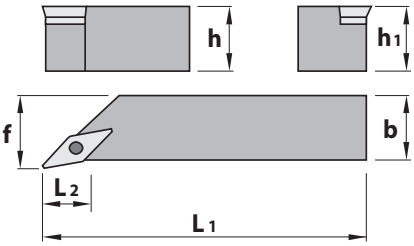
SVXC

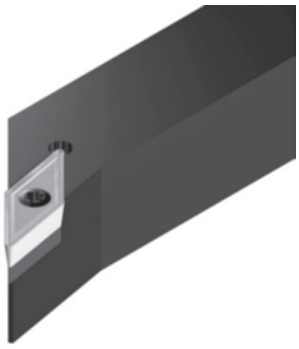
	h=h1	b	L1	L2	f	Plates	Kg		
SVXC R/L 1212 G13	12	12	90	11,5	16	VCMT 1303..	0,100	1230	5508
SVXC R/L 1616 H13	16	16	100	13,8	20	VCMT 1303..	0,200	1230	5508
SVXC R/L 2020 K13	20	20	125	28,0	25	VCMT 1303..	0,400	1230	5508
SVXC R/L 2525 M13	25	25	150	28,0	32	VCMT 1303..	0,700	1230	5508



VCMT	l	s	d	VCMT
VC.. 1303..	13,00	3,18	8,00	



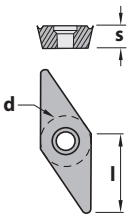




General angle 100 °

SVZC

	h=h1	b	L1	L2	f	Plates	Kg				
SVZC R/L 2020 K16	20	20	125	28	25	VC.. 1604..	0,400	1335	5516	3718	1750
SVZC R/L 2525 M16	25	25	150	34	32	VC.. 1604..	0,700	1335	5516	3718	1750
SVZC R/L 3225 P16	32	25	170	34	32	VC.. 1604..	0,900	1335	5516	3718	1750



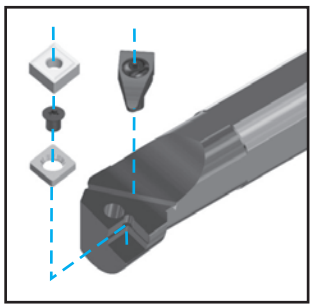
VC..	l	s	d	VCGT	VCMT
VC.. 1604..	16,50	4,76	9,52		

umt

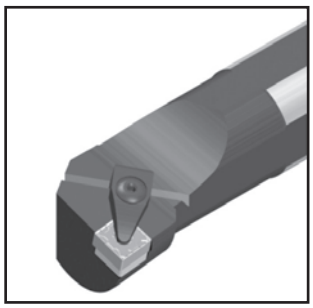
6

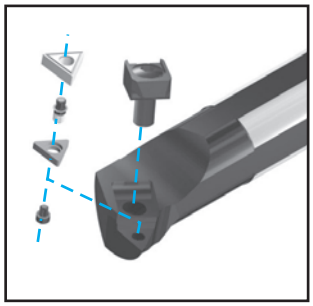
TOOLS WITH CARBIDE INSERTS

INTERNAL TOOLHOLDERS

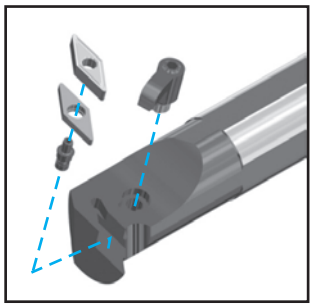


«D» Dimple lock

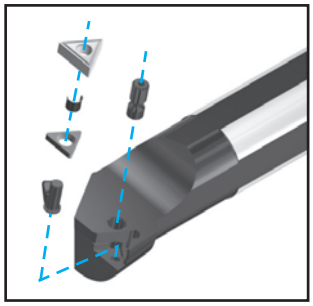




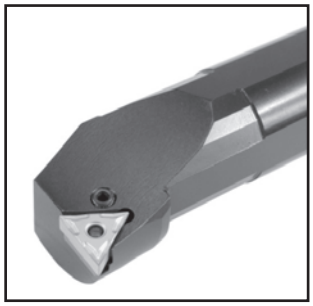
«M» Wedge clamp

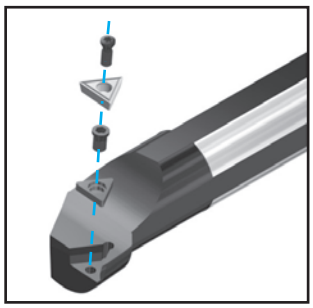


«M-K» Double lock



«P» Lever lock





«S» Screw lock

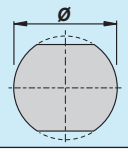
S	25	T	S	D	U	C	R	11	-	EX
1	2	3	4	5	6	7	8	9		10

1

Type of holder			
A	With internal coolant		
H	Anti-vibration shank		
J	Anti-vibration shank with internal coolant		
S	Steel shank		

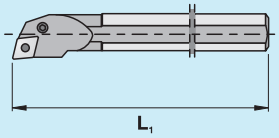
2

Holder diameter, mm.



3

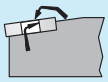
Holder length, mm.

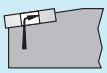


H	100	T	300
J	110	U	350
K	125	V	400
L	140	W	450
M	150	Y	500
Q	180	X	Special
R	200		
S	250		

4

C


M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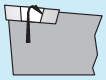
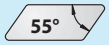

S

5

C

D

E



K

S

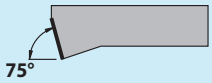
T

V

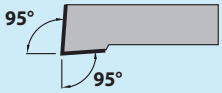
W

6

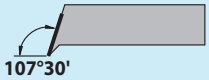
F



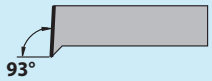
K



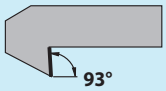
L



Q



U



U-EX

7

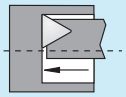
B

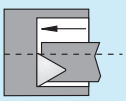
C

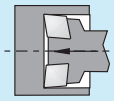
N

P

8


L


R


N

9

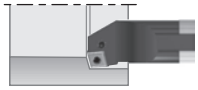
Cutting edge length, mm.

10

Additional manufacturer options

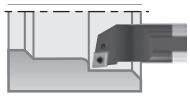
Lever lock

PCKN 75°



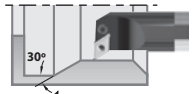
Page 128 — CN.. 1204.. CN.. 1606.. CN.. 1906..

PCLN 95°



Page 128 — CN.. 0903.. CN.. 1204.. CN.. 1606.. CN.. 1906..

PDUN 93°

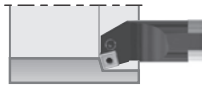


Page 129 — DN.. 1104.. DN.. 1506..

PDUN 93°-EX

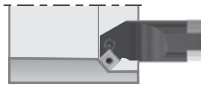
Page 129 — DN.. 1506..

PSKN 75°



Page 124 — SNM.. 1204.. SNM.. 1906..

PSSN 45°



Page 130 — SNM.. 1204..

PTFN 90°

Page 131 — TNM.. 1604.. TNM.. 2204..

PWLN 95°

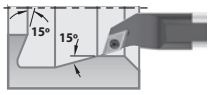
Page 132 — WNM.. 0604.. WNM.. 0804..

Screw lock

SCLC 95°

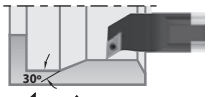
Page 133 — CC.. 0602.. CC.. 09T3.. CC.. 1204..

SDQC 107°30'



Page 134 — DC.. 0702.. DC.. 11T3..

SDUC 93°

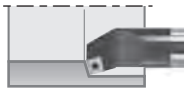


Page 135 — DC.. 0702.. DC.. 11T3..

SDUC 93°-EX

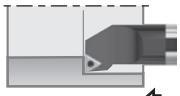
Page 136 — DC.. 0702.. DC.. 11T3..

SSKC 75°



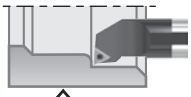
Page 137 — SC.. 09T3.. SC.. 1204..

STFC 90°



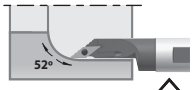
стр. 138 — TC.. 0902.. TC.. 1102.. TC.. 16T3..

STUC 93°



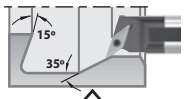
Page 139 — TC.. 1102.. TC.. 16T3..

SVJC 52°



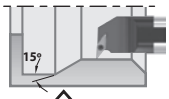
Page 139 — VC.. 1103.. VC.. 1604..

SVQC 107°30'



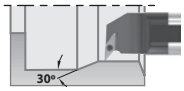
Page 140 — VC.. 1103.. VC.. 1303.. VC.. 1604..

SVUB 93°



Page 140 — VBMT 1604..

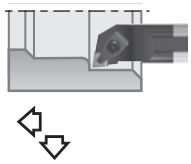
SVUC 93°



Page 141 — VC.. 1103.. VC.. 1604..

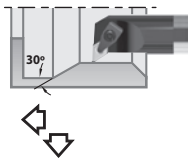
Dimple lock (on request)

DCLN 95°



CN.. 1204..

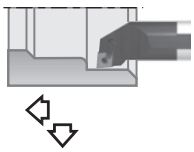
DDUN 93°



DN.. 1506..

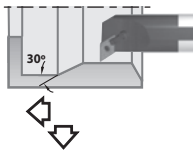
Toolholders with wedge and double clamping (on request)

MCLN-K 95°



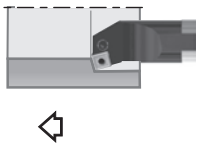
CN.. 1204..

MDUN-K 93°



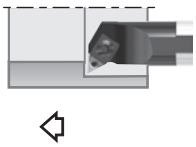
DN.. 1506..

MSKN-K 75°



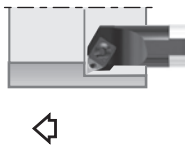
SNM.. 1204..

MTFN 90°



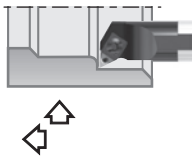
TNM.. 1604..
TNM.. 2204..

MTFN-K 90°



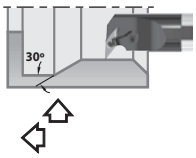
TNM.. 1604..

MTUN 93°



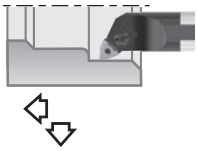
TNM.. 1604..
TNM.. 2204..

MVUN-K 93°



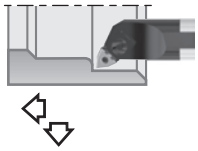
VN.. 1604..

MWLN 95°

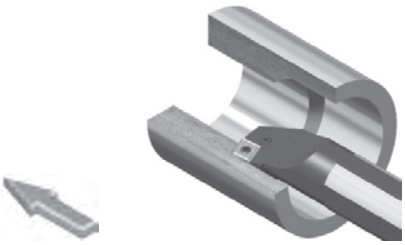


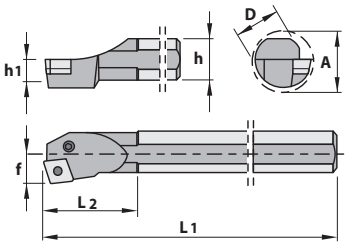
WNM.. 0604..
WNM.. 0804..

MWLN-K 95°



WNM.. 0804..

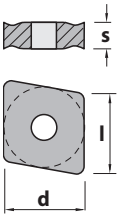




General angle 75 °

PCKN

	D	h	h1	L1	L2	f	A	Plates	Kg						
S25T PCKN R/L 12	25	23	11,5	300	40	17	31	CN.. 1204..	0,700	8212	1626	5025	-	-	-
S32U PCKN R/L 12	32	30	15,0	350	50	22	39	CN.. 1204..	2,050	8312	1648	5003	3612	4112	0012
S40V PCKN R/L 12	40	37	18,5	400	60	27	48	CN.. 1204..	3,750	8012	1608	5003	3612	4112	0012
S50W PCKN R/L 16	50	47	23,5	450	65	35	61	CN.. 1606..	6,500	8016	1618	5003	3616	4115	0015
S50W PCKN R/L 19	50	47	23,5	450	65	35	61	CN.. 1906..	6,500	8219	1610	5004	3619	4119	0019



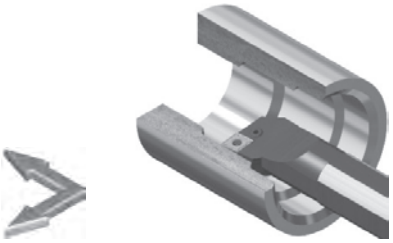
CN..	l	s	d
CN.. 1204..	12,90	4,76	12,70
CN.. 1606..	16,10	6,35	15,88
CN.. 1906..	19,30	6,35	19,05

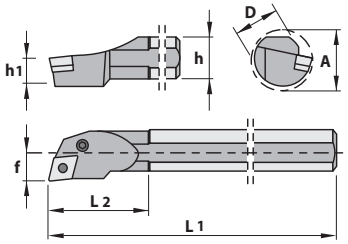
CNGP

CNMA

CNMG

CNMM





General angle 95 °

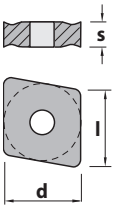
PCLN

	D	h	h1	L1	L2	f	A	Plates	Kg						
S16R PCLN R/L 09	16	15	7,5	200	26	11	20	CN.. 0903..	0,300	8005	1605	5002	-	-	-
S20S PCLN R/L 09	20	18	9,0	250	29	13	25	CN.. 0903..	0,550	8005	1605	5002	-	-	-
S25T PCLN R/L 09	25	23	11,5	300	33	17	32	CN.. 0903..	0,700	8009	1626	5025	3609	4109	0009
S25T PCLN R/L 12	25	23	11,5	300	40	17	31	CN.. 1204..	0,700	8212	1626	5025	-	-	-
S32U PCLN R/L 12	32	30	15,0	350	50	22	39	CN.. 1204..	2,050	8312	1648	5003	3612	4112	0012
S40V PCLN R/L 12	40	37	18,5	400	60	27	48	CN.. 1204..	3,750	8012	1608	5003	3612	4112	0012
S50W PCLN R/L 12	50	47	23,5	450	65	35	61	CN.. 1204..	6,500	8012	1608	5003	3612	4112	0012
S50W PCLN R/L 16	50	47	23,5	450	65	35	61	CN.. 1606..	6,500	8016	1618	5003	3616	4115	0015
S50W PCLN R/L 19	50	47	23,5	450	65	35	61	CN.. 1906..	6,500	8219	1610	5004	3619	4129	0019

With internal coolant

A-PCLN

	D	h	h1	L1	L2	f	A	Plates	Kg						
A16M PCLN R/L 09	16	15	7,5	150	26	11	20	CN.. 0903..	0,200	8005	1605	5002	-	-	-
A20Q PCLN R/L 09	20	18	9,0	180	29	13	25	CN.. 0903..	0,400	8005	1605	5002	-	-	-
A25R PCLN R/L 12	25	23	11,5	200	40	17	31	CN.. 1204..	0,700	8212	1626	5025	-	-	-
A32S PCLN R/L 12	32	30	15,0	250	50	22	39	CN.. 1204..	1,400	8312	1648	5003	3612	4112	0012
A40T PCLN R/L 12	40	37	18,5	300	60	27	48	CN.. 1204..	2,650	8012	1608	5003	3612	4112	0012



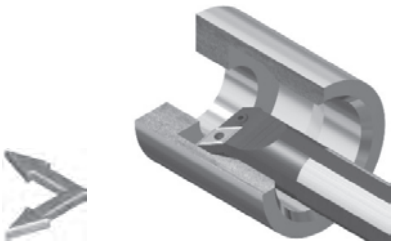
CN..	l	s	d
CN.. 0903..	9,65	3,18	9,52
CN.. 1204..	12,90	4,76	12,70
CN.. 1606..	16,10	6,35	15,88
CN.. 1906..	19,30	6,35	19,05

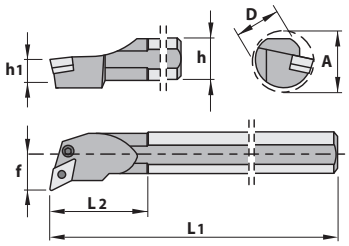
CNGP

CNMA

CNMG

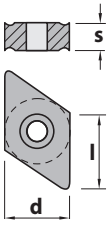
CNMM



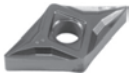
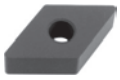
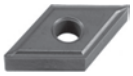


General angle 93 °

PDUN	D	h	h1	L1	L2	f	A	Plates	Kg								
S25T PDUN R/L 11	25	23	11,5	300	35	17	32	DN.. 1104..	0,700	8009	1606	5025	3711	4109	0009	-	-
S32U PDUN R/L 11	32	30	15,0	350	40	22	40	DN.. 1104..	2,050	8009	1606	5025	3711	4109	0009	-	-
S32U PDUN R/L 15	32	30	15,0	350	50	22	39	DN.. 1506..	2,050	8415	1648	5003	3715	4112	0012	3725	4135
S40V PDUN R/L 15	40	37	18,5	400	60	27	48	DN.. 1506..	3,750	8415	1638	5003	3715	4112	0012	3725	4135
S50W PDUN R/L 15	50	47	23,5	450	65	35	61	DN.. 1506..	6,500	8415	1638	5003	3715	4112	0012	3725	4135

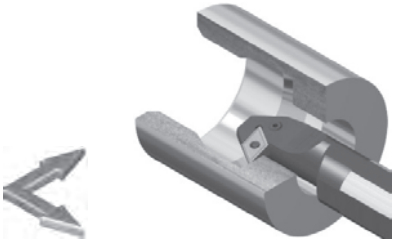


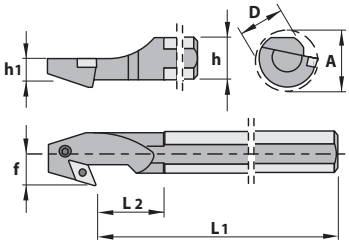
DN..	l	s	d	DNGP	DNMA	DNMG
DN.. 1104..	11,60	4,76	9,52			
DN.. 1504..	15,50	4,76	12,70			
DN.. 1506..	15,50	6,35	12,70			

With internal coolant

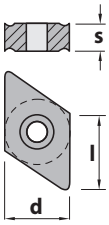
A-PDUN	D	h	h1	L1	L2	f	A	Plates	Kg								
A25R PDUN R/L 11	25	23	11,5	200	40	17	31	DN.. 1104..	0,700	8009	1606	5025	3711	4109	0009	-	-
A32S PDUN R/L 15	32	30	15,0	250	50	22	39	DN.. 1506..	1,400	8415	1648	5003	3715	4112	0012	3725	4135
A40T PDUN R/L 15	40	37	18,5	300	60	27	48	DN.. 1506..	2,650	8415	1638	5003	3715	4112	0012	3725	4135



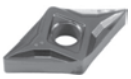
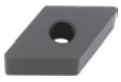
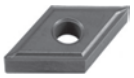


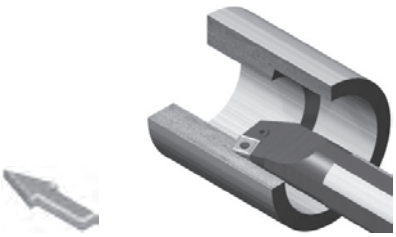
General angle 93 °

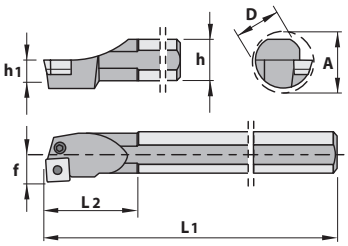
PDUN	D	h	h1	L1	L2	f	A	Plates	Kg								
S32U PDUN R/L 15-EX	32	30	15,0	350	50	22	39	DN.. 1506..	2,050	8415	1648	5003	-	-	-	-	-
S40V PDUN R/L 15-EX	40	37	18,5	400	60	27	48	DN.. 1506..	3,750	8415	1638	5003	3715	4112	0012	3725	4135
S50W PDUN R/L 15-EX	50	47	23,5	450	65	35	61	DN.. 1506..	6,500	8415	1638	5003	3715	4112	0012	3725	4135



DN..	l	s	d	DNGP	DNMA	DNMG
DN.. 1504..	15,50	4,76	12,70			
DN.. 1506..	15,50	6,35	12,70			

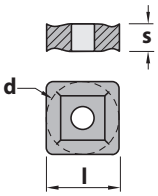




General angle 75 °

PSKN

	D	h	h1	L1	L2	f	A	Plates	Kg						
S25T PSKN R/L 12	25	23	11,5	300	40	17	31	SNM.. 1204..	0,700	8212	1626	5025	-	-	-
S32U PSKN R/L 12	32	30	15,0	350	50	22	39	SNM.. 1204..	2,050	8312	1648	5003	3512	4112	0012
S40V PSKN R/L 12	40	37	18,5	400	60	27	48	SNM.. 1204..	3,750	8012	1608	5003	3512	4112	0012
S50W PSKN R/L 19	50	47	23,5	450	65	35	61	SNM.. 1906..	6,500	8219	1710	5004	3519	4129	0019



SNM..	l	s	d
SNM.. 1204..	12,70	4,76	12,70
SNM.. 1906..	19,05	6,35	19,05

SNMA

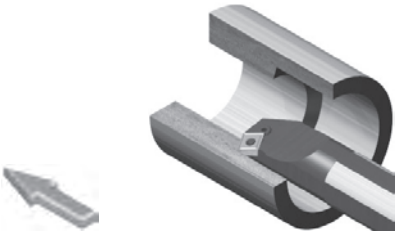
SNMG

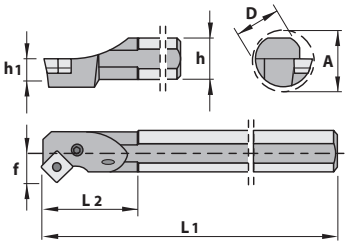
SNMM

With internal coolant

A-PSKN

	D	h	h1	L1	L2	f	A	Plates	Kg						
A25R PSKN R/L 12	25	23	11,5	200	40	17	31	SNM.. 1204..	0,700	8212	1626	5025	-	-	-
A32S PSKN R/L 12	32	30	15,0	250	50	22	39	SNM.. 1204..	1,400	8312	1648	5003	3512	4112	0012
A40T PSKN R/L 12	40	37	18,5	300	60	27	48	SNM.. 1204..	2,650	8012	1608	5003	3512	4112	0012



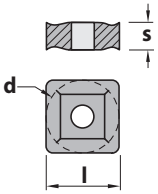


General angle 45 °

With internal coolant

A-PSSN

	D	h	h1	L1	L2	f	A	Plates	Kg						
A25R PSSN R/L 12	25	23	11,5	200	40	17	31	SNM.. 1204..	0,700	8212	1626	5025	-	-	-
A32S PSSN R/L 12	32	30	15,0	250	50	22	39	SNM.. 1204..	2,050	8312	1648	5003	3512	4112	0012

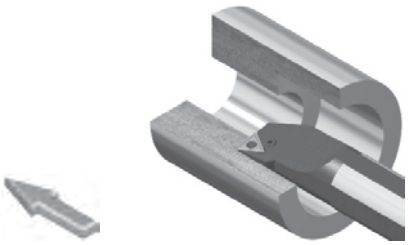


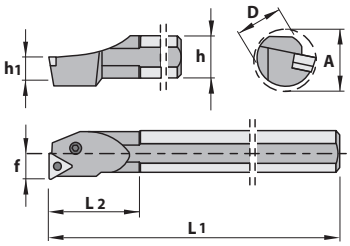
SNM..	l	s	d
SNM.. 1204..	12,70	4,76	12,70

SNMA

SNMG

SNMM



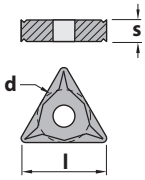


General angle 90 °

Boring holders

PTFN

	D	h	h1	L1	L2	f	A	Plates	Kg						
S25T PTFN R/L 16	25	23	11,5	300	40	17	31	TNM.. 1604..	0,700	8216	1605	5002	-	-	-
S32U PTFN R/L 16	32	30	15,0	350	50	22	39	TNM.. 1604..	2,050	8009	1606	5025	3416	4109	0009
S40V PTFN R/L 22	40	37	18,5	400	60	27	48	TNM.. 2204..	3,750	8012	1608	5003	3422	4112	0012
S50W PTFN R/L 22	50	47	23,5	450	65	35	61	TNM.. 2204..	6,500	8012	1608	5003	3422	4112	0012

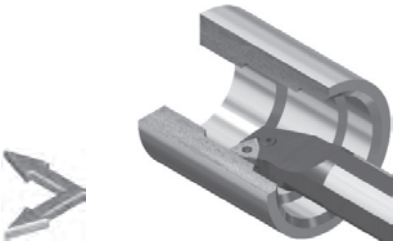


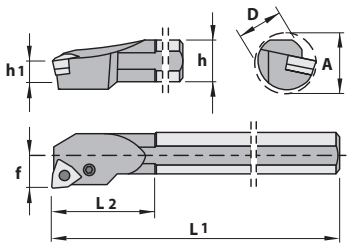
TNM..	l	s	d	TNMA	TNMG
TNM.. 1604..	16,50	4,76	9,52		
TNM.. 2204..	22,00	4,76	12,70		

With internal coolant

A-PTFN

	D	h	h1	L1	L2	f	A	Plates	Kg						
A25R PTFN R/L 16	25	23	11,5	200	40	17	31	TNM.. 1604..	0,700	8216	1605	5002	-	-	-
A32S PTFN R/L 16	32	30	15,0	250	50	22	39	TNM.. 1604..	1,400	8009	1606	5025	3416	4109	0009
A40T PTFN R/L 22	40	37	18,5	300	60	27	48	TNM.. 2204..	2,650	8012	1608	5003	3422	4112	0012



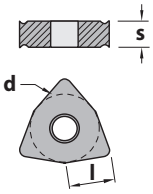


General angle 95 °

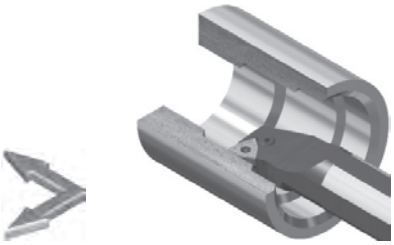
Boring holders

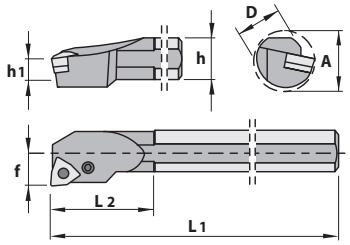
PWLN

	D	h	h1	L1	L2	f	A	Plates	Kg						
S16R PWLN R/L 06	16	15	7,5	200	24	11	20	WNM.. 0604..	0,300	8216	1605	5002	-	-	-
S20S PWLN R/L 06	20	18	9,0	250	36	13	27	WNM.. 0604..	0,550	8216	1605	5002	-	-	-
S25T PWLN R/L 06	25	23	11,5	300	40	17	31	WNM.. 0604..	0,700	8009	1606	5025	3007	4109	0009
S25T PWLN R/L 08	25	23	11,5	300	40	17	31	WNM.. 0804..	0,700	8212	1626	5025	-	-	-
S32U PWLN R/L 08	32	30	15,0	350	50	22	39	WNM.. 0804..	2,050	8012	1608	5003	3008	4112	0012
S40V PWLN R/L 08	40	37	18,5	400	60	27	48	WNM.. 0804..	3,750	8012	1608	5003	3008	4112	0012



WNM..	l	s	d	WNMA	WNMG
WNM.. 0604..	6,45	4,76	9,52		
WNM.. 0804..	8,14	4,76	12,70		



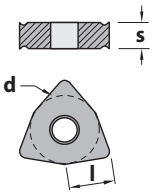


General angle 95 °

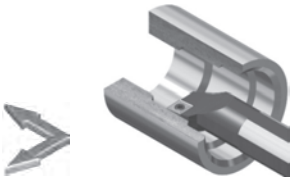
With internal coolant

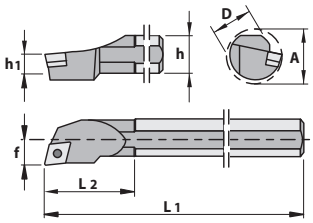
A-PWLN

	D	h	h1	L1	L2	f	A	Plates	Kg						
A16M PWLN R/L 06	16	15	7,5	150	24	11	20	WNM.. 0604..	0,200	8216	1605	5002	-	-	-
A20Q PWLN R/L 06	20	18	9,0	180	36	13	27	WNM.. 0604..	0,400	8216	1605	5002	-	-	-
A25R PWLN R/L 06	25	23	11,5	200	40	17	31	WNM.. 0604..	0,700	8009	1606	5025	3007	4109	0009
A32S PWLN R/L 06	32	30	15,0	250	50	22	39	WNM.. 0604..	1,400	8009	1606	5025	3007	4109	0009
A25R PWLN R/L 08	25	23	11,5	200	40	17	31	WNM.. 0804..	0,700	8212	1626	5025	-	-	-
A32S PWLN R/L 08	32	30	15,0	250	50	22	39	WNM.. 0804..	1,400	8012	1608	5003	3008	4112	0012
A40T PWLN R/L 08	40	37	18,5	300	60	27	48	WNM.. 0804..	2,650	8012	1608	5003	3008	4112	0012



WNM..	l	s	d	WNMA	WNMG
WNM.. 0604..	6,45	4,76	9,52		
WNM.. 0804..	8,14	4,76	12,70		



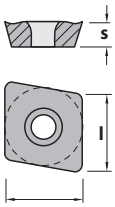


General angle 95 °

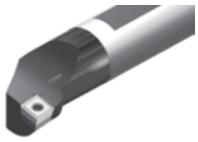
Boring holders with steel shank

SCLC

	D	h	h1	L1	L2	f	A	Plates	Kg				
S08K SCLC R/L 06	8	7	3,5	125	16	5	11	CC.. 0602..	0,040	1425	5507	-	-
S10M SCLC R/L 06	10	9	4,5	150	25	7	13	CC.. 0602..	0,060	1425	5507	-	-
S12M SCLC R/L 06	12	11	5,5	150	25	9	16	CC.. 0602..	0,150	1425	5507	-	-
S12M SCLC R/L 09	12	11	5,5	150	25	9	16	CC.. 09T3..	0,150	1440	5515	-	-
S12Q SCLC R/L 09	12	11	5,5	180	25	9	16	CC.. 09T3..	0,150	1440	5515	-	-
S16R SCLC R/L 09	16	15	7,5	200	30	11	20	CC.. 09T3..	0,300	1440	5515	-	-
S20S SCLC R/L 09	20	18	9,0	250	35	13	24	CC.. 09T3..	0,550	1440	5515	-	-
S25T SCLC R/L 09	25	23	11,5	300	40	17	31	CC.. 09T3..	0,550	1240	5515	-	-
S20S SCLC R/L 12	20	18	9,0	250	35	13	24	CC.. 1204..	0,550	1250	5520	-	-
S25T SCLC R/L 12	25	23	11,5	300	40	17	31	CC.. 1204..	0,700	1250	5520	-	-
S32U SCLC R/L 12	32	30	15,0	350	50	22	39	CC.. 1204..	2,050	1540	5517	3614	1760
S40V SCLC R/L 12	40	37	18,5	400	60	27	48	CC.. 1204..	3,750	1540	5517	3614	1760
S50W SCLC R/L 12	50	47	23,5	450	65	35	61	CC.. 1204..	6,500	1540	5517	3614	1760



CC..	l	s	d	CCGT	CCMT	CCMW
CC.. 0602..	6,45	2,38	6,35			
CC.. 09T3..	9,65	3,97	9,52			
CC.. 1204..	12,90	4,76	12,70			



With internal coolant

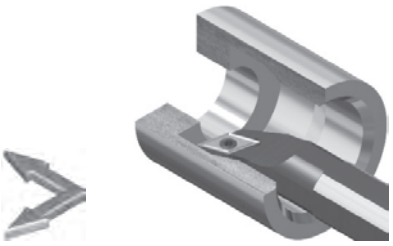
A-SCLC

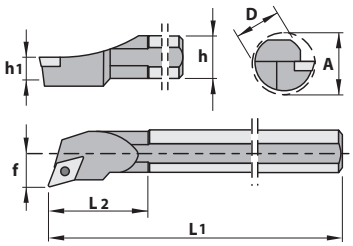
	D	h	h1	L1	L2	f	A	Plates	Kg				
A08F SCLC R/L 06	8	7	3,5	80	16	5	11	CC.. 0602..	0,030	1425	5507	-	-
A10H SCLC R/L 06	10	9	4,5	100	25	7	13	CC.. 0602..	0,040	1425	5507	-	-
A12K SCLC R/L 06	12	11	5,5	125	25	9	16	CC.. 0602..	0,100	1425	5507	-	-
A16M SCLC R/L 09	16	15	7,5	150	30	11	20	CC.. 09T3..	0,200	1440	5515	-	-
A20Q SCLC R/L 09	20	18	9,0	180	35	13	24	CC.. 09T3..	0,400	1440	5515	-	-
A25R SCLC R/L 09	25	23	11,5	200	40	17	31	CC.. 09T3..	0,700	1440	5515	-	-
A32S SCLC R/L 12	32	30	15,0	250	50	22	39	CC.. 1204..	1,400	1540	5517	3614	1760
A40T SCLC R/L 12	40	37	18,5	300	60	27	48	CC.. 1204..	2,650	1540	5517	3614	1760

With internal coolant
Anti-vibration shank

E-SCLC

	D	h	h1	L1	L2	f	A	Plates	Kg		
E08K SCLC R/L 06	8	7	3,5	125	16	5	11	CC.. 0602..	0,080	1425	5507
E10M SCLC R/L 06	10	9	4,5	150	25	7	13	CC.. 0602..	0,150	1425	5507
E12M SCLC R/L 06	12	11	5,5	150	25	9	16	CC.. 0602..	0,250	1425	5507
E16R SCLC R/L 09	16	15	7,5	200	30	11	20	CC.. 09T3..	0,600	1440	5515



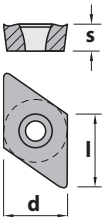


General angle 107°30´

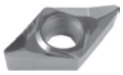
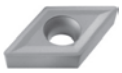
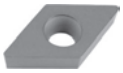
Boring holders

SDQC

	D	h	h1	L1	L2	f	A	Plates	Kg				
S10M SDQC R/L 07	10	9	4,5	150	25	7	13	DC.. 0702..	0,060	1425	5507	-	-
S12M SDQC R/L 07	12	11	5,5	150	25	9	16	DC.. 0702..	0,150	1225	5507	-	-
S16R SDQC R/L 07	16	15	7,5	200	30	11	20	DC.. 0702..	0,300	1225	5507	-	-
S20S SDQC R/L 07	20	18	9,0	250	35	13	24	DC.. 0702..	0,550	1225	5507	-	-
S20S SDQC R/L 11	20	18	9,0	250	35	13	24	DC.. 11T3..	0,550	1240	5515	-	-
S25T SDQC R/L 11	25	23	11,5	300	40	17	31	DC.. 11T3..	0,700	1240	5515	-	-
S32U SDQC R/L 11	32	30	15,0	350	50	22	39	DC.. 11T3..	2,050	1335	5516	3714	1750
S40V SDQC R/L 11	40	37	18,5	400	60	27	48	DC.. 11T3..	3,750	1335	5516	3714	1750



DC..	l	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

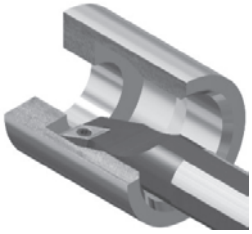
DCGT-AL	DCMT	DCMW
		

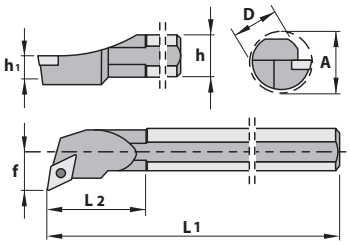
With internal coolant

A-SDQC

	D	h	h1	L1	L2	f	A	Plates	Kg				
A12K SDQC R/L 07	12	11	5,5	125	25	9	16	DC.. 0702..	0,100	1225	5507	-	-
A16M SDQC R/L 07	16	15	7,5	150	30	11	20	DC.. 0702..	0,200	1225	5507	-	-
A20Q SDQC R/L 11	20	18	9,0	180	35	13	24	DC.. 11T3..	0,400	1240	5515	-	-
A25R SDQC R/L 11	25	23	11,5	200	40	17	31	DC.. 11T3..	0,700	1240	5515	-	-
A32S SDQC R/L 11	32	30	15,0	250	50	22	39	DC.. 11T3..	1,400	1335	5516	3714	1750
A40T SDQC R/L 11	40	37	18,5	300	60	27	48	DC.. 11T3..	2,650	1335	5516	3714	1750

General angle 93°

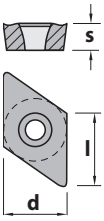




Boring holders

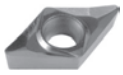
SDUC

	D	h	h1	L1	L2	f	A	Plates	Kg				
S10M SDUC R/L 07	10	9	4,5	150	25	7	13	DC.. 0702..	0,060	1425	5507	-	-
S12M SDUC R/L 07	12	11	5,5	150	25	9	16	DC.. 0702..	0,150	1225	5507	-	-
S12Q SDUC R/L 07	12	11	5,5	180	25	9	16	DC.. 0702..	0,150	1225	5507	-	-
S16R SDUC R/L 07	16	15	7,5	200	30	11	20	DC.. 0702..	0,300	1225	5507	-	-
S20S SDUC R/L 07	20	18	9,0	250	35	13	24	DC.. 0702..	0,550	1225	5507	-	-
S20S SDUC R/L 11	20	18	9,0	250	35	13	24	DC.. 11T3..	0,550	1240	5515	-	-
S25T SDUC R/L 11	25	23	11,5	300	40	17	31	DC.. 11T3..	0,700	1240	5515	-	-
S32U SDUC R/L 11	32	30	15,0	350	50	22	39	DC.. 11T3..	2,050	1335	5516	3714	1750
S40V SDUC R/L 11	40	37	18,5	400	60	27	48	DC.. 11T3..	3,750	1335	5516	3714	1750

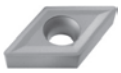


DC..	l	s	d
DC.. 0702..	7,75	2,38	6,35
DC.. 11T3..	11,60	3,97	9,52

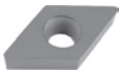
DCGT



DCMT



DCMW



With internal coolant

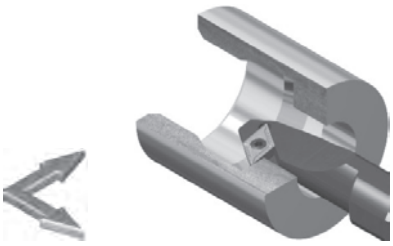
A-SDUC 93°

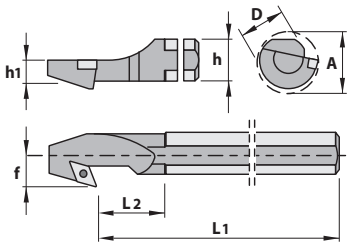
	D	h	h1	L1	L2	f	A	Plates	Kg				
A12K SDUC R/L 07	12	11	5,5	125	25	9	16	DC.. 0702..	0,100	1225	5507	-	-
A16M SDUC R/L 07	16	15	7,5	150	30	11	20	DC.. 0702..	0,200	1225	5507	-	-
A20Q SDUC R/L 11	20	18	9,0	180	35	13	24	DC.. 11T3..	0,400	1440	5515	-	-
A25R SDUC R/L 11	25	23	11,5	200	40	17	31	DC.. 11T3..	0,700	1240	5515	-	-
A32S SDUC R/L 11	32	30	15,0	250	50	22	39	DC.. 11T3..	1,400	1335	5516	3714	1750
A40T SDUC R/L 11	40	37	18,5	300	60	27	48	DC.. 11T3..	2,650	1335	5516	3714	1750

With internal coolant
Anti-vibration shank

E-SDUC 93°

	D	h	h1	L1	L2	f	A	Plates	Kg		
E10M SDUC R/L 07	10	9	4,5	150	25	7	13	DC.. 0702..	0,150	1425	5507
E12M SDUC R/L 07	12	11	5,5	150	25	9	16	DC.. 0702..	0,250	1225	5507
E16R SDUC R/L 07	16	15	7,5	200	30	11	20	DC.. 0702..	0,600	1225	5507



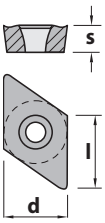


General angle 93 °

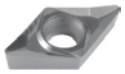
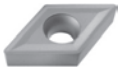
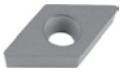
Boring holders

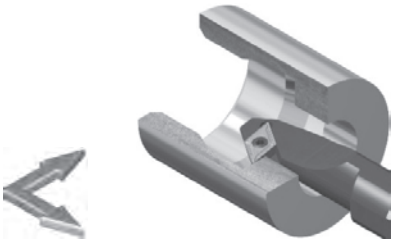
SDUC

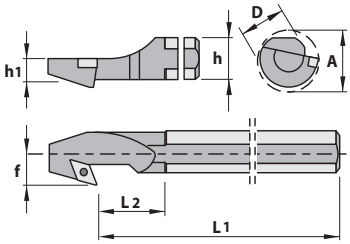
	D	h	h1	L1	L2	f	A	Plates	Kg				
S12M SDUC R/L 07-EX	12	11	5,5	150	25	9	16	DC.. 0702..	0,150	1225	5507	-	-
S16R SDUC R/L 07-EX	16	15	7,5	200	30	11	20	DC.. 0702..	0,300	1225	5507	-	-
S20S SDUC R/L 07-EX	20	18	9,0	250	35	13	24	DC.. 0702..	0,550	1225	5507	-	-
S20S SDUC R/L 11-EX	20	18	9,0	250	35	13	24	DC.. 11T3..	0,550	1240	5515	-	-
S25T SDUC R/L 11-EX	25	23	11,5	300	40	17	31	DC.. 11T3..	0,700	1240	5515	-	-
S32U SDUC R/L 11-EX	32	30	15,0	350	50	22	39	DC.. 11T3..	2,050	1335	5516	3714	1750
S40V SDUC R/L 11-EX	40	37	18,5	400	60	27	48	DC.. 11T3..	3,750	1335	5516	3714	1750



DC..	l	s	d	DCGT	DCMT	DCMW
DC.. 0702..	7,75	2,38	6,35			
DC.. 11T3..	11,60	3,97	9,52			



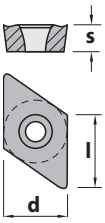


General angle 93 °

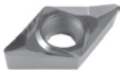
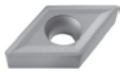
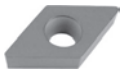
With internal coolant

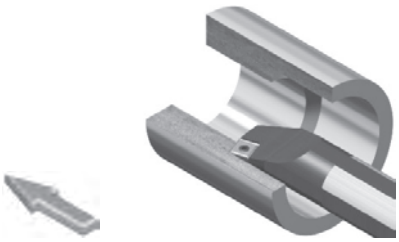
A-SDUC

	D	h	h1	L1	L2	f	A	Plates	Kg		
A12K SDUC R/L 07-EX	12	11	5,5	125	25	9	16	DC.. 0702..	0,100	1225	5507
A16M SDUC R/L 07-EX	16	15	7,5	150	30	11	20	DC.. 0702..	0,200	1225	5507
A20Q SDUC R7L 11-EX	20	18	9,0	180	35	13	24	DC.. 11T3..	0,400	1240	5515
A25R SDUC R/L 11-EX	25	23	11,5	200	40	17	31	DC.. 11T3..	0,700	1240	5515

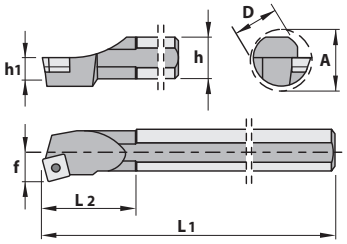


DC..	l	s	d	DCGT	DCMT	DCMW
DC.. 0702..	7,75	2,38	6,35			
DC.. 11T3..	11,60	3,97	9,52			



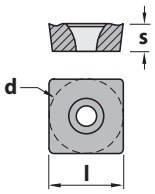
General angle 75 °



Boring holders

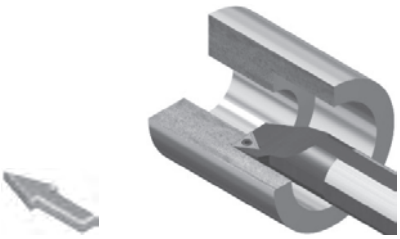
SSKC

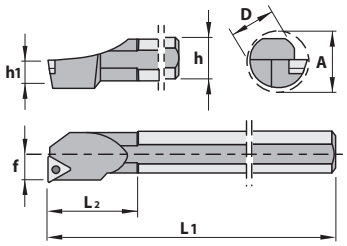
	D	h	h1	L1	L2	f	A	Plates	Kg				
S16R SSKC R/L 09	16	15	7,5	200	30	11	20	SC.. 09T3..	0,300	1440	5515	-	-
S20S SSKC R/L 09	20	18	9,0	250	35	13	24	SC.. 09T3..	0,550	1240	5515	-	-
S25T SSKC R/L 09	25	23	11,5	300	40	17	31	SC.. 09T3..	0,700	1240	5515		
												-	-
S32U SSKC R/L 12	32	30	15,0	350	50	22	39	SC.. 1204..	2,050	1540	5517	3514	1760
S40V SSKC R/L 12	40	37	18,5	400	60	27	48	SC.. 1204..	3,750	1540	5517	3514	1760
S50W SSKC R/L 12	50	47	23,5	450	65	35	61	SC.. 1204..	6,500	1540	5517	3514	1760



SC..	l	s	d
SC.. 09T3..	9,52	3,97	9,52
SC.. 1204..	12,70	4,76	12,70

SCGT	SCMT	SCMW



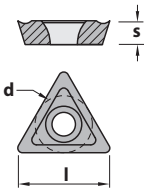


General angle 90 °

Boring holders

STFC

	D	h	h1	L1	L2	f	A	Plates	Kg				
S10M STFC R/L 09	10	9	4,5	150	25	7	13	TC.. 0902..	0,060	1222	5506	-	-
S12M STFC R/L 09	12	11	5,5	150	25	9	16	TC.. 0902..	0,150	1222	5506	-	-
S12M STFC R/L 11	12	11	5,5	150	25	9	16	TC.. 1102..	0,150	1225	5507	-	-
S12Q STFC R/L 11	12	11	5,5	180	25	9	16	TC.. 1102..	0,050	1225	5507	-	-
S16R STFC R/L 11	16	15	7,5	200	30	11	20	TC.. 1102..	0,300	1225	5507	-	-
S20S STFC R/L 11	20	18	9,0	250	35	13	24	TC.. 1102..	0,550	1225	5507	-	-
S20S STFC R/L 16	20	18	9,0	250	35	13	24	TC.. 16T3..	0,550	1240	5515	-	-
S25T STFC R/L 16	25	23	11,5	300	40	17	31	TC.. 16T3..	0,700	1240	5515	-	-
S32U STFC R/L 16	32	30	15,0	350	50	22	39	TC.. 16T3..	2,050	1335	5516	3414	1750
S40V STFC R/L 16	40	37	18,5	400	60	27	48	TC.. 16T3..	3,750	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 0902..	9,62	2,38	5,55			
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			

With internal coolant

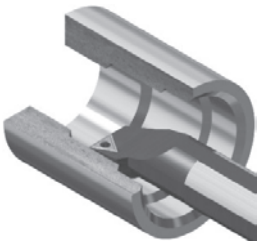
A-STFC 90°

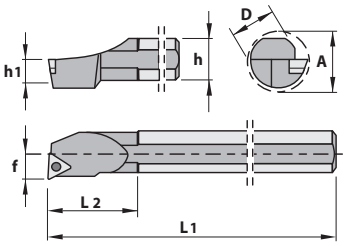
	D	h	h1	L1	L2	f	A	Plates	Kg				
A10H STFC R/L 09	10	9	4,5	100	25	7	13	TC.. 0902..	0,040	1222	5506	-	-
A12K STFC R/L 11	12	11	5,5	125	25	9	16	TC.. 1102..	0,100	1225	5507	-	-
A16M STFC R/L 11	16	15	7,5	150	30	11	20	TC.. 1102..	0,200	1225	5507	-	-
A20Q STFC R/L 11	20	18	9,0	180	35	13	24	TC.. 1102..	0,400	1225	5507	-	-
A25R STFC R/L 16	25	23	11,5	200	40	17	31	TC.. 16T3..	0,700	1240	5515	-	-
A32S STFC R/L 16	32	30	15,0	250	50	22	39	TC.. 16T3..	1,400	1335	5516	3414	1750
A40T STFC R/L 16	40	37	18,5	300	60	27	48	TC.. 16T3..	2,650	1335	5516	3414	1750

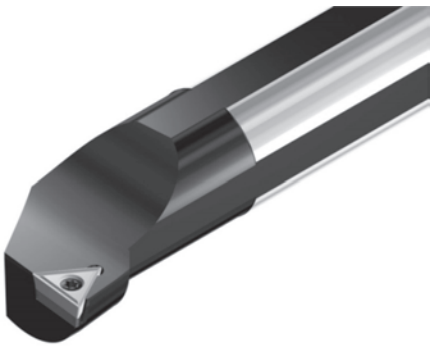
With internal coolant
Anti-vibration shank

E-STFC 90°

	D	h	h1	L1	L2	f	A	Plates	Kg		
E10M STFC R/L 09	10	9	4,5	150	25	7	13	TC.. 0902..	0,150	1222	5506
E12M STFC R/L 11	12	11	5,5	150	25	9	16	TC.. 1102..	0,250	1225	5507
E16R STFC R/L 11	16	15	7,5	200	30	11	20	TC.. 1102..	0,600	1440	5515





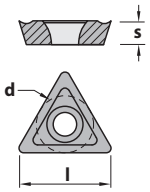


General angle 93 °

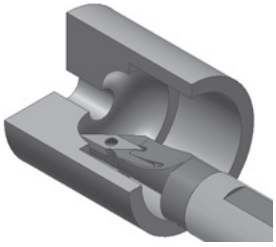
Boring holders

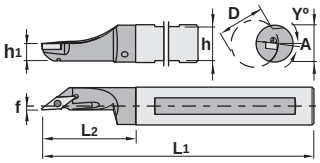
STUC

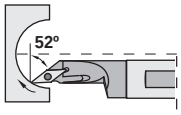
	D	h	h1	L1	L2	f	A	Plates	Kg				
S12M STUC R/L 11	12	11	5,5	150	25	9	16	TC.. 1102..	0,150	1225	5507	-	-
S16R STUC R/L 16	16	15	7,5	200	30	11	20	TC.. 16T3..	0,300	1240	5515	-	-
S20S STUC R/L 16	20	18	9,0	250	35	13	24	TC.. 16T3..	0,550	1240	5515	-	-
S25T STUC R/L 16	25	23	11,5	300	40	17	31	TC.. 16T3..	0,700	1240	5515	-	-
S32U STUC R/L 16	32	30	15,0	350	50	22	39	TC.. 16T3..	2,050	1335	5516	3414	1750



TC..	l	s	d	TCGT	TCMT	TCMW
TC.. 1102..	11,00	2,38	6,35			
TC.. 16T3..	16,50	3,97	9,52			





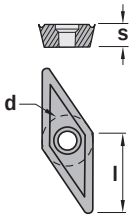


General angle 52 °

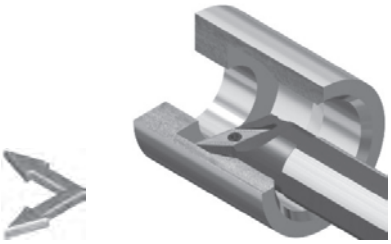
With internal coolant

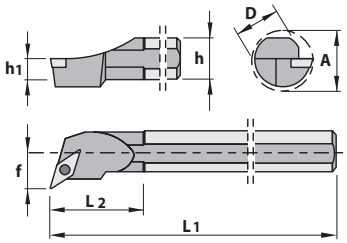
SVJC

	D	h	h1	L1	L2	A	f	Yº	Plates	Kg		
A16M SVJC R/L 11	16	15	7,5	150	30	22	2	6	VC.. 1103..	0,000	1225	5507
A20Q SVJC R/L 11	20	18	9,0	180	38	25	2	5	VC.. 1103..	0,350	1225	5507
A25R SVJC R/L 16	25	23	11,5	200	44	28	2	4	VC.. 1604..	0,000	1240	5515



VC..	l	s	d	VCGT	VCMT
VC.. 1103..	11,00	3,18	6,35		
VC.. 1604..	16,50	4,76	9,52		



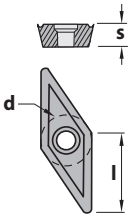


General angle 107°30'

Boring holders

SVQC

	D	h	h1	L1	L2	f	A	Plates	Kg				
S16R SVQC R/L 11	16	15	7,5	200	30	11	20	VC.. 1103..	0,300	1225	5507	-	-
S20S SVQC R/L 11	20	18	9,0	250	35	13	24	VC.. 1103..	0,550	1225	5507	-	-
S16R SVQC R/L 13	16	15	7,5	200	30	13	22	VC.. 1303..	0,300	1230	5508	-	-
S20S SVQC R/L 13	20	18	9,0	250	35	13	24	VC.. 1303..	0,550	1230	5508	-	-
S25T SVQC R/L 16	25	23	11,5	300	40	17	31	VC.. 1604..	0,700	1335	5516	3718	1750



VC..	l	s	d
VC.. 1103..	11,00	3,18	6,35
VC.. 1303..	13,00	3,18	8,00
VC.. 1604..	16,50	4,76	9,52

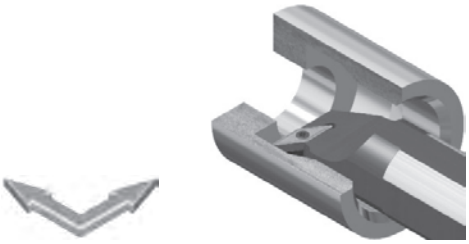
VCGT

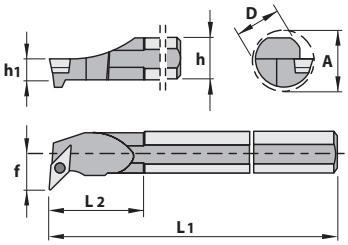
VCMT

With internal coolant

A-SVQC

	D	h	h1	L1	L2	f	A	Plates	Kg				
A16M SVQC R/L 11	16	15	7,5	150	30	11	20	VC.. 1103..	0,200	1225	5507	-	-
A20Q SVQC R/L 11	20	18	9,0	180	35	13	24	VC.. 1103..	0,400	1225	5507	-	-
A25R SVQC R/L 16	25	23	11,5	200	40	17	31	VC.. 1604..	0,700	1335	5516	3718	1750
A32S SVQC R/L 16	32	30	15,0	250	50	22	39	VC.. 1604..	1,400	1335	5516	3718	1750
A40T SVQC R/L 16	40	37	18,5	300	60	27	48	VC.. 1604..	2,650	1335	5516	3718	1750



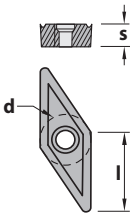


General angle 93 °

Boring holders

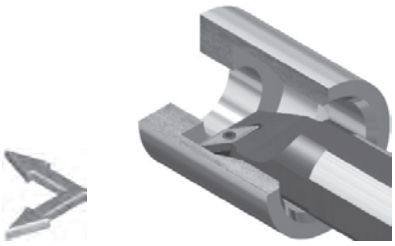
SVUB

	D	h	h1	L1	L2	f	A	Plates	Kg				
S25T SVUB R/L 16	25	23	11,5	300	40	17	31	VBMT 1604..	0,700	1335	5516	3718	1750
S32U SVUB R/L 16	32	30	15,0	350	50	22	39	VBMT 1604..	2,050	1335	5516	3718	1750
S40V SVUB R/L 16	40	37	18,5	400	60	27	48	VBMT 1604..	3,750	1335	5516	3718	1750

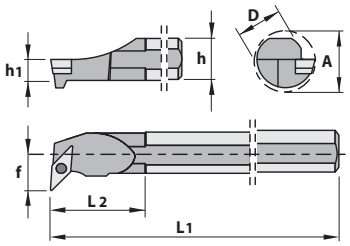


VBMT	l	s	d
VBMT 1604..	16,50	4,76	9,52

VBMT



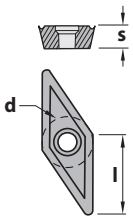
General angle 93 °



Boring holders

SVUC

	D	h	h1	L1	L2	f	A	Plates	Kg				
S16R SVUC R/L 11	16	15	7,5	200	30	11	20	VC.. 1103..	0,300	1225	5507	-	-
S20S SVUC R/L 11	20	18	9,0	250	35	13	24	VC.. 1103..	0,550	1225	5507	-	-
S25T SVUC R/L 16	25	23	11,5	300	40	17	31	VC.. 1604..	0,700	1335	5516	3718	1750
S32U SVUC R/L 16	32	30	15,0	350	50	22	39	VC.. 1604..	2,050	1335	5516	3718	1750
S40V SVUC R/L 16	40	37	18,5	400	60	27	48	VC.. 1604..	3,750	1335	5516	3718	1750



VC..	l	s	d
VC.. 1103..	11,00	3,18	6,35
VC.. 1604..	16,50	4,76	9,52

VCGT	VCMT

With internal coolant

A-SVUC

	D	h	h1	L1	L2	f	A	Plates	Kg				
A16M SVUC R/L 11	16	15	7,5	150	30	11	20	VC.. 1103..	0,200	1225	5507	-	-
A20Q SVUC R/L 11	20	18	9,0	180	35	13	24	VC.. 1103..	0,400	1225	5507	-	-
A25R SVUC R/L 16	25	23	11,5	200	40	17	31	VC.. 1604..	0,700	1335	5516	3718	1750
A32S SVUC R/L 16	32	30	15,0	250	50	22	39	VC.. 1604..	1,400	1335	5516	3718	1750
A40T SVUC R/L 16	40	37	18,5	300	60	27	48	VC.. 1604..	2,650	1335	5516	3718	1750

umt

7

TOOLS WITH CARBIDE INSERTS

GROOVING AND PARTING OFF

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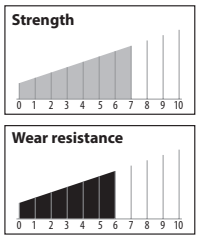
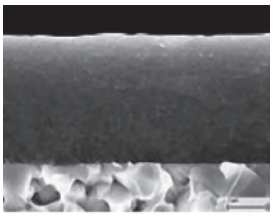
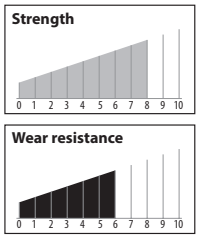
M120G — HC-P30 | HC-M25 | HC-K30 | HC-S30



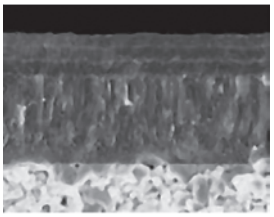
Specification:
Composition: Co 9.0 %; mixed carbides 2.0 %; WC balance | Grain size: 0.7-1 µm | Hardness: HV30 1590 | Coating specification: PVD TiAlN
Recommended application: The universal high-performance grade for steel, austenitic steel, cast iron and heat-resistant alloys.



