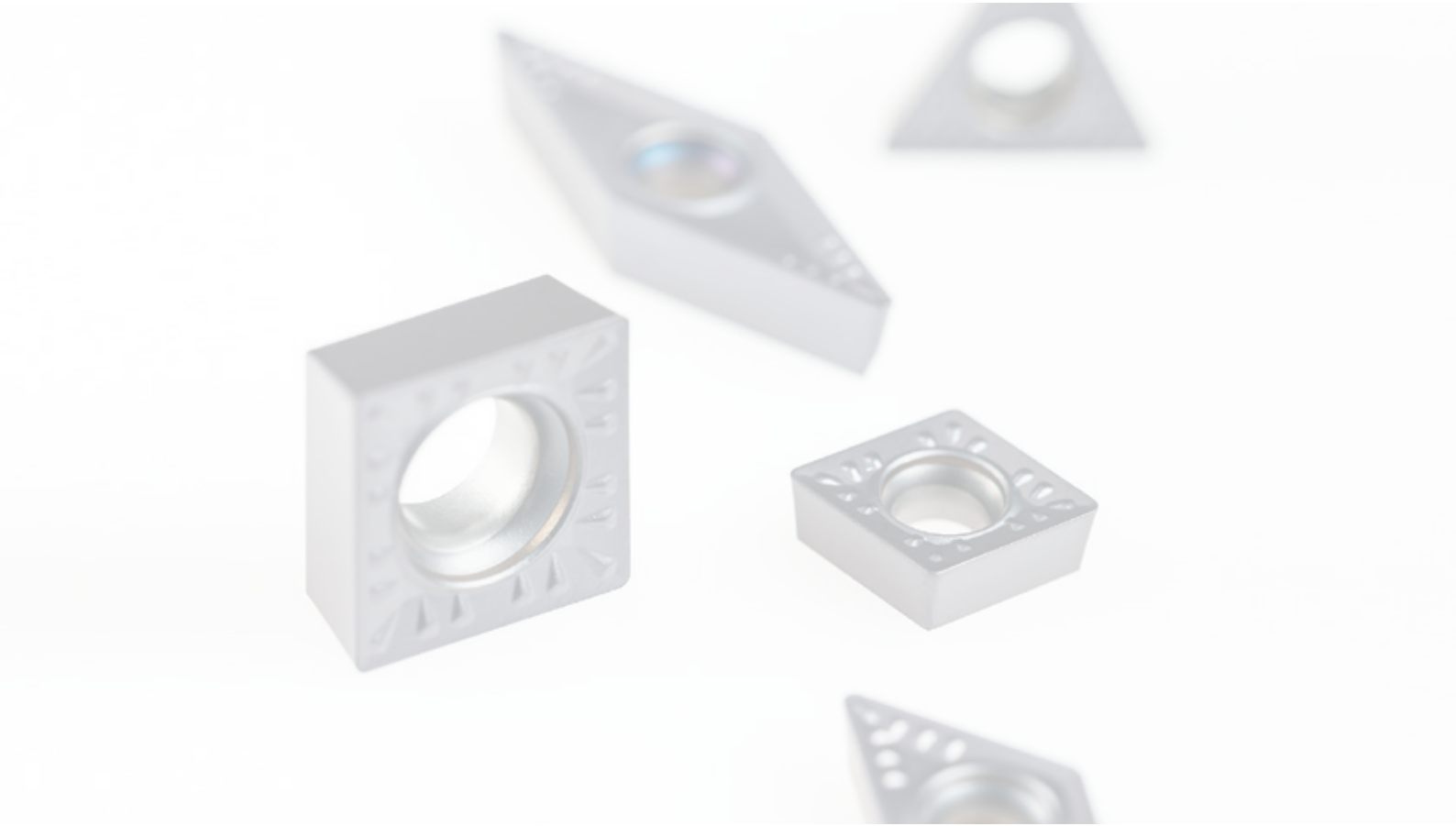
BLAUING

Main Catalouge

Cutting Tools

Turning



Designation of the intended uses

Main application

Extended application

Not allowed

EXAMPLES:

P Steel

finish for steel

M Stainless Steel

Medium cutting for stainless steel.
finish as extended application

K Cast Iron

Medium cutting for Cast Iron.
roughing as extended application

Continues cut as main application

Continues cut as extended application

Continues cut not allowed

Light interrupted cut as main application

Light interrupted cut as extended application

Light interrupted cut not allowed

Interrupted cut as main application

Interrupted cut as extended application

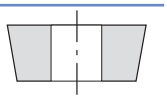
Interrupted cut not allowed

EXAMPLES:

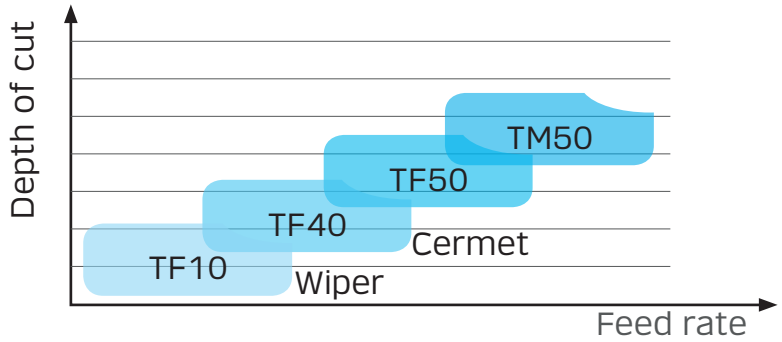
Continues cut as main application,
Light interrupted cut as extended application,
Interrupted cut not allowed

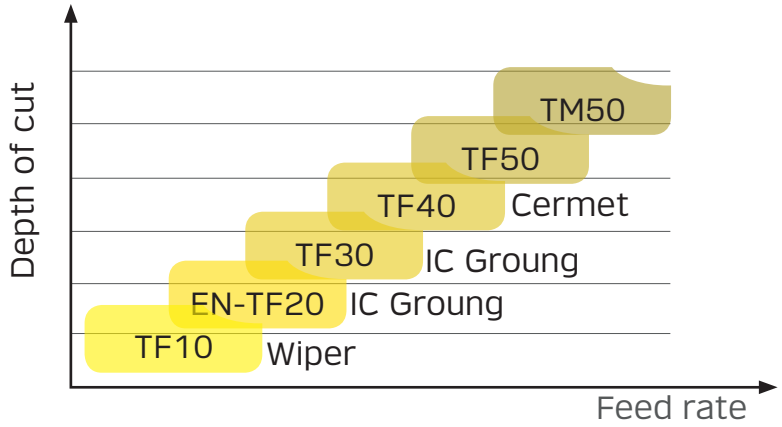
Continues cut not allowed,
Light interrupted cut not allowed
Interrupted cut as main application

POSITIVE SIZE TURNING - PST

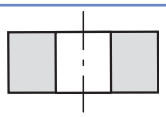


	*Steel extreme finishing*	*WIPER*	TF10	*page 11*
	*Steel finishing*	*CERMET*	TF40	*page 12*
	*Steel finishing*		TF50	*page 13*
	*Steel semi finishing*		TM50	*page 15*
	*Stainless steel extreme finishing*	*WIPER*	TF10	*page 11*
	*Stainless steel extreme finishing*	*IC GROUND*	TF20	*page 17*
	*Stainless steel finishing*	*IC GROUND*	TF30	*page 18*
	*Stainless steel finishing*	*CERMET*	TF40	*page 12*
	*Stainless steel finishing*		TF50	*page 13*
	*Stainless steel medium*		TM50	*page 15*
	*Cast iron*		TM50	*page 15*
	*Non-ferrous semi finishing medium*	*IC GROUND*	TF30	*page 18*

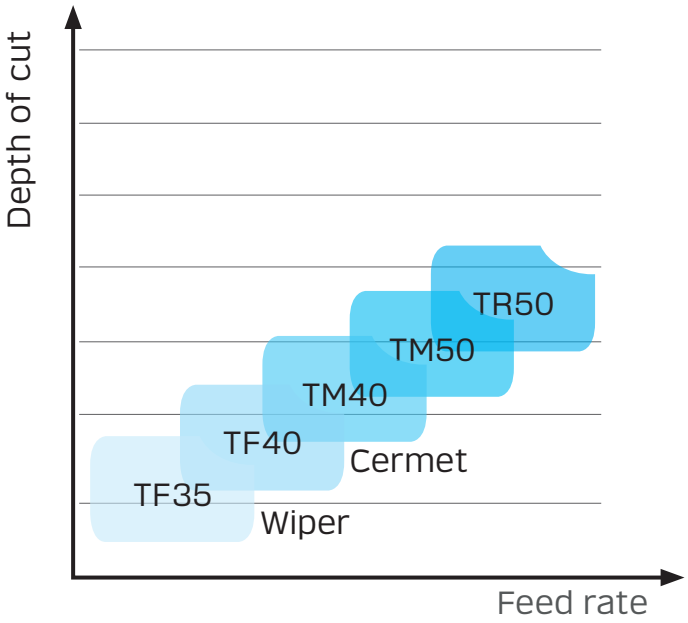


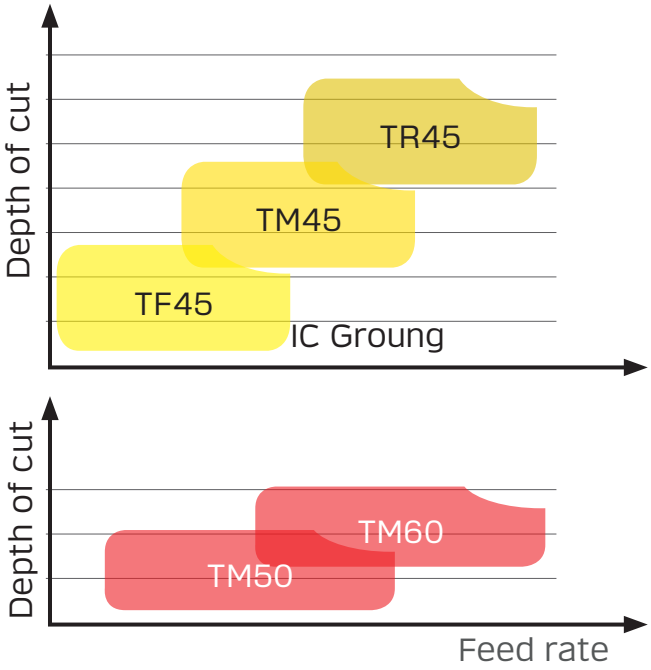


NEGATIVE SIZE TURNING - NST



	*Steel extreme finishing*	*WIPER* TF35	*page 21*
	*Steel semi finishing*	*CERMET* TF40	*page 22*
	*Steel semi finishing*	TM40	*page 23*
	*Steel semi finishing*	TM50	*page 25*
	*Steel roughing*	TR50	*page 27*
	*Stainless steel finishing*	*IC GROUND* TF45	*page 28*
	*Stainless steel medium*	TM45	*page 29*
	*Stainless steel roughing*	TR45	*page 30*
	*Cast iron medium*	TM50	*page 25*
	*Cast iron light roughing*	TM60	*page 31*
	*Exotics semi finishing*	TFX	*page 32*



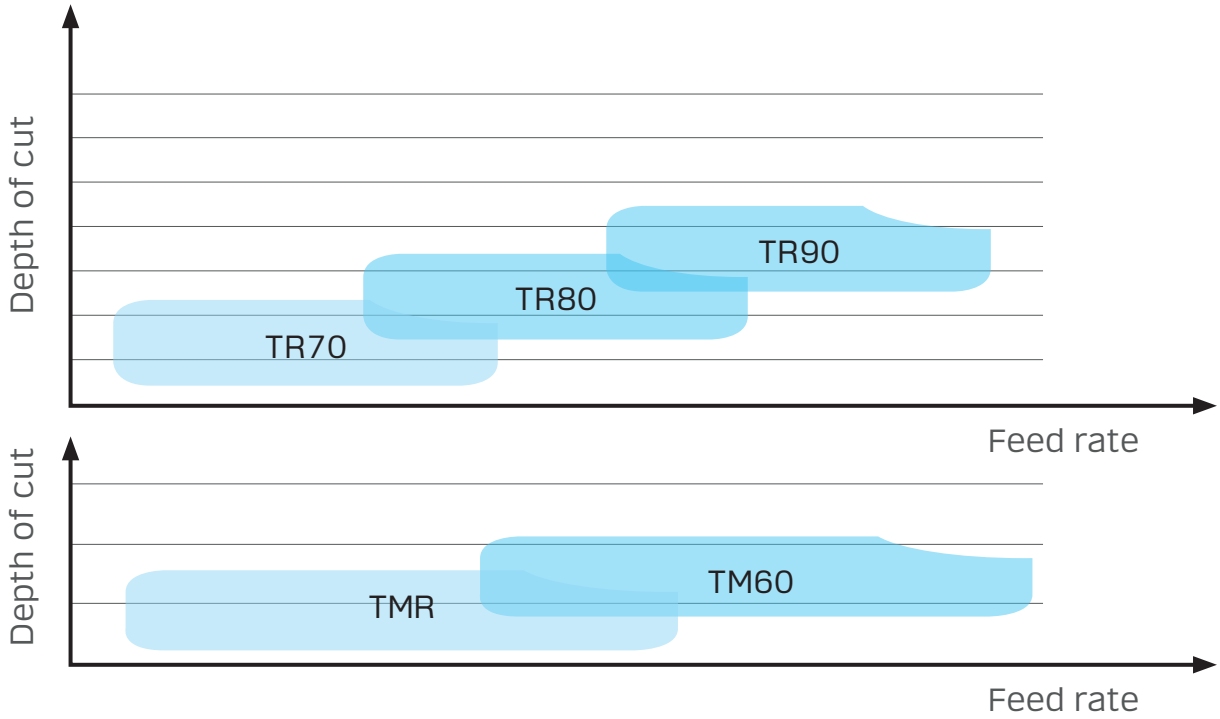


HEAVY DUTY TURNING - HDT

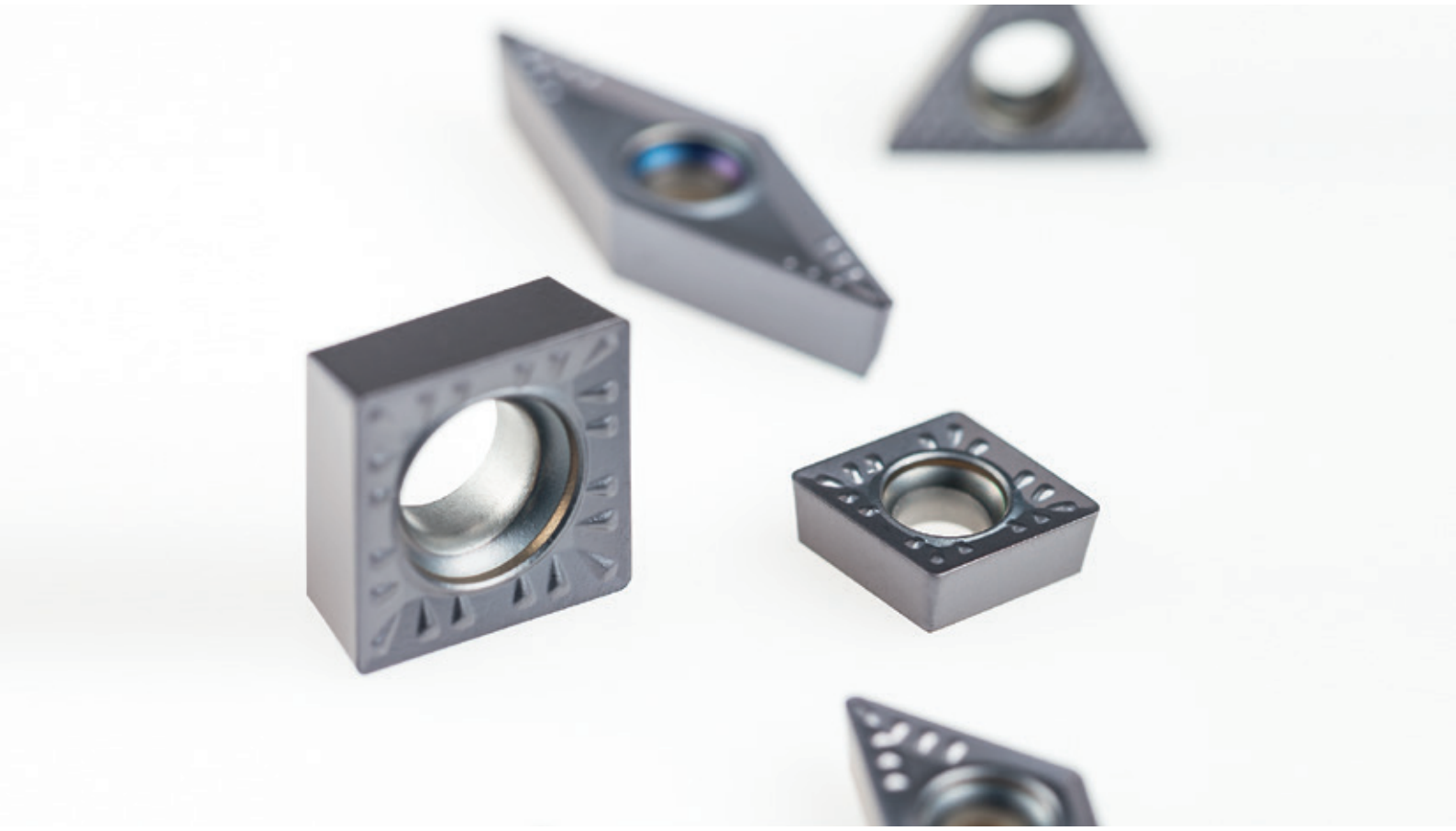
	*Steel tube chamfering*	TMC	*page 34*
	*Steel roughing*	TR70	*page 35*
	*Steel roughing*	TR80	*page 36*
	*Steel heavy roughing*	TR90	*page 37*
	*Steel medium*	TMR (RCMT only)	*page 36*
	*Steel roughing*	TM60	*page 36*
	*Cast iron roughing*	TM60	*page 36*

Miscellaneous

	*Steel medium*	TMX	*page 40*



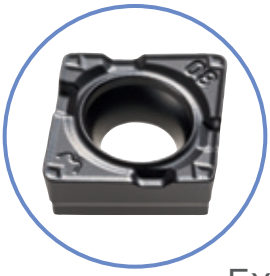
Positive Size Turning
PST

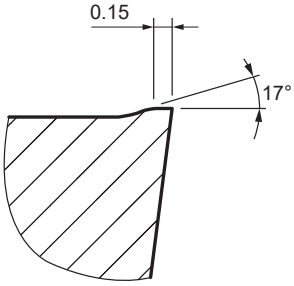


Chipbreaker -TF10

Optimised by FEM:

- *Positive WIPER geometry*
- *High surface quality*





Example: CCMX 09T308-TF10

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TF10	1 to 3.5	0.3 to 0.15

Ex: CCMX 09T308-TF10 for CK60 / 304

P Steel

Steel extreme finishing – WIPER

M Stainless Steel

Heavy turning steel pos "P35" – WIPER

Cutting data

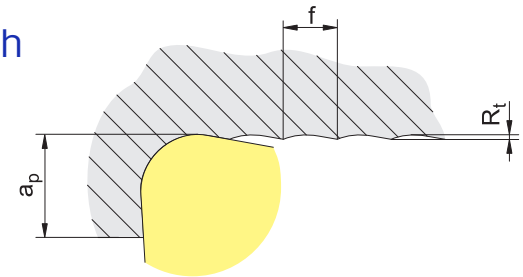
General cutting parameters depending on the application

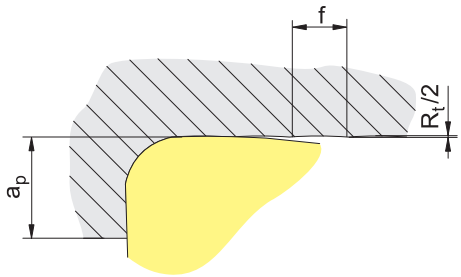
Work piece material		Type of treatment / alloy	Hardness HB	TPK25D v_c [m/min]	TM35E v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	170 – 240	170 – 190
		Low-alloyed steel	250 – 300	100 – 190	90 – 150
		High-alloyed steel	200	130 – 210	120 – 200
		Corrosion-resistant steel	200	130 – 210	140 – 180
M	Stainless steel	Ferritic	200	140 – 210	140 – 200
		Austenitic	180	100 – 210	110 – 190
		Duplex	230 – 260	–	80 – 150
		Martensitic	330	70 – 100	55 – 75
K	Cast iron	Grey cast iron	180	130 – 210	–
		Spheroidal cast iron	160	120 – 240	–
		Malleable/tempered iron	130	150 – 250	–

Insert	Designation	Chipbreaker	TPK25D	TM35E
	CCMX 09T304-TF10	...-TF10	•	•
	CCMX 09T308-TF10		•	•
	DCMX 070204-TF10		•	
	DCMX 11T304-TF10		•	•
	DCMX 11T308-TF10		•	•

Improved surface finish

With the same feed rate an insert with WIPER cutting edge reaches a roughness value R_a which is many times higher than the one of a conventional insert.

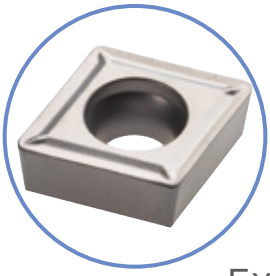


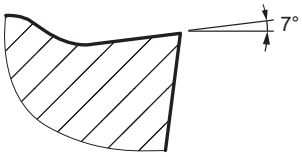


Chipbreaker -TF40

Optimised by FEM:

- *Increase life time*
- *Reduce temperature and stress*





Example: DCMT 11T304-TF40

Application Chip groove	Depth of cut / feed rate a_p [mm]	 f [mm]
TF40	0.10 to 1.65	0.20 to 0.05

Ex: CCMT 09T304-TF40
Different in each application

P Steel

R
M
F

Turning steel pos finishing CERMET

Cutting data

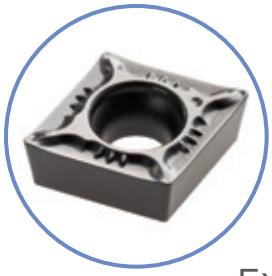
General cutting parameters depending on the application

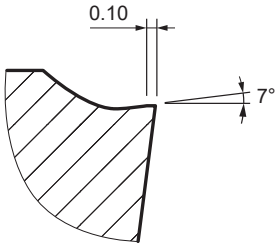
Work piece material		Type of treatment / alloy	Hardness HB	Cermet TPM15A v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	230 – 270
		Low-alloyed steel	250 – 300	180 – 230
		High-alloyed steel	200	160 – 200
		Corrosion-resistant steel	200	230 – 270
M	Stainless steel	Ferritic	200	170 – 240
		Austenitic	180	200 – 240
		Duplex	230 – 260	–
		Martensitic	330	130 – 160
K	Cast iron	Grey cast iron	180	–
		Spheroidal cast iron	160	220 – 300
		Malleable/tempered iron	130	250 – 350

Insert	Designation	Chipbreaker	TPM15A
	CCMT 060204-TF40	... -TF40	•
	CCMT 09T304-TF40		•
	DCMT 070204-TF40		•
	DCMT 11T304-TF40		•
	TCGT 110202-TF40		•
	TCMT 110204-TF40		•
	WCGT 020102-TF40		•

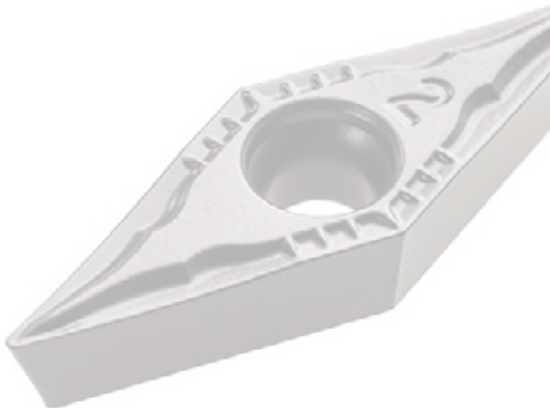
Chipbreaker -TF50

- *To optimise chip control*





Example: CCMT 09T308-TF50



Cutting data

General cutting parameters depending on the application

Materiał		Rodzaj obróbki / stop	Hardness HB	Coated carbide TPK15D V_c [m/min]	TP25D V_c [m/min]	TPK25D V_c [m/min]	TP35D V_c [m/min]	TM20D V_c [m/min]	TM25E V_c [m/min]	TM35E V_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	200 – 270	170 – 240	170 – 190	150 – 300	130 – 250	170 – 190
		Low-alloyed steel	250 – 300	200 – 320	115 – 210	100 – 190	90 – 150	70 – 210	60 – 180	90 – 150
		High-alloyed steel	200	180 – 320	150 – 240	130 – 210	120 – 200	100 – 240	80 – 200	120 – 200
		Corrosion-resistant steel	200	200 – 320	150 – 240	130 – 210	140 – 180	120 – 240	100 – 200	140 – 180
M	Stainless steel	Ferritic	200	220 – 320	160 – 240	140 – 210	140 – 200	140 – 300	120 – 250	140 – 200
		Austenitic	180	–	115 – 240	100 – 210	110 – 190	120 – 250	100 – 220	110 – 190
		Duplex	230 – 260	–	–	–	80 – 150	70 – 200	60 – 160	80 – 150
		Martensitic	330	–	80 – 115	70 – 100	55 – 75	50 – 120	40 – 100	55 – 75
K	Cast iron	Grey cast iron	180	140 – 370	150 – 240	130 – 210	–			
		Spheroidal cast iron	160	190 – 430	140 – 270	120 – 240	–			
		Malleable/tempered iron	130	180 – 520	170 – 290	150 – 250	–			

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TF50	0.50 to 2.25	0.14 to 0.07

Np: CCMT 09T304-TF50 dla CK60
Different in each application

P Steel

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TF50	0.50 to 2.25	0.14 to 0.07

Np: CCMT 09T304-TF50 dla 304
Different in each application

M Stainless Steel

Turning steel pos finishing "M25"

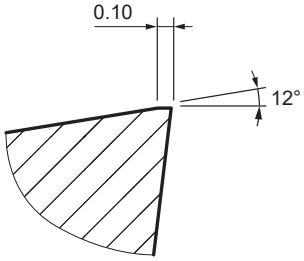
Available range

Insert	Designation	Chipbreaker	TPK15D	TP25D	TPK25D	TP35D	TM20D	TM25E	TM35E
	CCMT 060202-TF50	...-TF50		•	•		•	•	
	CCMT 060204-TF50		•	•	•		•	•	
	CCMT 09T302-TF50			•	•		•	•	
	CCMT 09T304-TF50		•	•	•		•	•	
	CCMT 09T308-TF50		•	•	•	•		•	
	CCMT 120404-TF50		•						
	DCMT 070202-TF50		•	•	•		•	•	
	DCMT 070204-TF50		•	•	•		•	•	
	DCMT 11T302-TF50		•	•	•		•	•	
	DCMT 11T304-TF50		•	•	•		•	•	
	DCMT 11T308-TF50				•			•	
	TCMT 110202-TF50							•	
	VCMT 110302-TF50		•		•		•	•	
	VCMT 110304-TF50				•		•	•	
	VCMT 160404-TF50				•		•	•	
	VCMT 160408-TF50				•		•		

Chipbreaker -TM50

Optimised by FEM:

- *Increase life time*
- *Reduce temperature and stress*
- *Universal application*



Example: CCMT 09T308-TM50

Cutting data

General cutting parameters depending on the application

material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	TP25D v_c [m/min]	TPK25D v_c [m/min]	TP35D v_c [m/min]	TM20D v_c [m/min]	TM25E v_c [m/min]	TM35E v_c [m/min]	TK20D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	200 – 270	170 – 240	170 – 190	150 – 300	130 – 250	170 – 190	200 – 340
		Low-alloyed steel	250 – 300	200 – 320	115 – 210	100 – 190	90 – 150	70 – 210	60 – 180	90 – 150	150 – 290
		High-alloyed steel	200	180 – 320	150 – 240	130 – 210	120 – 200	100 – 240	80 – 200	120 – 200	150 – 290
		Corrosion-resistant steel	200	200 – 320	150 – 240	130 – 210	140 – 180	120 – 240	100 – 200	140 – 180	160 – 290
M	Stainless steel	Ferritic	200	220 – 320	160 – 240	140 – 210	140 – 200	140 – 300	120 – 250	140 – 200	
		Austenitic	180	–	115 – 240	100 – 210	110 – 190	120 – 250	100 – 220	110 – 190	
		Duplex	230 – 260	–	–	–	80 – 150	70 – 200	60 – 160	80 – 150	
		Martensitic	330	–	80 – 115	70 – 100	55 – 75	50 – 120	40 – 100	55 – 75	
K	Cast iron	Grey cast iron	180	140 – 370	150 – 240	130 – 210	–				150 – 400
		Spheroidal cast iron	160	190 – 430	140 – 270	120 – 240	–				200 – 450
		Malleable/tempered iron	130	180 – 520	170 – 290	150 – 250	–				200 – 550

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM50	0.50 to 3.00	0.21 to 0.12

Ex: CCMT 09T304-TM50 for CK60
Different in each application

P Steel

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM50	0.50 to 3.00	0.21 to 0.12

Ex: CCMT 09T304-TM50 for 304
Different in each application

M Stainless Steel

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM50	1.00 to 3.00	0.41 to 0.22

Ex: CCMT 09T308-TM50 for GG25
Different in each application

K Cast Iron

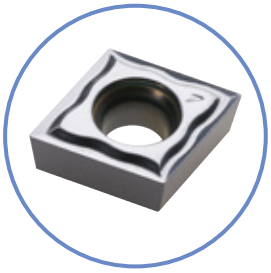
Turning stainless steel pos "M25"

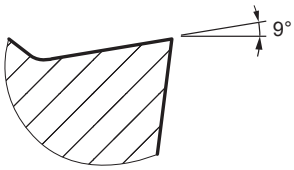
Available range

Insert	Designation	Chipbreaker	TPK15D	TP25D	TPK25D	TP35D	TM20D	TM25E	TM25EM	TK20D
	CCMT 060204-TM50	...-TM50	•	•	•	•	•	•		•
	CCMT 060208-TM50		•		•	•	•	•		
	CCMT 09T304-TM50		•	•	•	•	•	•	•	•
	CCMT 09T308-TM50		•	•	•	•	•	•	•	•
	CCMT 120404-TM50			•	•		•	•		
	CCMT 120408-TM50				•		•	•		•
	CCMT 120412-TM50			•	•			•		•
	DCMT 070204-TM50			•	•	•	•	•		•
	DCMT 070208-TM50				•	•	•	•		
	DCMT 11T304-TM50		•	•	•	•	•	•	•	•
	DCMT 11T308-TM50		•	•	•	•	•	•	•	•
	SCMT 09T304-TM50				•		•	•		•
	SCMT 09T308-TM50				•	•	•	•		•
	SCMT 120404-TM50		•		•		•	•		
	SCMT 120408-TM50				•	•	•	•		•
	SCMT 120412-TM50				•	•		•		
	RCMT 0803MO-TM50					•				
	RCMT 1003MO-TM50					•				
	RCMT 1204MO-TM50					•				
	TCMT 090204-TM50				•		•	•		•
	TCMT 110204-TM50		•		•	•		•	•	•
	TCMT 110208-TM50				•	•		•	•	•
	TCMT 16T304-TM50				•	•	•	•		•
	TCMT 16T308-TM50				•	•	•	•		•
	TCMT 16T312-TM50				•			•		
	VCMT 110304-TM50				•	•	•	•	•	
	VCMT 110308-TM50				•	•	•	•	•	
	VCMT 160404-TM50				•	•	•	•		
	VCMT 160408-TM50				•	•	•	•		
	WCMT 040204-TM50				•			•		
	WCMT 040208-TM50				•			•		
	WCMT 06T304-TM50				•			•		
	WCMT 06T308-TM50				•			•		
	WCMT 080404-TM50				•			•		
	WCMT 080408-TM50				•			•		
	WCMT 080412-TM50				•			•		

Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP35D	TM25E	TM25EM	TK20D
	VBMT 160404-TM60	...-TM60	•	•				
	VBMT 160408-TM60			•				

Chipbreaker -TF20





Application	Depth of cut / feed rate	
Chip groove	a_p [mm]	f [mm]
TF20	0.05 to 1.35	0.02 to 0.10

Ex: CCGT 09T0301EN-TF20 for 304
Different in each application

✓ × ×

Example: CCGT 09T301EN-TF20

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TM20E V_c [m/min]
M	Stainless steel	Ferritic	200	150 – 200
		Austenitic	180	120 – 200
		Duplex	230 – 260	90 – 160
		Martensitic	330	60 – 80
K	Cast iron	Grey cast iron	180	120 – 160
		Spheroidal cast iron	160	120 – 160
		Malleable/tempered iron	130	140 – 220
N	Non Ferrous		100	100 – 400
			130	100 – 400
			90	100 – 600
			100	100 – 400
S	Exotic materials	Fe base	200	20 – 50
		Nickel or cobalt base	280	20 – 50
		Nickel or cobalt base	250	15 – 40
		Nickel or cobalt base		20 – 35
		Titanium	Rm 440*	80 – 140

M Stainless Steel

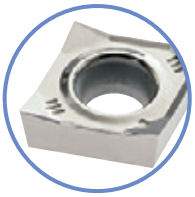
Turning stainless steel pos "Extreme finishing"

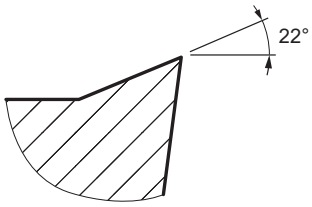
Insert	Designation	Chipbreaker	TM20E
	CCGT 060200EN-TF20	...-TF20	•
	CCGT 060201EN-TF20		•
	CCGT 09T300EN-TF20		•
	CCGT 09T301EN-TF20		•
	DCGT 070200EN-TF20		•
	DCGT 070201EN-TF20		•
	DCGT 11T300EN-TF20		•
	DCGT 11T301EN-TF20		•
	VCGT 110300EN-TF20		•
	VCGT 110301EN-TF20		•
	VCGT 160400EN-TF20		•
	VCGT 160401EN-TF20		•

Chipbreaker -TF30

Optimised by FEM:

- *Increased tool life*
- *Small feed rate when bar turning*





Example: CCGT 120408FN-TF30

General cutting parameters depending on the application

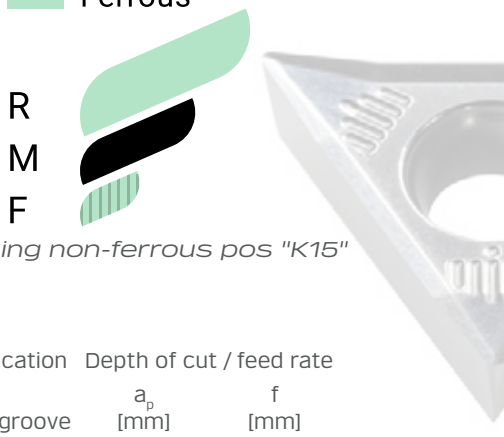
Work piece material		Type of treatment / alloy	Hardness HB	Uncoated carbide UN15C v_c [m/min]	Coated carbide TMS15E v_c [m/min]
K	Cast iron	Grey cast iron	180	120 – 160	-
		Spheroidal cast iron	160	130 – 170	-
		Malleable/tempered iron	130	140 – 200	-
N	Non Ferrous	Aluminium wrought alloys	100	100 – 2000	100 – 2000
		Aluminium cast alloys	130	100 – 800	100 – 800
		Copper and copper alloys	90	100 – 600	100 – 600
		Non-metall materials	100	100 – 300	100 – 300
S	Exotic materials	Fe base	200	30 – 45	30 – 45
		Nickel or cobalt base	280	20 – 35	20 – 35
		Nickel or cobalt base	250	20 – 35	20 – 35
		Nickel or cobalt base	–	18 – 30	18 – 30
		Titanium	Rm 440*	60 – 120	60 – 120

Insert	Designation	Chipbreaker	TMS15E	UN15C
	CCGT 060201FN-TF30		•	•
	CCGT 060202FN-TF30		•	•
	CCGT 060204FN-TF30		•	•
	CCGT 09T302FN-TF30		•	•
	CCGT 09T304FN-TF30		•	•
	CCGT 09T308FN-TF30		•	•
	CCGT 120404FN-TF30		•	•
	CCGT 120408FN-TF30		•	•
	DCGT 070201FN-TF30		•	•
	DCGT 070202FN-TF30		•	•
	DCGT 070204FN-TF30		•	•
	DCGT 070208FN-TF30			•
	DCGT 11T302FN-TF30		•	•
	DCGT 11T304FN-TF30		•	•
	DCGT 11T308FN-TF30	...-TF30	•	•
	SCGT 09T304FN-TF30		•	•
	SCGT 09T308FN-TF30		•	•
	SCGT 120408FN-TF30		•	
	TCGT 110204FN-TF30		•	•
	TCGT 16T304FN-TF30			•
	TCGT 16T308FN-TF30			•
	VCGT 110302FN-TF30		•	•
	VCGT 110304FN-TF30		•	•
	VCGT 130302FN-TF30		•	•
	VCGT 130304FN-TF30		•	•
	VCGT 160404FN-TF30		•	•
	VCGT 160408FN-TF30		•	•
	VCGT 160412FN-TF30		•	•
	VCGT 220530FN-TF30			•

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TF30	1,5 to 6,5	0,50 to 0,20

Ex: CCGT 120408FN-TF30 for AlMg 1
Different in each application

N Non Ferrous

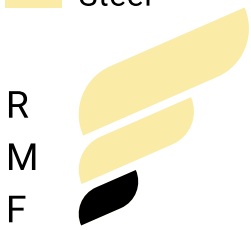


Turning non-ferrous pos "K15"

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TF30	0.05 to 1.35	0.02 to 0.10

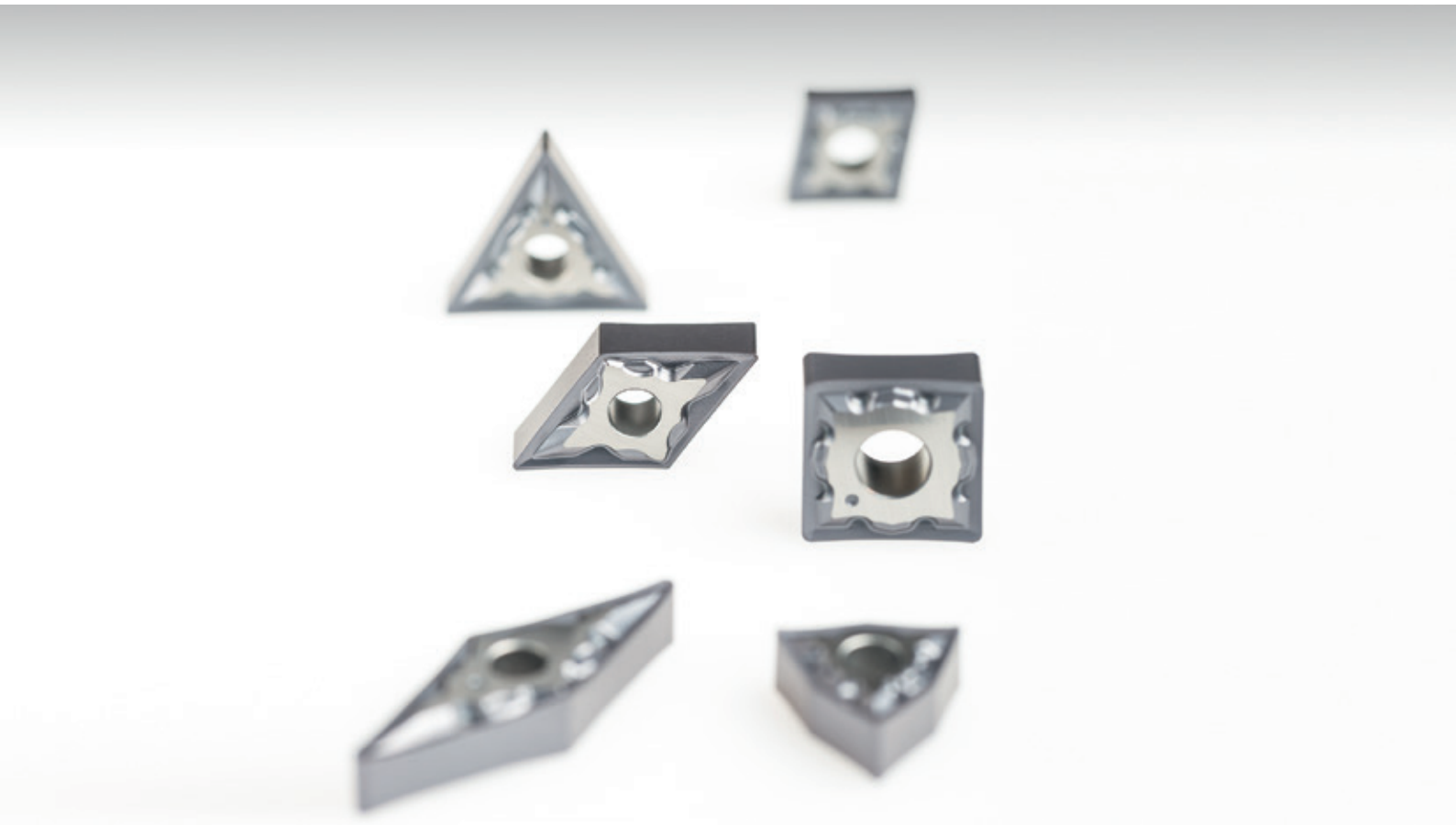
Ex: CCGT 120408FN-TF30 for 304
Different in each application

M Stainless Steel



Turning stainless steel pos finishing "M15"

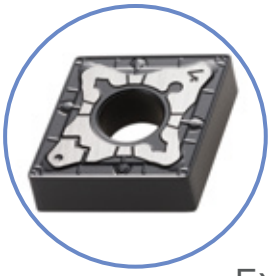
Negative Size Turning
NST

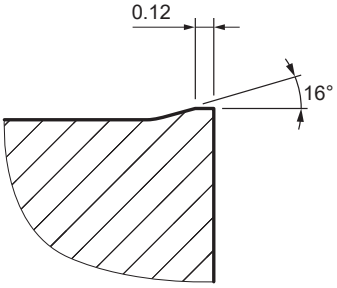


Chipbreaker -TF35

Optimised by FEM:

- WIPER *geometry*
- *High surface quality*





Example: CNMX 120408-TF35

Application Chip groove	Depth of cut / feed rate a_p [mm]	 f [mm]
TF35	0.50 to 3.00	0.35 to 0.15

Ex: CNMX 120408-TF35
Different in each application

P Steel

R
M
F

Heavy turning steel neg "P15" – WIPER

Cutting data

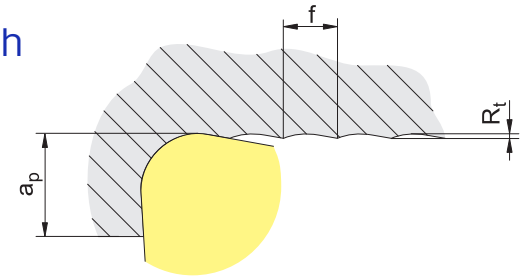
General cutting parameters depending on the application

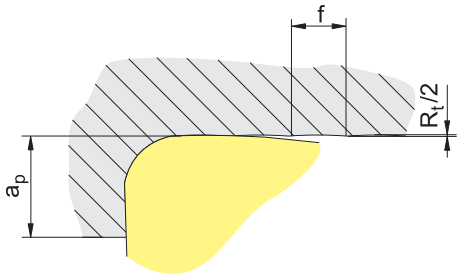
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	TPK25D v_c [m/min]	TP35D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	170 – 240	170 – 190
		Low-alloyed steel	250 – 300	200 – 320	100 – 190	90 – 150
		High-alloyed steel	200	180 – 320	130 – 210	120 – 200
		Corrosion-resistant steel	200	200 – 320	130 – 210	140 – 180
M	Stainless steel	Ferritic	200	220 – 320	140 – 210	140 – 200
		Austenitic	180	–	100 – 210	110 – 190
		Duplex	230 – 260	–	–	80 – 150
		Martensitic	330	–	70 – 100	55 – 75
K	Cast iron	Grey cast iron	180	140 – 370	130 – 210	–
		Spheroidal cast iron	160	190 – 430	120 – 240	–
		Malleable/tempered iron	130	180 – 520	150 – 250	–

Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP35D
	CNMX 120404-TF35	...-TF35	•		
	CNMX 120408-TF35		•		
	DNMX 150604-TF35		•		
	DNMX 150608-TF35		•		
	WNMX 080404-TF35		•		
	WNMX 080408-TF35		•		

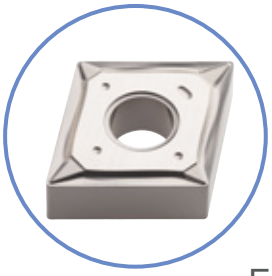
Improved surface finish

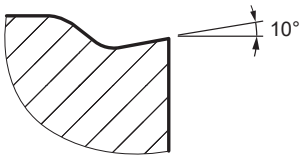
With the same feed rate an insert with WIPER cutting edge reaches a roughness value R_a which is many times higher than the one of a conventional insert.





Chipbreaker -TF40





Example: CNMG 120408EN-TF40

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TF40	0.10 to 2.00	0.20 to 0.05

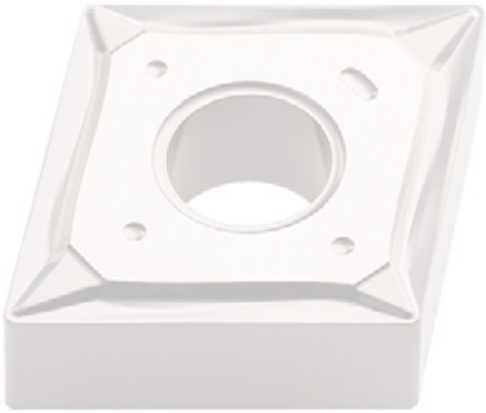
Ex: CNMG 120404EN-TF40
Different in each application

P Steel

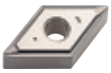
Turning steel neg finishing CERMET

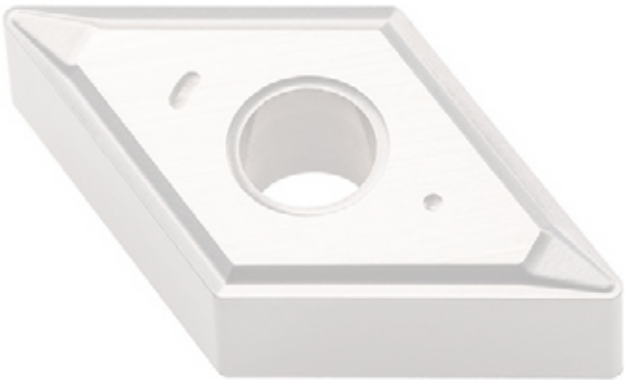
General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Cermet TPM15A v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	230 – 270
		Low-alloyed steel	250 – 300	180 – 230
		High-alloyed steel	200	160 – 200
		Corrosion-resistant steel	200	230 – 270
M	Stainless steel	Ferritic	200	170 – 240
		Austenitic	180	200 – 240
		Duplex	230 – 260	–
		Martensitic	330	130 – 160
K	Cast iron	Grey cast iron	180	–
		Spheroidal cast iron	160	220 – 300
		Malleable/tempered iron	130	250 – 350



Available range

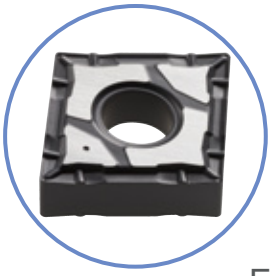
Insert	Designation	Chipbreaker	TPM15A
	CNMG 120404EN-TF40	...-TF40	•
	CNMG 120408EN-TF40		•
	DNMG 110404EN-TF40		•
	DNMG 150604EN-TF40		•

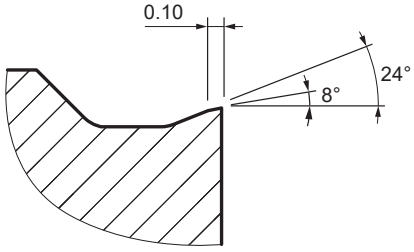


Chipbreaker -TM40

Optimised by FEM:

- *Increase life time*
- *Reduce temperature and stress*





Example: CNMG 120408EN-TM40

Application	Depth of cut / feed rate	
Chip groove	a_p [mm]	f [mm]
TM40	0.50 to 2.00	0.20 to 0.10

Ex: CNMX 120408-TM40 for CK60
Different in each application

P Steel

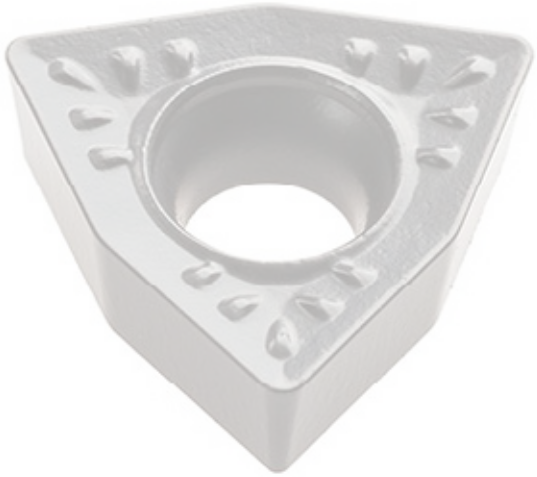
Cutting data

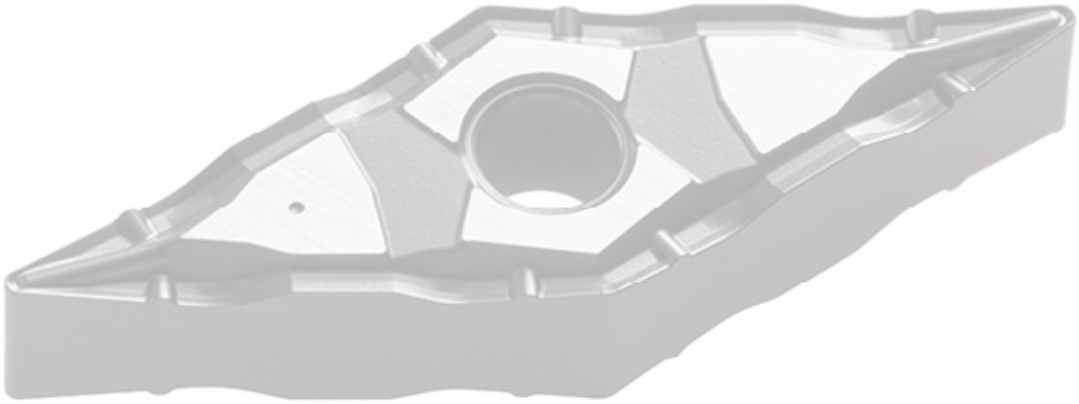
General cutting parameters depending on the application

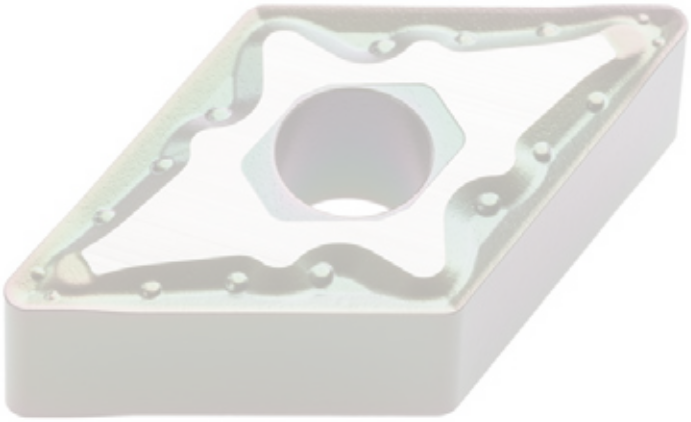
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	Coated carbide TPK25D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	170 – 240
		Low-alloyed steel	250 – 300	200 – 320	100 – 190
		High-alloyed steel	200	180 – 320	130 – 210
		Corrosion-resistant steel	200	200 – 320	130 – 210
M	Stainless steel	Ferritic	200	220 – 320	140 – 210
		Austenitic	180	–	100 – 210
		Duplex	230 – 260	–	–
		Martensitic	330	–	70 – 100
K	Cast iron	Grey cast iron	180	–	–
		Spheroidal cast iron	160	–	–
		Malleable/tempered iron	130	–	–

Available range

Insert	Designation	Chipbreaker	TPK15D (Heavy turning steel neg "P15")	TPK25D (Heavy turning steel neg "P25")
	CNMG 090304EN-TM40	...-TM40	•	
	CNMG 120404EN-TM40		•	•
	CNMG 120408EN-TM40		•	•
	DNMG 110404EN-TM40		•	•
	DNMG 150604EN-TM40		•	
	DNMG 150608EN-TM40		•	
	VNMG 160404EN-TM40		•	
	WNMG 060404EN-TM40		•	
	WNMG 080404EN-TM40		•	

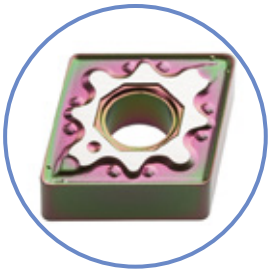


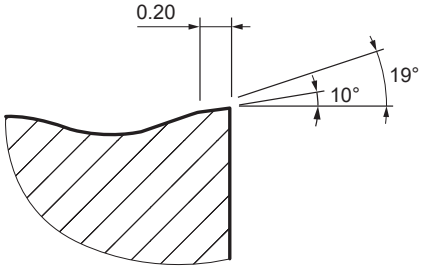


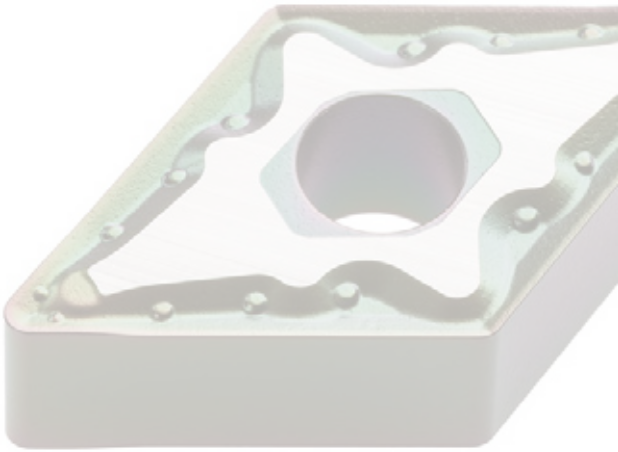


Chipbreaker -TM50

Nr 1 universal chipbreaker







Example: CNMG 120408-TM50

Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D V_c [m/min]	TPK25D V_c [m/min]	TP25D V_c [m/min]	TP35D V_c [m/min]	TK20D V_c [m/min]
P	Stal	Stal niestopowa 0 – 0.45% C	150 – 250	220 – 400	170 – 240	170 – 240	170 – 190	200 – 340
		Stal niskostopowa	250 – 300	200 – 320	100 – 190	100 – 190	90 – 150	150 – 290
		Stal wysokostopowa	200	180 – 320	130 – 210	130 – 210	120 – 200	150 – 290
		Stal odporna na korozję	200	200 – 320	130 – 210	130 – 210	140 – 180	160 – 290
M	Stal nierdzewna	Ferrytyczna	200	220 – 320	140 – 210	140 – 210	140 – 200	
		Austenityczna	180	–	100 – 210	100 – 210	110 – 190	
		Duplex	230 – 260	–	–	–	80 – 150	
		Martenzytyczna	330	–	70 – 100	70 – 100	55 – 75	
K	Żeliwo	Żeliwo Szare	180	140 – 370	130 – 210	130 – 210	–	150 - 400
		Żeliwo sferoidalne	160	190 – 430	120 – 240	120 – 240	–	200 - 450
		Żeliwo ciągliwe / hartowane	130	180 – 520	150 – 250	150 – 250	–	200 - 550

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM50	0.50 to 2.25	0.44 to 0.22

Ex: CNMG 120408-TM50 for CK60
Different in each application

P Steel

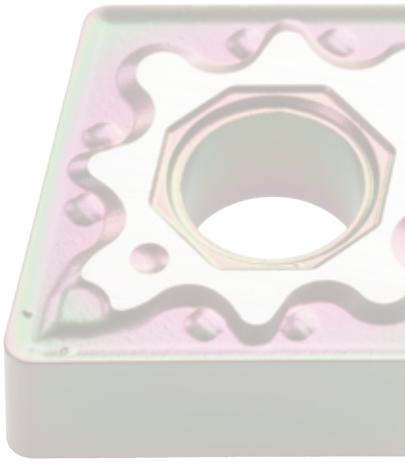
Turning steel neg semi finishing "P15"

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM50	1.00 to 4.00	0.44 to 0.22

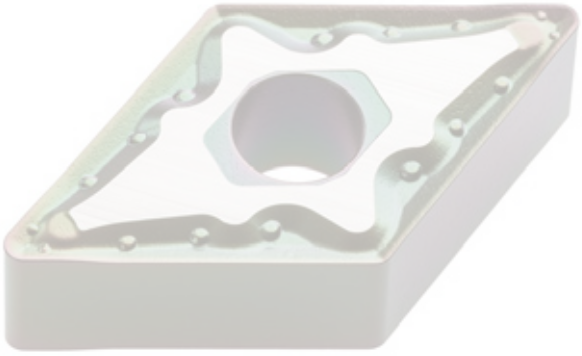
Ex: CCM. 120408-TM50 for GC25
Different in each application

K Cast Iron

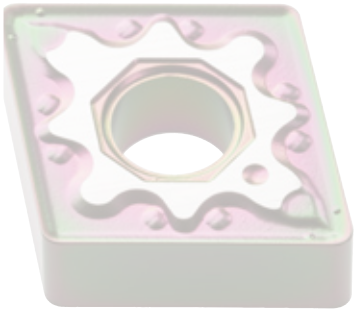
Turning cast iron neg "K20"

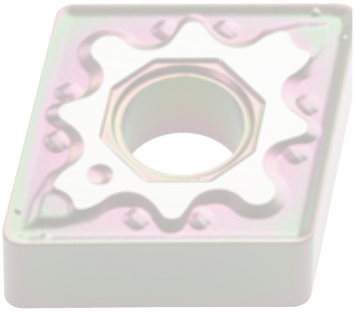


Available range

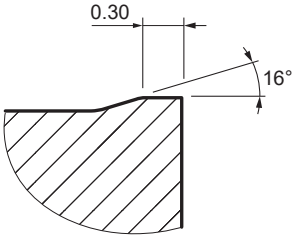


Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP25D	TP35D	TK20D
	CNMG 120404-TM50		•	•	•		
	CNMG 120408-TM50		•	•	•	•	•
	CNMG 120412-TM50		•	•	•	•	•
	DNMG 110404-TM50		•	•			
	DNMG 110408-TM50		•	•	•	•	
	DNMG 150404-TM50			•	•		
	DNMG 150408-TM50			•	•		
	DNMG 150604-TM50		•	•	•		
	DNMG 150608-TM50		•	•	•	•	•
	DNMG 150612-TM50		•	•	•	•	•
	SNMG 120408-TM50		•	•	•	•	•
	SNMG 120412-TM50		•	•		•	
	TNMG 160404-TM50	...-TM50	•	•			
	TNMG 160408-TM50		•	•	•	•	•
	TNMG 160412-TM50		•	•			•
	TNMG 220404-TM50			•			
	TNMG 220408-TM50			•			•
	VNMG 160404-TM50		•	•			
	VNMG 160408-TM50		•	•			
	WNMG 060404-TM50		•	•			
	WNMG 060408-TM50		•	•			
	WNMG 080404-TM50		•	•	•		
	WNMG 080408-TM50		•	•	•	•	•
	WNMG 080412-TM50		•	•	•	•	•





Chipbreaker -TR50



Example: CNMG 120408EN-TR50

Application	Depth of cut / feed rate	
Chip groove	a_p [mm]	f [mm]
TR50	1.50 to 5.00	0.50 to 0.30

Ex: CNMG 120408-TR50 for CK60
Different in each application

P Steel

R
M
F

Turning steel neg roughing "P15"

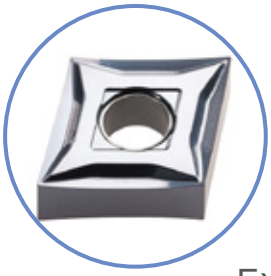
General cutting parameters depending on the application

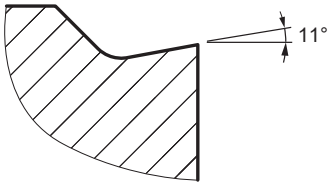
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	TPK25D v_c [m/min]	TP35D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	170 – 240	170 – 190
		Low-alloyed steel	250 – 300	200 – 320	100 – 190	90 – 150
		High-alloyed steel	200	180 – 320	130 – 210	120 – 200
		Corrosion-resistant steel	200	200 – 320	130 – 210	140 – 180
M	Stainless steel	Ferritic	200	220 – 320	140 – 210	140 – 200
		Austenitic	180	–	100 – 210	110 – 190
		Duplex	230 – 260	–	–	80 – 150
		Martensitic	330	–	70 – 100	55 – 75
K	Cast iron	Grey cast iron	180	140 – 370	130 – 210	–
		Spheroidal cast iron	160	190 – 430	120 – 240	–
		Malleable/tempered iron	130	180 – 520	150 – 250	–

Available range

Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP35D
	CNMG 120408EN-TR50		•	•	
	CNMG 120412EN-TR50			•	
	DNMG 150608EN-TR50		•	•	•
	DNMG 150612EN-TR50		•	•	•
	SNMG 120408EN-TR50			•	
	SNMG 120412EN-TR50	...-TR50		•	
	TNMG 160408EN-TR50			•	
	TNMG 160412EN-TR50			•	
	WNMG 080408EN-TR50			•	
	WNMG 080412EN-TR50			•	

Chipbreaker -TF45





Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TF45	0.5 to 2.5	0.25 to 0.10

Ex: CNGP 120408-TF45 for 304
Different in each application

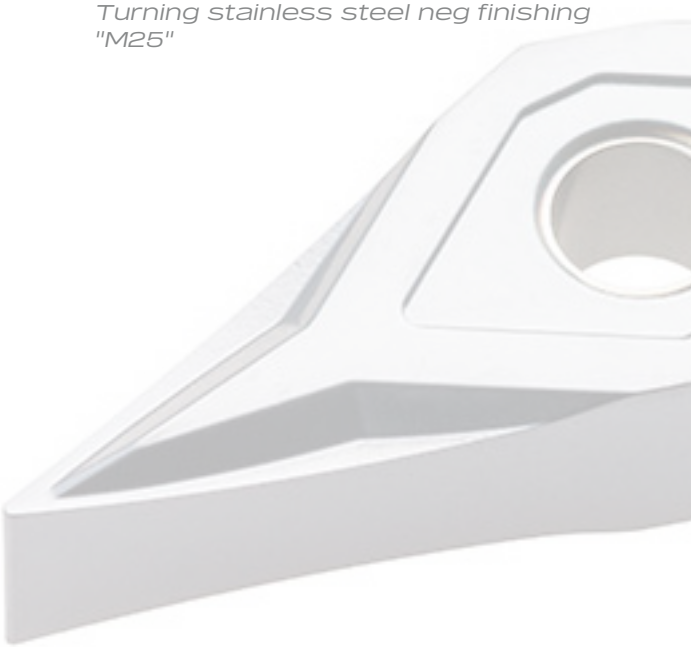
Example: CNGP 120408-TF45

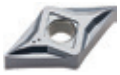
General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TM20E V_c [m/min]
M	Stainless steel	Ferritic	200	150 – 200
		Austenitic	180	120 – 200
		Duplex	230 – 260	90 – 160
		Martensitic	330	60 – 80
K	Cast iron	Grey cast iron	180	120 – 160
		Spheroidal cast iron	160	120 – 160
		Malleable/tempered iron	130	140 – 220
N	Non-ferrous metals		100	100 – 400
			130	100 – 400
			90	100 – 600
			100	100 – 400
S	Exotic materials	Fe base	200	20 – 50
		Nickel or cobalt base	280	20 – 50
		Nickel or cobalt base	250	15 – 40
		Nickel or cobalt base		20 – 35
		Titanium	Rm 440*	80 – 140

M Stainless Steel

Turning stainless steel neg finishing "M25"

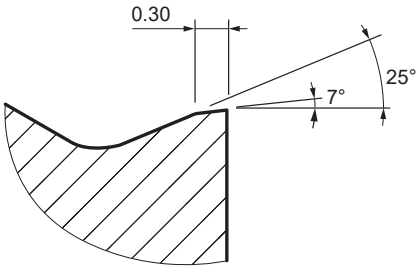


Insert	Designation	Chipbreaker	TM20E
	CNGP 120402-TF45	...-TF45	•
	CNGP 120404-TF45		•
	CNGP 120408-TF45		•
	CNGP 120412-TF45		•
	DNGP 150404-TF45		•
	DNGP 150602-TF45		•
	DNGP 150604-TF45		•
	DNGP 150608-TF45		•
	VNGP 160402-TF45		•
	VNGP 160404-TF45		•
	WNGP 080404-TF45		•
	WNGP 080408-TF45		•

Chipbreaker -TM45

Optimised by FEM:

- *Reduced formation of burrs*
- *Good surface finish*
- *Low cutting forces*



Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM45	1.00 to 4.20	0.40 to 0.22

Ex: CNMG 120408-TM45 for 304
Different in each application

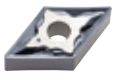
Example: CNMG 120408 TM45

M Stainless Steel

Turning stainless steel neg medium "M25"

General cutting parameters depending on the application

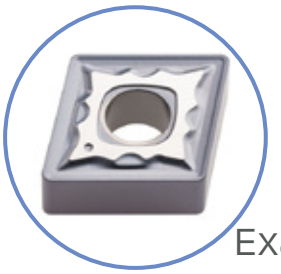
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TM25E v_c [m/min]	TM35E v_c [m/min]	TM20D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	130 – 250	170 – 190	150 - 250
		Low-alloyed steel	250 – 300	60 – 180	90 – 150	100 - 200
		High-alloyed steel	200	80 – 200	120 – 200	120 - 220
		Corrosion-resistant steel	200	100 – 200	140 – 180	120 - 220
M	Stainless steel	Ferritic	200	120 – 250	140 – 200	120 - 250
		Austenitic	180	100 – 220	110 – 190	120 - 220
		Duplex	230 – 260	60 – 160	80 – 150	110 – 170
		Martensitic	330	40 – 100	55 – 75	40 – 100

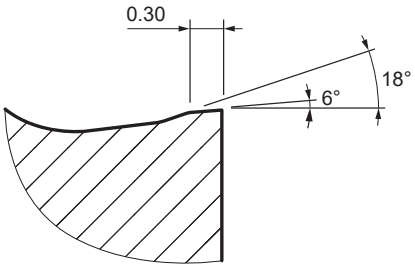
Insert	Designation	Chipbreaker	TM25E	TM35E	TM20D
	CNMG 090304-TM45		•		•
	CNMG 090308-TM45		•		•
	CNMG 120404-TM45		•		•
	CNMG 120408-TM45		•		•
	DNMG 110404-TM45		•		•
	DNMG 110408-TM45		•		•
	DNMG 150404-TM45		•		•
	DNMG 150408-TM45		•		•
	DNMG 150604-TM45		•		•
	DNMG 150608-TM45		•		•
	SNMG 120408-TM45	...-TM45	•		•
			•		
	TNMG 160404-TM45		•		•
	TNMG 160408-TM45		•		•
	VNMG 160408-TM45		•		•
			•		
	WNMG 060404-TM45		•		•
	WNMG 060408-TM45		•		•
	WNMG 080404-TM45		•		•
	WNMG 080408-TM45		•		•
	WNMG 080412-TM45		•		

Chipbreaker -TR45

Sharp positive cutting edges:

- *Reduced formation of burrs*
- *Good surface finish*
- *Low cutting forces*





Example: CNMG 120408 TR45

Application	Depth of cut / feed rate	
Chip groove	a_p [mm]	f [mm]
TR45	1.50 to 6.00	0.50 to 0.25

Ex: CNMG 120408-TR45 for 304
Different in each application

M Stainless Steel

Turning stainless steel neg roughing "M25"

Medium machining and light roughing

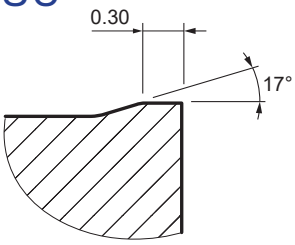
Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TM25E v_c [m/min]	Coated carbide TM20D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	130 – 250	150 - 250
		Low-alloyed steel	250 – 300	60 – 180	100 - 200
		High-alloyed steel	200	80 – 200	120 - 220
		Corrosion-resistant steel	200	100 – 200	120 - 220
M	Stainless steel	Ferritic	200	120 – 250	120 - 250
		Austenitic	180	100 – 220	120 - 220
		Duplex	230 – 260	60 – 160	110 – 170
		Martensitic	330	40 – 100	40 – 100

Insert	Designation	Chipbreaker	TM25E	TM20D
	CNMG 120408-TR45	...-TR45	•	•
	CNMG 120412-TR45		•	
	DNMG 150608-TR45		•	•
	DNMG 150612-TR45		•	
	TNMG 160408-TR45		•	
	TNMG 160408-TR45		•	
	WNMG 080408-TR45		•	
	WNMG 080412-TR45		•	

Chipbreaker -TM60



Example: CNMG 120408-TM60

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM60	2.00 to 4.80	0.48 to 0.30

Ex: CNM. 120408-TM60 for GC25
Different in each application

Only .NMA

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TK20D v_c [m/min]	Coated carbide TK10D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	200 – 340	220 – 400
		Low-alloyed steel	250 – 300	150 – 290	170 – 340
		High-alloyed steel	200	150 – 290	170 – 340
		Corrosion-resistant steel	200	160 – 290	200 – 300
K	Cast iron	Grey cast iron	180	150 – 400	170 – 450
		Spheroidal cast iron	160	200 – 450	220 – 430
		Malleable/tempered iron	130	200 – 550	220 – 400

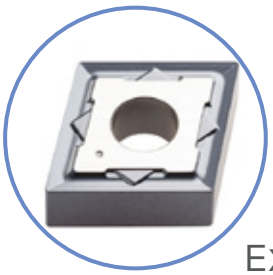
K Cast Iron

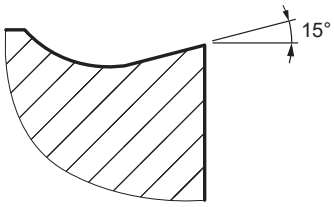
R
M
F

Turning cast iron neg "K20"

Insert	Designation	Chipbreaker	TK20D	TK10D
	CNMG 120408-TM60		•	•
	CNMG 120412-TM60		•	•
	CNMG 160612-TM60		•	•
	DNMG 150608-TM60		•	
	SNMG 120408-TM60		•	
	SNMG 120412-TM60	...-TM60		•
	TNMG 160408-TM60		•	
	WNMG 080408-TM60		•	•
	WNMG 080412-TM60		•	•
	CNMA 120408EN		•	•
	CNMA 120412EN		•	
	CNMA 120416EN		•	
	SNMA 120408EN		•	
	TNMA 160408EN	...-EN	•	
	WNMA 080408EN		•	
	WNMA 080412EN			•

Chipbreaker -TFX

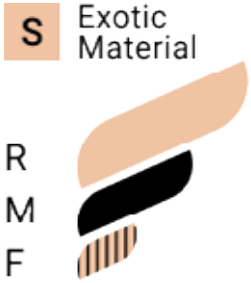




Example: CNMG 120408-TFX

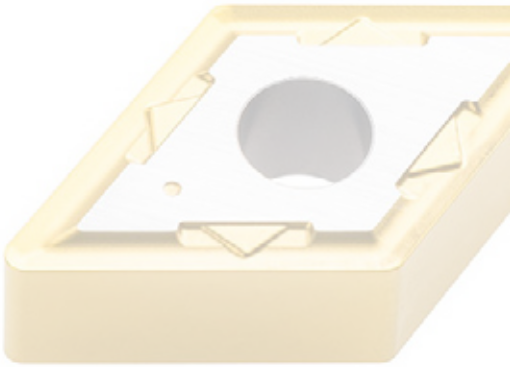
Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TFX	0.80 to 3.00	0.30 to 0.10

Ex: CNMG 120408-TFX for Super Alliage
Different in each application



TS15D - Turning titanium "S10"

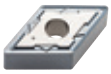
TS20D - Turning titanium "S15"



General cutting parameters depending on the application

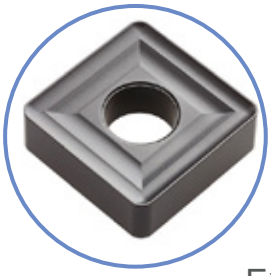
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TS15D V_c [m/min]	Coated carbide TS20D V_c [m/min]
M	Stainless steel	Ferritic	200	150 – 230	130 – 220
		Austenitic	180	140 – 190	120 – 180
		Duplex	230 – 260	60 – 100	50 – 90
		Martensitic	330	–	–
S	Exotic materials	Fe base	200	80 – 120	80 – 120
		Nickel or cobalt base	280	60 – 100	60 – 120
		Nickel or cobalt base	250	35 – 90	35 – 90
		Nickel or cobalt base		30 – 50	30 – 50
		Titanium	Rm 440*	70 – 120	70 – 120

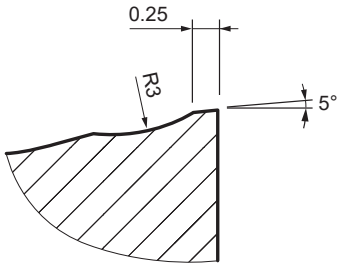
Available range

Insert	Designation	Chipbreaker	TS15D	TS20D
	CNMG 120404-TFX	...-TFX	•	•
	CNMG 120408-TFX		•	•
	DNMG 150608-TFX		•	•
	SNMG 120408-TFX		•	•
	TNMG 160408-TFX		•	•
	VNMG 160408-TFX		•	•
	WNMG 080408-TFX		•	•

Heavy Duty Turning
HDT

Chipbreaker -TMC





Application	Depth of cut / feed rate	
Chip groove	a_p [mm]	f [mm]
TMC	2.50 to 10.00	0.60 to 0.30

Example: SNMM 190616EN-TMC

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	TPK25D v_c [m/min]	TP35D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	170 – 240	170 – 190
		Low-alloyed steel	250 – 300	200 – 320	100 – 190	90 – 150
		High-alloyed steel	200	180 – 320	130 – 210	120 – 200
		Corrosion-resistant steel	200	200 – 320	130 – 210	140 – 180
M	Stainless steel	Ferritic	200	220 – 320	140 – 210	140 – 200
		Austenitic	180	–	100 – 210	110 – 190
		Duplex	230 – 260	–	–	80 – 150
		Martensitic	330	–	70 – 100	55 – 75
K	Cast iron	Grey cast iron	180	140 – 370	130 – 210	–
		Spheroidal cast iron	160	190 – 430	120 – 240	–
		Malleable/tempered iron	130	180 – 520	150 – 250	–

P Steel

Heavy turning steel neg "P25"

Available range

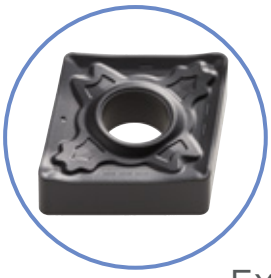
Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP35D
	SNMM 190616EN-TMC	...-TMC		•	
	SNMM 250924EN-TMC			•	

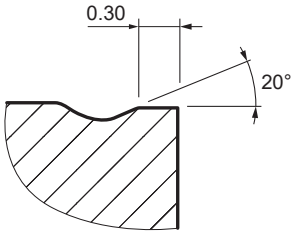
Chipbreaker -TR70

Sharp positive cutting edges:

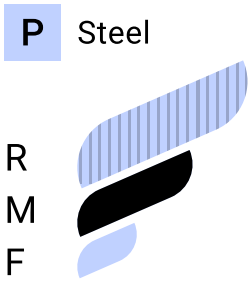
- *Single-sided roughing geometry*
- *Good chip control*
- *For steels with high strength (800 N / MM ²)*

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TR70	1.50 to 12.00	0.50 to 0.90





Ex: CNMM 120408-TR70 for CK60
Different in each application



Example: CNMM 120408-TR70

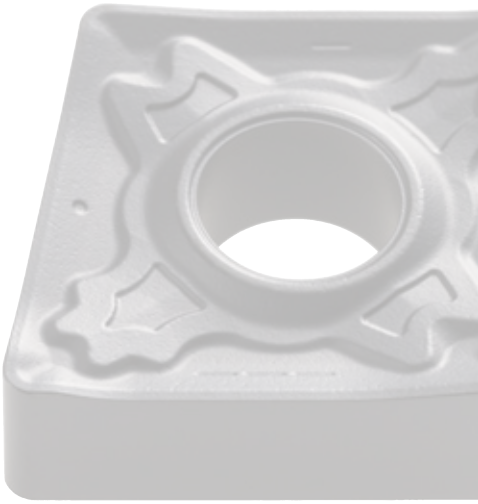
General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	TPK25D v_c [m/min]	TP35D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	170 – 240	170 – 190
		Low-alloyed steel	250 – 300	200 – 320	100 – 190	90 – 150
		High-alloyed steel	200	180 – 320	130 – 210	120 – 200
		Corrosion-resistant steel	200	200 – 320	130 – 210	140 – 180
M	Stainless steel	Ferritic	200	220 – 320	140 – 210	140 – 200
		Austenitic	180	–	100 – 210	110 – 190
		Duplex	230 – 260	–	–	80 – 150
		Martensitic	330	–	70 – 100	55 – 75
K	Cast iron	Grey cast iron	180	140 – 370	130 – 210	–
		Spheroidal cast iron	160	190 – 430	120 – 240	–
		Malleable/tempered iron	130	180 – 520	150 – 250	–

TPK15D - Heavy turning steel neg "P15"

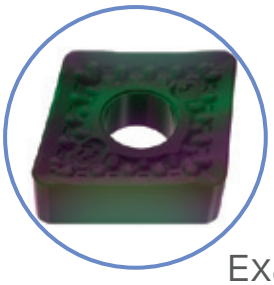
TPK25D - Heavy turning steel neg "P25"

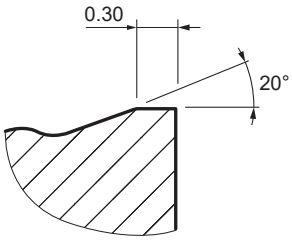
TP35D - Heavy turning steel neg "P35"



Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP35D
	CNMM 120408-TR70	...-TR70	•	•	•
	CNMM 120412-TR70			•	
	DNMM 150608-TR70		•	•	•

Chipbreaker -TR80



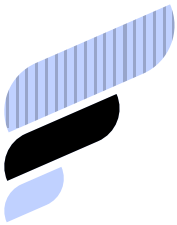


Example: CNMM 190616EN-TR80

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TR80	2.00 to 12.00	0.80 to 0.30

Ex: CNMM 190616-TR80 for CK60
Different in each application

P Steel



R
M
F

TPK15D - Heavy turning steel neg "P15"

TPK25D - Heavy turning steel neg "P25"

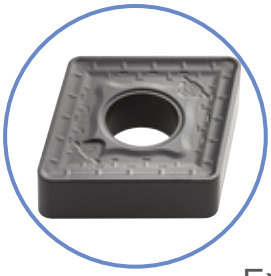
TPK25D - Heavy turning steel neg "P35"

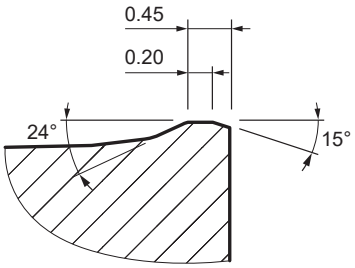
General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	TPK25D v_c [m/min]	TP35D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	170 – 240	170 – 190
		Low-alloyed steel	250 – 300	200 – 320	100 – 190	90 – 150
		High-alloyed steel	200	180 – 320	130 – 210	120 – 200
		Corrosion-resistant steel	200	200 – 320	130 – 210	140 – 180
M	Stainless steel	Ferritic	200	220 – 320	140 – 210	140 – 200
		Austenitic	180	–	100 – 210	110 – 190
		Duplex	230 – 260	–	–	80 – 150
		Martensitic	330	–	70 – 100	55 – 75
K	Cast iron	Grey cast iron	180	140 – 370	130 – 210	–
		Spheroidal cast iron	160	190 – 430	120 – 240	–
		Malleable/tempered iron	130	180 – 520	150 – 250	–

Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP35D
	CNMM 120412EN-TR80	...-TR80	•	•	•
	CNMM 120416EN-TR80			•	•
	CNMM 160612EN-TR80		•	•	•
	CNMM 190612EN-TR80		•	•	
	CNMM 190616EN-TR80			•	
	CNMM 250724EN-TR80			•	
	CNMM 250924EN-TR80			•	
	DNMM 150612EN-TR80		•	•	•
	SNMM 190612EN-TR80			•	
	SNMM 190616EN-TR80			•	
	SNMM 250724EN-TR80			•	
	SNMM 250924EN-TR80			•	

Chipbreaker -TR90





Application	Depth of cut / feed rate	
Chip groove	a_p [mm]	f [mm]
TR90	2.50 to 12.00	1.20 to 0.35

Ex: CNMM 190616SN-TR90 for CK60
Different in each application

Example: CNMM 190616SN-TR90

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide TPK15D v_c [m/min]	TPK25D v_c [m/min]	TP35D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	220 – 400	170 – 240	170 – 190
		Low-alloyed steel	250 – 300	200 – 320	100 – 190	90 – 150
		High-alloyed steel	200	180 – 320	130 – 210	120 – 200
		Corrosion-resistant steel	200	200 – 320	130 – 210	140 – 180
M	Stainless steel	Ferritic	200	220 – 320	140 – 210	140 – 200
		Austenitic	180	–	100 – 210	110 – 190
		Duplex	230 – 260	–	–	80 – 150
		Martensitic	330	–	70 – 100	55 – 75
K	Cast iron	Grey cast iron	180	140 – 370	130 – 210	–
		Spheroidal cast iron	160	190 – 430	120 – 240	–
		Malleable/tempered iron	130	180 – 520	150 – 250	–

P Steel

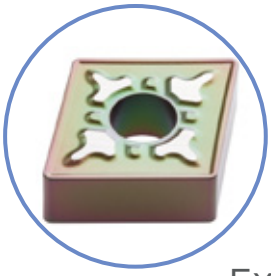
R
M
F

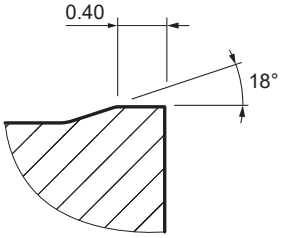
Heavy turning steel neg "P25"

Available range

Insert	Designation	Chipbreaker	TPK15D	TPK25D	TP35D
	CNMM 190616SN-TR90	...-TR90		•	•
	CNMM 190624SN-TR90			•	
	CNMM 250924SN-TR90			•	•
	CNMM 250932SN-TR90			•	
	SNMM 190616SN-TR90			•	
	SNMM 190624SN-TR90			•	
	SNMM 250924SN-TR90			•	•
	SNMM 250932SN-TR90			•	

Chipbreaker -TM60





Example: CNMG 160612-TM60

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM60	3.20 to 7.60	1.00 to 0.60

Ex: CNMG 190616-TM60 for CK60
Different in each application

P Steel

R
M
F

Medium and roughing turning steel

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	TPK25D v_c [m/min]	TP35D v_c [m/min]	TK20D v_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	170 – 240	170 – 190	200 – 340
		Low-alloyed steel	250 – 300	100 – 190	90 – 150	150 – 290
		High-alloyed steel	200	130 – 210	120 – 200	150 – 290
		Corrosion-resistant steel	200	130 – 210	140 – 180	160 – 290
M	Stainless steel	Ferritic	200	140 – 210	140 – 200	
		Austenitic	180	100 – 210	110 – 190	
		Duplex	230 – 260	–	80 – 150	
		Martensitic	330	70 – 100	55 – 75	
K	Cast iron	Grey cast iron	180	130 – 210	–	150 - 400
		Spheroidal cast iron	160	120 – 240	–	200 - 450
		Malleable/tempered iron	130	150 – 250	–	200 -550

Application Chip groove	Depth of cut / feed rate a_p [mm]	f [mm]
TM60	3.20 to 5.60	0.60 to 0.38

Ex: CNMG 160612-TM60 for GC25
Different in each application

K Cast Iron

R
M
F

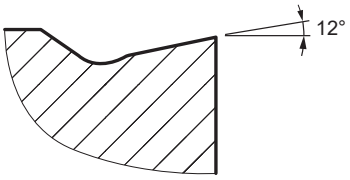
Turning cast iron neg "K20"

Available range

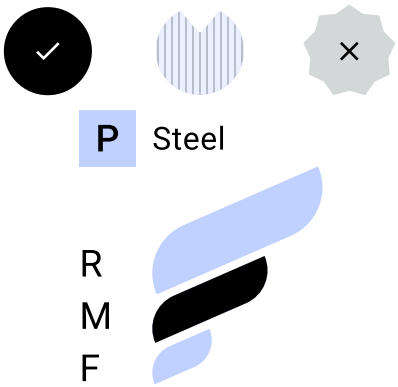
Insert	Designation	Chipbreaker	TPK25D	TP35D	TK20D
	CNMG 160608-TM60	...-TM60		•	•
	CNMG 160612-TM60		•	•	•
	CNMG 190612-TM60		•	•	•
	CNMG 190616-TM60		•	•	
	SNMG 150612-TM60		•	•	
	SNMG 190612-TM60		•	•	
	TNMG 220412-TM60		•		
	RCMT 1606MOSN-TMR	...-TMR	•	•	
	RCMT 2006MOSN-TMR		•	•	