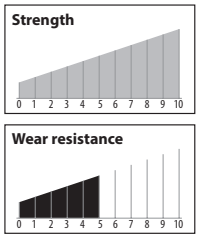
PK320T — HC-P35 | HC-K35 | HC-M30



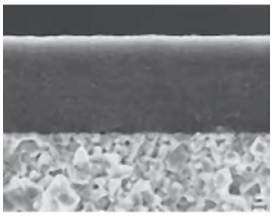
Specification:
Composition: Co 10.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV30 1400 | Coating specification: CVD TiCN-Al2O3 multi-layer
Recommended application: The reliable choice for the machining of steel and cast iron.



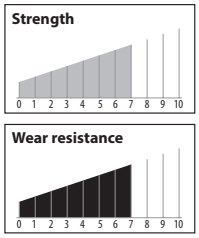
M345G — HC-P45 | HC-M40 | HC-S40



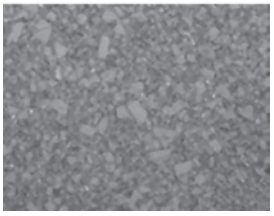
Specification:
Composition: Co 12.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1-1.5 µm | Hardness: HV30 1380 | Coating specification: PVD TiAlTaN
Recommended application: The reliable solution for steel and austenitic steels under unstable conditions.



N216T — HW-N15 | HW-K15



Specification:
Composition: Co 6.0 %; WC balance | Grain size: 1 µm | Hardness: HV30 1630
Recommended application: The uncoated carbide grade for the machining of aluminium and other non-ferrous metals



Grades	ISO	Cutting material	Application (01 05 10 15 20 25 30 35 40 45 50)	P Steel	M Stainless steel	K Cast iron	N Aluminium	S Superalloy
M120G	HC-P30	P		●				
	HC-M25	P			●			
	HC-K30	P				●		
	HC-S30	P						●
PK320T	HC-P35	C		●				
	HC-K35	C				●		
	HC-M30	C			○			
M345G	HC-P45	P		●				
	HC-M40	P			●			
	HC-S40	P						●
N216T	HC-N15	W					●	
	HC-K15	W						

*** CUTTING MATERIAL**
T - cermet
C - with CVD coating
P - with PVD coating
W - without coating

● **First choise**
○ **Second choise**

UM1

Insert with narrow negative chamfer

Universal application

The first choice for cutting off

Suitable for all steel materials with high strength

SST1

Especially for stainless steel and heat-resistant alloys

Problem solver for steel machining

UF1

Excellent cutting chipbreaker with low cutting forces
High cutting edge stability

Processing of thin-walled elements and viscous materials

For low or medium strength materials

Particulary suitable for parting off tubes and thin-walled work pieces

High cutting edge stability

UT

For grooving and turning

Universal application

Very good chip control

UL1

Aluminum processing

Insert with highly positive cutting chipbreaker and sharp cutting edge

Extra-smooth rake face through "microfinish"

Reduced built-up edge

UR

Insert for radius grooves

Universal application

For copy turning

URM

NEW

Especially for stainless steel materials

Insert for radius grooves

Specially designed geometry for stainless steel and heat-resistant alloys

0°

THR/Lx00...IC / p.168
Module holder

ER/L...WD24/WF24 / p.162
External grooving

Cutting width
h = 1.5...8.0

RCE...WD24/WF24 / p.163
Reinforced

Cutting width
h = 2.0...3.0

GIN...WD24 / p.169
Internal

Cutting width
h = 2.0...5.0

ICR/L...WD24 / p.165
Cartridge

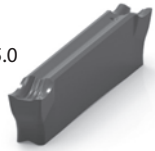
Cutting width
h = 2.0...6.0

WD24

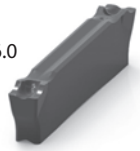
Radial inserts

UM1
h = 1.5...8.0

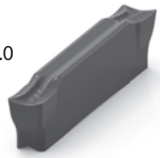
UF1
h = 2.0...5.0



SST1
h = 2.0...6.0



UT1
h = 2.0...5.0



UL1
h = 2.0...4.0

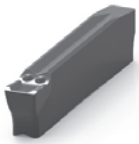
UR
h = 2.0...6.0

p.150

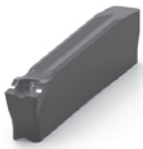
WF24

Radial inserts for deep grovving

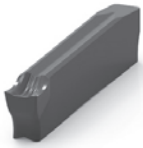
UM1
h = 1.5...4.0



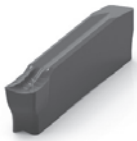
SST1
h = 2.0...5.0



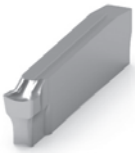
UF1
h = 2.0...4.0



UT1
h = 2.0...4.0



UL1
h = 2.0...4.0

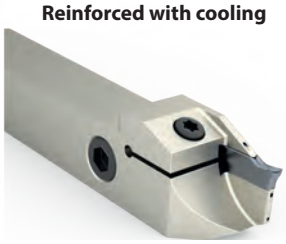


p.154

ER/L...WD24/WF24-IC / p.172
External grooving with cooling

Cutting width
h = 1.5...8.0

RCE...WD24/WF24-IC / p.173
Reinforced with cooling



Cutting width
h = 2.0...3.0

EN...WF24N...
EN...WSN...
EN...WF24N...IC / p.172
Blades

Cutting width
h = 2.0...3.0

45° **THR/Lx45...IC** / p.168
Module holder

90° **THR/Lx90...IC** / p.168
Module holder

ER/L...WSN / p.164
External grooving

Cutting width
h = 2.0...6.0

ICR/L...G24 / p.165
Face grooving cartridge

Cutting width
h = 3.0...4.0

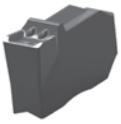
E25R/L...FG24 / p.166
Face grooving

Cutting width
h = 3.0...5.0

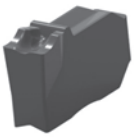
WSN

Radial inserts

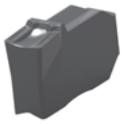
UM1
h = 2.0...6.0



SST1
h = 2.0...6.0



UT1
h = 2.0...6.0



ULM1
h = 2.0...6.0

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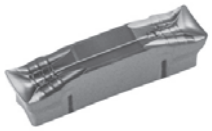
FG24

Axis inserts

UT
h = 3.0...5.0



UR
h = 3.0...4.0

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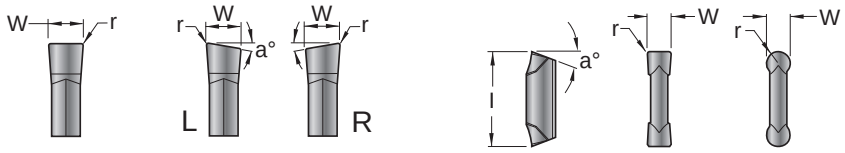
END... / p.173
Blocks

END...IC / p.173
Blocks with cooling

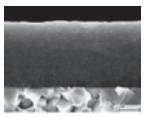


Sort of isert		Art.	W	r/s	l	a°	M120G	PK320T	M345G	N216T
							Grades			
UM1	N	WD24N 1.5.015-00-UM1	1.5	0.15	24	0	●	●	●	
	L	WD24L 2.15-06-UM1	2.0	0.15	24	6	●	●	●	
	N	WD24N 2.02-00-UM1	2.0	0.2	24	0	●	●	●	
	R	WD24R 2.15-06-UM1	2.0	0.15	24	6	●	●	●	
	L	WD24L 3.02-06-UM1	3.0	0.2	24	6	●	●	●	
	N	WD24N 3.02-00-UM1	3.0	0.2	24	0	●	●	●	
	R	WD24R 3.02-06-UM1	3.0	0.2	24	6	●	●	●	
	N	WD24N 4.03-00-UM1	4.0	0.3	24	0	●	●	●	
	N	WD24N 5.04-00-UM1	5.0	0.4	24	0	●	●	●	
	N	WD24N 6.04-00-UM1	6.0	0.4	24	0	●	●	●	
	N	WD35N 8.08-00-UM1	8.0	0.8	35	0	●			
SST1	N	WD24N 1.5.015-0.0-SST1	1.5	0.15	24	-	●	●	●	
	L	WD24L 2.015-06-SST1	2.0	0.15	24	6	●	●	●	
	N	WD24N 2.02-00-SST1	2.0	0.2	24	0	●	●	●	
	R	WD24R 2.015-06-SST1	2.0	0.15	24	6	●	●	●	
	L	WD24L 3.02-06-SST1	3.0	0.2	24	6	●	●	●	
	N	WD24N 3.02-00-SST1	3.0	0.2	24	0	●	●	●	
	R	WD24R 3.02-06-SST1	3.0	0.2	24	6	●	●	●	
	N	WD24N 4.04-00-SST1	4.0	0.4	24	0	●	●	●	
	N	WD24N 5.04-00-SST1	5.0	0.4	24	0	●	●	●	
	N	WD24N 6.04-00-SST1	6.0	0.4	24	0	●	●	●	
UL1	N	WD24N 2.02-00-UL1	2.0	0.2	24	0				●
	N	WD24N 3.03-00-UL1	3.0	0.3	24	0				●
	N	WD24N 4.04-00-UL1	4.0	0.4	24	0				●

	M120G	PK320T	M345G	N216T
P Steel	★	★	★	
M Stainless steel aust.	★	☆	★	
K Cast iron	★	★		
N Aluminium				★
S Hig. temp. alloy	★		★	

★ Best Use ☆ Permissible use

p.160


p.145

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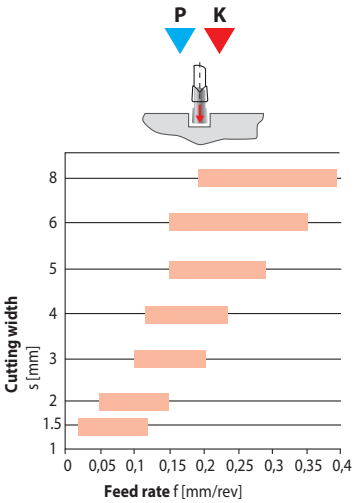
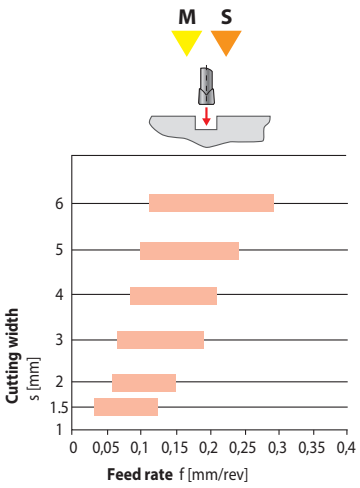
Feed rate for partig off inserts (UM1)



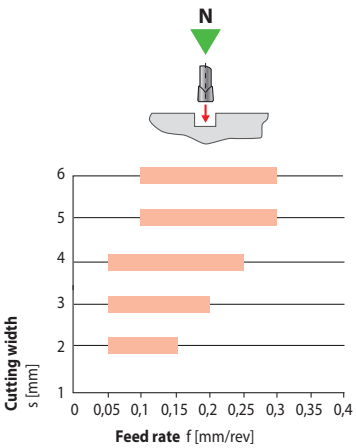
ISO		Cutting material	Hardness HB	Cutting Speed m/min		
				120G VC [m/min]	PK320T VC [m/min]	M345G VC [m/min]
P	Steel	Non alloyed steel 0.15% – 0.45% C	150-250	80-180	110-190	80-150
		Low alloyed steel tempered	250-300	60-150	110-180	70-120
		High alloyed steel tempered	350	50-120	70-160	60-100
		Corrosion resistant steel annealed	200	50-200	120-200	90-160
M	Stainless steel	Annealed pearlitic	200	50-200	120-200	100-180
		Quenched austenitic	180	50-180	100-170	80-150
		Quenched duplex	230-260	50-100	70-110	70-110
		Hardened martensitic	330	50-80	60-90	60-90
K	Cast iron	Grey cast iron	180	100-200	90-180	-
		Spheroidal	160	100-180	100-160	-
		Quenched cast iron	160	80-160	80-150	-

Feed rate for partig off inserts (SST1)

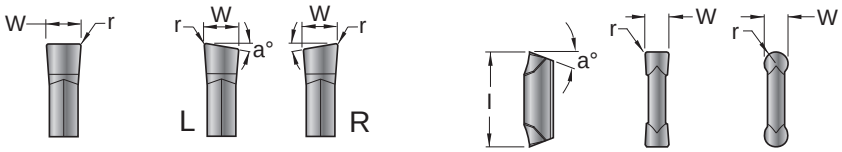


ISO		Cutting material	Hardness HB	Cutting Speed m/min		
				M120G VC [m/min]	PK320T VC [m/min]	M345G VC [m/min]
M	Stainless steel	Non-quenched ferritic	200	50-200	120-200	100-180
		Quenched austenitic	180	50-180	100-170	80-150
		Quenched duplex	230-260	50-100	70-110	70-110
		Hardened martensitic	330	50-80	60-90	60-90
S	Heat resistant alloys	Iron based	200	-	-	20-45
		Nickel or Cobalt based	250	-	-	15-25
		Titanium alloys	Rm 440	-	-	50-120

Feed rate for partig off inserts (UL1)



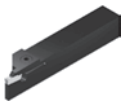
ISO		Cutting material	Hardness HB	Cutting Speed m/min
				M120G VC [m/min]
N	Aluminum alloys	I Wrought Alloys	100	200-2000
		N Cast alloys <12% Si	90	400-1500
		C Copper alloys	90	200-600



Sort of isert		Art.	W	r/s	l	a°/d1	M120G	PK320T	M345G	N216T
							Grades			
UF1	L	WD24L 2.015-06-UF1	2.0	0.15	24	6	●	●	●	
	N	WD24N 2.02-00-UF1	2.0	0.2	24	0	●	●	●	
	R	WD24R 2.015-06-UF1	2.0	0.15	24	6	●	●	●	
	L	WD24L 3.02-06-UF1	3.0	0.2	24	6	●	●	●	
	N	WD24N 3.02-00-UF1	3.0	0.2	24	0	●	●	●	
	R	WD24R 3.02-06-UF1	3.0	0.2	24	6	●	●	●	
	N	WD24N 4.03-00-UF1	4.0	0.3	24	0	●	●	●	
	N	WD24N 5.04-00-UF1	5.0	0.4	24	0	●	●	●	
UT	L	WD24L 2.02-06-UT	2.0	0.2	24	6	●	●	●	
	N	WD24N 2.02-00-UT	2.0	0.2	24	0	●	●	●	
	R	WD24R 2.02-06-UT	2.0	0.2	24	6	●	●	●	
	L	WD24L 3.02-06-UT	3.0	0.2	24	6	●	●	●	
	N	WD24N 3.03-00-UT	3.0	0.3	24	0	●	●	●	
	R	WD24R 3.02-06-UT	3.0	0.2	24	6	●	●	●	
	N	WD24N 4.04-00-UT	4.0	0.4	24	0	●	●	●	
	N	WD24N 5.04-00-UT	5.0	0.4	24	0	●			
UR	N	WD24N 2.00S-1.0-UR	2	1.0	24	-	●	●	●	
	N	WD24N 3.00S-1.5-UR	3	1.5	24	-	●	●	●	
	N	WD24N 4.00S-2.0-UR	4	2.0	24	-	●	●	●	
	N	WD24N 5.00S-2,5-UR	5	2.5	24	-	●	●	●	
	N	WD24N 6.00S-3.0-UR	6	3.0	24	-	●	●	●	
URM	N	WD24N 2.00S-1.0-URM	2	1.0	24	-	●	●	●	
	N	WD24N 3.00S-1.5-URM	3	1.5	24	-	●	●	●	
	N	WD24N 4.00S-2.0-URM	4	2.0	24	-	●	●	●	
	N	WD24N 5.00S-2,5-URM	5	2.5	24	-	●	●	●	
	N	WD24N 6.00S-3.0-URM	6	3.0	24	-	●	●	●	

	M120G	PK320T	M345G	N216T
P Steel	★	★	★	
M Stainless steel aust.	★	☆	★	
K Cast iron	★	★		
N Aluminium				★
S Hig. temp. alloy	★		★	

★ Best Use ☆ Permissible use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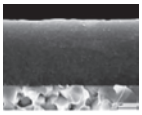
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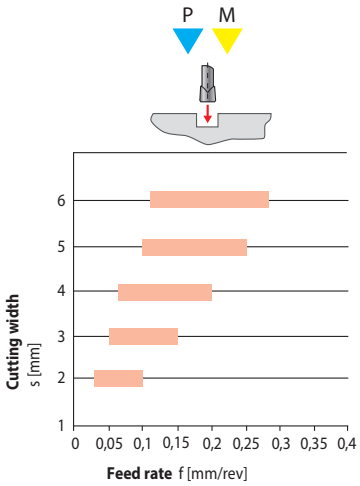
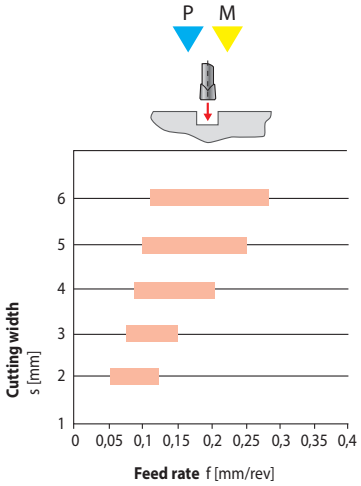
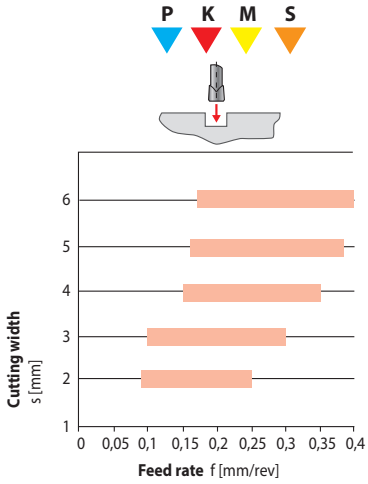
Feed rate for partig off inserts (UF1)



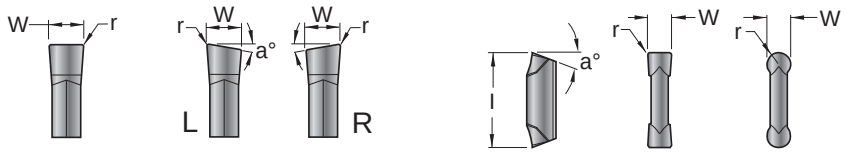
Feed rate for partig off inserts (UT)



Feed rate for partig off inserts (UR)



ISO		Cutting material	Hardness HB	Cutting Speed m/min		
				M120G VC [m/min]	PK320T VC [m/min]	M345G VC [m/min]
P	Steel	**Non alloyed steel 0.15% – 0.45% C**	150-250	80-180	110-190	80-150
		Low alloyed steel tempered	250-300	60-150	110-180	70-120
		High alloyed steel tempered	350	50-120	70-160	60-100
		Corrosion resistant steel annealed	200	50-200	120-200	90-160
M	Stainless steel	**Annealed pearlitic**	200	50-200	120-200	100-180
		Quenched austenitic	180	50-180	100-170	80-150
		Quenched duplex	230-260	50-100	70-110	70-110
		Hardened martensitic	330	50-80	60-90	60-90
K	Cast iron	**Grey cast iron**	180	100-200	90-180	-
		Spheroidal	160	100-180	100-160	-
		Quenched cast iron	160	80-160	80-150	-



Sort of isert	Art.	W	r/s	l	a°/d1	M120G	PK320T	M345G	N216T
						Grades			
UM1	WF24N 2.02-00-UM1	2.0	0.2	24	0	●	●	●	
	WF24N 3.02-00-UM1	3.0	0.2	24	0	●	●	●	
	WF24N 4.03-00-UM1	4.0	0.3	24	0	●	●	●	
UF1	WF24N 2.02-00-SST1	2.0	0.2	24	0	●	●	●	
	WF24N 3.03-00-SST1	3.0	0.3	24	0	●	●	●	
	WF24N 4.03-00-UF1	4.0	0.3	24	0	●	●	●	
SST1	WF24N 3.02-00-SST1	2.0	0.2	24	0	●	●	●	
	WF24N 4.03-00-SST1	3.0	0.2	24	0	●	●	●	
	WF24N 4.03-00-SST1	4.0	0.3	24	0	●	●	●	
UT	WF24N 2.02-00-UT	2.0	0.2	24	0	●	●	●	
	WF24N 3.03-00-UT	3.0	0.3	24	0	●	●	●	
	WF24N 4.04-00-UT	4.0	0.4	24	0	●	●	●	
UL1	WF24N 2.02-00-UL1	2.0	0.2	24	0				●
	WF24N 3.02-00-UL1	3.0	0.2	24	0				●
	WF24N 4.03-00-UL1	4.0	0.3	24	0				●

	M120G	PK320T	M345G	N216T
P Steel	★	★	★	
M Stainless steel aust.	★	☆	★	
K Cast iron	★	★		
N Aluminium				★
S Hig. temp. alloy	★		★	

★ Best Use ☆ Permissible use

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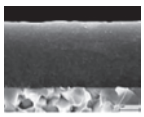
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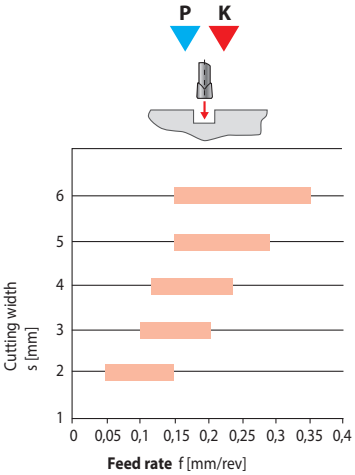
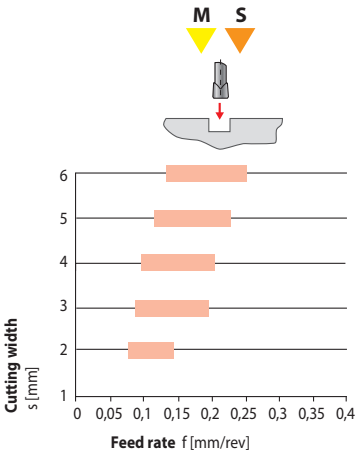
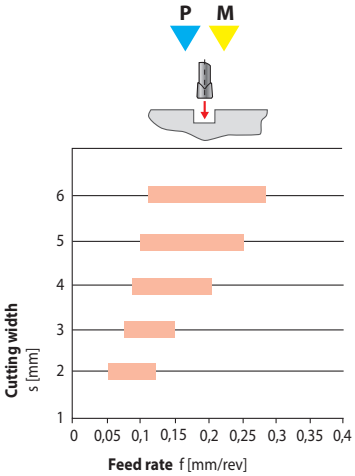
Feed rate for partig off inserts (UM1/UF1)



Feed rate for partig off inserts (SST1)

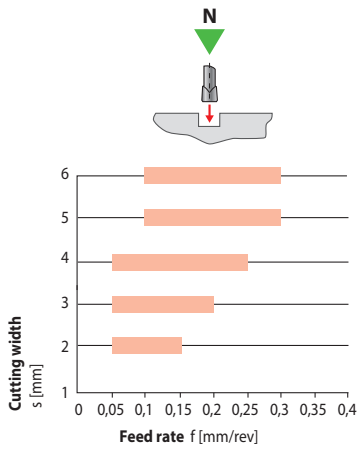


Feed rate for partig off inserts (UT)

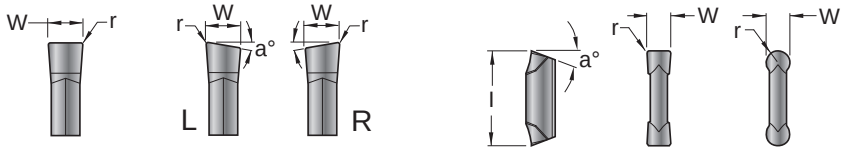


ISO		Cutting material	Hardness HB	Cutting Speed m/min		
				M120G VC [m/min]	PK320T VC [m/min]	M345G VC [m/min]
P	Steel	Non alloyed steel 0.15% – 0.45% C	150-250	80-180	110-190	80-150
		Low alloyed steel tempered	250-300	60-150	110-180	70-120
		High alloyed steel tempered	350	50-120	70-160	60-100
		Corrosion resistant steel annealed	200	50-200	120-200	90-160
M	Stainless steel	Annealed pearlitic	200	50-200	120-200	100-180
		Quenched austenitic	180	50-180	100-170	80-150
		Quenched duplex	230-260	50-100	70-110	70-110
		Hardened martensitic	330	50-80	60-90	60-90
K	Cast iron	Grey cast iron	180	100-200	90-180	-
		Spheroidal	160	100-180	100-160	-
		Quenched cast iron	160	80-160	80-150	-
S	Heat resistant alloys	Iron based	200	-	-	20-45
		Nickel or Cobalt based	250	-	-	15-25
		Titanium alloys	Rm 440	-	-	50-120

Feed rate for partig off inserts



ISO		Cutting material	Hardness HB	Cutting Speed m/min
				M120G VC [m/min]
N	Aluminum alloys	I Wrought Alloys	100	200-2000
		N Cast alloys <12% Si	90	400-1500
		C Copper alloys	90	200-600



Sort of isert	Art.	W	r/s	l	a°/d1	M120G	PK320T	M345G	N216T
						Grades			
UM1	WSN 2.02.00-UM1	2.0	0.2	-	-	●	●	●	
	WSN 3.02.00-UM1	3.0	0.2	-	-	●	●	●	
	WSN 4.03.00-UM1	4.0	0.3	-	-	●	●	●	
	WSN 5.03.00-UM1	5.0	0.3	-	-	●	●	●	
	WSN 6.04.00-UM1	6.0	0.4	-	-	●	●	●	
UT	WSN 2.02.00-UT	2.0	0.2	-	-	●	●	●	
	WSN 3.03.00-UT	3.0	0.3	-	-	●	●	●	
	WSN 4.04.00-UT	4.0	0.4	-	-	●	●	●	
	WSN 5.04.00-UT	5.0	0.4	-	-	●	●	●	
	WSN 6.05.00-UT	6.0	0.5	-	-	●	●	●	
SST1	WSN 2.02.00-SST1	2.0	0.2	-	-	●	●	●	
	WSN 3.02.00-SST1	3.0	0.2	-	-	●	●	●	
	WSN 4.04.00-SST1	4.0	0.4	-	-	●	●	●	
	WSN 5.04.00-SST1	5.0	0.4	-	-	●	●	●	
	WSN 6.04.00-SST1	6.0	0.4	-	-	●	●	●	
UL1	WSN 2.02.00-UL1	2.0	0.2	-	-				●
	WSN 3.03.00-UL1	3.0	0.3	-	-				●
	WSN 4.04.00-UL1	4.0	0.4	-	-				●
	WSN 5.04.00-UL1	5.0	0.4	-	-				●
	WSN 6.04.00-UL1	6.0	0.4	-	-				●

	M120G	PK320T	M345G	N216T
P Steel	★	★	★	
M Stainless steel aust.	★	☆	★	
K Cast iron	★	★		
N Aluminium				★
S Hig. temp. alloy	★		★	

★ Best Use ☆ Permissible use

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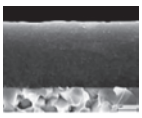
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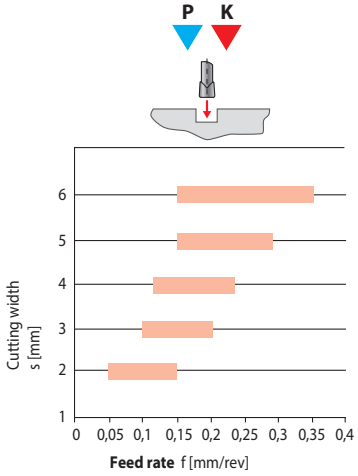
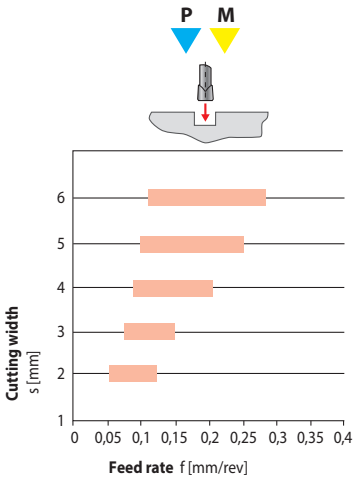
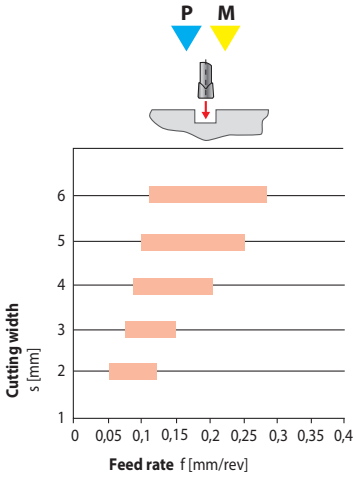
Feed rate for partig off inserts (UM1)



Feed rate for partig off inserts (SST1)

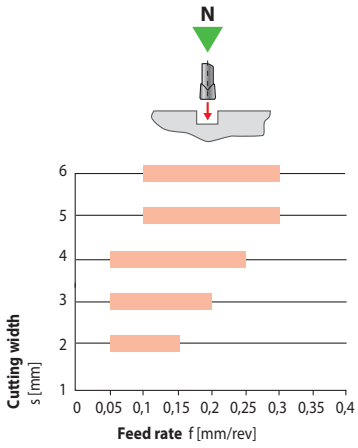


Feed rate for partig off inserts (UT)

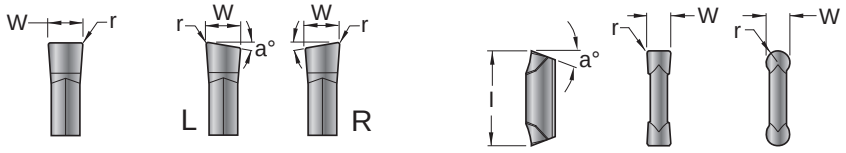


ISO		Cutting material	Hardness HB	Cutting Speed m/min		
				M120G VC [m/min]	PK320T VC [m/min]	M345G VC [m/min]
P	Steel	Non alloyed steel 0.15% – 0.45% C	150-250	80-180	110-190	80-150
		Low alloyed steel tempered	250-300	60-150	110-180	70-120
		High alloyed steel tempered	350	50-120	70-160	60-100
		Corrosion resistant steel annealed	200	50-200	120-200	90-160
M	Stainless steel	Annealed pearlitic	200	50-200	120-200	100-180
		Quenched austenitic	180	50-180	100-170	80-150
		Quenched duplex	230-260	50-100	70-110	70-110
		Hardened martensitic	330	50-80	60-90	60-90
K	Cast iron	Grey cast iron	180	100-200	90-180	-
		Spheroidal	160	100-180	100-160	-
		Quenched cast iron	160	80-160	80-150	-
S	Heat resistant alloys	Iron based	200	-	-	20-45
		Nickel or Cobalt based	250	-	-	15-25
		Titanium alloys	Rm 440	-	-	50-120

Feed rate for partig off inserts (UL1)



ISO		Cutting material	Hardness HB	Cutting Speed m/min
				N216T VC [m/min]
N	Aluminum alloys	I Wrought Alloys	100	200-2000
		N Cast alloys <12% Si	90	400-1500
		C Copper alloys	90	200-600



Sort of isert	Art.	W	r/s	l	a°/d1	M120G	PK320T	M345G	N216T
						Grades			
UR	WSN 2.00.00-UR	2.0	1.0	-	-	●			
	WSN 3.00.00-UR	3.0	1.5	-	-	●			
	WSN 4.00.00-UR	4.0	2.0	-	-	●			
	WSN 5.00.00-UR	5.0	2.5	-	-	●			
	WSN 6.00.00-UR	6.0	3.0	-	-	●			
URM	WSN 2.00.00-URM	2.0	1.0	-	-	●			
	WSN 3.00.00-URM	3.0	1.5	-	-	●			
	WSN 4.00.00-URM	4.0	2.0	-	-	●			
	WSN 5.00.00-URM	5.0	2.5	-	-	●			
	WSN 6.00.00-URM	6.0	3.0	-	-	●			

	M120G	PK320T	M345G	N216T
P Steel -	★	★	★	
M Stainless steel aust.	★	☆	★	
K Cast iron	★	★		
N Aluminium				★
S Hig. temp. alloy	★		★	

★ Best Use ☆ Permissible use

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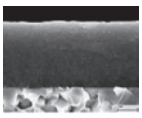
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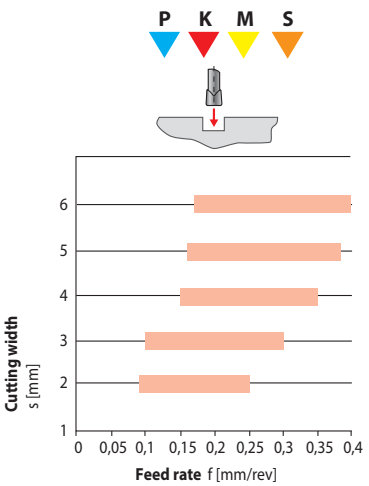
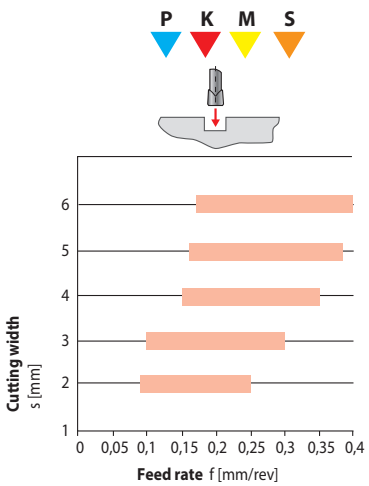
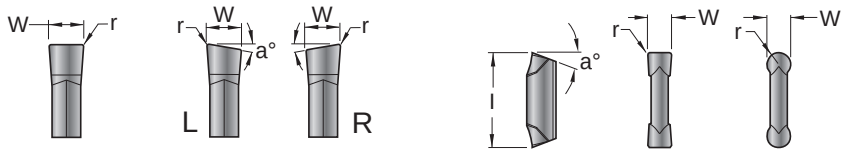
Feed rate for partig off inserts (UR)



Feed rate for partig off inserts (URM)



ISO		Cutting material	Hardness HB	Cutting Speed m/min		
				M120G VC [m/min]	PK320T VC [m/min]	M345G VC [m/min]
P	Steel	**Non alloyed steel 0.15% – 0.45% C**	150-250	80-180	110-190	80-150
		Low alloyed steel tempered	250-300	60-150	110-180	70-120
		High alloyed steel tempered	350	50-120	70-160	60-100
		Corrosion resistant steel annealed	200	50-200	120-200	90-160
M	Stainless steel	**Annealed pearlitic**	200	50-200	120-200	100-180
		Quenched austenitic	180	50-180	100-170	80-150
		Quenched duplex	230-260	50-100	70-110	70-110
		Hardened martensitic	330	50-80	60-90	60-90
K	Cast iron	**Grey cast iron**	180	100-200	90-180	-
		Spheroidal	160	100-180	100-160	-
		Quenched cast iron	160	80-160	80-150	-
S	Heat resistant alloys	**Iron based**	200	-	-	20-45
		Nickel or Cobalt based	250	-	-	15-25
		Titanium alloys	Rm 440	-	-	50-120



Sort of isert	Art.	W	r/s	l	a°/d1	M120G	PK320T	M345G	N216T
						Grades			
UT	FG24N 3.03-00-UT	3.0	0.3	24	0	●	●	●	
	FG24N 4.04-00-UT	4.0	0.4	24	0	●	●	●	
	FG24N 5.04-00-UT	5.0	0.4	24	0	●	●	●	
UR	FG24N 3.00-00-UR	3.0	1.5	24	0	●	●	●	
	FG24N 4.00-00-UR	4.0	2.0	24	0	●	●	●	

	M120G	PK320T	M345G	N216T
P Steel	★	★	★	
M Stainless steel aust.	★	☆	★	
K Cast iron	★	★		
N Aluminium				★
S Hig. temp. alloy	★		★	

★ Best Use ☆ Permissible use

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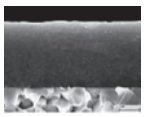
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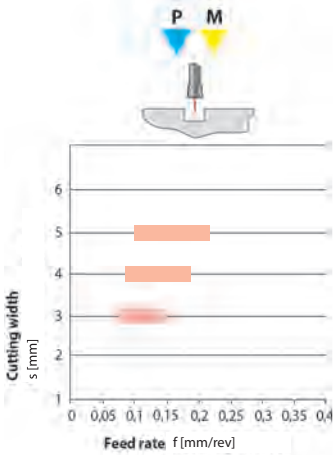
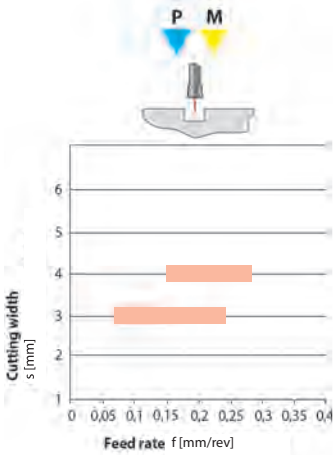
Feed rate for face grooving (UT)

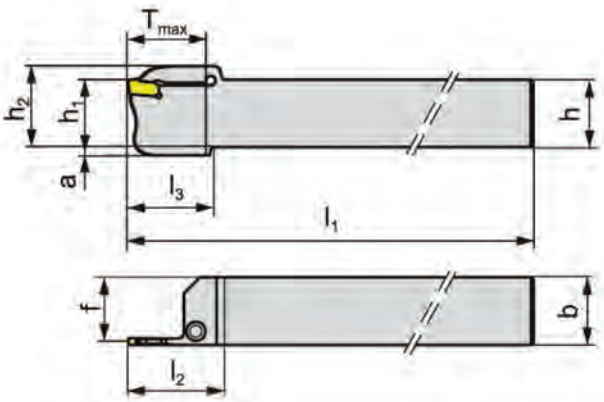


Feed rate for face grooving (UR)



ISO		Cutting material	Hardness HB	Cutting Speed m/min		
				M120G VC [m/min]	PK320T VC [m/min]	M345G VC [m/min]
P	Steel	**Non alloyed steel 0.15% – 0.45% C**	150-250	80-180	110-190	80-150
		Low alloyed steel tempered	250-300	60-150	110-180	70-120
		High alloyed steel tempered	350	50-120	70-160	60-100
		Corrosion resistant steel annealed	200	50-200	120-200	90-160
M	Stainless steel	**Annealed pearlitic**	200	50-200	120-200	100-180
		Quenched austenitic	180	50-180	100-170	80-150
		Quenched duplex	230-260	50-100	70-110	70-110
		Hardened martensitic	330	50-80	60-90	60-90
K	Cast iron	**Grey cast iron**	180	100-200	90-180	-
		Spheroidal	160	100-180	100-160	-
		Quenched cast iron	160	80-160	80-150	-

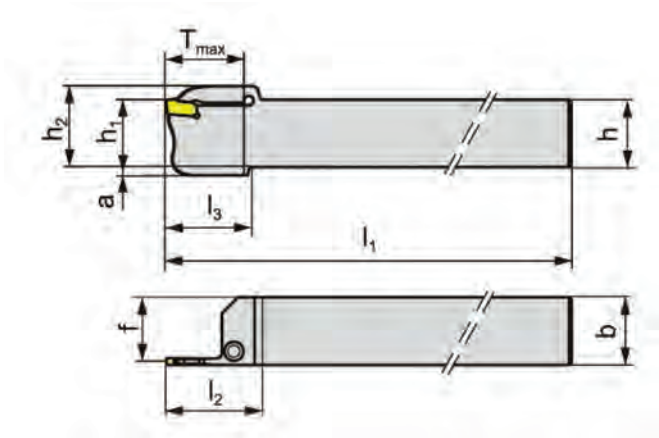
Toolholders for external turning of grooves



Right hand

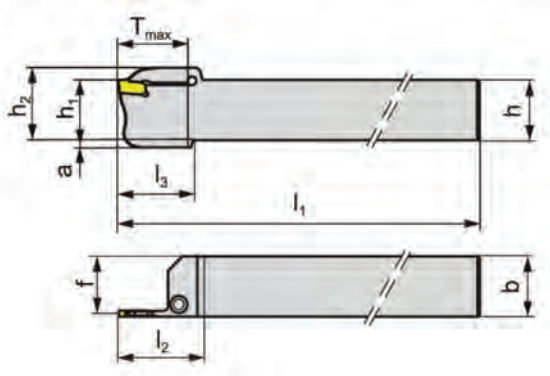
ART.	Insert type	W	T_{max}(mm)	b	h	L_1		
E12R/L0023-1212K-WD24-1.5	WD24	1.5	23	12	12	125	7897218/T20	7897207/T20
E16R/L0023-1616K-WD24-1.5		1.5	23	16	16	125	7897218/T20	7897207/T20
E12R/L0013-1212K-WD24-2	WD24 / WF24	2	13	12	12	125	7897221/T15	7897208/T15
E16R/L0013-1616K-WD24-2		2	13	16	16	125	M0102554/T20	7897207/T20
E20R/L0013-2020K-WD24-2		2	13	20	20	125	7897218/T20	7897207/T20
E12R/L0013-1212K-WD24-3	WD24 / WF24	3	13	12	12	125	7897221/T15	7897208/T15
E16R/L0013-1616K-WD24-3		3	13	16	16	125	M0102554/T20	7897207/T20
E20R/L0013-2020K-WD24-3		3	13	20	20	125	7897218/T20	7897207/T20
E25R/L0013-2525K-WD24-3		3	13	25	25	125	7897218/T20	
E16R/L0025-1616K-WD24-3		3	25	16	16	125	M0102554/T20	7897207/T20
E20R/L0025-2020K-WD24-3		3	25	20	20	125	7897218/T20	7897207/T20
E25R/L0025-2525K-WD24-3		3	25	25	25	125	7897218/T20	7897207/T20
E32R/L0025-3232P-WD24-3		3	25	32	32	170	7897218/T20	7897207/T20
E40R/L0025-4040S-WD24-3		3	25	40	40	250	7897218/T20	7897207/T20
E16R/L0025-1616K-WD24-4	WD24 / WF24	4	25	16	16	125	M0102554/T20	7897207/T20
E20R/L0025-2020K-WD24-4		4	25	20	20	125	7897218/T20	7897207/T20
E25R/L0025-2525K-WD24-4		4	25	25	25	125	7897218/T20	7897207/T20
E20R/L0025-2020M-WD24-5	WD24 / WF24	5	25	20	20	150	7897218/T20	7897207/T20
E25R/L0025-2525M-WD24-5		5	25	25	25	150	7897218/T20	7897207/T20
E20R/L0025-2020M-WD24-06		6	25	20	20	150	7897218/T20	7897207/T20
E25R/L0025-2525M-WD24-06		6	25	25	25	150	11007006	120165558
E32R/L0025-3232P-WD24-06		6	25	32	32	170	7897218/T20	7897207/T20
E40R/L0025-4040S-WD24-06		6	25	40	40	250	11007006	120165558
E25R/L0032-2525P-WD35-08	WD35	8	32	25	25	170	7897218/T20	7897207/T20
E32R/L0032-3232P-WD35-08		8	32	32	32	170	11007006	120165558

Toolholders for external turning of grooves



Right hand

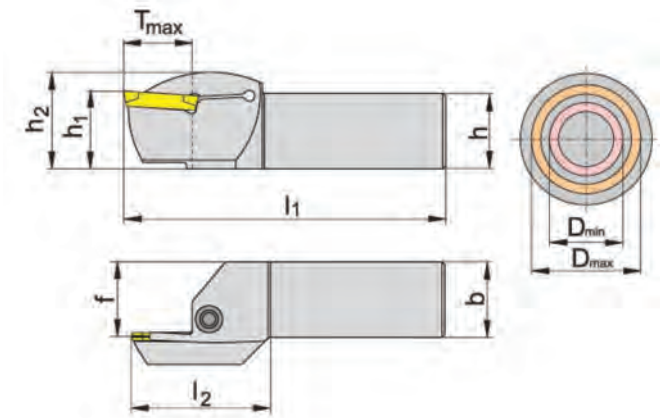
ART.	Insert type	W	T_{max}(mm)	b	h	L_1		
RCE12R/L0013-1212K-WD24-2	WD24/WF24	2	13	12	12	125	195068	12380791
RCE16R/L0013-1616K-WD24-2		2	13	16	16	125	195068	12380791
RCE12R/L0021-1212K-WD24-2	WD24 / WF24	2	21	12	12	125	195068	12380791
RCE16R/L0021-1616K-WD24-2		2	21	16	16	125	195068	12380791
RCE12R/L0013-1212K-WD24-3	WD24 / WF24	3	13	12	12	125	195068	12380791
RCE16R/L0013-1616K-WD24-3		3	13	16	16	125	195068	12380791
RCE12R/L0021-1212K-WD24-3	WD24 / WF24	3	21	12	12	125	195068	12380791
RCE16R/L0021-1616K-WD24-3		3	21	16	16	125	195068	12380791



Right hand

ART.	Insert type	W	T_{max}(mm)	h	b	L_1		
E16R/L0020-1616K-WSN-2	WSN	2	20	16	16	125	11007006	12380793
E20R/L0020-2020K-WSN-2		2	20	20	20	125	11007006	12380793
E16R/L0020-1616K-WSN-3	WSN	3	20	16	16	125	11007006	12380793
E20R/L0020-2020K-WSN-3		3	20	20	20	125	11007006	12380793
E25R/L0020-2525M-WSN-3		3	20	25	25	150	11007006	12380793
E20R/L0025-2020K-WSN-4	WSN	4	25	20	20	125	11007006	12380793
E25R/L0025-2525M-WSN-4		4	25	25	25	150	11007006	12380793
E20R/L0025-2020K-WSN-5	WSN	5	25	20	20	125	11007006	12380793
E25R/L0025-2525M-WSN-5		5	25	25	25	150	11007006	12380793
E20R/L0025-2020K-WSN-6	WSN	6	25	20	20	125	11007006	12380793
E25R/L0032-2525M-WSN-6		6	32	25	25	150	11007006	12380793

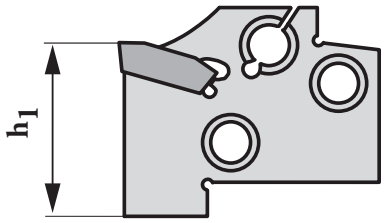
Face grooving holders

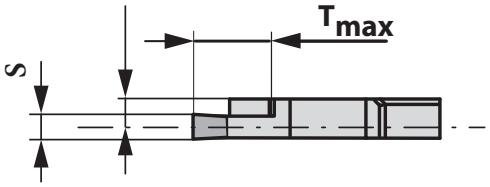


Right hand

ART.	Insert type	W	T_{max}(mm)	D_{min}(mm)	D_{max}(mm)	h2	h=h1	b	L_2	f	L_1
E25R/L0013-2525K-40-50-FG24-3	FG24	3	13	40	50	33	25	25	39,7	24.3	125
E25R/L0013-2525K-50-60-FG24-3		3	13	50	60	33	25	25	39,7	24.3	125
E25R/L0013-2525K-60-70-FG24-3		3	13	60	75	33	25	25	39,7	24.3	125
E25R/L0013-2525K-75-100-FG24-3		3	13	75	100	33	25	25	39,7	24.3	125
E25R/L0013-2525K-100-140-FG24-3		3	13	100	140	33	25	25	39,7	24.3	125
E25R/L0013-2525K-140-200-FG24-3		3	13	140	200	33	25	25	39,7	24.3	125
E25R/L0013-2525K-40-50-FG24-4	FG24	4	13	40	50	33	25	25	39,7	24.3	125
E25R/L0013-2525K-50-60-FG24-4		4	13	50	60	33	25	25	39,7	24.3	125
E25R/L0013-2525K-60-70-FG24-4		4	13	60	75	33	25	25	39,7	24.3	125
E25R/L0013-2525K-75-100-FG24-4		4	13	75	100	33	25	25	39,7	24.3	125
E25R/L0013-2525K-100-140-FG24-4		4	13	100	140	33	25	25	39,7	24.3	125
E25R/L0013-2525K-140-200-FG24-4		4	13	140	200	33	25	25	39,7	24.3	125
E25R/L0020-2525K-45-60-FG24-5	FG24	5	20	45	60	33	25	25	39	23,3	125
E25R/L0020-2525K-60-75-FG24-5		5	20	60	75	33	25	25	39	23,3	125
E25R/L0028-2525K-75-100-FG24-5		5	28	75	100	33	25	25	47	23,3	125
E25R/L0028-2525K-100-180-FG24-5		5	28	100	180	33	25	25	47	23,3	125
E25R/L0032-2525K-180-400-FG24-5		5	32	180	400	33	25	25	51	23,3	125

Radial Cartridge

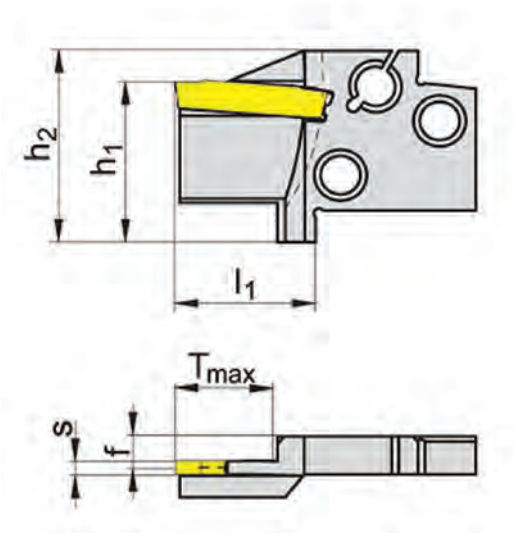




Right hand

ART.	Insert type	S	T_{max}(mm)	h	h_1
ICR/L0025-20-WF24-2	WF24/WD24	2	25	20	20
ICR/L0025-25-WF24-2		2	25	25	25
ICR/L0025-20-WF24-3		3	25	20	20
ICR/L0025-25-WF24-3		3	25	25	25
ICR/L0025-20-WF24-4		4	25	20	20
ICR/L0025-25-WF24-4		4	25	25	25
ICR/L0025-20-WF24-5		5	25	20	20
ICR/L0025-25-WF24-5		5	25	25	25
ICR/L0025-20-WF24-6		6	25	20	20
ICR/L0025-25-WF24-6		6	25	25	25

Axial Cartridge

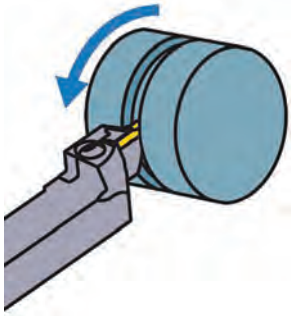


Right hand

ART.	Insert type	S	T_{max}(mm)	D_{min}(mm)	D_{max}(mm)	h2	h=h1	L_1	f
ICR/L0015-2525K-40-50-FG24-3	FG24	3	15	40	50	30	25	22	4.9
ICR/L0015-2525K-50-60-FG24-3		3	15	50	60	30	25	22	4.9
ICR/L0015-2525K-60-70-FG24-3		3	15	60	75	30	25	22	4.9
ICR/L0015-2525K-75-100-FG24-3		3	15	75	100	30	25	22	4.9
ICR/L0015-2525K-100-140-FG24-3		3	15	100	140	30	25	22	4.9
ICR/L0015-2525K-140-200-FG24-3		3	15	140	200	30	25	22	4.9
ICR/L0015-2525K-40-50-FG24-4	FG24	4	15	40	50	30	25	22	4.9
ICR/L0015-2525K-50-60-FG24-4		4	15	50	60	30	25	22	4.9
ICR/L0015-2525K-60-70-FG24-4		4	15	60	75	30	25	22	4.9
ICR/L0015-2525K-75-100-FG24-4		4	15	75	100	30	25	22	4.9
ICR/L0015-2525K-100-140-FG24-4		4	15	100	140	30	25	22	4.9
ICR/L0015-2525K-140-200-FG24-4		4	15	140	200	30	25	22	4.9

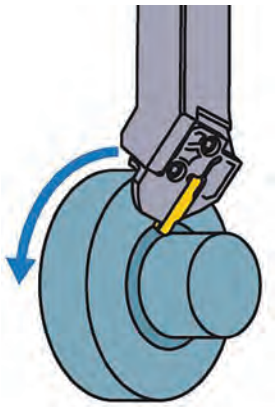
Module Holder

0°



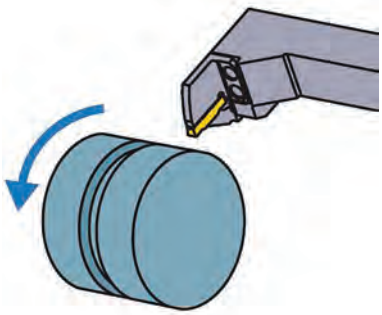
ART.	Cartridge	Shank size h	Shank size h_1
THR/L-2020x00-IC20	IC20	20	20
THR/L-2525x00-IC20	IC25	25	25

45°



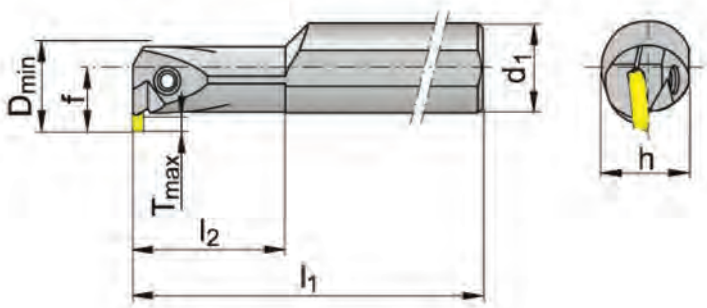
ART.	Cartridge	Shank size h	Shank size h_1
THR/L-2020x45-IC20	IC20	20	20
THR/L-2525x45-IC20	IC25	25	25

90°



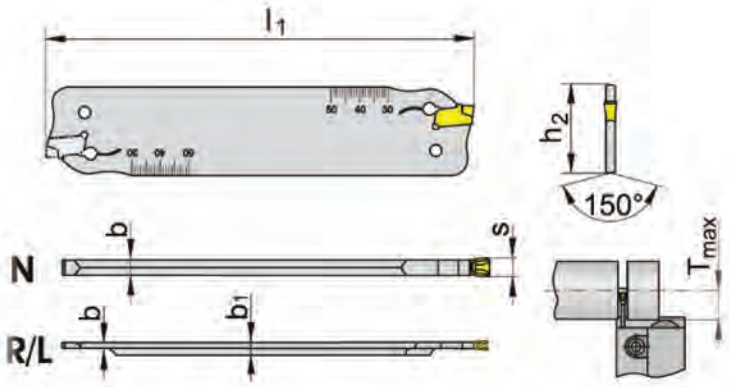
ART.	Cartridge	Shank size h	Shank size h_1
THR/L-2020x90-IC20	IC20	20	20
THR/L-2525x90-IC20	IC25	25	25

Internal grooving



ART.	Insert type.	S	T_{max}(mm)	da	L_2	h	D_{min}	L_1	f			
S25S GINR/L-008-WD24-02	WD24	2	8	25	52	24.4	32	200	21	195069	1338306	220985
S25S GINR/L-009-WD24-03		3	9	25	52	24.5	32	200	22	195069	1338306	220985
S32S GINR/L-011-WD24-03		3	11	32	64	31	42	250	27.5	195069	1338306	220985
S32S GINR/L-011-WD24-04		4	11	32	64	31	42	250	27.5	195069	1338306	220985
S40T GINR/L-012-WD24-04		4	12	40	80	38.5	53	300	32.5	195069	1338306	220985
S40T GINR/L-012-WD24-05		5	12	40	80	38.5	53	300	32.5	195069	1338306	220985

Blades for parting off

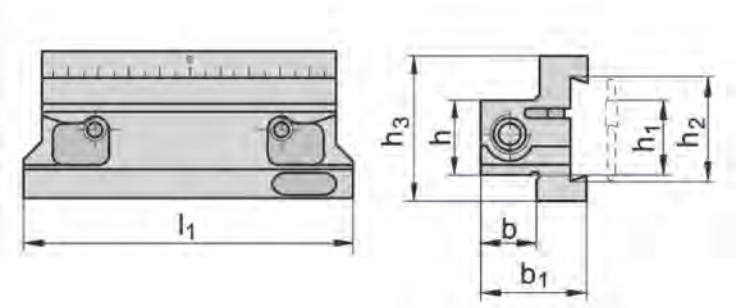


ART.	Insert type	T_{max}(mm)	h_2	L	h_1	S	
ER/L-2602-WF24N-02	WF24/WD24	25	26	110	21.4	2.0	WN-3
ER/L-3202-WF24N-02		25	32	150	25.0	2.0	WN-3
EN-2602-WF24N-02		25	26	110	21.4	2.0	WN-3
EN-3202-WF24N-02		25	32	150	25.0	2.0	WN-3
EN-2603-WF24N-03		35	26	110	21.4	3.0	WN-3
EN-3203-WF24N-03		50	32	150	25.0	3.0	WN-3
EN-2604-WF24N-04		35	26	110	21.4	4.0	WN-4
EN-3204-WF24N-04		50	32	150	25.0	4.0	WN-4
EN-3205-WF24N-05		60	32	150	25.0	5.0	WN-4
EN-3206-WF24N-06		60	32	150	25.0	6.0	WN-4
ER/L-2602-WSN-02	WSN	25	26	110	21.4	2.0	WN-3
ER/L-3202-WSN-02		25	32	150	25.0	2.0	WN-3
EN-2603-WSN-03		35	26	110	21.4	3.0	WN-3
EN-3203-WSN-03		50	32	150	25.0	3.0	WN-3
EN-2604-WSN-04		40	26	110	21.4	4.0	WN-4
EN-3204-WSN-04		50	32	150	25.0	4.0	WN-4
EN-3205-WSN-05		55	32	150	25.0	5.0	WN-4
EN-3206-WSN-06		60	32	150	25.0	6.0	WN-4

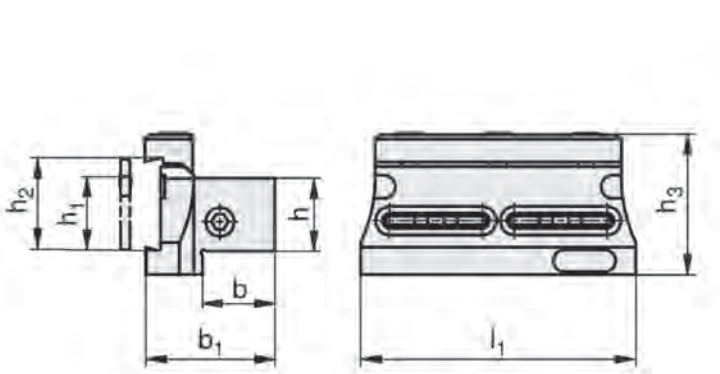
IC-Internal coolant

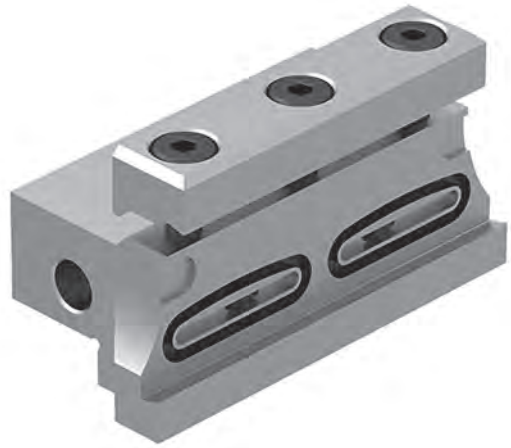
ART.	Insert type.	T_{max}(mm)	h	L	h_1	B	
EN-2602-WF24N-02-IC	WD24/WD24	25	26	110	25.0	2.0	WN-3
EN-3202-WF24N-02-IC		25	32	150	25.0	2.0	WN-3
EN-2603-WF24N-03-IC		35	26	110	21.4	3.0	WN-3
EN-3203-WF24N-03-IC		50	32	150	25.0	3.0	WN-3
ER/L-2602-WSN-02-IC	WSN	25	26	110	21.4	2.0	WN-3
ER/L-3202-WSN-02-IC		25	32	150	25.0	2.0	WN-3
EN-2603-WSN-03-IC		35	26	110	21.4	3.0	WN-3
EN-3203-WSN-03-IC		50	32	150	25.0	3.0	WN-3
EN-2604-WSN-04-IC		40	32	110	21.4	4.0	WN-4
EN-3204-WSN-04-IC		50	32	150	25.0	4.0	WN-4

Clamping block



ART.	Blade type	h_1	L	h	b	Kg	
END 2620	EN26	26	87	20	20	0,550	22485
END 3225	EN32	32	110	25	25	1,000	22485

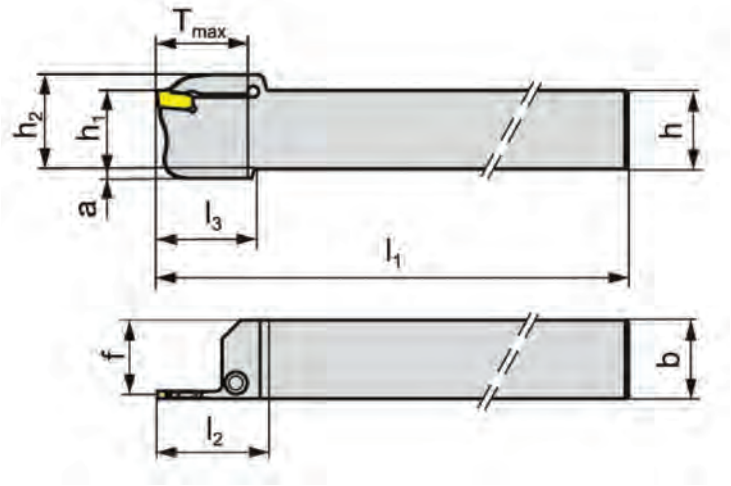




IC-Internal coolant

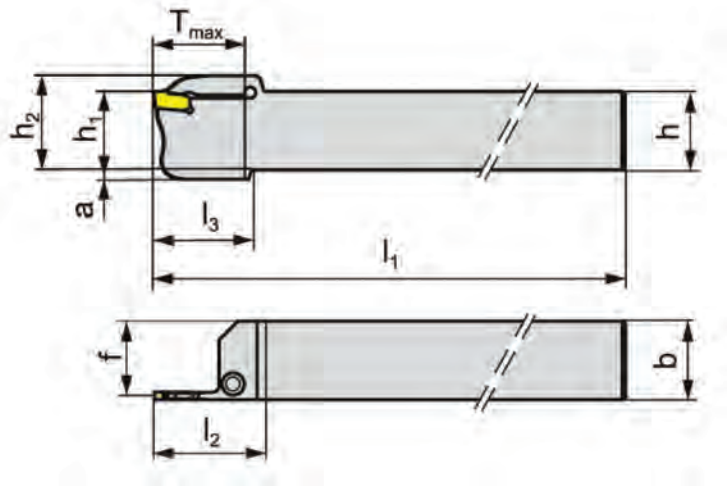
ART.	Blade type	h_1	L	h	b	Kg		
END 2620-IC	EN26	26	82	20	20	0,550	11776816	11960993
END 3225-IC	EN32	32	95	25	25	1,000	11776816	11960993

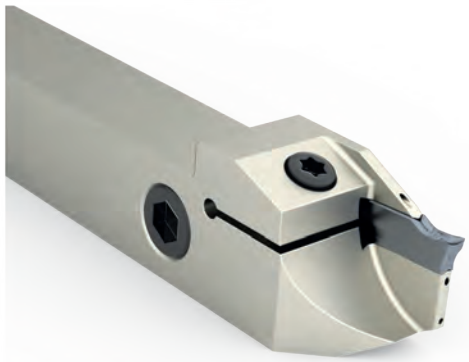
Toolholders with cooling



Right hand

ART.	Insert type	W	T_{max}(mm)	$h=h_1$	b	L_1				
		2	13	12	12	125	4493	4496	11040843	12089802
E16R/L0013-1616K-WD24-2-IC	WD24/WF24	2	13	16	16	125	4493	4496	11040843	12089802
E20R/L0013-2020K-WD24-2-IC		2	13	20	20	125	4493	4496	11040843	12089802
E16R/L0025-1616K-WD24-3-IC		3	25	16	16	125	4493	4496	11040843	12089802
E20R/L0025-2020K-WD24-3-IC		3	25	20	20	125	4493	4496	11040843	12089802
E25R/L0025-2525K-WD24-3-IC	WD24/WF24	3	25	25	25	125	4493	4496	11040843	12089802
E32R/L0025-3232P-WD24-3-IC		3	25	32	32	170	4493	4496	11040843	12089802
E40R/L0025-4040S-WD24-3-IC		3	25	40	40	250	4493	4496	11040843	12089802
E16R/L0025-1616K-WD24-4-IC		4	25	16	16	125	4493	4496	11040843	12089802
E20R/L0025-2020K-WD24-4-IC		4	25	20	20	125	4493	4496	11040843	12089802
E25R/L0025-2525K-WD24-4-IC	WD24/WF24	4	25	25	25	125	4493	4496	11040843	12089802
E32R/L0025-3232P-WD24-4-IC		4	25	32	32	170	4493	4496	11040843	12089802
E32R/L0025-3232S-WD24-4-IC		4	25	40	40	250	4493	4496	11040843	12089802
E20R/L0025-2020K-WD24-5-IC	WD24/WF24	5	25	20	20	125	4493	4496	11040843	12089802
E25R/L0025-2525K-WD24-5-IC		5	25	25	25	125	4493	4496	11040843	12089802
E20R/L0025-2020K-WD24-6-IC	WD24/WF24	6	25	20	20	125	4493	4496	11040843	12089802
E25R/L0025-2525K-WD24-6-IC		6	25	25	25	125	4493	4496	11040843	12089802
E40R/L0032-4040P-WD35-8-IC	WD35	8	32	40	40	170	4493	4496	11040843	12089802





Right hand

ART.	Insert type	W	T_{max}(mm)	h	h_1	L_1		
RCE12R/L0013-1212K-WD24-2-IC	WD24/WF24	2	13	12	12	125	195068	12380791
RCE16R/L0013-1616K-WD24-2-IC		2	13	16	16	125	195068	12380791
RCE16R/L0021-1616K-WD24-2-IC	WD24 / WF24	2	21	16	16	125	195068	12380793
RCE12R/L0013-1212K-WD24-3-IC	WD24 / WF24	3	13	12	12	125	195068	12380793
RCE16R/L0013-1616K-WD24-3-IC		3	13	16	16	125	195068	12380793
RCE16R/L0021-1616K-WD24-3-IC	WD24 / WF24	3	21	16	16	125	195068	12380791

umt

8

TOOLS WITH CARBIDE INSERTS

THREADING INSERTS

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Coated alloys

HS2020

Extra-fine sub-micron grade with high toughness, for optimized performance on hardened steels and cast iron up to 62HRc, titanium alloys and super alloys (hastelloy, inconel and nickel based alloys). (on request)

MS1515

PVD triple layer coated sub-micron grade for stainless steels, cast iron, titanium, non ferrous metals and most of the high temperature alloys. (on request)

PK3025

PVD TiAlN coated sub-micrograin grade for stainless steels and exotic materials at medium to high cutting speeds. (First choice)

Uncoated alloys

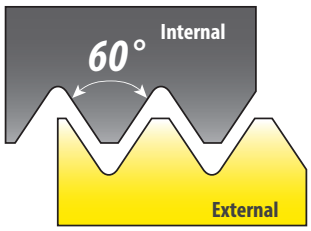
N20K

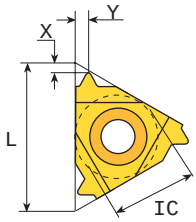
Carbide grade for non ferrous metals, aluminum and cast iron. on request

Grade availability per inserts size

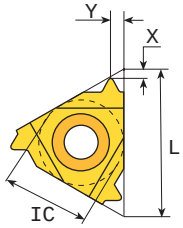
Alloy/Сплав	HS2020	MS1515	PK3025	N20K
Insert sizes	11, 16, 22, 27	11, 16, 22	06, 08,11, 16, 22, 27, 33U,	06, 08, 11, 16, 22, 27, 33U

Partial profile 60 °

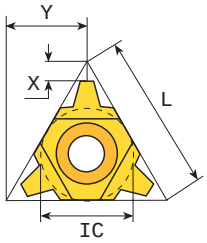




EX-RH
IN-LH



IN-RH
EX LH



U TYPE

Designation				Dimensions				Pitch		Grades			
External		Internal											
RH	LH	RH	LH	X	Y	L	I.C. inch	mm	TPI	PK3025	MS1515	N20K	HS2020
11 ER A60	11 EL A60	11 IR A60	11 IL A60	0.8	0.9	11	1/4	0.5-1.5	48-16	●	○	○	○
16 ER A60	16 EL A60	16 IR A60	16 IL A60	0.8	0.9	16	3/8	0.5-1.5	48-16	●	○	○	○
16 ER G60	16 EL G60	16 IR G60	16 IL G60	1.2	1.7	16	3/8	1.75-3.0	14-8	●	○	○	○
16 ER AG60	16 EL AG60	16 IR AG60	16 IL AG60	1.2	1.7	16	3/8	0.5 -3.0	48-8	●	○	○	○
22 ER N60	22 EL N60	22 IR N60	22 IL N60	1.7	2.5	22	1/2	3.5-5.0	7-5	●	○	○	○
27 ER Q60	27 EL Q60	27 IR Q60	27 IL Q60	2.1	3.1	27	5/8	5.5-6.0	4.5- 4	●		○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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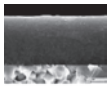

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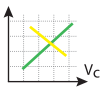

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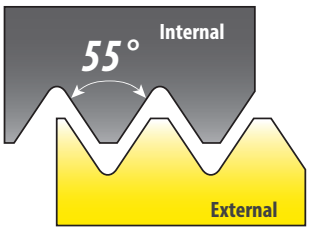
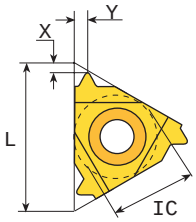
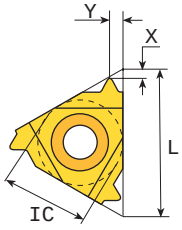
Partial profile 55 °

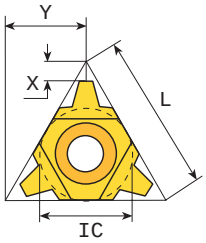




EX-RH
IN-LH



IN-RH
EX LH



U TYPE

Designation				Dimensions				Pitch		Grades			
External		Internal											
RH	LH	RH	LH	X	Y	L	I.C. inch	mm	TPI	PK3025	MS1515	N20K	HS2020
11 ER A55	11 EL A55	11 IR A55	11 IL A55	0.8	0.9	11	1/4	0.5-1.5	48-16	●	○	○	○
16 ER A55	16 EL A55	16 IR A55	16 IL A55	0.8	0.9	16	3/8	0.5-1.5	48-16	●	○	○	○
16 ER G55	16 EL G55	16 IR G55	16 IL G55	1.2	1.7	16	3/8	1.75-3.0	14-8	●	○	○	○
16 ER AG55	16 EL AG55	16 IR AG55	16 IL AG55	1.2	1.7	16	3/8	0.5-3.0	48-8	●	○	○	○
22 ER N55	22 EL N55	22 IR N55	22 IL N55	1.7	2.5	22	1/2	3.5-5.0	7-5	●	○	○	○
27 ER Q55	27 EL Q55	27 IR Q55	27 IL Q55	2.0	2.9	27	5/8	5.5-6.0	4.5- 4	●		○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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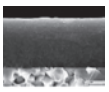
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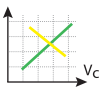

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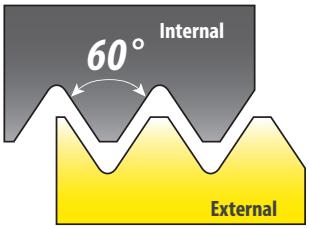
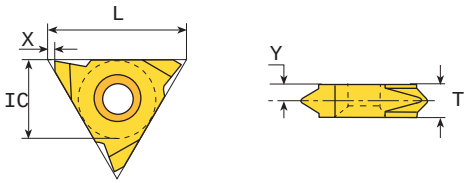
Partial profile 60 °

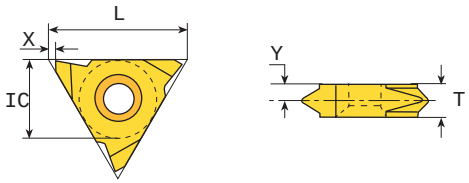
Vertical 60°





Designation				Dimensions					Pitch		Grades			
External		Internal												
RH	LH	RH	LH	X	Y	T	L	I.C. Inch	mm	TPI	PK3025	MS1515	N20K	HS2020
16V ER A60				1.0	0.9	3.6	16	3/8	0.5-1.5	48-16	●	○	○	○
16V ER G60				1.0	1.8	3.6	16	3/8	1.75-3.0	14-8	●	○	○	○
16V ER AG60				1.0	1.8	3.6	16	3/8	0.5-3.0	48-8	●	○	○	○

Vertical 55°



Designation				Dimensions					Pitch					
External		Internal												
RH	LH	RH	LH	X	Y	T	L	I.C. Inch	mm	TPI	PK3025	MS1515	N20K	HS2020
16V ER A55				1.0	0.9	3.6	16	3/8	0.5-1.5	48-16	●	○	○	○
16V ER G55				1.0	1.7	3.6	16	3/8	1.75-3.0	14-8	●	○	○	○
16V ER AG55				1.0	1.8	3.6	16	3/8	0.5-3.0	48-8	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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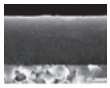
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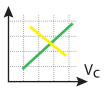

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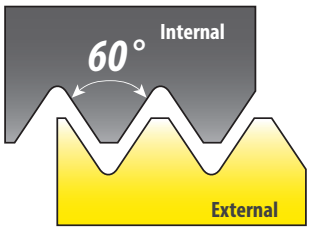
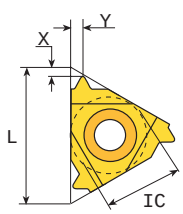
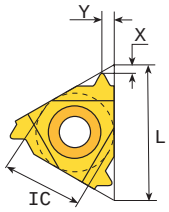
ISO - metric

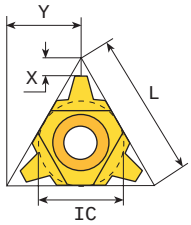




EX▪RH
IN▪LH



IN▪RH
EX LH



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		Designation				Dimensions				Pitch	Grades			
		External		Internal										
X	Y	RH	LH	RH	LH	X	Y	L	I.C. Inch	mm	PK3025	MS1515	N20K	HS2020
				06 IR 0.5 ISO	06 IL 0.5 ISO	0.9	0.5	6	5/32	0.5	●		○	
				06 IR 0.75 ISO	06 IL 0.75 ISO	0.8	0.5	6	5/32	0.75	●		○	
				06 IR 1.0 ISO	06 IL 1.0 ISO	0.7	0.6	6	5/32	1.0	●		○	
				06 IR 1.25 ISO	06 IL 1.25 ISO	0.6	0.6	6	5/32	1.25	●		○	
				08 IR 0.5 ISO	08 IL 0.5 ISO	0.6	0.5	8	3/16	0.5	●		○	
				08 IR 0.75 ISO	08 IL 0.75 ISO	0.6	0.5	8	3/16	0.75	●		○	
				08 IR 1.0 ISO	08 IL 1.0 ISO	0.6	0.6	8	3/16	1.0	●		○	
				08 IR 1.25 ISO	08 IL 1.25 ISO	0.6	0.7	8	3/16	1.25	●		○	
				08 IR 1.5 ISO	08 IL 1.5 ISO	0.6	0.7	8	3/16	1.5	●		○	
				08 IR 1.75 ISO	08 IL 1.75 ISO	0.6	0.8	8	3/16	1.75	●		○	
0.8	0.4	11 ER 0.35 ISO	11 EL 0.35 ISO	11 IR 0.35 ISO	11 IL 0.35 ISO	0.8	0.3	11	1/4	0.35	●	○	○	○
0.7	0.4	11 ER 0.4 ISO	11 EL 0.4 ISO	11 IR 0.4 ISO	11 IL 0.4 ISO	0.8	0.4	11	1/4	0.4	●	○	○	○
0.7	0.4	11 ER 0.45 ISO	11 EL 0.45 ISO	11 IR 0.45 ISO	11 IL 0.45 ISO	0.8	0.4	11	1/4	0.45	●	○	○	○
0.6	0.6	11 ER 0.5 ISO	11 EL 0.5 ISO	11 IR 0.5 ISO	11 IL 0.5 ISO	0.6	0.6	11	1/4	0.5	●	○	○	○
0.6	0.6	11 ER 0.6 ISO	11 EL 0.6 ISO	11 IR 0.6 ISO	11 IL 0.6 ISO	0.6	0.6	11	1/4	0.6	●	○	○	○
0.6	0.6	11 ER 0.7 ISO	11 EL 0.7 ISO	11 IR 0.7 ISO	11 IL 0.7 ISO	0.6	0.6	11	1/4	0.7	●	○	○	○
0.6	0.6	11 ER 0.75 ISO	11 EL 0.75 ISO	11 IR 0.75 ISO	11 IL 0.75 ISO	0.6	0.6	11	1/4	0.75	●	○	○	○
0.6	0.6	11 ER 0.8 ISO	11 EL 0.8 ISO	11 IR 0.8 ISO	11 IL 0.8 ISO	0.6	0.6	11	1/4	0.8	●	○	○	○
0.7	0.7	11 ER 1.0 ISO	11 EL 1.0 ISO	11 IR 1.0 ISO	11 IL 1.0 ISO	0.6	0.7	11	1/4	1.0	●	○	○	○
0.8	0.9	11 ER 1.25 ISO	11 EL 1.25 ISO	11 IR 1.25 ISO	11 IL 1.25 ISO	0.8	0.8	11	1/4	1.25	●	○	○	○
0.8	1.0	11 ER 1.5 ISO	11 EL 1.5 ISO	11 IR 1.5 ISO	11 IL 1.5 ISO	0.8	1.0	11	1/4	1.5	●	○	○	○
0.8	1.1	11 ER 1.75 ISO	11 EL 1.75 ISO	11 IR 1.75 ISO	11 IL 1.75 ISO	0.8	1.1	11	1/4	1.75	●	○	○	○
0.8	1.1	11 ER 2.0 ISO	11 EL 2.0 ISO	11 IR 2.0 ISO	11 IL 2.0 ISO	0.8	0.9	11	1/4	2.0	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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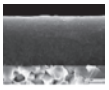

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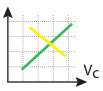

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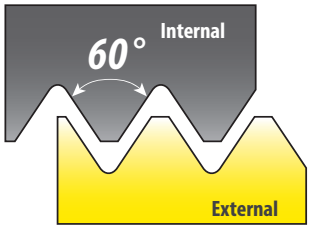
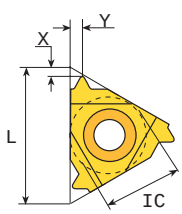
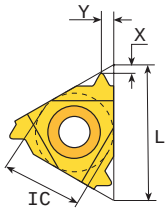
ISO - metric

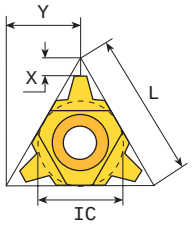




EX▪RH
IN▪LH



IN▪RH
EX LH



U TYPE

		Designation									Grades			
		External		Internal		Dimensions				Pitch				
X	Y	RH	LH	RH	LH	X	Y	L	I.C. Inch	mm	PK3025	MS1515	N20K	HS2020
0.8	0.4	16 ER 0.35 ISO	16 EL 0.35 ISO	16 IR 0.35 ISO	16 IL 0.35 ISO	0.8	0.3	16	3/8	0.35	●	○	○	○
0.7	0.4	16 ER 0.4 ISO	16 EL 0.4 ISO	16 IR 0.4 ISO	16 IL 0.4 ISO	0.8	0.4	16	3/8	0.4	●	○	○	○
0.7	0.4	16 ER 0.45 ISO	16 EL 0.45 ISO	16 IR 0.45 ISO	16 IL 0.45 ISO	0.8	0.4	16	3/8	0.45	●	○	○	○
0.6	0.6	16 ER 0.5 ISO	16 EL 0.5 ISO	16 IR 0.5 ISO	16 IL 0.5 ISO	0.6	0.6	16	3/8	0.5	●	○	○	○
0.6	0.6	16 ER 0.6 ISO	16 EL 0.6 ISO	16 IR 0.6 ISO	16 IL 0.6 ISO	0.6	0.6	16	3/8	0.6	●	○	○	○
0.6	0.6	16 ER 0.7 ISO	16 EL 0.7 ISO	16 IR 0.7 ISO	16 IL 0.7 ISO	0.6	0.6	16	3/8	0.7	●	○	○	○
0.6	0.6	16 ER 0.75 ISO	16 EL 0.75 ISO	16 IR 0.75 ISO	16 IL 0.75 ISO	0.6	0.6	16	3/8	0.75	●	○	○	○
0.6	0.6	16 ER 0.8 ISO	16 EL 0.8 ISO	16 IR 0.8 ISO	16 IL 0.8 ISO	0.6	0.6	16	3/8	0.8	●	○	○	○
0.7	0.7	16 ER 1.0 ISO	16 EL 1.0 ISO	16 IR 1.0 ISO	16 IL 1.0 ISO	0.6	0.7	16	3/8	1.0	●	○	○	○
0.8	0.9	16 ER 1.25 ISO	16 EL 1.25 ISO	16 IR 1.25 ISO	16 IL 1.25 ISO	0.8	0.9	16	3/8	1.25	●	○	○	○
0.8	1.0	16 ER 1.5 ISO	16 EL 1.5 ISO	16 IR 1.5 ISO	16 IL 1.5 ISO	0.8	1.0	16	3/8	1.5	●	○	○	○
0.9	1.2	16 ER 1.75 ISO	16 EL 1.75 ISO	16 IR 1.75 ISO	16 IL 1.75 ISO	0.9	1.2	16	3/8	1.75	●	○	○	○
1.0	1.3	16 ER 2.0 ISO	16 EL 2.0 ISO	16 IR 2.0 ISO	16 IL 2.0 ISO	1.0	1.3	16	3/8	2.0	●	○	○	○
1.1	1.5	16 ER 2.5 ISO	16 EL 2.5 ISO	16 IR 2.5 ISO	16 IL 2.5 ISO	1.1	1.5	16	3/8	2.5	●	○	○	○
1.2	1.6	16 ER 3.0 ISO	16 EL 3.0 ISO	16 IR 3.0 ISO	16 IL 3.0 ISO	1.1	1.5	16	3/8	3.0	●	○	○	○
1.2	1.7	16 ER 3.5 ISO	16 EL 3.5 ISO	16 IR 3.5 ISO	16 IL 3.5 ISO	1.2	1.7	16	3/8	3.5	●	○	○	○
1.6	2.3	22 ER 3.5 ISO	22 EL 3.5 ISO	22 IR 3.5 ISO	22 IL 3.5 ISO	1.6	2.3	22	1/2	3.5	●	○	○	○
1.6	2.3	22 ER 4.0 ISO	22 EL 4.0 ISO	22 IR 4.0 ISO	22 IL 4.0 ISO	1.6	2.3	22	1/2	4.0	●	○	○	○
1.7	2.4	22 ER 4.5 ISO	22 EL 4.5 ISO	22 IR 4.5 ISO	22 IL 4.5 ISO	1.6	2.3	22	1/2	4.5	●	○	○	○
1.7	2.5	22 ER 5.0 ISO	22 EL 5.0 ISO	22 IR 5.0 ISO	22 IL 5.0 ISO	1.6	2.3	22	1/2	5.0	●	○	○	○
1.9	2.7	27 ER 5.5 ISO	27 EL 5.5 ISO	27 IR 5.5 ISO	27 IL 5.5 ISO	1.6	2.3	27	5/8	5.5	●	○	○	○
2.0	2.9	27 ER 6.0 ISO	27 EL 6.0 ISO	27 IR 6.0 ISO	27 IL 6.0 ISO	1.8	2.5	27	5/8	6.0	●		○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

** Special holder required

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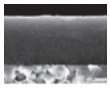

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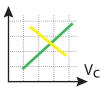

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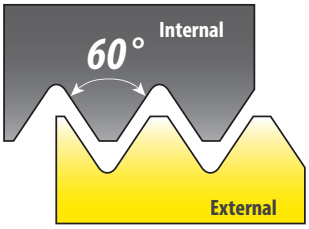
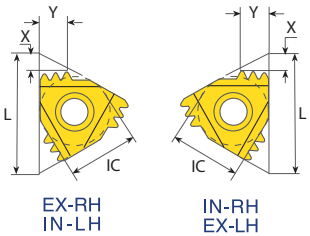
Multitooth

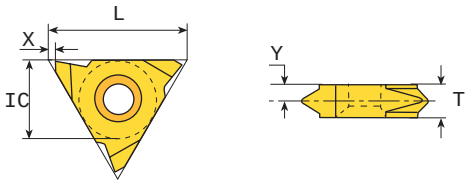




Designation				Dimensions				Pitch, mm	No. of teeth	Grades / Сплавы			
External		Internal											
	Support plate		Support plate	X	Y	L	I.C. дюйм			PK3025	MS1515	N20K	HS2020
16 ER 1.0 ISO 3M	ES16M	16 IR 1.0 ISO 3M	IS16M	1.7	2.5	16	3/8	0.5	3	●	○	○	○
16 ER 1.5 ISO 2M	ES16M	16 IR 1.5 ISO 2M	IS16M	1.5	2.3	16	3/8	0.75	2	●	○	○	○
22 ER 1.5 ISO 3M	ES22M	22 IR 1.5 ISO 3M	IS22M	2.3	3.7	22	1/2	0.8	3	●	○	○	○
22 ER 2.0 ISO 2M	ES22M	22 IR 2.0 ISO 2M	IS22M	2.0	3.0	22	1/2	1.0	2	●	○	○	○
22 ER 2.0 ISO 3M	ES22M	22 IR 2.0 ISO 3M	IS22M	3.1	5.0	22	1/2	1.25	3	●	○	○	○
27 ER 3.0 ISO 2M	ES27M	27 IR 3.0 ISO 2M	IS27M	2.9	4.6	27	5/8	1.5	2	●		○	○

ISO - metric

Vertical



Designation				Dimensions					Pitch, mm				
External		Internal											
RH	LH	RH	LH	X	Y	T	L	I.C. Inch					
										●			
16V ER 1.0 ISO				1.0	0.7	3.6	16	3/8	1.0	●	○		○
16V ER 1.25 ISO				1.0	0.9	3.6	16	3/8	1.25	●	○		○
16V ER 1.5 ISO				1.0	0.9	3.6	16	3/8	1.5	●	○		○
16V ER 2.0 ISO				1.0	1.3	3.6	16	3/8	2.0	●	○		○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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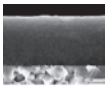
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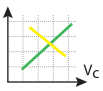

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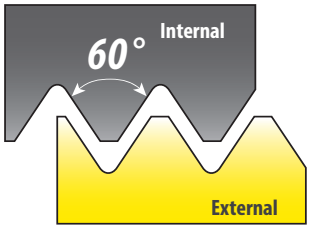
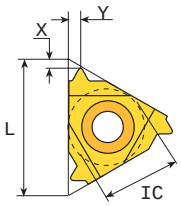
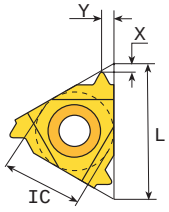
UN - Unified

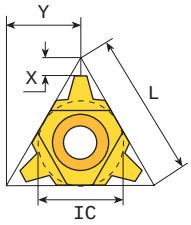




EX-RH
IN-LH



IN-RH
EX LH



U TYPE

X	Y	Designation External RH	Designation External LH	Designation Internal RH	Designation Internal LH	Dimensions X	Dimensions Y	Dimensions L	Dimensions I.C. Inch	TPI thread/ inch	Grades PK3025	Grades MS1515	Grades N20K	Grades HS2020
				06 IR 32 UN	06 IL 32 UN	0.8	0.5	6	5/32	32	●		○	
				06 IR 28 UN	06 IL 28 UN	0.8	0.6	6	5/32	28	●		○	
				06 IR 24 UN	06 IL 24 UN	0.7	0.6	6	5/32	24	●		○	
				06 IR 20 UN	06 IL 20 UN	0.6	0.6	6	5/32	20	●		○	
				06 IR 18 UN	06 IL 18 UN	0.6	0.7	8	5/32	18	●		○	
				08 IR 32 UN	08 IL 32 UN	0.6	0.5	8	3/16	32	●		○	
				08 IR 28 UN	08 IL 28 UN	0.6	0.6	8	3/16	28	●		○	
				08 IR 24 UN	08 IL 24 UN	0.6	0.6	8	3/16	24	●		○	
				08 IR 20 UN	08 IL 20 UN	0.6	0.7	8	3/16	20	●		○	
				08 IR 18 UN	08 IL 18 UN	0.6	0.7	8	3/16	18	●		○	
				08 IR 16 UN	08 IL 16 UN	0.6	0.7	8	3/16	16	●		○	
				08 IR 14 UN	08 IL 14 UN	0.6	0.8	8	3/16	14	●		○	
0.6	0.6	11 ER 72 UN	11 EL 72 UN	11 IR 72 UN	11 IL 72 UN	0.8	0.3	11	1/4	72	●	○	○	○
0.6	0.6	11 ER 64 UN	11 EL 64 UN	11 IR 64 UN	11 IL 64 UN	0.8	0.4	11	1/4	64	●	○	○	○
0.6	0.6	11 ER 56 UN	11 EL 56 UN	11 IR 56 UN	11 IL 56 UN	0.7	0.4	11	1/4	56	●	○	○	○
0.7	0.7	11 ER 48 UN	11EL 48 UN	11 IR 48 UN	11 IL 48 UN	0.6	0.6	11	1/4	48	●	○	○	○
0.8	0.9	11 ER 44 UN	11 EL 44 UN	11 IR 44 UN	11 IL 44 UN	0.6	0.6	11	1/4	44	●	○	○	○
0.8	1.0	11 ER 40 UN	11 EL 40 UN	11 IR 40 UN	11 IL 40 UN	0.6	0.6	11	1/4	40	●	○	○	○
0.8	1.1	11 ER 36 UN	11 EL 36 UN	11 IR 36 UN	11 IL 36 UN	0.6	0.6	11	1/4	36	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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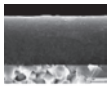

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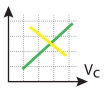

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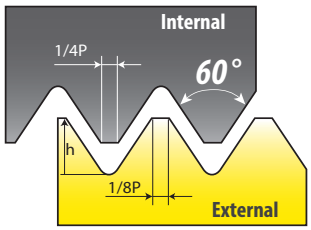
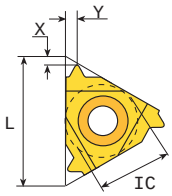
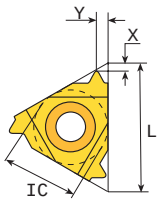
UN - Unified

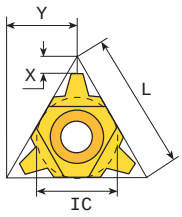




EX-RH
IN-LH



IN-RH
EX LH



U TYPE

X	Y	Designation External RH	Designation External LH	Designation Internal RH	Designation Internal LH	Dimensions X	Dimensions Y	Dimensions L	Dimensions I.C. inch	TPI thread/ inch	Grades PK3025	Grades MS1515	Grades N20K	Grades HS2020
0.6	0.6	16 ER 32 UN	16 EL 32 UN	16 IR 32 UN	16 IL 32 UN	0.6	0.6	16	3/8	32	●	○	○	○
0.6	0.7	16 ER 28 UN	16 EL 28 UN	16 IR 28 UN	16 IL 28 UN	0.6	0.7	16	3/8	28	●	○	○	○
0.7	0.8	16 ER 27 UN	16 EL 27 UN	16 IR 27 UN	16 IL 27 UN	0.7	0.8	16	3/8	27	●	○	○	○
0.7	0.8	16 ER 24 UN	16 EL 24 UN	16 IR 24 UN	16 IL 24 UN	0.7	0.8	16	3/8	24	●	○	○	○
0.8	0.9	16 ER 20 UN	16 EL 20 UN	16 IR 20 UN	16 IL 20 UN	0.8	0.9	16	3/8	20	●	○	○	○
0.8	1.0	16 ER 18 UN	16 EL 18 UN	16 IR 18 UN	16 IL 18 UN	0.8	1.0	16	3/8	18	●	○	○	○
0.9	1.1	16 ER 16 UN	16 EL 16 UN	16 IR 16 UN	16 IL 16 UN	0.9	1.1	16	3/8	16	●	○	○	○
1.0	1.2	16 ER 14 UN	16 EL 14 UN	16 IR 14 UN	16 IL 14 UN	0.9	1.2	16	3/8	14	●	○	○	○
1.0	1.3	16 ER 13 UN	16 EL 13 UN	16 IR 13 UN	16 IL 13 UN	1.0	1.3	16	3/8	13	●	○	○	○
1.1	1.4	16 ER 12 UN	16 EL 12 UN	16 IR 12 UN	16 IL 12 UN	1.1	1.4	16	3/8	12	●	○	○	○
1.1	1.5	16 ER 11 UN	16 EL 11 UN	16 IR 11 UN	16 IL 11 UN	1.1	1.5	16	3/8	11	●	○	○	○
1.1	1.5	16 ER 10 UN	16 EL 10 UN	16 IR 10 UN	16 IL 10 UN	1.1	1.5	16	3/8	10	●	○	○	○
1.2	1.7	16 ER 9 UN	16 EL 9 UN	16 IR 9 UN	16 IL 9 UN	1.2	1.7	16	3/8	9	●	○	○	○
1.2	1.6	16 ER 8 UN	16 EL 8 UN	16 IR 8 UN	16 IL 8 UN	1.1	1.5	16	3/8	8	●	○	○	○
1.6	2.3	22 ER 7 UN	22 EL 7 UN	22 IR 7 UN	22 IL 7 UN	1.6	2.3	22	1/2	7	●	○	○	○
1.6	2.3	22 ER 6 UN	22 EL 6 UN	22 IR 6 UN	22 IL 6 UN	1.6	2.3	22	1/2	6	●	○	○	○
1.7	2.5	22 ER 5 UN	22 EL 5 UN	22 IR 5 UN	22 IL 5 UN	1.6	2.3	22	1/2	5	●	○	○	○
1.9	2.7	27 ER 4.5 UN	27 EL 4.5 UN	27 IR 4.5 UN	27 IL 4.5 UN	1.7	2.4	27	5/8	4.5	●		○	○
2.1	3.0	27 ER 4 UN	27 EL 4 UN	27 IR 4 UN	27 IL 4 UN	1.8	2.7	27	5/8	4	●		○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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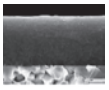
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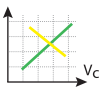

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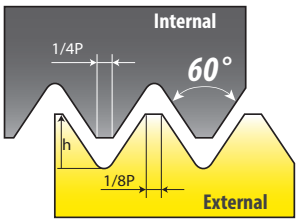
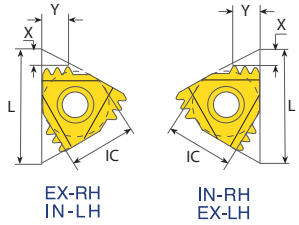
UN - Unified

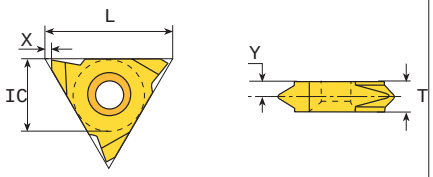


Multitooth



Designation				Dimensions				TPI thread/ inch	No. of teeth	Grades			
External		Internal											
	Support plate		Support plate	X	Y	L	I.C. inch			PK3025	MS1515	N20K	HS2020
16 ER 20 UN 2M	ES16M	16 IR 20 UN 2M	IS16M	1.4	2.0	16	3/8	20	2	●	○	○	○
16 ER 16 UN 2M	ES16M	16 IR 16 UN 2M	IS16M	1.5	2.3	16	3/8	16	2	●	○	○	○
16 ER 14 UN 2M	ES16M	16 IR 14 UN 2M	IS16M	1.7	2.7	16	3/8	14	2	●	○	○	○
16 ER 12 UN 2M	ES16M	16 IR 12 UN 2M	IS16M	2.0	3.1	16	3/8	12	2	●	○	○	○
		-											
22 ER 12 UN 2M	ES22M	22 IR 12 UN 2M	IS22M	2.2	3.4	22	1/2	12	3	●	○	○	○
22 ER 12 UN 3M	ES22M	22 IR 12 UN 3M	IS22M	3.3	5.3	22	1/2	12	3	●	○	○	○
27 ER 8 UN 2M	ES27M	27 IR 8 UN 2M	IS27M	3.1	4.9	27	5/8	8	2	●	○	○	○

Vertical



Designation				Dimensions					TPI thread/ inch				
External		Internal											
RH	LH	RH	LH	X	Y	T	L	I.C. inch		PK3025	MS1515	N20K	HS2020
16V ER 20 UN				1.0	0.9	3.6	16	3/8	20	●	○	○	○
16V ER 16 UN				1.0	1.1	3.6	16	3/8	16	●	○	○	○
16V ER 14 UN				1.0	1.2	3.6	16	3/8	14	●	○	○	○
16V ER 12 UN				1.0	1.4	3.6	16	3/8	12	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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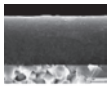
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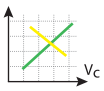

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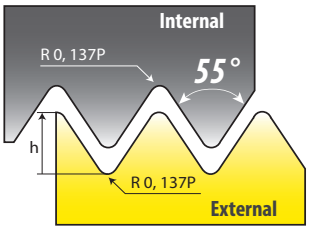
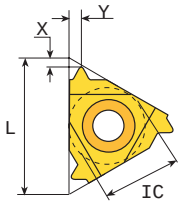
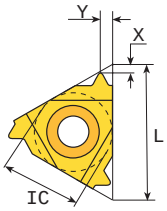
Whitworth - 55° BSW, BSF, BSP, BSB

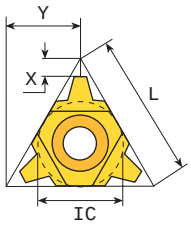




EX-RH
IN-LH



IN-RH
EX LH



U TYPE

Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
		06 IR 26 W	06 IL 26 W	0.7	0.6	6	5/32	26	●		○	
		06 IR 22 W	06 IL 22 W	0.6	0.6	6	5/32	22	●		○	
		06 IR 18 W	06 IL 18 W	0.6	0.7	6	5/32	18	●		○	
		08 IR 28 W	08 IL 28 W	0.6	0.6	8	3/16	28	●		○	
		08 IR 24 W	08 IL 24 W	0.6	0.6	8	3/16	24	●		○	
		08 IR 20 W	08 IL 20 W	0.6	0.7	8	3/16	20	●		○	
		08 IR 19 W	08 IL 19 W	0.6	0.7	8	3/16	19	●		○	
		08 IR 18 W	08 IL 18 W	0.6	0.7	8	3/16	18	●		○	
		08 IR 16 W	08 IL 16 W	0.6	0.7	8	3/16	16	●		○	
11 ER 72 W	11 EL 72 W	11 IR 72 W	11 IL 72 W	0.7	0.4	11	1/4	72	●	○	○	○
11 ER 60 W	11 EL 60 W	11 IR 60 W	11 IL 60 W	0.7	0.4	11	1/4	60	●	○	○	○
11 ER 56 W	11 EL 56 W	11 IR 56 W	11 IL 56 W	0.7	0.4	11	1/4	56	●	○	○	○
11 ER 48 W	11 EL 48 W	11 IR 48 W	11 IL 48 W	0.6	0.6	11	1/4	48	●	○	○	○
11 ER 40 W	11 EL 40 W	11 IR 40 W	11 IL 40 W	0.6	0.6	11	1/4	40	●	○	○	○
11 ER 36 W	11 EL 36 W			0.6	0.6	11	1/4	36	●	○	○	○
11 ER 32 W	11 EL 32 W	11 IR 32 W	11 IL 32 W	0.6	0.6	11	1/4	32	●	○	○	○
11 ER 28 W	11 EL 28 W	11 IR 28 W	11 IL 28 W	0.6	0.7	11	1/4	28	●	○	○	○
11 ER 26 W	11 EL 26 W	11 IR 26 W	11 IL 26 W	0.7	0.7	11	1/4	26	●	○	○	○
11 ER 24 W	11 EL 24 W	11 IR 24 W	11 IL 24 W	0.7	0.8	11	1/4	24	●	○	○	○
11 ER 22 W	11 EL 22 W			0.8	0.9	11	1/4	22	●	○	○	○
11 ER 20 W	11 EL 20 W	11 IR 20 W	11 IL 20 W	0.8	0.9	11	1/4	20	●	○	○	○
11 ER 19 W	11 EL 19 W	11 IR 19 W	11 IL 19 W	0.8	1.0	11	1/4	19	●	○	○	○
11 ER 18 W	11 EL 18 W	11 IR 18 W	11 IL 18 W	0.8	1.0	11	1/4	18	●	○	○	○
11 ER 16 W	11 EL 16 W	11 IR 16 W	11 IL 16 W	0.9	1.1	11	1/4	16	●	○	○	○
11 ER 14 W	11 EL 14 W	11 IR 14 W	11 IL 14 W	0.9	1.1	11	1/4	14	●	○	○	○

(1) **Special holder is required or standard holder can be ammended by customer.**

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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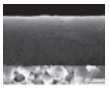

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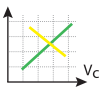

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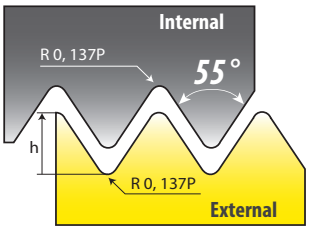
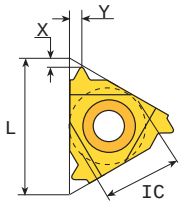
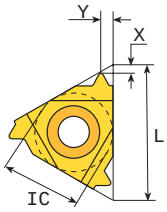
Whitworth - 55° BSW, BSF, BSP, BSB