Miscellaneous

Chipbreaker -TMX



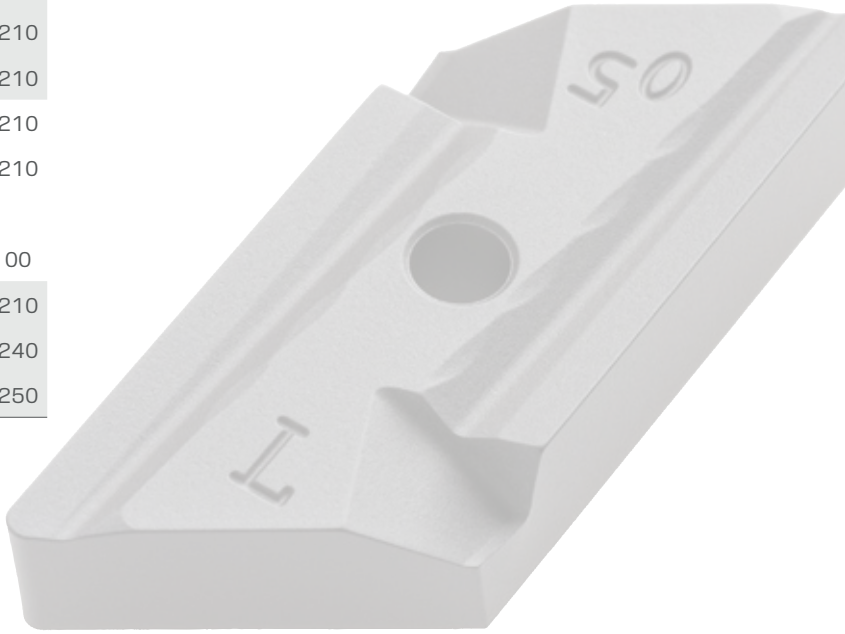
Example: KNUX 160405ER-TMX



Turning steel neg medium "P25"

General cutting parameters depending on the application

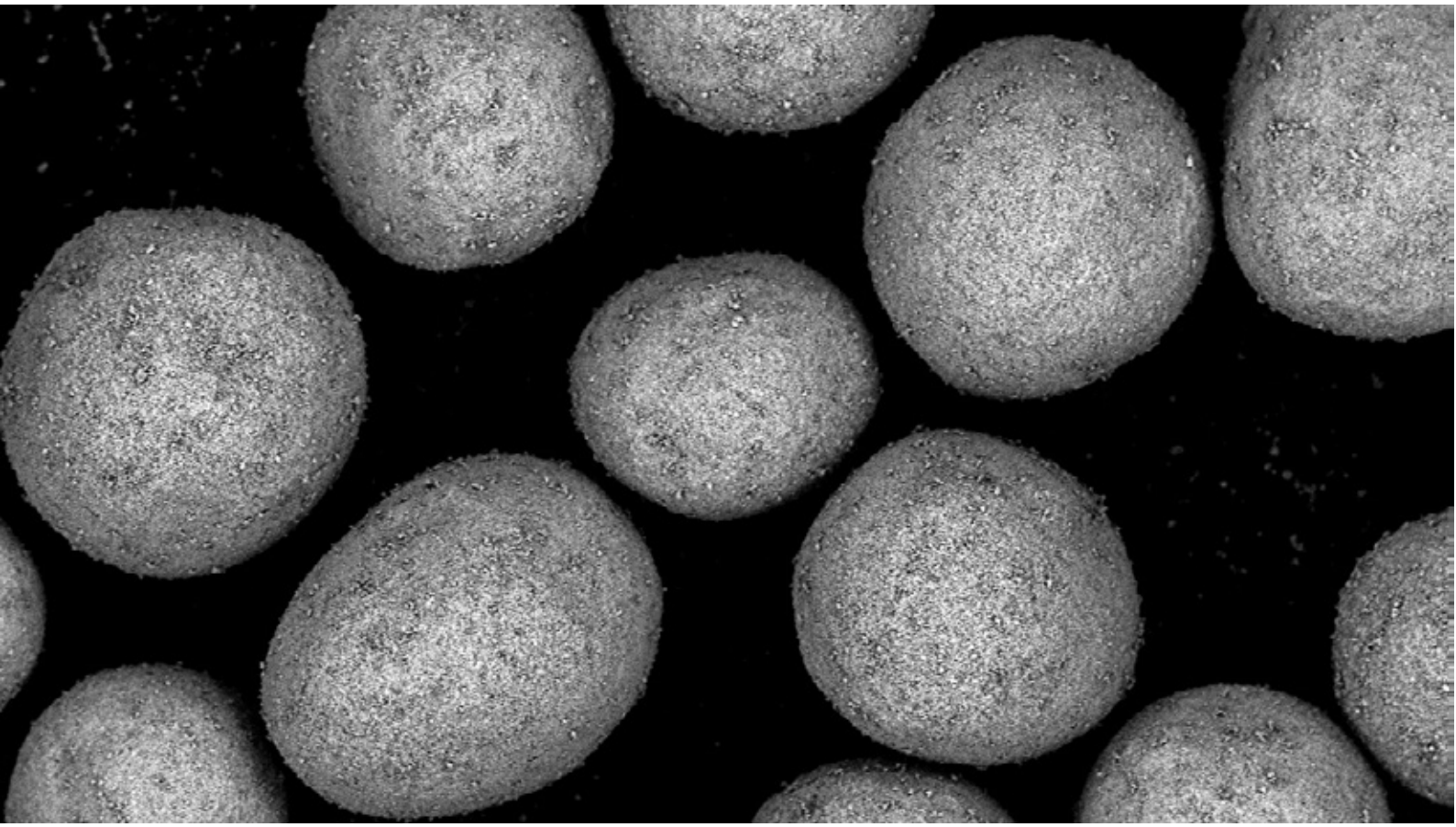
Work piece material		Type of treatment / alloy	Hardness HB	TPK25D V_c [m/min]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	170 – 240
		Low-alloyed steel	250 – 300	100 – 190
		High-alloyed steel	200	130 – 210
		Corrosion-resistant steel	200	130 – 210
M	Stainless steel	Ferritic	200	140 – 210
		Austenitic	180	100 – 210
		Duplex	230 – 260	–
		Martensitic	330	70 – 100
K	Cast iron	Grey cast iron	180	130 – 210
		Spheroidal cast iron	160	120 – 240
		Malleable/tempered iron	130	150 – 250



Available range

Insert	Designation	Chipbreaker	TPK25D
	KNUX 160405-EL-TMX	...-TMX	•
	KNUX 160405-ER-TMX		•
	KNUX 160410-EL-TMX		•
	KNUX 160410-EL-TMX		•

Grades



Grade overwiew

Grade designation	Standard designation ISO	Standard designation ANSI	Toughness of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat resitant	H Hard materials
TPM15A	HC-P15	C7	A		●					
	HC-M10	–	A			●				
	HC-K10	C3	A				○			
TPK15D	HC-P15	C7	D		●					
	HC-K25	C2	D				●			
	HC-M10	–	D			○				
TPK25D	HC-P25	C6	D		●					
	HC-K30	C1	D				●			
	HC-M20	–	D			○				
TP25D	HC-P25	–	D		●					
	HC-K30	–	D			○				
	HC-M20	–	D							○
TP35D	HC-P35	C5	D		●					
	HC-M25	–	D			○				
	HC-S25	–	D						○	
TM20D	HC-M20	–	D			●				
	HC-P25	–	D		○					
TM25E	HC-M25	–	E			●				
	HC-P35	C7	E		●					
	HC-S25	–	E						○	
TM20E	HC-M20	C3	E			●				
	HC-K20	C2	E				○	○		
TM35E	HC-M35	C5	E			●				
	HC-P35	–	E		○					
TMS15E	HC-M15	–	E			●				
	HC-S15	–	E						○	

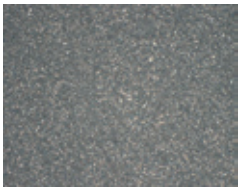
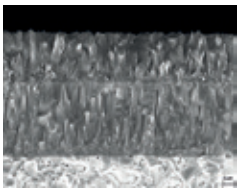
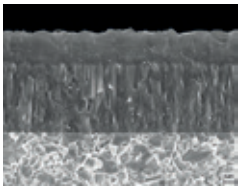
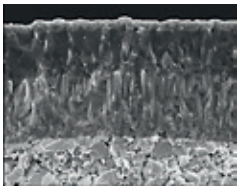
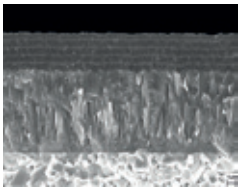
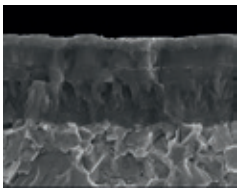
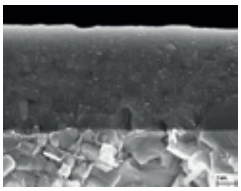
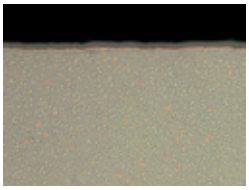
● Main application

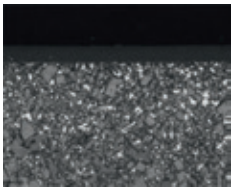
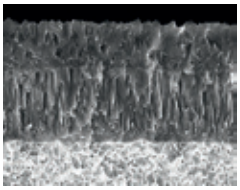
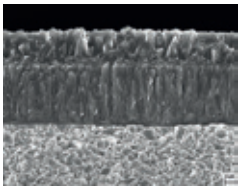
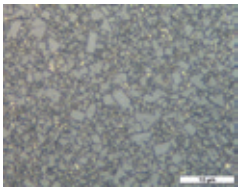
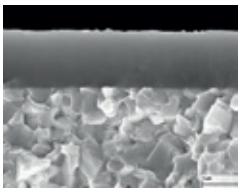
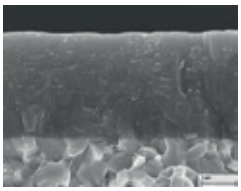
○ Extended application

Grade designation	Standard designation ISO	Standard designation ANSI	Toughness of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat resitant	H Hard materials
TK10D	HC-K10	–	D				●			
	HC-P05	–	D		○					
TK20D	HC-K20	C2	D				●			
	HC-P10	C8	D		○					
UN15C	HW-N15	C3	C					●		
	HW-K15	C3	C				●			
TS15D	HC-S15	–	D						●	
	HC-M15	–	D			○				
TS20D	HC-S15	–	D						●	
	HC-M15	–	D			○				

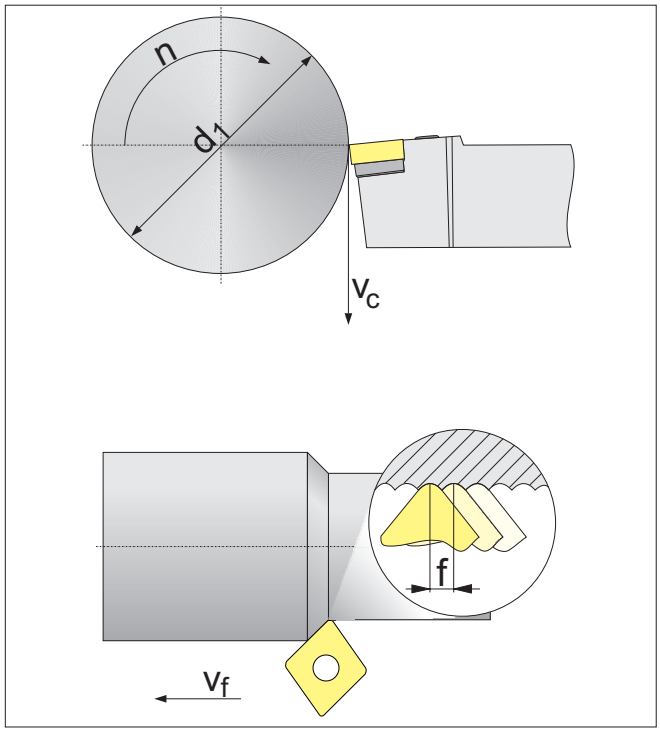
● Main application

○ Extended application

TPM15A	HT-P15 | HT-M10 | HT-K10
	Specification: Composition: cermet Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN balance | Hardness: HV_{30} 1620 Recommended application: The uncoated cermet grade for the finishing of hardened steel
TPK15D	HC-P15 | HC-K25 | HC-M10
	Specification: Composition: Co 5.8%; mixed carbides 6.4%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1550 | Coating specification: CVD TiCN-Al_2O_3 Recommended application: The wear-resistant high-performance grade for steel machining
TPK25D	HC-P25 | HC-K30 | HC-M20
	Specification: Composition: Co 7.0%; mixed carbides 8.0%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1450 | Coating specification: CVD TiCN-Al_2O_3 Recommended application: The first choice for the universal machining of steel
TP25D	HC-P25 | HC-K30 | HC-K20
	Specification: Composition: Co 7.6%; mixed carbides 7.0%; others 0.4%; WC balance | Grain size: 1-2µm | Hardness: HV_{30} 1470 | Coating specification: CVD TiCN-Al_2O_3 top layer Recommended application: The first and premium choice for the universal machining of steel
TP35D	HC-P35 | HC-M25 | HC-S25
	Specification: Composition: Co 9.6%; mixed carbides 6.7%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 | Coating specification: CVD TiCN-Al_2O3 multi-layer Recommended application: The tough alternative for heavily interrupted cutting action
TM20D	HC-M20 | HC-P30
	Specification: Composition: Co 7.6%; mixed carbides 7.0%; others 0.4%; WC balance | Grain size: 1-2µm | Hardness: HV_{30} 1470 | Coating specification: CVD TiCN-Al_2O_3-Top layer. Recommended application: It brings advantages to dry machining, at even higher cutting speeds, and makes long tool life possible.
TM25E	HC-M25 | HC-P35 | HC-S25
	Specification: Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 | Coating specification: PVD TiAlTaN Recommended application: The first choice for the machining of austenitic steels
TM20E	HC-M20 | HC-K20
	Specification: Composition: Co 10.5%; mixed carbides 2.0%; WC balance | Grain size: 1-2mm | Hardness: HV_{30} 1400 | Coating specification: PVD TiAlTaN Recommended application: Particularly suitable for the wet machining of steels

TM35E	HC-M35 | HC-P35
	Specification: Composition: Co 8.0%; WC balance; mixed carbides 4.2% | Grain size: 1.5 - 3.0 µm | Hardness: HV_{30} 1330 Recommended application: Universal stainless steel turning grade, best grade in difficult conditions
TMS15E	HC-M15 | HC-S15
	Specification: Composition: Co 6.0%; WC balance | Grain size: 0.8 - 1,3 µm | Hardness: HV_{30} 1630 | Coating specification: PVD TiAlN Recommended application: The first choice for the machining of stainless steels and exotic materials
TK10D	HC-K10 | HC-P05
	Specification: Composition: Co 5.0%; mixed carbides 2.0%; WC balance | Grain size: submicron | Hardness: HV_{30} 1810 | Coating specification: CVD TiCN-Al_2O_3 Recommended application: The wear-resistant grade for the machining of cast iron at high cutting speed with continuous cut
TK20D	HC-K20 | HC-P10
	Specification: Composition: Co 6.0%; TaC 2.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630 | Coating specification: CVD TiCN-Al_2O_3 Recommended application: The grade for cast iron machining with high toughness reserves for difficult conditions and interrupted cut
UN15C	HW-N15 | HW-K15
	Specification: Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630 Recommended application: The uncoated carbide grade for the machining of aluminium and other non-ferrous metals
TS15D	HC-S15 | HC-M15
	Specification: Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1820 | Coating specification: PVD TiAlN Recommended application: The alternative when machining heat-resistant materials
TS20D	HC-S15 | HC-M15
	Specification: Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1820 | Coating specification: PVD TiAlN-TiN Recommended application: The first choice for the machining of heat-resistant materials

Technical information



Cutting speed (v_c)

$$v_c = \frac{d_1 \cdot \pi \cdot n}{1000} \quad [m/min]$$

Revolutions per minute (n)

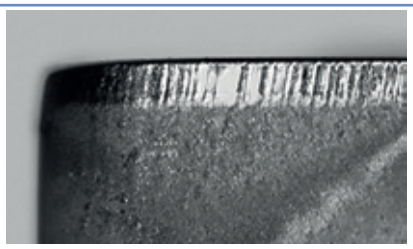
$$n = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \quad [rev./min]$$

Feed rate (v_f)

$$v_f = f \cdot n \quad [mm/min]$$

Type of problem													
Type of wear						Work piece problems				Chip control			
Flank wear	Cratering	Edge chipping	Plastic deformation	Insert breakage	Built-up edge	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (tangled swarf)	Chip too short (fragmented chip)	Corrective measures	
⇩					⇧	⇩			⇧	⇩		Cutting speed	Cutting values
≈		⇩	⇩	⇩		⇧		⇩		⇧	⇩	Feed rate	Cutting values
	⇩					⇩	⇩	⇩				Feed - centre area	Cutting values
		⇧	≈		⇩	≈	⇩		⇩	⇩	⇧	Chip groove ↓ -R -M -F ↑	Selection of inserts
⇧		⇧	⇧			⇩	⇩	⇩	⇧			Corner radius larger ↓ ↑ smaller	Selection of inserts
⇧	⇧	⇩	⇧	⇩								Cutting material wear resistance ↓ ↑ toughness	Selection of inserts
		≈		≈		≈		≈	≈			Clamping of tool	General criteria
		≈		≈		≈		≈	≈			Clamping of work piece	General criteria
		≈		≈		≈			⇩			Overhang	General criteria
≈		≈				≈	≈		≈			Tip height	General criteria
▢	≈		▢		▢		▢		▢	▢		Cooling lubricant	General criteria

⇧ raise, increase, large influence
⇧ raise, increase low influence
⇩ avoid, reduce large influence
⇩ avoid, reduce low influence
≈ check, optimise
▢ use

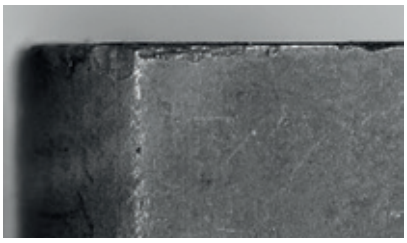


Abrasion on flank, normal wear after a certain machining time.

Flank wear

Reasons
- *Cutting speed too high*
- *Carbide grade with insufficient wear resistance*
- *Incorrect feed rate*

Remedies
- *Reduce cutting speed*
- *Select more wear resistant carbide grade*
- *Adapt feed rate to cutting speed and cutting depth (increase feed rate)*



Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Edge chipping

Reasons
- *Grade with too high wear resistance*
- *Vibration*
- *Feed rate too high or excessive cutting depth*
- *Interrupted cut*
- *Swarf damage*

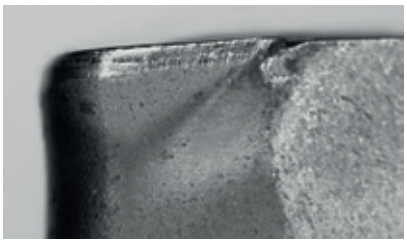
Remedies
- *Use tougher grade*
- *Use negative cutting edge geometry with chip groove*
- *Increase stability (tool, work piece)*

The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cratering

Reasons
- *Cutting speed and / or feed rate too high*
- *Rake angle too shallow*
- *Grade with low wear resistance*
- *Insufficient coolant supply*

Remedies
- *Reduce cutting speed and / or feed rate*
- *Increase coolant quantity and / or pressure, optimise coolant supply*
- *Use grade with higher resistance to cratering*

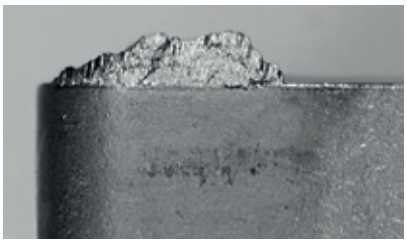


High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Plastic deformation

Reasons
- *Too high machining temperature, resulting in softening of substrate*
- *Damaged coatings*
- *Chip groove too narrow*

Remedies
- *Reduce cutting speed*
- *Choose carbide grade with higher wear resistance*
- *Provide cooling*

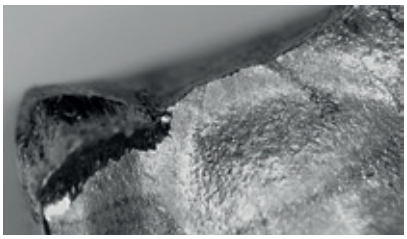


Built-up edge occurs when the chip is not evacuated properly due to insufficient cutting temperature.

Built-up edge

Reasons
- *Cutting speed too low*
- *Rake angle too small*
- *Wrong cutting material*
- *Lack of cooling / lubrication*

Remedies
- *Increase cutting speed*
- *Increase rake angle*
- *Apply TiN-coating*
- *Use emulsion with higher concentration*



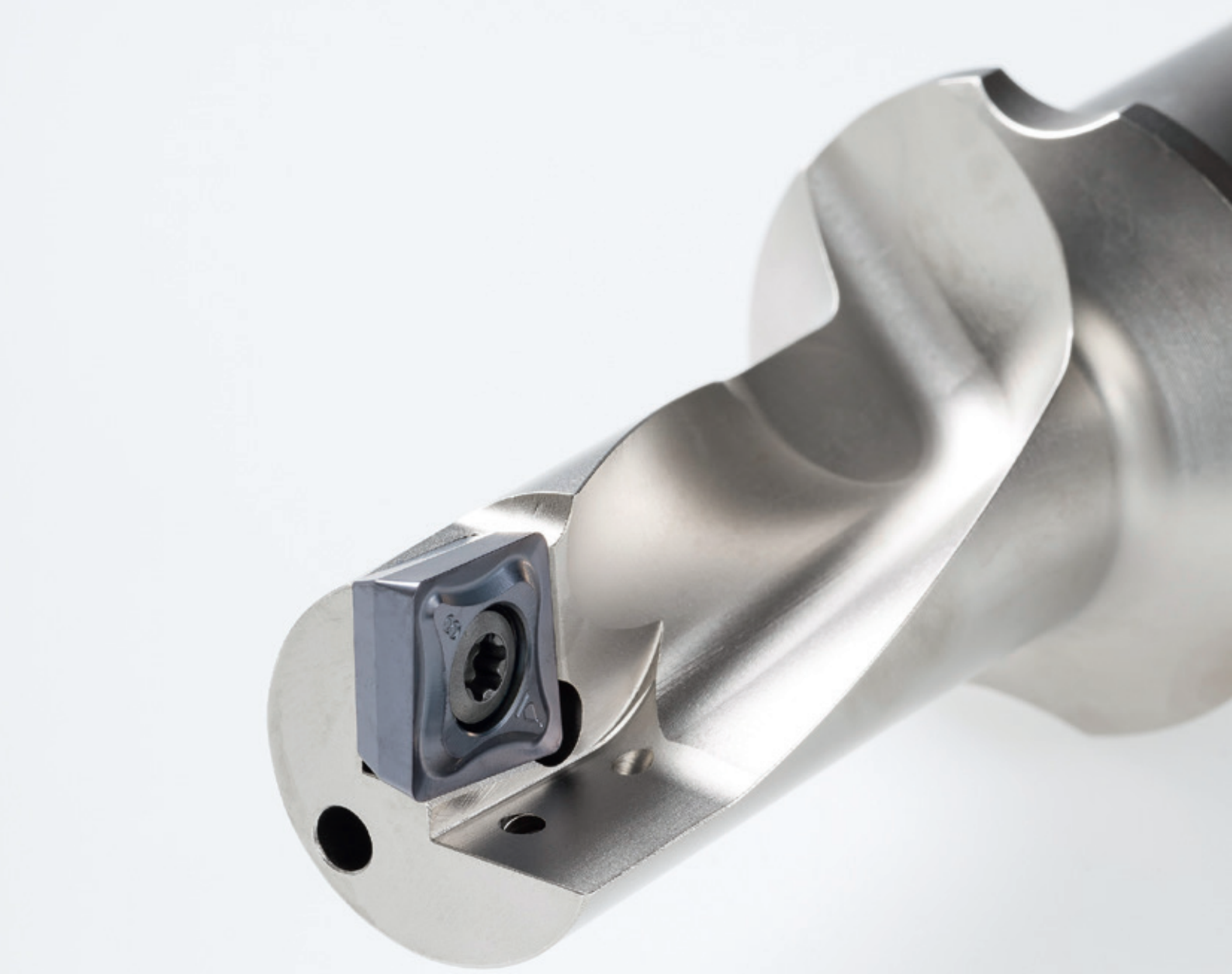
Excessive stress of the insert causes breakage.

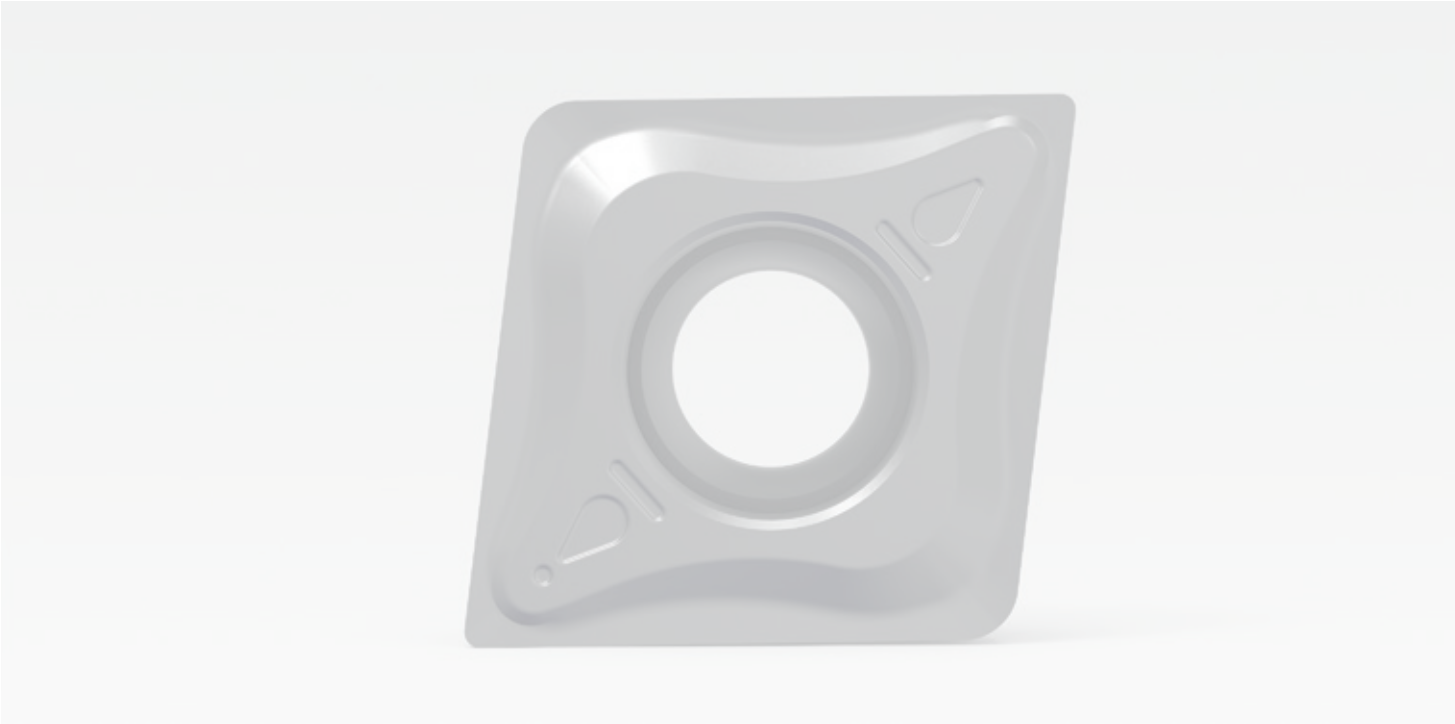
Insert breakage

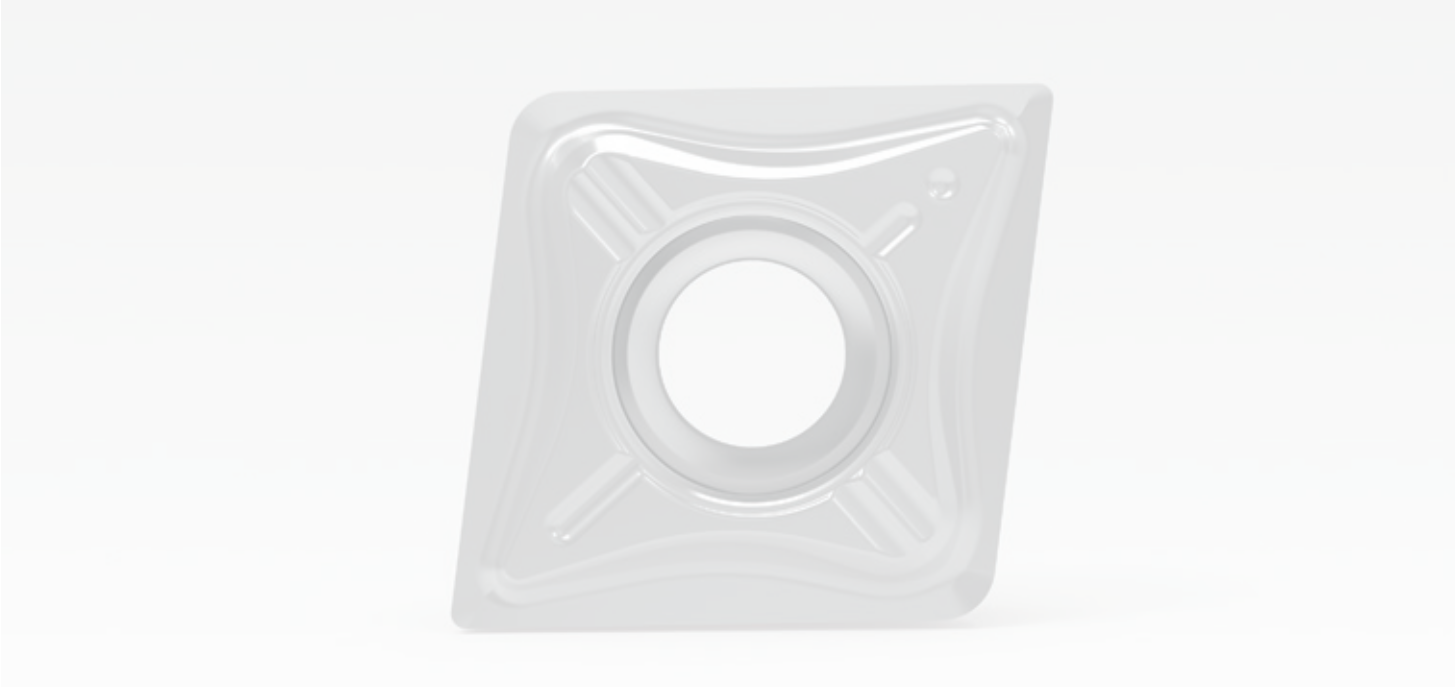
Reasons
- *Excessive stress of cutting material*
- *Lack of stability*
- *Corner angle too small*
- *Excessive notching*

Remedies
- *Use tougher cutting material*
- *Use protective edge chamfer*
- *Increase honing of edge*
- *Use more stable geometry*

UniCut

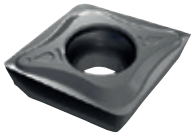






General overview

The complete programme from ø 8 – 32 mm with cutting depths of 1.5D and 2.25D

Application	Description	Pages
	XPNT	54
	XPET Aluminium	55
1.5 x D 	Ø 8.00 – 32.00 mm	57
2.25 x D 	Ø 8.00 – 32.00 mm	57
	Spare Parts	58

Productivity

The system:

4 machining operations – only one tool

1. Drilling into solid material with flat bottom holes
2. Boring applications
3. Turning of face profiles
4. External turning applications

Your benefits

- Problem solver for insufficient tool storage
- Less programming effort
- Produces a flat bottom hole
- Reduced tool and insert inventory costs
- Considerable acquisition cost savings
- Shorter set-up times. Reduced pre-setting time

Grades for Inserts

- Three coated high-performance grades: DPK25D, DPK35D, DPMS30E and a new one for aluminium: UN15C.
- Capable to cover all the ISO material groups P, M, K, N and S.

Available in 2 lengths

1.5 x D

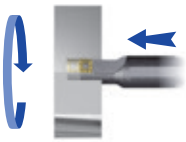
2.25 x D

Tool performances

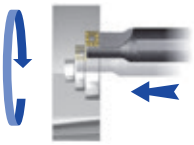
- *Optimised stability*
- *Torx Plus screws for better insert clamping. Easier and more reliable handling*
- *"Hard & tough" surfaces for easy chip evacuating and reduced surface abrasion*

Multi-purpose tool

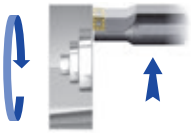
Turning and boring ø ≥ 8 mm



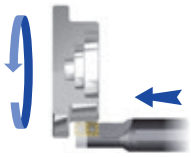
Drilling with flat bottom face



Turning of internal profiles



Facing operations



Turning of external profiles

Blauing designation system

Designation system for inserts

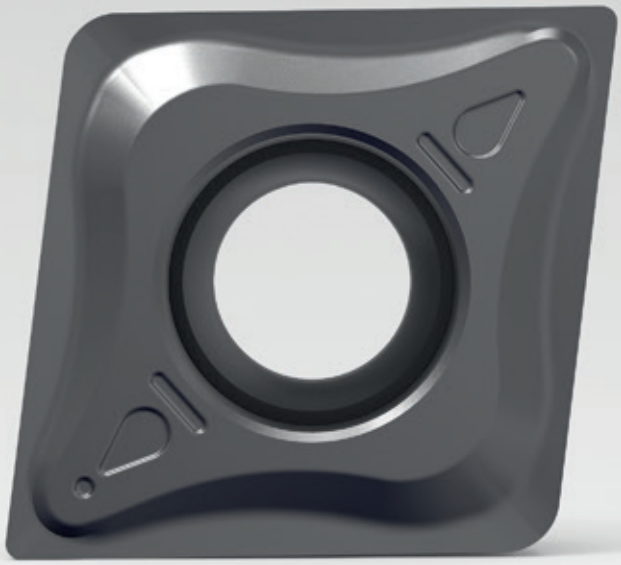
Insert shape	Tolerances	Cutting edge length	Clearance angle	Form of top surface	Insert tickness	Corner radius	Cutting edge preparation	Cutting direction
X	P	N	T	13	04	04	E	N

Designation system for holders

UniCut system	Nominal diameter [mm]	Cutting direction		Maximum drilling depth		Insert size
UC	14	R	-	1.5D	-	07

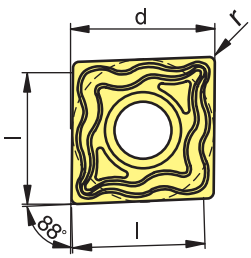
UniCut

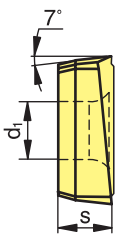
XPNT



XPNT inserts

Designation	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]	DPK25D	DPMS30E	DPK35D
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	on request	•	•
XPNT 050204EN	5.80	5.00	2.10	0.40	2.25	on request	•	•
XPNT 060204EN	6.50	6.00	2.92	0.40	2.50	on request	•	•
XPNT 070304EN	7.60	7.00	3.87	0.40	2.80	on request	•	•
XPNT 080304EN	8.50	8.00	3.87	0.40	3.40	on request	•	•
XPNT 090404EN	9.60	9.00	4.66	0.40	3.40	on request	•	•
XPNT 100404EN	10.60	10.00	4.66	0.40	4.40	on request	•	•
XPNT 100408EN	10.60	10.00	4.66	0.80	4.40	on request	•	•
XPNT 130504EN	13.50	12.50	5.45	0.40	5.30	on request	•	•
XPNT 130508EN	13.50	12.50	5.45	0.80	5.30	on request	•	•
XPNT 170608EN	17.50	16.00	6.25	0.80	5.30	on request	•	•

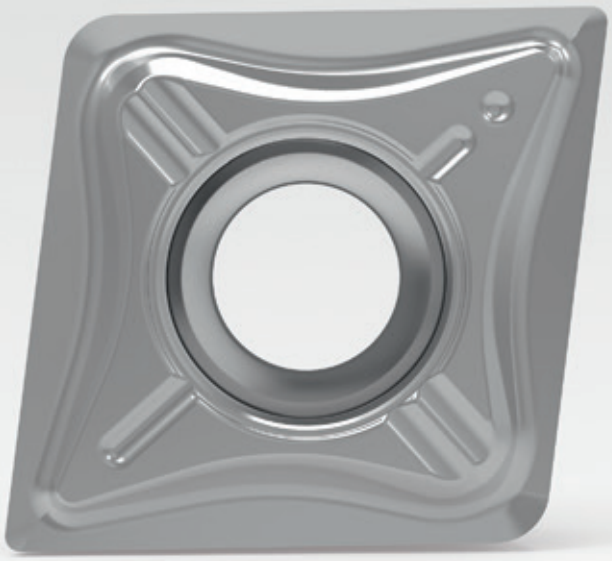




P	•	•	•
M	○	•	○
K	•	○	•
N		○	
S		•	
H			

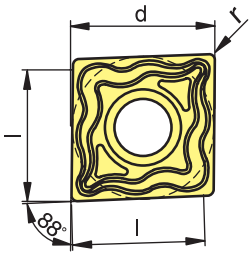
• Main application
○ Extended application

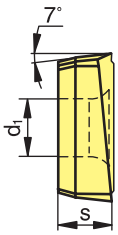
UniCut
XPET ALUMINIUM
Polished – grinded



XPET inserts for aluminium

Designation	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]	UN15C
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 130404FN	13.50	12.50	5.45	0.40	5.30	•
XPET 170508FN	17.50	16.00	6.25	0.80	5.30	•

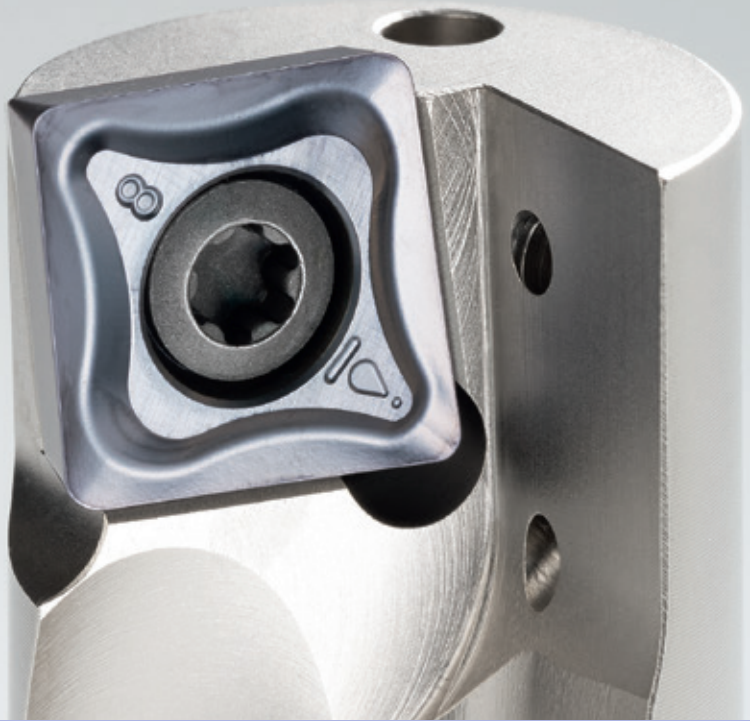




P	
M	
K	
N	•
S	
H	

• Main application
○ Extended application

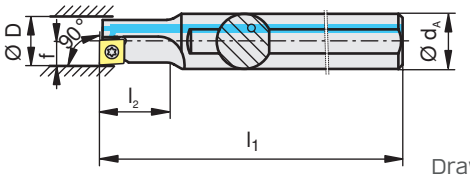
UniCut
Tool holder

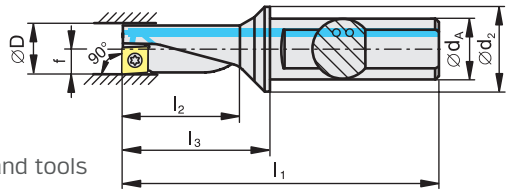


Drilling depth up to 1.5 x D

Available range for XPNT and XPET

D [mm]	Type Description	d_A [mm]	l_1 [mm]	l_2 [mm]	f [mm]	[XPNT/XPET]			
8.00	UC 08R-1.5D-04* UC 08L-1.5D-04*	12.00	80.00	12.00	4.00	XPNT 0402	48470811	–	50234811
10.00	UC 10R-1.5D-05 UC 10L-1.5D-05	12.00	90.00	15.00	5.00	XP...T 0502	08470811	–	50234811
12.00	UC 12R-1.5D-06 UC 12L-1.5D-06	16.00	100.00	18.00	6.00	XP...T 0602	41248611	–	84788411
14.00	UC 14R-1.5D-07 UC 14L-1.5D-07	16.00	110.00	21.00	7.00	XP...T 0703	61248611	–	59160211
16.00	UC 16R-1.5D-08 UC 16L-1.5D-08	20.00	125.00	24.00	8.00	XP...T 0803	50372211	–	80234811
18.00	UC 18R-1.5D-09 UC 18L-1.5D-09	25.00	135.00	27.00	9.00	XP...T 0904	50372211	–	80234811
20.00	UC 20R-1.5D-10 UC 20L-1.5D-10	25.00	150.00	30.00	10.00	XP...T 1004	11301611	85805411	–
25.00	UC 25R-1.5D-13 UC 25L-1.5D-13	32.00	180.00	37.50	12.50	XP...T 1305	14410811	47961811	–
32.00	UC 32R-1.5D-17 UC 32L-1.5D-17	40.00	200.00	48.00	16.00	XP...T 1706	14410811	47961811	–