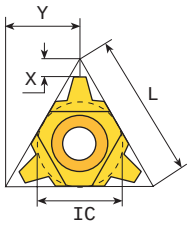




EX-RH
IN-LH



IN-RH
EX LH



U TYPE

Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
16 ER 72 W	16 EL 72 W	16 IR 72 W	16 IL 72 W	0.7	0.4	16	3/8	72	●	○	○	○
16 ER 60 W	16 EL 60 W	16 IR 60 W	16 IL 60 W	0.7	0.4	16	3/8	60	●	○	○	○
16 ER 56 W	16 EL 56 W	16 IR 56 W	16 IL 56 W	0.7	0.4	16	3/8	56	●	○	○	○
16 ER 48 W	16 EL 48 W	16 IR 48 W	16 IL 48 W	0.6	0.6	16	3/8	48	●	○	○	○
16 ER 40 W	16 EL 40 W	16 IR 40 W	16 IL 40 W	0.6	0.6	16	3/8	40	●	○	○	○
16 ER 36 W	16 EL 36 W	16 IR 36 W	16 IL 36 W	0.6	0.6	16	3/8	36	●	○	○	○
16 ER 32 W	16 EL 32 W	16 IR 32 W	16 IL 32 W	0.6	0.6	16	3/8	32	●	○	○	○
16 ER 28 W	16 EL 28 W	16 IR 28 W	16 IL 28 W	0.6	0.7	16	3/8	28	●	○	○	○
16 ER 26 W	16 EL 26 W	16 IR 26 W	16 IL 26 W	0.7	0.7	16	3/8	26	●	○	○	○
16 ER 24 W	16 EL 24 W	16 IR 24 W	16 IL 24 W	0.7	0.8	16	3/8	24	●	○	○	○
16 ER 22 W	16 EL 22 W	16 IR 22 W	16 IL 22 W	0.8	0.9	16	3/8	22	●	○	○	○
16 ER 20 W	16 EL 20 W	16 IR 20 W	16 IL 20 W	0.8	0.9	16	3/8	20	●	○	○	○
16 ER 19 W	16 EL 19 W	16 IR 19 W	16 IL 19 W	0.8	1.0	16	3/8	19	●	○	○	○
16 ER 18 W	16 EL 18 W	16 IR 18 W	16 IL 18 W	0.8	1.0	16	3/8	18	●	○	○	○
16 ER 16 W	16 EL 16 W	16 IR 16 W	16 IL 16 W	0.9	1.1	16	3/8	16	●	○	○	○
16 ER 14 W	16 EL 14 W	16 IR 14 W	16 IL 14 W	1.0	1.2	16	3/8	14	●	○	○	○
16 ER 12 W	16 EL 12 W	16 IR 12 W	16 IL 12 W	1.1	1.4	16	3/8	12	●	○	○	○
16 ER 11 W	16 EL 11 W	16 IR 11 W	16 IL 11 W	1.1	1.5	16	3/8	11	●	○	○	○
16 ER 10 W	16 EL 10 W	16 IR 10 W	16 IL 10 W	1.1	1.5	16	3/8	10	●	○	○	○
16 ER 9 W	16 EL 9 W	16 IR 9 W	16 IL 9 W	1.2	1.7	16	3/8	9	●	○	○	○
16 ER 8 W	16 EL 8 W	16 IR 8 W	16 IL 8 W	1.2	1.5	16	3/8	8	●	○	○	○
22 ER 7 W	22 EL 7 W	22 IR 7 W	22 IL 7 W	1.6	2.3	22	1/2	7	●	○	○	○
22 ER 6 W	22 EL 6 W	22 IR 6 W	22 IL 6 W	1.6	2.3	22	1/2	6	●	○	○	○
22 ER 5 W	22 EL 5 W	22 IR 5 W	22 IL 5 W	1.7	2.4	22	1/2	5	●	○	○	○
27 ER 4.5 W	27 EL 4.5 W	27 IR 4.5 W	27 IL 4.5 W	1.8	2.6	27	5/8	4.5	●		○	○
27 ER 4 W	27 EL 4 W	27 IR 4 W	27 IL 4 W	2.0	2.9	27	5/8	4	●		○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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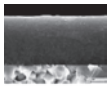

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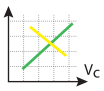

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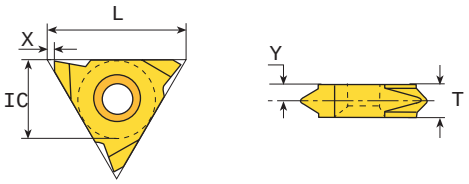
Vertical



Designation				Dimensions					TPI thread/inch	Grades			
External		Internal											
RH	LH		LH	X	Y	T	L	I.C. inch		PK3025	MS1515	N20K	HS2020
16V ER 19 W				1.0	0.9	3.6	16	3/8	19	●	○	○	○
16V ER 14 W				1.0	1.2	3.6	16	3/8	14	●	○	○	○
16V ER 11 W				1.0	1.5	3.6	16	3/8	11	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy - Жаропрочные сплавы	★	★		★
H Hardened steel				★

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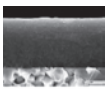
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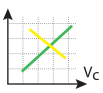

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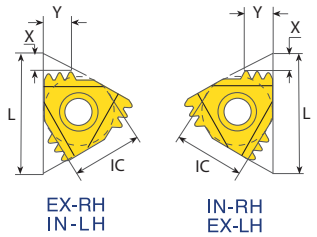
Whitworth - 55° BSW, BSF, BSP, BSB

Multitooth



Designation				Dimensions				TPI thread/inch	No. of teeth	Grades			
External		Internal											
	Support plate		Support plate	X	Y	L	I.C. inch			PK3025	MS1515	N20K	HS2020
16 ER 14 W 2M	ES16M	16 IR 14 W 2M	IS16M	1.7	2.7	16	3/8	14	2	●	○	○	○
22 ER 14 W 3M	ES22M	22 IR 14 W 3M	IS22M	2.8	4.5	22	1/2	14	3	●	○	○	○
22 ER 11 W 2M	ES22M	22 IR 11 W 2M	IS22M	2.3	3.4	22	1/2	11	2	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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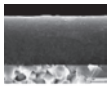
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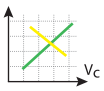

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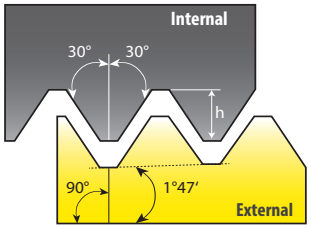
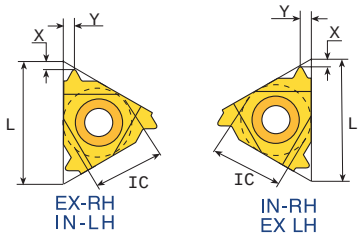
NPT 60°





Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
		06 IR 27 NPT	06 IL 27 NPT	0.6	0.6	6	5/32	27	●		○	
		08 IR 27 NPT	08 IL 27 NPT	0.6	0.7	8	3/16	27	●		○	
		08 IR 18 NPT	08 IL 18 NPT	0.6	0.6	8	3/16	18	●		○	
11 ER 27 NPT	11 EL 27 NPT	11 IR 27 NPT	11 IL 27 NPT	0.7	0.8	11	1/4	27	●	○	○	○
11 ER 18 NPT	11 EL 18 NPT	11 IR 18 NPT	11 IL 18 NPT	0.8	1.0	11	1/4	18	●	○	○	○
11 ER 14 NPT	11 EL 14 NPT	11 IR 14 NPT	11 IL 14 NPT	0.8	1.9	11	1/4	14	●	○	○	○
16 ER 27 NPT	16 EL 27 NPT	16 IR 27 NPT	16 IL 27 NPT	0.7	0.8	16	3/8	27	●	○	○	○
16 ER 18 NPT	16 EL 18 NPT	16 IR 18 NPT	16 IL 18 NPT	0.8	1.0	16	3/8	18	●	○	○	○
16 ER 14 NPT	16 EL 14 NPT	16 IR 14 NPT	16 IL 14 NPT	0.9	1.2	16	3/8	14	●	○	○	○
16 ER 11.5 NPT	16 EL 11.5 NPT	16 IR 11.5 NPT	16 IL 11.5 NPT	1.1	1.5	16	3/8	11.5	●	○	○	○
16 ER 8 NPT	16 EL 8 NPT	16 IR 8 NPT	16 IL 8 NPT	1.3	1.8	16	3/8	8	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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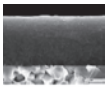
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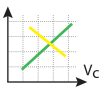

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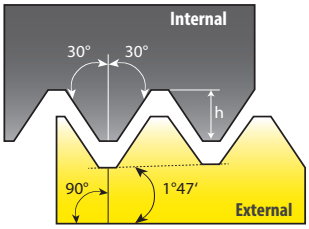
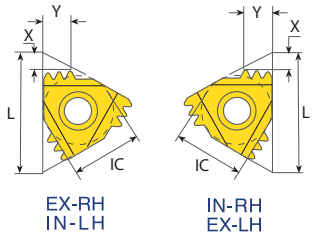
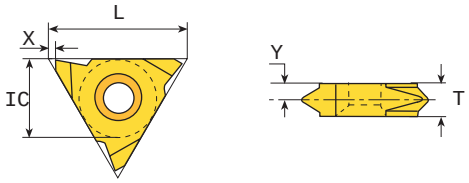
NPT 60°
Multitooth





Designation				Dimensions				TPI thread/ inch	No. of teeth	Grades			
External		Internal											
	Support plate		Support plate	X	Y	L	I.C. inch			PK3025	MS1515	N20K	HS2020
22 ER 11.5 NPT 2M	ES22M	22 IR 11.5 NPT 2M	IS22M	2.3	3.5	22	1/2	11.5	2	●	○	○	○
27 ER 11.5 NPT 3M	ES27M	27 IR 11.5 NPT 3M	IS27M	3.3	5.5	27	5/8	11.5	3	●		○	○
27 ER 8 NPT 2M	ES27M	27 IR 8 NPT 2M	IS27M	3.1	5.0	27	5/8	8	2	●		○	○

NPT
Vertical



Designation					Dimensions					TPI thread/ inch				
External		Internal												
RH	LH	RH	LH		X	Y	T	L	I.C. inch		PK3025	MS1515	N20K	HS2020
16V ER 27 NPT			16V EL 27 NPT		1.0	0.8	3.6	16	3/8	27	●	○	○	○
16V ER 18 NPT			16V EL 18 NPT		1.0	1.0	3.6	16	3/8	18	●	○	○	○
16V ER 14 NPT			16V EL 14 NPT		1.0	1.2	3.6	16	3/8	14	●	○	○	○
16V ER 11.5 NPT			16V EL 11.5 NPT		1.0	1.5	3.6	16	3/8	11.5	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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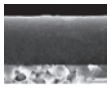
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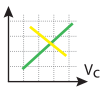

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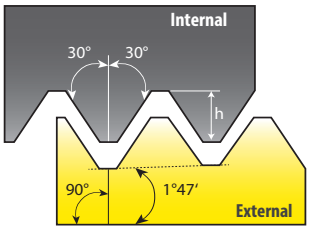
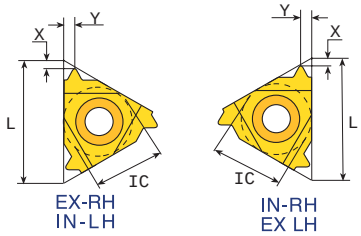
NPTF-Dryseal





Designation				Dimensions				TPI thread/ inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
		06 IR 27 NPTF	06 IL 27 NPTF	0.7	0.6	6	5/32	27	●		○	
		08 IR 27 NPTF	08 IL 27 NPTF	0.6	0.6	8	3/16	27	●		○	
		08 IR 18 NPTF	08 IL 18 NPTF	0.6	0.6	8	3/16	18	●		○	
11 ER 27 NPTF	11 EL 27 NPTF	11 IR 27 NPTF	11 IL 27 NPTF	0.7	0.7	11	1/4	27	●	○	○	○
11 ER 18 NPTF	11 EL 18 NPTF	11 IR 18 NPTF	11 IL 18 NPTF	0.8	1.0	11	1/4	18	●	○	○	○
11 ER 14 NPTF	11 EL 14 NPTF	11 IR 14 NPTF	11 IL 14 NPTF	0.8	1.0	11	1/4	14	●	○	○	○
16 ER 27 NPTF	16 EL 27 NPTF	16 IR 27 NPTF	16 IL 27 NPTF	0.7	0.7	16	3/8	27	●	○	○	○
16 ER 18 NPTF	16 EL 18 NPTF	16 IR 18 NPTF	16 IL 18 NPTF	0.8	1.0	16	3/8	18	●	○	○	○
16 ER 14 NPTF	16 EL 14 NPTF	16 IR 14 NPTF	16 IL 14 NPTF	0.9	1.2	16	3/8	14	●	○	○	○
16 ER 11.5 NPTF	16 EL 11.5 NPTF	16 IR 11.5NPTF	16 IL 11.5 NPTF	1.1	1.5	16	3/8	11.5	●	○	○	○
16 ER 8 NPTF	16 EL 8 NPTF	16 IR 8 NPTF	16 IL 8 NPTF	1.3	1.8	16	3/8	8	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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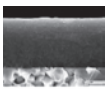
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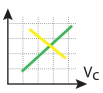

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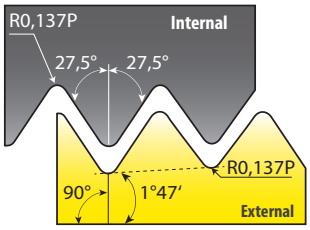
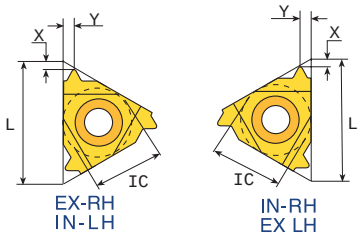
BSPT





Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
		06 IR 28 BSPT	06 IL 28 BSPT	0.7	0.6	6	5/32	28	●		○	
		08 IR 28 BSPT	08 IL 28 BSPT	0.6	0.6	8	3/16	28	●		○	
		08 IR 19 BSPT	08 IL 19 BSPT	0.6	0.6	8	3/16	19	●		○	
		11 IR 28 BSPT	11 IL 28 BSPT	0.6	0.6	11	1/4	28	●	○	○	○
		11 IR 19 BSPT	11 IL 19 BSPT	0.8	0.9	11	1/4	19	●	○	○	○
		11 IR 14 BSPT	11 IL 14 BSPT	0.9	1.0	11	1/4	14	●	○	○	○
16 ER 28 BSPT	16 EL 28 BSPT	16 IR 28 BSPT	16 IL 28 BSPT	0.6	0.6	16	3/8	28	●	○	○	○
16 ER 19 BSPT	16 EL 19 BSPT	16 IR 19 BSPT	16 IL 19 BSPT	0.8	0.9	16	3/8	19	●	○	○	○
16 ER 14 BSPT	16 EL 14 BSPT	16 IR 14 BSPT	16 IL 14 BSPT	1.0	1.2	16	3/8	14	●	○	○	○
16 ER 11 BSPT	16 EL 11 BSPT	16 IR 11 BSPT	16 IL 11 BSPT	1.1	1.5	16	3/8	11	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

(1) **Special holder is required or standard holder can be ammended by customer.**

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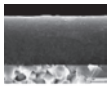
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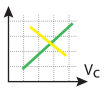

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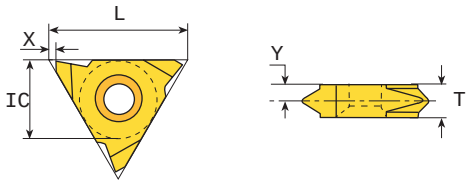
BSPT

Vertical



Designation				Dimensions						Grades			
External		Internal											
RH	LH	RH	LH	X	Y	T	L	I.C. inch	TPI thread/inch	PK3025	MS1515	N20K	HS2020
16V ER 28 BSPT				1.0	0.6	3.6	16	3/8	28	●	○		○
16V ER 19 BSPT				1.0	0.9	3.6	16	3/8	19	●	○		○
16V ER 14 BSPT				1.0	1.2	3.6	16	3/8	14	●	○		○
16V ER 11 BSPT				1.0	1.5	3.6	16	3/8	11	●	○		○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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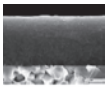
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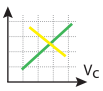

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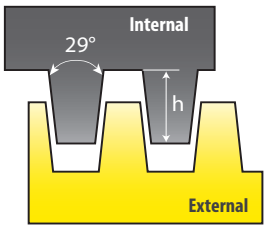
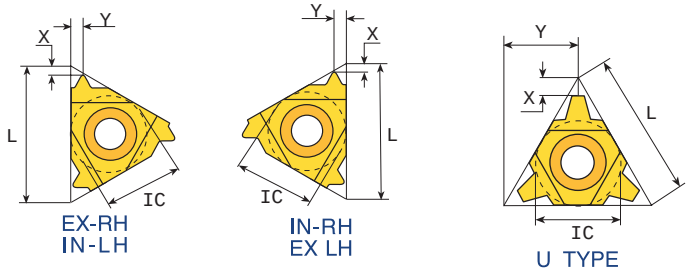
Acme





Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
11 ER 16 ACME	11 EL 16 ACME	11 IR 16 ACME	11 IL 16 ACME	0.9	1.0	11	1/4	16	●	○	○	○
16 ER 16 ACME	16 EL 16 ACME	16 IR 16 ACME	16 IL 16 ACME	0.9	1.0	16	3/8	16	●	○	○	○
16 ER 14 ACME	16 EL 14 ACME	16 IR 14 ACME	16 IL 14 ACME	1.0	1.2	16	3/8	14	●	○	○	○
16 ER 12 ACME	16 EL 12 ACME	16 IR 12 ACME	16 IL 12 ACME	1.1	1.2	16	3/8	12	●	○	○	○
16 ER 10 ACME	16 EL 10 ACME	16 IR 10 ACME	16 IL 10 ACME	1.3	1.3	16	3/8	10	●	○	○	○
16 ER 8 ACME	16 EL 8 ACME	16 IR 8 ACME	16 IL 8 ACME	1.5	1.5	16	3/8	8	●	○	○	○
(1) 16 ER 6 ACME	(1) 16 EL 6 ACME	(1) 16 IR 6 ACME	(1) 16 IL 6 ACME	1.7	1.8	16	3/8	6	●	○	○	○
22 ER 6 ACME	22 EL 6 ACME	22 IR 6 ACME	22 IL 6 ACME	1.8	2.1	22	1/2	6	●	○	○	○
22 ER 5 ACME	22 EL 5 ACME	22 IR 5 ACME	22 IL 5 ACME	2.0	2.3	22	1/2	5	●	○	○	○
22 ER 4 ACME	22 EL 4 ACME	22 IR 4 ACME	22 IL 4 ACME	2.1	2.2	22	1/2	4	●	○	○	○
22U ER/L 4 ACME		22U IR/L 4 ACME		2.3	11.0	22U	1/2U	4	●	○	○	○
27 ER 4 ACME	27 EL 4 ACME	27 IR 4 ACME	27 IL ACME	2.3	2.7	27	5/8	4	●		○	○
27U ER/L 3 ACME		27U IR/L 3 ACME		2.8	13.7	27U	5/8U	3	●		○	○
33U ER/L 2 ACME		33U IR/L 2 ACME		4.3	16.9	33U	3/4U	2	●		○	

** One cutting edge
(1) Special holder is required or standard holder can be ammended by customer.

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron-	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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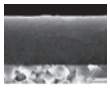
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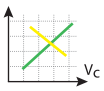

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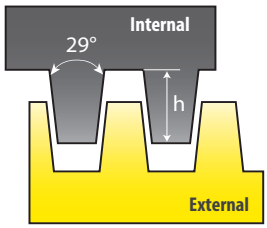
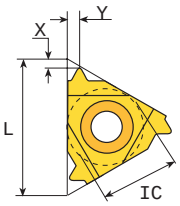
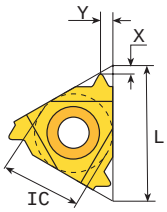
Stub Acme

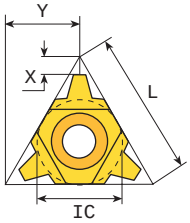




EX-RH
IN-LH



IN-RH
EX LH



U TYPE

Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
11 ER 16 STACME	11 EL 16 STACME			1.0	1.0	11	1/4	16	●	○	○	○
16 ER 16 STACME	16 EL 16 STACME	16 IR 16 STACME	16 IL 16 STACME	1.0	1.0	16	3/8	16	●	○	○	○
16 ER 14 STACME	16 EL 14 STACME	16 IR 14 STACME	16 IL 14 STACME	1.1	1.1	16	3/8	14	●	○	○	○
16 ER 12 STACME	16 EL 12 STACME	16 IR 12 STACME	16 IL 12 STACME	1.2	1.2	16	3/8	12	●	○	○	○
16 ER 10 STACME	16 EL 10 STACME	16 IR 10 STACME	16 IL 10 STACME	1.3	1.3	16	3/8	10	●	○	○	○
16 ER 8 STACME	16 EL 8 STACME	16 IR 8 STACME	16 IL 8 STACME	1.5	1.5	16	3/8	8	●	○	○	○
16 ER 6 STACME	16 EL 6 STACME	16 IR 6 STACME	16 IL 6 STACME	1.8	1.8	16	3/8	6	●	○	○	○
22 ER 5 STACME	22 EL 5 STACME	22 IR 5 STACME	22 IL 5 STACME	2.0	2.3	22	1/2	5	●	○	○	○
22 ER 4 STACME	22 EL 4 STACME	22 IR 4 STACME	22 IL 4 STACME	2.3	2.4	22	1/2	4	●	○	○	○
22U ER/L 4 STACME		22U IR/L 4 STACME		2.5	11.0	22U	1/2U	4	●	○	○	○
22U ER/L 3 STACME		22U IR/L 3 STACME		3.3	11.0	22U	1/2U	3	●	○	○	○
27 ER 4 STACME	27 EL 4 STACME	27 IR 4 STACME	27 IL 4 STACME	2.3	2.4	27	5/8	4	●		○	○
27 ER 3 STACME	27 EL 3 STACME	27 IR 3 STACME	27 IL 3 STACME	2.8	2.9	27	5/8	3	●		○	○
33U ER/L 2 STACME		33U IR/L 2 STACME		5.0	16.9	33U	3/4U	2	●		○	

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

** One cutting edge

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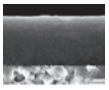

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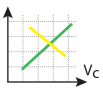

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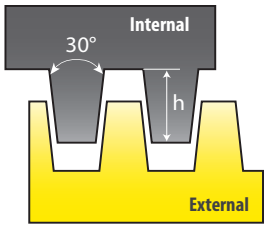
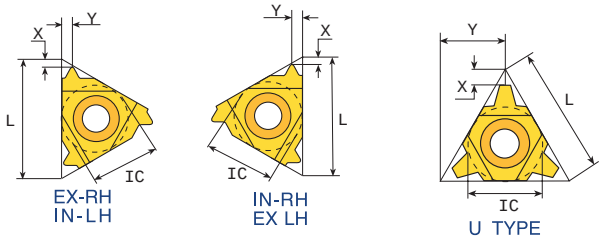
Trapezoidal - DIN103





Designation						Dimensions				TPI thread/ inch	Grades			
External		Internal												
RH	LH	RH	LH			X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
16 ER 1.5 TR	16 EL 1.5 TR					1.0	1.1	16	3/8	1.5	●	○	○	○
16 ER 2 TR	16 EL 2 TR	16 IR 2 TR	16 IL 2 TR			1.0	1.3	16	3/8	2.0	●	○	○	○
16 ER 3 TR	16 EL 3 TR	16 IR 3 TR	16 IL 3 TR			1.3	1.5	16	3/8	3.0	●	○	○	○
16 ER 4 TR	16 EL 4 TR	16 IR 4 TR	16 IL 4 TR			1.3	1.5	16	3/8	4.0	●	○	○	○
22 ER 4 TR	22 EL 4 TR	22 IR 4 TR	22 IL 4 TR			1.8	1.9	22	1/2	4.0	●	○	○	○
22 ER 5 TR	22 EL 5 TR	22 IR 5 TR	22 IL 5 TR			2.0	2.4	22	1/2	5.0	●	○	○	○
22 ER 6 TR	22 EL 6 TR	22 IR 6 TR	22 IL 6 TR			2.0	2.4	22	1/2	6.0	●	○	○	○
22U ER/L 6											●	○	○	○
27 ER 6 TR	27 EL 6 TR	27 IR 6 TR	27 IL 6 TR			2.3	2.7	27	5/8	6.0	●	○	○	○
27 ER 7 TR	27 EL 7 TR	27 IR 7 TR	27 IL 7 TR			2.2	2.6	27	5/8	7.0	●		○	○
27U ER/L 8 TR		27U IR/L 8 TR				2.5	13.7	27U	5/8U	8.0	●		○	○
27U ER/L 9 TR		27U IR/L 9 TR				3.0	13.7	27U	5/8U	9.0	●		○	○
**27U ER/L 10 TR		**27U IR/L 10 TR				3.2	13.7	27U	5/8U	10.0	●		○	○
33U ER/L 12 TR		33U IR/L 12 TR				3.9	16.9	33U	3/4U	12.0	●		○	

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

** One cutting edge
*** To be used only with holder SIR/L0014M16UB
(1) Special holder is required or standard holder can be ammended by customer.
(2) Special holder is required or standard holder can be ammended by customer or to used with holders: SIR/L0012L16B; SIR/L0014L16B.
(3) Only for Tr 40 x 7.0. To be used only with holder SIR/L0025S22UB.

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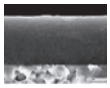
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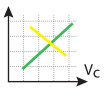

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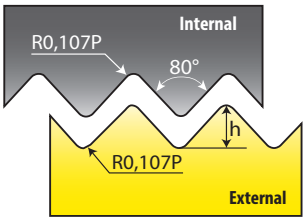
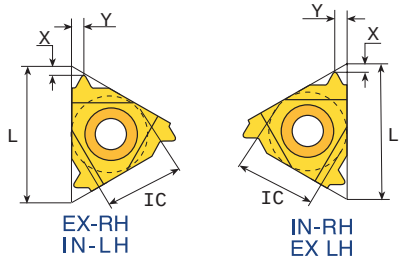
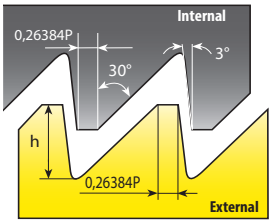
PG - DIN 40430





Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	STANDART	RH	STANDART	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
		11 IR 18 PG	(PG 9)	0.8	0.9	11	1/4	18				
16 ER 20 PG	(PG 7)			0.7	0.8	16	3/8	20	●	○	○	○
16 ER 18 PG	(PG 9, 11, 13.5, 16)	16 IR 18 PG	(PG 11, 13.5, 16)	0.8	0.9	16	3/8	18	●	○	○	○
16 ER 16 PG	(PG 21, 29, 36, 42, 48)	16 IR 16 PG	(PG 21, 29, 36, 42, 48)	0.8	1.0	16	3/8	16	●	○	○	○

Thrust thread - DIN 513



In standard version side plates are large the corner is the main cutting by edge. If you need other parameters specify this is ordering.

External				Internal															
RH		LH		X	Y	RH		LH		X	Y	L	I.C. inch	MM					
16 ER 2	SAGE	16 EL 2	SAGE	1.1	1.6	16 IR 2	SAGE	16 IL 2	SAGE	1.2	1.7	16	3/8	2.0	●	○	○	○	
22 ER 3	SAGE	22 EL 3	SAGE	1.5	2.4	22 IR 3	SAGE	22 IL 3	SAGE	1.9	2.9	22	1/2	3.0	●	○	○	○	
22 ER 4	SAGE	22 EL 4	SAGE	1.9	3.1	22 IR 4	SAGE	22 IL 4	SAGE	2.3	3.5	22	1/2	4.0	●	○	○	○	

* **Special support plate required** AER 22U-1.5 SAGE 5/6,
AEL 22U-1.5 SAGE 5/6, AIR 22U-1.5 SAGE 5/6, AIL 22U-1.5 SAGE 5/6.

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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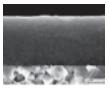
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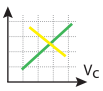

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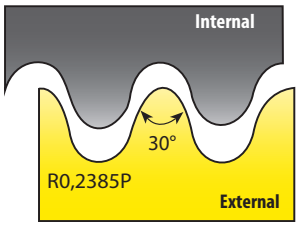
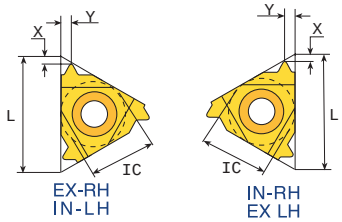
Round - DIN 405

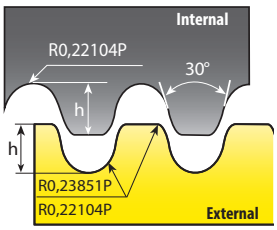


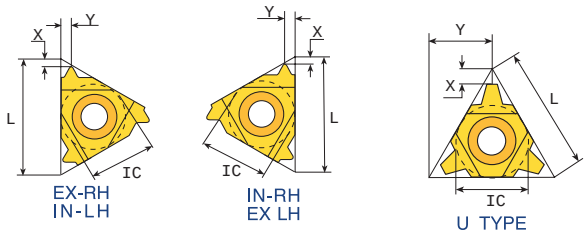


External RH	External LH	X	Y	Internal RH	Internal LH	X	Y	L	I.C. inch	mm	PK3025	MS1515	N20K	HS2020
16 ER 10 RD	16 EL 10 RD	1.1	1.2	16 IR 10 RD	16 IL 10 RD	1.1	1.2	16	3/8	10	●	○	○	○
16 ER 8 RD	16 EL 8 RD	1.4	1.3	16 IR 8 RD	16 IL 8 RD	1.4	1.4	16	3/8	8	●	○	○	○
16 ER 6 RD	16 EL 6 RD	1.5	1.7	16 IR 6 RD	16 IL 6 RD	1.4	1.5	16	3/8	6	●	○	○	○
22 ER 6 RD	22 EL 6 RD	1.5	1.7	22 IR 6 RD	22 IL 6 RD	1.5	1.7	22	1/2	6	●	○	○	○
22 ER 4 RD	22 EL 4 RD	2.2	2.3	22 IR 4 RD	22 IL 4 RD	2.2	2.3	22	1/2	4	●	○	○	○
27 ER 4 RD	27 EL 4 RD	2.2	2.3	27 IR 4 RD	27 IL 4 RD	2.2	2.3	27	5/8	4	●		○	○

Grades

Round - DIN 20400





External RH	External LH	Internal RH	X	Y	L	I.C. inch	mm	PK3025	MS1515	N20K	HS2020
22 ER 4.0 RD 20400		22 IR 4.0 RD 20400	1.4	1.4	22	1/2	4.0	●	○	○	○
22 ER 5.0 RD 20400		22 IR 5.0 RD 20400	1.7	1.8	22	1/2	5.0	●	○	○	○
22 ER 6.0 RD 20400		22 IR 6.0 RD 20400	1.7	2.0	22	1/2	6.0	●	○	○	○

*** Same insert for Internal and External Right Hand Thread**

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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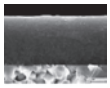
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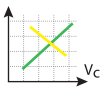

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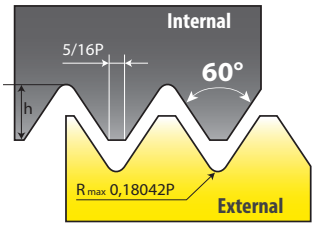
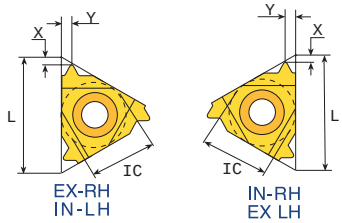
UNJ UNJC, UNJF, UNJEF, UNJS





Designation				Dimensions				TPI thread/inch	Grades			
External		Internal										
RH	LH	RH	LH	X	Y	L	I.C. inch		PK3025	MS1515	N20K	HS2020
11 ER 32 UNJ	11 EL 32 UNJ	11 IR 32 UNJ	11 IL 32 UNJ	0.6	0.6	11	1/4	32	●	○	○	○
11 ER 28 UNJ	11 EL 28 UNJ	11 IR 28 UNJ	11 IL 28 UNJ	0.6	0.6	11	1/4	28	●	○	○	○
11 ER 24 UNJ	11 EL 24 UNJ	11 IR 24 UNJ	11 IL 24 UNJ	0.7	0.8	11	1/4	24	●	○	○	○
11 ER 20 UNJ	11 EL 20 UNJ	11 IR 20 UNJ	11 IL 20 UNJ	0.8	0.9	11	1/4	20	●	○	○	○
11 ER 18 UNJ	11 EL 18 UNJ	11 IR 18 UNJ	11 IL 18 UNJ	0.8	1.0	11	1/4	18	●	○	○	○
11 ER 16 UNJ	11 EL 16 UNJ	11 IR 16 UNJ	11 IL 16 UNJ	0.8	1.0	11	1/4	16	●	○	○	○
11 ER 14 UNJ	11 EL 14 UNJ	11 IR 14 UNJ	11 IL 14 UNJ	0.9	1.0	11	1/4	14	●	○	○	○
16 ER 32 UNJ	16 EL 32 UNJ	16 IR 32 UNJ	16 IL 32 UNJ	0.6	0.6	16	3/8	32	●	○	○	○
16 ER 28 UNJ	16 EL 28 UNJ	16 IR 28 UNJ	16 IL 28 UNJ	0.6	0.6	16	3/8	28	●	○	○	○
16 ER 24 UNJ	16 EL 24 UNJ	16 IR 24 UNJ	16 IL 24 UNJ	0.7	0.8	16	3/8	24	●	○	○	○
16 ER 20 UNJ	16 EL 20 UNJ	16 IR 20 UNJ	16 IL 20 UNJ	0.8	0.9	16	3/8	20	●	○	○	○
16 ER 18 UNJ	16 EL 18 UNJ	16 IR 18 UNJ	16 IL 18 UNJ	0.8	1.0	16	3/8	18	●	○	○	○
16 ER 16 UNJ	16 EL 16 UNJ	16 IR 16 UNJ	16 IL 16 UNJ	0.8	1.0	16	3/8	16	●	○	○	○
16 ER 14 UNJ	16 EL 14 UNJ	16 IR 14 UNJ	16 IL 14 UNJ	1.0	1.2	16	3/8	14	●	○	○	○
16 ER 13 UNJ	16 EL 13 UNJ			1.0	1.3	16	3/8	13	●	○	○	○
16 ER 12 UNJ	16 EL 12 UNJ	16 IR 12 UNJ	16 IL 12 UNJ	1.1	1.4	16	3/8	12	●	○	○	○
16 ER 11 UNJ	16 EL 11 UNJ	16 IR 11 UNJ	16 IL 11 UNJ	1.1	1.5	16	3/8	11	●	○	○	○
16 ER 10 UNJ	16 EL 10 UNJ	16 IR 10 UNJ	16 IL 10 UNJ	1.1	1.5	16	3/8	10	●	○	○	○
16 ER 9 UNJ	16 EL 9 UNJ	16 IR 9 UNJ	16 IL 9 UNJ	1.2	1.6	16	3/8	9	●	○	○	○
16 ER 8 UNJ	16 EL 8 UNJ	16 IR 8 UNJ	16 IL 8 UNJ	1.2	1.6	16	3/8	8	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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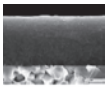
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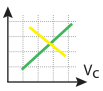

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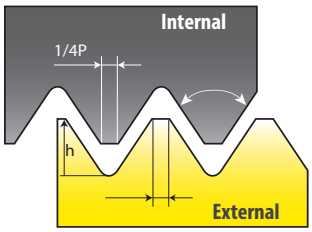
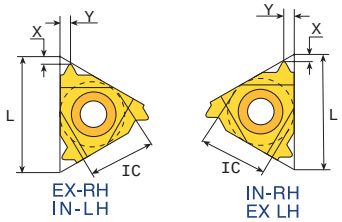
MJ - ISO 5855





External RH	External LH	Internal RH	Internal LH	X	Y	L	I.C. inch	mm	Grades PK3025	MS1515	N20K	HS2020
		11 IR 1.0 MJ		0.7	0.8	11	1/4	1.0	●	○	○	○
		11 IR 1.25 MJ		0.8	0.9	11	1/4	1.25	●	○	○	○
		11 IR 1.5 MJ		0.8	1.0	11	1/4	1.5	●	○	○	○
		11 IR 2.0 MJ		0.9	1.0	11	1/4	2.0	●	○	○	○
16 ER 1.0 MJ		16 IR 1.0 MJ		0.7	0.8	16	3/8	1.0	●	○	○	○
16 ER 1.25 MJ		16 IR 1.25 MJ		0.8	0.9	16	3/8	1.25	●	○	○	○
16 ER 1.5 MJ		16 IR 1.5 MJ		0.8	1.0	16	3/8	1.5	●	○	○	○
16 ER 2.0 MJ		16 IR 2.0 MJ		1.0	1.3	16	3/8	2.0	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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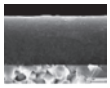
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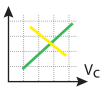

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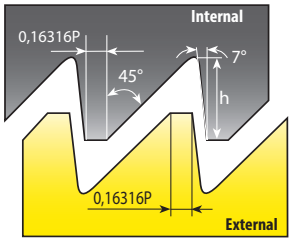
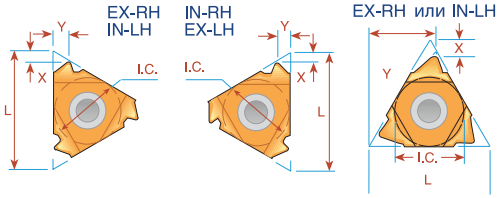
American Buttress





IMPORTANT NOTE:
In standard execution, the flank with the large angle is the leading edge. If otherwise required, please specify in your order.

External								Internal								X	Y	L	I.C. inch	TPI thread/ inch	Grades			
RH				LH				RH				LH									PK3025	MS1515	N20K	HS2020
11	ER	20	ABUT	11	EL	20	ABUT	11	IR	20	ABUT	11	IL	20	ABUT	1.0	1.3	11	1/4	20	●	○	○	○
11	ER	16	ABUT	11	EL	16	ABUT	11	IR	16	ABUT	11	IL	16	ABUT	1.0	1.5	11	1/4	16	●	○	○	○
16	ER	20	ABUT	16	EL	20	ABUT	16	IR	20	ABUT	16	IL	20	ABUT	1.0	1.3	16	3/8	20	●	○	○	○
16	ER	16	ABUT	16	EL	16	ABUT	16	IR	16	ABUT	16	IL	16	ABUT	1.0	1.5	16	3/8	16	●	○	○	○
16	ER	12	ABUT	16	EL	12	ABUT	16	IR	12	ABUT	16	IL	12	ABUT	1.4	2.0	16	3/8	12	●	○	○	○
16	ER	10	ABUT	16	EL	10	ABUT	16	IR	10	ABUT	16	IL	10	ABUT	1.5	2.3	16	3/8	10	●	○	○	○
22	ER	8	ABUT	22	EL	8	ABUT	22	IR	8	ABUT	22	IL	8	ABUT	2.1	3.3	22	1/2	8	●	○	○	○
22	ER	6	ABUT	22	EL	6	ABUT	22	IR	6	ABUT	22	IL	6	ABUT	2.1	3.4	22	1/2	6	●	○	○	○

Most jobs require a backing plate

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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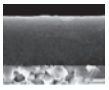
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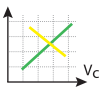

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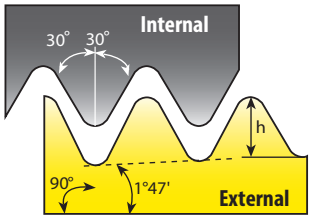
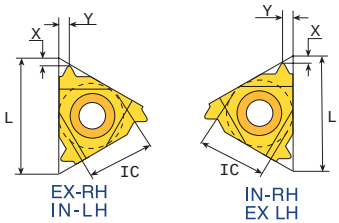
OIL Threads API Round

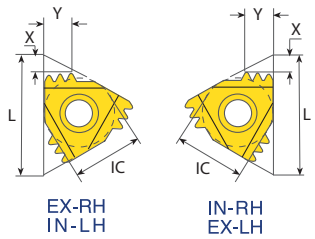
Spec 5B: 2008 (замковая)





External		Internal		X	Y	L	I.C. inch	TPI thread/inch	Grades			
RH	LH	RH	LH						PK3025	MS1515	N20K	HS2020
16 ER 10 API RD		16 IR 10 API RD		1.5	1.4	16	3/8	10	●	○	○	○
16 ER 8 API RD		16 IR 8 API RD		1.3	1.6	16	3/8	8	●	○	○	○

Multitooth



Designation				X	Y	L	I.C. inch	TPI thread/inch	No. of teeth/				
External		Internal											
	Support plate		Support plate							PK3025	MS1515	N20K	HS2020
22 ER 10API RD 2M	ES22M	22 IR 10API RD 2M	IS22M	2.4	3.7	22	1/2	10	2	●	○	○	○
27 ER 10API RD 3M	ES27M	27 IR 10API RD 3M	IS27M	3.8	6.2	27	5/8	10	3	●		○	○
27 ER 8API RD 2M	ES27M	27 IR 8API RD 2M	IS27M	3.0	4.5	27	5/8	8	2	●		○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron-	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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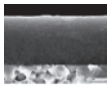
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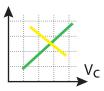

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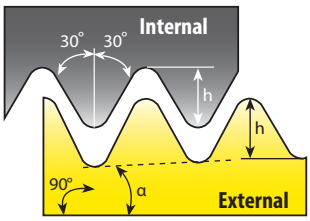
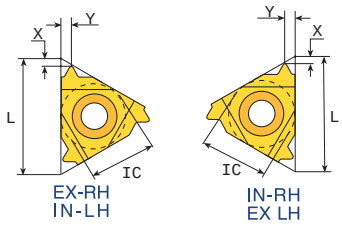
OIL Threads API Round

Spec 7: 2001 (замковая)





V-0.040

External RH	External LH	Internal RH	Internal LH	X	Y	L	I.C. inch	Taper/IPF	TPI thread/ inch	Connection No. or Size	PK3025	MS1515	N20K	HS2020
22 ER 5 API 403		22 IR 5 API 403		1.8	2.5	22	1/2	3	5	23/8-41/2REG	●	○	○	○

V-0.038R

External RH	External LH	Internal RH	Internal LH	X	Y	L	I.C. inch	Taper/IPF	TPI thread/ inch	Connection No. or Size	PK3025	MS1515	N20K	HS2020
27 ER 4 API 382		27 IR 4 API 382		2.1	2.8	27	5/8	2	4	NC23-NC50	●	○	○	○
27 ER 4 API 383		27 IR 4 API 383		2.1	2.8	27	5/8	3	4	NC56-NC77	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron-	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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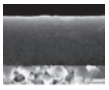
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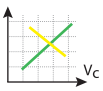

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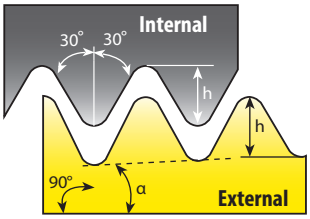
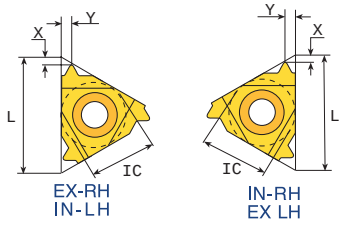
OIL Threads API Round





V-0.050

External RH	External LH	Internal RH	Internal LH	X	Y	L	I.C. inch	Taper/IPF	TPI thread/ inch	Connection No. or Size	Grades PK3025	MS1515	N20K	HS2020
27 ER 4 API 502		27 IR 4 API 502		2.0	3.0	27	5/8	2	4	65/8 REG	●	○	○	○
27 ER 4 API 503		27 IR 4 API 503		2.0	3.0	27	5/8	2	4	51/2, 75/8, 85/8 REG	●	○	○	○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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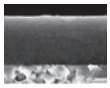
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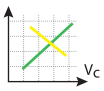

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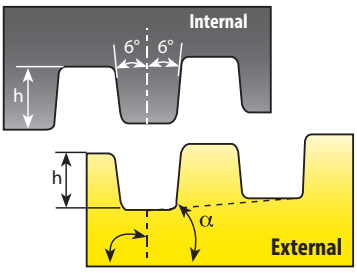
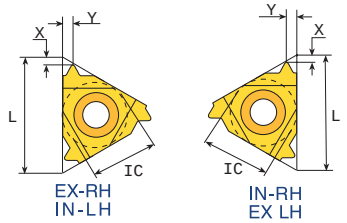
Extreme - Line Casing

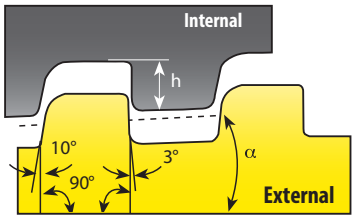


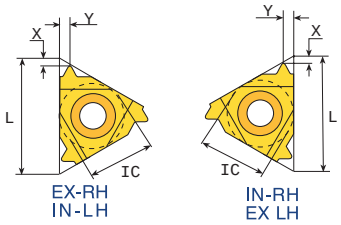


External RH	Internal RH	X	Y	L	I.C. inch	Taper/IPF	TPI thread/ inch	Connection No. or Size	PK3025	MS1515	N20K	HS2020
22 ER 6 EL 1.5	22 IR 6 EL 1.5	1.9	1.9	22	1/2	1.50	6	$5\text{-}7_{5/8}$	●	○		○
22 ER 6 EL 1.25	22 IR 6 EL 1.25	2.4	2.3	22	1/2	1.25	5	$8_{5/8}\text{-}10_{3/4}$	●	○		○

Grades

Buttress Casing





External RH	Internal RH	X	Y	L	I.C. inch	Taper/IPF	TPI thread/ inch	Connection No. or Size	PK3025	MS1515	N20K	HS2020
22 ER 5 BUT 0.75	22 IR 5 BUT 0.75	2.2	2.4	22	1/2	0.75	5	$4_{1/2}\text{-}13_{3/8}$	●	○		○
22 ER 5 BUT 1.0	22 IR 5 BUT 1.0	2.3	2.4	22	1/2	1.00	5	16-20	●	○		○

	PK3025	MS1515	N20K	HS2020
P Steel	★			
M Stainless steel aust.	★	★		
K Cast iron	★		☆	
N Aluminium	★	★	★	
S Hig. temp. alloy	★	★		★
H Hardened steel				★

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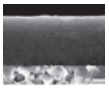
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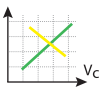

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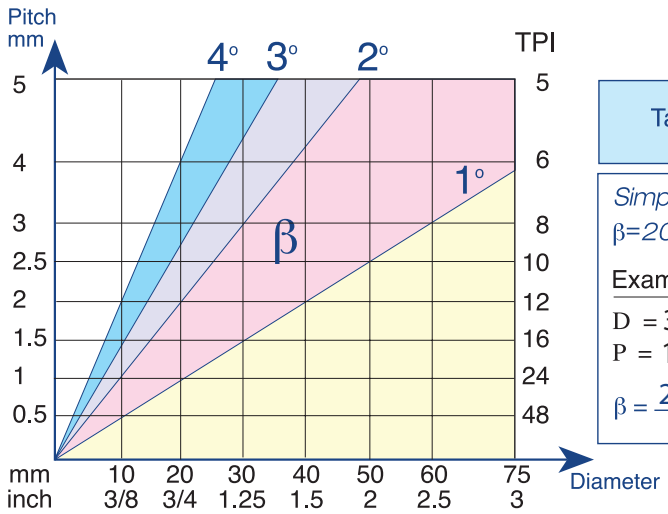
Recommended cutting speed (m/min) for thread turning inserts

Stan-dart ISO	Material		Specifications	Grades			
				HS2020	MS1515	PK3025	N20K
P	Non-Alloy Steel and Cast Steel, Free Cutting Steel	<0.25%C	Annealed		110-210	120-180	
		™0.25%C	Annealed				
		<0.55%C	Quenched & Tempered				
		™0.55%C	Annealed				
			Quenched & Tempered				
	Low alloy and cast steel (less than 5%) alloying additions		Annealed		90-140	80-130	
			Quenched & Tempered				
	High Alloy Steel Low-alloy and cast steel (less than 5% (alloying additives		Annealed		70-90	60-80	
			Quenched & Tempered				
M	Stainless Steel		Pearlitic/Martensitic		110-160	90-130	50-80
			Martensitic				
			Austenitic				
K	Cast Iron Nodular (GGG)		Ferritic/ Pearlitic		120-150	100-130	
			Pearlitic				
	Grey Cast Iron (GGG)		Ferritic		140-150	120-130	
			Pearlitic				
	Malleable Cast Iron		Ferritic		110-140	100-130	
			Pearlitic				
N	Aiuminium-Wrought Alloy		Not Cureable		700-1000		600-800
			Cured				
	Aiuminium-Cast Alloyed	<=12% Si	Not Cureable		280-750		200-550
			Cured				
		>12% Si	High Temperature				
	Copper Alloys	>1% Pb	Free Cutting		190-350		150-250
			Brass				
			Electrolytic Copper				
	Non Metalic		Duroplastics, Fiber Plastics				100-200
			Hard Rubber				
S	High Temp.Alloys, Super Alloys	Fe based	Annealed	20-80	30-65	25-60	
			Cured				
		Nior Co based	Annealed				
			Cured /Отожженные				
			Cast /Литые				
	Titanium Alloys		Alpha + Beta Alloys Cured	30-60	40-50	35-45	35-45
H	Hardened Steel		Hardened 45-50 HRc	30-60	40-50	35-45	
			Hardened 51-55 HRc				
			Hardened 56-62 HRc				
	Chilled Cast Iron		Cast	20-50	30-40	25-35	
	Cast Iron		Hardened	20-40	20-30	15-25	

Anvils

Thread Helix Angle



$$\tan \beta = \frac{P}{\pi \times D}$$

Simplified formula

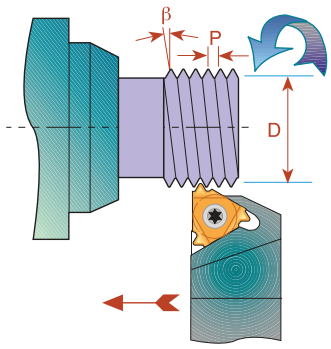
$\beta = 20P/D$

Example:

D = 30 mm (1.18")

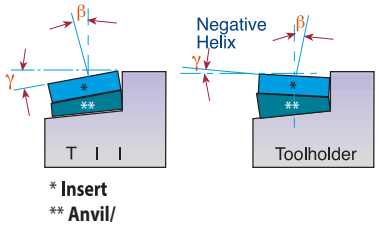
P = 1.5 mm (16TPI)

$$\beta = \frac{20 \times 15}{30} = 1^{\circ}$$



Standard and Slanted Anvils

Toolholder Pockets have a built in 1.5° helix angle. This angle may be adjusted to better match the thread helix angle by simply changing the anvil.
Negative helix is usually used when threading RH thread with LH Holder or LH thread with RH Holder.



Number of passes and depth of cut per pass for multitooth insert

	Pitch mm	Insert Size		No. of Teeth	Ordering Code	No. of Passes	Depth of Cut per pass			
		L	I.C. (in)				1	2	3	4
ISO External	1.00	16	3/8	3	16 ER 1.0 ISO 3M	2	0.38	0.25		
	1.50	16	3/8	2	16 ER 1.5 ISO 2M	3	0.42	0.30	0.20	
	1.50	22	1/2	3	22 ER 1.5 ISO 3M	2	0.55	0.37		
	2.00	22	1/2	2	22 ER 2.0 ISO 2M	3	0.57	0.40	0.28	
	2.00	22	1/2	3	22 ER 2.0 ISO 3M	2	0.76	0.4		
	3.00	27	5/8	2	27 ER 3.0 ISO 2M	4	0.59	0.51	0.42	0.32
ISO Internal	1.00	16	3/8	3	16 IR 1.0 ISO 3M	2	0.33	0.25		
	1.50	16	3/8	2	16 IR 1.5 ISO 2M	3	0..38	0.2	0.20	
	1.50	22	1/2	3	22 IR 1.5 ISO 3M	2	0.50	0.37		
	2.00	22	1/2	2	22 IR 2.0 ISO 2M	3	0.52	0.37	0.26	
	2.00	22	1/2	3	22 IR 2.0 ISO 3M	2	0.70	0.45		
	3.00	27	5/8	2	27 IR 3.0 ISO 2M	4	0.58	0.46	0.39	0.30
UN External	16	16	3/8	2	16 ER 16 UN 2M	3	0.44	0.31	0.22	
	16	22	1/2	3	22 ER 16 UN 3M	2	0.58	0.39		
	12	22	1/2	2	22 ER 16 UN 3M	3	0.59	0.42	0.30	
	12	22	1/2	3	22 ER 12 UN 2M	2	0.78	0.52		
	8	27	5/8	2	22 ER 12 UN 3M	4	0.62	0.54	0.45	0.354
UN Internal	16	16	3/8	2	16 IR 16 UN 2M	3	0.42	0.28	0.22	
	16	22	1/2	3	22 IR 16 UN 3M	2	0.55	0.37		
	12	22	1/2	2	22 IR 12 UN 2M	3	0.53	0.38	0.31	
	12	22	1/2	3	22 IR 12 UN 3M	2	0.74	0.48		
	8	27	5/8	2	27 IR 8 UN 2M	4	0.63	0.50	0.40	0.30
Whitworth 55° External	14	16	3/8	2	16 ER 14 W 2M	3	0.52	0.37	0.27	
	14	22	1/2	3	22 ER 14 W 3M	2	0.70	0.46		
	11	22	1/2	2	22 ER 11 W 2M	3	0.67	0.47	0.34	
Whitworth 55° Internal	14	16	3/8	2	16 IR 14 W 2M	3	0.52	0.37	0.27	
	14	22	1/2	3	22 IR 14 W 3M	2	0.70	0.46		
	11	22	1/2	2	22 IR 11 W 2M	2	0.67	0.47	034	
NPT External	14	16	3/8	2	16 ER 14 NPT 2M	3				
	11.5	22	1/2	2	22 ER 11.5 NPT 2M	4	0.54	0.47	0.37	0.30
	11.5	27	5/8	3	27 ER 11.5 NPT 3M	4	0.76	0.54	0.38	
	8	27	5/8	2	27 ER 8 NPT 2M	4	0.81	0.60	0.55	0.45
NPT Internal	14	16	3/8	2	16 IR 14 NPT 2M	3				
	11.5	22	1/2	2	22 IR 11.5 NPT 2M	4	0.54	0.47	0.37	0.30
	11.5	27	5/8	3	27 IR 11.5 NPT 3M	4	0.76	0.54	0.38	
	8	27	5/8	2	27 IR 8 NPT 2M	4	0.81	0.60	0.55	
API Round External	10	22	1/2	2	22 ER 10 APIRD 2M	3	0.60	0.50	0.31	0.45
	10	27	5/8	3	327 ER 10 APIRD 3M	2	1.00	0.41		
	8	27	5/8	2	27 ER 8 APIRD 2M	3	0.80	0.60	0.41	
API Round Internal	10	22	1/2	2	22 IR 10 APIRD 2M	3	0.60	0.50	0.31	
	10	27	5/8	3	27 IR 10 APIRD 3M	2	1.00	0.41		
	8	27	5/8	2	27 IR 8 APIRD 2M	3	0.80	0.60	0.41	

Number of threading passes selection for single point inserts

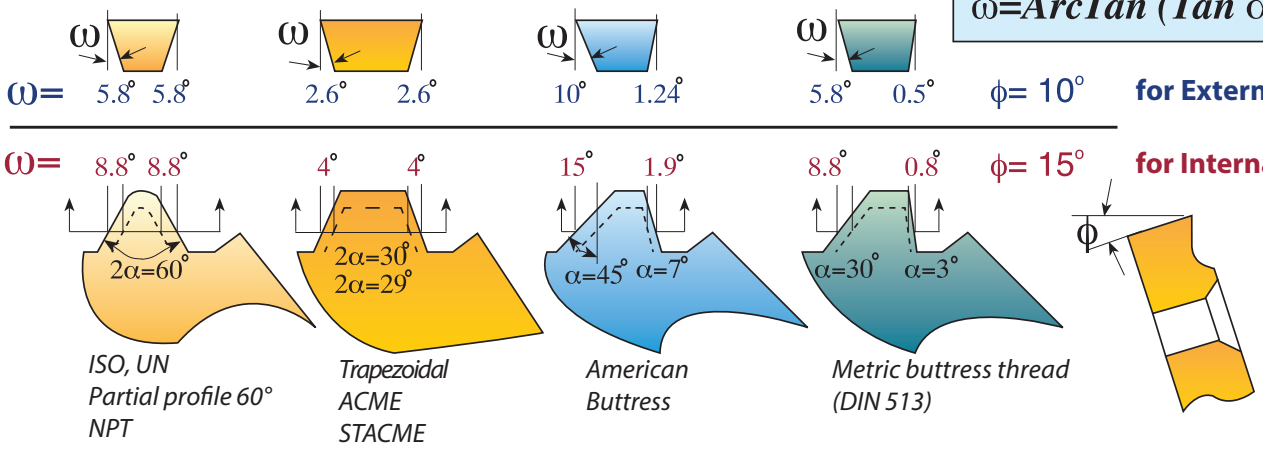
Pitch: mm	0.5 48	0.8 32	1.0 24	1.25 20	1.5 16	1.75 14	2.0 12	2.5 10	3.0 8	4.0 6	6.0 4
Number of passes	3-6	4-7	4-9	6-10	5-11	9-12	6-13	7-15	8-17	10-20	11-22

NOTES:

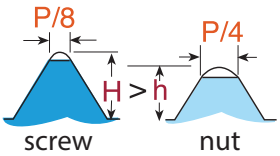
1. For most standard applications the middle of the range is a good starting point.
2. For most materials, the tougher the material, the higher the number of cutting passes you should select.
3. As a general rule of thumb, fewer passes are better than more speed.