Drawings shows right-hand tools

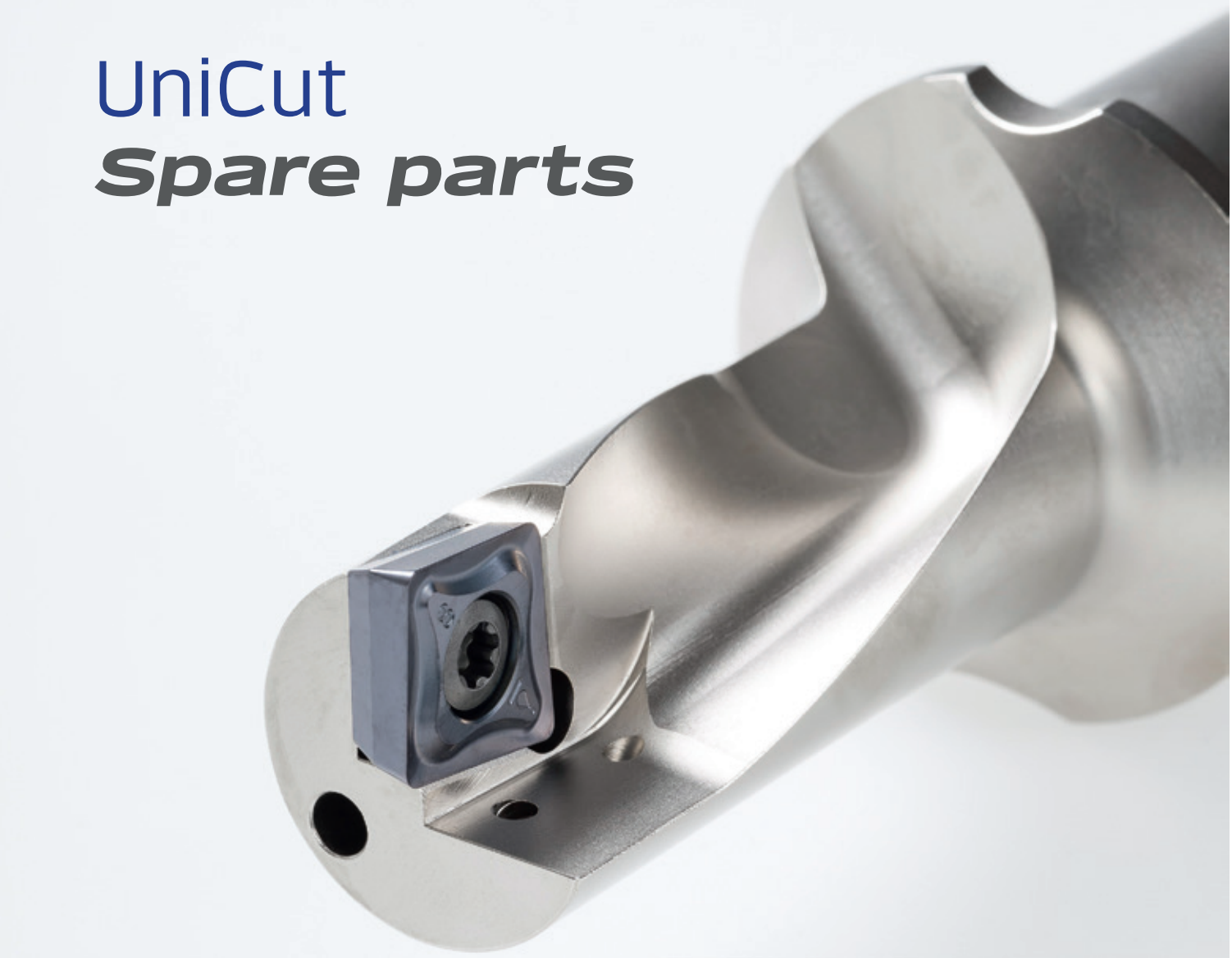
Drilling depth up to 2.25 x D

Available range for XPNT and XPET

D [mm]	Type Description	d_A [mm]	d_2 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	f [mm]	[XPNT/XPET]			
8.00	UC 08R-2.25-04* UC 08L-2.25D-04*	10.00	15.00	60.00	18.00	22.00	4.00	XPNT 0402	48470811	–	50234811
10.00	UC 10R-2.25D-05 UC 10L-2.25D-05	12.00	18.00	69.50	22.50	27.50	5.00	XP...T 0502	08470811	–	50234811
12.00	UC 12R-2.25D-06 UC 12L-2.25D-06	16.00	22.00	78.00	27.00	33.00	6.00	XP...T 0602	41248611	–	84788411
14.00	UC 14R-2.25D-07 UC 14L-2.25D-07	16.00	23.00	83.50	31.50	38.50	7.00	XP...T 0703	61248611	–	59160211
16.00	UC 16R-2.25D-08 UC 16L-2.25D-08	20.00	28.00	94.00	36.00	44.00	8.00	XP...T 0803	50372211	–	80234811
18.00	UC 18R-2.25D-09 UC 18L-2.25D-09	25.00	36.00	109.50	40.50	53.50	9.00	XP...T 0904	50372211	–	80234811
20.00	UC 20R-2.25D-10 UC 20L-2.25D-10	25.00	35.00	111.00	45.00	55.00	10.00	XP...T 1004	11301611	85805411	–
25.00	UC 25R-2.25D-13 UC 25L-2.25D-13	32.00	44.00	129.00	56,50	69.00	12.50	XP...T 1304	14410811	47961811	–
32.00	UC 32R-2.25D-17 UC 32L-2.25D-17	40.00	54.00	158.00	72.00	88.00	16.00	XP...T 1706	14410811	47961811	–

* Right-hand holder -> Right-hand indexable insert
* Left-hand holder -> Left-hand indexable insert

UniCut
Spare parts



	Material	Type description	Key size
	59160211	10002494/TORX 08IP F	T08IP
	8478411	10007404/TORX 07IP F	T07IP
	50234811	10014921/TORX 06IP F	T06IP
	80234811	10014922/TORX 09IP F	T09IP
	85805411	10006919/TORX 15IP	T15IP
	47961811	10013909/TORX 20IP	T20IP

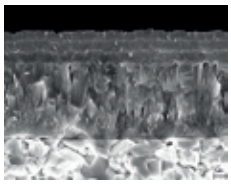
	Material	Type description	Length [mm]	Thread size	Key size
	50372211	M3.0x7.0-09IP/10003007	7.00	M3.0	T09IP
	11301611	M3.5x8.6-15IP/1000749	8.60	M3.5	T15IP
	41248611	M2.2x5.0-071IP/10009244	5.00	M2.2	T07IP
	61248611	M2.5x6.0-08IP/10009243	6.00	M2.5	T08IP
	14410811	M4.5x10.5-20IP/10013040	10.50	M4.5	T20IP
	08470811	M2.0x4.3-06IP/10013332	4.30	M2.0	T06IP
	48470811	M1.8x3.6-06IP/10013338	3.60	M1.8	T06IP

Grades overview

Grade description	Standard designation ISO	Standard designation ANSI	*Type of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat resistant alloys	H Hard materials
DPK25D	HC-P25	C6	C		●					
	HC-K30	C1	C				●			
	HC-M20	–	C			○				
DPMS30E	HC-P30	C6	P		●					
	HC-M25	–	P			●				
	HC-S25	–	P			○			●	
	HC-K30	C1	P				○			
	HC-N25	C2	P					○		
DPK35D	HC-P35	C5	P		●					
	HC-K40	–	P				●			
	HC-M30	–	P			○			●	
UN15C	HW-K15	C2	K					●		

● Main application
○ Extended application

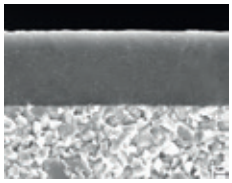
DPK25D — HC-P25 | HC-K30 | HC-M20



Specification:
Composition: Co 7.0%; mixed carbides 8.1%; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1450 | Coating specification: CVD Ti(CN) + Al_2O_3 multi-layer

Recommended application:
The wear-resistant solution for steel and cast iron under stable conditions and with high cutting speed

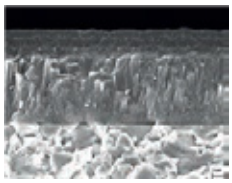
DPMS30E — HC-P30 | HC-M25 | HC-S25 | HC-K30 | HC-N25



Specification:
Composition: Co 9.0%; others 0.75%; WC balance | Grain size: 0.85 µm | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

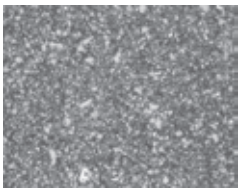
DPK35D — HC-P35 | HC-K40 | HC-M30



Specification:
Composition: Co 9.6%; others 7.8%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1400 | Coating specification: CVD TI (C,N) + AL_2O_3 multi-layer

Recommended application:
The reliable choice when machining steel and cast iron under unstable conditions

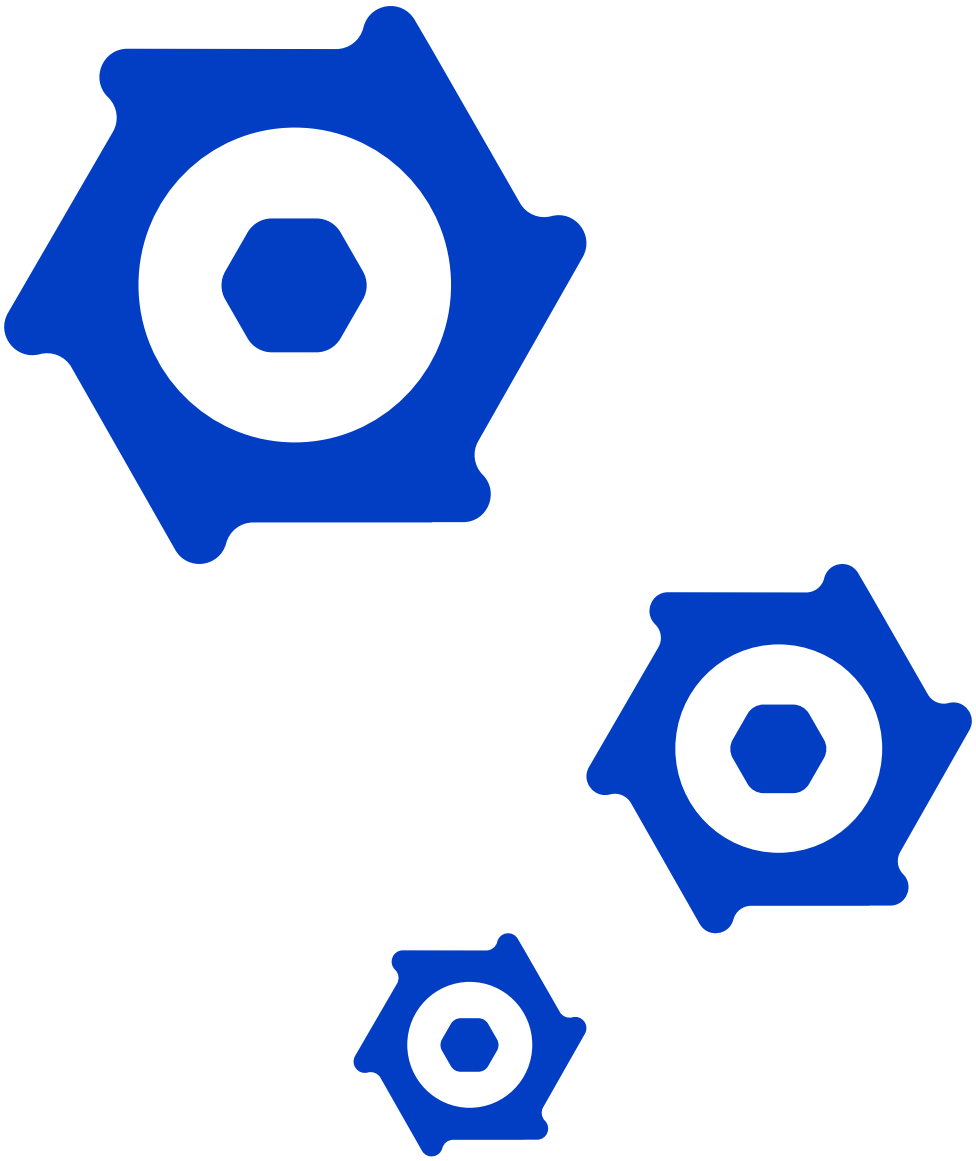
UN15C — HW-K15



Specification:
Composition: Co 6.0% | WC balance; other: 0.20% | Grain size: 0.8-1.3 µm | Hardness: HV_{30} 1650

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

Technical information

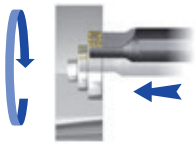


Grades / materials

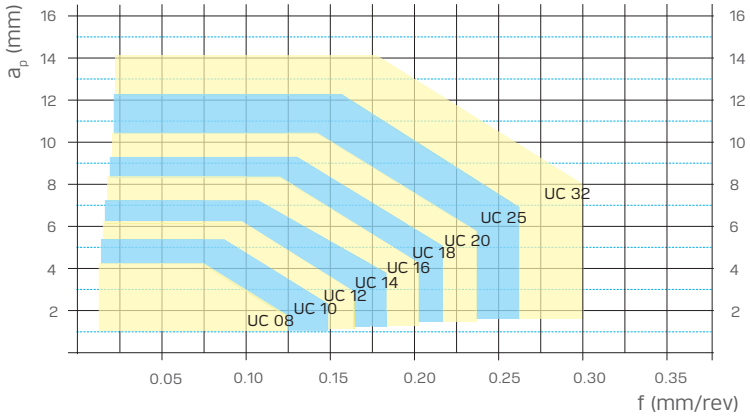
Cutting data

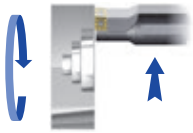
Work piece material		Type of treatment / alloy	Coated carbide DPK25D v_c [m/min]	DPMS30E v_c [m/min]	DPK35D v_c [m/min]	UN15C v_c [m/min]
P	Steel	Non-alloyed steel	270 – 90	230 – 50	250 – 70	–
		Low-alloyed steel	270 – 70	160 – 50	180 – 60	–
		High-alloyed steel	170 – 60	150 – 50	160 – 50	–
		Corrosion-resistant 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

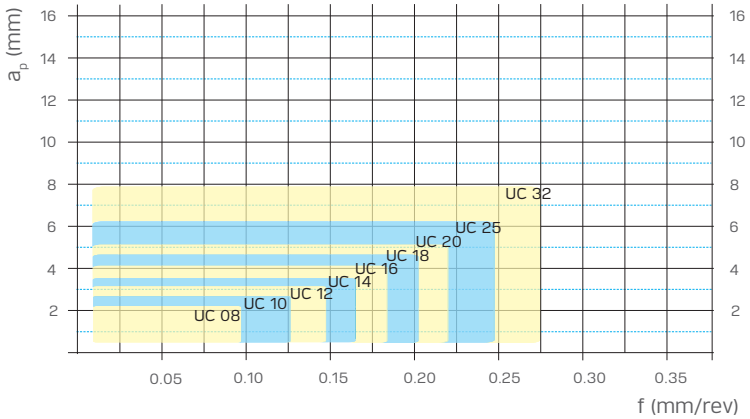


Turning of internal profiles

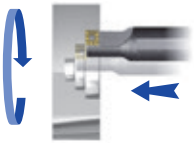




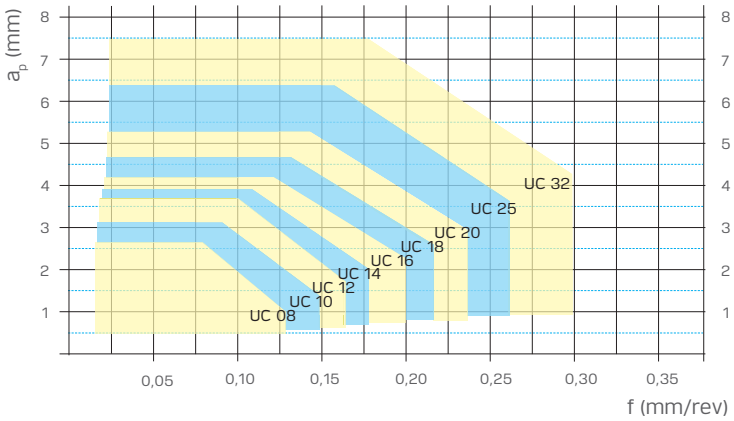
Facing operations

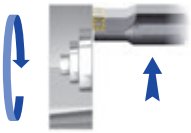


Depth of cut / feed rate – 2.25 x D

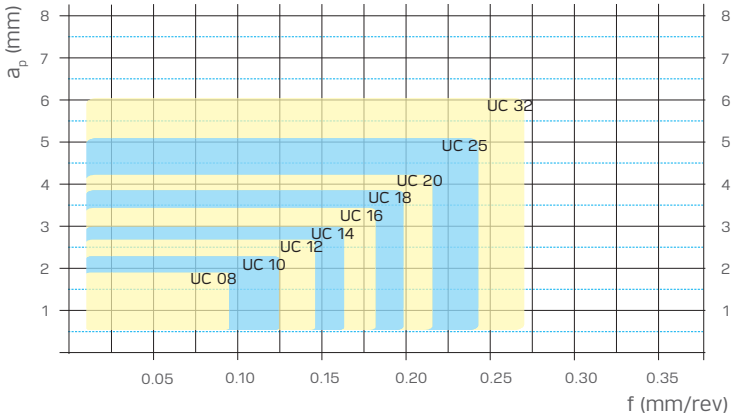


Turning of internal profiles



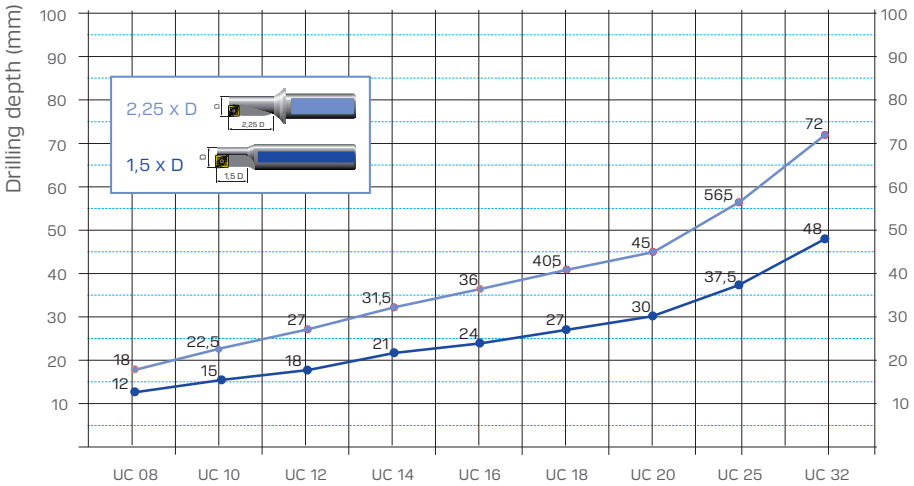


Facing operations



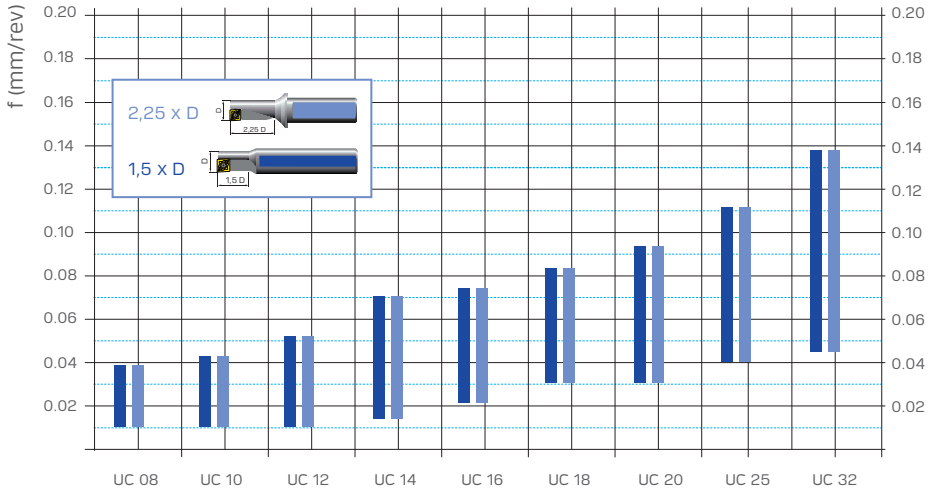
Drilling depth / feed rate

Drilling depth



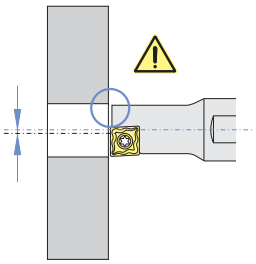
Drilling depth / feed rate

Drilling feed rate

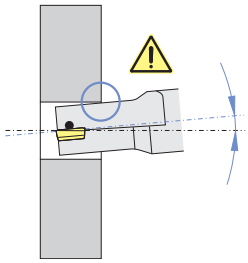


Application reference

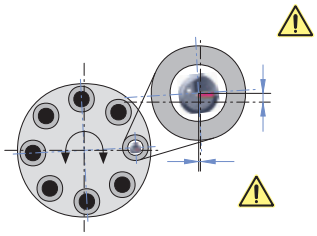
Axial displacement of the machine



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.

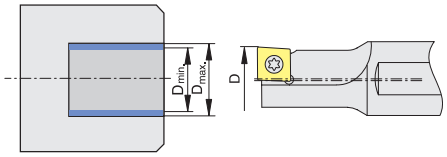
Through hole

With through holes a sharp-edged disk is created as tool break-out occurs. Safety measures are necessary.

Off-centre drilling

Application

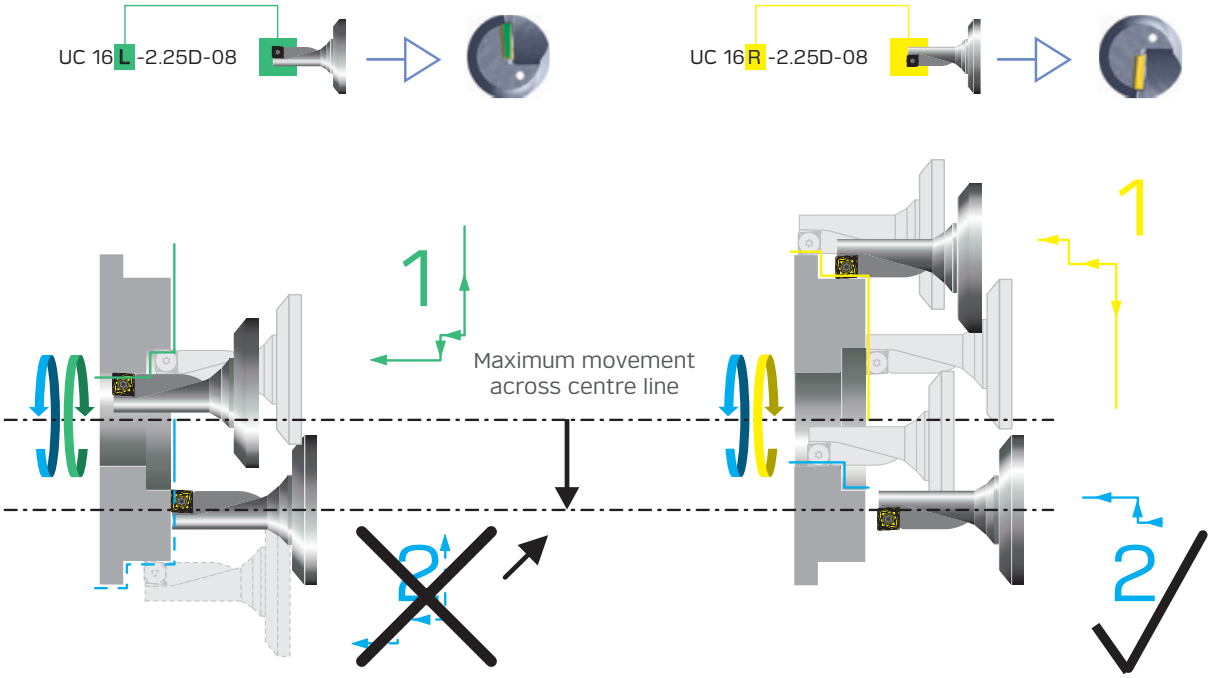
Type of tool Solid carbide	Nominal tool D [mm]	Workpiece bore diameter D_{min} [mm]	D_{max} [mm]
UC 08 R/L ... 04	8.00	7.85	8.30
UC 10 R/L ... 05	10.00	9.85	10.50
UC 12 R/L ... 06	12.00	11.85	12.50
UC 14 R/L ... 07	14.00	13.85	14.50
UC 16 R/L ... 08	16.00	15.85	16.50
UC 18 R/L ... 09	18.00	17.85	18.50
UC 20 R/L ... 10	20.00	19.80	20.50
UC 25 R/L ... 13	25.00	24.80	25.80
UC 32 R/L ... 17	32.00	31.80	33.00



Thanks to the special design of the holder and the indexable inserts off-centre drilling is possible.

Machining across centre line

Application



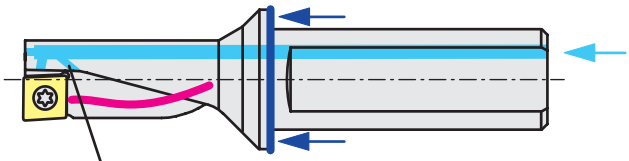
Situation:
In case of insufficient movement of the machine across the centre line the external diameter cannot be machined with the same tool

Solution:

Use a right-hand UniCut tool

Chip booster / coolant pressure

Application



Internal coolant supply (chip booster)

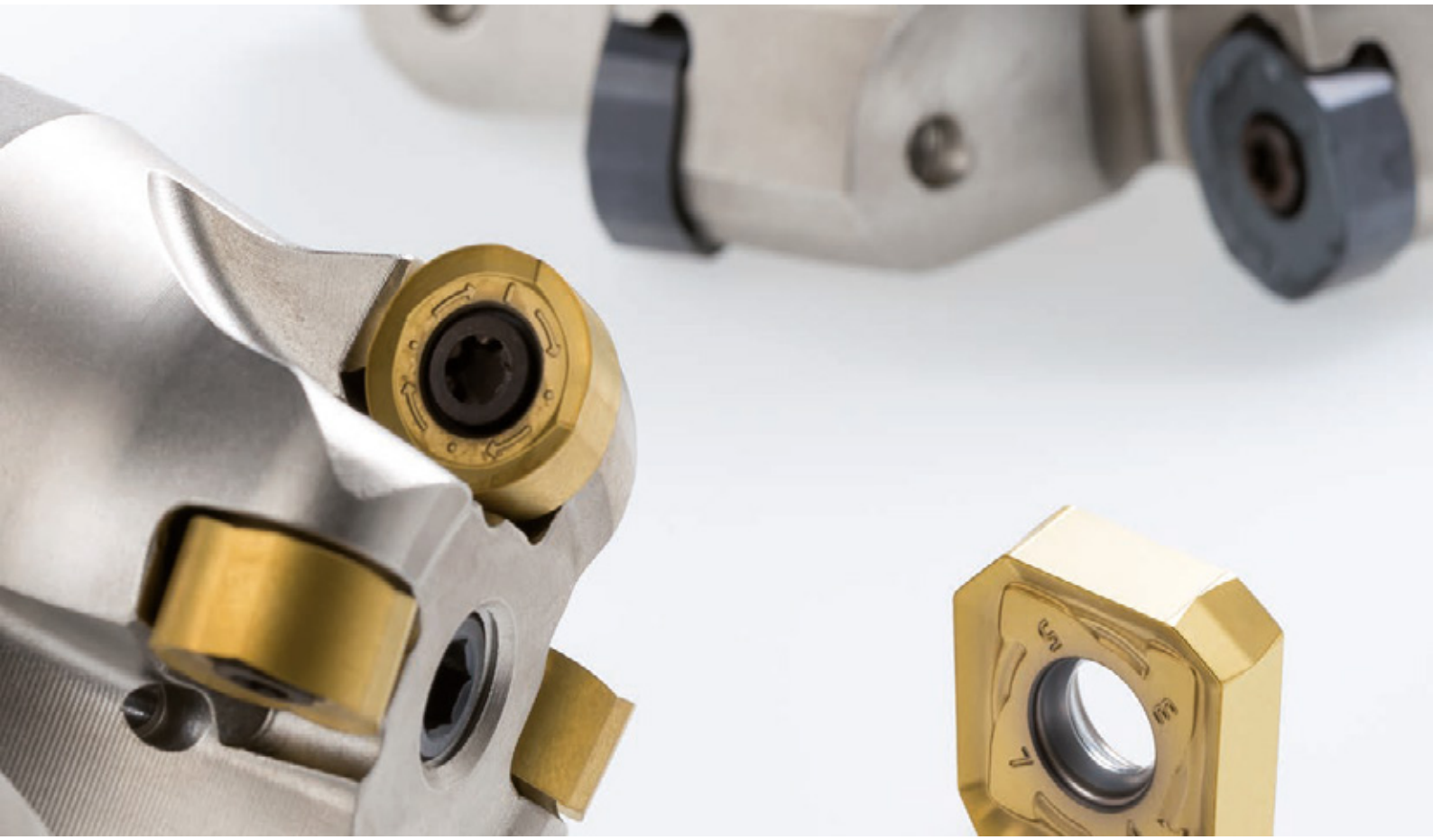
Helical chip pocket (stability)

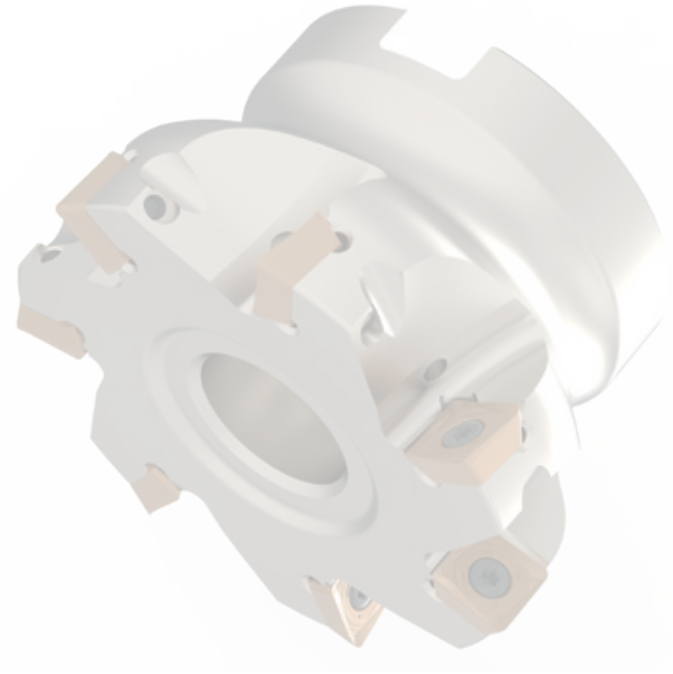
Axial abutment face (stability)

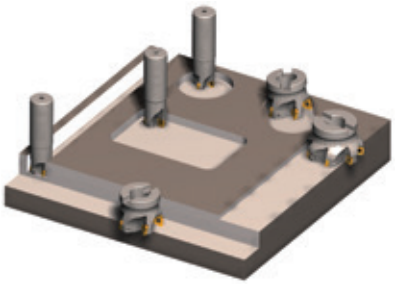
EcoCut offers an innovative detail solution for range 2.25D, namely additional bidirectional coolant supply for better chip evacuation.

An additional backwards directed coolant stream improves chip evacuation from the flute area. A minimum coolant pressure of 1.5 – 3 bar (optimum 5 – 7 bar) is required.

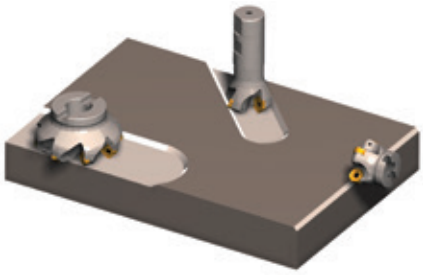
Milling



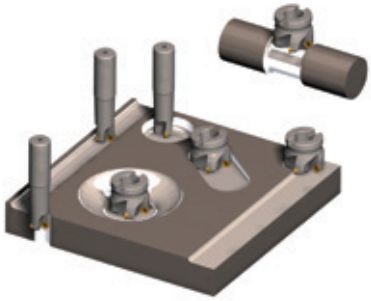




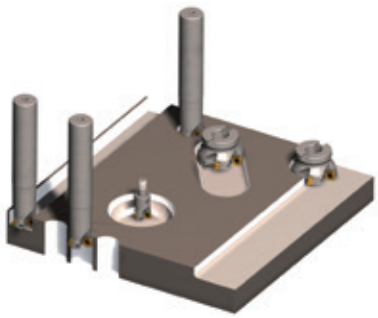
		Milling System	Page
Shouldering		LNKU12	73
		LOKU12	73
		TOKX07	77
		TOKX09	78
		SDKT09	83
		SDHT09	83
		SDKT12	84
		SDHT12	84



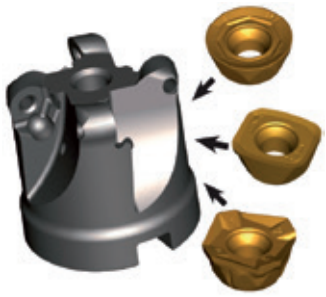
		Milling System	Page
Face milling		HPKT06	89
		HPCT06	89
		HOKT06	89
		HOCT06	89
		SOKU12	94
		SOKU15	95
		HNKU08	98



		Milling System	Page
Form milling		RP... / RD...10	102
		RP... / RD...12	104
		RP.X16	106
		RN.U / RO.U12	112
		RN.U / RO.U16	113

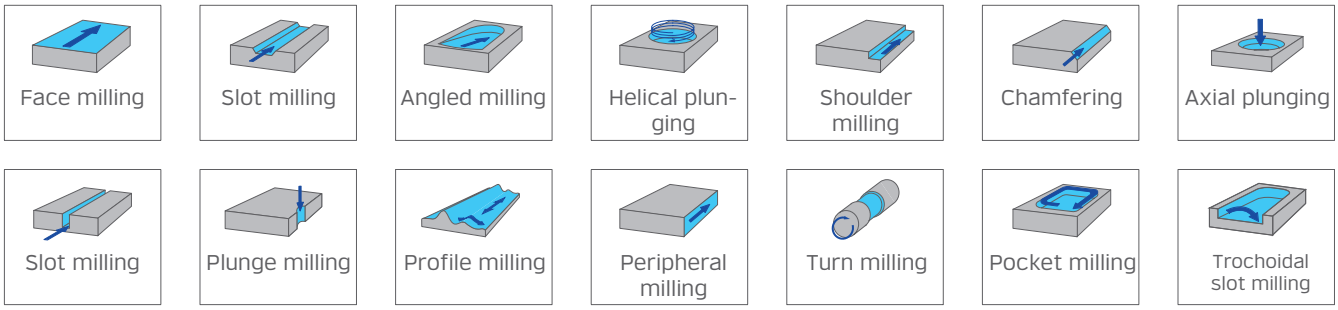


		Milling System	Page
High Feed Cutting		XPLT07	116
		XDLT10	117
		XDLX10	117
		XOLT13	118

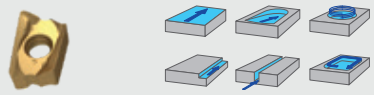
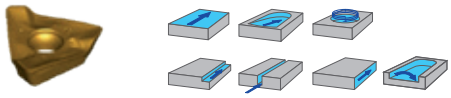
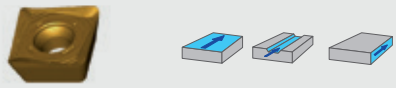
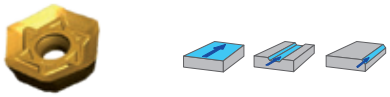
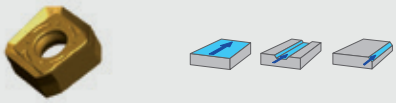
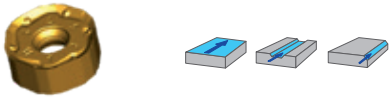


		Milling System	Page
Multiple Applicati-ons		SDMX11	133
		SDMX15	134
		RPMX / RPHX12	125
		RPMX / RPHX16	126
		EOMT12	130

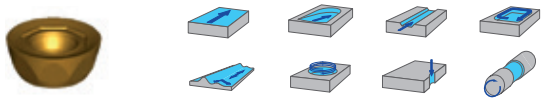
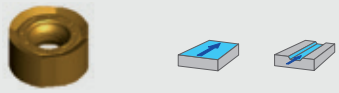
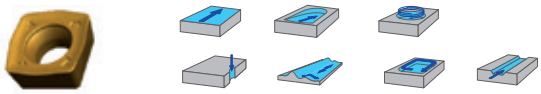
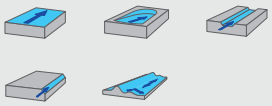
Possible applications



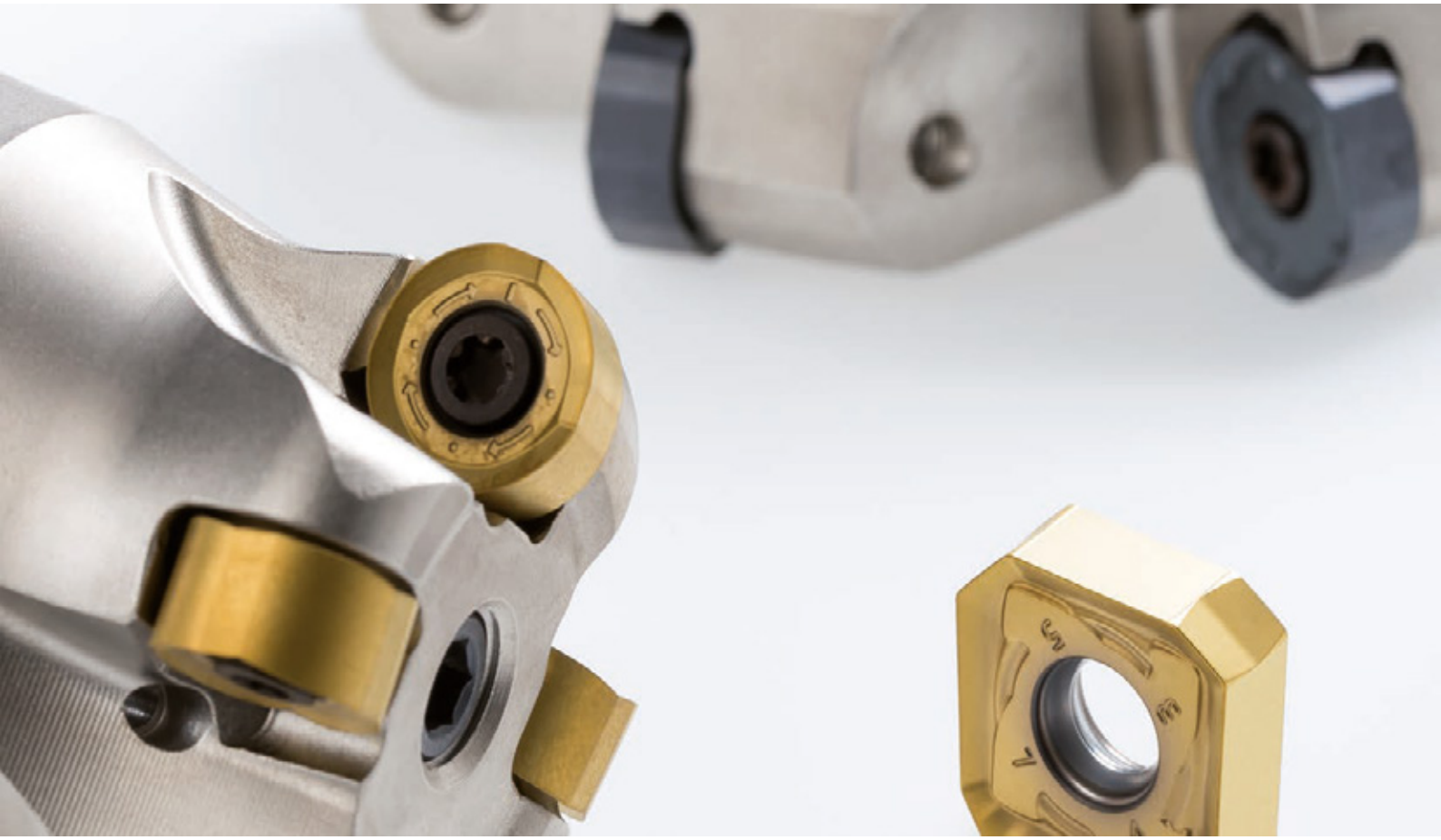
Shouldering / Face milling

Application	Machining operations	Range	Page
Shouldering 4 x 90°		DL	73
Shouldering 3 x 90°		ST	76
Shouldering 4 x 90°		SS	82
Face milling 6 x 45°		SH	89
Face milling 8 x 45°		DS	93
Face milling 12 x 45°		DH	98

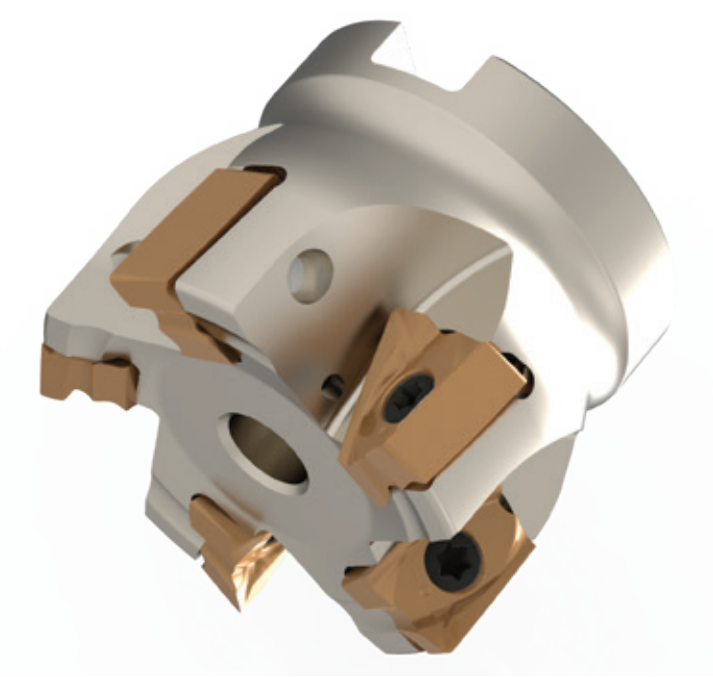
Form milling / High feed cutting / Multiple applications

Application	Machining operations	Range	Page
Form milling		SR	101
Form milling		DR	111
High feed cutting		SX	115
Multiple applications	 	S-A.R	123

Products

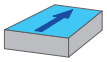


Overview LNKU / LOKU

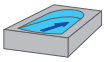


Application

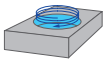
1) Face milling



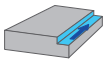
2) Angled milling



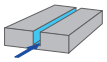
3) Helical plunging



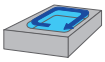
4) Shoulder milling



5) Slot milling



6) Pocket milling



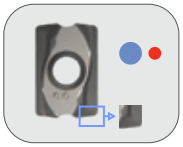
Customer benefits

- *High precision 90° milling*
- *Low power consumption, maximum chip removal rate*
- *Chipbreaker optimised by FEM*
- *Soft cutting providing quiet machining and maximum spindle protection*

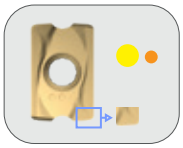
Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel – Exotic* – Titanium**
***M5K**: Cast iron*

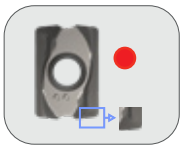
Which chipbreaker to use?



M5P
Strong cutting edge for general steel applications and hard conditions milling.

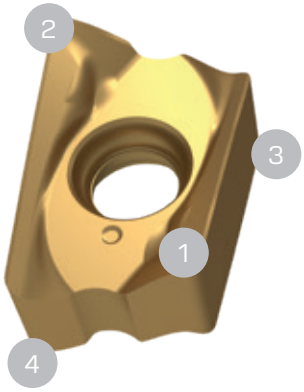


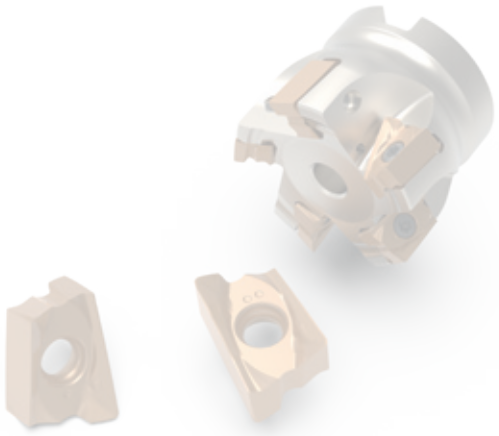
M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.



M5K
Strong edge for cast iron

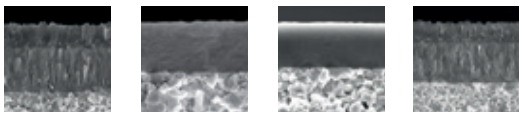
4 effective cutting edges





Grades

MP30DD	MP35E	MM40EA	MK15D



Available range LNKU12 / LOKU 12

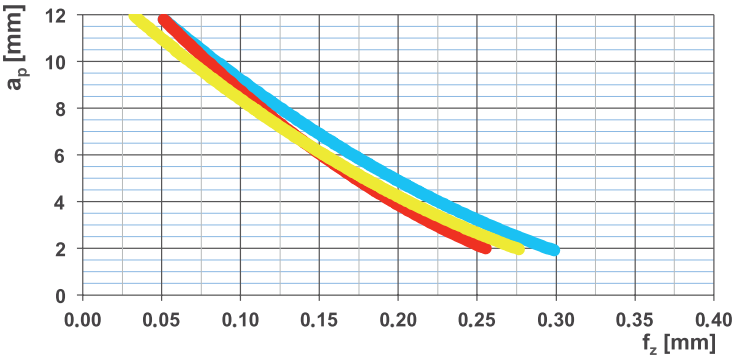
Insert	Designation	Chipbreaker	MP30DD	MP35E	MK15D	MM40EA	MSM35D	MS35D
	LNKU 120608-M5P	...-M5P	•	•				
	LNKU 120608-M5M	...-M5M				•		
	LNKU 120608-M5K	...-M5K			•			
	LOKU 120608-M5M	...-M5M				•		
	LOKU 120608-M5S	...-M5S					○	○

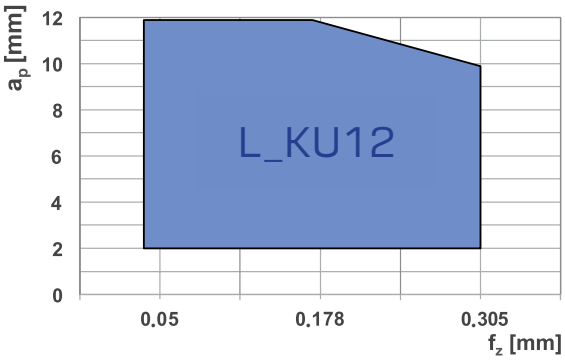
Body	Designation	ø Milling cutter [mm]	z	Available
	BDLO/LN12-R040-Z04	40	4	•
	BDLO/LN12-R050-Z05	50	5	•
	BDLO/LN12-R063-Z06	63	6	•
	BDLO/LN12-R080-Z07	80	7	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.0 x 11 – T15	5	47224011	•
	Power screw M10.0 x 31.0	15	89204011	•

Cutting data LNKU 12 / LOKU 12

Starting parameters:





Grades and materials:

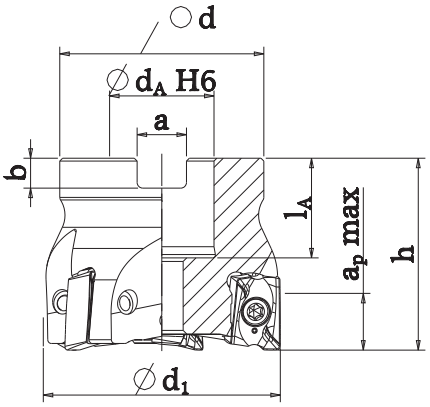
Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.05 – 0.30	12 – 2.0
M	Stainless steel	M5M	MM40EA	200 – 60	0.04 – 0.28	12 – 2.0
K	Cast Iron	M5K	MK15D	320 – 100	0.05 – 0.26	12 – 2.0

DL / Shouldering 4 x 90°

Milling body (LNKU12 / LOKU12)

- *Face milling*
- *Angled milling*
- *Helical plunging*
- *Shoulder milling*
- *Slot milling*
- *Pocket milling*

B..

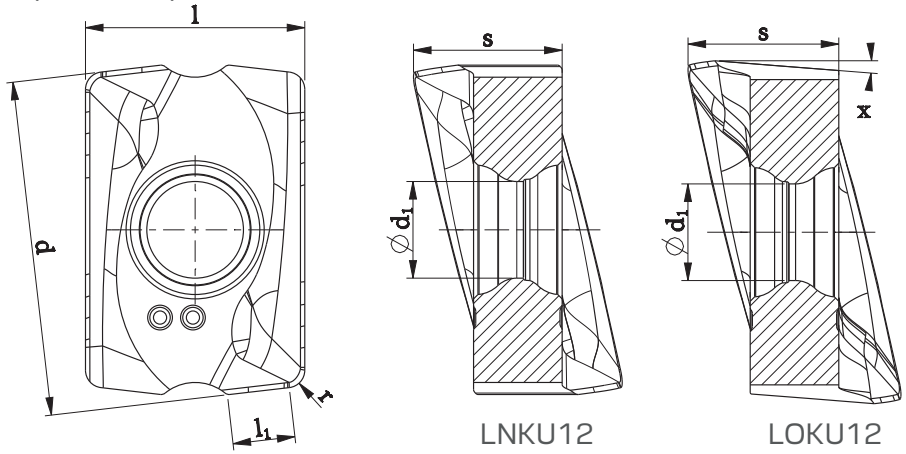


Description	Ød1 [mm]	h [mm]	Ø dA [mm]	ap max [mm]	nmax [min-1]	z	Ø d [mm]	lA	a	b
BDLO/LN12-R040-Z04	40	40 / 40.44*	16	12	17000	4	38	20	8.4	5.6
BDLO/LN12-R050-Z05	50	40 / 40.44*	22		14800	5	43	20	10.4	6.3
BDLO/LN12-R063-Z06	63	40 / 40.44*	22		12850	6	48	21	10.4	6.3
BDLO/LN12-R080-Z07	80	50 / 50.44*	27		11250	7	58	22	12.4	7

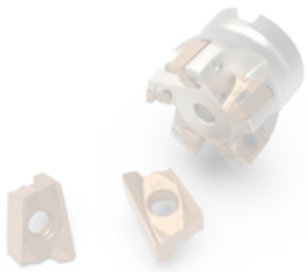
*z płytką LOKU

SL / Shouldering 4 x 90°

Insert (LNKU12 / LOKU12)



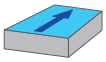
Description	d [mm]	l [mm]	s [mm]	l1 [mm]	r [mm]	d1 [mm]	x [°]
LNKU 120608-M5P	15.27	10	6.78	2.7	0.8	4.4	0
LNKU 120608-M5M	15.27	10	6.78	2.7	0.8	4.4	0
LNKU 120608-M5K	15.27	10	6.78	2.7	0.8	4.4	0
LOKU 120608-M5M	15.86	10	6.87	2.7	0.8	4.4	5
LOKU 120608-M5S	15.86	10	6.87	2.7	0.8	4.4	5



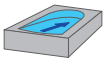
Overview TOKX

Application

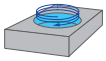
1) Face milling



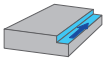
2) Angled milling



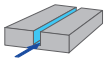
3) Helical plunging



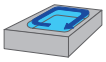
4) Shoulder milling



5) Slot milling

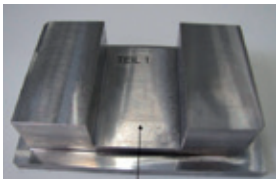


6) Pocket milling



Customer benefits

- *High precision 90° milling*
- *Low power consumption. maximum chip removal rate*
- *Chipbreaker optimised by FEM*
- *Soft cutting providing quiet machining and maximum spindle protection*

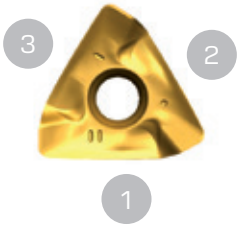


Result: Workpieces with clean surface. close tolerances and reduced formation of burrs, maximum service life of tool and insert.

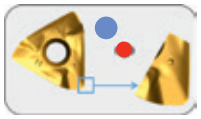
Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel – Exotic* – Titanium**

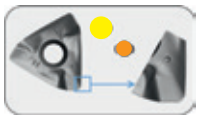
3 effective cutting edges



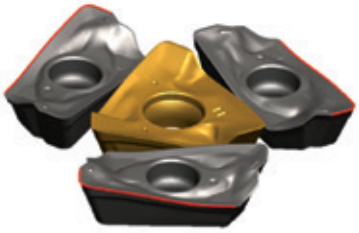
Which chipbreaker to use?



M5P
Strong cutting edge for general steel applications and hard conditions milling.



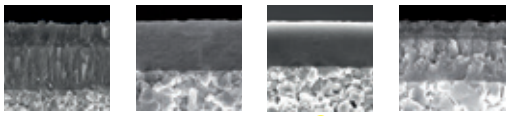
M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.



* secondary application

Grades

MP30DD	MP35E	MM40EA	MSM35D



Available range TOKX07

Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	TOKX 070305PDER-M5P	...-M5P	•	•		
	TOKX 070308PDER-M5P	...-M5P	•	•		
	TOKX 070305PDER-M5M	...-M5M			•	•
	TOKX 070308PDER-M5M	...-M5M			•	•

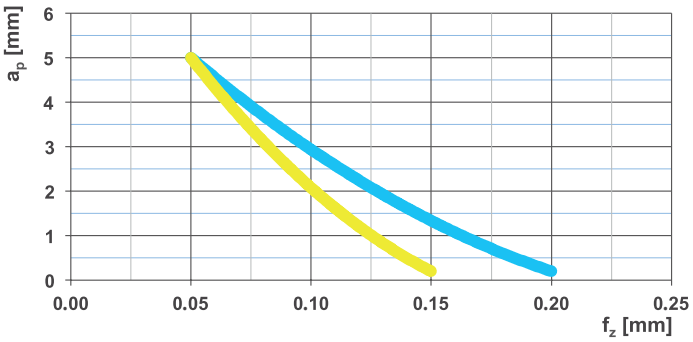
Available range TOKX07

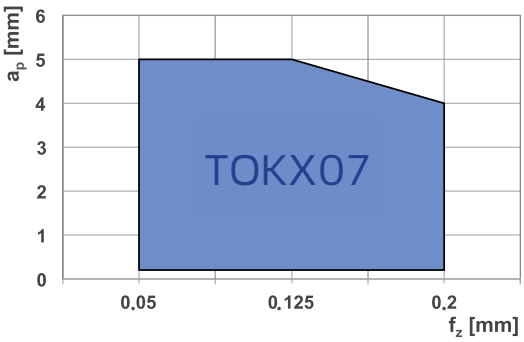
Body	Designation	ø Milling cutter [mm]	z	Available
	SST07-R020-W20-25-L77-Z03	20	3	•
	SST07-R025-W25-34-L90-Z04	25	4	•
	SST07-R032-W32-40-L102-Z05	32	5	•
	TST07-R020-Z03	20	3	•
	TST07-R025-Z04	25	4	•
	TST07-R032-Z05	32	5	•
	BST07-R040-Z05	40	5	•
	BST07-R050-Z06	50	6	On request

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Śruba M2.5x6.0 – T08	1.6	54642000	•

Cutting data TOKX07

Starting parameters:





Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.05 – 0.2	5 – 0.2
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.05 – 0.15	5 – 0.2

Available range TOKX09

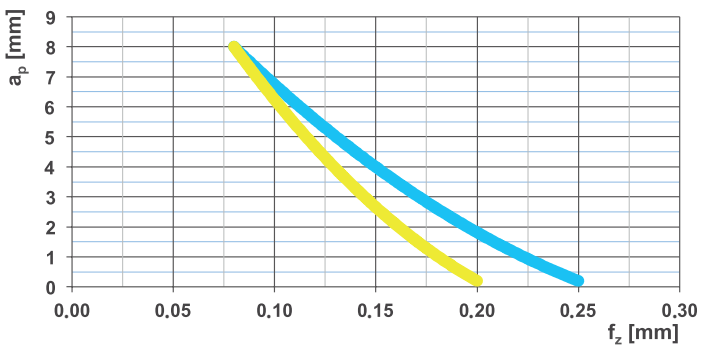
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	TOKX 09T308PDER-M5P	...-M5P	•	•		
	TOKX 09T312PDER-M5P	...-M5P	•	•		
	TOKX 09T316PDER-M5P	...-M5P	•	•		
	TOKX 09T308PDER-M5M	...-M5M			•	•
	TOKX 09T312PDER-M5M	...-M5M			•	•
	TOKX 09T316PDER-M5M	...-M5M			•	•

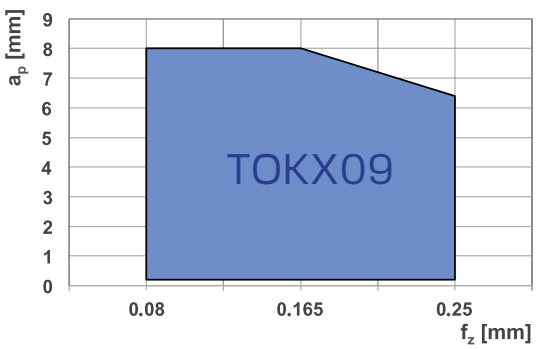
Body	Designation	ø Milling cutter [mm]	z	Available
	SST09-R032-W32-40-L102-Z03	32	3	•
	BST09-R040-Z04	40	4	•
	BST09-R050-Z05	50	5	•
	BST09-R063-Z06	63	6	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M3.0 x 7.3 – T08	1.2	00031677	•
	Power screw M8.0 x 30.0 (76281870) only for BST09-R040-Z04	15	08863011	•

Cutting data TOKX09

Starting parameters:

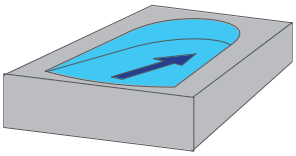


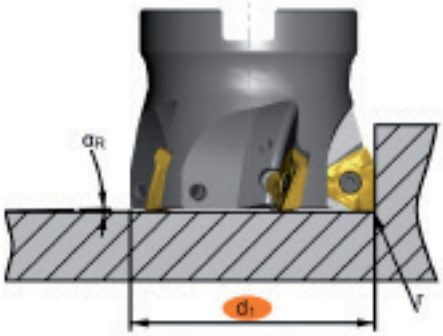


Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.08 – 0.25	8 – 0.2
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.08 – 0.2	8 – 0.2

ST / Shouldering 3 x 90°



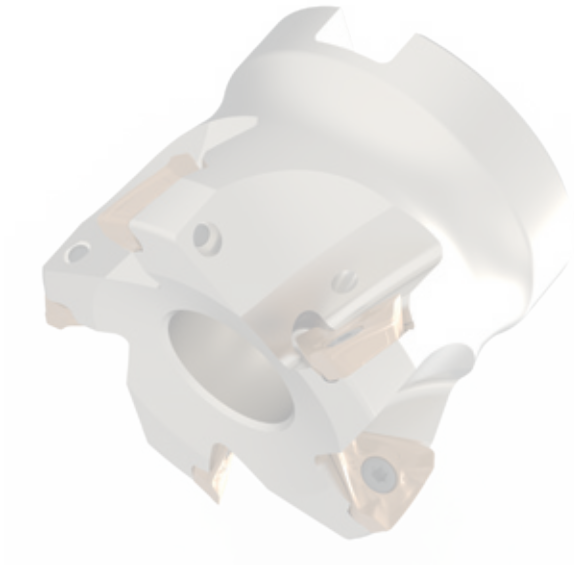


Application data (angled ramping TOKX07)

Description	d_1 [mm]	α_R [°]
SST07-R020-W20-25-L77-Z03	20	1.4
SST07-R025-W25-34-L90-Z04	25	1.2
SST07-R032-W32-40-L102-Z05	32	0.8
TST07-R020-Z03	20	1.4
TST07-R025-Z04	25	1.2
TST07-R032-Z05	32	0.8
BST07-R040-Z05	40	0,6
BST07-R050-Z06	50	0,5

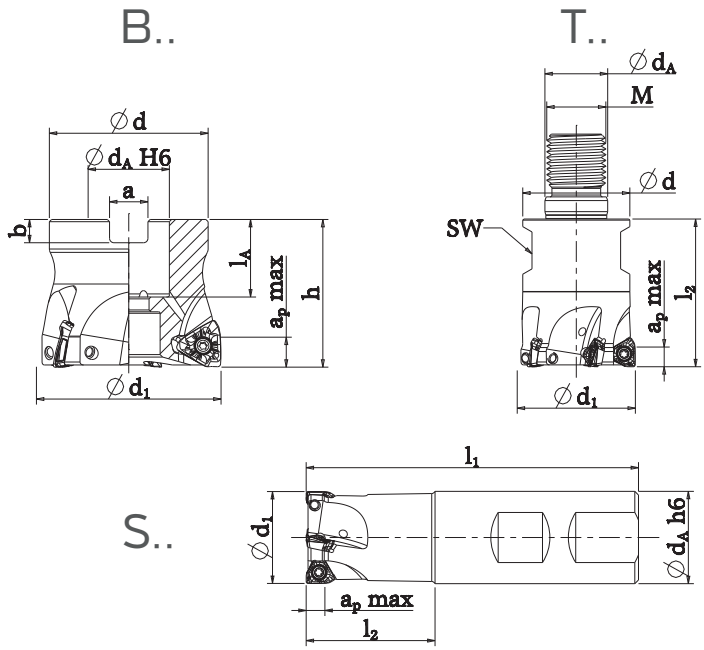
Application data (angled ramping TOKX09)

Description	d_1 [mm]	α_R [°]
SST09-R032-W32-40-L102-Z03	32	1.1
BST09-R040-Z04	40	0.8
BST09-R050-Z05	50	0.5
BST09-R063-Z06	63	0.5



ST / Shouldering 3 x 90°

- *Face milling*
- *Angled milling*
- *Helical plunging*
- *Shoulder milling*
- *Slot milling*
- *Pocket milling*



Milling body (TOKX07)

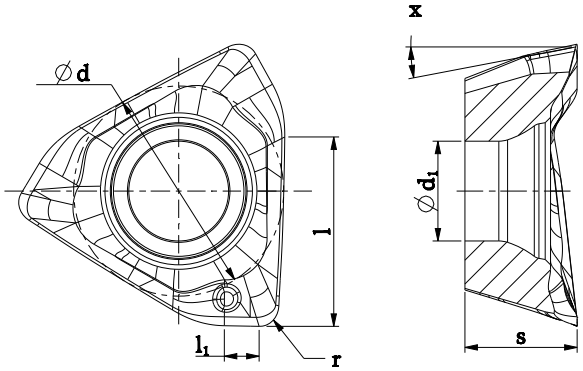
Description	Ød$_1$ [mm]	l$_1$ [mm]	l$_2$ [mm]	h [mm]	Ø d$_A$ [mm]	a$_p$ max [mm]	n$_{max}$ [min^{-1}]	z	Ø d [mm]	SW	M	l$_A$	a	b
SST07-R020-W20-25-L77-Z03	20	77	25	–	20		22000	3	–	–	–	–	–	–
SST07-R025-W25-34-L90-Z04	25	90	34	–	25		20000	4	–	–	–	–	–	–
SST07-R032-W32-40-L102-Z05	32	102	40	–	32		19700	5	–	–	–	–	–	–
TST07-R020-Z03	20	–	30	–	10.5		36900	3	18	SW15	M10	–	–	–
TST07-R025-Z04	25	–	35	–	12.5	5	33200	4	21	SW17	M12	–	–	–
TST07-R032-Z05	32	–	40	–	17		30200	5	29	SW24	M16	–	–	–
BST07-R040-Z05	40	–	–	40	16		17000	5	38	–	–	20	8.4	5.6
BST07-R050-Z06	50	–	–	40	22		14800	6	43	–	–	21	10.4	6.3

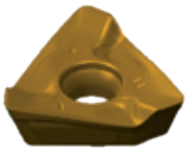
Milling body (TOKX09)

Description	Ø d$_1$ [mm]	l$_1$ [mm]	l$_2$ [mm]	h [mm]	Ø d$_A$ [mm]	a$_p$ max [mm]	n$_{max}$ [min^{-1}]	z	Ø d [mm]	l$_A$	a	b
SST09-R032-W32-40-L102-Z03	32	102	40	–	32		19700	3	–	–	–	–
BST09-R040-Z04	40	–	–	40	16		17000	4	38	20.5	8.4	5.6
BST09-R050-Z05	50	–	–	40	22	8	14800	5	43	21	10.4	6.3
BST09-R063-Z06	63	–	–	40	22		12850	6	48	21	10.4	6.3

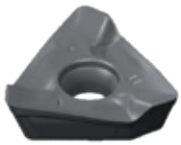
ST / Shouldering 3 x 90°

Insert (TOKX)



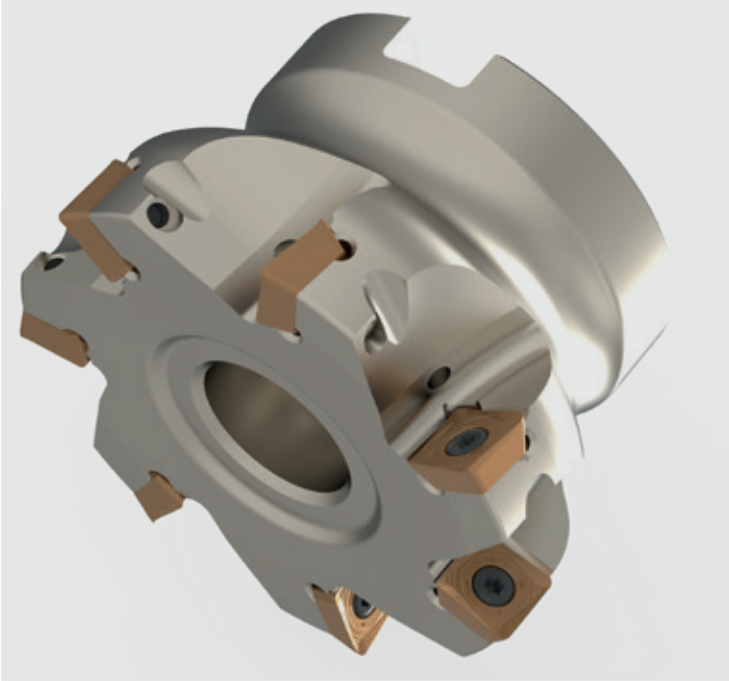


-M5P



-M5M

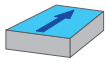
Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]
TOKX 070305PDER-M5P	5.9	5.5	3.15	1	0.5	2.8
TOKX 070305PDER-M5M	5.9	5.5	3.15	1	0.5	2.8
TOKX 070308PDER-M5P	5.9	5.5	3.15	1	0.8	2.8
TOKX 070308PDER-M5M	5.9	5.5	3.15	1	0.8	2.8
TOKX 09T308PDER-M5P	9.525	9.2	3.8	1.5	1.2	3.4
TOKX 09T308PDER-M5M	9.525	9.2	3.8	1.5	0.8	3.4
TOKX 09T312PDER-M5P	9.525	9.2	3.8	1.5	1.2	3.4
TOKX 09T312PDER-M5M	9.525	9.2	3.8	1.5	1.2	3.4
TOKX 09T316PDER-M5P	9.525	9.2	3.8	1.5	1.6	3.4
TOKX 09T316PDER-M5M	9.525	9.2	3.8	1.5	1.6	3.4



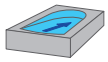
Overview SDKT

Application

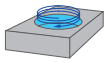
1) Face milling



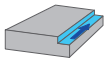
2) Angled milling



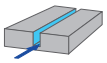
3) Helical plunging



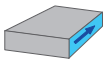
4) Shoulder milling



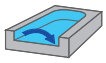
5) Slot milling



6) Peripheral milling



7) Trochoidal slot milling



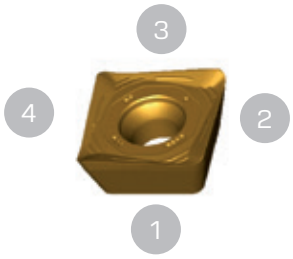
Customer benefits

- *High precision 90° milling*
- *Economic solution:*
  High chip volume on low power machines
  Reduced cost per cutting edge compared to current insert
  solutions. (APKT and ADKT)
- *Reduced machining costs:*
  Compared to APKT10: +20 % to +30 % in price
  Advantage: up to 35 % cost reduction per cutting edge!

Chipbreaker

***M5P**: Steel*
***M5M**: Stainless Steel – Exotic* – Titanium**
***M5K**: Cast iron*
***M5N**: Aluminium*

4 effective cutting edges

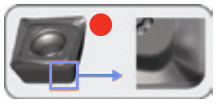


* secondary application

Which chipbreaker to use?

M5P
Strong cutting edge for general steel
applications and hard conditions milling.

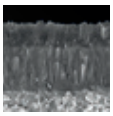
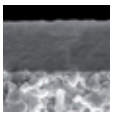
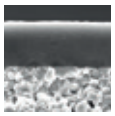
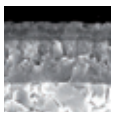
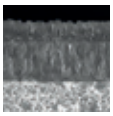
M5M
Sharp cutting edge for general
stainless steel applications and for finishing in steels.



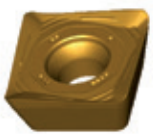
M5K
Strong cutting edge for cast iron applications.

M5N
Extremely sharp cutting edge for aluminum and non-ferrous metals.

Grades

MP30DD	MP35E	MM40EA	MSM35D	MK15D	UN15C	MS35D
						
●	●	●	●	●	●	●

Available range SDKT09

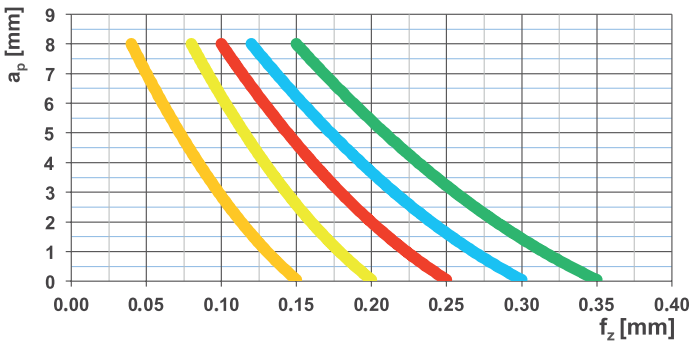
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D	MK15D	UN15C
	SDKT 09T308SR-M5P	...-M5P	•	•					
	SDKT 09T308SR-M5M	...-M5M			•	•	•		
	SDKT 09T308SR-M5K	...-M5K						•	
	SDHT 09T308FR-M5N	...-M5N							•

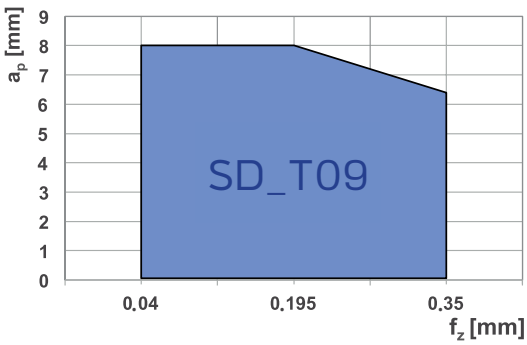
Body	Designation	ø Milling cutter [mm]	z	Available
	SSS09-R025-W25-32-L88-Z03	25	3	•
	SSS09-R032-W32-40-L100-Z04	32	4	•
	TSS09-R025-Z03	25	3	Na prośbę
	TSS09-R032-Z04	32	4	Na prośbę
	BSS09-R040-Z05	40	5	•
	BSS09-R050-Z06	50	6	•
	BSS09-R063-Z07	63	7	•
	BSS09-R080-Z09	80	9	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	M3.0 x 7.3 – T08	1.2	00031677	•
	Power screw M8.0 x 30.0 (76281870) only for BSS09-R040-Z05	15	00886301	•

Cutting data SDKT09

Starting parameters:

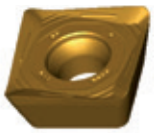




Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.12 – 0.3	8 – 0.05
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.08 – 0.2	8 – 0.05
K	Cast iron	M5K	MK15D	320 – 100	0.1 – 0.25	8 – 0.05
N	Non-ferrous	M5N	UN15C	< 2000	0.15 – 0.35	8 – 0.05
S	Heat resistant alloys	M5M	MSM35D	75 – 25	0.04 – 0.15	8 – 0.05
S	Titanium	M5M	MS35D			

Available range SDKT12

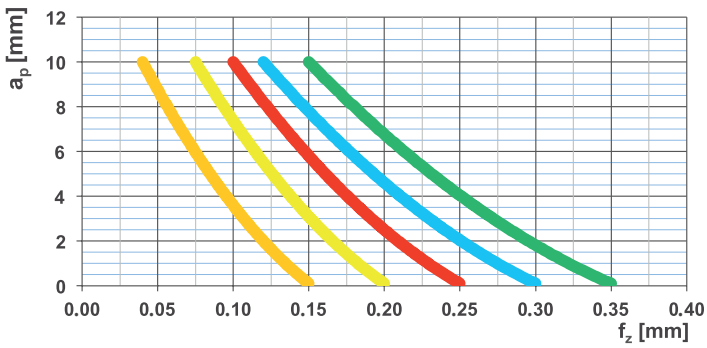
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D	MK15D	UN15C
	SDKT 120508SR-M5P	...-M5P	•	•					
	SDKT 120508SR-M5M	...-M5M			•	•	•		
	SDKT 120508SR-M5K	...-M5K						•	
	SDHT 120508FR-M5N	...-M5N							•

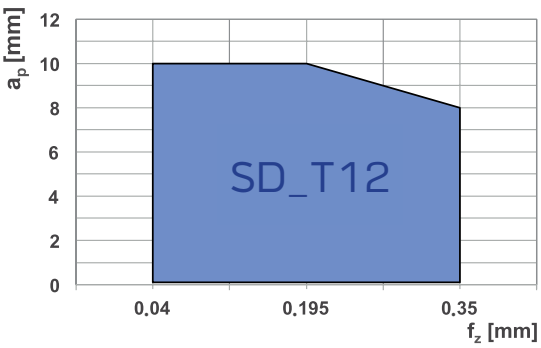
Body	Designation	ø Milling cutter [mm]	z	Available
	SSS12-R032-W32-40-L100-Z03	32	3	•
	BSS12-R040-Z04	40	4	•
	BSS12-R050-Z05	50	5	•
	BSS12-R063-Z06	63	6	•
	BSS12-R080-Z07	80	7	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.0 x 11 – T15+	5	02345431	•
	Screw M4.0 x 8.5 – T15 (only for SSS12-R032-W40-Z03)	5	48473011	•
	Power screw M8.0 x 30.0 (76281870) only for BSS12-R040-Z04	15	08863011	•

Cutting data SDKT12

Starting parameters:

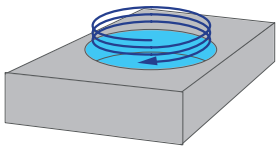




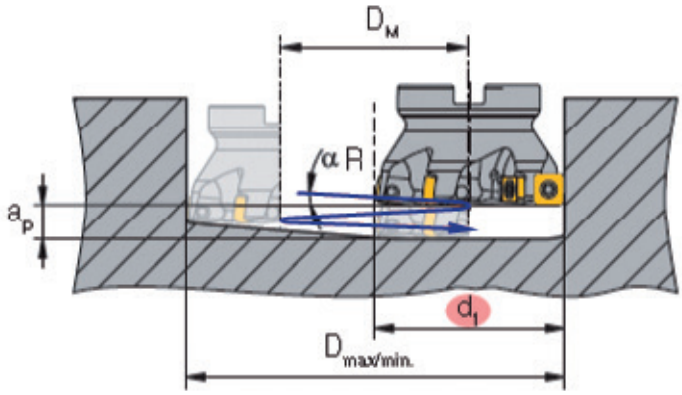
Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.12 – 0.3	10 – 0.1
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.075 – 0.2	10 – 0.1
K	Cast iron	M5K	MK15D	320 – 100	0.1 – 0.25	10 – 0.1
N	Non-ferrous	M5N	UN15C	< 2000	0.15 – 0.35	10 – 0.1
S	Heat resistant alloys	M5M	MSM35D	75 – 25	0.04 – 0.15	10 – 0.1
S	Titanium	M5M	MS35D			

SS / Shouldering 4 x 90°



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

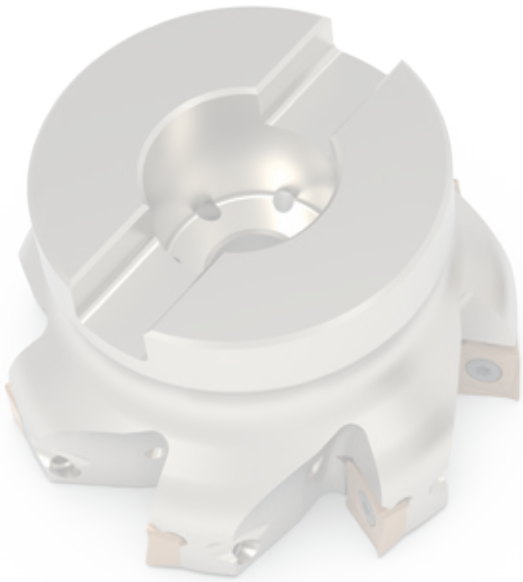


Application data (helical plunge milling SDKT09)

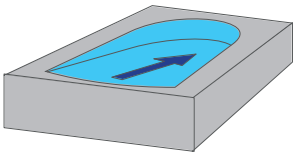
Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_R [°]
SSS09-R025-W25-32-L88-Z03	25	48	37	4.4
SSS09-R032-W32-40-L100-Z04	32	62	47	2.2
TSS09-R025-Z03	25	48	37	4.4
TSS09-R032-Z04	32	62	47	2.2
BSS09-R040-Z05	40	78	63	0.75
BSS09-R050-Z06	50	98	83	0.5
BSS09-R063-Z07	63	124	109	0.35
BSS09-R080-Z09	80	158	143	0.25

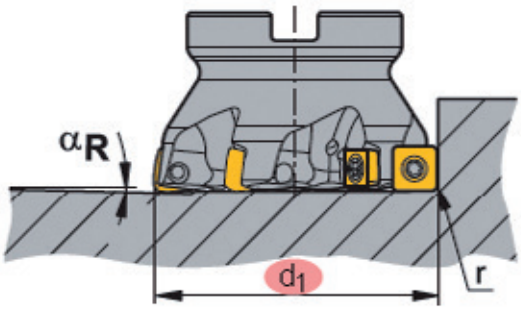
Application data (helical plunge milling SDKT12)

Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_R [°]
SSS12-R032-W32-40-L100-Z03	32	62	41	2.0
BSS12-R040-Z04	40	78	57	2.0
BSS12-R050-Z05	50	98	77	1.2
BSS12-R063-Z06	63	124	103	0.7
BSS12-R080-Z07	80	158	137	0.6



SS / Shouldering 4 x 90°



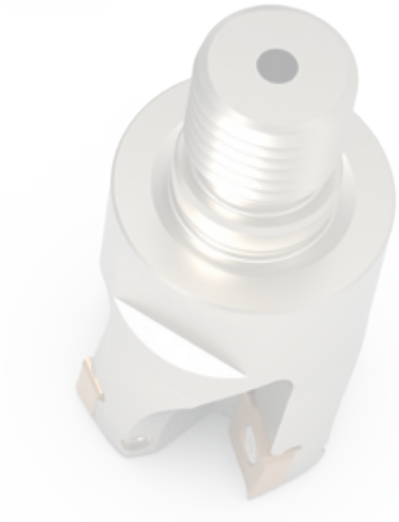


Application data (angled ramping SDKT09)

Description	d_1 [mm]	α_R [°]
SSS09-R025-W25-32-L88-Z03	25	4.4
SSS09-R032-W32-40-L100-Z04	32	2.2
TSS09-R025-Z03	25	4.4
TSS09-R032-Z04	32	2.2
BSS09-R040-Z05	40	0.75
BSS09-R050-Z06	50	0.5
BSS09-R063-Z07	63	0.35
BSS09-R080-Z09	80	0.25

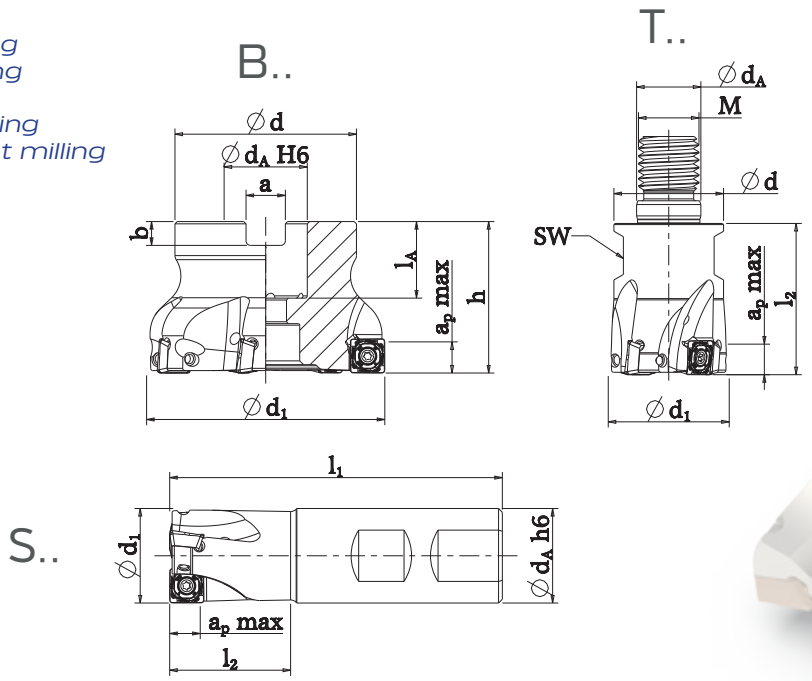
Application data (angled ramping SDKT12)

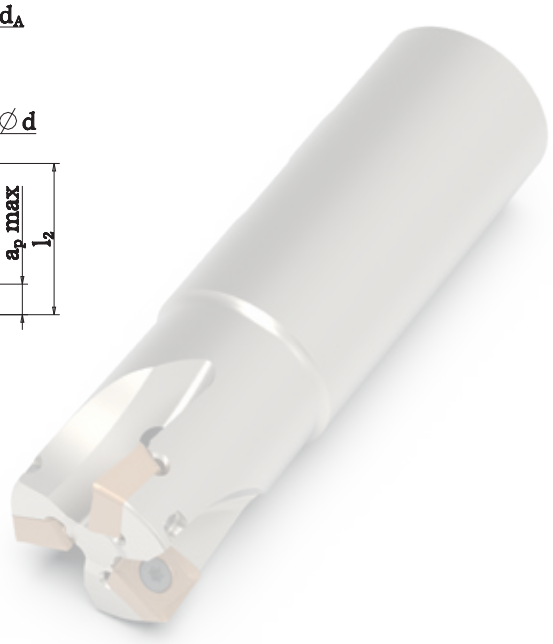
Description	d_1 [mm]	α_R [°]
SSS12-R032-W32-40-L100-Z03	32	2.0
BSS12-R040-Z04	40	2.0
BSS12-R050-Z05	50	1.2
BSS12-R063-Z06	63	0.7
BSS12-R080-Z07	80	0.6



SS / Shouldering 4 x 90°

- *Face milling*
- *Angled milling*
- *Helical plunging*
- *Shoulder milling*
- *Slot milling*
- *Peripheral milling*
- *Trochoidal slot milling*





Milling body (SDKT09)

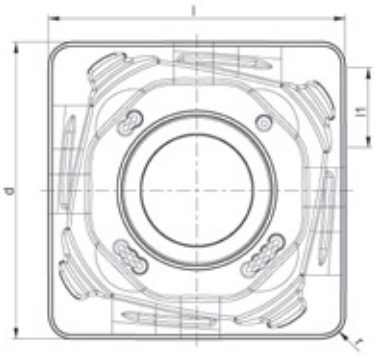
Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	SW	M	l_A	a	b
SSS09-R025-W25-32-L88-Z03	32	88	32	–	25	8	23700	3	–	–	–	–	–	–
SSS09-R032-W32-40-L100-Z04	40	100	40	–	40		19700	4	–	–	–	–	–	–
TSS09-R025-Z03	25	–	35	–	12.5		33200	3	21	SW17	M12	–	–	–
TSS09-R032-Z04	32	–	40	–	17		30200	4	29	SW24	M16	–	–	–
BSS09-R040-Z05	40	–	–	40	16		17000	5	38	–	–	20	8.4	5.6
BSS09-R050-Z06	50	–	–	40	22		14800	6	43	–	–	20	10.4	6.3
BSS09-R063-Z07	63	–	–	40	22		12855	7	48	–	–	20	10.4	6.3
BSS09-R080-Z09	80	–	–	50	27		11250	9	58	–	–	22	12.4	7

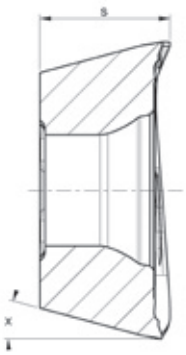
Milling body (SDKT12)

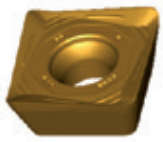
Description	Ød_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ød_A [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A	a	b
SSS12-R032-W32-40-L100-Z03	32	100	40	–	32	10	19700	3	–	–	–	–
BSS12-R040-Z04	40	–	–	40	16		17000	4	38	20	8.4	5.6
BSS12-R050-Z05	50	–	–	40	22		14800	5	43	20	10.4	6.3
BSS12-R063-Z06	63	–	–	40	22		12850	6	48	21	10.4	6.3
BSS12-R080-Z07	80	–	–	50	27		11250	7	58	22	12.4	7

SS / Shouldering 4 x 90°

Insert (SDKT)







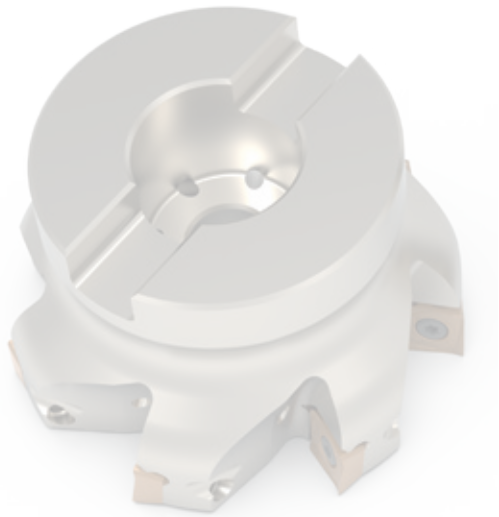
-M5P

-M5M

-M5K

-M5N

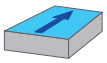
Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
SDKT 09T308SR-M5P	9	9	3.97	2.5	0.8	3.4	15
SDKT 09T308SR-M5M							
SDKT 09T308SR-M5K							
SDHT 09T308FR-M5N							
SDKT 120508SR-M5P	12.3	12.3	5	2.5	0.8	4.7	15
SDKT 120508SR-M5M							
SDKT 120508SR-M5K							
SDHT 120508SR-M5N							



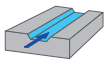
Overview HPKT... HPCT... HOKT... HOCT...

Application

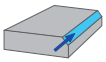
1) Face milling



2) Slot milling



3) Chamfering



Wiper

Extremely soft, spindle-friendly cut. The very positive cutting edge chipbreaker paired with the new chipbreaker designs revolutionizes milling on small to medium sized milling machines.