Flank clearance angle ω

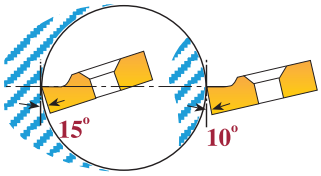
$$\omega = ArcTan\ (Tan\ \alpha\ x\ Tan\ \phi)$$



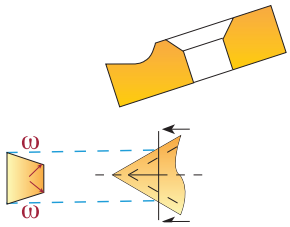
1. **In most thread forms internal and external threads have different depth and radii, thus tools are not interchangeable.**



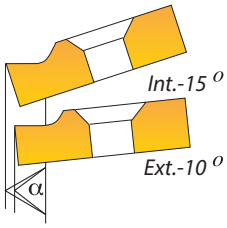
2. **The Insert relief angle of a standard external toolholder is 10°; for an internal toolholder it is 15°. This 5° difference is to provide additional necessary radial clearance.**



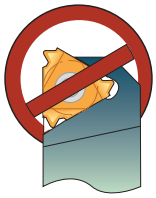
3. **Our built-in relief angles ensure automatic insert flank angle clearance.**



4. **Profiles of internal & external threading inserts are precision ground to ensure accurate thread geometry when used in their corresponding toolholders. Using internal inserts with an external holder will result in distortion of angle and insert geometry.**

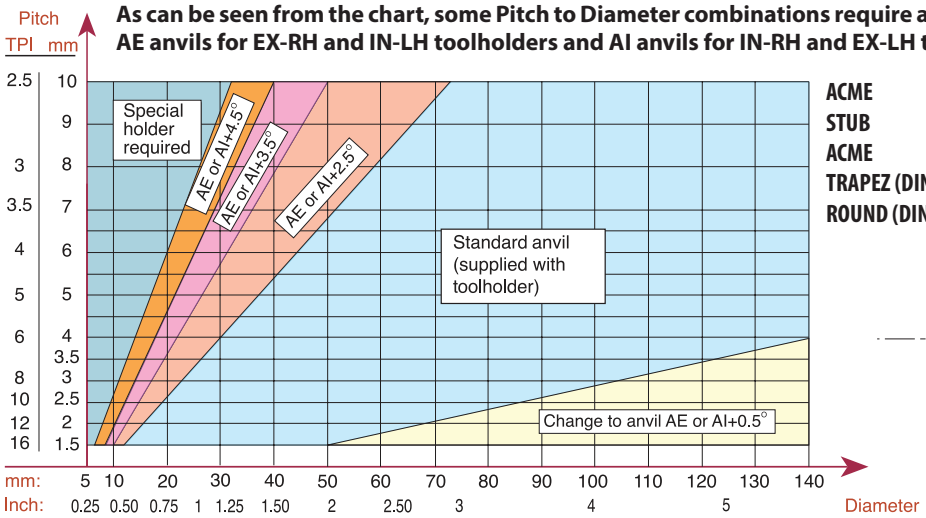


5. **Insert and toolholder should always match. An IN-RH insert must be used with an IN-RH toolholder. No mismatch is allowed.**

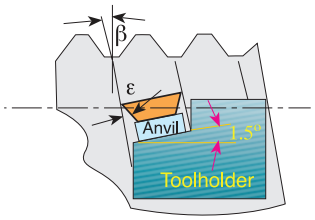


Recommendations for replacing shims

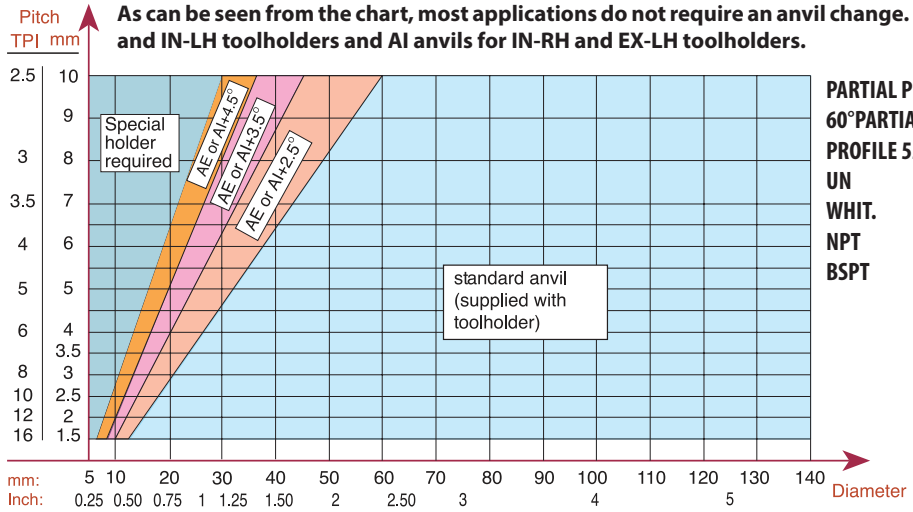
As can be seen from the chart, some Pitch to Diameter combinations require an anvil change. If change is required, use AE anvils for EX-RH and IN-LH toolholders and AI anvils for IN-RH and EX-LH toolholders.



ACME
STUB
ACME
TRAPEZ (DIN 103)
ROUND (DIN 405)

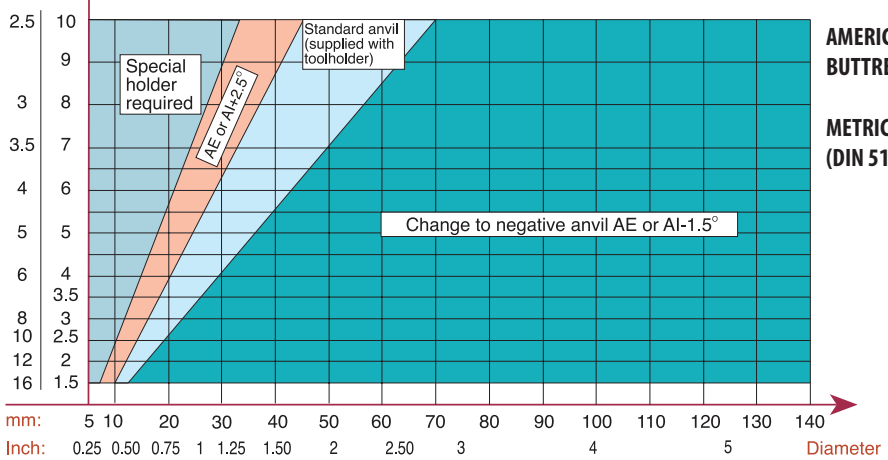


As can be seen from the chart, most applications do not require an anvil change. If change is required, use AE anvils for EX-RH and IN-LH toolholders and AI anvils for IN-RH and EX-LH toolholders.



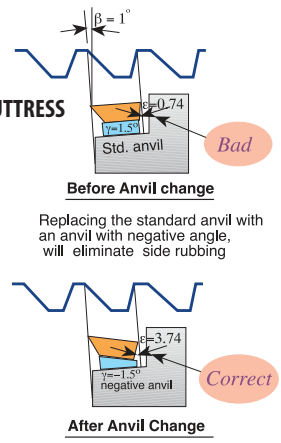
PARTIAL PROFILE
60°PARTIAL
PROFILE 55°ISO
UN
WHIT.
NPT
BSPT

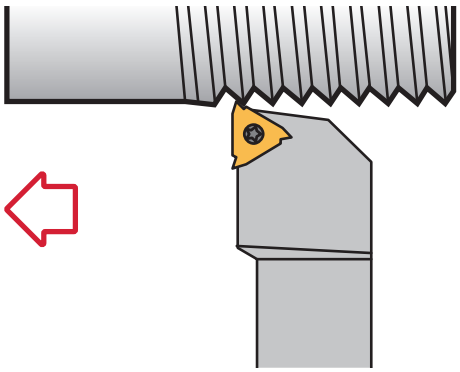
As can be seen from the chart, most applications require an anvil change. In most cases a negative anvil is required. Use AE anvils for EX-RH and IN-LH toolholders and AI anvils for IN-RH and EX-LH toolholders.

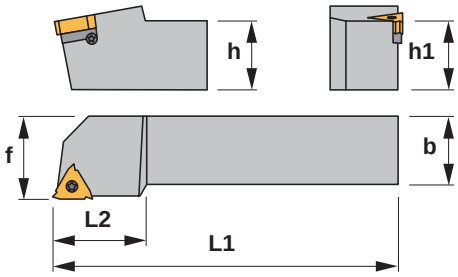


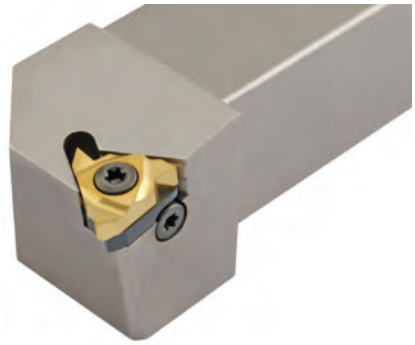
AMERICAN BUTTRESS

METRIC BUTTRESS (DIN 513)



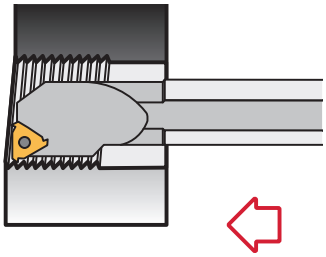


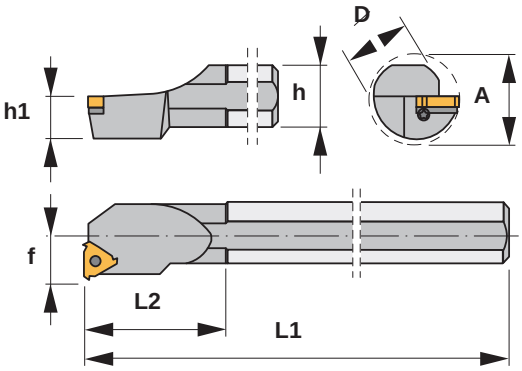




STXN 90º

Reference	h=h1	b	L1	L2	f	Insert size	Kg			R	L	
STXN R/L 1212 F16	12	12	80	25	16	16 ER/L..	0,100	SA3T	5510	YE3	YI3	SY3
STXN R/L 1616 H16	16	16	100	25	20	16 ER/L..	0,200	SA3	5510	YE3	YI3	SY3
STXN R/L 2020 K16	20	20	125	28	25	16 ER/L..	0,400	SA3	5510	YE3	YI3	SY3
STXN R/L 2525 M16	25	25	150	28	32	16 ER/L..	0,700	SA3	5510	YE3	YI3	SY3
STXN R/L 3232 P16	32	32	170	28	40	16 ER/L..	1,050	SA3	5510	YE3	YI3	SY3
STXN R/L 2525 M22	25	25	150	34	32	22 ER/L..	0,700	SA4	5520	YE4	YI4	SY4
STXN R/L 3232 P22	32	32	170	34	40	22 ER/L..	1,300	SA4	5520	YE4	YI4	SY4
STXN R/L 4040 R22	40	40	200	34	50	22 ER/L..	3,000	SA4	5520	YE4	YI4	SY4
STXN R/L 2525 M27	25	25	150	34	32	27 ER/L..	0,700	SA5	5525	YE5	YI5	SY5
STXN R/L 3232 P27	32	32	170	34	40	27 ER/L..	1,300	SA5	5525	YE5	YI5	SY5
STXN R/L 4040 R27	40	40	200	34	50	27 ER/L..	3,000	SA5	5525	YE5	YI5	SY5
STXN R/L 5050 S27	50	50	250	34	60	27 ER/L..	5,800	SA5	5525	YE5	YI5	SY5





STXN 90º

Reference	D	h	h1	L1	L2	f	A	Insert size	Kg			R	L		Nm
S10K STXN R/L 11	10	9	4,5	125	16	7,3	13	11 NR/L..	0,070	1225	5507	-	-	-	0.9
S16M STXN R/L 11	16	15	7,5	150	25	8,9	16	11 NR/L..	0,200	1225	5507	-	-	-	0.9
S16M STXN R/L 16	16	15	7,5	150	30	11,5	20	16 NR/L..	0,200	SN3	5510	-	-	-	2.0
S20Q STXN R/L 16	20	18	9,0	180	35	13,4	24	16 NR/L..	0,400	SA3T	5510	YI3	YE3	SY3	2.0
S25R STXN R/L 16	25	23	11,5	200	40	16,3	29	16 NR/L..	0,700	SA3	5510	YI3	YE3	SY3	2.0
S32S STXN R/L 16	32	30	15,0	250	45	19,6	36	16 NR/L..	1,500	SA3	5510	YI3	YE3	SY3	2.0
S40T STXN R/L 16	40	37	18,5	300	50	23,8	44	16 NR/L..	2,850	SA3	5510	YI3	YE3	SY3	2.0
S20Q STXN R/L 22	20	18	9,0	180	35	15,6	27	22 NR/L..	0,400	SN4	5520	-	-	-	4.0
S25R STXN R/L 22	25	23	11,5	200	40	17,2	32	22 NR/L..	0,700	SA4	5520	YI4	YE4	SY4	4.0
S32S STXN R/L 22	32	30	15,0	250	45	21,5	39	22 NR/L..	1,500	SA4	5520	YI4	YE4	SY4	4.0
S40T STXN R/L 22	40	37	18,5	300	50	25,8	47	22 NR/L..	2,850	SA4	5520	YI4	YE4	SY4	4.0
S32S STXN R/L 27	32	30	15,0	250	45	22,4	40	27 NR/L..	1,500	SA5	5525	YI5	YE5	SY5	5.0
S40T STXN R/L 27	40	37	18,5	300	50	26,4	48	27 NR/L..	2,850	SA5	5525	YI5	YE5	SY5	5.0
S50U STXN R/L 27	50	47	23,5	350	60	31,4	58	27 NR/L..	5,200	SA5	5525	YI5	YE5	SY5	5.0
S60V STXN R/L 27	60	57	28,5	400	60	36,4	69	27 NR/L..	8,550	SA5	5525	YI5	YE5	SY5	5.0

umt

9

TOOLS WITH CARBIDE INSERTS

MILLING WITH CARBIDE INSERTS

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Grades	ISO	ANSI	Cutting material	Application 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Aluminium	S Superalloy	H Hard materials
P3530M	HC-P35	C5	P		●					
	HC-M30	–	P			○				
P30D	HC-P30	C6	C		●					
	HC-K25	C2	C				○			
	HC-M25	–	C			○				
P35M	HC-P35	C5	C		●					
	HC-M30	–	C			○				
P35W	HC-P35	C5	P		●					
	HC-M30	–	P			○				
M135	HC-M35	–	P			●				
M3540P	HC-M35	–	P			●				
	HC-P40	C5	P		○					
M40P	HC-M40	–	P			●				
	HC-P40	C5	P		○					
M135GP	HC-M35	–	P			●				
	HC-P35	C5	P		○					
K115	HC-K15	C3	C				●			
HK115	HC-K15	C3	C				●			
K120	HC-K20	C2	P				●			
N15K	HW-N15	C3	W					●		
	HW-K15	C3	W				○			
SM35	HC-S35	–	C						●	
	HC-M35	–	C			●				
S135	HC-S35	–	C						●	
H15K	HC-H15	–	P							●
	HC-K15	–	P				○			

CUTTING MATERIAL
T - cermet
C - with CVD coating
P - with PVD coating
W - without coating

● Main application
○ Extended application

Machining application types

MR
Strong cutting edge for general steel applications and hard conditions milling.

MS
Stable cutting edge for dedicated exotic materials and titanium.

M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

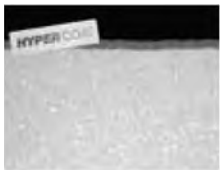
SCE
Strong cutting edge for cast iron applications.

M-F
Sharp cutting edge for aluminium and non-ferrous metal.

MS-S
Strong reinforced cutting edge for hard material.

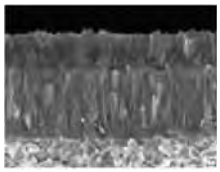
Alloy description

P3530M — HC-P35 | HC-M30



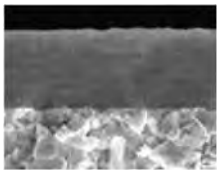
Specification: Composition: Co 9.0%; mixed carbides 4.0%; WC balance | Grain size: 1-1.5µm | Hardness: HV1510 | Coating specification: PVD (TiA)N + TiN; 4 µm
Recommended application: First choice for dry machining of steels.

P30D — HC-P30 | HC-K25 | HC-M25



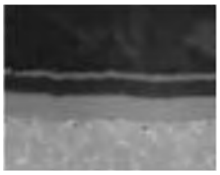
Specification: Composition: Co 10.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1-2 µm | Hardness: HV30 1400 | Coating specification: CVD
TiCN-Al_2O_3
Recommended application: First choice for dry machining of steels at high cutting speeds.

P35W — HC-P35 | HC-M30



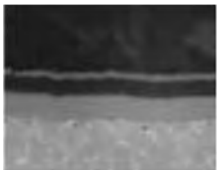
Specification: Composition: Co 10.5 %; mixed carbide 2.0 %; WC balance | Grain size: 1-2 µm | Hardness: HV30 1400 | Coating specification: PVD TiAlTaN
Recommended application: Particularly suitable for the wet machining of steels.

P35M — HC-P35 | HC-M30



Specification: Composition: Co 12.5%; mixed carbides 2.0%; WC balance | Grain size: fine Hardness: HV30 1380 | Coating specification: CVD TiCN-Al2O3 + TiN; 7 µm
Recommended application: Milling Grade designed for Alloyed Steel cutting.

M135 — HC-M35 | HC-P35

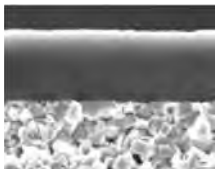


Specification: Composition: Co 11 %; other 0.75 %; WC balance | Grain size: 0.5-0.8 µm | Hardness: HV30 1500 | Coating specification: PVD TiAlTaN
Recommended application: The first choice for the machining of authentic steels.

M3540P — HC-M40 | HC-P40

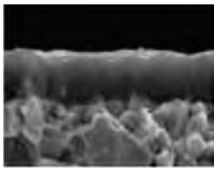
Specification: Composition: Co 12.5 %; mixed carbide 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV 1380 | Coating specification: PVD (TiA)N; 4 µm
Recommended application: Particularly suitable for the machining of stainless steels.

M40P — HC-M40 | HC-P40



Specification: Composition: Co 12.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV30 1380 | Coating specification: PVD TiAlTaN
Recommended application: The first choice for the machining of austenitic steels.

M135GP — HC-M35 | HC-P35

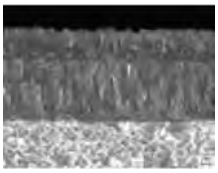


Specification: Composition: Co 10.0 %; other 1.5 %; rest TC | Grain size: coarse | Hardness: HV30 1330 | Layer system: PVD TiAlTaN
Recommended application: Particularly suitable for the machining of high-alloy steels (austenitic).

K115 — HC-K15

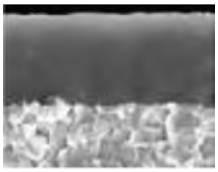
Specification: Composition: Co 6.0 %; mixed carbide 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV 1630 | Coating specification: CVD Ti(C,N) + Al2O3; 5 µm
Recommended application: First choice for the machining of cast iron.

HK115 — HC-K15



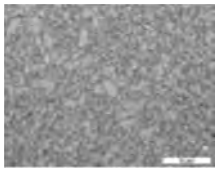
Specification: Composition: Co 6.0 %; mixed carbides 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV30 1600 | Coating specification: CVD TiN, MT-TiCN; Al2O3
Recommended application: The first choice for the machining of cast iron at high cutting spreeds.

K120 — HC-K20



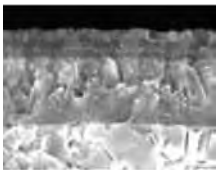
Specification: Composition: Co 6.0 %; mixed carbides 2.0%, WC balance | Grain size: 1 µm | Hardness: HV30 1630 | Coating specification: PVD TiAlTaN
Recommended application: Optimal for the machining of high-tensile cast icon materials when toughness is required.

N15K — HW-N15 | HW-K15



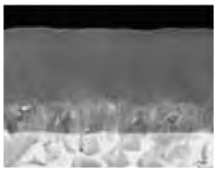
Specification: Composition: Co 6.0 %; WC balance | Grain size: 1 µm | Hardness: HV30 1630 | without coating
Recommended application:
The uncoated carbide grade for the machining of aluminium. It's an high wear and high heat resistant carbide with a low tendency to adhesion.

SM35 — HC-S35 | HC-M35



Specification: Composition: 10.0 % binder; WC balance | Grain size: 2 µm | Hardness: HV30 1330 | Coating specification: CVD TiCN-Al2O3 multi-layer
Recommended application: Particularly suitable for the machining of heat-resistant steels and iron-based alloys.

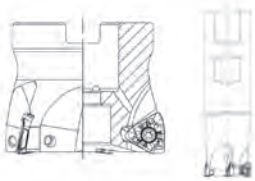
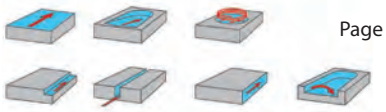
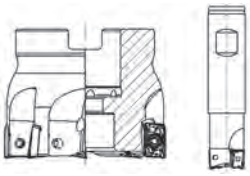
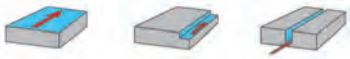
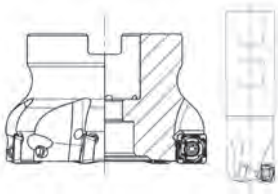
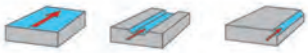
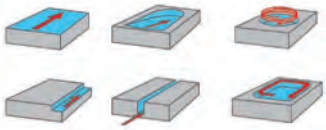
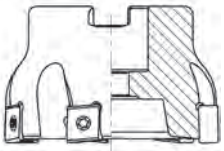
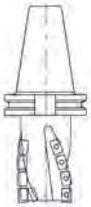
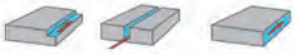
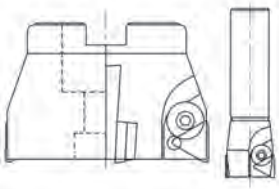
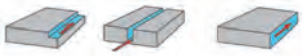
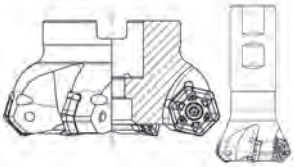
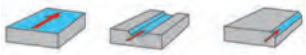
S135 — HC-S35

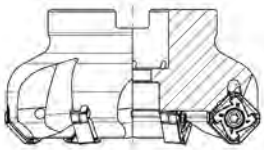
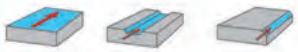
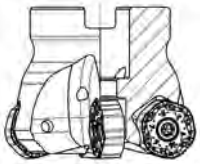
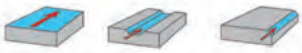
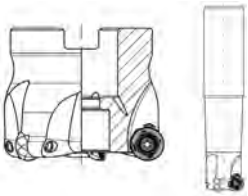
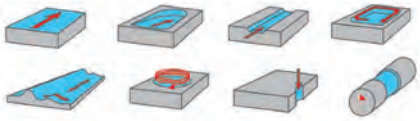
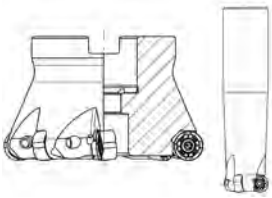
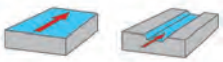
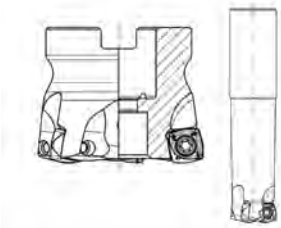
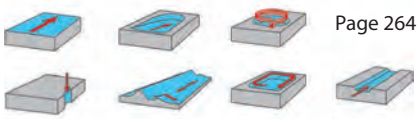
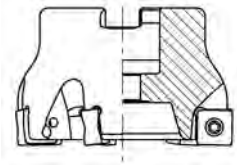
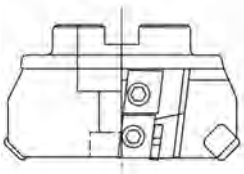
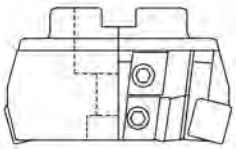


Specification: Composition: Co 10.0 %; WC balance | Grain size: 2 µm | Hardness: HV 1330 | Coating specification: CVD TiN +TiB2; 4 µm
Recommended application:
Recommended for the machining of titanium materials.

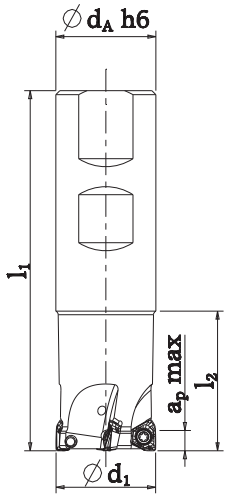
H15K — HC-H15 | HC-K15

Specification:
Composition: Co 12.0 %; WC balance | Grain size: 4 µm | Hardness: HV 1730 | Coating specification: PVD (TiA)N; 4 µm
Recommended application:
Particularly suitable for the machining of hardened steels.

The series of tool		Description			Application	
SM5000...		Shouldering 3 x 90° **TOKX07** **TOKX09**		Ø20-63		Page 224
SM5500..		Shouldering 2 x 90° **APKT 10** **APKT / APHT 16**		Ø50-160		Page 232 Page 236
SM5010...		Shouldering 4 x 90° **SDKT 09** **SDKT 12**		Ø25-80		Page 230
SM5006...		Shouldering 4 x 90° **LNKU 12** **LOKU 12**		Ø50-80		Page 228
SM5060...		Shouldering 4 x 90° **LNMX 12**				Page 228
SM5550SK...		Shouldering 2 x 90° **APKT / APHT 16**		Ø50-80		Page 240
SM5005...		Shouldering 3 x 90° **TPKN / TPKR 16** **TPKN / TPKR 22**		Ø25-250		Page 242 Page 246
FM1000....		Face milling 6 x 45° **HPKT 06** **HOKT 06** **HPCT 06** **HOCT 06**		Ø40-125		Page 248

The series of tool		Description			Application	
FM1080....		Face milling 8 x 45° **SOKU 12** **SOKU 15**		Ø40-160		Page 250
FM1022...		Face milling 12 x 45° **HNKU 08** **HOKU 08**		Ø40-125		Page 254
P3000...		Form milling **RPMX 10/12** **RDHX 10/12** **RPHX 10/12** **RDHW 10/12** **RPMX 16** **RDHX 16** **RPHX 16** **RDHW 16**		Ø20-125		Page 256
FM1088...		Form milling **RNKU 12/16** **ROHU 12/16**		Ø160-500		Page 260
HF9000...		High feed cutting **XPLT 07** **XDLX 10** **XDLT 10** **XOLT 13**		Ø16-63		Page 264
FM1090...		Face milling 8 x 88° **SNMX 12**		Ø50-250		Page 252
FM1200...		Face milling 4 x 45° **SEKN 12** **SEKR 12** **SEKR 15**		Ø50-250		Page 266
FM1202....		Face milling 4 x 75° **SPKN 12** **SPKR 12**		Ø40-500		Page 268

SM5000...



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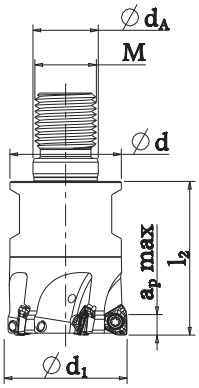
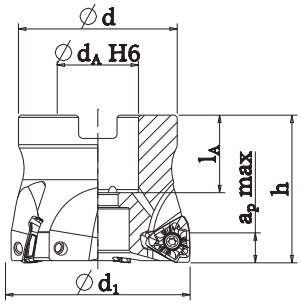
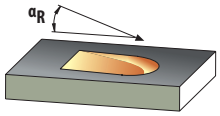
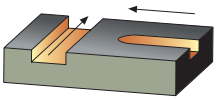


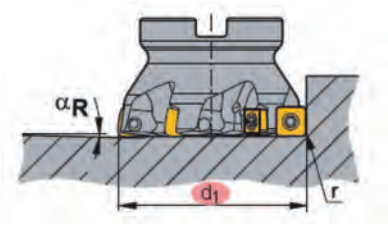
SM5000AT...

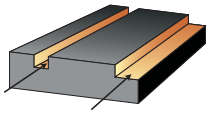


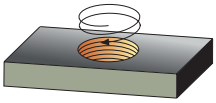
Art.	d1 (mm)	l1 (mm)	l2 (mm)	h (mm)	d (mm)	dA (mm)	a_p (mm)	z	α_R (°)		
SM5000.20.07.25.077.3	20	77	25	-	-	20	5	3	1.4	TOKX 07	24645
SM5000.25.07.34.090.4	25	90	34	-	-	25		4	1.2	TOKX 07	24645
SM5000.32.07.40.102.5	32	102	40	-	-	32		5	0.8	TOKX 07	24645
SM5000G.20.07.052.M10.3	20	-	-	52	18	M10		3	1.4	TOKX 07	24645
SM5000G.25.07.057.M12.4	25	-	-	57	21	M12		4	1.2	TOKX 07	24645
SM5000G.32.07.063.M16.5	32	-	-	63	29	M16		5	0.8	TOKX 07	24645
SM5000AT.40.07.16.5	40	-	-	40	38	16		5	0.6	TOKX07	24645
SM5000AT.50.07.22.6	50	-	-	40	43	22		6	0.5		24645
SM5000.32.09.40.102.3	32	102	40	-	-	32	8	3	1.1	TOKX09	77613
SM5000AT.40.09.16.4	40	-	-	40	38	16		4	0.8		77613
SM5000AT.50.09.22.5	50	-	-	40	43	22		5	0.5	TOKX09	77613
SM5000AT.63.09.22.6	63	-	-	40	48	22		6	0.5		77613

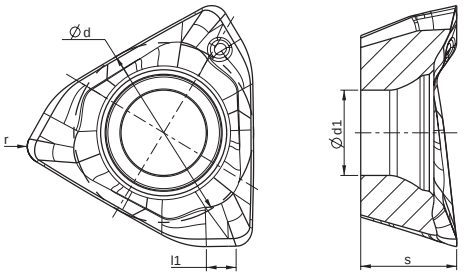








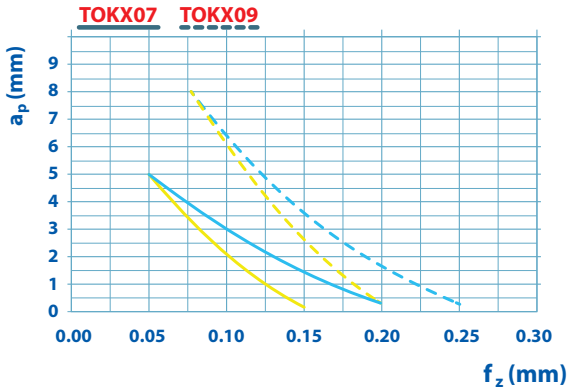


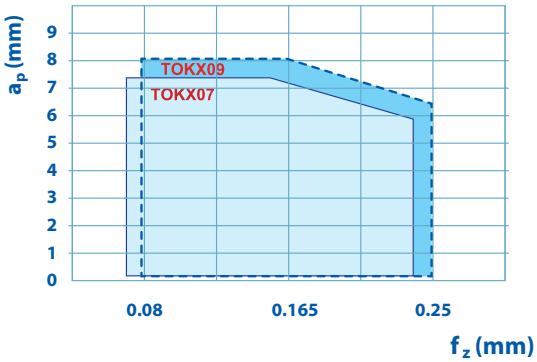


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

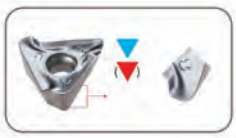
Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l1 (mm)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
TOKX 070305PDER MR	5.9	3.15	0.5	2.8	1		●		●											
TOKX 070305PDER M-AF	5.9	3.15	0.5	2.8	1							●						●		
TOKX 070308PDER MR	5.9	3.15	0.8	2.8	1		●		●											
TOKX 070308PDER M-AF	5.9	3.15	0.8	2.8	1							●						●		
TOKX 09T308PDER MR	9.525	3,8	0,8	3,4	1,5		●		●											
TOKX 09T308PDER M-AF	9.525	3,8	0,8	3,4	1,5							●						●		
TOKX 09T312PDER MR	9.525	3,8	1,2	3,4	1,5		●		●											
TOKX 09T312PDER M-AF	9.525	3,8	1,2	3,4	1,5							●						●		
TOKX 09T316PDER MR	9.525	3,8	1,6	3,4	1,5		●		●											
TOKX 09T316PDER M-AF	9.525	3,8	1,6	3,4	1,5							●						●		

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
	Alloy steel	200-325		150-60		140-60			140-60						140-60		
	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		

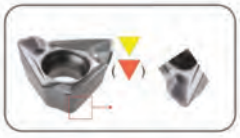




Chipbreaker



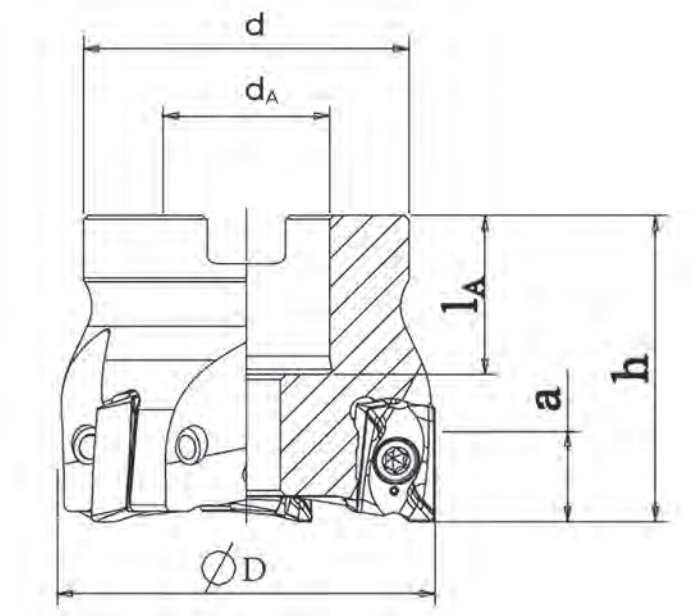
MR
Strong cutting edge for general steel applications and hard conditions milling.



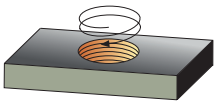
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

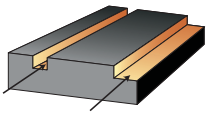
○ **On request**
● **In stock**

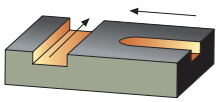
SM5006AT ...

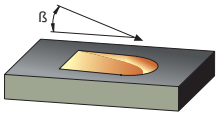


Art. / Арт.	Ø D (мм)	d (mm)	lA (mm)	h (mm)		dA (mm)	a (mm)	z		
SM5006AT.40.12.22.4	40	38	20	40/40.44*	-	22	12	4	LOKU/LNKU	11042274
SM5006AT.50.12.22.5	50	43	20	40/40.44*	-	22		5	LOKU/LNKU	11042274
SM5006AT.63.12.22.6**	63	48	21	40/40.44*	-	22		6	LOKU/LNKU	11042274
SM5006AT.80.12.27.7**	80	58	22	50/50.44*	-	27		7	LOKU/LNKU	11042274

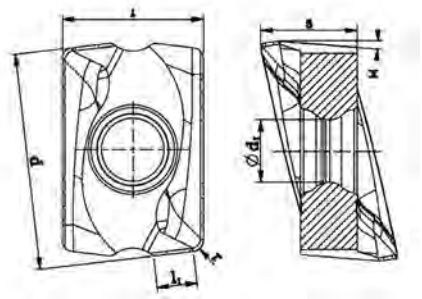








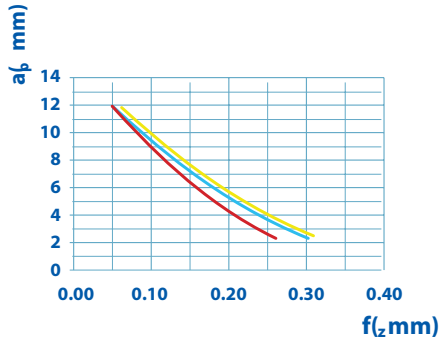
* with LOKU insert
* * **On request**

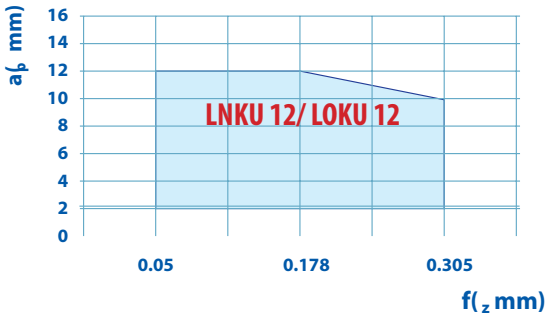


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l1 (mm)	l (mm)	x [°]	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
LNKU 120608 MR	15.27	6.78	0.8	4.4	2.84	10	-		●	●												
LNKU 120608 SCE	15.27	6.78	0.8	4.4	2.84	10	-										●					
LNKU 120608 M-AF	15.27	6.78	0.8	4.4	2.84	10	-							●								
LOKU 120608 M-AF	15.86	6.87	0.8	4.4	2.57	10	5							●								
LOKU 120608 MS	15.86	6.87	0.8	4.4	2.57	10	5													○	○	

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85	220-80				200-60						180-75		
	Low alloy steel	180-350		185-70	185-60				150-60						140-60		
	Alloy steel	200-325		150-60	140-60				140-60						140-60		
	Stainless steel mart	200-240		140-60	130-60				160-60						150-60		
M	Stainless steel aust	180-230		120-60	120-60				140-60						150-60		
K	Grey cast iron - Серый чугун											320-100					
	Spheroidal - Сугун с шаровидным графитом											260-80					
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		





Chipbreaker

MR
Strong cutting edge for general steel applications and hard conditions milling.

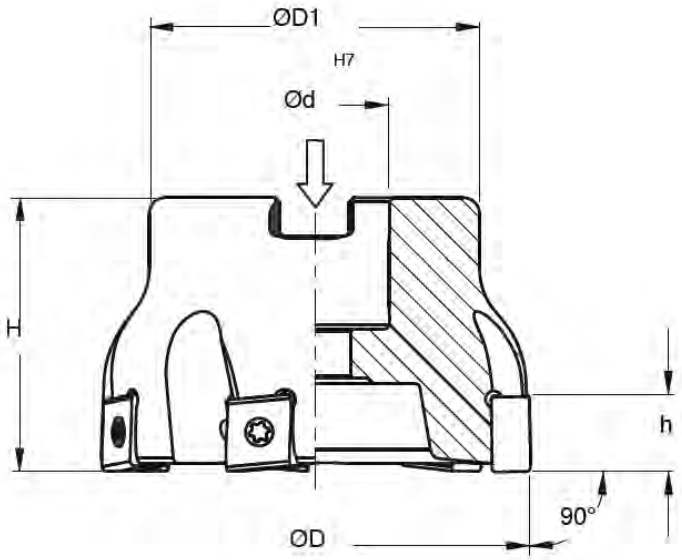
SCE
Strong cutting edge for cast ironapplications.

M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

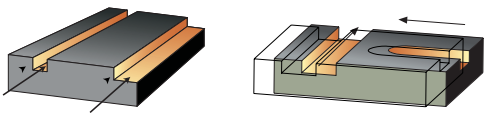
MS
Stable cutting edge for dedicated exotic materials and titanium.

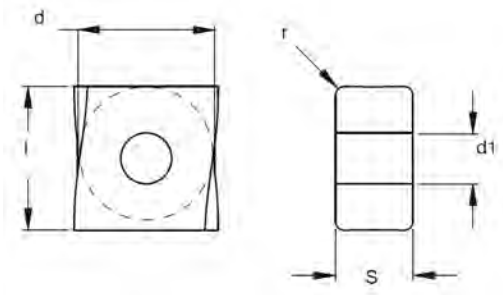
○ **On request**
● **In stock**

SM5060AT...



Art.	ØD (mm)	Ød (mm)	ØD1 (mm)	H (mm)	h (mm)	Z (mm)	kg	Nm	ISO 6462				
S5060AT.50.22.5	50	22	42	40	12	5	0,30	3,8÷5,0	A	1313	1240P	5615P	VBSF10
S5060AT.50.22.6	50	22	42	40	12	5	0,29	3,8÷5,0	A				VBSF10
S5060AT.63.22.6	63	22	48	40	12	6	0,51	3,8÷5,0	A				VBSF10
S5060AT.63.22.8	63	22	48	40	12	8	0,50	3,8÷5,0	A				VBSF10
S5060AT.80.27.7	80	27	60	50	12	7	1,00	3,8÷5,0	A				AL 12x35
S5060AT.80.27.10	80	27	60	50	12	10	1,00	3,8÷5,0	A				AL 12x35
S5060AT.100.32.9	100	32	80	50	12	9	1,66	3,8÷5,0	A				AL 16x35
S5060AT.100.32.13	100	32	80	50	12	13	1,64	3,8÷5,0	A				AL 16x35
S5060AT.125.40.11	125	40	95	63	12	11	3,20	3,8÷5,0	A-B				AL 20x45
S5060AT.125.40.17	125	40	95	63	12	17	3,17	3,8÷5,0	A-B				AL 20x45
S5060AT.160.40.12	160	40	115	63	12	12	4,00	3,8÷5,0	C-D				–
S5060AT.160.40.19	160	40	115	63	12	19	3,98	3,8÷5,0	C-D				–

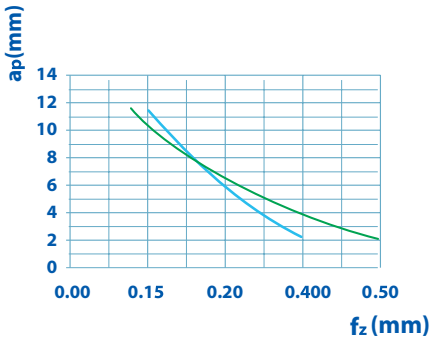


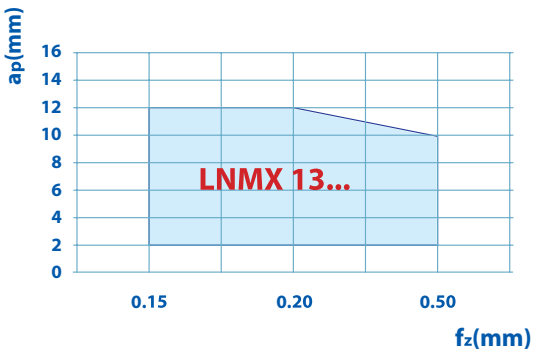


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l (mm)	a [°]	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
LNMX 131308 MR	13.0	7.0	0.8	4.6	13	-		●	●												
LNMX 131308 SCE	13.0	7.0	0.8	4.6	13	-									●						

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		230	220						230						
	Low alloy steel	180-350		190	180						180						
	Alloy steel	200-325		170	180						160						
	Stainless steel mart	200-240		120							120						
M	Stainless steel aust	180-230		100	90												
K	Grey cast iron	200-320		220							280						
	Spheroidal	400-1050		180							260						





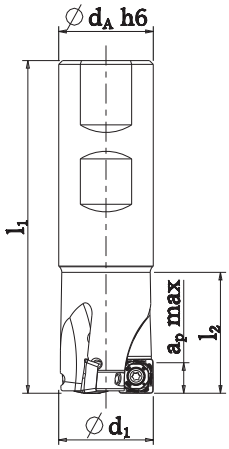
Chipbreaker

MR
Strong cutting edge for general steel applications and hard conditions milling.

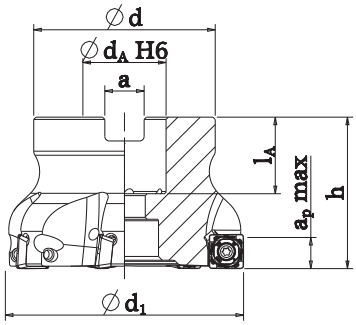
SCE
Strong cutting edge for cast ironapplications.

○ **On request**
● **In stock**

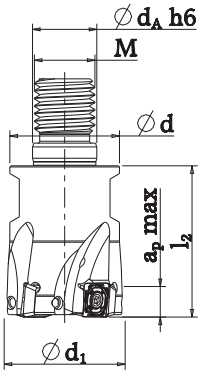
SM5010...



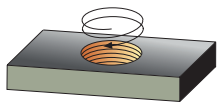
SM5010AT...

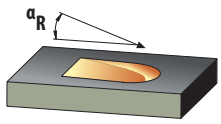


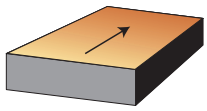
SM5010G...

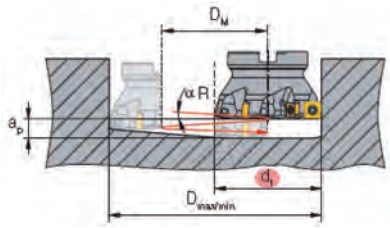


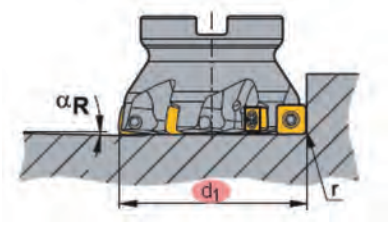
Art.	d1 (mm)	l1 (mm)	l2 (mm)	h (mm)	d (mm)	dA (mm)	z	a (mm)	D_{max} (mm)	D_{min} (mm)	α_R [°]		
SM5010.25.009.32.088.3	25	88	32	-	-	25	3	8	48	37	4.4	S...09...	77613
SM5010.32.009.40.100.4	32	100	40	-	-	32	4		62	47	2.2		77613
SM5010G.25.09.M12.3	25	-	35	-	-	12.5	3		48	37	4.4		77613
SM5010G.32.09.M16.4	32	-	40	-	-	17	4		62	47	2.2		77613
SM5010AT.40.009.16.5	40	-	-	40	38	16	5		78	63	0.75		77613
SM5010AT.50.009.22.6	50	-	-	40	43	22	6		98	83	0.5		77613
SM5010AT.63.009.22.7	63	-	-	40	48	22	7		124	109	0.35		77613
SM5010AT.80.009.27.9	80	-	-	50	58	27	9		158	143	0.25		77613
SM5010.032.12.40.100.3	32	100	40	-	-	32	3	10	62	41	2.0	S...12...	11037484
SM5010AT.040.12.16.4	40	-	-	40	38	16	4		78	57	2.0		1345432
SM5010AT.050.12.22.5	50	-	-	40	43	22	5		98	77	1.2		1345432
SM5010AT.063.12.22.6	63	-	-	40	48	22	6		124	103	0.7		1345432
SM5010AT.080.12.27.7	80	-	-	50	58	27	7		158	137	0.6		1345432

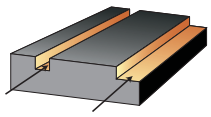




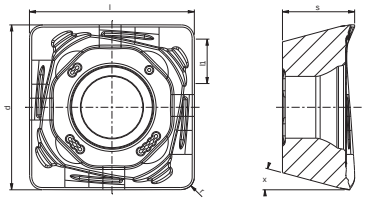








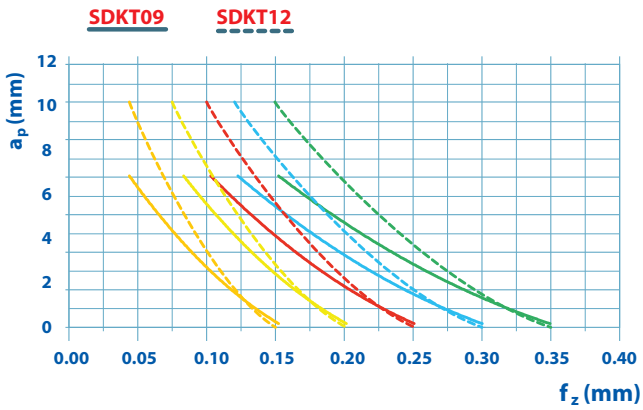
D_{max} [mm] = maximum diameter for flat bottom ground
D_{min} [mm] = minimum hole diameter
$D_M = D_{max} - d_1$ or $D_{min} - d_1$

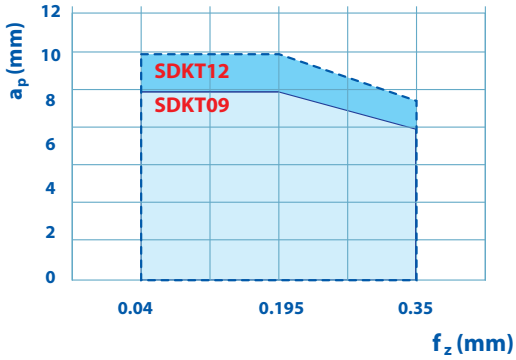


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l1 (mm)	l (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
SDKT 09T308SR MR	9	3.97	0.8	3.4	2.5	9	15		●		●											
SDKT 09T308SR M-AF	9	3.97	0.8	3.4	2.5	9	15							●						●	●	
SDKT 09T308SR SCE	9	3.97	0.8	3.4	2.5	9	15										●					
SDHT 09T308FR M-F	9	3.97	0.8	3.4	2.5	9	15												●			
SDKT 120508SR MR	12.3	5	0.8	4.7	2.5	12.3	15		●		●											
SDKT 120508SR M-AF	12.3	5	0.8	4.7	2.5	12.3	15							●						●	●	
SDKT 120508SR SCE	12.3	5	0.8	4.7	2.5	12.3	15										●					
SDHT 120508FR M-F	12.3	5	0.8	4.7	2.5	12.3	15												●			

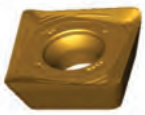
	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
P	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
P	Alloy steel	200-325		150-60		140-60			140-60						140-60		
P	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
K	Cast iron	180-250										320-100					
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40	75-25	
S	Titanium	400-1050													50-40	75-25	





Chipbreaker

SCE
Strong cutting edge for cast ironapplication



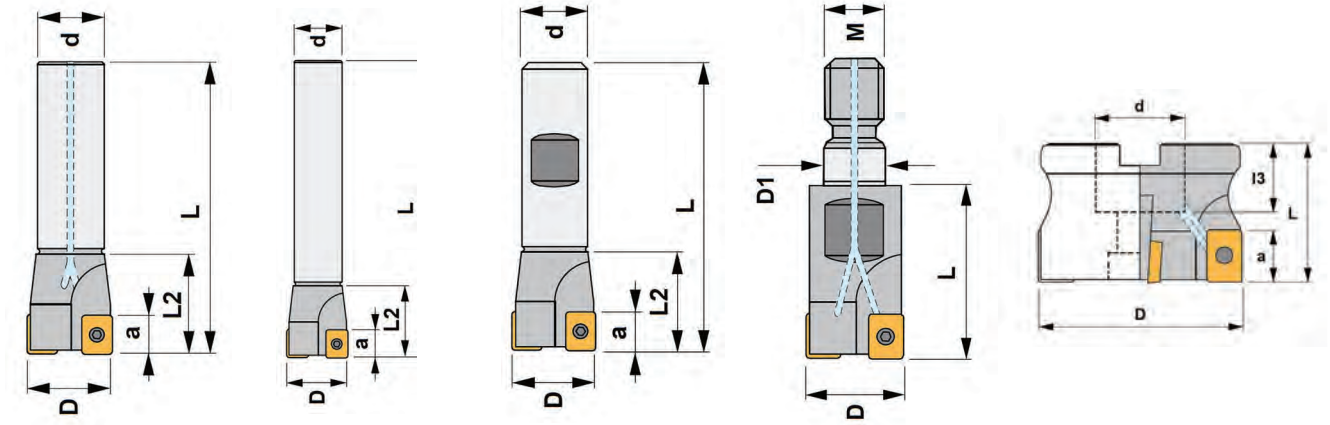
MR
Strong cutting edge for general steel applications and hard conditions milling.

M-F
Sharp cutting edge for aluminium and non-ferrous metal.

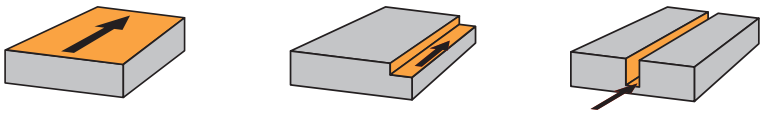
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

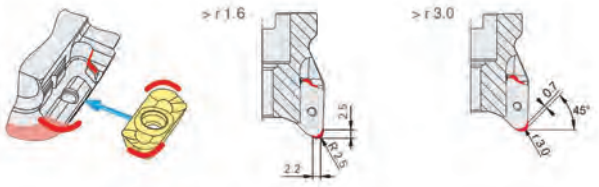
SM5500... | SM5500L... | SM5500W... | SM5500...M | SM5500AT...



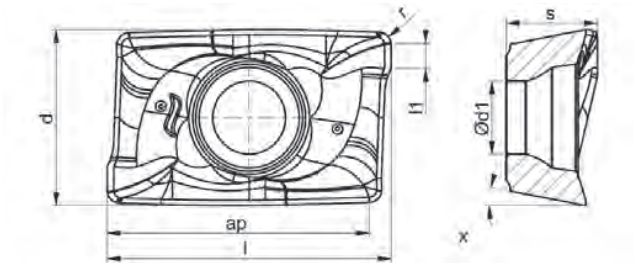
Art.	Ø D (mm)	L (mm)	l2 (mm)	l3 (mm)	d (mm)	d1 (mm)	M	a (mm)	z		
SM5500.010.10.25.110.1	10	110	25	-	16	-	-	9	1	AP.. 1003..	1425
SM5500.012.10.25.110.1	12	110	25	-	16	-	-		1	AP.. 1003..	1425
SM5500.014.10.25.110.1	14	110	25	-	16	-	-		1	AP.. 1003..	1425
SM5500.016.10.25.110.2	16	110	25	-	20	-	-		2	AP.. 1003..	1425
SM5500.018.10.30.110.2	18	110	30	-	20	-	-		2	AP.. 1003..	1225
SM5500.020.10.30.125.3	20	125	30	-	20	-	-		3	AP.. 1003..	1225
SM5500.022.10.30.125.3	22	125	30	-	20	-	-		3	AP.. 1003..	1225
SM5500.025.10.30.125.4	25	125	30	-	25	-	-		4	AP.. 1003..	1225
SM5500.028.10.30.125.4	28	125	30	-	25	-	-		4	AP.. 1003..	1225
SM5500L.016.10.25.175.2	16	175	25	-	20	-	-	9	2	AP.. 1003..	1425
SM5500L.020.10.30.200.3	20	200	30	-	20	-	-		3	AP.. 1003..	1425
SM5500W.012.10.25.090.1	12	90	25	-	16	-	-	9	1	AP.. 1003..	1225
SM5500W.016.10.25.090.2	16	90	25	-	20	-	-		2	AP.. 1003..	1425
SM5500W.020.10.30.090.3	20	95	30	-	20	-	-		3	AP.. 1003..	1225
SM5500W.025.10.30.090.4	25	95	30	-	25	-	-		4	AP.. 1003..	1225
SM5500.016.10.23.M8.2	16	23	-	-	-	8,5	M8	9	2	AP.. 1003..	1425
SM5500.020.10.30.M10.3	20	30	-	-	-	10,5	M10		3	AP.. 1003..	1225
SM5500.025.10.35.M12.3	25	35	-	-	-	12,5	M12		3	AP.. 1003..	1225
SM5500AT.032.10.16.5	32	40	-	18	16	-	-	9	5	AP.. 1003..	1225
SM5500AT.040.10.16.6	40	40	-	18	16	-	-		6	AP.. 1003..	1225
SM5500AT.050.10.22.7	50	40	-	20	22	-	-		7	AP.. 1003..	1225
SM5500AT.063.10.22.9	63	50	-	20	22	-	-		9	AP.. 1003..	1225



Modification of cutter bodies



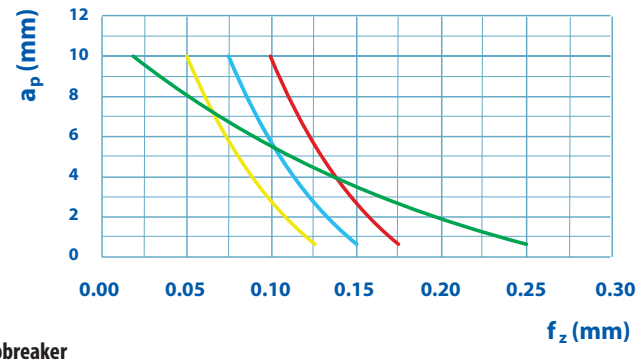
***To install insert with a large radius, it is necessary to make revision of the seat insert on the cutter body.**

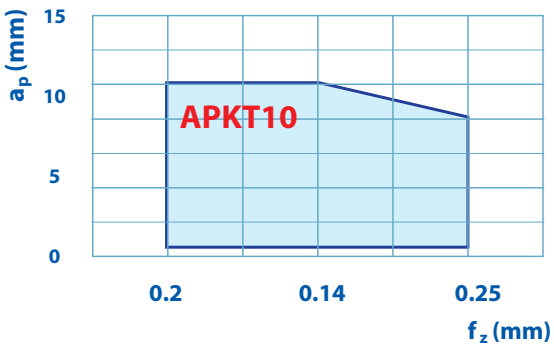


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

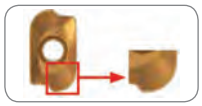
Art.	l (mm)	s (mm)	d (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
APKT 1003PDER MR	10	3,5	6,75	1	0.5	2.8	11		●		●											
APKT 1003PDER M-AF	10	3,5	6,75	1	0.5	2.8	11							●						●		
APKT 1003PDER SCE	10	3,5	6,75	1	0.5	2.8	11										●					
APHT 100302FR M-F	10	3	6,75	2.2	0.2	2.8	11												●			
APHT 100304FR M-F	10	3	6,75	2.2	0.4	2.8	11												●			
APHT 100308FR M-F	10	3	6,75	2.2	0.8	2.8	11												●			
APKT 100308 RMR	10	3.5	6.70	0.64	0.85	2.8	11				●			●			○					
APKT 100312 RMR	10	3.5	6.70	0.5	1.2	2.8	11				●			●			○					
APKT 100316 RMR	11.5	3.4	6.70	0	1.6	2.8	11				●			●			○					
*APKT 100330 RMR	11.5	3.4	6.70	0.2	3.0	2.8	11				●			●			○					

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-85			200-60						180-75		
P	Low alloy steel	180-350		185-70		185-70			155-60						140-60		
P	Alloy steel	200-325		150-60		150-60			140-60						140-60		
P	Stainless steel mart	200-240		140-60		140-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
K	Cast iron											280-80					
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40		
S	Titanium	400-1050													50-40		

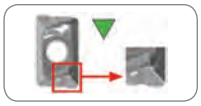




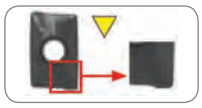
Chipbreaker



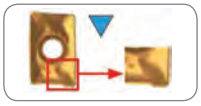
MS
Stable cutting edge for dedicated exotic materials and titanium.



M-F
Sharp cutting edge for aluminium and nonferrous metal.



M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

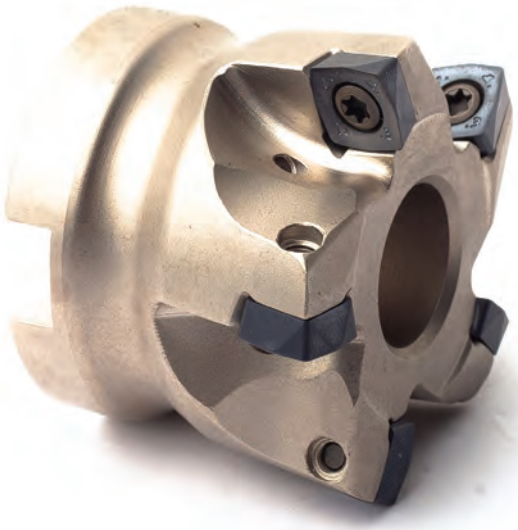


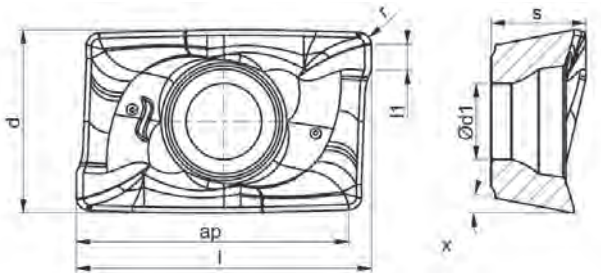
MR
Strong cutting edge for general steel applications and hard conditions milling.

○ **On request**
● **In stock**

HIGH FEED MILLING

umt

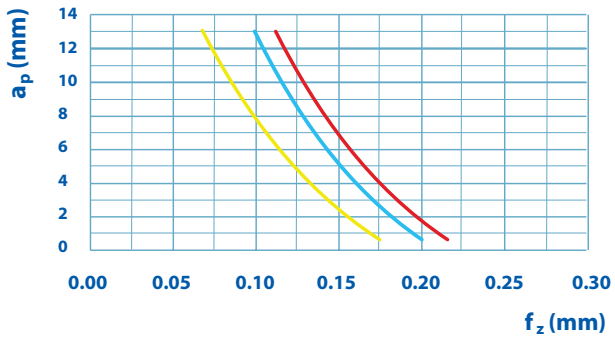


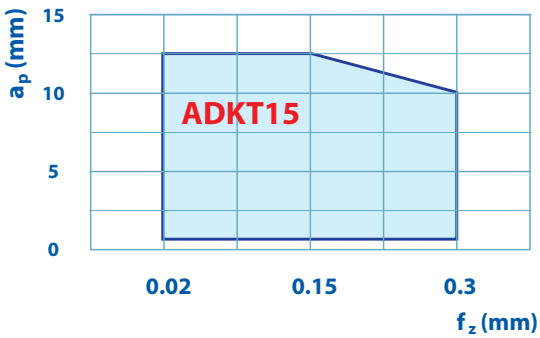


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

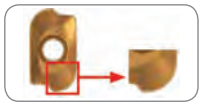
Art.	l (mm)	s (mm)	d (mm)	ap (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
ADKT 1505PDER MR	15.5	5.65	9.45	13.8	1.4	0.75	4.5	12	○								○						
ADKT 1505PDER M-AF	15.5	5.65	9.45	13.8	1.5	0.75	4.5	12						○							○		
ADKT 1505PDER SCE	15.5	5.65	9.45	13.8	1.5	0.75	4.5	12									○						
ADHT 1505PDER M-F	15.5	5.65	9.45	13.8	1.5	0.75	4.5	12												○			
ADHT 1505PDER MS	15.5	5.65	9.45	13.8	1.5	0.75	4.5	12													○	○	
APKT 150516 RMR	15.6	6.1	9.45	13.8	0.6	1.6	4.5	12	○					○			○				○		
APKT 150524 RMR	16.2	6.1	9.45	14.1	0.7	2.4	4.5	12	○					○			○				○		
APKT 150532 RMR	16.3	6.1	9.45	14.2	0.4	3.2	4.5	12	○					○			○				○		

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300	220-85					200-60							180-75		
P	Low alloy steel	180-350	185-70					150-60							140-60		
P	Alloy steel	200-325	150-60					140-60							140-60		
P	Stainless steel mart	200-240	140-60					160-60							150-60		
M	Stainless steel aust	180-230						140-60							150-60		
K	Cast iron										320-100						
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40	75-25	
S	Titanium	400-1050													50-40	75-25	

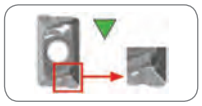




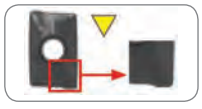
Chipbreaker



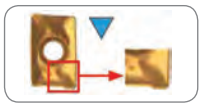
MS
Stable cutting edge for dedicated exotic materials and titanium.



M-F
Sharp cutting edge for aluminium and nonferrous metal.



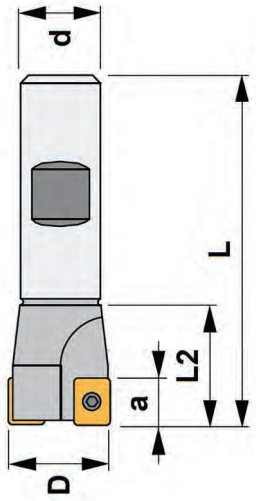
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.



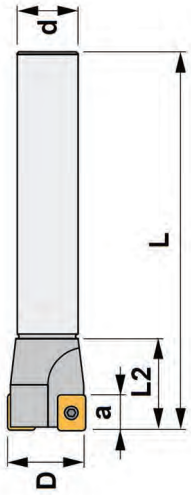
MR
Strong cutting edge for general steel applications and hard conditions milling.

○ **On request**
● **In stock**

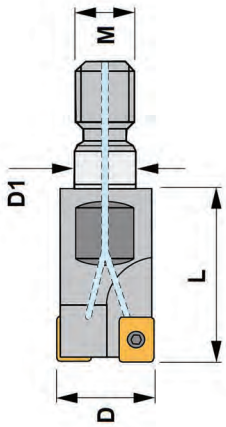
SM5500W...



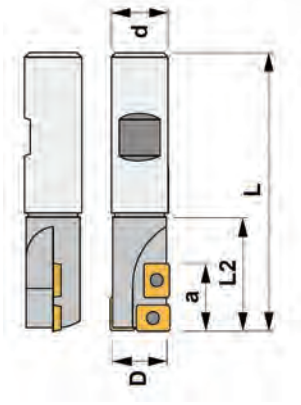
SM5500L...



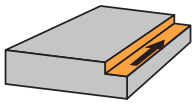
SM5500...M

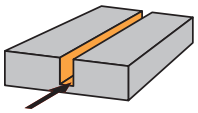


SM5500UW...

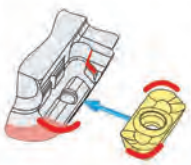


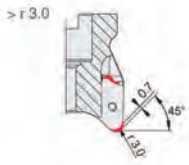
Art.	Ø D (mm)	l (mm)	l2 (mm)	d (mm)	M (mm)	d1 (mm)	a (mm)	z		
SM5500W.020.16.30.100.1	20	100	30	20	-	-	14	1	AP.. 1604..	1440
SM5500W.025.16.30.100.2	25	100	30	25	-	-		2	AP.. 1604..	1440
SM5500W.032.16.35.110.3	32	110	35	32	-	-		3	AP.. 1604..	1240
SM5500W.040.16.35.110.4	40	110	35	32	-	-		4	AP.. 1604..	1240
SM5500L.020.16.35.200.1	20	200	35	20	-	-	14	1	AP.. 1604..	1440
SM5500L.025.16.35.200.2	25	200	35	25	-	-		2	AP.. 1604..	1440
SM5500L.032.16.35.250.3	32	250	35	32	-	-		3	AP.. 1604..	1240
SM5500L.040.16.35.250.4	40	250	35	32	-	-		4	AP.. 1604..	1240
SM5500.025.16.35.M12.2	25	35	-	-	M12	12.5	14	2	AP.. 1604..	1440
SM5500.032.16.43.M16.3	32	43	-	-	M16	17.0		3	AP.. 1604..	1240
SM5500UW.020.10.35.090	20	90	35	20	-	-	14	1+1	AP.. 1003..	1425
SM5500UW.025.10.50.110	25	110	50	25	-	-		1+1	AP.. 1003..	1425
SM5500UW.032.16.50.125	32	125	50	32	-	-	14	1+1	AP.. 1604..	1440
SM5500UW.040.16.50.125	40	125	50	32	-	-		1+1	AP.. 1604..	1440



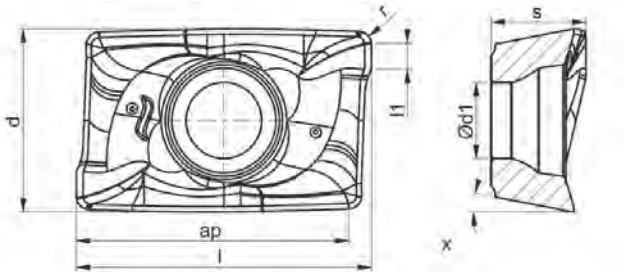


Modification of cutter bodies





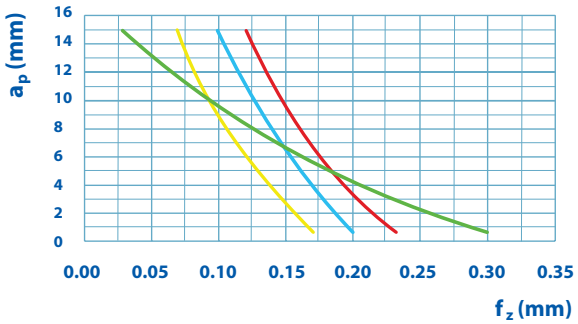
***To install insert with a large radius, it is necessary to make revision of the seat insert on the cutter body.**

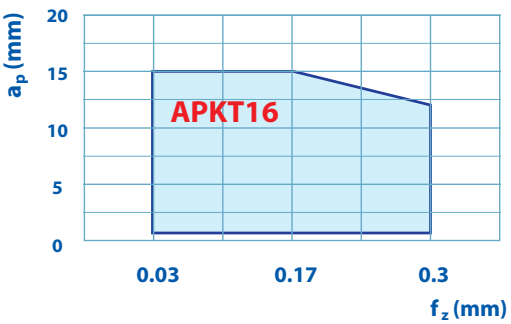


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

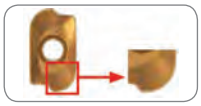
Art.	l (mm)	s (mm)	d (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
APKT 1604PDER MR	15.3	5.25	9.5	1.4	0.85	4.4	11.5		●		●											
APKT 1604PDER M-AF	15.3	5.25	9.5	1.4	0.85	4.4	11.5							●						●		
APKT 1604PDER SCE	15.3	5.25	9.5	1.4	0.85	4.4	11.5										●					
APHT 1604FR M-F	15.3	4.65	9.5	2	0.85	4.4	11.5												●			
APKT 160416 RMR	15.3	5.25	9.5	0.65	1.6	4.4	11.5				●			●			●					
*APKT 160424 RMR	15.3	5.25	9.5	0.6	2.4	4.4	11.5				●			●			○					
*APKT 160432 RMR	15.3	5.25	9.5	0.3	3.2	4.4	11.5				●			●			○			○		
*APKT 160440 RMR	15.3	5.25	9.5	0.3	4.0	4.4	11.5				○			●			○					
*APKT 160448 RMR	15.3	5.8	9.5	0.3	4.8	4.4	11.5				●			●			○					

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-85			200-60						180-75		
	Low alloy steel	180-350		185-70		185-70			170-60						140-60		
	Alloy steel	200-325		150-60		150-60			150-60						140-60		
	Stainless steel mart	200-240		140-60		140-60			150-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			150-60						150-60		
K	Cast iron											320-100					
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		

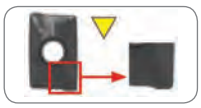




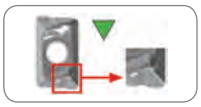
Chipbreaker



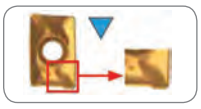
MS
Stable cutting edge for dedicated exotic materials and titanium.



M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.



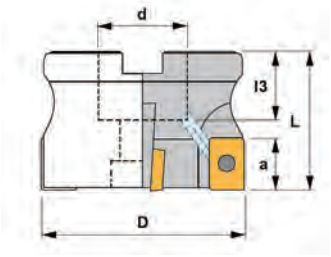
M-F
Sharp cutting edge for aluminium and nonferrous metal.



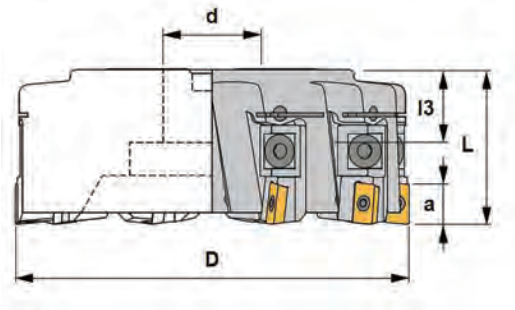
MR
Strong cutting edge for general steel applications and hard conditions milling.

○ **On request**
● **In stock**

SM5500AT...

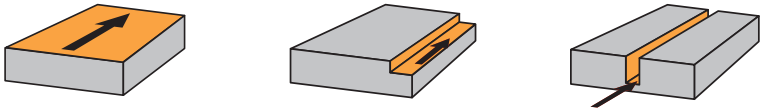


SM5500ATP...

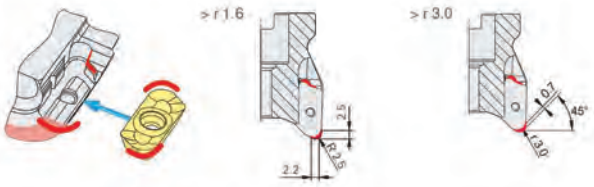


Art.	Ø D (mm)	l (mm)	d (mm)	l3 (mm)	a (mm)	z							
SM5500AT.040.16.16.4	40	40	16	18		4	AP.. 1604..	1240	5515	1058	-	-	-
SM5500AT.050.16.22.5	50	40	22	20		5	AP.. 1604..	1240	5515	912.10	-	-	-
SM5500AT.063.16.27.6	63	50	27	22		6	AP.. 1604..	1240	5515	912.12	-	-	-
SM5500AT.080.16.27.7	80	50	27	22	14	7	AP.. 1604..	1240	5515	912.12	-	-	-
SM5500AT.100.16.32.8	100	50	32	25		8	AP.. 1604..	1240	5615	912.16	-	-	-
SM5500AT.125.16.40.8	125	63	40	30		8	AP.. 1604..	1240	5615	-	-	-	-
SM5500AT.160.16.40.9	160	63	40	30		9	AP.. 1604..	1240	5615	912.52	-	-	-
SM5500ATP.160.16.40.10	160	63	40	30		10	AP.. 1604..	1240	5615	-	1788	6230	1460
SM5500ATP.200.16.60.12	200	63	60	40		12	AP.. 1604..	1240	5615	-	1788	6230	1460
SM5500ATP.250.16.60.16	250	63	60	40	14	16	AP.. 1604..	1240	5615	-	1788	6230	1460
SM5500ATP.315.16.60.20	315	63	60	40		20	AP.. 1604..	1240	5615	-	1788	6230	1460
SM5500ATP.400.16.60.22	400	63	60	40		22	AP.. 1604..	1240	5615	-	1788	6230	1460
SM5500ATP.500.16.60.28	500	63	60	40		28	AP.. 1604..	1240	5615	-	1788	6230	1460

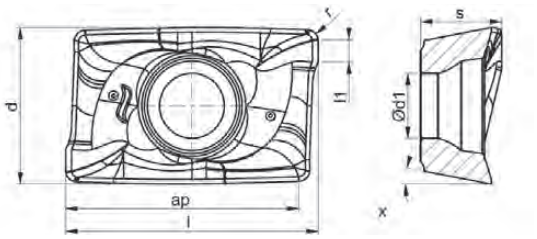
* Cutter body SM5500AT.125.16.40.8; SM5500AT.160.16.40.9 has no internal coolant supply



Modification of cutter bodies



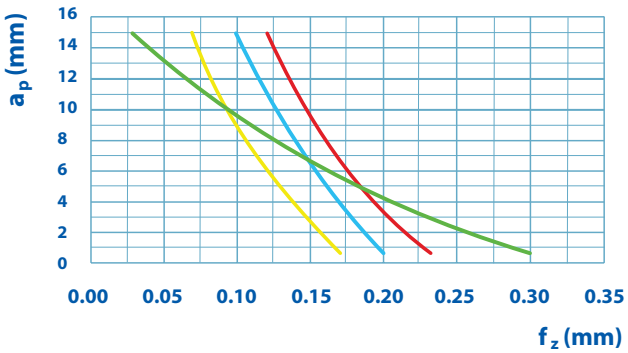
***To install insert with a large radius, it is necessary to make revision of the seat insert on the cutter body.**

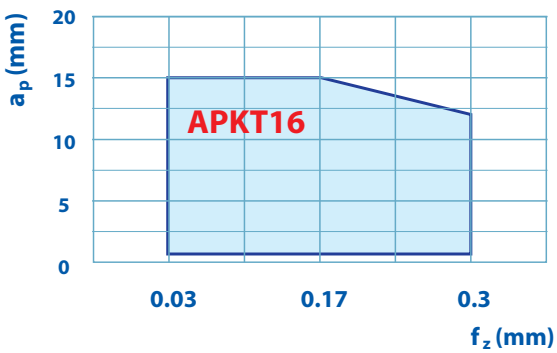


	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

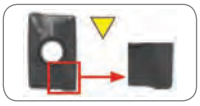
Art.	l (mm)	s (mm)	d (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
APKT 1604PDER MR	15.3	5.25	9.5	1.4	0.85	4.4	11.5		●		●											
APKT 1604PDER M-AF	15.3	5.25	9.5	1.4	0.85	4.4	11.5							●						●		
APKT 1604PDER SCE	15.3	5.25	9.5	1.4	0.85	4.4	11.5										●					
APHT 1604FR M-F	15.3	4.65	9.5	2	0.85	4.4	11.5												●			
APKT 160416 RMR	15.3	5.25	9.5	0.65	1.6	4.4	11.5				●			●			●					
*APKT 160424 RMR	15.3	5.25	9.5	0.6	2.4	4.4	11.5				●			●			○					
*APKT 160432 RMR	15.3	5.25	9.5	0.3	3.2	4.4	11.5				●			●			○			○		
*APKT 160440 RMR	15.3	5.25	9.5	0.3	4.0	4.4	11.5				○			●			○					
*APKT 160448 RMR	15.3	5.8	9.5	0.3	4.8	4.4	11.5				●			●			○					

	Material	HB	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-85			200-60						180-75		
P	Low alloy steel	180-350		185-70		185-70			170-60						140-60		
P	Alloy steel	200-325		150-60		150-60			150-60						140-60		
P	Stainless steel mart	200-240		140-60		140-60			150-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			150-60						150-60		
K	Cast iron											320-100					
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40		
S	Titanium	400-1050													50-40		

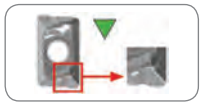




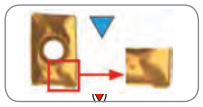
Chipbreaker



M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.



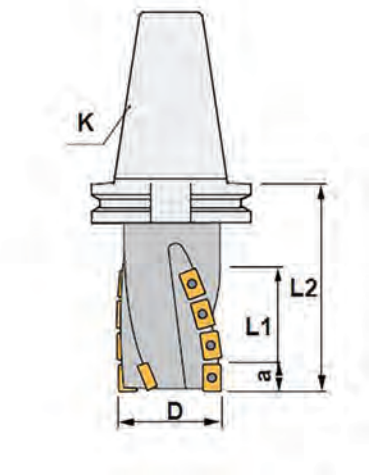
M-F
Sharp cutting edge for aluminium and nonferrous metal.



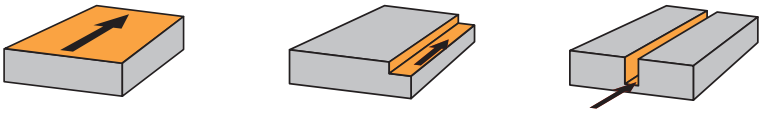
MR
Strong cutting edge for general steel applications and hard conditions milling.

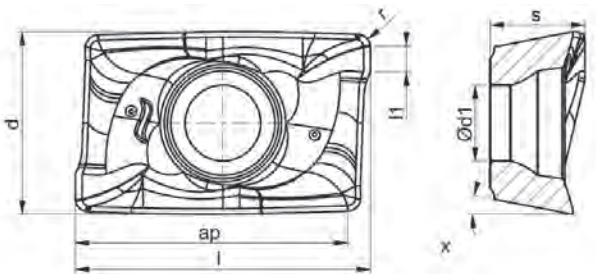
○ **On request**
● **In stock**

SM5550SK/BT...



Art.	Ø D (mm)	L1 (mm)	K (mm)	L2 (mm)	d (mm)	L (mm)	No	a (mm)	z			
SM5550.050.16.SK40.3	50	65	SK40	120	-	-	15	16	3	AP.. 1604..	1240	5515
SM5550.050.16.SK50.3	50	65	SK50	130	-	-	15		3	AP.. 1604..	1240	5515
SM5550.063.16.SK50.3	63	65	SK50	130	-	-	15		3	AP.. 1604..	1240	5515
SM5550.080.16.SK50.3	80	80	SK50	140	-	-	18		3	AP.. 1604..	1240	5515
SM5550.050.16.BT40.3	50	65	BT40	105	-	-	12		3	AP.. 1604..	1240	5615
SM5550.050.16.BT50.3	50	65	BT50	105	-	-	15		3	AP.. 1604..	1240	5615
SM5550.063.16.BT50.3	63	65	BT50	130	-	-	15		3	AP.. 1604..	1240	5615
SM5550.080.16.BT50.3	80	80	BT50	140	-	-	18		3	AP.. 1604..	1240	5515

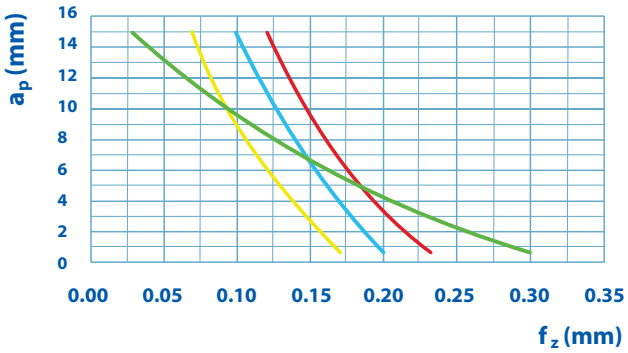


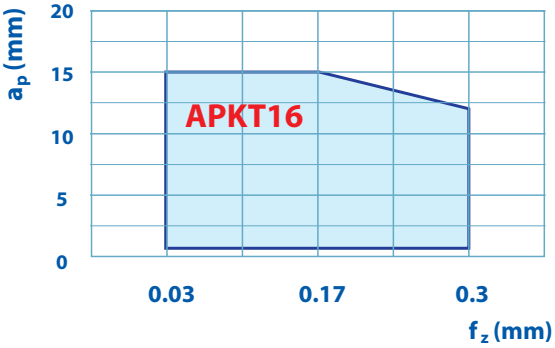


	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

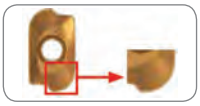
Art.	l (mm)	s (mm)	d (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
APKT 1604PDER MR	15.3	5.25	9.5	1.4	0.85	4.4	11.5		●		●											
APKT 1604PDER M-AF	15.3	5.25	9.5	1.4	0.85	4.4	11.5							●						●		
APKT 1604PDER SCE	15.3	5.25	9.5	1.4	0.85	4.4	11.5										●					
APHT 1604FR M-F	15.3	4.65	9.5	2	0.85	4.4	11.5												●			

	Material	HB	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-85			200-60						180-75		
P	Low alloy steel	180-350		185-70		185-70			170-60						140-60		
P	Alloy steel	200-325		150-60		150-60			150-60						140-60		
P	Stainless steel mart	200-240		140-60		140-60			150-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			150-60						150-60		
K	Cast iron											320-100					
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40		
S	Titanium	400-1050													50-40		

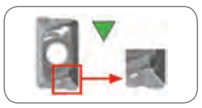




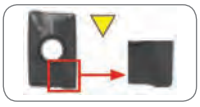
Chipbreaker



MS
Stable cutting edge for dedicated exotic materials and titanium.



M-F
Sharp cutting edge for aluminium and nonferrous metal.

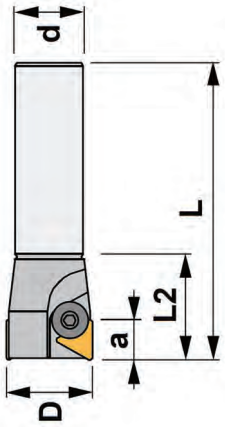


M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

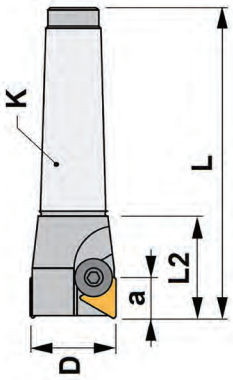
MR
Strong cutting edge for general steel applications and hard conditions milling.

○ **On request**
● **In stock**

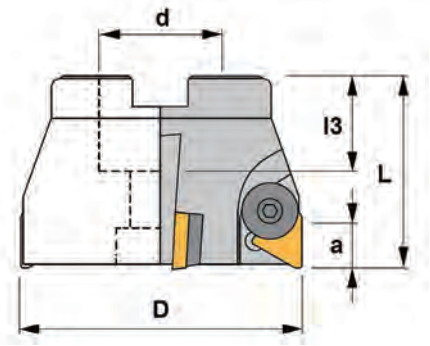
SM5005...



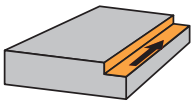
SM5005MK...

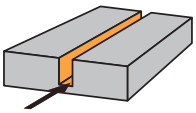


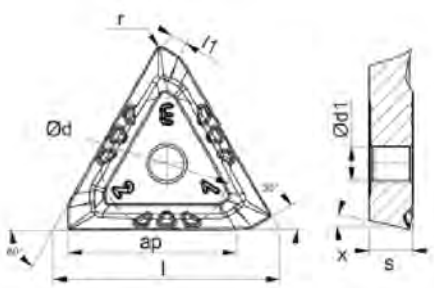
SM5005AT...



Art.	Ø D (mm)	l (mm)	l2 (mm)	l3 (mm)	d (mm)	K (mm)	a (mm)	z	
SM5005.025.16.35.110.2	25	110	35	-	25	-		2	TP.. 1603.. 1016 5004 2064 - - -
SM5005.032.16.35.125.2	32	125	35	-	32	-		2	TP.. 1603.. 1016 5004 2064 - - -
SM5005MK.025.16.38.125.2	25	125	38	-	-	MK3	13	2	TP.. 1603.. 1016 5004 2064 - - -
SM5005MK.032.16.38.125.2	32	125	38	-	-	MK3		2	TP.. 1603.. 1016 5004 2064 - - -
SM5005MK.040.16.38.125.3	40	125	38	-	-	MK3		3	TP.. 1603.. 1016 5004 2064 - - -
SM5005AT.040.16.16.3	40	40	-	18	16	-		3	TP.. 1603.. 1006 5004 2064 - - 1058
SM5005AT.050.16.22.4	50	40	-	20	22	-		4	TP.. 1603.. 1016 5004 2064 - - 912,10
SM5005AT.050.16.22.3	50	40	-	20	22	-		3	TP.. 1603.. 1006 5004 2064 - - 912,10
SM5005AT.063.16.27.4	63	50	-	22	27	-		4	TP.. 1603.. 1006 5004 2064 3016 4016 912,12
SM5005AT.080.16.32.5	80	50	-	25	32	-	13	5	TP.. 1603.. 1006 5004 2064 3016 4016 912,16
SM5005AT.100.16.40.6	100	50	-	30	40	-		6	TP.. 1603.. 1006 5004 2064 3016 4016 912,20
SM5005AT.125.16.40.6	125	63	-	30	40	-		6	TP.. 1603.. 1006 5004 2064 3016 4016 -
SM5005AT.160.16.40.7	160	63	-	30	40	-		7	TP.. 1603.. 1006 5004 2064 3016 4016 912,52
SM5005AT.200.16.60.8	200	63	-	40	60	-		8	TP.. 1603.. 1006 5004 2064 3016 4016 912,56



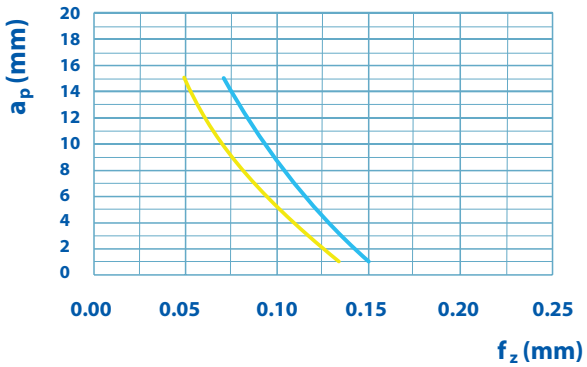


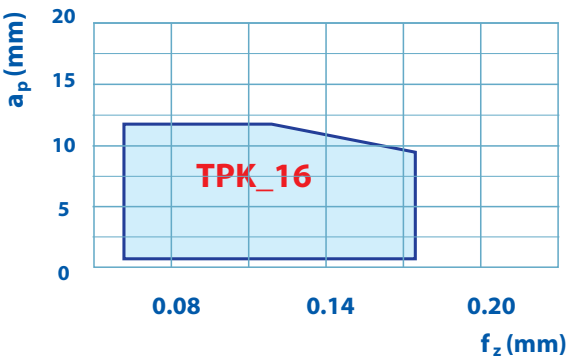


	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

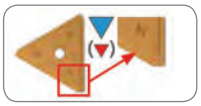
Art.	l (mm)	s (mm)	d (mm)	ap (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
TPKN 1603PDR MR	16.5	3.18	9.52	13.3	1.45	0.20	2.5	11.25		○		○			○								
TPKR 1603PDR M-AF	16.5	3.18	9.52	12.4	1.20	0.40	2.5	11.25		○		○			○								

	Material	HB	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300	220-85	220-85		220-85		200-60	200-60						180-75		
P	Low alloy steel	180-350	185-70	185-70		185-70		180-60	180-60						140-60		
P	Alloy steel	200-325	150-60	150-60		150-60		160-60	160-60						140-60		
P	Stainless steel mart	200-240	140-60	140-60		140-60		160-60	160-60						150-60		
M	Stainless steel aust	180-230	120-60	120-60		120-60		150-60	150-60						150-60		
K	Cast iron										320-100						
S	Hig. temp. alloy	200-320													50-40		
S	Titanium	400-1050													50-40		

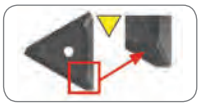




Chipbreaker



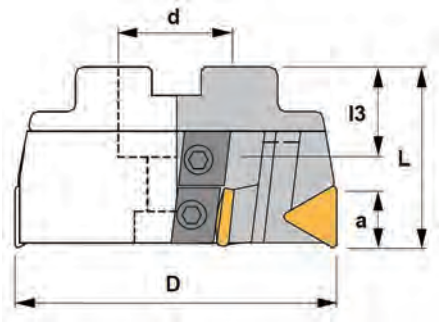
MR
Strong cutting edge for general steel applications and hard conditions milling.



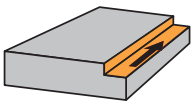
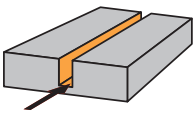
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

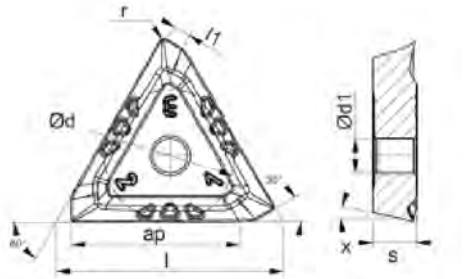
○ **On request**
● **In stock**

SM5005ATP...



Art.	Ø D (mm)	l (mm)	l3 (mm)	d (mm)	a (mm)	z								
SM5005ATP.052.16.16.3	52	50	18	16		5	TP.. 1603..	1460	1166	5515	6031	6032	6526	1058
SM5005ATP.063.16.22.4	63	50	20	22		6	TP.. 1603..	1460	1166	5515	6031	6032	6526	912.10
SM5005ATP.080.16.27.3	80	50	22	27		5	TP.. 1603..	1460	1077	5520	6433	6435	6927	912.12
SM5005ATP.100.16.32.4	100	50	25	32	13	7	TP.. 1603..	1460	1077	5620	6433	6435	6927	912.16
SM5005ATP.125.16.40.5	125	63	30	40		7	TP.. 1603..	1460	1077	5620	6433	6435	6927	-
SM5005ATP.160.16.40.6	160	63	30	40		9	TP.. 1603..	1460	1077	5620	6433	6435	6927	912.52
SM5005ATP.200.16.60.8	200	63	40	60		11	TP.. 1603..	1460	1077	5620	6433	6435	6927	912.56

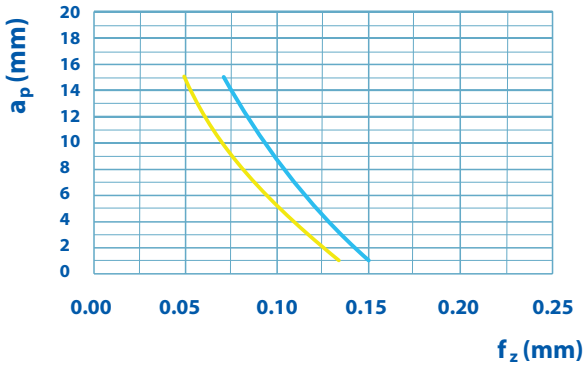



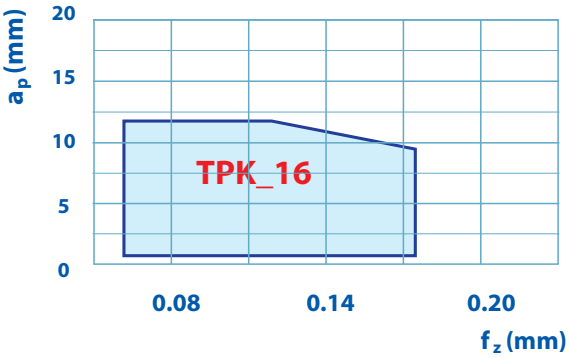


	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

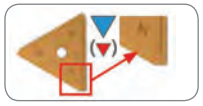
Art.	l (mm)	s (mm)	d (mm)	ap (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
TPKN 1603PDR MR	16.5	3.18	9.52	13.3	1.45	0.2	2.5	11.25		○		○			○								
TPKR 1603PDR M-AF	16.5	3.18	9.52	12.4	1.20	0.4	2.5	11.25		○		○			○								

	Material	HB	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300	220-85	220-85		220-85		200-60	200-60						180-75		
	Low alloy steel	180-350	185-70	185-70		185-70		180-60	180-60						140-60		
	Alloy steel	200-325	150-60	150-60		150-60		160-60	160-60						140-60		
	Stainless steel mart	200-240	140-60	140-60		140-60		160-60	160-60						150-60		
M	Stainless steel aust	180-230	120-60	120-60		120-60		150-60	150-60						150-60		
K	Cast iron										320-100						
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		

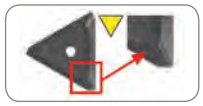




Chipbreaker



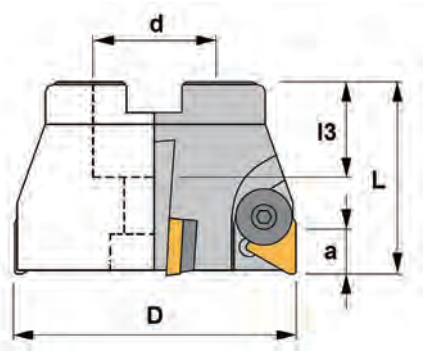
MR
Strong cutting edge for general steel applications and hard conditions milling.



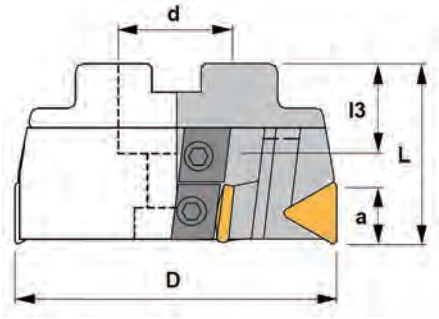
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

SM5005AT...

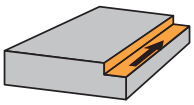


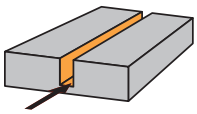
SM5005ATP...

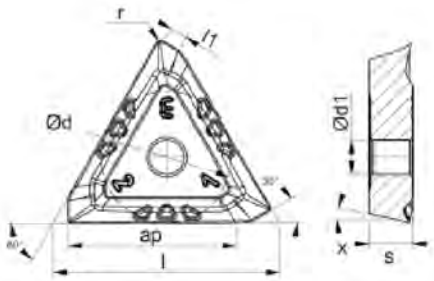


Art.	Ø D (mm)	l (mm)	l3 (mm)	d (mm)	a (mm)	z						
SM5005AT.063.22.27.3	63	50	22	27	18	3	TP.. 2204..	1008	2088	3022	4022	912.12
SM5005AT.080.22.32.4	80	50	25	32		4	TP.. 2204..	1008	2088	3022	4022	912.16
SM5005AT.100.22.40.5	100	50	30	40		5	TP.. 2204..	1008	2088	3022	4022	912.20
SM5005AT.125.22.40.6	125	63	30	40		6	TP.. 2204..	1008	2088	3022	4022	-
SM5005AT.160.22.40.7	160	63	30	40		7	TP.. 2204..	1008	2088	3022	4022	912.52
SM5005AT.200.22.60.8	200	63	40	60		8	TP.. 2204..	1008	2088	3022	4022	912.56

Art.	Ø D (mm)	l (mm)	l3 (mm)	d (mm)	a (mm)	z								
SM5005ATP.080.22.27.5	80	50	22	27	18	5	TP.. 2204..	1077	5520	6434	6436	912.12	6942	1077
SM5005ATP.100.22.32.7	100	50	25	32		7	TP.. 2204..	1077	5520	6434	6436	912.16	6942	1077
SM5005ATP.125.22.40.7	125	63	30	40		7	TP.. 2204..	1077	5520	6434	6436	-	6942	1077
SM5005ATP.160.22.40.9	160	63	30	40		9	TP.. 2204..	1077	5520	6434	6436	912.52	6942	1077
SM5005ATP.200.22.60.11	200	63	40	60		11	TP.. 2204..	1077	5520	6434	6436	912.56	6942	1077
SM5005ATP.250.22.60.15	250	63	40	60		15	TP.. 2204..	1077	5520	6434	6436	912.56	6942	1077



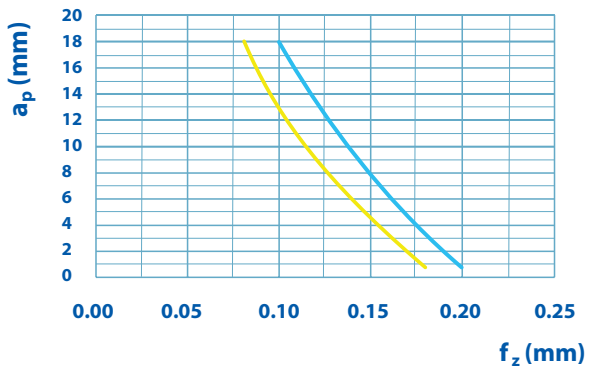


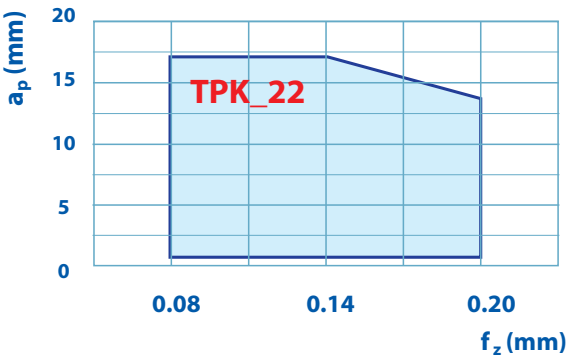


	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

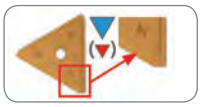
Art.	l (mm)	s (mm)	d (mm)	ap (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
TPKN 2204PDR MR	22.0	4.76	12.7	18.7	1.55	0.2	2.5	11.25		●		●					●						
TPKR 2204PDR M-AF	22.0	4.76	12.7	17.7	1.65	0.3	2.5	11.25	●					●	●						○		

	Material	HB	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300	220-85	220-85		220-85		200-60	200-60						180-75		
P	Low alloy steel	180-350	185-70	185-70		185-70		150-60	150-60						140-60		
P	Alloy steel	200-325	150-60	150-60		150-60		140-60	140-60						140-60		
P	Stainless steel mart	200-240	140-60	140-60		140-60		160-60	160-60						150-60		
M	Stainless steel aust	180-230	120-60	120-60		120-60		150-60	150-60						150-60		
K	Cast iron										320-100						
S	Hig. temp. alloy	200-320													50-40		
S	Titanium	400-1050															

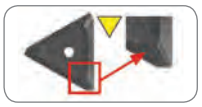




Chipbreaker



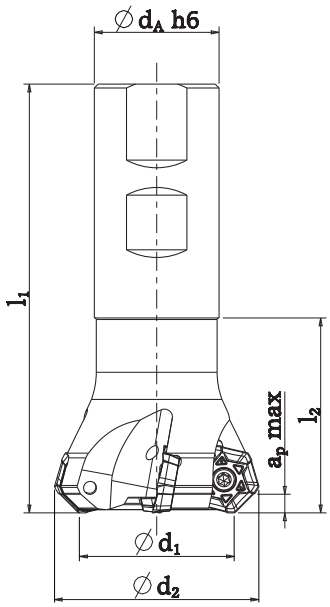
MR
Strong cutting edge for general steel applications and hard conditions milling.



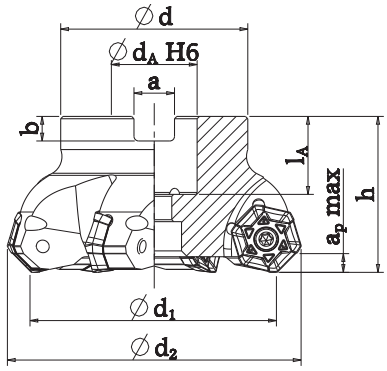
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

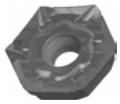
○ **On request**
● **In stock**

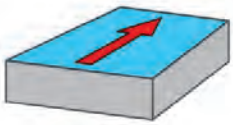
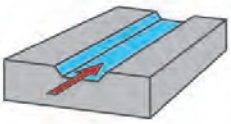
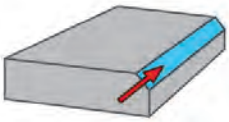
FM1000W...

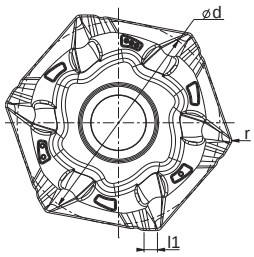


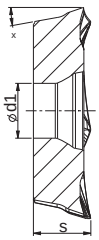
FM1000AT...



Art.	Ø d1 (mm)	Ø D2 (mm)	l1 (mm)	l2 (mm)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
FM1000W.040.06.50.110.4	40	52.2	110	50	-	-	32		4	HO/HP 06	1345432
FM1000AT.040.06.16.4	40	52.2	-	-	40	38	16		4	HO/HP 06	1345432
FM1000AT.050.06.22.5	50	62.2	-	-	40	43	22		5	HO/HP 06	1345432
FM1000AT.063.06.22.6	63	75,2	-	-	40	48	22	4,5	6	HO/HP 06	1345432
FM1000AT.080.06.27.7	80	92,2	-	-	50	58	27		7	HO/HP 06	1345432
FM1000AT.100.06.32.9	100	112,2	-	-	50	78	32		9	HO/HP 06	1345432
FM1000AT.125.06.40.10	125	137,2	-	-	63	88	40		10	HO/HP 06	1345432

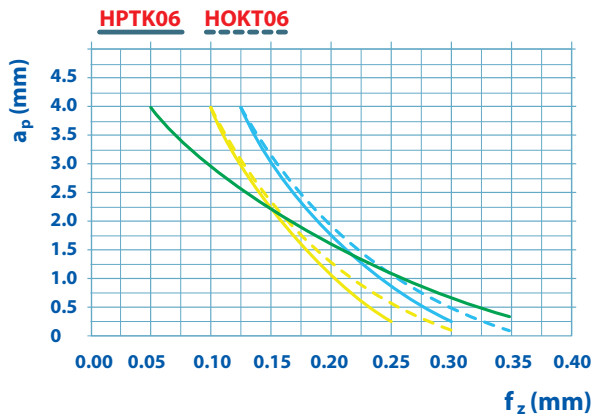


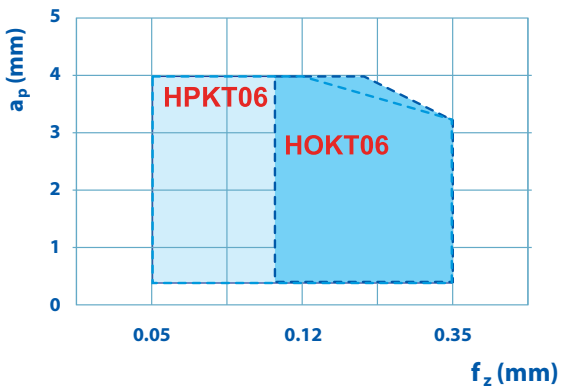


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

	Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
	HPKT 0604AZER MR	16.3	4.5	0.4	4.4	1.7	11		●		●											
	HPKT 0604AZER M-AF	16.3	4.5	0.4	4.4	1.7	11													●		
	HPCT 0604AZER M-F	16.3	4.5	0.4	4.4	1.7	11												●			
	HOKT 0604AZER MR	16.3	4.5	0.4	4.4	1.7	11		●		●											
	HOCT 0604AZER M-AF	16.3	4.5	0.4	4.4	1.7	11							●						●		

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
	Alloy steel	200-325		150-60		140-60			140-60						140-60		
	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		





Chipbreaker

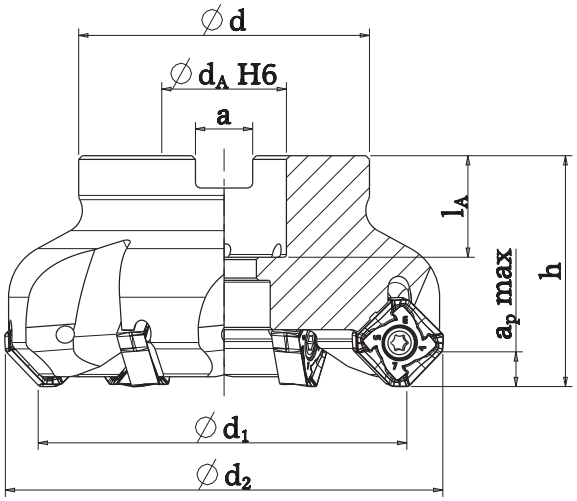
MR
Strong cutting edge for general steel applications and hard conditions milling.

M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

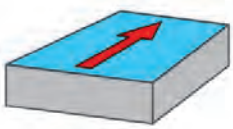
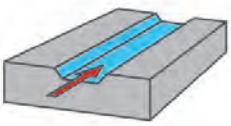
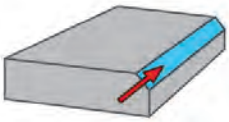
M-F
Sharp cutting edge for aluminium and non-ferrous metal.