"Wiper Edge"

Indexing 6 times

- *Indexing of the insert without complete removal of the clamping screw is possible!*
- *Direct insert indexing saves valuable machine time.*

Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel – Exotic* – Titanium**
***M5N**: Aluminium and non-ferrous metals*

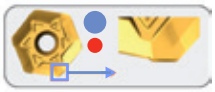
6 effective cutting edges

HPKT... HPCT...

HOKT... HOCT...

* secondary application

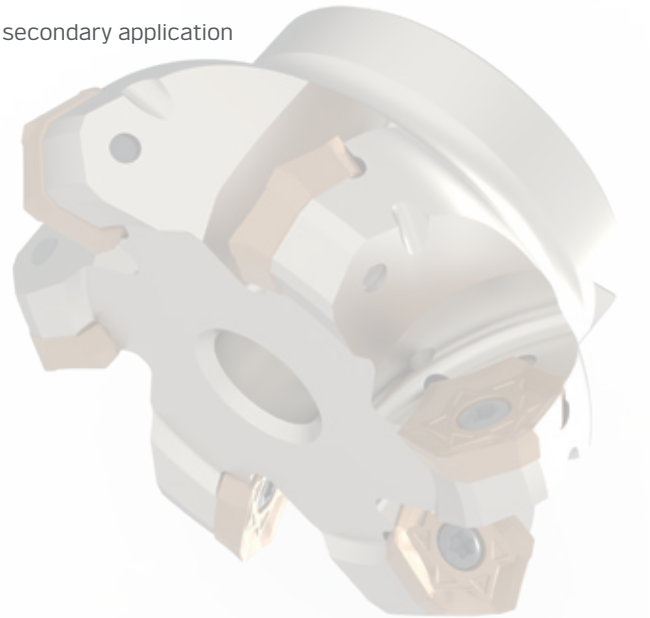
Which chipbreaker to use?



M5P
Strong cutting edge for general steel applications and hard conditions milling.

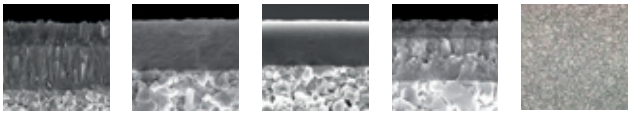
M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

M5N
Extremely sharp cutting edge for aluminum and non-ferrous metals.

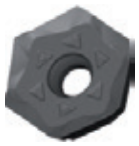


Grades

MP30DD	MP35E	MM40EA	MSM35D	UN15C



Available range HPKT... HPCT... / HOKT... HOCT...

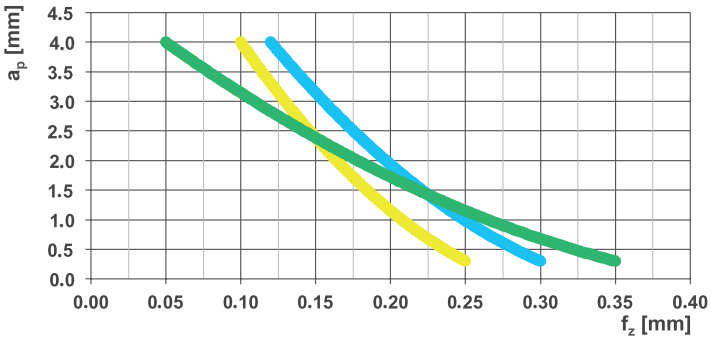
Insert	Designation	Chipbreaker	MP30DD	MP35E	MSM35D	MM40EA	UN15C
	HPKT 0604AZER-M5P	...-M5P	•	•			
	HPKT 0604AZER-M5M	...-M5M			•		
	HPCT 0604AZFR-M5N	...-M5N					•
	HOKT 0604AZER-M5P		•	•			
	HOCT 0604AZER-M5M				•	•	

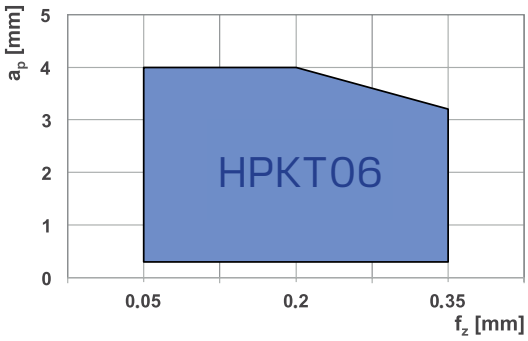
Body	Designation	ø Milling cutter [mm]	z	Available
	SSH06-R040-W32-50-L110-Z04	40	4	•
	BSH06-R040-Z04	40	4	•
	BSH06-R050-Z05	50	5	•
	BSH06-R063-Z06	63	6	•
	BSH06-R080-Z07	80	7	•
	BSH06-R100-Z09	100	9	•
	BSH06-R125-Z10	125	10	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.0 x 11 – T15+	5	02345431	•
	Power screw M8.0 x 30.0 (76281870) only for BSH06-R040-Z04	15	08863011	•

Cutting data HPKT... HPCT...

Starting parameters:



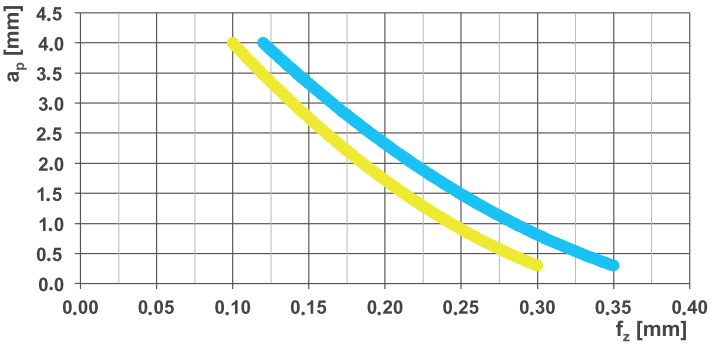


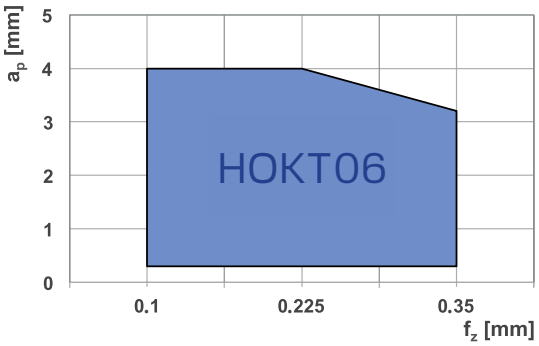
Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.12 – 0.3	4 – 0.3
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.1 – 0.25	4 – 0.3
N	Non-ferrous	M5N	UN15C	< 2000	0.05 – 0.35	4 – 0.3

Cutting data HOKT... HOCT...

Starting parameters:





Grades and materials:

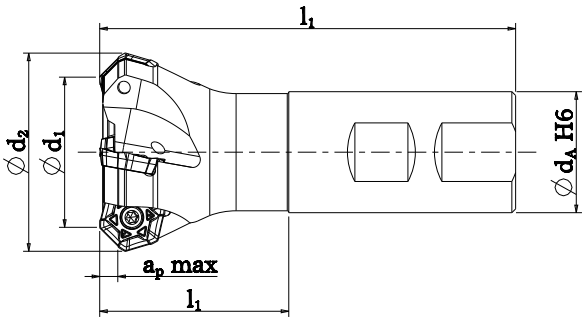
	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Stal	M5P	MP30DD MP35E	220 – 60	0.12 – 0.35	4 – 0,3
M	Stal nierdzewna	M5M	MM40EA MSM35D	200 – 60	0.1 – 0.3	4 – 0,3

SSM-H / Face milling 6 x 45°

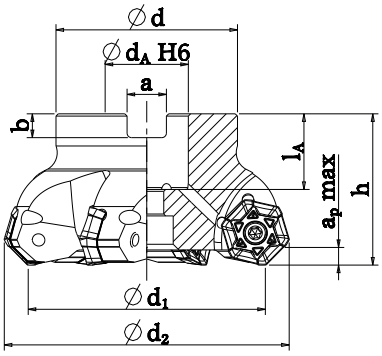
Milling body (HPKT, HOKT, HPCT and HOCT)

- *Face milling*
- *Slot milling*
- *Chamfering*

S..



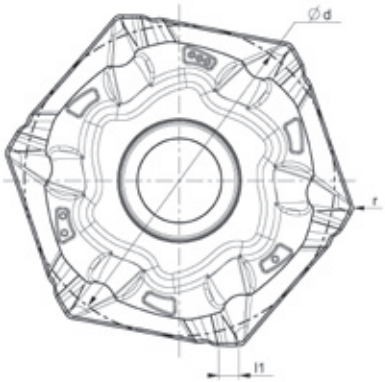
B..



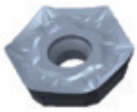
Description	Ø d_1 [mm]	Ø d_2 [mm]	l_1 [mm]	l2 [mm]	h [mm]	Ø d_A [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ød [mm]	l_A	a	b
SSH06-R040-W32-50-L110-Z04	40	52.2	110	50	–	32		17000	4	–	–	–	–
BSH06-R040-Z04	40	52.2	–	–	40	16		19900	4	38	19	8.4	5.6
BSH06-R050-Z05	50	62.2	–	–	40	22		15900	5	43	20	10.4	6.3
BSH06-R063-Z06	63	75.2	–	–	40	22	4.5	12600	6	48	20	10.4	6.3
BSH06-R080-Z07	80	92.2	–	–	50	27		9900	7	58	22	12.4	7
BSH06-R100-Z09	100	112.2	–	–	50	32		7900	9	78	25	14.4	8
BSH06-R125-Z10	125	137.2	–	–	63	40		6300	10	88	33	16.4	9

SSM-H / Face milling 6 x 45°

Insert (HPKT, HOKT, HPCT and HOCT)

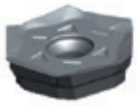


HPKT-M5P

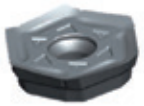


HOKT-M5P

HPKT-M5M



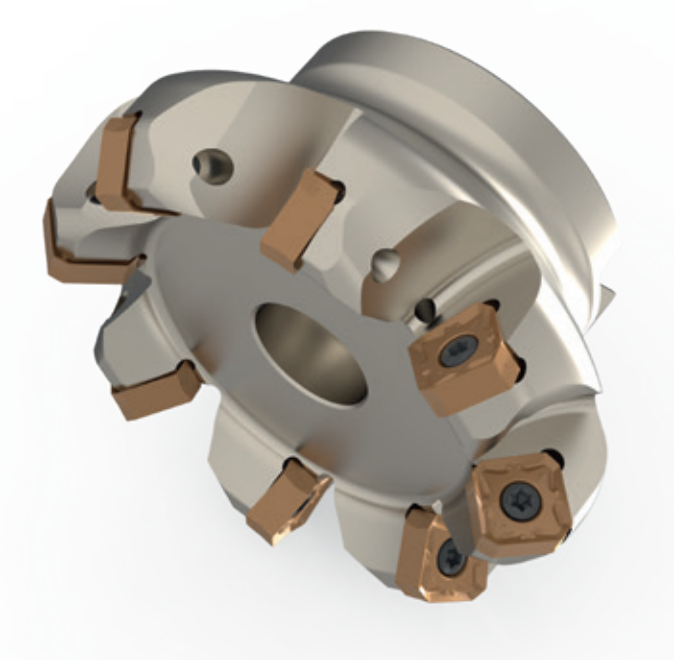
HOCT-M5M



HPCT-M5N

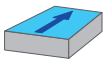
Description	d [mm]	s [mm]	l_1 [mm]	r_1 [mm]	r_2 [mm]	d_1 [mm]	x [°]
HPKT 0604AZER-M5P							
HPKT 0604AZER-M5M							
HOKT 0604AZER-M5P	16.3	4.5	1.7	0.4	0.5	4.4	11
HPCT 0604AZFR-M5N							
HOCT 0604AZFR-M5M							

Overview SOKU

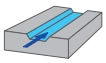


Application

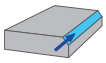
1) Face milling



2) Slot milling

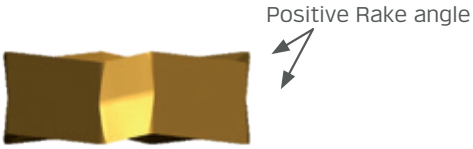


3) Chamfering



Customer benefits

- *Wiper" technology*
- *Double sided positive (positive rake angle)*



Square double-sided insert!

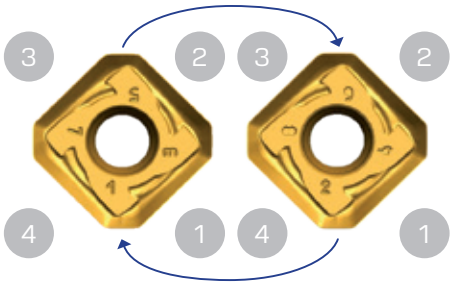
Available in 2 dimensions

IC 12 IC 15

Chipbreaker

***M5P**: Steel / Medium & roughing operations*
***M5M**: Steel – Stainless Steel / Finishing*
***M5K**: Cast iron*

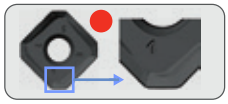
Indexing 4 times and reversible



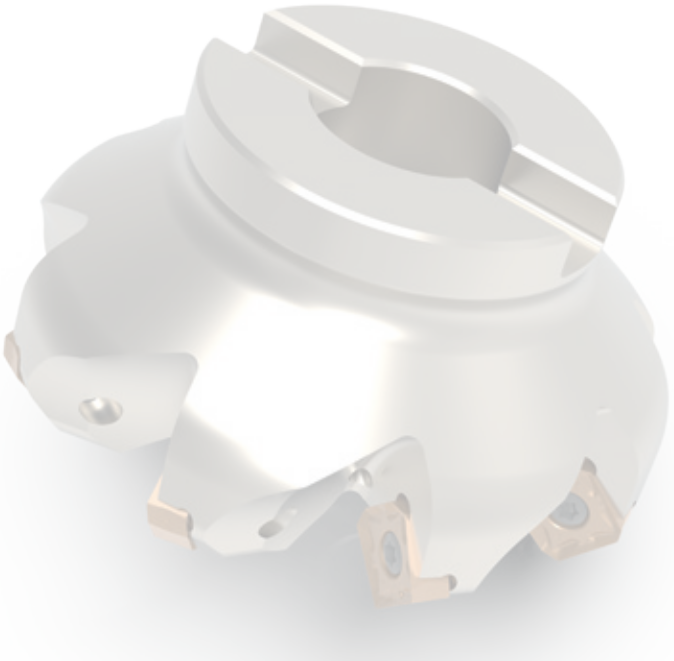
Which chipbreaker to use?

M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

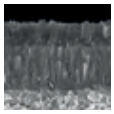


M5K
Strong cutting edge for cast iron applications.

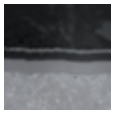


Grades

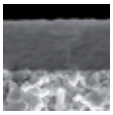
MP30DD



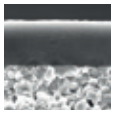
MP35D



MP35E

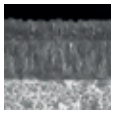


MM40EA

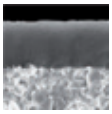


MSM35D

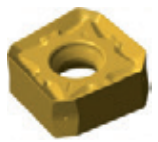
MK15D



MK20E



Available range SOKU12 / SOKU15

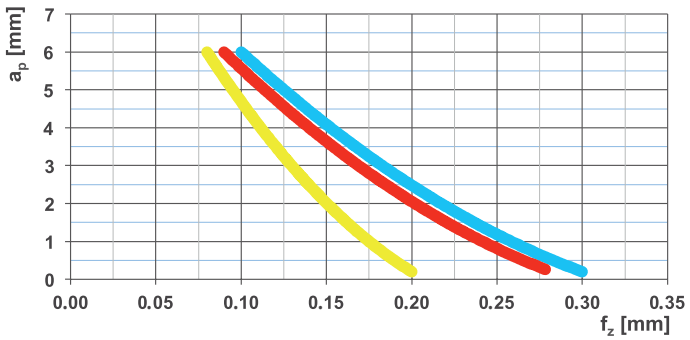
Insert	Designation	Chipbreaker	MP30DD	MP35D	MP35E	MM40EA	MSM35D	MK15D	MK20E
	SOKU 1205AZER-M5P	...-M5P	●	●	●				
	SOKU 1205AZER-M5M	...-M5M				●	●		
	SOKU 1205AZER-M5M	...-M5K						○	○

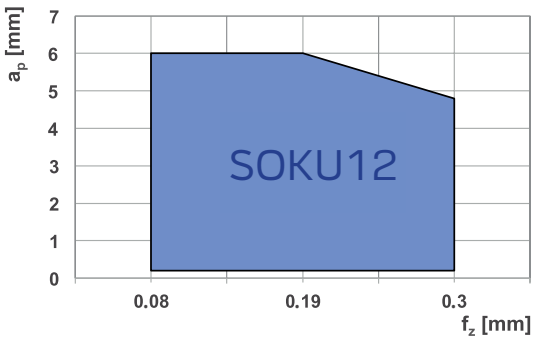
Body	Designation	ø Milling cutter [mm]	z	Available
	BDS12-R040-Z04	40	4	●
	BDS12-R050-Z05	50	5	●
	BDS12-R063-Z06	63	6	●
	BDS12-R080-Z08	80	8	●
	BDS12-R100-Z10	100	10	●
	BDS12-R125-Z12	125	12	●

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4 x 11 – T15	5	47224011	●

Cutting data SOKU12

Starting parameters:

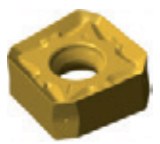




Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35D MP35E	220 – 60	0.1 – 0.3	6 – 0.2
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.08 – 0.2	6 – 0.2
K	Cast Iron	M5K	MK15D MK20E	320 – 100	0.08 – 0.45	6 – 0.2

Available range SOKU15

Insert	Designation	Chipbreaker	MP30DD	MP35D	MP35E	MM40EA	MSM35D	MK15D	MK20E
	SOKU 1505AZER-M5P	...-M5P	•	•	•				
	SOKU 1505AZER-M5M	...-M5M				•	•		
	SOKU 1505AZER-M5K	...-M5K						•	•

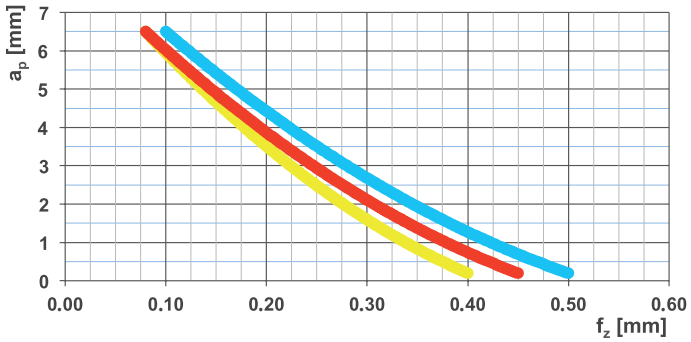
Available range SOKU15

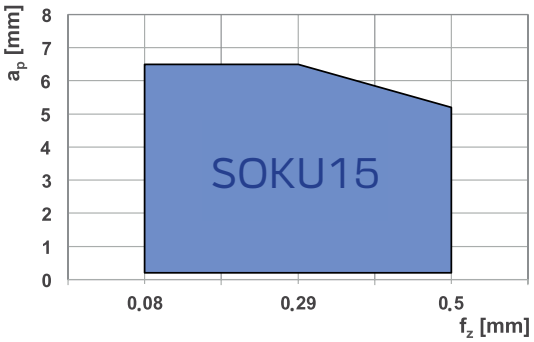
Body	Designation	ø Milling cutter [mm]	z	Available
	BDS15-R040-Z04	40	4	•
	BDS15-R050-Z04	50	4	•
	BDS15-R063-Z05	63	5	•
	BDS15-R080-Z06	80	6	•
	BDS15-R100-Z07	100	7	•
	BDS15-R125-Z08	125	8	•
	BDS15-R160-Z10	160	10	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.5 x 13 – T20+	5	01345431	•
	Power screw M8.0 x 30.0 (76281870) only for A-DSM-S15.40	15	08863011	•

Cutting data SOKU15

Starting parameters:





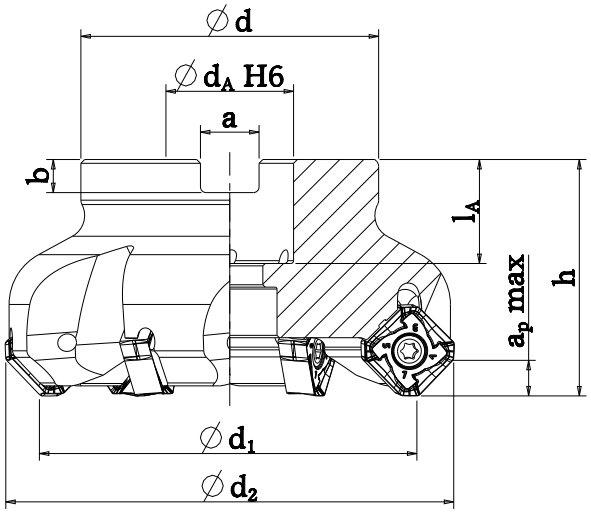
Grades and materials

	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35D MP35E	220 – 60	0.1 – 0.5	6.5 – 0.2
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.08 – 0.4	6.5 – 0.2
K	Cast iron	M5K	MK15D MK20E	320 – 100	0.08 – 0.45	6.5 – 0.2

DS / Face milling 8 x 45°

- *Face milling*
- *Slot milling*
- *Chamfering*

B..



Milling body (SOKU12)

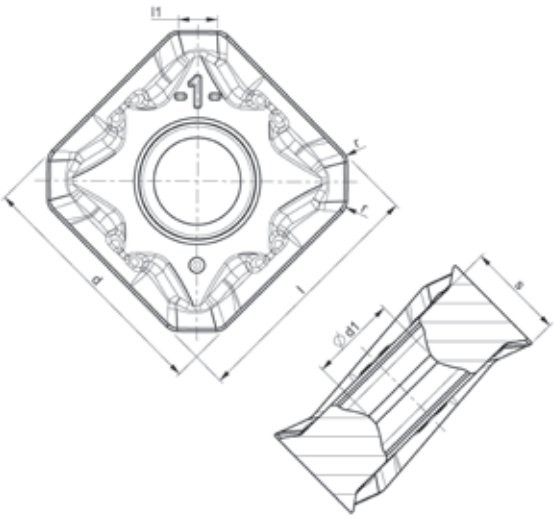
Description	Ø d_1 [mm]	Ø d_2 [mm]	h [mm]	Ø d_A [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A	a	b
BDS12-R040-Z04	40	52.4	45	16	6	19900	4	38	19	8.4	5.6
BDS12-R050-Z05	50	62.4	45	22		15900	5	43	20	10.4	6.3
BDS12-R063-Z06	63	75.4	45	22		12600	6	48	20	10.4	6.3
BDS12-R080-Z08	80	92.4	50	27		9900	8	58	23	12.4	7
BDS12-R100-Z10	100	112.4	50	32		7900	10	78	25	14.4	8
BDS12-R125-Z12	125	137.4	63	40		6300	12	88	28	16.4	9

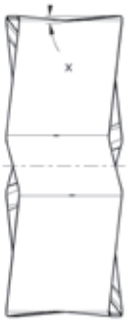
Milling body (SOKU15)

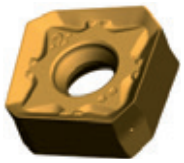
Description	Ø d_1 [mm]	Ø d_2 [mm]	h [mm]	Ø d_A [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A	a	b
BDS15-R040-Z04	40	55	45	16	6.5	15900	4	38	19	8.4	5.6
BDS15-R050-Z04	50	65	45	22		12700	4	43	20	10.4	6.3
BDS15-R063-Z05	63	78	45	22		10100	5	48	20	10.4	6.3
BDS15-R080-Z06	80	95	50	27		7900	6	58	22	12.4	7
BDS15-R100-Z07	100	115	50	32		6300	7	78	25	14.4	8
BDS15-R125-Z08	125	140	63	40		5000	8	88	28	16.4	9
BDS15-R160-Z10	160	175	63	40		3800	10	93.4	29	16.4	9

DS / Face milling 8 x 45°

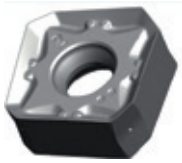
Insert (SOKU)



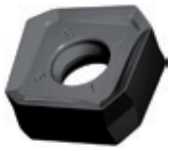




-M5P

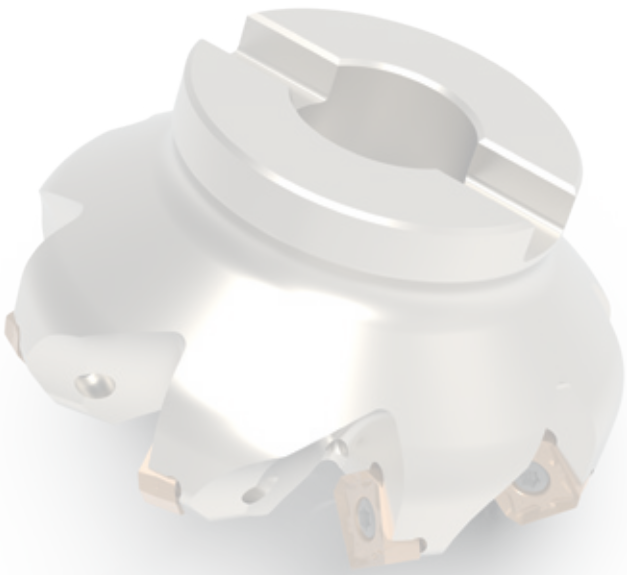


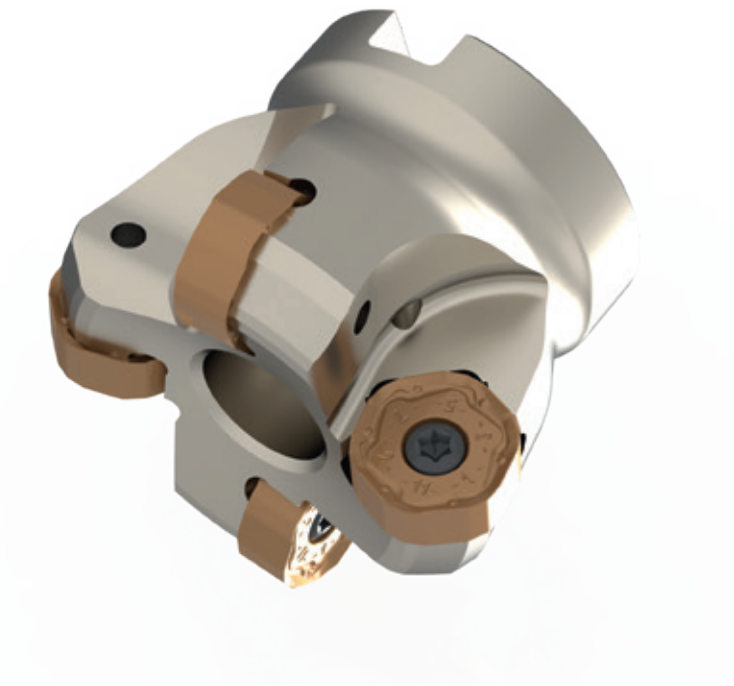
-M5M



-M5K

Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
SOKU 1205 AZER-M5P							
SOKU 1205 AZER-M5K	13	13	5	2	0.8	4.55	6
SOKU 1205 AZER-M5M							
SOKU 1505 AZER-M5P							
SOKU 1505 AZER-M5K	15.875	15.875	6.0	2.7	1.0	5.74	6
SOKU 1505 AZER-M5M							

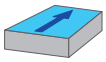




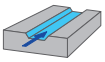
Overview HNKU / HOKU

Application

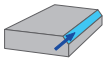
1) Face milling



2) Slot milling



3) Chamfering



Customer benefits

- *Wiper geometry*
- *Maximised economy thanks to 12 cutting edges.*

Which chipbreaker to use?

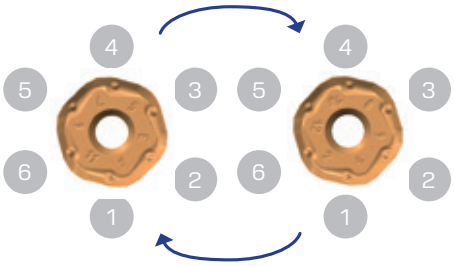
M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

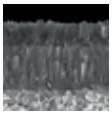
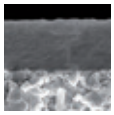
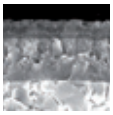
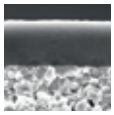
Chipbreaker

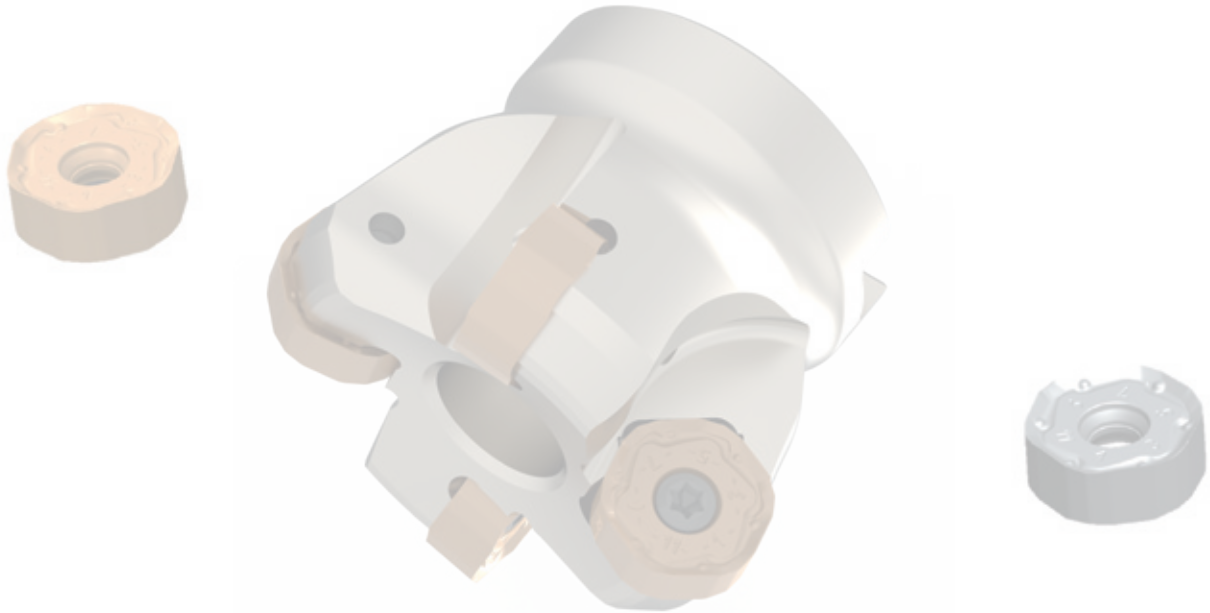
***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel – Exotic**
– Titanium**

Indexing 6 times and reversible



Grades

MP30DD	MP35E	MSM35D	MM40EA
			



Available range HNKU / HOKU

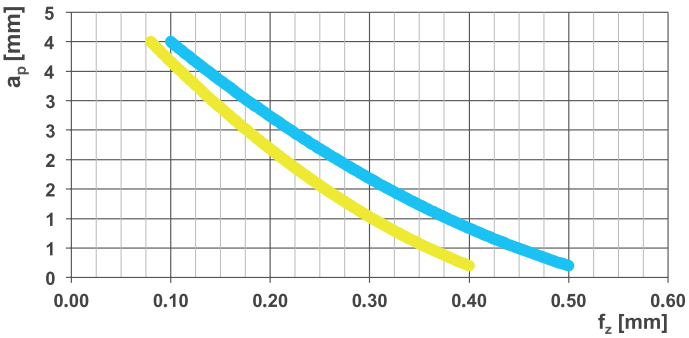
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	HNKU 0806AZER-M5P	...-M5P	•	•		
	HNKU 0806AZER-M5M	...-M5M			○	•
	HOKU 0806AZER-M5P	...-M5P	•	•		
	HOKU 0806AZER-M5M	...-M5M			•	•

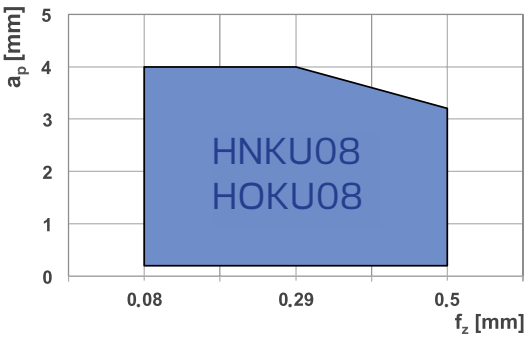
Body	Designation	ø Milling cutter [mm]	z	Available
	BDH08-R040-Z04	40	4	•
	BDH08-R050-Z04	50	4	•
	BDH08-R063-Z05	63	5	•
	BDH08-R080-Z06	80	6	•
	BDH08-R100-Z08	100	8	•
	BDH08-R125-Z09	125	9	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.0 x 11 – T15+	5	02345431	•

Cutting data HNKU / HOUK

Starting parameters:





Grades and materials:

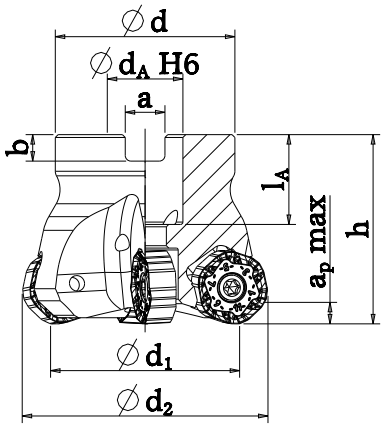
Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.1 – 0.5	4 – 0.2
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.08 – 0.4	4 – 0.2

DH / Face milling 12 x 45°

Milling body (HNKU / HOKU)

B..

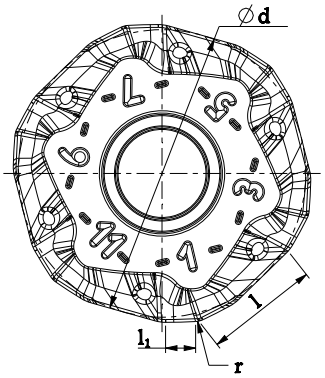
- *Face milling*
- *Slot milling*
- *Chamfering*

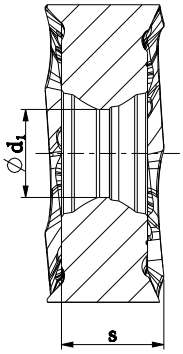


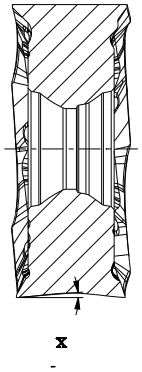
Description	Ø d_1 [mm]	Ø d_2 [mm]	h [mm]	Ø d_A [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A	a	b
BDH08-R040-Z04	40	52	40	16	4	15900	4	38	19	8.4	5.6
BDH08-R050-Z04	50	62	40	22		12700	4	43	20	10.4	6.3
BDH08-R063-Z05	63	75	40	22		10100	5	48	20	10.4	6.3
BDH08-R080-Z06	80	92	50	27		7900	6	58	22	12.4	7
BDH08-R100-Z08	100	112	50	32		6400	8	78	25	14.4	8
BDH08-R125-Z09	125	137	63	40		5100	9	88	28	16.4	9

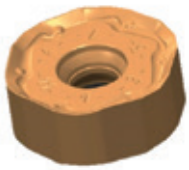
DH / Face milling 12 x 45°

Insert (HNKU / HOKU)









-M5P

-M5M

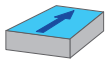
Description	d [mm]	l [mm]	s [mm]	r [mm]	l_1 [mm]	d_1 [mm]	x [°]
HNKU 0806 AZER-M5P	14.7	7.5	5.19	1	1.5	4.5	-
HNKU 0806 AZER-M5M	14.7	7.5	5.19	1	1.5	4.5	-
HOKU 0806 AZER-M5P	14.7	7.5	5.23	1	1.5	4.5	4.5
HOKU 0806 AZER-M5M	14.7	7.5	5.23	1	1.5	4.5	4.5

Overview

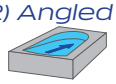
RPMX... RDHX... RPHX... RDHW...

Application

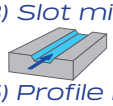
1) Face milling



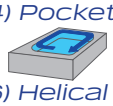
2) Angled milling



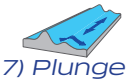
3) Slot milling



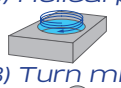
4) Pocket milling



5) Profile milling



6) Helical plunging



7) Plunge milling

8) Turn milling

Customer benefits

- *Indexing of the insert without complete removal of the clamping screw is possible!*
- *Direct insert indexing saves valuable machine time.*

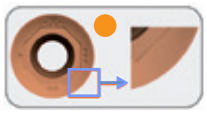
Available in 3 dimensions

IC 10 IC12 IC16

Which chipbreaker to use?

M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.



M5S
*Sharp cutting edge for Heat-resistant alloys – Titanium**

M5N
Extremely sharp cutting edge for aluminum and non-ferrous metals.

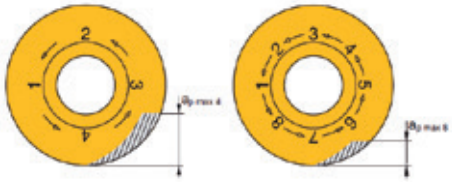
M5H
Strong reinforced cutting edge for hard material.

Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel*
***M5S**: Exotic – Titanium**
***M5N**: Aluminium and non-ferous metals*
***M5H**: Reinforced for hard materials*

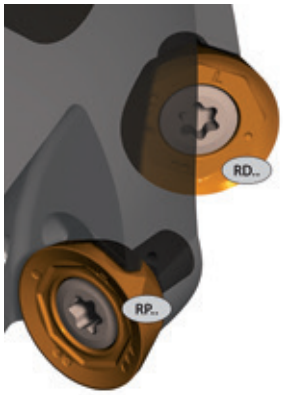
Indexing 4 or 8 times

8 facets for 4 or 8 indexing according to your d.o.c.



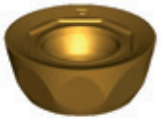
Flexibility – One tool for several round inserts

Optimised clearance angles for high performance milling operations.



11° (RP...): for Steel. Stainless steel. Cast iron and Exotic materials

15° (RD...): for Hard materials and non-ferrous metals.



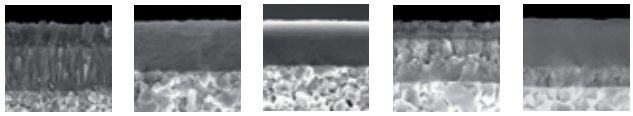
RP...

RD...

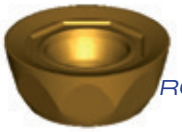
Two different clearances and only ONE milling tool
OPTION: Adapted clearance

Grades

MP30DD MP35E MM40EA MSM35D MS35D



UN15C MH15E



ROMX 1204 (1° to 16°)

different angles are also available on request

Available range R10

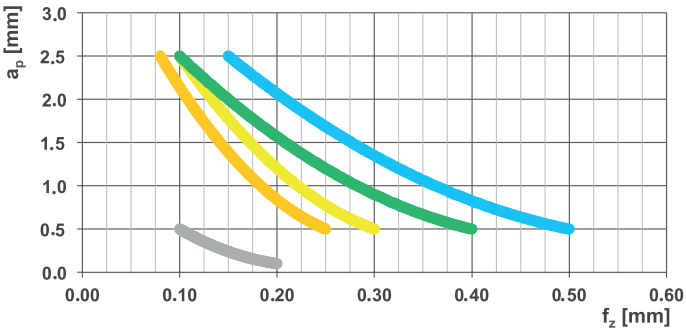
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D	UN15C	MH15E
	RPMX 10T3MO-M5P	...-M5P	•	•					
	RPMX 10T3MO-M5M	...-M5M			•	•			
	RPHX 10T3MO-M5S	...-M5S				•	•		
	RDHX 10T3MO-M5N	...-M5N						•	
	RDHW 10T3MO-M5H								•

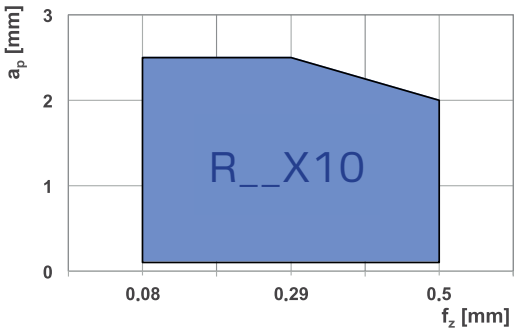
Body	Designation	ø Milling cutter [mm]	z	Available
	SSR10-R020-C20-50-L102-Z02	20	2	•
	SSR10-R020-C20-50-L165-Z02	20	2	•
	SSR10-R025-C25-60-L116-Z03	25	3	•
	SSR10-R025-C25-60-L165-Z03	25	3	•
	SSR10-R032-C32-70-L130-Z04	32	4	•
	SSR10-R032-C32-70-L165-Z04	32	4	•
	TSR10-R020-Z02	20	2	On request
	TSR10-R025-Z03	25	3	On request
	TSR10-R032-Z04	32	4	•
	TSR10-R035-Z04	35	4	•
	BSR10-R040-Z04	40	4	•
	BSR10-R042-Z05	42	5	
	BSR10-R050-Z05	50	5	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M3.0 x 7.5 – T10+	1.2	49898611	•
	Power screw M8.0 x 30.0 (76281870) for BSR10-R040-Z04	15	08863011	•

Cutting data R10

Starting parameters:





Cutting data R...10

Grades and materials:

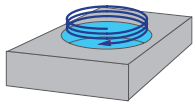
	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.15 – 0.5	2.5 – 0.5
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.1 – 0.3	2.5 – 0.5
N	Non-ferrous	M5N	UN15C	< 2000	0.1 – 0.4	2.5 – 0.5
S	Heat-resistant alloys	M5S	MSM35D	75 – 25	0.08 – 0.25	2.5 – 0.5
S	Titanium	M5S	MS35D			
H	Hard materials	M5H	MH15E	180 – 100	0.1 – 0.2	0.5 – 0.1

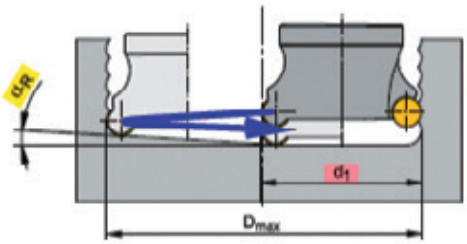
Recommended!

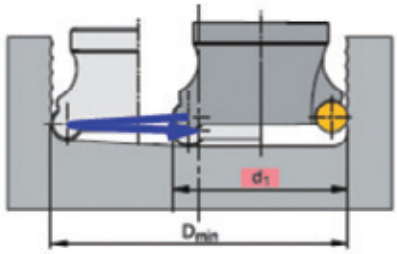
ø [mm]	4 times a_p [mm]	4 times $a_{p\,max}$ [mm]	8 razy $a_{p\,max}$ [mm]
10	2.5	4.5	1.4
12	3.0	5.5	1.7
16	4.0	7.5	2.3

SR / Form milling

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







Application data (helical plunge milling RP/RD10)

Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_{max} [°]
SSR10-R020-C20-50-L102-Z02	20	30	26	1.3
SSR10-R020-C20-50-L165-Z02	20	30	26	1.3
SSR10-R025-C25-60-L116-Z03	25	40	37	1.8
SSR10-R025-C25-60-L165-Z03	25	40	37	1.8
SSR10-R032-C32-70-L130-Z04	32	54	50	1.5
SSR10-R032-C32-70-L165-Z04	32	54	50	1.5
TSR10-R020-Z02	20	30	26	1.3
TSR10-R025-Z03	25	40	37	1.8
TSR10-R032-Z04	32	54	50	1.5
TSR10-R035-Z04	35	54	50	1.5
BSR10-R040-Z04	40	70	64	1.1
BSR10-R042-Z05	42	70	64	1.1
BSR10-R050-Z05	50	74	68	1.1

Available range R12

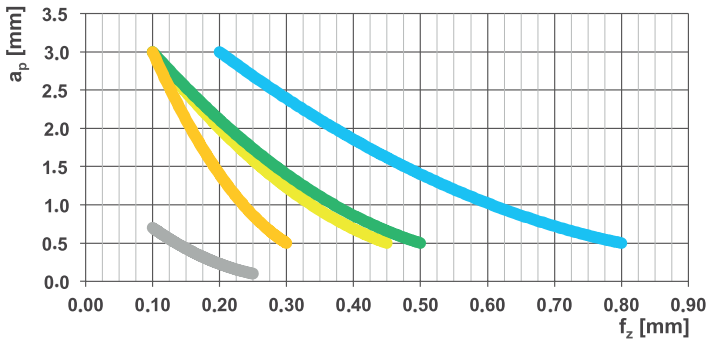
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM35EA	MSM35D	MS35D	UN15C	MH15E
	RPMX 1204MO-M5P	...-M5P	•	•					
	RPMX 1204MO-M5M	...-M5M			•	•			
	RPHX 1204MO-M5S	...-M5S				•	•		
	RDHX 1204MO-M5N	...-M5N						•	
	RDHW 1204MO-M5H								•

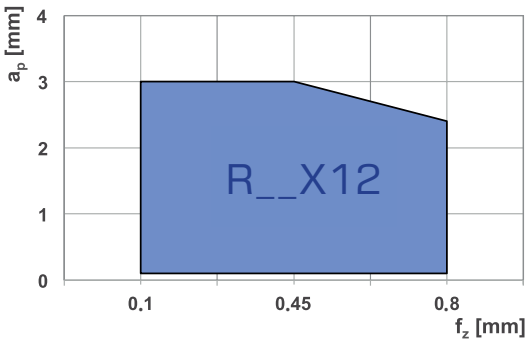
Body	Designation	ø Milling cutter [mm]	z	Available
	SSR12-R025-C25-30-L86-Z02	25	2	•
	SSR12-R025-C25-60-L116-Z02	25	2	•
	SSR12-R032-C32-40-100-Z03	32	3	•
	SSR12-R032-C32-70-L130-Z03	32	3	•
	TSR12-R025-Z02	25	2	•
	TSR12-R035-Z03	35	3	•
	BSR12-R040-Z04	40	4	•
	BSR12-R044-Z04	42	4	•
	BSR12-R050-Z05	50	5	•
	BSR12-R052-Z05	52	5	•
	BSR12-R063-Z06	63	6	•
	BSR12-R066-Z06	66	6	•
	BSR12-R080-Z08	80	8	•
	BSR12-R100-Z10	100	10	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Śruba M4.0 x 11 – T15+ (tylko dla B-)	5	02345431	•
	Śruba M4.0 x 8.5 – T15 (tylko dla S-)	5	48473011	•
	Mocna śruba M8.0 x 30.0 (76281870) for BSR12-R040-Z04	15	08863011	•

Cutting data R12

Starting parameters:





Cutting data R12

Grades and materials:

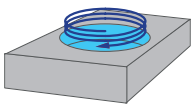
	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Stal	M5P	MP30DD MP35E	220 – 60	0.2 – 0.8	3 – 0.5
M	Stal nierdzewna	M5M	MM40EA MSM35D	200 – 60	0.1 – 0.45	3 – 0.5
N	Nieżelazne	M5N	UN15C	< 2000	0.1 – 0.5	3 – 0.5
S S	Heat-resistant alloys Tytan	M5S M5S	MSM35D MS35D	75 – 25	0.1 – 0.3	3 – 0.5
H	Twarde materiały	M5H	MH15E	180 – 100	0.1 – 0.25	0.7 – 0.1

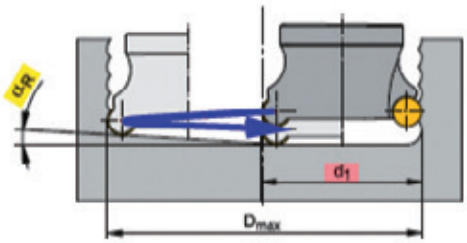
Recommended!

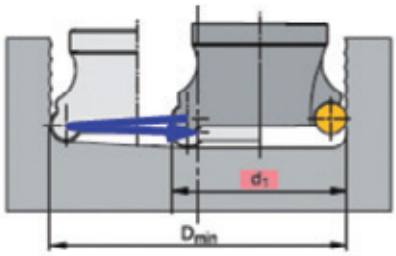
ø [mm]	4 times a_p [mm]	4 times $a_{p\,max}$ [mm]	8 razy $a_{p\,max}$ [mm]
10	2.5	4.5	1.4
12	3.0	5.5	1.7
16	4.0	7.5	2.3

SR / Form milling

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







Application data (helical plunge milling RP/RD12)

Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_R [°]
SSR12-R025-C25-30-L86-Z02	25	38	31	2.2
SSR12-R025-C25-60-L116-Z02	32	38	31	2.2
SSR12-R032-C32-40-100-Z03	32	52	46	1.7
SSR12-R032-C32-70-L130-Z03	32	52	46	1.7
TSR12-R025-Z02	25	38	31	2.2
TSR12-R035-Z03	35	52	46	1.7
BSR12-R040-Z04	40	68	62	1.4
BSR12-R044-Z04	42	68	62	1.4
BSR12-R050-Z05	50	88	81	1.1
BSR12-R052-Z05	52	88	81	1.1
BSR12-R063-Z06	63	114	107	0.9
BSR12-R066-Z06	66	114	107	0.9
BSR12-R080-Z08	80	148	142	0.7
BSR12-R100-Z10	100	188	181	0.5

Available range R16

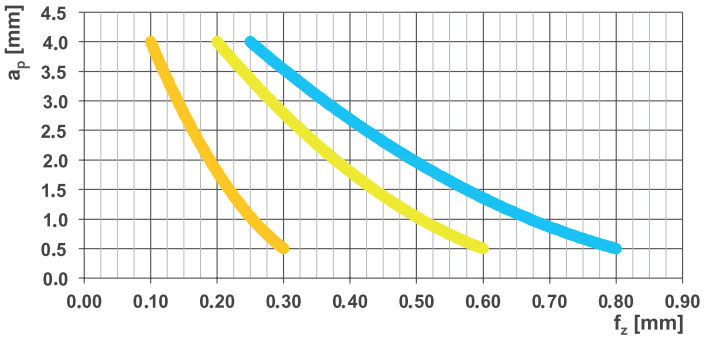
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D	UN15C	MH15E
	RPMX 1605MO-M5P	...-M5P	●	●					
	RPMX 1605MO-M5M	...-M5M			●	●			
	RPHX 1605MO-M5S	...-M5S				●	●		
	RDHX 1605MO-M5N	...-M5N						○	
	RDHX 1605MO-M5H	...-M5H							○

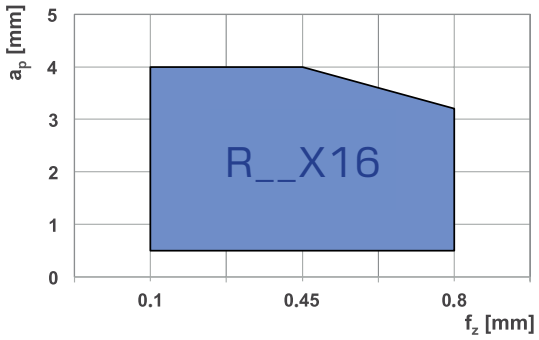
Body	Designation	ø Milling cutter [mm]	z	Available
	BSR16-R050-Z03	50	3	●
	BSR16-R052-Z04	52	4	●
	BSR16-R063-Z05	63	5	●
	BSR16-R066-Z05	66	5	●
	BSR16-R080-Z06	80	6	●
	BSR16-R100-Z07	100	7	●
	BSR16-R125-Z08	125	8	●

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.5 x 13 – T20+	5	01345431	●
	Power screw M10.0 x 31.0 (86281870) for BSR16-R050-Z03	20	89204011	●

Cutting data R16

Starting parameters:





Cutting data R16

Grades and materials:

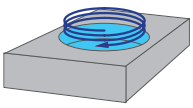
	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Stal	M5P	MP30DD MP35E	220 – 60	0.25 – 0.8	4 – 0.5
M	Stal nierdzewna	M5M	MM40EA MSM35D	200 – 60	0.2 – 0.6	4 – 0.5
S	Heat-resistant alloys	M5S	MSM35D	75 – 25	0.1 – 0.3	4 – 0.5
S	Tytan	M5S	MS35D			

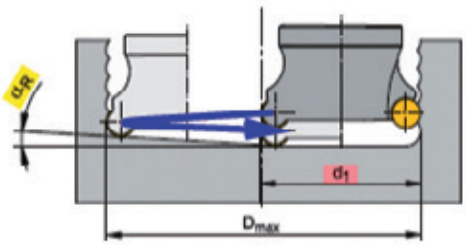
Recommended!

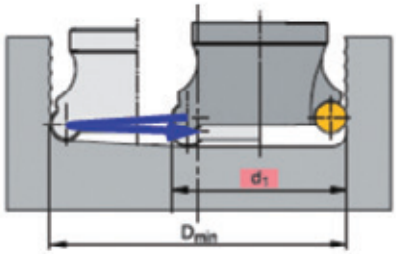
ø [mm]	4 times a_p [mm]	4 times $a_{p\,max}$ [mm]	8 razy $a_{p\,max}$ [mm]
10	2.5	4.5	1.4
12	3.0	5.5	1.7
16	4.0	7.5	2.3

SR / Form milling

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





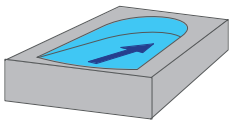


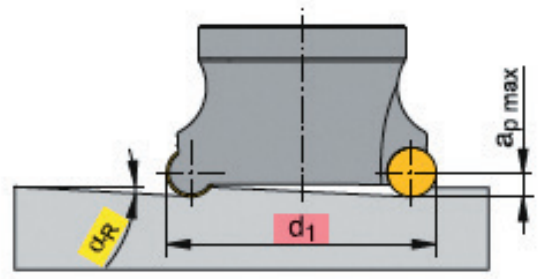
Application data (helical plunge milling RP16)

Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_R [°]
BSR16-R050-Z03	50	84	75	1.5
BSR16-R052-Z04	52	84	75	1.5
BSR16-R063-Z05	63	110	101	1.1
BSR16-R066-Z05	66	110	101	1.1
BSR16-R080-Z06	80	144	135	0.9
BSR16-R100-Z07	100	184	175	0.7
BSR16-R125-Z08	125	234	225	0.5

SR / Form milling

Application data (angled ramping)

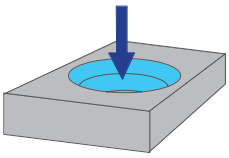


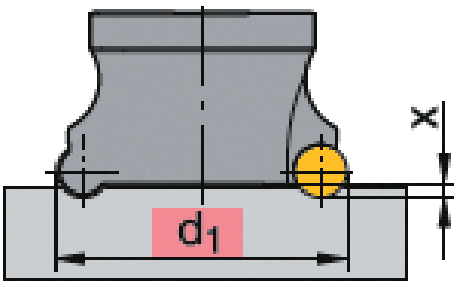


Description	d_1 [mm]	α_R [°]
SSR10-R020-C20-50-L102-Z02	20	1.3
SSR10-R020-C20-50-L165-Z02	20	1.3
SSR10-R025-C25-60-L116-Z03	25	2.0
SSR10-R025-C25-60-L165-Z03	25	2.0
SSR10-R032-C32-70-L130-Z04	32	3.0
SSR10-R032-C32-70-L165-Z04	32	3.0
TSR10-R020-Z02	20	1.3
TSR10-R025-Z03	25	2.0
TSR10-R032-Z04	32	3.0
TSR10-R035-Z04	35	3.0
BSR10-R040-Z04	40	3.3
BSR10-R042-Z05	42	3.3
BSR10-R050-Z05	50	2.4
SSR12-R025-C25-30-L86-Z02	25	6.4
SSR12-R025-C25-60-L116-Z02	25	6.4
SSR12-R032-C32-40-100-Z03	32	4.0
SSR12-R032-C32-70-L130-Z03	32	4.0
BSR12-R040-Z04	40	2.8
BSR12-R044-Z04	42	2.8
BSR12-R050-Z05	50	2.6
BSR12-R052-Z05	52	2.6
BSR12-R063-Z06	63	1.9
BSR12-R066-Z06	66	1.9
BSR12-R080-Z08	80	1.3
BSR12-R100-Z10	100	1.0
BSR16-R050-Z03	50	4.0
BSR16-R052-Z04	52	4.0
BSR16-R063-Z05	63	2.8
BSR16-R066-Z05	66	2.8
BSR16-R080-Z06	80	2.0
BSR16-R100-Z07	100	1.5
BSR16-R125-Z08	125	1.0

SR / Form milling

Application data (axial plunging)





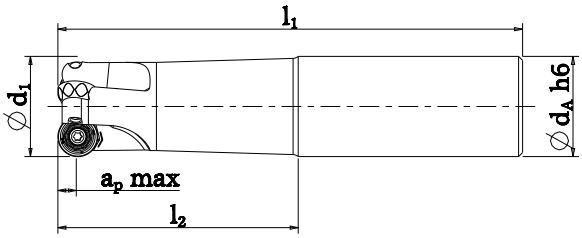
Ø [mm]	d_1 [mm]	X_{max} [mm]
10	20	0.2
	25	0.4
	32	0.8
	40 – 50	1.5
12	25	1.0
	32	1.1
	40	1.2
	50 – 100	1.5
16	50	1.1
	63 – 125	1.0

SR / Form milling

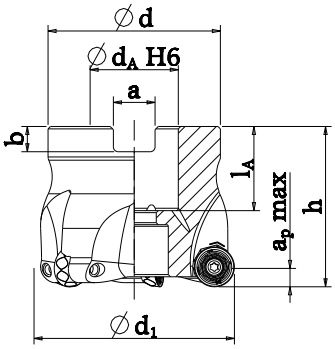
Milling body (RP/RD10)

- *Face milling*
- *Angled milling*
- *Slot milling*
- *Pocket milling*
- *Profile milling*
- *Helical Plunging*
- *Plunge milling*
- *Turn milling*

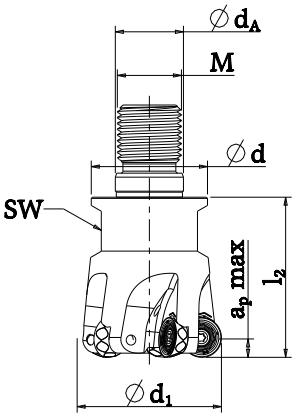
S..



B..



T..



Description	Ød1 [mm]	l1 [mm]	l2 [mm]	h [mm]	Ø dA H6/h6 [mm]	ap max [mm]	nmax [min-1]	z	Ø d [mm]	SW	M	lA [mm]	a [mm]	b [mm]
SSR10-R020-C20-50-L102-Z02	20	102	50	-	20	5	31800	2	-	-	-	-	-	-
SSR10-R020-C20-50-L165-Z02	20	165	50	-	20	5	22260	2	-	-	-	-	-	-
SSR10-R025-C25-60-L116-Z03	25	116	60	-	25	5	20000	3	-	-	-	-	-	-
SSR10-R025-C25-60-L165-Z03	25	165	60	-	25	5	20000	3	-	-	-	-	-	-
SSR10-R032-C32-70-L130-Z04	32	130	70	-	32	5	19000	4	-	-	-	-	-	-
SSR10-R032-C32-70-L165-Z04	32	165	70	-	32	5	18000	4	-	-	-	-	-	-
TSR10-R020-Z02	20	-	30	-	10.5	5	36900	2	18	SW15	M10	-	-	-
TSR10-R025-Z03	25	-	35	-	12.5	5	33200	3	21	SW17	M12	-	-	-
TSR10-R032-Z04	32	-	40	-	17	5	30200	4	29	SW24	M16	-	-	-
TSR10-R035-Z04	35	-	40	-	17	5	30200	4	29	SW24	M16	-	-	-
BSR10-R040-Z04	40	-	-	40	16	5	15900	4	38	-	-	20	8.4	5.6
BSR10-R042-Z05	42	-	-	40	16	5	15900	5	38	-	-	20	8.4	5.6
BSR10-R050-Z05	50	-	-	40	22	5	12700	5	43	-	-	21	10.4	7.6

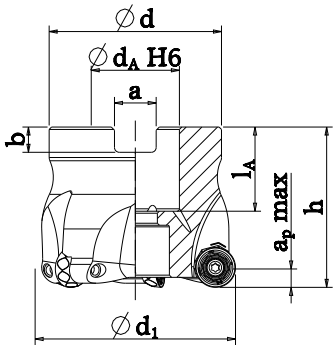
Description	Ø d1 [mm]	l1 [mm]	l2 [mm]	h [mm]	Ø dA H6/h6 [mm]	ap max [mm]	nmax [min-1]	z	Ø d [mm]	lA [mm]	a [mm]	b [mm]
SSR12-R025-C25-30-L86-Z02	25	86	30	-	25	6	25000	2	-	-	-	-
SSR12-R025-C25-60-L116-Z02	25	116	60	-	25	6	18000	2	-	-	-	-
SSR12-R032-C32-40-100-Z03	32	100	40	-	32	6	19000	3	-	-	-	-
SSR12-R032-C32-70-L130-Z03	32	130	70	-	32	6	17000	3	-	-	-	-
TSR12-R025-Z02	25	-	35	-	12.5	6	25000	2	21	-	-	-
TSR12-R035-Z03	35	-	40	-	17	6	15900	3	29	-	-	-
BSR12-R040-Z04	40	-	-	40	16	6	15900	4	38	20	8.4	5.6
BSR12-R044-Z04	42	-	-	40	16	6	15900	4	38	20	8.4	5.6
BSR12-R050-Z05	50	-	-	40	22	6	12700	5	43	21	10.4	6.3
BSR12-R052-Z05	52	-	-	40	22	6	12700	5	43	21	10.4	6.3
BSR12-R063-Z06	63	-	-	40	22	6	10100	6	48	21	10.4	6.3
BSR12-R066-Z06	66	-	-	40	27	6	10100	6	58	23	12.4	7
BSR12-R080-Z08	80	-	-	50	27	6	7950	8	58	22	12.4	7
BSR12-R100-Z10	100	-	-	50	32	6	6350	10	78	26	14.4	8

SR / Form milling

Milling body (RP16)

B..

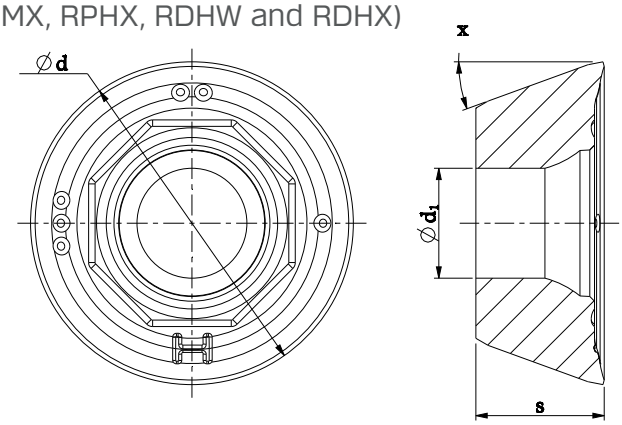
- *Face milling*
- *Angled milling*
- *Slot milling*
- *Pocket milling*
- *Profile milling*
- *Helical Plunging*
- *Plunge milling*
- *Turn milling*



Description	Ø d_1 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A [mm]	a [mm]	b [mm]
BSR16-R050-Z03	50	40	22	8	12700	3	48	22	10.4	6.3
BSR16-R052-Z04	52	40	22	8	12700	4	48	21	10.4	6.3
BSR16-R063-Z05	63	40	22	8	10100	5	48	21	10.4	6.3
BSR16-R066-Z05	66	40	22	8	10100	5	48	21	10.4	6.3
BSR16-R080-Z06	80	50	27	8	7950	6	58	23	12.4	7
BSR16-R100-Z07	100	50	32	8	6350	7	78	26	14.4	8
BSR16-R125-Z08	125	63	40	8	5050	8	88	28	16.4	9

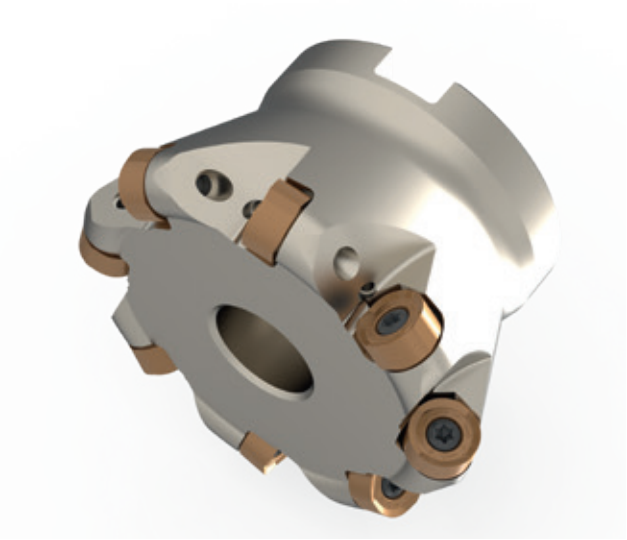
SR / Form milling

Insert (RPMX, RPHX, RDHW and RDHX)



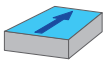
Description	d [mm]	s [mm]	d_1 [mm]	x [°]
RPMX 10T3MO-M5P	10	3.97	3.4	11
RPMX 10T3MO-M5M	10	3.97	3.4	11
RDHX 10T3MO-M5N	10	3.97	3.4	15
RPHX 10T3MO-M5S	10	3.97	3.4	11
RDHW 10T3MO-M5H	10	3.97	3.4	15
RPMX 1204MO-M5P	12	4.76	4.4	11
RPMX 1204MO-M5M	12	4.76	4.4	11
RDHX 1204MO-M5N	12	4.76	4.4	15
RPHX 1204MO-M5S	12	4.76	4.4	11
RDHW 1204MO-M5H	12	4.76	4.4	15
RPMX 1605MO-M5P	16	5.56	5.5	11
RPMX 1605MO-M5M	16	5.56	5.5	11
RDHX 1605MO-M5N	16	5.56	5.5	15
RPHX 1605MO-M5S	16	5.56	5.5	11
RDHW 1605MO-M5H	16	5.56	5.5	15

Overview RNKU... ROHU...

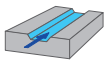


Application

1) Face milling



2) Slot milling



Customer benefits

- *Indexing of the insert without complete removal of the clamping screw is possible!*
- *Direct insert indexing saves valuable machine time.*

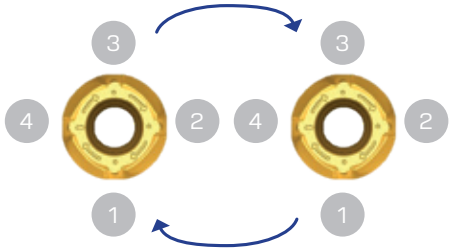
Available in 2 dimensions

CI 12 CI 16

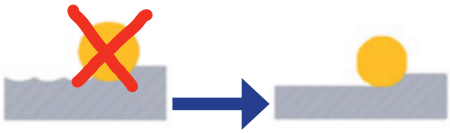
Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel*
***M5S**: Exotic – Titanium**

Indexing 4 times and reversible



Best finishing

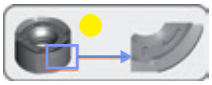


Cutting parameters: vc 280m/ min. f 0.4 mm. ap 0.5 mm

- *The alliance of a round insert for the robustness and a surfacing insert for the finishing. The double sided insert has 4 minor cutting edges per side for a best surface finish.*
- *For example*
- *→ Ra with a standard round insert: 3 µm*
- *→ Ra with the double-sided round insert: 1 µm*

Which chipbreaker to use?

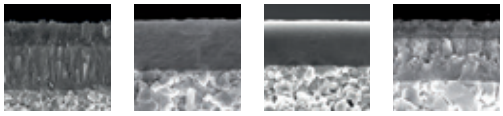
M5P
Strong cutting edge for general steel applications and hard conditions milling.



M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

Grades

MP30DD MP35E MM40EA MSM35D



Available range R12

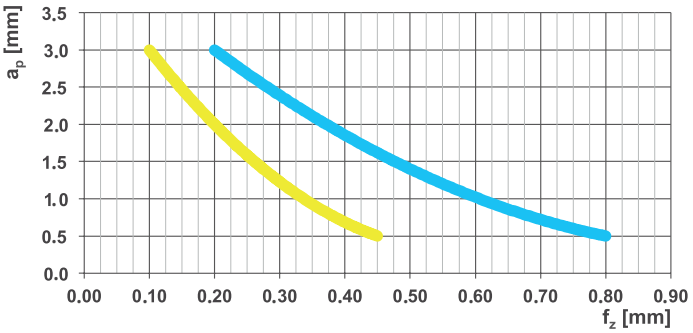
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	RNKU 1204MOER-M5P	...-M5P	•	•		
	ROHU 1204MOER-M5M	...-M5M			•	•

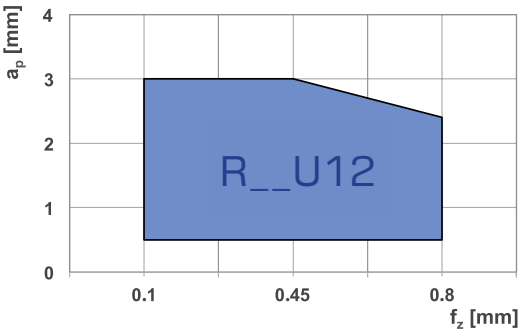
Body	Designation	ø Milling cutter [mm]	z	Available
	SDR12-R32-C32-70-L131-Z03	32	3	•
	SDR12-R32-C32-70-L165-Z03	32	3	•
	BDR12-R040-Z04	40	4	•
	BDR12-R050-Z05	50	5	•
	BDR12-R063-Z06	63	6	•
	BDR12-R080-Z08	80	8	•
	BDR12-R100-Z10	100	10	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.0 x 11 – T15+	5	02345431	•
	Power screw M8.0 x 30.0 (76281870) for BSR12-R040-Z04	15	08863011	•

Cutting data R12

Starting parameters:





Grades and materials:

Cutting data

Material group		Chipbreaker	Grade	v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.2 – 0.8	3 – 0.5
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.1 – 0.45	3 – 0.5

Recommended!

ø [mm]	4 times a_p [mm]	4 times $a_{p\,max}$ [mm]	8 razy $a_{p\,max}$ [mm]
12	3.0	5.5	1.7
16	4.0	7.5	2.3

Available range R16

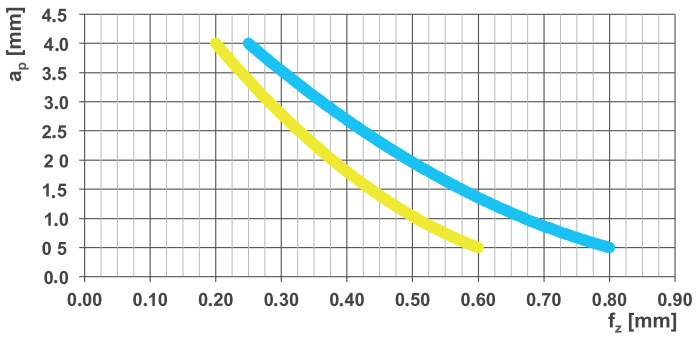
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	RNKU 1605MOER-M5P	...-M5P	•	•		
	ROHU 1605MOER-M5M	...-M5M			•	•

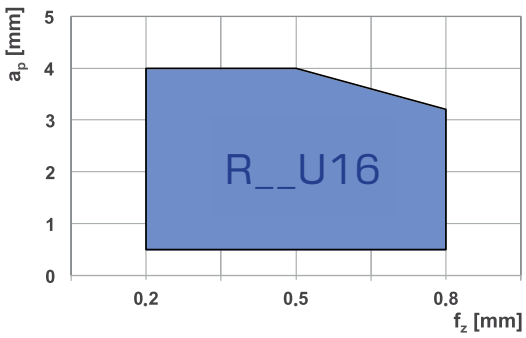
Body	Designation	ø Milling cutter [mm]	z	Available
	BDR16-R050-Z03	50	3	○
	BDR16-R063-Z05	63	5	•
	BDR16-R080-Z06	80	6	○
	BDR16-R0100-Z07	100	7	○
	BDR16-R0125-Z08	125	8	○

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.5 x 13 – T20	5	99388100	•

Cutting data R16

Starting parameters:





Grades and materials:

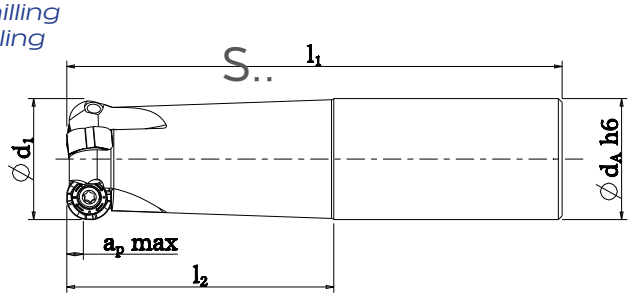
Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.25 – 0.8	4 – 0.5
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.2 – 0.6	4 – 0.5

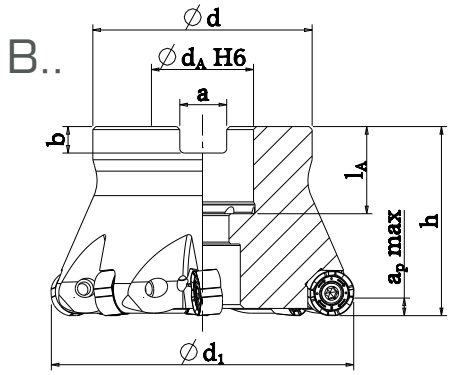
Recommended!

ø [mm]	4 times a_p [mm]	4 times $a_{p\,max}$ [mm]	8 razy $a_{p\,max}$ [mm]
12	3.0	5.5	1.7
16	4.0	7.5	2.3

DR / Form milling

- *Face milling*
- *Slot milling*





Milling body (RNKU12 and ROHU12 / RNKU16 and ROHU1)

Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A [mm]	a [mm]	b [mm]
SDR12-R32-C32-70-L131-Z03	32	131	70	-	32	4.5	19000	3	-	-	-	-
SDR12-R32-C32-70-L165-Z03	32	165	70	-	32	4.5	17000	3	-	-	-	-
BDR12-R040-Z04	40	-	-	40	16	4.5	15900	4	38	20	8.4	5.6
BDR12-R050-Z05	50	-	-	40	22	4.5	12700	5	43	21	10.4	6.3
BDR12-R063-Z06	63	-	-	40	22	4.5	10100	6	48	21	10.4	6.3
BDR12-R080-Z08	80	-	-	50	27	4.5	7950	8	58	23	12.4	7
BDR12-R100-Z10	100	-	-	50	32	4.5	6350	10	78	26	14.4	8

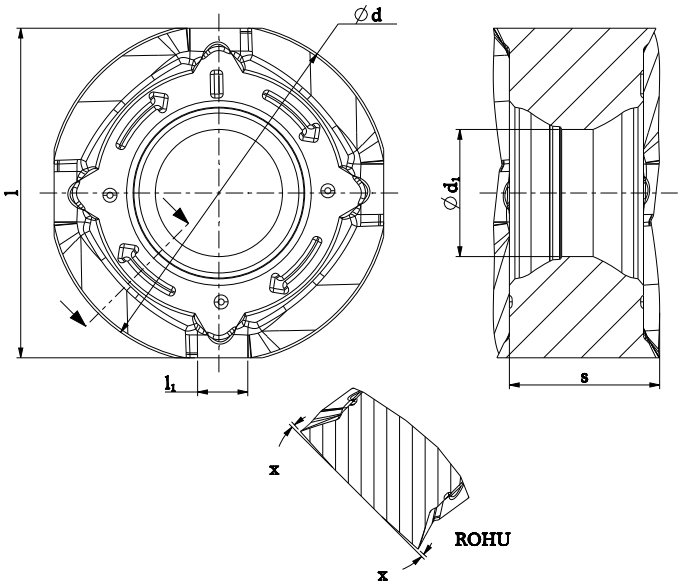
Description	Ø d_1 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A [mm]	a [mm]	b [mm]
BDR16-R050-Z03	50	40	22	6	12700	3	43	22	10.4	6.3
BDR16-R063-Z05	63	40	22	6	10100	5	48	21	10.4	6.3
BDR16-R080-Z06	80	50	27	6	7950	6	58	23	12.4	7
BDR16-R0100-Z07	100	50	32	6	6350	7	78	26	14.4	8
BDR16-R0125-Z08	125	63	40	6	5050	8	88	28	16.4	9

DR / Form milling

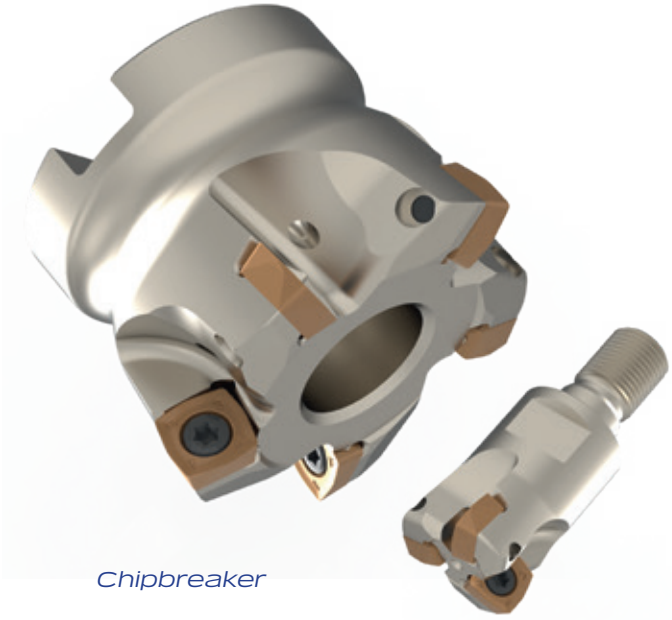
Insert (RNKU and ROHU)

-M5P

-M5M



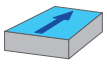
Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	d_1 [mm]	x [°]
RNKU 1204MOER-M5P	12	-	5.9	2.3	4.5	0
ROHU 1204MOER-M5M	12	-	5.9	2.3	4.5	3
RNKU 1605MOER-M5P	16	-	6.7	2.7	5.8	0
ROHU 1605MOER-M5M	16	-	6.7	2.7	5.8	3



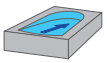
Overview XPLT... XDLT... XDLX... XOLT...

Application

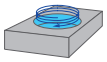
1) Face milling



2) Angled milling

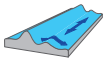


3) Helical plunging

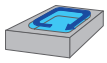


4) Plunge milling

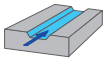
5) Profile milling



6) Pocket milling



7) Slot milling



Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel – Titanium**

4 effective cutting edges

***XDLX** - Your advantages / benefits*

- *Reduced machining noise and vibration, light cutting geometry*
- *Maximized economy thanks to 4 cutting edges*
- *Same milling body as previous range*
- *Increased productivity*
- *Tool life increased*

-M5P

-M5M

Customer benefits

- *With feed rates up to 3 mm / tooth and closely pitched tools. very high chip removal rates are achieved.*
- *Maximal tool life thanks to HyperCoat coating.*
- *Maximised economy thanks to 4 cutting edges.*
- *Reduced machining noise and vibration. light cutting geometries.*
- *Flexibility thanks to coolant holes with minimum quantity lubrication design.*

Available in 3 dimensions

IC 07 IC 10 IC 13

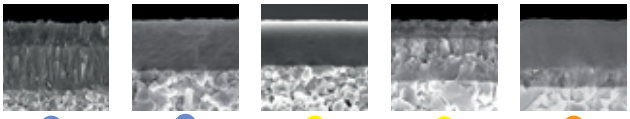
Which chipbreaker to use?