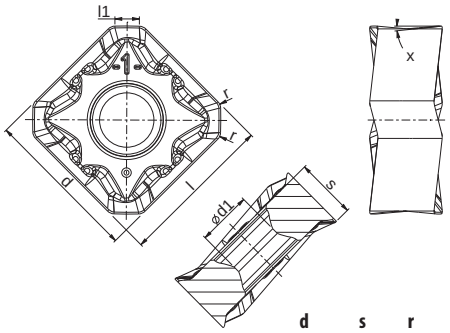
○ **On request**
● **In stock**

FM1080AT...



Art.	Ø d1 (mm)	Ø d2 (mm)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
FM1080AT.040.13.16.4	40	52.4	45	38	16	6	4	SOKU 12	11042274
FM1080AT.050.13.22.5	50	62.4	45	43	22		5	SOKU 12	11042274
FM1080AT.063.13.22.6	63	75.4	45	48	22		6	SOKU 12	11042274
FM1080AT.080.13.27.8	80	92.4	50	58	27		8	SOKU 12	11042274
FM1080AT.100.13.32.10	100	112.4	50	78	32		10	SOKU 12	11042274
FM1080AT.125.13.40.12	125	137.4	63	88	40		12	SOKU 12	11042274
FM1080AT.040.15.16.4	40	52.4	45	38	16	8	4	SOKU 15	1345431
FM1080AT.050.15.22.4	50	62.4	45	43	22		4	SOKU 15	1345431
FM1080AT.063.15.22.5	63	75.4	45	48	22		5	SOKU 15	1345431
FM1080AT.080.15.27.6	80	92.4	50	58	27		6	SOKU 15	1345431
FM1080AT.100.15.32.7	100	112.4	50	78	32		7	SOKU 15	1345431
FM1080AT.125.15.40.8	125	137.4	63	88	40		8	SOKU 15	1345431
FM1080AT.160.15.40.10	160	172.4	63	104	40		10	SOKU 15	1345431

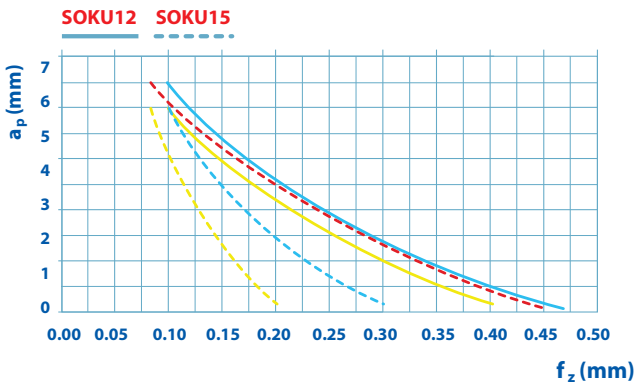




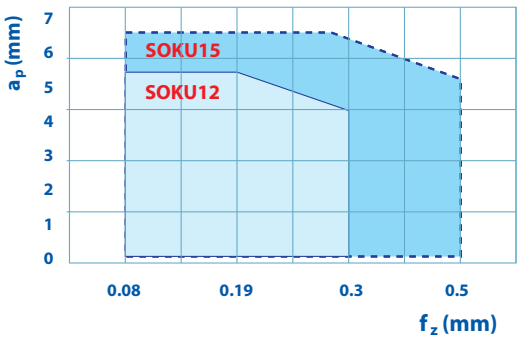


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
SOKU 1205AZER MR	13	5.0	0.8	4.55	2	6		●	●	●											
SOKU 1205AZER M-AF	13	5.0	0.8	4.55	2	6							●						●		
SOKU 1505AZER MR	15.875	6.0	1.0	5.74	2.7	6		●	●	●											
SOKU 1505AZER M-AF	15.875	6.0	1.0	5.74	2.7	6							●						●		
SOKU 1505AZER SCE	15.875	6.0	1.0	5.74	2.7	6										●	●				

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85	220-80	220-80			200-60						180-75		
	Low alloy steel	180-350		185-70	185-60	185-60			150-60						140-60		
	Alloy steel	200-325		150-60	140-60	140-60			140-60						140-60		
	Stainless steel mart	200-240		140-60	130-60	130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60	120-60	120-60			140-60						150-60		
K	Cast iron											320-100	280-80				
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		





Chipbreaker

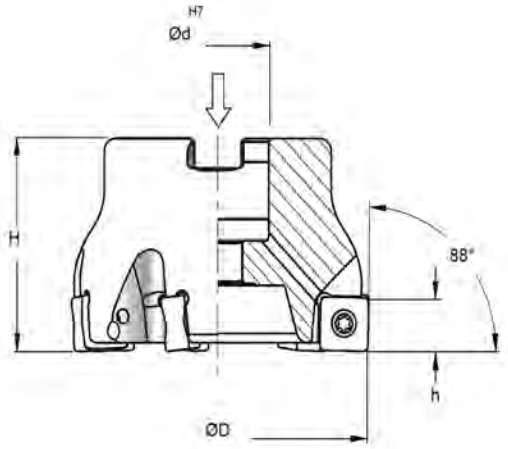
MR
Strong cutting edge for general steel applications and hard conditions milling.

M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

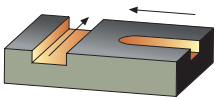
SCE
Strong cutting edge for cast iron applications.

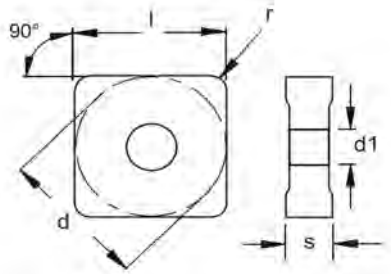
○ **On request**
● **In stock**

FM1090AT...



Art.	ØD (mm)	Ød (mm)	H (mm)	h (mm)	Z (mm)	kg	Nm				
FM1090AT.50.22.4	50	22	40	11,5	4	0,27	3,8÷5	1206	124011P	5620P	VBSF10
FM1090AT.63.22.6	63	22	40	11,5	6	0,46	3,8÷5				VBSF10
FM1090AT.80.27.7	80	27	50	11,5	7	0,94	3,8÷5				AL12x35
FM1090AT.80.27.9	80	27	50	11,5	9	0,92	3,8÷5				AL12x35
FM1090AT.100.32.8	100	32	50	11,5	8	1,63	3,8÷5				AL16x35
FM1090AT.100.32.11	100	32	50	11,5	11	1,59	3,8÷5				AL16x35
FM1090AT.125.40.10	125	40	63	11,5	10	3,05	3,8÷5				AL20x45
FM1090AT.125.40.14	125	40	63	11,5	14	2,99	3,8÷5				AL20x45
FM1090AT.160.40.12	160	40	63	11,5	12	4,00	3,8÷5				–
FM1090AT.160.40.18	160	40	63	11,5	18	3,91	3,8÷5				–
FM1090AT.200.60.14	200	60	63	11,5	14	6,61	3,8÷5				–
FM1090AT.200.60.22	200	60	63	11,5	22	6,48	3,8÷5				–
FM1090AT.250.60.16	250	60	63	11,5	16	9,68	3,8÷5				–
FM1090AT.250.60.24	250	60	63	11,5	24	9,52	3,8÷5				–

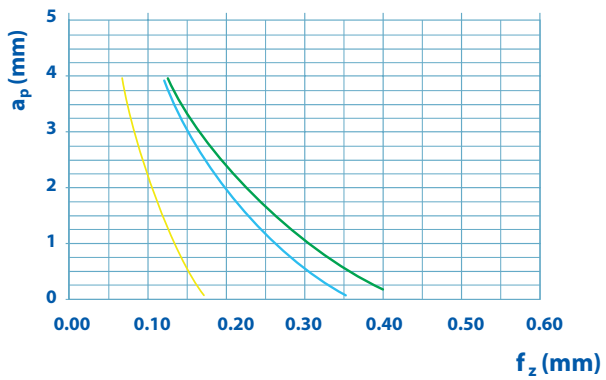


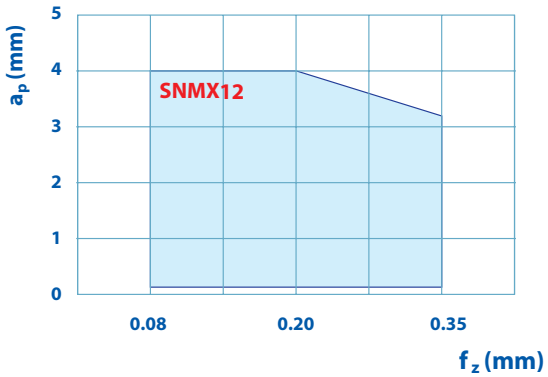


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l (mm)	x [°]	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
SNMX 1206QNN MR	12.7	6.35	0.8	5.4	12.7	-	●		●												
SNMX 1206QNN M-AF	12.7	6.35	0.8	5.4	12.7	-							●								
SNMX 1206QNN SCE	12.7	6.35	0.8	5.4	12.7	-									●		●				
SNMX 120612 MR	12.7	6.35	1.2	5.4	12.7	-	●		●												
SNMX 120612 SCE	12.7	6.35	1.2	5.4	12.7	-											●				

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300	230		220												
P	Low alloy steel	180-350	190		180												
P	Alloy steel	200-325	165		180												
P	Stainless steel mart	200-240	150														
M	Stainless steel aust	180-230			90				100								
K	Grey cast iron	200-320									280		310				
K	Spheroidal	400-1050									260		180				





Chipbreaker

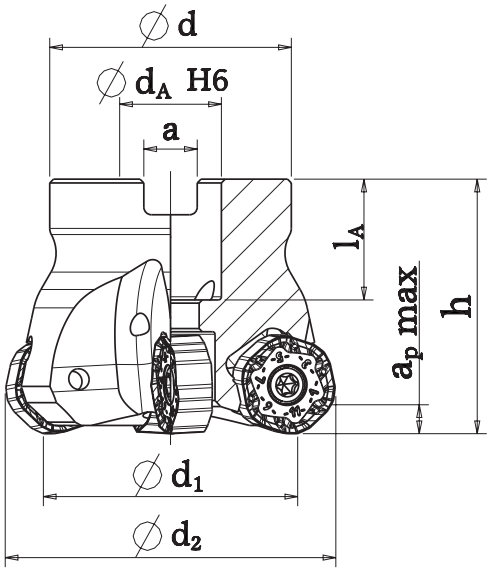
MR
Strong cutting edge for general steel applications and hard conditions milling.

M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

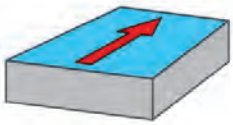
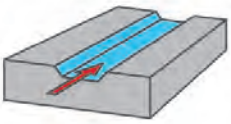
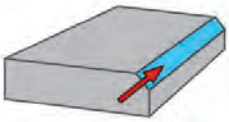
SCE
Strong cutting edge for cast ironapplications.

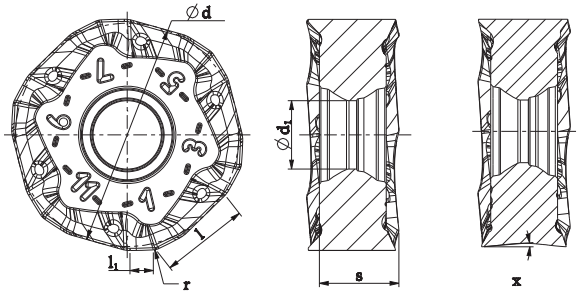
○ **On request**
● **In stock**

FM1022AT...



Art.	Ø d1 (mm)	Ø d2 (мм)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
FM1022AT.040.14.16.4	40	52	40	38	16	4.5	4	HNKU 08	1345432
FM1022AT.050.14.22.4	50	62	40	43	22		4	HNKU 08	1345432
FM1022AT.063.14.22.5	63	75	40	48	22		5	HNKU 08	1345432
FM1022AT.080.14.27.6	80	92	50	58	27		6	HNKU 08	1345432
FM1022AT.100.14.32.8	100	102	50	78	32		8	HNKU 08	1345432
FM1022AT.125.14.40.9	125	137	63	88	40		9	HNKU 08	1345432

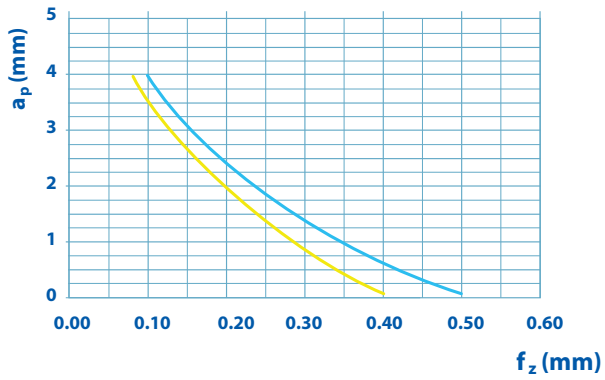




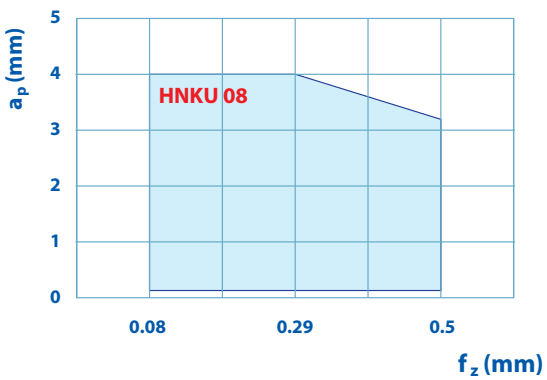


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

Art.	d (mm)	l (mm)	s (mm)	r (mm)	d1 (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
HNKU 0806AZER MR	14,7	7.5	5.19	1.0	4.5	1.5	-		●		●											
HNKU 0806AZER M-AF	14,7	7.5	5.19	1.0	4.5	1.5	-							○						●		
HOKU 0806AZER MR	14,7	7.5	5.23	1.0	4.5	1.5	4.5		●		●											
HOKU 0806AZER M-AF	14,7	7.5	5.23	1.0	4.5	1.5	4.5							●						●		

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80									180-75		
	Low alloy steel	180-350		185-70		185-60									140-60		
	Alloy steel	200-325		150-60		140-60									140-60		
	Stainless steel mart	200-240		140-60		130-60									150-60		
M	Stainless steel aust	180-230		120-60		120-60			200-60						150-60		
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		





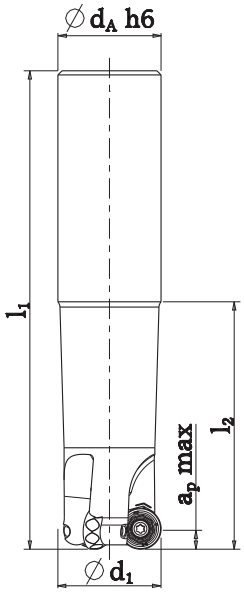
Chipbreaker

MR
Strong cutting edge for general steel applications and hard conditions milling.

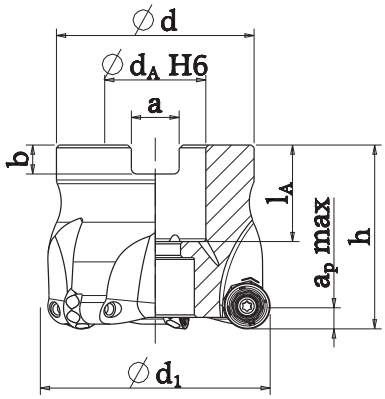
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

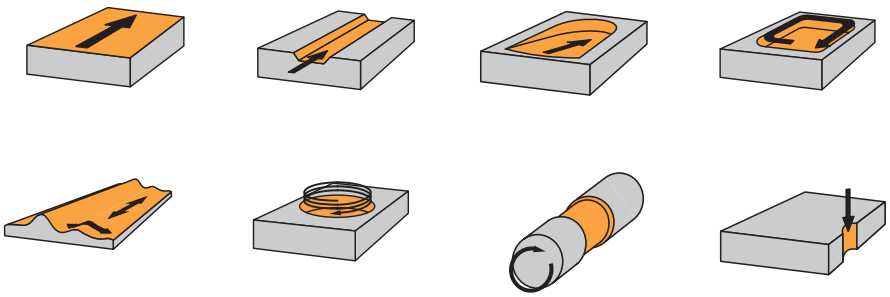
P3000...

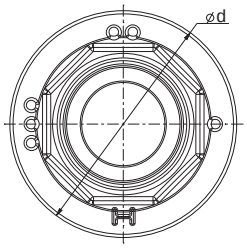


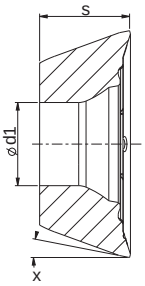
P3000AT...



Art.	Ø D (mm)	l1 (mm)	l2 (mm)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
P3000.020.10.50.100.2	20	102	50	-	-	20		2	RP/RD...10	11689894
P3000.020.10.50.165.2	20	165	50	-	-	20		2	RP/RD...10	11689894
P3000.025.10.60.116.3	25	116	60	-	-	25		3	RP/RD...10	11689894
P3000.025.10.60.165.3	25	165	60	-	-	25		3	RP/RD...10	11689894
P3000.032.10.70.130.4	32	130	70	-	-	32	5	4	RP/RD...10	11689894
P3000.032.10.70.165.4	32	165	70	-	-	32		4	RP/RD...10	11689894
P3000AT.040.10.16.4	40	-	-	40	38	16		4	RP/RD...10	11689894
P3000AT.042.10.16.5	42	-	-	40	38	16		5	RP/RD...10	11689894
P3000AT.050.10.22.5	50	-	-	40	43	22		5	RP/RD...10	11689894



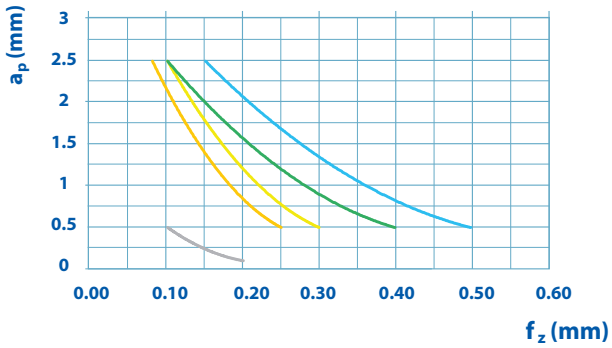


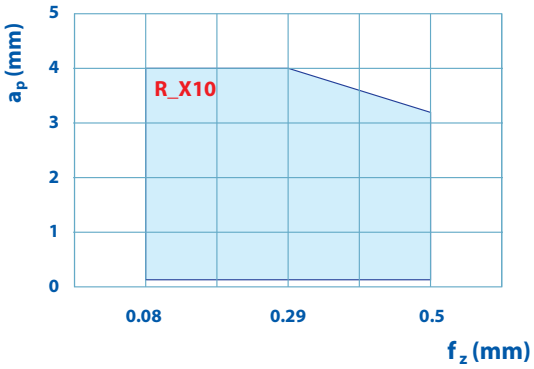


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
RPMX 10T3MO MR	10	3.97	-	3.4	-	11		●		●											
RPMX 10T3MO M-AF	10	3.97	-	3.4	-	11							●						●		
RDHX 10T3MO M-F	10	3.97	-	3.4	-	15												●			
RPHX 10T3MO MS	10	3.97	-	3.4	-	11													●	●	
RDHW 10T3MO MS-S	10	3.97	-	3.4	-	15															●

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
	Alloy steel	200-325		150-60		140-60			140-60						140-60		
	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40	75-25	
	Titanium	400-1050													50-40	75-25	
H	Hardened materials	65-60															180-100





Chipbreaker

MS
Stable cutting edge for dedicated exotic materials and titanium.

M-F
Sharp cutting edge for aluminium and nonferrous metal.

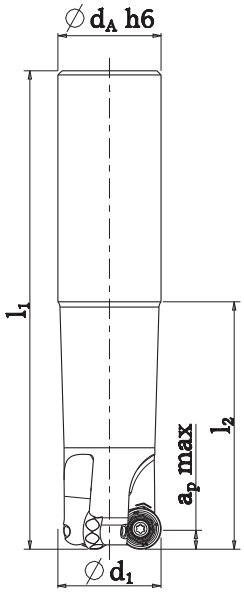
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

MS-S
Strong reinforced cutting edge for hard material.

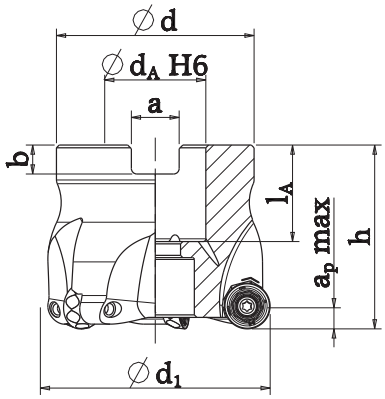
MR
Strong cutting edge for general steel applications and hard conditions milling.

○ **On request**
● **In stock**

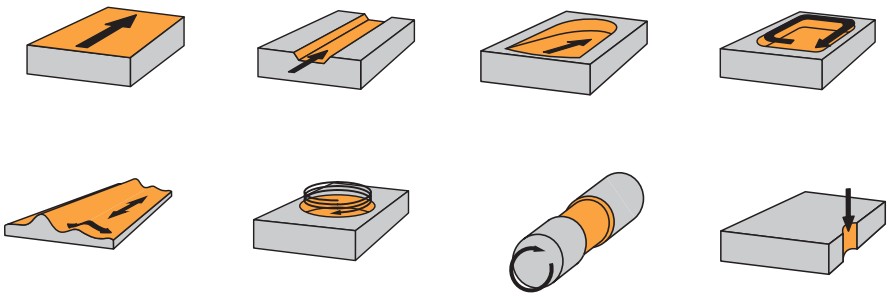
P3000...



P3000AT...

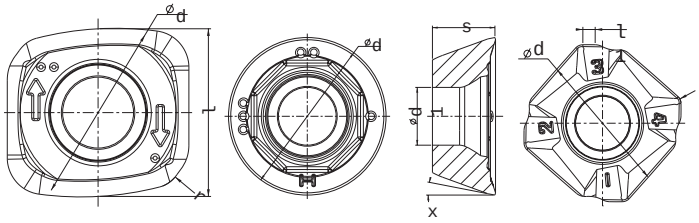


Art.	Ø d1 (mm)	l1 (mm)	l2 (mm)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
P3000.025.12.30.086.2	25	86	30	-	-	25	6	2	RP/RD...12	11037484
P3000.025.12.60.116.2	25	116	60	-	-	25		2	RP/RD...12	11037484
P3000.032.12.40.100.3	32	100	40	-	-	32		3	RP/RD...12	11037484
P3000.032.12.70.130.3	32	130	70	-	-	32		3	RP/RD...12	11037484
P3000AT.040.12.16.4	40	-	-	40	38	16		4	RP/RD...12	11036880
P3000AT.042.12.16.4	42	-	-	40	38	16		4	RP/RD...12	1345432
P3000AT.050.12.22.5	50	-	-	40	43	22		5	RP/RD...12	1345432
P3000AT.052.12.22.5	52	-	-	40	43	22		5	RP/RD...12	1345432
P3000AT.063.12.22.6	63	-	-	40	48	22		6	RP/RD...12	1345432
P3000AT.066.12.22.6	66	-	-	40	58	27		6	RP/RD...12	1345432
P3000AT.080.12.27.8	80	-	-	50	58	27		8	RP/RD...12	1345432
P3000AT.100.12.32.10	100	-	-	50	78	32		10	RP/RD...12	1345432



* when using insert RPMX 1204MO FMR or RPMX 1204MO FM-AF diameter of the working parts reduced to 0.25mm; the lenght of the cutting portions will decrease by 0.13mm.

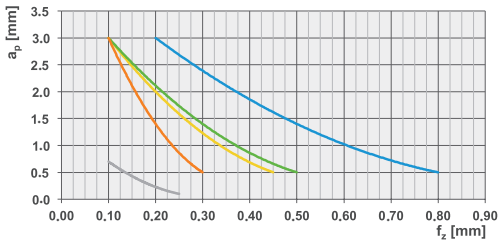
**when using insert EOMT 120416 MR or EOMT 120416 M-AF diameter of the working parts reduced to 0.25mm; the lenght of the cutting portions will decrease by 0.13mm.

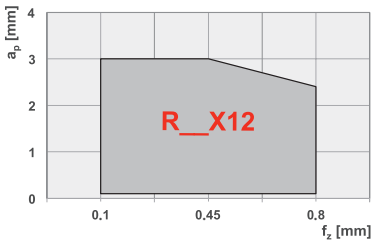


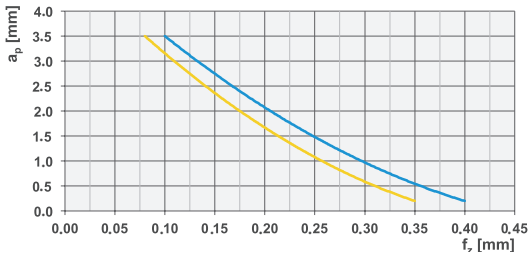
	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

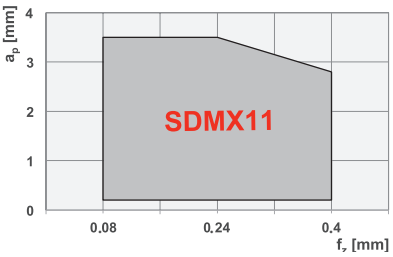
Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
RPMX 1204MO MR	12	4.76	-	4.4	-	-	11		●		●											
RPMX 1204MO M-AF	12	4.76	-	4.4	-	-	11							●						●		
RDHX 1204MO M-F	12	4.76	-	4.4	-	-	15												●			
RPHX 1204MO MS	12	4.76	-	4.4	-	-	11													●	●	
RDHW 1204MO MS-S	12	4.76	-	4.4	-	-	15															●
SDMX 1105AEER MR	11	5.9	-	4.4	-	-	15		●		●											
SDMX 1105AEER M-AF	11	5.9	-	4.4	-	-	15							●						●		
RPMX 1204MO FMR	12	4.76	-	4.4	11.75	2.4	11		●		●											
RPMX 1204MO FM-AF	12	4.76	-	4.4	11.75	2.4	11							●						●		
EOMT 120416 MR	12	5	16	4.4	10.5	2.4	9		●		●											
EOMT 120416 M-AF	12	5	16	4.4	10.5	2.4	9							●						●		

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
P	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
P	Alloy steel	200-325		150-60		140-60			140-60						140-60		
P	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
N	Aluminium	60-130												<2000			
S	Hig. temp. alloy	200-320													50-40	75-25	
S	Titanium	400-1050													50-40	75-25	
H	Hardened materials	65-60															180-100









Chipbreaker

MS
Stable cutting edge for dedicated exotic materials and titanium.

M-F
Sharp cutting edge for aluminium and nonferrous metal.

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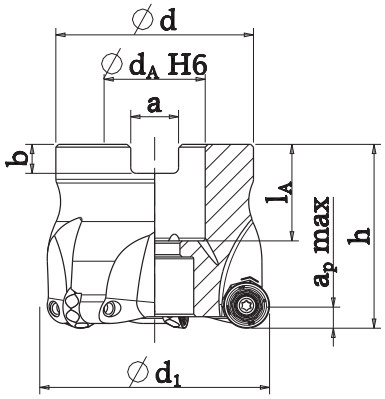
Sharp cutting edge for general stainless steel applications and for finishing in steels.

MS-S
Strong reinforced cutting edge for hard material.

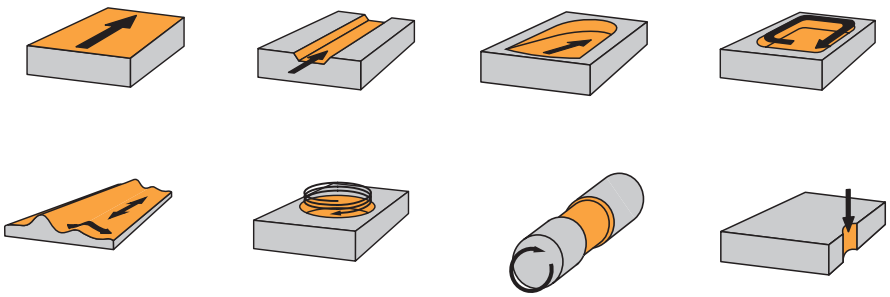
MR
Strong cutting edge for general steel applications and hard conditions milling.

○ **On request**
● **In stock**

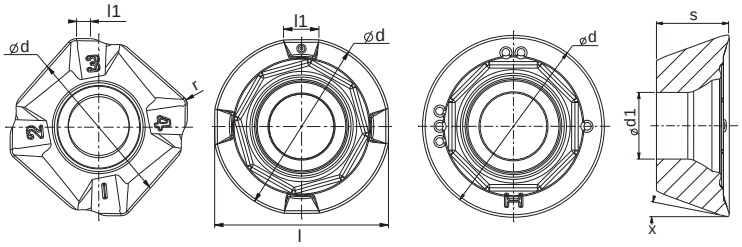
P3000AT...



Art.	Ø d1 (mm)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
P3000AT.050.16.22.3	50	40	48	22		3	RP/SD...X	1345431
P3000AT.052.16.22.4	52	40	48	22		4	RP/SD...X	1345431
P3000AT.063.16.22.5	63	40	48	22		5	RP/SD...X	1345431
P3000AT.066.16.22.5	63	40	48	22	8	5	RP/SD...X	1345431
P3000AT.080.16.27.6	80	50	58	27		6	RP/SD...X	1345431
P3000AT.100.16.32.7	100	50	78	32		7	RP/SD...X	1345431
P3000AT.125.16.40.8	125	63	88	40		8	RP/SD...X	1345431



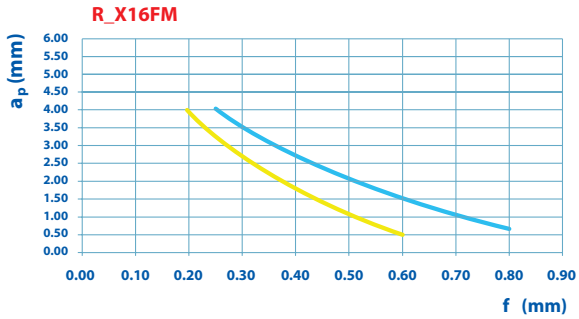
* when using insert RPMX 1605MO FMR or RPMX 1605MO FM-AF diameter of the working parts reduced to 0.2mm; the lenght of the cutting portions will decrease by 0.1mm.

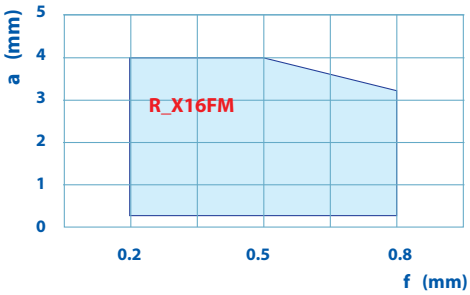


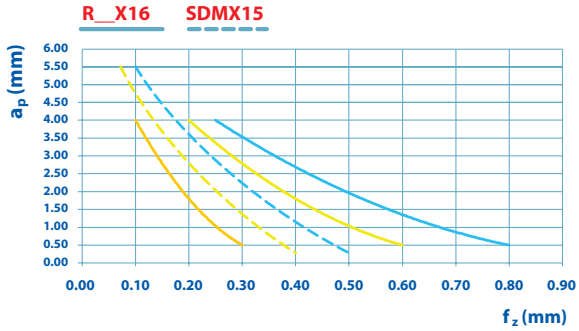
	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

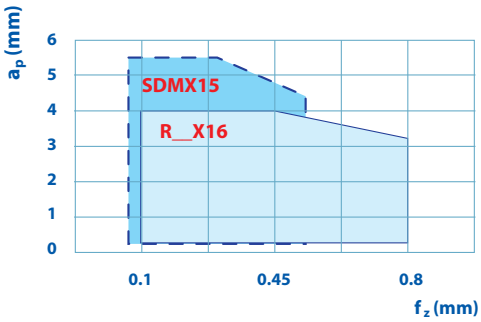
Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
RPMX 1605MO MR	16	5.56		5.5			11		●		●											
RPMX 1605MO M-AF	16	5.56		5.5			11							●						●		
RPMX 1605MO MS	16	5.56		5.5			11													●	●	
SDMX 1506AEER MR	15	6.5	0.8	5.5		1.5	15		●		●											
SDMX 1506AEER M-AF	15	6.5	0.8	5.5		1.5	15							●						●		
RPMX 1605MO FMR	16	5.56		5.5	15.8	2.5	11		●		●											
RPMX 1605MO FM-AF	16	5.56		5.5	15.8	2.5	11							●						●		

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
P	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
P	Alloy steel	200-325		150-60		140-60			140-60						140-60		
P	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
S	Hig. temp. alloy	200-320													50-40	75-25	
S	Titanium	400-1050													50-40	75-25	









Chipbreaker

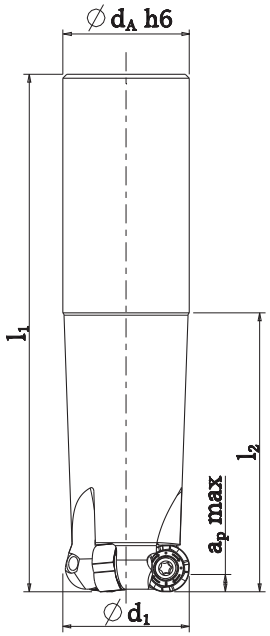
MS
Stable cutting edge for dedicated exotic materials and titanium.

MR
Strong cutting edge for general steel applications and hard conditions milling.

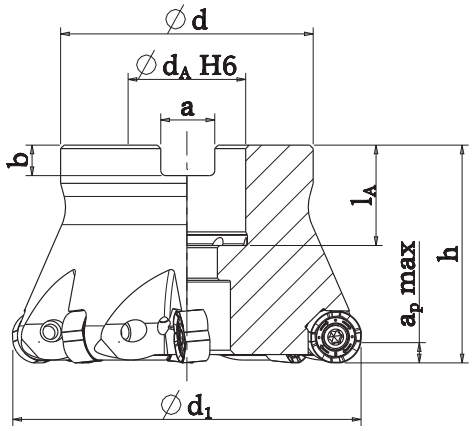
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

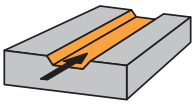
FM1088...



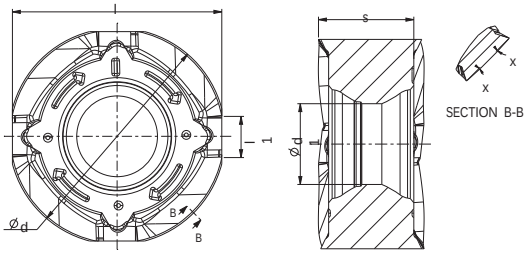
FM1088AT..



Art.	Ø d1 (mm)	l1 (mm)	l2 (mm)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
FM1088.032.12.70.131.3	32	131	70	-	-	32		3	RN/RO..12	11037484
FM1088.032.12.70.165.3	32	165	70	-	-	32		3	RN/RO..12	11037484
FM1088AT.040.12.16.4	40	-	-	40	38	16		4	RN/RO..12	1345432
FM1088AT.050.12.22.5	50	-	-	40	43	22	4.5	5	RN/RO..12	1345432
FM1088AT.063.12.22.6	63	-	-	40	48	22		6	RN/RO..12	1345432
FM1088AT.080.12.27.8	80	-	-	50	58	27		8	RN/RO..12	1345432
FM1088AT.100.12.32.10	100	-	-	50	78	32		10	RN/RO..12	1345432
FM1088AT.050.16.22.3*	50	-	-	40	43	22		3	RN/RO..16	188399
FM1088AT.063.16.22.5	63	-	-	40	48	22		5	RN/RO..16	188399
FM1088AT.080.16.27.6*	80	-	-	50	58	27	6	6	RN/RO..16	188399
FM1088AT.100.16.32.7*	100	-	-	50	78	32		7	RN/RO..16	188399
FM1088AT.125.16.40.8*	125	-	-	63	88	40		8	RN/RO..16	188399



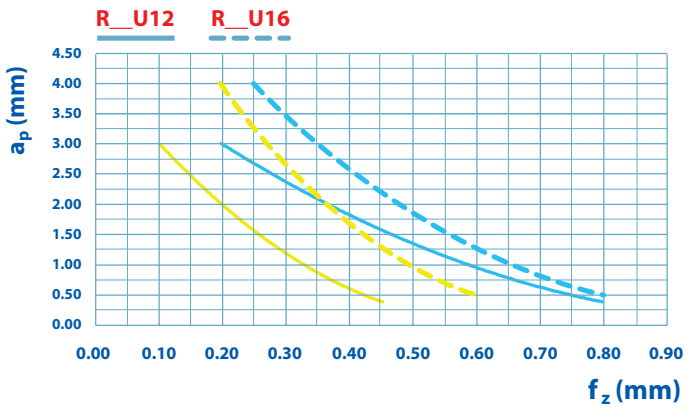
* **On request**

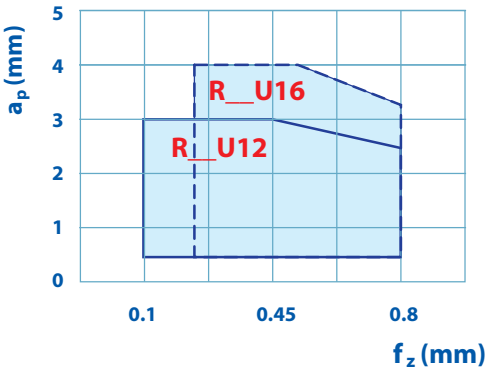


	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

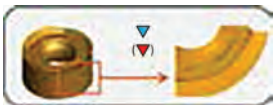
Art.	d (mm)	s (mm)	l (mm)	d1 (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
RNKU 1204MOER MR	12	5.9	11.8	4.5	2.3	0		●		●											
ROHU 1204MOER M-AF	12	5.9	11.8	4.5	2.3	3							●						●		
RNKU 1605MOER MR	16	6.7	15.7	5.8	2.7	0		●		●											
ROHU 1605MOER M-AF	16	6.7	15.7	5.8	2.7	3							●						●		

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
P	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
P	Alloy steel	200-325		150-60		140-60			140-60						140-60		
P	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
S	Hig. temp. alloy	200-320													50-40		
S	Titanium	400-1050													50-40		

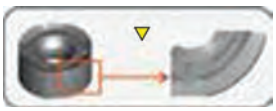




Chipbreaker



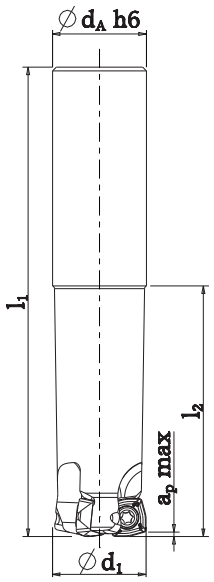
MR
Strong cutting edge for general steel applications and hard conditions milling.



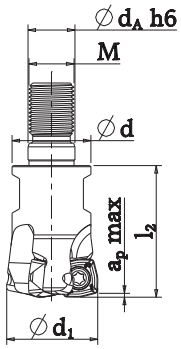
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

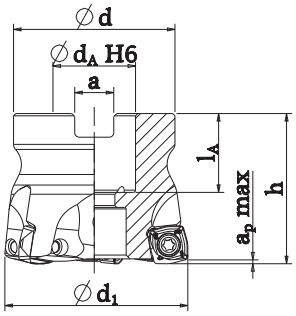
HF9000...



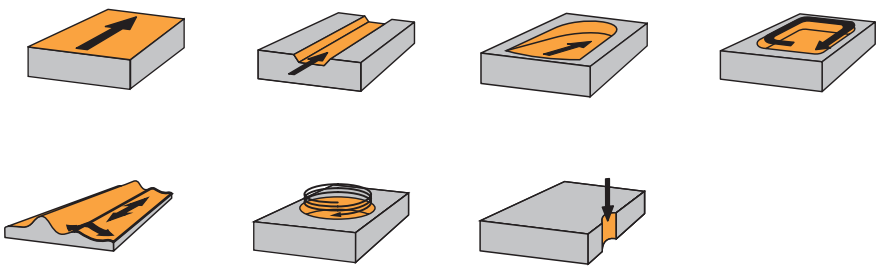
HF9000G...



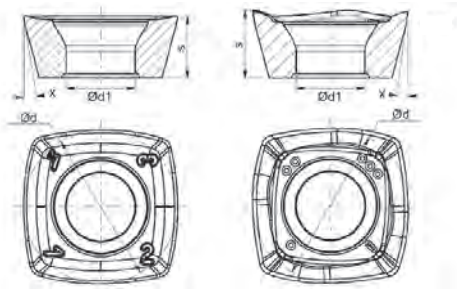
HF9000AT...



Art.	Ø d1 (mm)	l1 (mm)	l2 (mm)	h (mm)	d (mm)	dA (mm)	a (mm)	z		
HF9000.016.07.50.200.2	16	200	50	-	-	16	0.8	2	XPLT 07	76913
HF9000.020.07.50.200.3	20	200	50	-	-	20		3	XPLT 07	76913
HF9000.025.07.50.200.4	25	200	50	-	-	25		4	XPLT 07	76913
HF9000G.016.07.43.2	16	-	-	43	13.8	M8		2	XPLT 07	76913
HF9000G.020.07.49.3	20	-	-	49	18	M10		3	XPLT 07	76913
HF9000G.025.07.57.4	25	-	-	57	21	M12		4	XPLT 07	76913
HF9000.025.10.50.225.3	25	225	50	-	-	25	1	3	XDLT/X 10	54976
HF9000AT.040.10.16.4	40	-	-	40	38	16		4	XDLT/X 10	165795
HF9000AT.050.10.22.5	50	-	-	40	43	22		5	XDLT/X 10	165795
HF9000AT.063.10.22.6	63	-	-	40	48	22		6	XDLT/X 10	165795
HF9000.035.13.63.250.3	35	250	63	-	-	32	2	3	XOLT 13	106022
HF9000AT.050.13.22.4	50	-	-	40	43	22		4	XOLT 13	106022
HF9000AT.063.13.22.5	63	-	-	40	48	22		5	XOLT 13	106022
HF9000AT.080.13.27.7	80	-	-	50	58	27		7	XOLT 13	106022



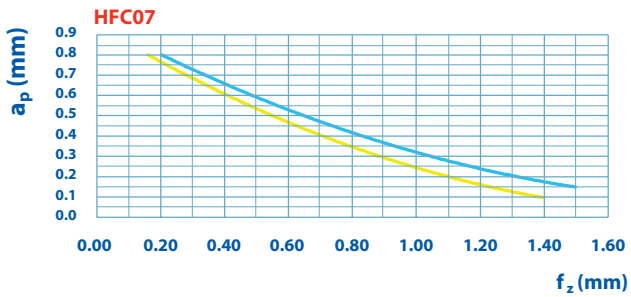
X_LT XDLX

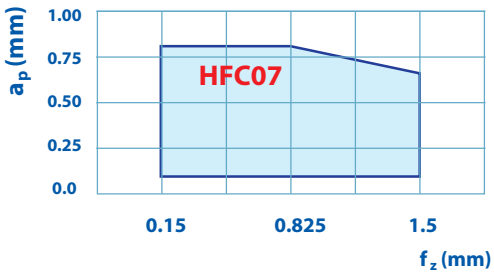


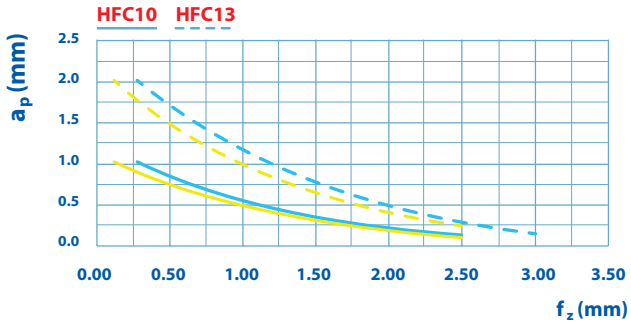
	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

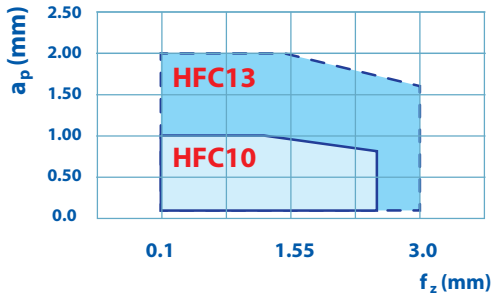
Art.	d (mm)	s (mm)	r (mm)	d1 (mm)	l (mm)	l1 (mm)	X (°)	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
XPLT 070305 MR	7	2.75	0.5	2.8	-	-	11		●		●											
XPLT 070305 M-AF	7	2.75	0.5	2.8	-	-	11							●						●	●	
XDLT 10T308 MR	10	3.97	0.8	4.4	-	-	9		●		●											
XDLT 10T308 M-AF	10	3.97	0.8	4.4	-	-	9							●						●	●	
XDLX 10T308 MR	10	4.38	0.85	4.4	-	-	15		●		●											
XDLX 10T308 M-AF	10	4.38	0.85	4.4	-	-	15							●						●		
XOLT 130410 MR	13	4.76	1.0	5.5	-	-	9		●		●											
XOLT 130410 M-AF	13	4.76	1.0	5.5	-	-	9							●						●	●	

	Material	HB	P3530M	P30D	P35M	P35W	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-80			200-60						180-75		
	Low alloy steel	180-350		185-70		185-60			150-60						140-60		
	Alloy steel	200-325		150-60		140-60			140-60						140-60		
	Stainless steel mart	200-240		140-60		130-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
S	Hig. temp. alloy	200-320													75-25	70-30	
	Titanium	400-1050													75-25	80-40	









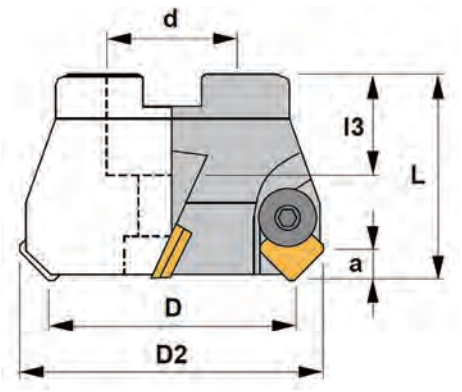
Chipbreaker

MR
Strong cutting edge for general steel applications and hard conditions milling.

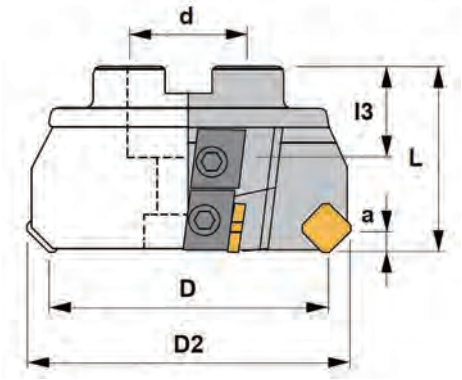
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

FM1200AT...

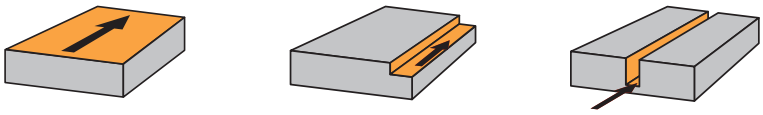


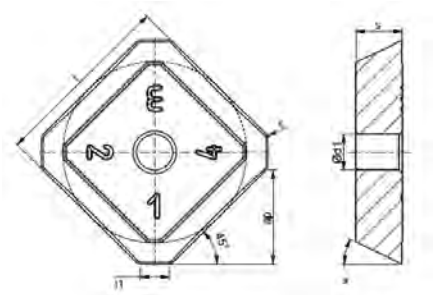
FM1200ATP...



Art.	Ø D (mm)	Ø D2 (mm)	l (mm)	l3 (mm)	d (mm)	a (mm)	z							
FM1200AT.050.12.22.4	50	63	40	20	22	6	4	SEK.. 1203..	1006L	2063	3010	4016	5004	912,10
FM1200AT.063.12.22.5	63	76	50	20	22	6	5	SEK.. 1203..	1006L	2063	3010	4016	5004	912,10
FM1200AT.080.12.27.6	80	93	50	22	27	6	6	SEK.. 1203..	1006L	2063	3010	4016	5004	912,12
FM1200AT.100.12.32.6	100	113	50	25	32	6	6	SEK.. 1203..	1006L	2063	3010	4016	5004	912,17
FM1200AT.125.12.40.7	125	138	63	30	40	6	7	SEK.. 1203..	1006L	2063	3010	4016	5004	-
FM1200AT.160.12.40.8	160	173	63	30	40	6	8	SEK.. 1203..	1006L	2063	3010	4016	5004	912,52
FM1200AT.200.12.60.10	200	213	63	40	60	6	10	SEK.. 1203..	1006L	2063	3010	4016	5004	912,56

Art.	Ø D (mm)	Ø D2 (mm)	l (mm)	l3 (mm)	d (mm)	a (mm)	z								
FM1200ATP.080.12.27.6	80	92	50	22	27	6	6	SEK.. 1203..	1077	912,12	-	-	-	-	1460
FM1200ATP.100.12.32.8	100	112	50	25	32	6	8	SEK.. 1203..	1077	912,17	-	-	-	-	1460
FM1200ATP.125.12.40.8	125	137	63	30	40	6	8	SEK.. 1203..	1077	-	-	-	-	-	1460
FM1200ATP.160.12.40.10	160	172	63	30	40	6	10	SEK.. 1203..	1077	912,52	-	-	-	-	1460
FM1200ATP.200.12.60.12	200	212	63	40	60	6	12	SEK.. 1203..	1077	912,56	-	-	-	-	1460
FM1200ATP.250.12.60.16	250	262	63	40	60	6	16	SEK.. 1203..	1077	912,56	-	-	-	-	1460
FM1200ATP.080.15.27.6	80	98	50	22	27	9	6	SEK.. 1504..	1077	912,12	5520	6488	6489	6918	1460
FM1200ATP.100.15.32.8	100	118	50	25	32	9	8	SEK.. 1504..	1077	912,17	5620	6488	6489	6918	1460
FM1200ATP.125.15.40.8	125	143	63	30	40	9	8	SEK.. 1504..	1077	-	5620	6488	6489	6918	1460
FM1200ATP.160.15.40.10	160	178	63	30	40	9	10	SEK.. 1504..	1077	912,52	5620	6488	6489	6918	1460
FM1200ATP.200.15.60.12	200	218	63	40	60	9	12	SEK.. 1504..	1077	912,56	5620	6488	6489	6918	1460
FM1200ATP.250.15.60.16	250	268	63	40	60	9	16	SEK.. 1504..	1077	912,56	5620	6488	6489	6918	1460

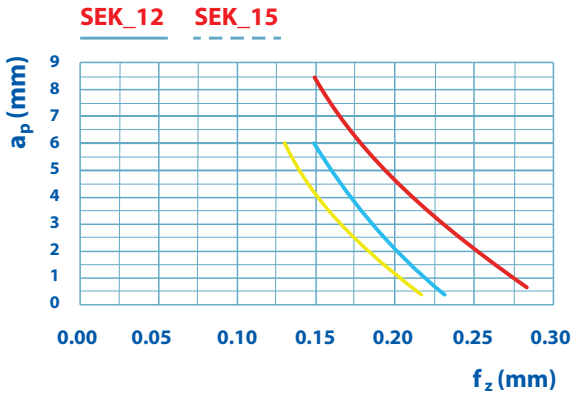


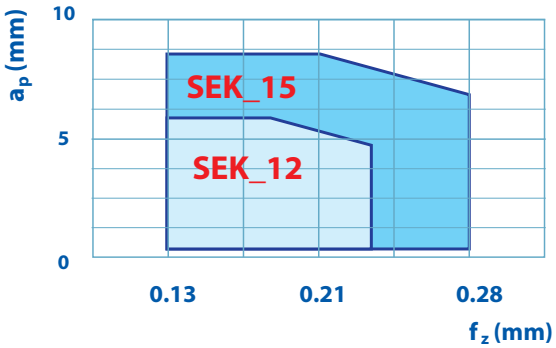


	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

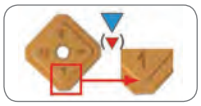
Art.	l (mm)	s (mm)	ap (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
SEKN 1203AFSN MR	12.7	3.18	6.3	2	0.45	2.5	25	●	●		●					●						
SEKR 1203AFSN M-AF	12.7	3.18	6.4	2	0.45	2.5	25	●					●	●						○		
SEKR 1504AFSN M-AF	15.875	4.72	8.5	1.7	1	2.5	25	●					●	●						○		

	Material	HB	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300	220-85	220-85		220-85		200-60							180-75		
	Low alloy steel	180-350	185-70	185-70		185-70		150-60	140-60						140-60		
	Alloy steel	200-325	150-60	150-60		150-60		140-60	130-60						140-60		
	Stainless steel mart	200-240	140-60	140-60		140-60		160-60	150-60						150-60		
M	Stainless steel aust	180-230	120-60					150-60	135-60						150-60		
K	Cast iron										320-100						
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		

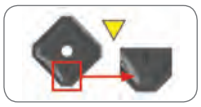




Chipbreaker



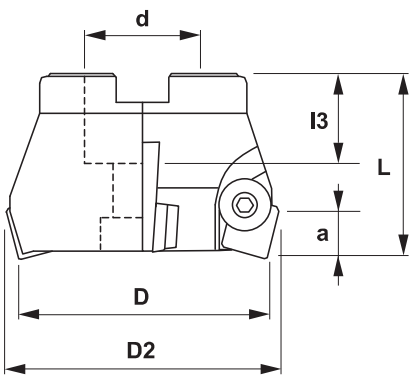
MR
Strong cutting edge for general steel applications and hard conditions milling.



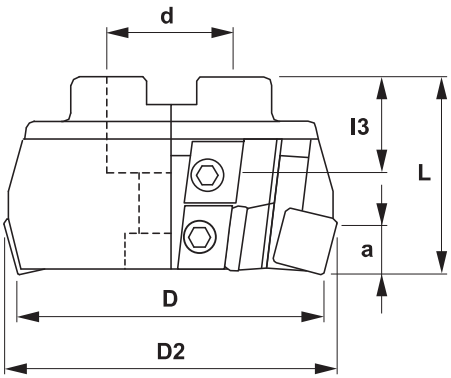
M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

FM1202AT...

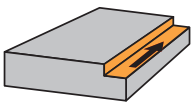


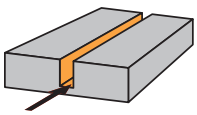
FM1202ATP...

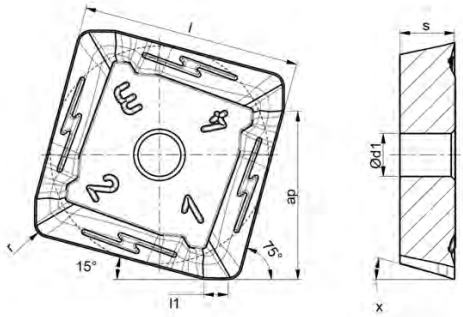


Art.	Ø D (mm)	Ø D2 (mm)	l (mm)	l3 (mm)	d (mm)	a (mm)	z						
FM1202AT.040.12.16.3	40	46	40	18	16		3	SP.. 1203..	1006	2066	-	-	1058
FM1202AT.050.12.22.3	50	56	40	20	22		3	SP.. 1203..	1006	2066	3012	4012	912.10
FM1202AT.063.12.27.4	63	69	50	22	27		4	SP.. 1203..	1006	2066	3012	4012	912.12
FM1202AT.080.12.32.5	80	86	50	25	32		5	SP.. 1203..	1006	2066	3012	4012	912.17
FM1202AT.100.12.40.6	100	106	50	30	40	9	6	SP.. 1203..	1006	2066	3012	4012	912.20
FM1202AT.125.12.40.6	125	131	63	30	40		6	SP.. 1203..	1006	2066	3012	4012	-
FM1202AT.160.12.40.7	160	166	63	30	40		7	SP.. 1203..	1006	2066	3012	4012	912.52
FM1202AT.200.12.60.8	200	206	63	40	60		8	SP.. 1203..	1006	2066	3012	4012	912.56

Art.	Ø D (mm)	Ø D2 (mm)	l (mm)	l3 (mm)	d (mm)	a (mm)	z						
FM1202ATP.080.12.27.5	80	86	50	22	27		5	SP.. 1203..	1077	6437	6438	6914	912.12	1460
FM1202ATP.100.12.32.7	100	106	50	25	32		7	SP.. 1203..	1077	6437	6438	6914	912.20	1460
FM1202ATP.125.12.40.8	125	131	63	30	40		8	SP.. 1203..	1077	6437	6438	6914	-	1460
FM1202ATP.160.12.40.10	160	166	63	30	40		10	SP.. 1203..	1077	6437	6438	6914	912.52	1460
FM1202ATP.200.12.60.12	200	206	63	40	60	9	12	SP.. 1203..	1077	6437	6438	6914	912.56	1460
FM1202ATP.250.12.60.16	250	256	63	40	60		16	SP.. 1203..	1077	6437	6438	6914	912.52	1460
FM1202ATP.315.12.60.20	315	321	63	40	60		20	SP.. 1203..	1077	6437	6438	6914	912.56	1460
FM1202ATP.400.12.60.26	400	406	63	40	60		26	SP.. 1203..	1077	6437	6438	6914	912.52	1460
FM1202ATP.500.12.60.34	500	506	63	40	60		34	SP.. 1203..	1077	6437	6438	6914	912.56	1460



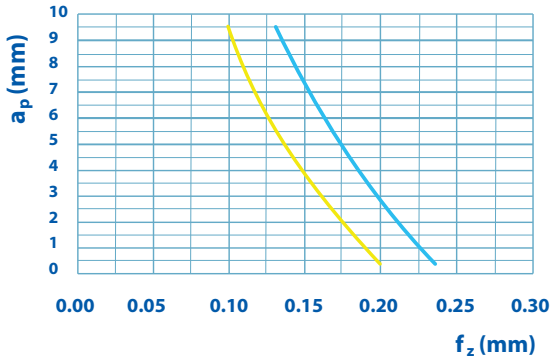


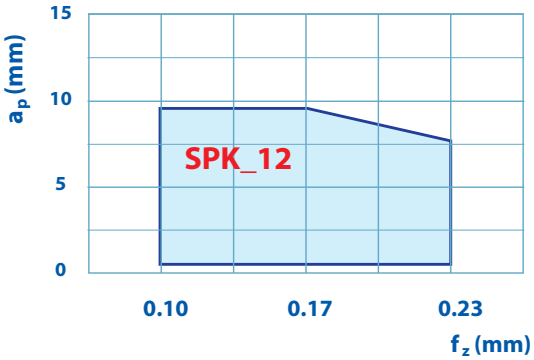


	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	●	●	●	●		○	○	○							
M	○	○	○	○	●	●	●	●					●		
K		○							●	●	●	○			○
N												●			
S													●	●	
H															●

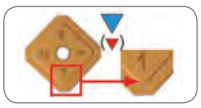
Art.	l (mm)	s (mm)	ap (mm)	l1 (mm)	r (mm)	d1 (mm)	X (°)	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
SPKN 1203EDTR MR	12.7	3.18	9.8	1.2	0.5	2.5	15		●		●					●						
SPKR 1203EDER M-AF	12.7	3.18	9.8	1.4	0.9	2.5	15							●						○		

	Material	HB	P3530M	P30D	P35W	P35M	M135	M3540P	M40P	M135GP	K115	HK115	K120	N15K	SM35	S135	H15K
P	Not alloy steel	125-300		220-85		220-85			200-60						180-75		
	Low alloy steel	180-350		185-70		185-70			150-60						140-60		
	Alloy steel	200-325		150-60		150-60			140-60						140-60		
	Stainless steel mart	200-240		140-60		140-60			160-60						150-60		
M	Stainless steel aust	180-230		120-60		120-60			140-60						150-60		
K	Cast iron										320-100						
S	Hig. temp. alloy	200-320													50-40		
	Titanium	400-1050													50-40		

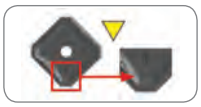




Chipbreaker



MR
Strong cutting edge for general steel applications and hard conditions milling.



M-AF
Sharp cutting edge for general stainless steel applications and for finishing in steels.

○ **On request**
● **In stock**

umt

10

TOOLS WITH CARBIDE INSERTS

DRILLS WITH CARBIDE INSERTS

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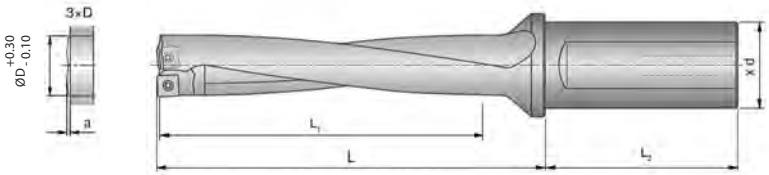
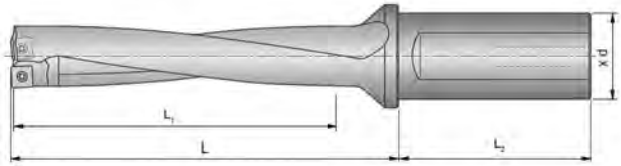
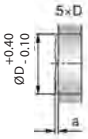
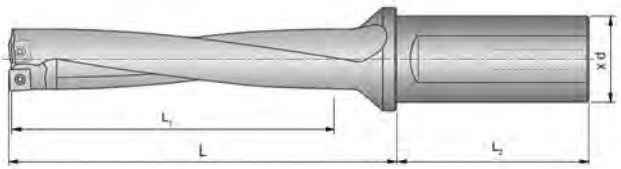


Art.	D	L	L_1	L_2	d	Insert dimensions
DIS 014x3D S05	14	55	42	50	20	SOLT 0502…
DIS 014.5x3D S05	14.5	59	45	50	20	SOLT 0502…
DIS 015x3D S05	15	59	45	50	20	SOLT 0502…
DIS 015.5x3D S05	15.5	64	48	50	20	SOLT 0502…
DIS 016x3D S05	16	64	48	50	20	SOLT 0502…
DIS 016.5x3D S05	16.5	68	51	50	20	SOLT 0502…
DIS 017x3D S06	17	68	51	50	20	SOLT 06T2...
DIS 017,5x3D S06	17.5	71	51	56	25	SOLT 06T2...
DIS 018x3D S06	18	71	54	56	25	SOLT 06T2...
DIS 018,5x3D S06	18.5	75	55.5	56	25	SOLT 06T2...
DIS 019x3D S06	19	75	57	56	25	SOLT 06T2...
DIS 019.5x3D S06	19.5	78	60	56	25	SOLT 06T2...
DIS 020x3D S07	20	78	60	56	20	SOLT 0703…
DIS 020.5x3D S07	20.5	82	61.5	56	25	SOLT 0703…
DIS 021x3D S07	21	85	66	56	25	SOLT 0703…
DIS 021.5x3D S07	21.5	85	66	56	25	SOLT 0703…
DIS 022x3D S07	22	85	66	56	25	SOLT 0703…
DIS 022.5x3D S07	22.5	89	69	56	25	SOLT 0703…
DIS 023x3D S07	23	89	69	56	25	SOLT 0703…
DIS 023.5x3D S08	23.5	92	72	60	32	SOLT 0803…
DIS 024x3D S08	24	92	72	60	32	SOLT 0803…
DIS 024.5x3D S08	24.5	96	75	60	32	SOLT 0803…
DIS 025x3D S08	25	96	78	60	32	SOLT 0803…
DIS 025.5x3D S08	25.5	99	78	60	32	SOLT 0803…
DIS 026x3D S08	26	99	81	60	32	SOLT 0803…
DIS 026.5x3D S08	26.5	103	81	60	32	SOLT 0803…
DIS 027x3D S08	27	103	81	60	32	SOLT 0803…
DIS 027.5x3D S08	27.5	106	84	60	32	SOLT 0803…
DIS 028x3D S08	28	106	84	60	32	SOLT 0803…
DIS 028.5x3D S10	28.5	100	87	60	32	SOLT 10T3…
DIS 029x3D S10	29	110	87	60	32	SOLT 10T3…
DIS 029.5x3D S10	29.5	113	90	60	32	SOLT 10T3…
DIS 030x3D S10	30	113	90	60	32	SOLT 10T3…
DIS 030.5x3D S10	30.5	117	93	68	40	SOLT 10T3…
DIS 031x3D S10	31	117	93	68	40	SOLT 10T3…
DIS 031.5x3D S10	31.5	120	96	68	40	SOLT 10T3…
DIS 032x3D S10	32	120	96	68	40	SOLT 10T3…
DIS 032.5x3D S10	32.5	124	99	68	40	SOLT 10T3…
DIS 033x3D S10	33	124	99	68	40	SOLT 10T3…
DIS 033.5x3D S11	33.5	127	102	68	40	SOLT 1104…
DIS 034x3D S11	34	127	102	68	40	SOLT 1104…
DIS 034.5x3D S11	34.5	131	102	68	40	SOLT 1104…
DIS 035x3D S11	35	131	105	68	40	SOLT 1104…
DIS 035.5x3D S11	35.5	134	105	68	40	SOLT 1104…
DIS 036x3D S11	36	134	108	68	40	SOLT 1104…
DIS 036.5x3D S11	36.5	138	108	68	40	SOLT 1104…
DIS 037x3D S11	37	138	111	68	40	SOLT 1104…
DIS 037.5x3D S11	37.5	141	111	68	40	SOLT 1104…
DIS 038x3D S11	38	141	114	68	40	SOLT 1104…
DIS 038.5x3D S13	38.5	145	117	68	40	SOLT 1305…
DIS 039x3D S13	39	145	117	68	40	SOLT 1305…
DIS 039.5x3D S13	39.5	148	120	68	40	SOLT 1305…
DIS 040x3D S13	40	148	120	68	40	SOLT 1305…
DIS 040.5x3D S13	40.5	152	123	68	40	SOLT 1305…
DIS 041x3D S13	41	152	123	68	40	SOLT 1305…
DIS 041.5x3D S13	41.5	155	126	68	40	SOLT 1305…
DIS 042x3D S13	42	155	126	68	40	SOLT 1305…
DIS 042.5x3D S13	42.5	159	129	68	40	SOLT 1305…
DIS 043x3D S13	43	159	129	68	40	SOLT 1305…
DIS 043.5x3D S13	43.5	162	132	68	40	SOLT 1305…
DIS 044x3D S13	44	162	132	68	40	SOLT 1305…

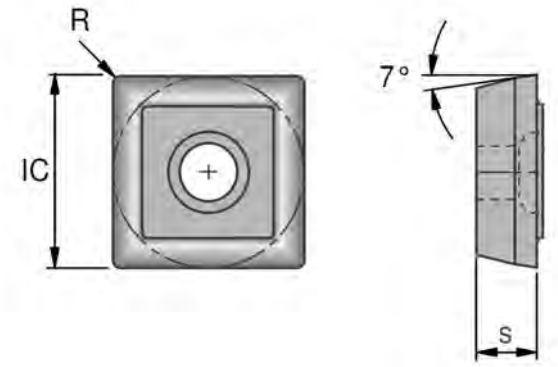


Art.	D	L	L_1	L_2	d	Insert dimensions
DIS 014x4D S05	14	69	56	50	20	SOLT 0502…
DIS 014.5x4D S05	14.5	74	60	50	20	SOLT 0502…
DIS 015x4D S05	15	74	60	50	20	SOLT 0502…
DIS 015.5x4D S05	15.5	80	64	50	20	SOLT 0502…
DIS 016x4D S05	16	80	64	50	20	SOLT 0502…
DIS 016.5x4D S05	16.5	85	68	50	20	SOLT 0502…
DIS 017x4D S06	17	85	68	50	20	SOLT 06T2...
DIS 017,5x4D S06	17.5	89	72	56	25	SOLT 06T2...
DIS 018x4D S06	18	89	72	56	25	SOLT 06T2...
DIS 018,5x4D S06	18.5	94	76	56	25	SOLT 06T2...
DIS 019x4D S06	19	94	76	56	25	SOLT 06T2...
DIS 019.5x4D S06	19.5	98	80	56	25	SOLT 06T2...
DIS 020x4D S07	20	98	80	56	20	SOLT 0703…
DIS 020.5x4D S07	20.5	103	84	56	25	SOLT 0703…
DIS 021x4D S07	21	103	84	56	25	SOLT 0703…
DIS 021.5x4D S07	21.5	107	88	56	25	SOLT 0703…
DIS 022x4D S07	22	107	88	56	25	SOLT 0703…
DIS 022.5x4D S07	22.5	112	92	56	25	SOLT 0703…
DIS 023x4D S07	23	112	92	56	25	SOLT 0703…
DIS 023.5x4D S08	23.5	116	96	60	32	SOLT 0803…
DIS 024x4D S08	24	116	96	60	32	SOLT 0803…
DIS 024.5x4D S08	24.5	121	100	60	32	SOLT 0803…
DIS 025x4D S08	25	121	100	60	32	SOLT 0803…
DIS 025.5x4D S08	25.5	125	104	60	32	SOLT 0803…
DIS 026x4D S08	26	125	104	60	32	SOLT 0803…
DIS 026.5x4D S08	26.5	130	108	60	32	SOLT 0803…
DIS 027x4D S08	27	130	108	60	32	SOLT 0803…
DIS 027.5x4D S08	27.5	134	112	60	32	SOLT 0803…
DIS 028x4D S08	28	134	112	60	32	SOLT 0803…
DIS 028.5x4D S10	28.5	139	116	60	32	SOLT 10T3…
DIS 029x4D S10	29	139	116	60	32	SOLT 10T3…
DIS 029.5x4D S10	29.5	143	120	60	32	SOLT 10T3…
DIS 030x4D S10	30	143	120	60	32	SOLT 10T3…
DIS 030.5x4D S10	30.5	148	124	68	40	SOLT 10T3…
DIS 031x4D S10	31	148	124	68	40	SOLT 10T3…
DIS 031.5x4D S10	31.5	152	128	68	40	SOLT 10T3…
DIS 032x4D S10	32	152	128	68	40	SOLT 10T3…
DIS 032.5x4D S10	32.5	157	132	68	40	SOLT 10T3…
DIS 033x4D S10	33	157	132	68	40	SOLT 10T3…
DIS 033.5x4D S11	33.5	161	136	68	40	SOLT 1104…
DIS 034x4D S11	34	161	136	68	40	SOLT 1104…
DIS 034.5x4D S11	34.5	166	140	68	40	SOLT 1104…
DIS 035x4D S11	35	166	140	68	40	SOLT 1104…
DIS 035.5x4D S11	35.5	170	144	68	40	SOLT 1104…
DIS 036x4D S11	36	170	144	68	40	SOLT 1104…
DIS 036.5x4D S11	36.5	175	148	68	40	SOLT 1104…
DIS 037x4D S11	37	175	148	68	40	SOLT 1104…
DIS 037.5x4D S11	37.5	179	152	68	40	SOLT 1104…
DIS 038x4D S11	38	179	152	68	40	SOLT 1104…
DIS 038.5x4D S13	38.5	184	156	68	40	SOLT 1305…
DIS 039x4D S13	39	184	156	68	40	SOLT 1305…
DIS 039.5x4D S13	39.5	188	160	68	40	SOLT 1305…
DIS 040x4D S13	40	188	160	68	40	SOLT 1305…
DIS 040.5x4D S13	40.5	193	164	68	40	SOLT 1305…
DIS 041x4D S13	41	193	164	68	40	SOLT 1305…
DIS 041.5x4D S13	41.5	197	168	68	40	SOLT 1305…
DIS 042x4D S13	42	197	168	68	40	SOLT 1305…
DIS 042.5x4D S13	42.5	202	172	68	40	SOLT 1305…
DIS 043x4D S13	43	202	172	68	40	SOLT 1305…
DIS 043.5x4D S13	43.5	206	176	68	40	SOLT 1305…
DIS 044x4D S13	44	206	176	68	40	SOLT 1305…



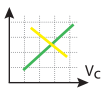


Art.	D	L	L_1	L_2	d	Insert dimensions
DIS 014x5D S05	14	83	70	50	20	SOLT 0502…
DIS 014.5x5D S05	14.5	89	75	50	20	SOLT 0502…
DIS 015x5D S05	15	89	75	50	20	SOLT 0502…
DIS 015.5x5D S05	15.5	96	80	50	20	SOLT 0502…
DIS 016x5D S05	16	96	80	50	20	SOLT 0502…
DIS 016.5x5D S05	16.5	102	85	50	20	SOLT 0502…
DIS 017x5D S06	17	102	85	50	20	SOLT 06T2...
DIS 017,5x5D S06	17.5	107	90	56	25	SOLT 06T2...
DIS 018x5D S06	18	107	90	56	25	SOLT 06T2...
DIS 018,5x5D S06	18.5	113	95	56	25	SOLT 06T2...
DIS 019x5D S06	19	113	95	56	25	SOLT 06T2...
DIS 019.5x5D S06	19.5	118	100	56	25	SOLT 06T2...
DIS 020x5D S07	20	118	100	56	25	SOLT 0703…
DIS 020.5x5D S07	20.5	124	105	56	25	SOLT 0703…
DIS 021x5D S07	21	124	105	56	25	SOLT 0703…
DIS 021.5x5D S07	21.5	129	110	56	25	SOLT 0703…
DIS 022x5D S07	22	129	110	56	25	SOLT 0703…
DIS 022.5x5D S07	22.5	135	115	56	25	SOLT 0703…
DIS 023x5D S07	23	135	115	56	25	SOLT 0703…
DIS 023.5x5D S08	23.5	140	120	60	32	SOLT 0803…
DIS 024x5D S08	24	140	125	60	32	SOLT 0803…
DIS 024.5x5D S08	24.5	146	125	60	32	SOLT 0803…
DIS 025x5D S08	25	146	130	60	32	SOLT 0803…
DIS 025.5x5D S08	25.5	151	130	60	32	SOLT 0803…
DIS 026x5D S08	26	151	135	60	32	SOLT 0803…
DIS 026.5x5D S08	26.5	157	135	60	32	SOLT 0803…
DIS 027x5D S08	27	157	135	60	32	SOLT 0803…
DIS 027.5x5D S08	27.5	162	140	60	32	SOLT 0803…
DIS 028x5D S08	28	162	140	60	32	SOLT 0803…
DIS 028.5x5D S10	28.5	168	145	60	32	SOLT 10T3…
DIS 029x5D S10	29	168	145	60	32	SOLT 10T3…
DIS 029.5x5D S10	29.5	173	150	60	32	SOLT 10T3…
DIS 030x5D S10	30	173	150	60	32	SOLT 10T3…
DIS 030.5x5D S10	30.5	179	155	68	40	SOLT 10T3…
DIS 031x5D S10	31	179	155	68	40	SOLT 10T3…
DIS 031.5x5D S10	31.5	184	160	68	40	SOLT 10T3…
DIS 032x5D S10	32	184	160	68	40	SOLT 10T3…
DIS 032.5x5D S10	32.5	190	165	68	40	SOLT 10T3…
DIS 033x5D S10	33	190	165	68	40	SOLT 10T3…
DIS 033.5x5D S11	33.5	195	170	68	40	SOLT 1104…
DIS 034x5D S11	34	195	170	68	40	SOLT 1104…
DIS 034.5x5D S11	34.5	201	175	68	40	SOLT 1104…
DIS 035x5D S11	35	206	175	68	40	SOLT 1104…
DIS 035.5x5D S11	35.5	206	180	68	40	SOLT 1104…
DIS 036x5D S11	36	212	180	68	40	SOLT 1104…
DIS 036.5x5D S11	36.5	212	185	68	40	SOLT 1104…
DIS 037x5D S11	37	212	185	68	40	SOLT 1104…
DIS 037.5x5D S11	37.5	217	190	68	40	SOLT 1104…
DIS 038x5D S11	38	217	190	68	40	SOLT 1104…
DIS 038.5x5D S13	38.5	223	195	68	40	SOLT 1305…
DIS 039x5D S13	39	223	195	68	40	SOLT 1305…
DIS 039.5x5D S13	39.5	228	200	68	40	SOLT 1305…
DIS 040x5D S13	40	228	200	68	40	SOLT 1305…
DIS 040.5x5D S13	40.5	234	205	68	40	SOLT 1305…
DIS 041x5D S13	41	234	205	68	40	SOLT 1305…
DIS 041.5x5D S13	41.5	239	210	68	40	SOLT 1305…
DIS 042x5D S13	42	239	210	68	40	SOLT 1305…
DIS 042.5x5D S13	42.5	245	215	68	40	SOLT 1305…
DIS 043x5D S13	43	245	215	68	40	SOLT 1305…
DIS 043.5x5D S13	43.5	250	220	68	40	SOLT 1305…
DIS 044x5D S13	44	250	220	68	40	SOLT 1305…



Art.	IC	s	R			
SOLT 050204 MR	5.0	2.1	0.4	●		
SOLT 050204 M-AF	5.0	2.1	0.4		●	
SOLT 050204 SCE	5.0	2.1	0.4			●
SOLT 050204 MS	5.0	2.1	0.4		●	
SOLT 06T206 MR	5.8	2.5	0.6	●		
SOLT 06T206 M-AF	5.8	2.5	0.6		●	
SOLT 06T206 SCE	5.8	2.5	0.6			●
SOLT 06T206 MS	5.8	2.5	0.6		●	
SOLT 070308 MR	6.9	3.0	0.8	●		
SOLT 070308 M-AF	6.9	3.0	0.8		●	
SOLT 070308 SCE	6.9	3.0	0.8			●
SOLT 070308 MS	6.9	3.0	0.8		●	
SOLT 080308 MR	8.4	3.5	0.8	●		
SOLT 080308 M-AF	8.4	3.5	0.8		●	
SOLT 080308 SCE	8.4	3.5	0.8			●
SOLT 080308 MS	8.4	3.5	0.8		●	
SOLT 10T308 MR	10.3	4.0	0.8	●		
SOLT 10T308 M-AF	10.3	4.0	0.8		●	
SOLT 10T308 SCE	10.3	4.0	0.8			●
SOLT 10T308 MS	10.3	4.0	0.8		●	
SOLT 110408 MR	11.1	4.4	0.8	●		
SOLT 110408 M-AF	11.1	4.4	0.8		●	
SOLT 110408 SCE	11.1	4.4	0.8			●
SOLT 110408 MS	11.1	4.4	0.8		●	
SOLT 130508 MR	13.3	5.0	0.8	●		
SOLT 130508 M-AF	13.3	5.0	0.8		●	
SOLT 130508 SCE	13.3	5.0	0.8			●
SOLT 130508 MS	13.3	5.0	0.8		●	

	P125D	M40D	K115D
P Steel	●		
M Stainless steel aust.		●	
K Cast iron			●
S Hig. temp. alloy		●	



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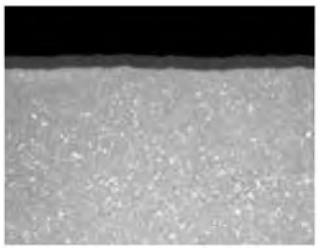
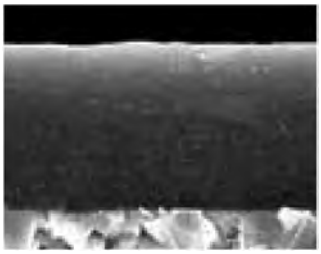
Alloy description

P125D HC-P25 I HC-M25



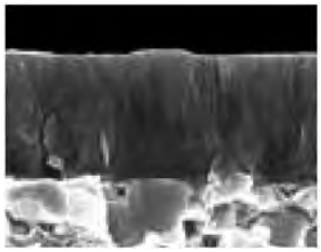
Specification:
Composition: Composition: Co 9.0%; mixed carbides 4.0%; WC balance;
Grain size: fine/medium
Hardness: HV30 1510;
Coating specification: PVD TiAlN/TiN;
Recommended application: Particularly suitable for the machining of steels.

M40D HC-M40 I HC-P40



Specification:
Composition: Co 9.0%; mixed carbides 0.7%; WC balance;
Grain size: submicron
Hardness: HV30 1590;
Coating specification: PVD TiAlN;
Recommended application: The first choice for the machining of austenitic steels as well as heat-resistant alloys.

K115D HC-K15

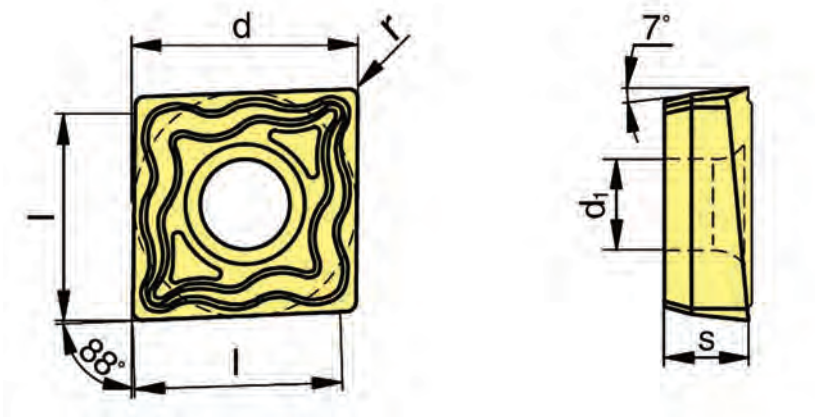


Specification:
Composition: Co 6.0%; WC balance; mixed carbides 2.0%;
Grain size: fine
Hardness: HV30 1630;
Recommended application: Suitable for cast iron machining.

Guideline values for solid drilling						Cutting speed vc (m/min)								
Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code/DIN	P125D			M40D			K115D		
						min	opt.	max	min	opt.	max	min	opt.	max
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	**260**	320	200	**250**	300	250	**300**	350
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	**270**	300	250	**270**	300	250	**270**	300
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	200	**260**	320	160	**220**	280	250	**300**	350
P	3.0	> 900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	**180**	220	120	**160**	200	200	**240**	280
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	120	**160**	200	120	**160**	200	200	**240**	280
P	4.1			HSS		50	**70**	90	40	**60**	80	170	**200**	230
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	on request								
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	on request								
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	150	**170**	210	140	**180**	220	210	**240**	270
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	120	**150**	200	120	**160**	200	190	**220**	250
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	110	**150**	190	120	**160**	200	190	**220**	250
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	120	**160**	200	110	**150**	190	160	**240**	320
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	90	**120**	150	80	**110**	140	100	**140**	180
K	9.0	≤ 600	250	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	120	**160**	200	110	**150**	190	120	**160**	200
K	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	110	**140**	170	110	**130**	160	100	**140**	180
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	90	**120**	150	80	**110**	140	90	**120**	150
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	90	**120**	150	80	**110**	140	90	**120**	150
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	80	**100**	120	70	**90**	110	70	**100**	130

Feed f (mm/rev)						
Ø 14 – 16.5 f (mm/min)	Ø 17 – 19.5 f (mm/min)	Ø 20 – 23 f (mm/min)	Ø 23.5 – 28 f (mm/min)	Ø 28.5 – 33 f (mm/min)	Ø 33.5 – 38 f (mm/min)	Ø 38.5 – 44 f (mm/min)
0.04 – 0.1	0.08 – 0.1	0.06 – 0.12	0.06 – 0.12	0.06 – 0.12	0.06 – 0.12	0.06 – 0.12
0.04 – 0.14	0.1 – 0.15	0.11 – 0.16	0.11 – 0.16	0.11 – 0.13	0.11 – 0.16	0.11 – 0.16
0.06 – 0.16	0.1 – 0.16	0.13 – 0.18	0.13 – 0.2	0.15 – 0.2	0.15 – 0.2	0.15 – 0.2
0.06 – 0.16	0.11 – 0.16	0.13 – 0.22	0.14 – 0.22	0.14 – 0.22	0.14 – 0.22	0.14 – 0.22
0.06 – 0.15	0.1 – 0.15	0.12 – 0.22	0.14 – 0.22	0.14 – 0.22	0.14 – 0.22	0.14 – 0.22
-	-	-	-	-	-	-
on request						
on request						
0.06 – 0.12	0.08 – 0.12	0.1 – 0.18	0.12 – 0.18	0.1 – 0.18	0.1 – 0.18	0.1 – 0.18
0.06 – 0.12	0.08 – 0.12	0.1 – 0.18	0.12 – 0.18	0.12 – 0.18	0.12 – 0.18	0.12 – 0.18
0.06 – 0.1	0.06 – 0.16	0.09 – 0.16	0.1 – 0.16	0.1 – 0.16	0.1 – 0.16	0.1 – 0.16
0.1 – 0.16	0.1 – 0.18	0.14 – 0.25	0.18 – 0.3	0.2 – 0.3	0.2 – 0.3	0.2 – 0.3
0.08 – 0.16	0.1 – 0.16	0.12 – 0.23	0.16 – 0.28	0.18 – 0.28	0.18 – 0.28	0.18 – 0.28
0.08 – 0.18	0.12 – 0.18	0.14 – 0.25	0.18 – 0.3	0.2 – 0.3	0.2 – 0.3	0.2 – 0.3
0.08 – 0.18	0.12 – 0.18	0.14 – 0.25	0.18 – 0.3	0.2 – 0.3	0.2 – 0.3	0.2 – 0.3
0.08 – 0.18	0.12 – 0.18	0.14 – 0.25	0.18 – 0.3	0.2 – 0.3	0.2- 0.3	0.2 – 0.3
0.08 – 0.16	0.1 – 0.16	0.12 – 0.23	0.16 – 0.28	0.18 – 0.28	0.18 – 0.28	0.18 – 0.28
0.08 – 0.15	0.09 – 0.15	0.11 – 0.22	0.15 – 0.27	0.17 – 0.27	0.17 – 0.27	0.17 – 0.27

XPNT Inserts

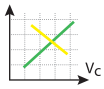


Destignation	Ø d (мм)	l (mm)	s (mm)	r (mm)	d_1 (mm)	P125MT	PMS30MT	PMS35MT
XPNT 040204EL	4.50	4.00	1.80	0.40	2.10	on request	●	●
XPNT 040204ER	4.50	4.00	1.80	0.40	2.10		●	●
XPNT 050204EN	5.80	5.00	2.10	0.40	2.25		●	●
XPNT 060204EN	6.50	6.00	2.92	0.40	2.50		●	●
XPNT 070304EN	7.60	7.00	3.87	0.40	2.80		●	●
XPNT 080304EN	8.50	8.00	3.87	0.40	3.40		●	●
XPNT 090404EN	9.60	9.00	4.66	0.40	3.40		●	●
XPNT 100404EN	10.60	10.00	4.66	0.40	4.40		●	●
XPNT 100408EN	10.60	10.00	4.66	0.80	4.40		●	●
XPNT 130504EN	13.50	12.50	5.45	0.40	5.30		●	●
XPNT 130508EN	13.50	12.50	5.45	0.80	5.30		●	●
XPNT 170608EN	17.50	16.00	6.25	0.80	5.30		●	●

	P125MT	PMS30MT	PMS35MT
P Steel	●	●	●
M Stainless steel aust.	○	●	○
K Cast iron	●	○	●
N Aluminium		○	
S Hig. temp. alloy		●	
H Hardened steel			

○ **Main application**

● **Extended application**



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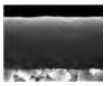

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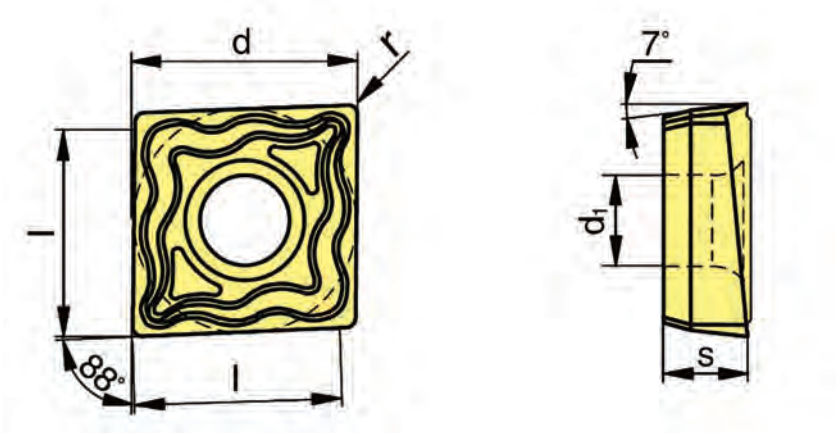
XPET Inserts for aluminium

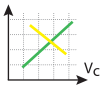


Destination	Ø d (мм)	l (mm)	s (mm)	r (mm)	d_1 (mm)	N15MT
XPET 050204FN	5.80	5.00	2.10	0.40	2.25	●
XPET 060204FN	6.50	6.00	2.92	0.40	2.50	●
XPET 070304FN	7.60	7.00	3.87	0.40	2.80	●
XPET 080304FN	8.50	8.00	3.87	0.40	3.40	●
XPET 09T304FN	9.60	9.00	4.66	0.40	3.40	●
XPET 10T304FN	10.60	10.00	4.66	0.40	4.40	●
XPET 130504FN	13.50	12.50	5.45	0.40	5.30	●
XPET 170608FN	17.50	16.00	6.25	0.80	5.30	●

	N15MT
P Steel	
M Stainless steel aust.	
K Cast iron	
N Aluminium	●
S Hig. temp. alloy	
H Hardened steel	

○ **Main application**

● **Extended application**



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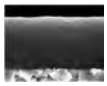
p. 287



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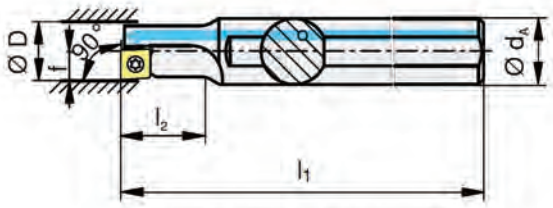
Drilling depth up to 1.5 x D
Available range for XPNT and XPET



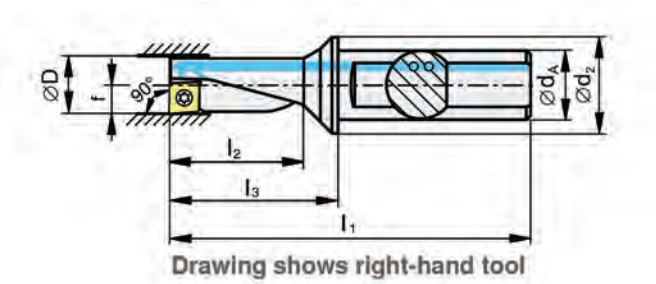
Drawing shows right-hand tool

Ø D (мм)	Type Description	dA [mm]	l_1 [mm]	l_2 [mm]	f [mm]	[XPNT/XPET]			
8.00	VTR/L D08x12.0x04*	12.00	80.00	12.00	4.00	XPNT 0402	11807484	-	11843205
10.00	VTR/L D10x15.0x05	12.00	90.00	15.00	5.00	XP...T 0502	11807480	-	11843205
12.00	VTR/L D12x18.0x06	16.00	100.00	18.00	6.00	XP...T 0602	11684214	-	11488748
14.00	VTR/L D14x21.0x07	16.00	110.00	21.00	7.00	XP...T 0703	11684216	-	11206195
16.00	VTR/L D16x24.0x08	20.00	125.00	24.00	8.00	XP...T 0803	11227305	-	11843208
18.00	VTR/L D18x27.0x09	25.00	135.00	27.00	9.00	XP...T 0904	11227305	-	11843208
20.00	VTR/L D20x30.0x10	25.00	150.00	30.00	10.00	XP...T 1004	11610311	11450858	-
25.00	VTR/L D25x37.5x13	32.00	180.00	37.50	12.50	XP...T 1305	11801441	11816974	-
32.00	VTR/L D32x48.0x17	40.00	200.00	48.00	16.00	XP...T 1706	11801441	11816974	-

*** Right-hand holder / Right-hand indexable insert**

*** Left-hand holder / Left-hand indexable insert**

Drilling depth up to 2.25 x D
Available range for XPNT and XPET



Ø D (мм)	Type Description	d_A [mm]	d_2 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	f [mm]	[XPNT/XPET]			
8.00	VTR/L D08x18.0x04	10.00	15.00	60.00	18.00	22.00	4.00	XPNT 0402	11807484	-	11843205
10.00	VTR/L D10x22.5x05	12.00	18.00	69.50	22.50	27.50	5.00	XP...T 0502	11807480	-	11843205
12.00	VTR/L D12x27.0x06	16.00	22.00	78.00	27.00	33.00	6.00	XP...T 0602	11684214	-	11488748
14.00	VTR/L D14x31.5x06	16.00	23.00	83.50	31.50	38.50	7.00	XP...T 0703	11684216	-	11206195
16.00	VTR/L D16x36.0x08	20.00	28.00	94.00	36.00	44.00	8.00	XP...T 0803	11227305	-	11843208
18.00	VTR/L D18x40.5x09	25.00	36.00	109.50	40.50	53.50	9.00	XP...T 0904	11227305	-	11843208
20.00	VTR/L D20x45.0x10	25.00	35.00	111.00	45.00	55.00	10.00	XP...T 1004	11610311	11450858	-
25.00	VTR/L D25x56.5x13	32.00	44.00	129.00	56,50	69.00	12.50	XP...T 1304	11801441	11816974	-
32.00	VTR/L D32x72.0x17	40.00	54.00	158.00	72.00	88.00	16.00	XP...T 1706	11801441	11816974	-

*** Right-hand holder / Right-hand indexable insert**

*** Left-hand holder / Left-hand indexable insert**

Grade overview

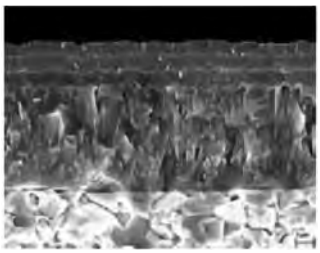
Grade description		Standard designation ISO	ANSI	*Type of cutting material	Application 01	05	10	15	20	25	30	35	40	45	50	P Steel	M Stainless steel	K Cast iron	N Aluminium	S Superalloy	H Hard materials
P125MT		HC-P25	C6	C												●					
		HC-K30	C1	C														●			
		HC-M20	-	C													○				
PMS30MT		HC-P30	C6	P												●					
		HC-M25	-	P													●				
		HC-S25	-	P													○			●	
		HC-K30	C1	P														○			
		HC-N25	C2	P															○		
PMSS35MT		HC-P35	C5	P												●					
		HC-M30	-	P													●				
		HC-S30	-	P																●	
N15MT		HW-K15	C2	K															●		

● **Main application**

○ **Extended application**

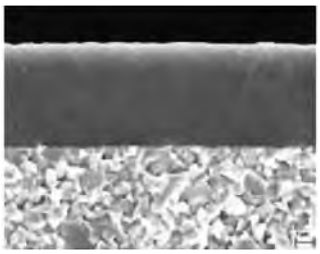
Alloy description

P125MT HC-P25 | HC-K30 | HC-M20



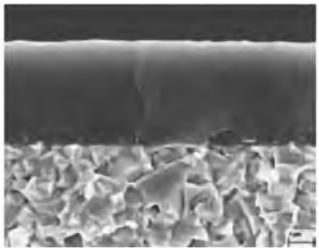
Composition: Co 7.0%; mixed carbides 8.1%; WC balance
Grain size: 1-2 µm
Hardness: HV30 1450
Coating specification: CVD Ti(CN) + Al2O3 multi-layer
Recommended application: The wear-resistant solution for steel and cast iron under stable conditions and with high cutting speed

PMS30MT HC-P30 | HC-M25 | HC-S25 | HC-K30 | HC-N25



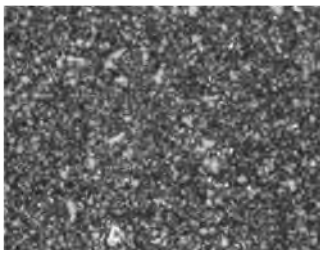
Composition: Co 9.0%; others 0.75%; WC balance
Grain size: 0.85 µm
Hardness: HV30 1590
Coating specification: PVD TiAlN
Recommended application: The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

PMS35MT HC-P35 | HC-M30 | HC-S30



Composition: Co 10.3%; others 1.2%; WC balance
Grain size: 0.7 µm
Hardness: HV30 1600
Coating specification: PVD TiN / TiAlN
Recommended application: The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

N15MT HW-K15



Composition: Co 6.0% | WC balance; other: 0.20%
Grain size: 0.8-1.3 µm
Hardness: HV30 1650
Coating specification: without
Recommended application: The uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

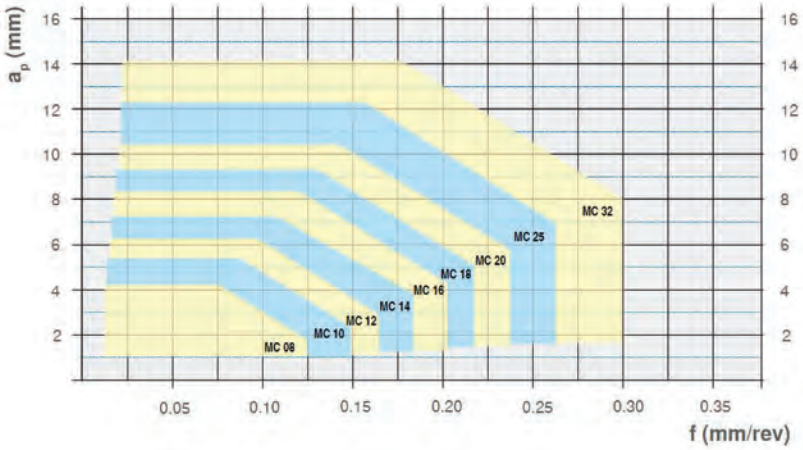
Grades / materials

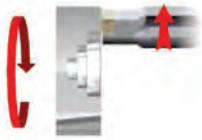
Cutting data

110 – 30				Coated carbide		
	Work piece material	Type of treatment / alloy	P125MT Vc [m/min]	PMS30MT Vc [m/min]	PMS35MT Vc [m/min]	N15MT Vc [m/min]
P	Steel	Non-alloyed steel	**270 – 90**	230 – 50	250 – 70	-
		Low-alloyed steel	**270 – 70**	160 – 50	180 – 60	-
		High-alloyed steel	**170 – 60**	150 – 50	160 – 50	-
		Corrosion-resistant steel	**200 – 90**	180 – 50	180 – 70	-
M	Stainless steel	Stainless steel	**200 – 90**	160 – 50	180 – 90	-
			-	-	-	-
			-	-	-	-
			-	-	-	-
K	Cast iron	Grey cast iron	**250 – 120**	180 – 90	230 – 90	-
		Spheroidal cast iron	**250 – 110**	180 – 90	230 – 110	-
		Malleable cast iron	**250 – 100**	140 – 60	230 – 90	-
			-	-	-	-
N	Non-ferrous metals	Aluminium wrought alloys	-	1800 – 70	1800 – 70	100 – 2250
		Aluminium cast alloys	-	1350 – 70	1350 – 70	100 – 1250
		Copper and copper alloys (bronze, brass)	-	360 – 70	360 – 70	100 – 600
		Non-metallic materials	-	180 – 50	180 – 50	60 – 220
S	Heat resistant alloys	Heat-resistant alloys	-	80 – 20	50 – 10	-
		Titanium alloys	-	90 – 30	110 – 30	-
			-	-	-	-
			-	-	-	-

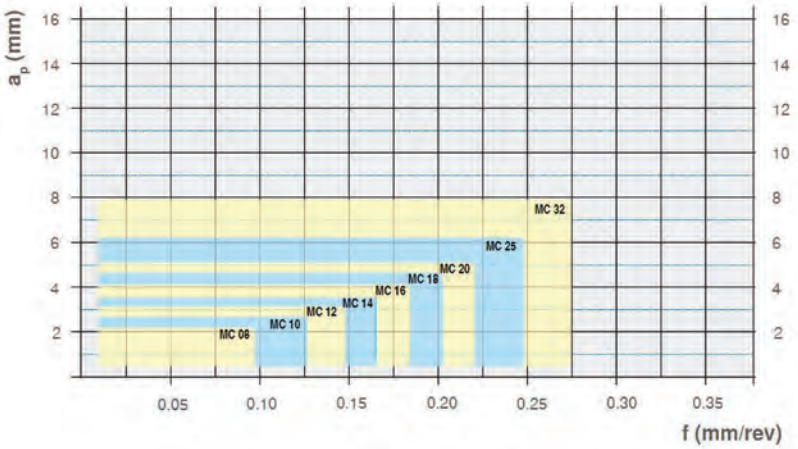
Depth of cut / feed rate – 1.5 x D

Turning of Internal profiles

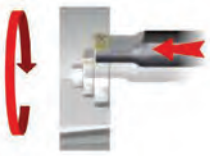




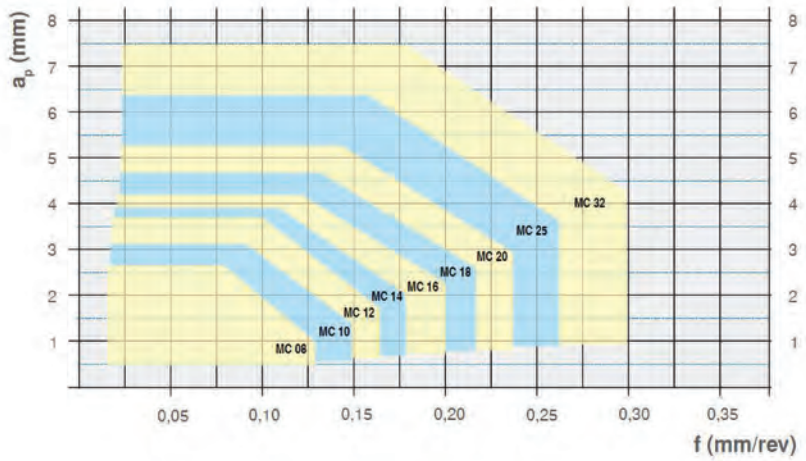
Facing operations



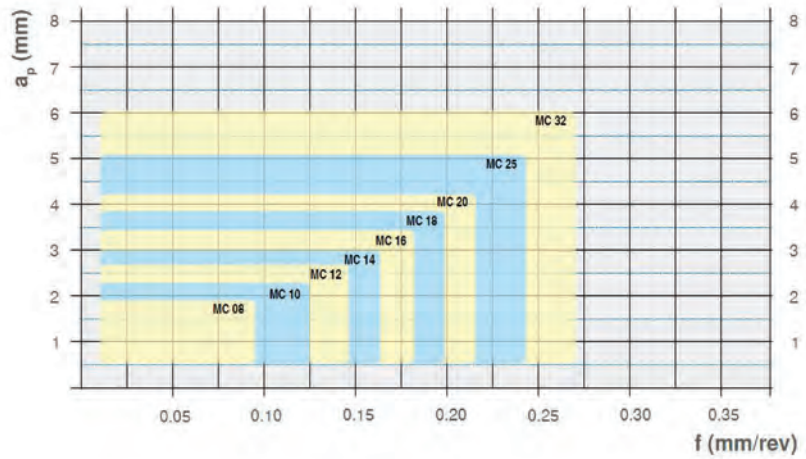
Depth of cut / feed rate – 2.25 x D



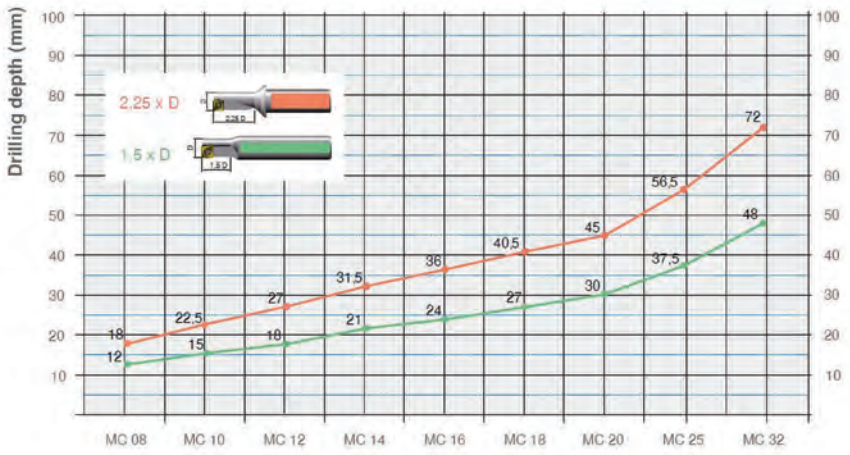
Turning of Internal profiles



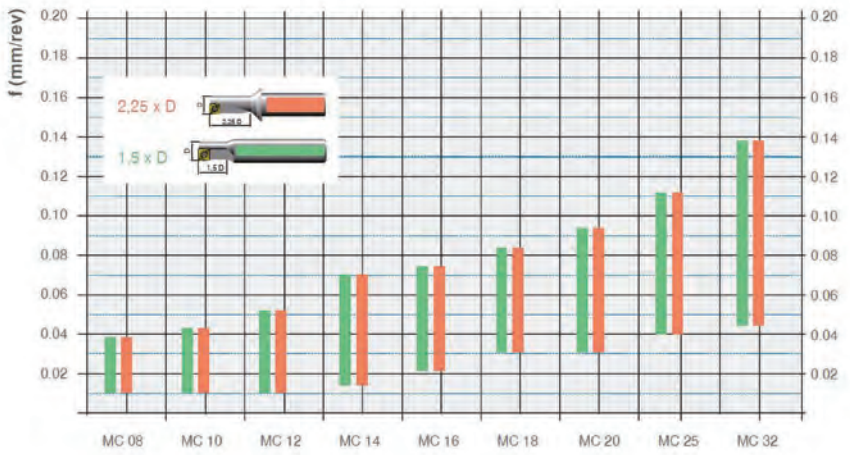
Facing operations



Drilling depth / feed rate - 2.25 x D



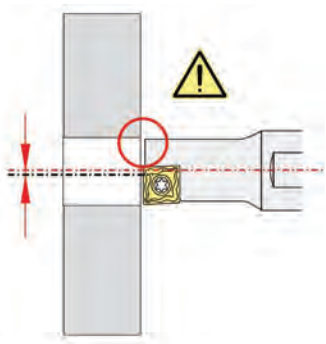
Drilling depth



Drilling feed rate

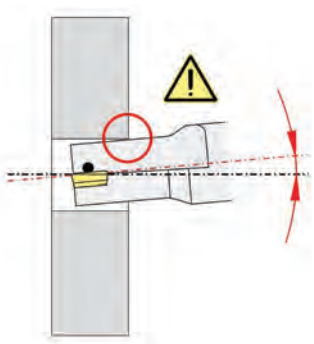
Application reference

Axial displacement of the machine



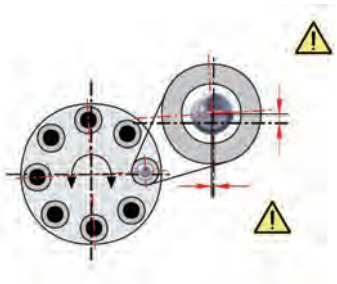
Displacement in x - direction

Correct tool positioning



Angular error

Turret and/or spindle adjustment



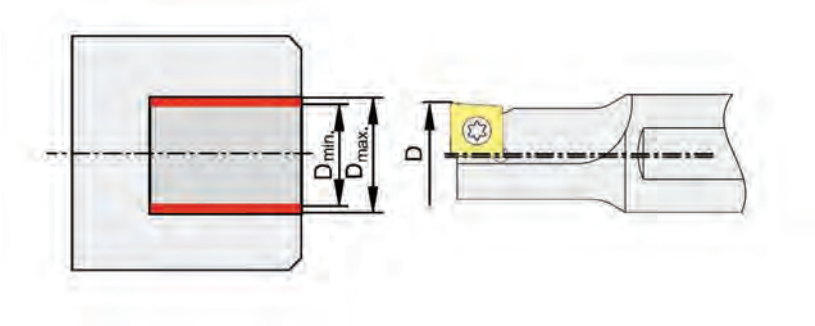
Turret position error

Adjust turret plate (Y-axis)

Mounting of the insert
For tools Ø 8 mm right-hand or left-hand inserts are required. From Ø 10-32 mm neutral inserts are applied.

Through hole
With through holes a sharp-edged disk is created as tool break-out occurs. Safety measures are necessary.

Off-centre drilling



Thanks to the special design of the holder
and the indexable inserts off-centre drilling is possible.

Type of tool Solid carbide	Nominal tool D [mm]	Workpiece bore diameter Dmin [mm]	Workpiece bore diameter Dmax [mm]
VTR/L 08 … 04	8.00	7.85	8.30
VTR/L 10 … 05	10.00	9.85	10.50
VTR/L 12 … 06	12.00	11.85	12.50
VTR/L 14 … 07	14.00	13.85	14.50
VTR/L 16 … 08	16.00	15.85	16.50
VTR/L 18 … 09	18.00	17.85	18.50
VTR/L 20 … 10	20.00	19.80	20.50
VTR/L 25 … 13	25.00	24.80	25.80
VTR/L 32 … 17	32.00	31.80	33.00

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