M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

Grades

MP30DD	MP35E	MM40EA	MSM35D	MS35D



Available range XPLT07

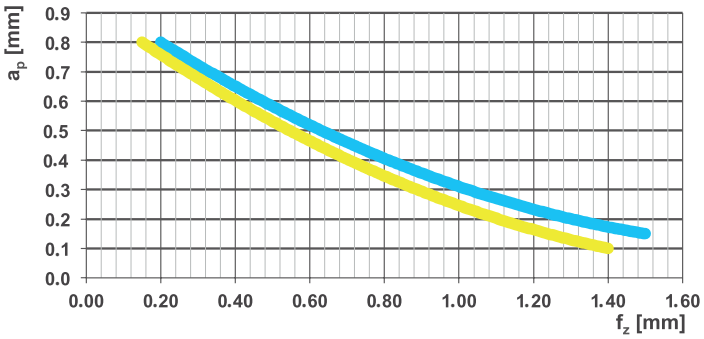
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D
	XPLT 070305SR-M5P	...-M5P	•	•			
	XPLT 070305ER-M5M	...-M5M			•	•	•

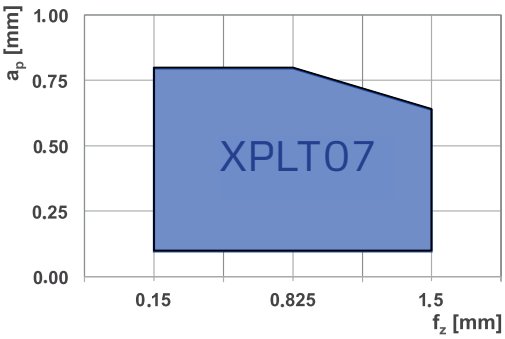
Body	Designation	ø Milling cutter [mm]	z	Available
	SSX07-R016-C16-50-L200-Z02	16	2	•
	SSX07-R020-C20-50-L200-Z03	20	3	•
	SSX07-R025-C25-50-L200-Z04	25	4	•
	TSX07-R016-Z02	16	2	•
	TSX07-R020-Z03	20	3	•
	TSX07-R025-Z04	25	4	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	M2.5x5.0 T08	1.2	3196700	•

Cutting data SX07

Starting parameters:





Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.2 – 1.5	0.8 – 0.15
M	Stainless steel	M5M	MM40EA MSM35D MS35D	200 – 60	0.15 – 1.4	0.8 – 0.1

Available range SX10 – XDLT / XDLX

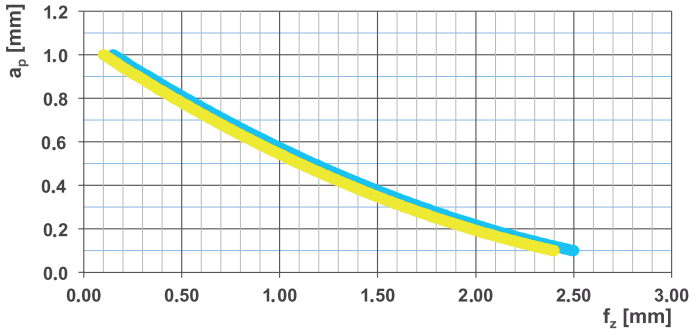
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D
	XDLT 10T308SR-M5P	...-M5P	•	•			
	XDLT 10T308ER-M5M	...-M5M			•	•	•
	XDLX 10T308SR-M5P	...-M5P	•	•			
	XDLX 10T308SR-M5M	...-M5M			•	•	

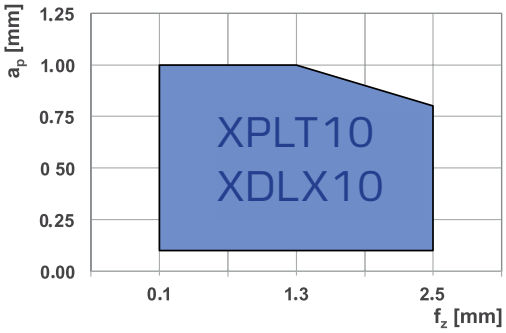
Body	Designation	ø Milling cutter [mm]	z	Available
	SSX10-R025-C25-50-L125-Z03	25	3	○
	SSX10-R025-C25-50-L225-Z03	25	3	•
	BSX10-R040-Z04	40	4	•
	BSX10-R050-Z05	50	5	•
	BSX10-R063-Z06	63	6	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M3.5 x 7.2 – T15 (11122770) for SSX10	3.2	67945000	•
	Screw M3.5 x 8.6 – T15 (90238870) for BSX10	3.2	59756100	•
	Power screw M8.0 x 30.0 (76281870) only for BSX10-R040-Z04	15	08863011	•

Cutting data SX10 – XDLT / XDLX

Starting parameters:





Grades and materials:

	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.15 – 2.5	1 – 0.1
M	Stainless steel	M5M	MM40EA MSM35D MS35D	200 – 60	0.1 – 2.4	1 – 0.1

Available range XOLT13

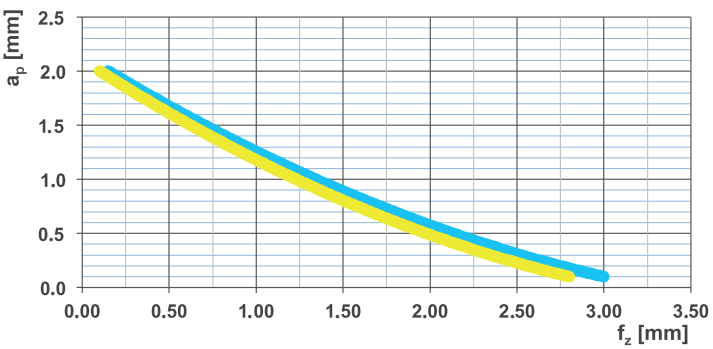
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D
	XOLT 130410SR-M5P	...-M5P	•	•			
	XOLT 130410ER-M5M	...-M5M			•	•	•

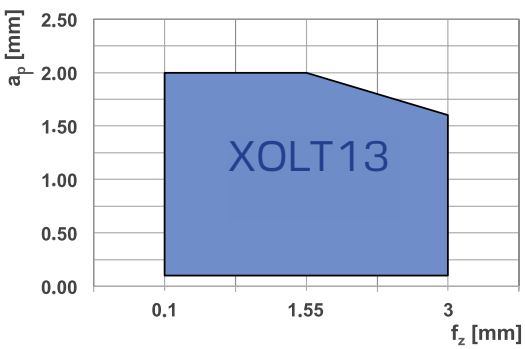
Body	Designation	ø Milling cutter [mm]	z	Available
	SSX13-R035-C35-63-L144-Z03	35	3	○
	SSX13-R035-C35-63-L250-Z03	35	3	•
	TSX13-R035-Z03	35	3	○
	BSX13-R050-Z04	50	4	•
	BSX13-R063-Z05	63	5	•
	BSX13-R080-Z07	80	7	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.5 x 10.5 – T20 (41122870)	5	22060100	•

Cutting data XOLT13

Starting parameters:



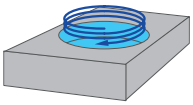


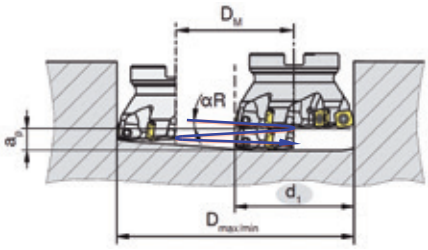
Grades and materials:

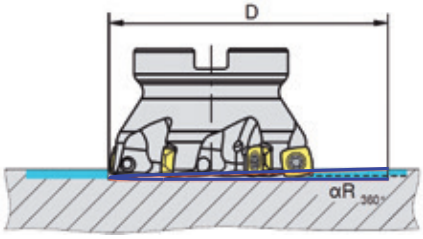
	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.15 – 3	2 – 0.1
M	Stainless steel	M5M	MM40EA MSM35D MS35D	200 – 60	0.1 – 2.8	2 – 0.1

SX / High feed cutting

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







Application data (helical plunge milling XPLT07)

Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_R [°]
SSX07-R016-C16-50-L200-Z02	16	31	22	4.5
SSX07-R020-C20-50-L200-Z03	20	39	30	2.3
SSX07-R025-C25-50-L200-Z04	25	49	40	1.3
TSX07-R016-Z02	16	31	22	4.5
TSX07-R020-Z03	20	39	30	2.3
TSX07-R025-Z04	25	49	40	1.3

Application data (helical plunge milling XDLT10, XDLX10)

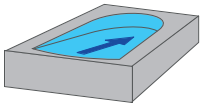
Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_R [°]
SSX10-R025-C25-50-L125-Z03	25	48	35	3.1
SSX10-R025-C25-50-L225-Z03	25	48	35	3.1
BSX10-R040-Z04	40	78	65	1.0
BSX10-R050-Z05	50	98	85	0.8
BSX10-R063-Z06	63	124	111	0.7

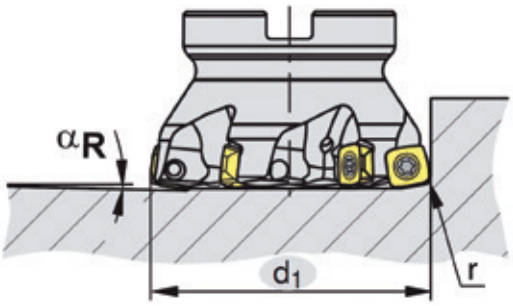
Application data (helical plunge milling XOLT13)

Description	d_1 [mm]	D_{max} [mm]	D_{min} [mm]	α_R [°]
SSX13-R035-C35-63-L144-Z03	35	68	50	3.7
SSX13-R035-C35-63-L250-Z03	35	68	50	3.7
TSX13-R035-Z03	35	68	59	3.7
BSX13-R050-Z04	50	98	80	1.3
BSX13-R063-Z05	63	124	106	0.9
BSX13-R080-Z07	80	158	140	1.1

SX / High feed cutting

Application data (angled ramping)



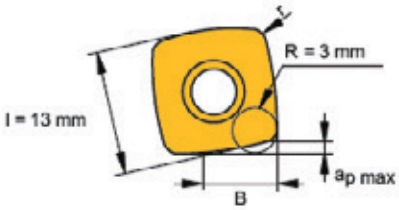


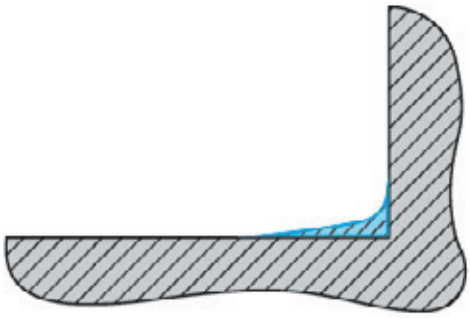
Description	d_1 [mm]	α_R [°]
SSX07-R016-C16-50-L200-Z02	16	5.9
SSX07-R020-C20-50-L200-Z03	20	3.2
SSX07-R025-C25-50-L200-Z04	25	2.0
TSX07-R016-Z02	16	5.9
TSX07-R020-Z03	20	3.2
TSX07-R025-Z04	25	2.0
SSX10-R025-C25-50-L125-Z03	25	3.6
SSX10-R025-C25-50-L225-Z03	25	3.6
BSX10-R040-Z04	40	1.2
BSX10-R050-Z05	50	0.9
BSX10-R063-Z06	63	0.8
SSX13-R035-C35-63-L144-Z03	35	4.4
SSX13-R035-C35-63-L250-Z03	35	4.4
TSX13-R035-Z03	35	4.4
BSX13-R050-Z04	50	1.5
BSX13-R063-Z05	63	1.1
BSX13-R080-Z07	80	1.3

Depth of cut and remaining material

R = programmed radius

Recommended $f_z \geq 0.5$ / tooth



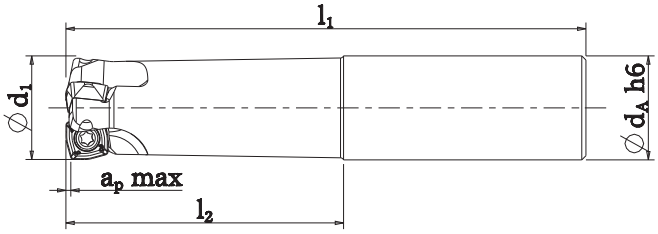


Insert	l [mm]	R [mm]	B [mm]	r [mm]	$a_{p\ max}$ [mm]
XPLT07	7	1.2	4.3	0.5	0.8
XDLT10	10	2.0	5.9	0.8	1.0
XDLX10	10	2.0	5.9	0.8	1.0
XOLT13	13	3.0	8.5	1.0	2.0

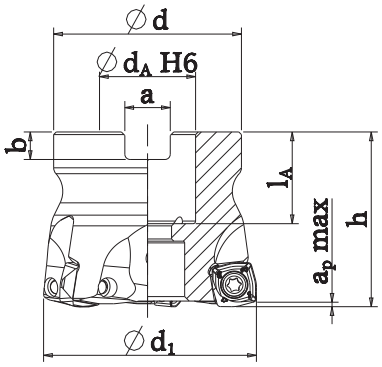
SX / High feed cutting

- *Face milling*
- *Angled milling*
- *Helical plunging*
- *Plunge milling*
- *Profile milling*
- *Pocket milling*
- *Slot milling*

S..



B..



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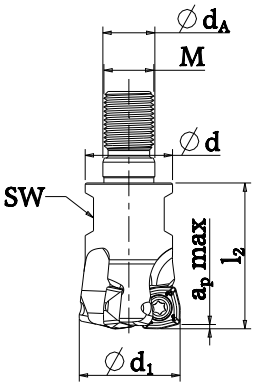


Milling body (XPLT07)

Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	SW	M
SSX07-R016-C16-50-L200-Z02	16	200	50	16	0.8	4600	2	–	–	–
SSX07-R020-C20-50-L200-Z03	20	200	50	20		4200	3	–	–	–
SSX07-R025-C25-50-L200-Z04	25	200	50	25		3900	4	–	–	–
TSX07-R016-Z02	16	–	25	8.5		20800	2	13.8	SW10	M8
TSX07-R020-Z03	20	–	30	10.5		19800	3	18	SW15	M10
TSX07-R025-Z04	25	–	35	12.5		18700	4	21	SW17	M12

Milling body (XDLT10 and XDLX10)

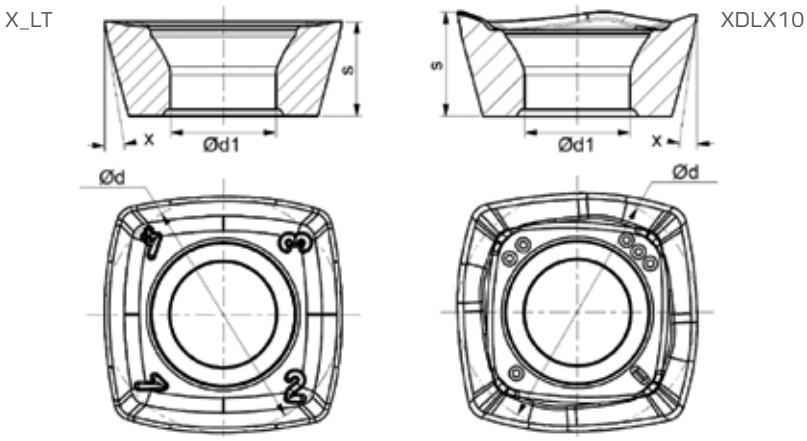
Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A	a	b
SSX10-R025-C25-50-L125-Z03	25	125	50	–	25	1	15600	3	–	–	–	–
SSX10-R025-C25-50-L225-Z03	25	225	50	–	25		9000	3	–	–	–	–
BSX10-R040-Z04	40	–	–	40	16		26400	4	38	20	8.4	5.6
BSX10-R050-Z05	50	–	–	40	22		23500	5	43	21	10.4	6.3
BSX10-R063-Z06	63	–	–	40	22		20500	6	48	21	10.4	6.3

Milling body (XOLT13)

Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	SW	M	l_A [mm]	a [mm]	b [mm]
SSX13-R035-C35-63-L144-Z03	35	144	63	-	32	2	9000	3	-	-	-	-	-	-
SSX13-R035-C35-63-L250-Z03	35	250	63	-	32		6400	3	-	-	-	-	-	-
TSX13-R035-Z03	35	-	40	-	17		21360	3	29	SW24	M16	-	-	-
BSX13-R050-Z04	50	-	-	40	22		18800	4	43	-	-	21	10.4	6.3
BSX13-R063-Z05	63	-	-	40	22		16400	5	48	-	-	21	10.4	6.3
BSX13-R080-Z07	80	-	-	50	27		14000	7	58	-	-	23	12.4	7

SX-XPLT, XDLT, XDLX and XOLT / High feed cutting

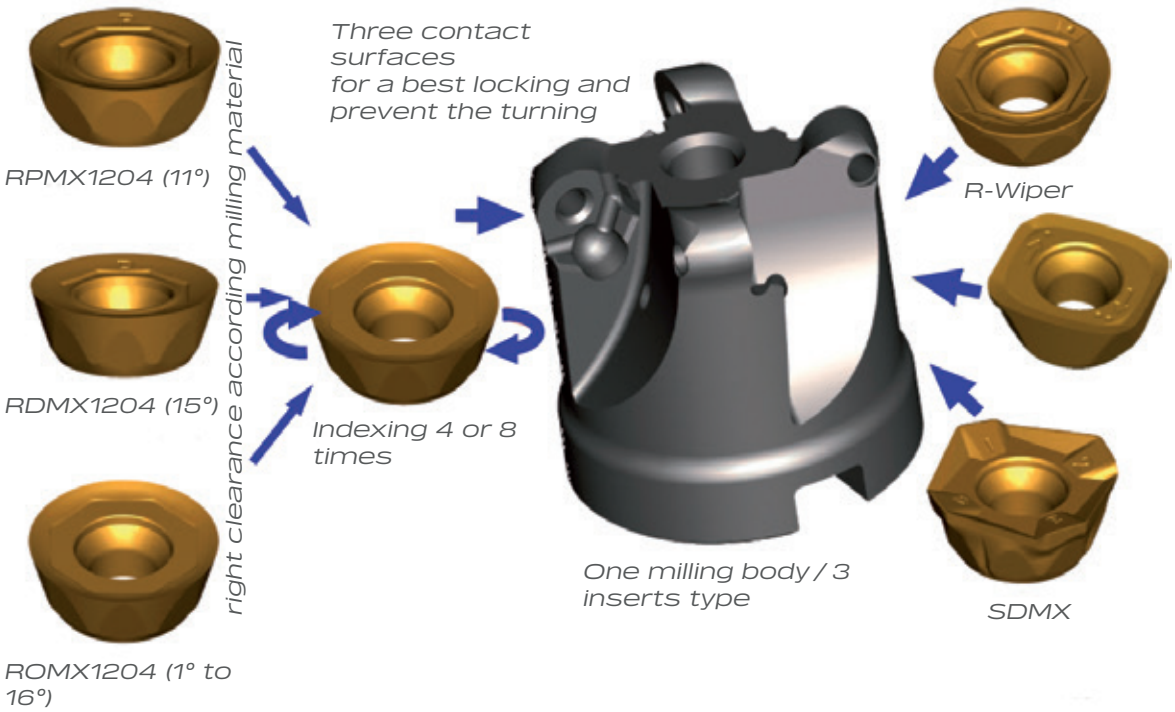
Insert (XPLT, XDLT, XDLX and XOLT)

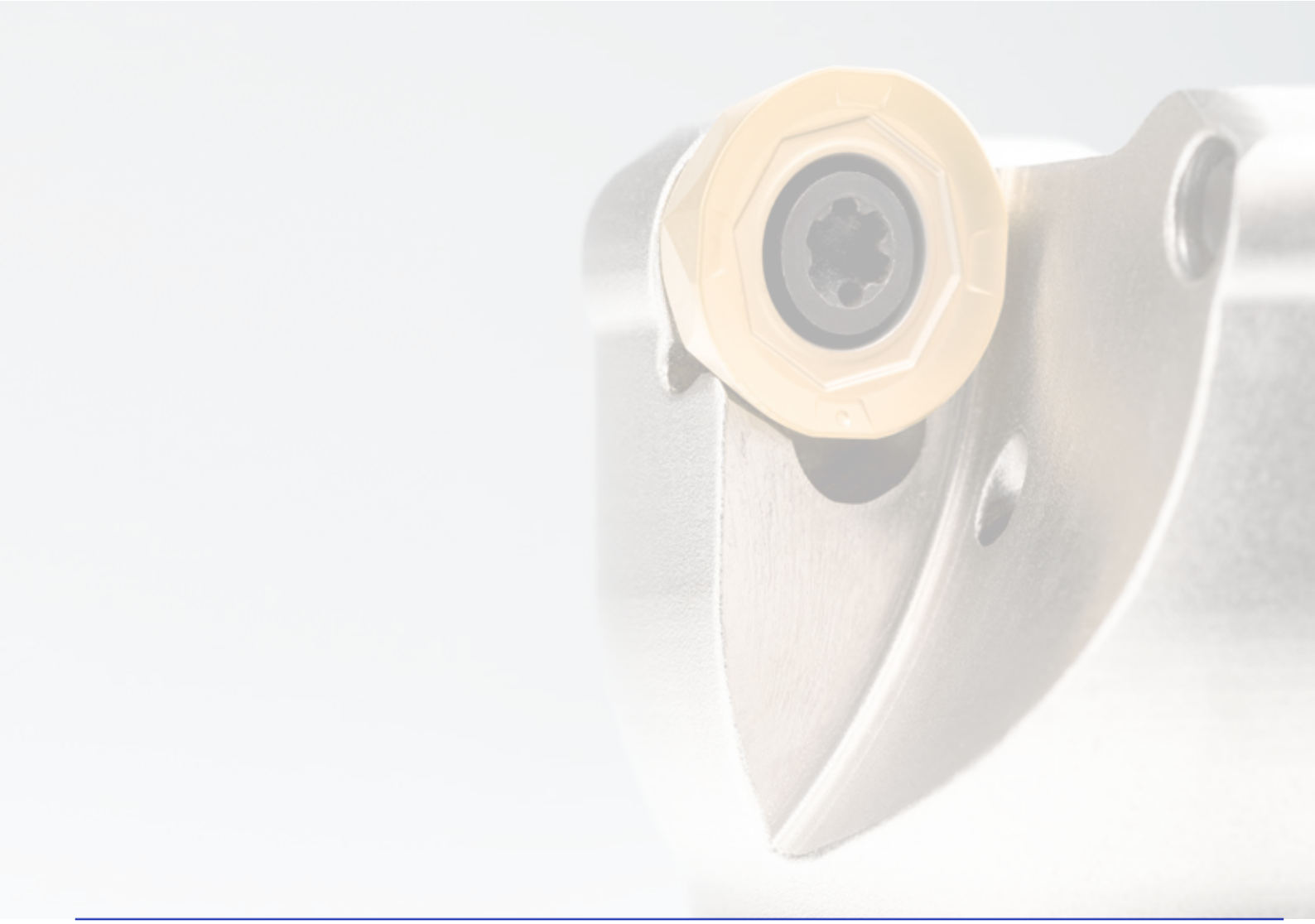


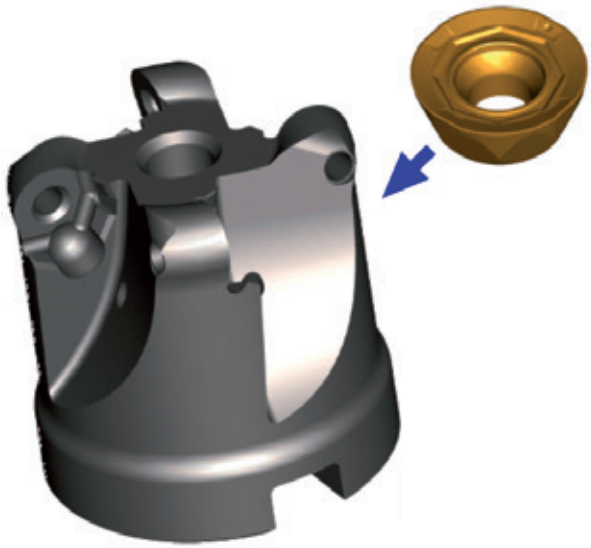
Description	d [mm]	s [mm]	r [mm]	d_1 [mm]	x [°]
XPLT 070305SR-M5P XPLT 070305ER-M5M	7	2.75	0.5	2.8	11
XDLT 10T308SR-M5P XDLT 10T308ER-M5M	10	3.97	0.8	4.4	9
XDLX 10T308SR-M5P XDLX 10T308SR-M5M	10	4.38	0.85	4.4	15
XOLT 130410SR-M5P XOLT 130410ER-M5M	13	4.76	1.0	5.5	9

Additional application

Standard application *Additional application*



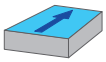




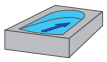
Additional application / Overview RPMX-Wpier

Application

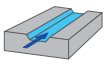
1) Face milling



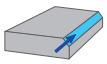
2) Angled milling



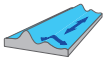
3) Slot milling



4) Chamfering



5) Profile milling



Customer benefits

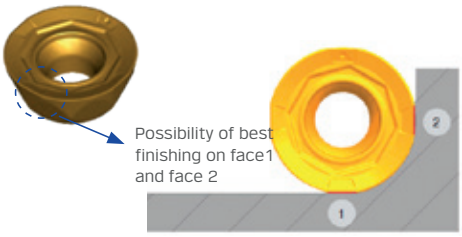
- *Indexing of the insert without complete removal of the clamping screw is possible!*
- *Direct insert indexing saves valuable machine time.*

Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel*

Indexing 4 / Master finish

4 cutting edges Master Finish for a best finishing.



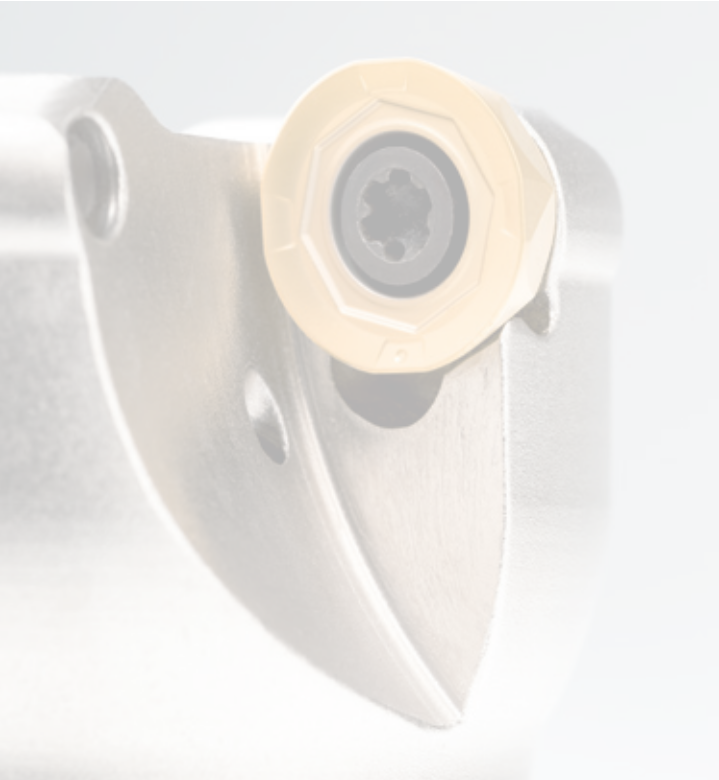
Available in 2 dimensions

IC 12 *IC 16*

Which chipbreaker to use?

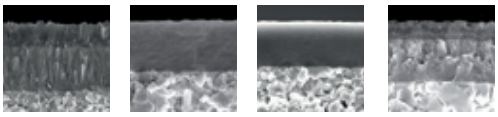
M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.



Grades

MP30DD	MP35E	MM40EA	MSM35D



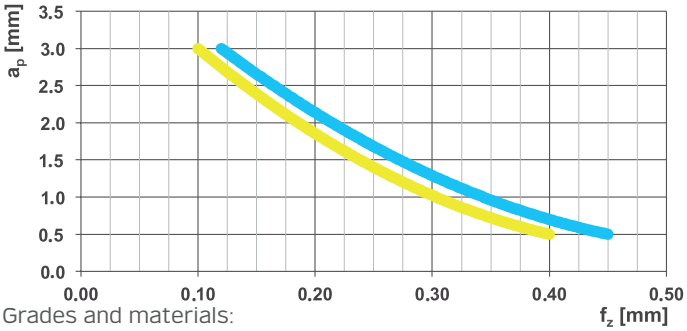
Available range R...X12-Wiper

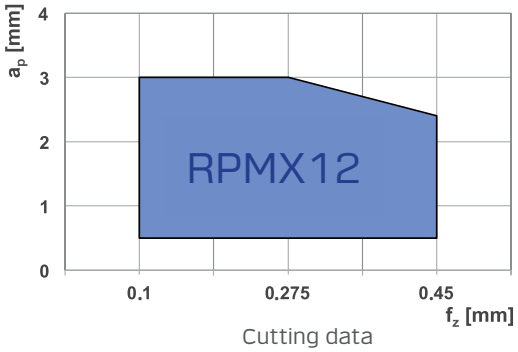
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	RPMX 1204MO-M5PW MP30DD	...-M5PW	•	•		
	RPMX 1204MO-M5MW MM35EA	...-M5MW			•	•

Body	Designation	ø Milling cutter [mm]	z	Available
	SSR12-R025-C25-30-L86-Z02	25	2	•
	SSR12-R025-C25-60-L116-Z02	25	2	•
	SSR12-R032-C32-40-100-Z03	32	3	•
	SSR12-R032-C32-70-L130-Z03	32	3	•
	TSR12-R025-Z02	25	2	•
	TSR12-R035-Z03	35	3	•
	BSR12-R040-Z04	40	4	•
	BSR12-R044-Z04	42	4	•
	BSR12-R050-Z05	50	5	•
	BSR12-R052-Z05	52	5	•
	BSR12-R063-Z06	63	6	•
	BSR12-R066-Z06	66	6	•
	BSR12-R080-Z08	80	8	•
	BSR12-R100-Z10	100	10	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.0 x 11 – T15+ (Only for B-bore type)	5	02345431	•
	Screw M4.0 x 8.5 – T15 (Only for S-shank)	5	48473011	•
	Power screw M8.0 x 30.0 (76281870) for BSR12-R040-Z04	15	08863011	•

Starting parameters:





Cutting data

Grades and materials:

Material group		Chipbreaker	Grade	v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.12 – 0.45	3 – 0.5
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.1 – 0.4	3 – 0.5

Recommended!

ø [mm]	a_p [mm]	$a_{p\,max}$ [mm] (4 times)
12	3.0	5.5
16	4.0	7.5

Available range R...X16-Wiper

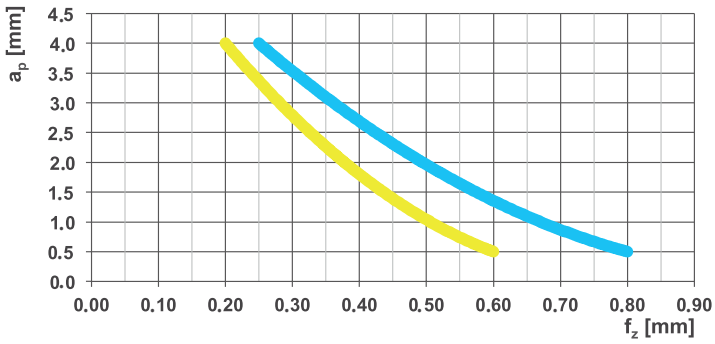
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	RPMX 1605MO-M5PW MP30DD	...-M5PW	•	•		
	RPMX 1605MO-M5MW MM35EA	...-M5MW			•	•

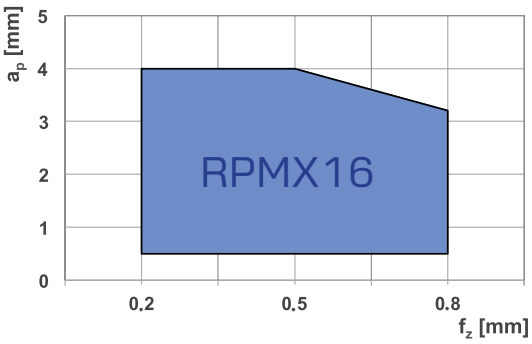
Body	Designation	ø Milling cutter [mm]	z	Available
	BSR16-R050-Z03	50	3	•
	BSR16-R052-Z04	52	4	•
	BSR16-R063-Z05	63	5	•
	BSR16-R066-Z05	66	5	•
	BSR16-R080-Z06	80	6	•
	BSR16-R100-Z07	100	7	•
	BSR16-R125-Z08	125	8	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.5 x 13 – T20+	5	01345431	•
	Power screw M10.0 x 31.0 (86281870) for BSR16-R050-Z03	20	89204011	•

Cutting data R...X16-Wiper

Starting parameters:





Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.25 – 0.8	4 – 0.5
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.2 – 0.6	4 – 0.5

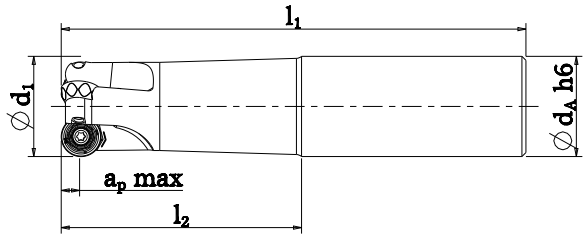
Recommended!

ø [mm]	a_p [mm]	4 times $a_{p\,max}$ [mm]
12	3.0	5.5
16	4.0	7.5

Multiple applications

- *Face milling*
- *Angled milling*
- *Slot milling*
- *Chamfering*
- *Profile milling*

S..



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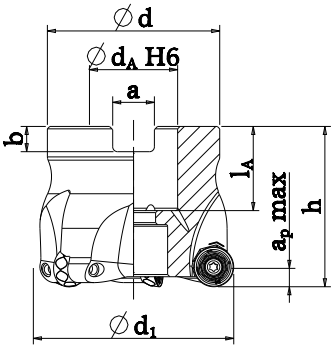

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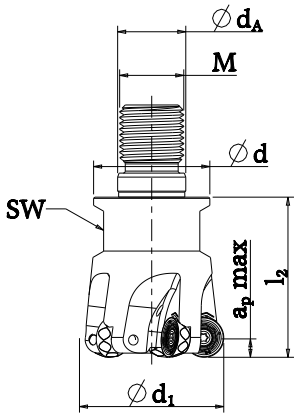


Milling body (RP12)

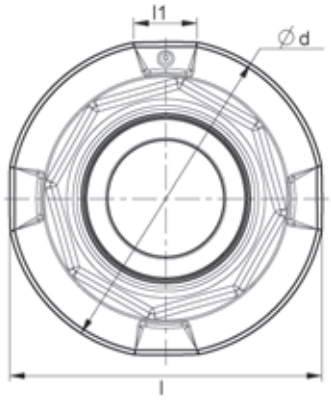
Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A [mm]	a [mm]	b [mm]
SSR12-R025-C25-30-L86-Z02	25	86	30	-	25	6	25000	2	-	-	-	-
SSR12-R025-C25-60-L116-Z02	25	116	60	-	25	6	18000	2	-	-	-	-
SSR12-R032-C32-40-100-Z03	32	100	40	-	32	6	19000	3	-	-	-	-
SSR12-R032-C32-70-L130-Z03	32	130	70	-	32	6	17000	3	-	-	-	-
TSR12-R025-Z02	25	-	35	-	12.5	6	25000	2	21	-	-	-
TSR12-R035-Z03	35	-	40	-	17	6	15900	3	29	-	-	-
BSR12-R040-Z04	40	-	-	40	16	6	15900	4	38	20	8.4	5.6
BSR12-R044-Z04	42	-	-	40	16	6	15900	4	38	20	8.4	5.6
BSR12-R050-Z05	50	-	-	40	22	6	12700	5	43	21	10.4	6.3
BSR12-R052-Z05	52	-	-	40	22	6	12700	5	43	21	10.4	6.3
BSR12-R063-Z06	63	-	-	40	22	6	10100	6	48	21	10.4	6.3
BSR12-R066-Z06	66	-	-	40	27	6	10100	6	58	23	12.4	7
BSR12-R080-Z08	80	-	-	50	27	6	7950	8	58	22	12.4	7
BSR12-R100-Z10	100	-	-	50	32	6	6350	10	78	26	14.4	8

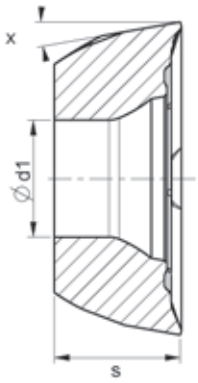
Milling body (RP16)

Description	Ø d_1 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A [mm]	a [mm]	b [mm]
BSR16-R050-Z03	50	40	22	8	12700	3	48	22	10.4	6.3
BSR16-R052-Z04	52	40	22	8	12700	4	48	21	10.4	6.3
BSR16-R063-Z05	63	40	22	8	10100	5	48	21	10.4	6.3
BSR16-R066-Z05	66	40	22	8	10100	5	48	21	10.4	6.3
BSR16-R080-Z06	80	50	27	8	7950	6	58	23	12.4	7
BSR16-R100-Z07	100	50	32	8	6350	7	78	26	14.4	8
BSR16-R125-Z08	125	63	40	8	5050	8	88	28	16.4	9

Multiple applications

Insert (RPMX and RPHX)



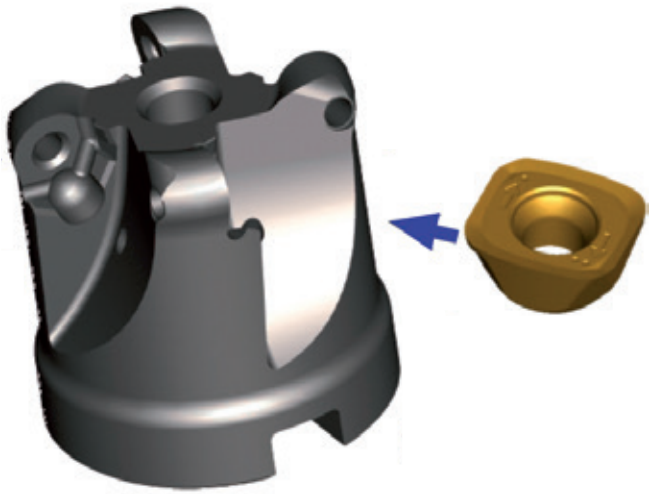


-M5PW

-M5MW

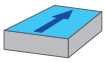
Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	d_1 [mm]	X [°]
RPMX 1204MO-M5PW RPMX 1204MO-M5MW	12	11.75	4.76	2.4	4.4	11
RPMX 1605MO-M5PW RPMX 1605MO-M5MW	16	15.8	5.56	2.5	5.5	11

Additional application / Overview EOMT

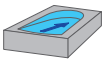


Application

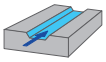
1) Face milling



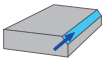
2) Angled milling



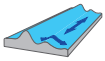
3) Slot milling



4) Chamfering



5) Profile milling



Customer benefits

- *Indexing of the insert without complete removal of the clamping screw is possible!*
- *Direct insert indexing saves valuable machine time.*

Chipbreaker

***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel*

Indexing 2 times

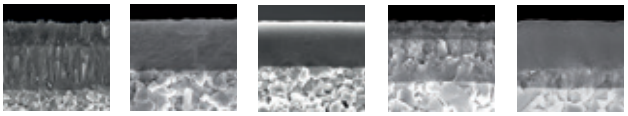
Which chipbreaker to use?

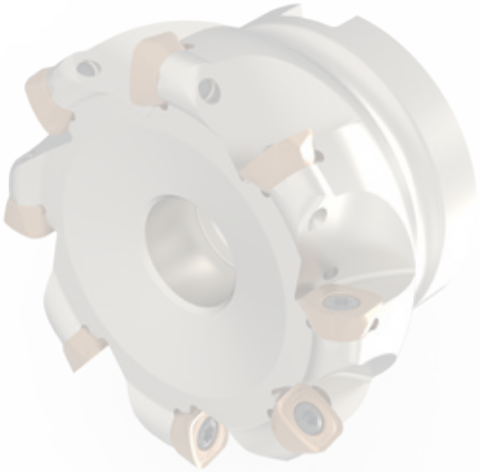
M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

Grades

MP30DD MP35E MM40EA MSM35D MS35D





Available range EOMT12

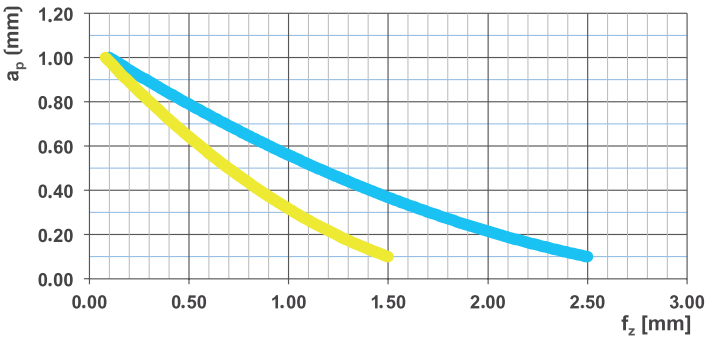
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MS35D
	EOMT 120416-M5P	...-M5P	●	●			
	EOMT 120416-M5M	...-M5M			●	●	○

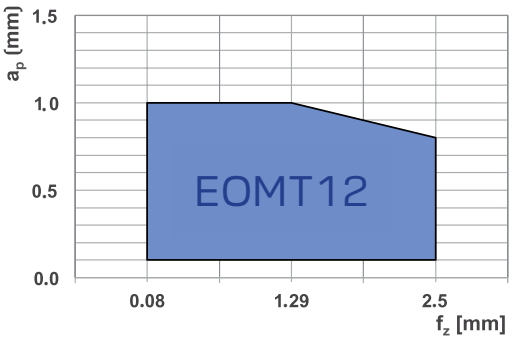
Body	Designation	ø Milling cutter [mm]	z	Available
	SSR12-R025-C25-30-L86-Z02	25	2	●
	SSR12-R025-C25-60-L116-Z02	25	2	●
	SSR12-R032-C32-40-100-Z03	32	3	●
	SSR12-R032-C32-70-L130-Z03	32	3	●
	TSR12-R025-Z02	25	2	●
	TSR12-R035-Z03	35	3	●
	BSR12-R040-Z04	40	4	●
	BSR12-R044-Z04	42	4	●
	BSR12-R050-Z05	50	5	●
	BSR12-R052-Z05	52	5	●
	BSR12-R063-Z06	63	6	●
	BSR12-R066-Z06	66	6	●
	BSR12-R080-Z08	80	8	●
	BSR12-R100-Z10	100	10	●

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Śruba M4.0 x 11 – T15+ (tylko dla B-)	5	02345431	●
	Śruba M4.0 x 8.5 – T15 (tylko dla S-)	5	48473011	●
	Mocna śruba M8.0 x 30.0 (76281870) for BSR12-R040-Z04	15	08863011	●

Cutting data EOMT12

Starting parameters:





Grades and materials:

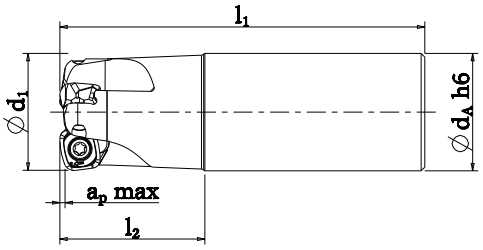
	Material group	Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Stal	M5P	MP30DD MP35E	220 – 60	0.1 – 2.5	1 – 0.1
M	Stal nierdzewna	M5M	MM40EA MSM35D	200 – 60	0.08 – 1.5	1 – 0.1

Multiple applications

Milling body (EOMT12)

- *Face milling*
- *Angled milling*
- *Slot milling*
- *Chamfering*
- *Profile milling*

S..



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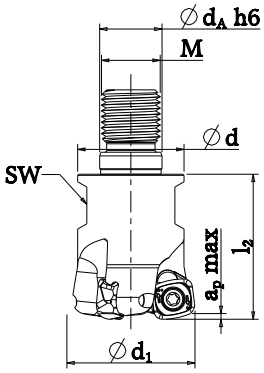
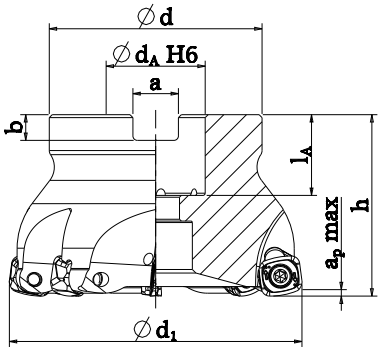
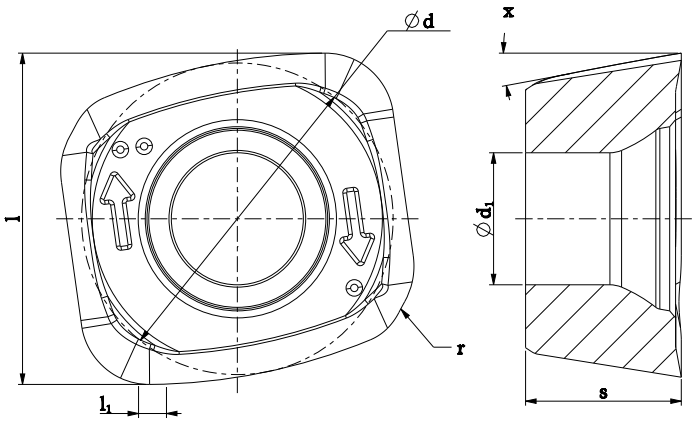


B..



Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	SW	M	l_A [mm]	a [mm]	b [mm]
SSR12-R025-C25-30-L86-Z02	24.75	85.87	29.87	-	25	6	25000	2	-	-	-	-	-	-
SSR12-R025-C25-60-L116-Z02	24.75	115.87	59.87	-	25	6	18000	2	-	-	-	-	-	-
SSR12-R032-C32-40-100-Z03	31.75	99.87	39.87	-	32	6	19000	3	-	-	-	-	-	-
SSR12-R032-C32-70-L130-Z03	31.75	129.87	69.87	-	32	6	17000	3	-	-	-	-	-	-
TSR12-R025-Z02	24.75	-	34.87	-	12.5	6	25000	2	21	SW17	M12	-	-	-
TSR12-R035-Z03	34.75	-	39.87	-	17	6	15900	3	29	SW24	M16	-	-	-
BSR12-R040-Z04	39.75	-	-	39.87	16	6	15900	4	38	-	-	20	8.4	5.6
BSR12-R044-Z04	41.75	-	-	39.87	16	6	15900	4	38	-	-	20	8.4	5.6
BSR12-R050-Z05	49.75	-	-	39.87	22	6	12700	5	43	-	-	21	10.4	6.3
BSR12-R052-Z05	51.75	-	-	39.87	22	6	12700	5	43	-	-	21	10.4	6.3
BSR12-R063-Z06	62.75	-	-	39.87	22	6	10100	6	48	-	-	21	10.4	6.3
BSR12-R066-Z06	65.75	-	-	39.87	27	6	10100	6	58	-	-	23	12.4	7
BSR12-R080-Z08	79.75	-	-	49.87	27	6	7950	8	58	-	-	22	12.4	7
BSR12-R100-Z10	99.75	-	-	49.87	32	6	6350	10	78	-	-	26	14.4	8

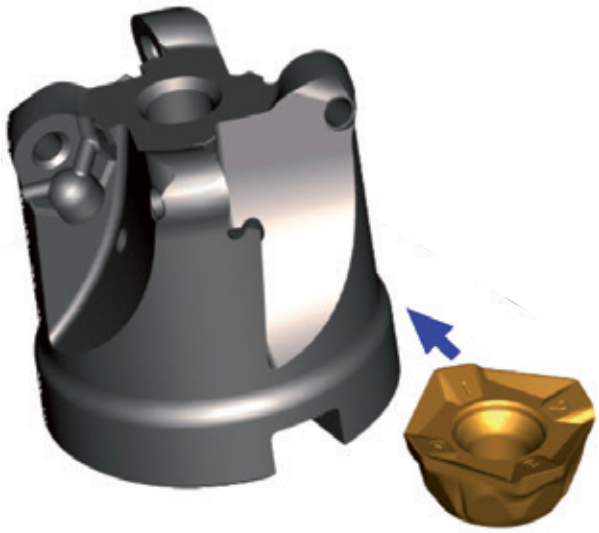
Insert (EOMT)



-M5P -M5M

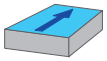
Description	d [mm]	s [mm]	l [mm]	d_1 [mm]	l_1 [mm]	r [mm]	x [°]
EOMT 120416-M5P	11.3	5.2	11	4.4	1	1.6	9
EOMT 120416-M5M	11.3	5.2	11	4.4	1	1.6	9

Additional application / Overview SDMX

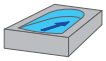


Application

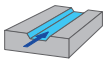
1) Face milling



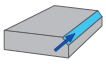
2) Angled milling



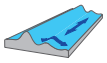
3) Slot milling



4) Chamfering



5) Profile milling



Customer benefits

- *Indexing of the insert without complete removal of the clamping screw is possible!*
- *Direct insert indexing saves valuable machine time.*

Chipbreaker

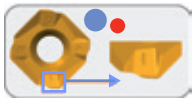
***M5P**: Steel – Cast iron**
***M5M**: Stainless Steel*

Available in 2 dimensions

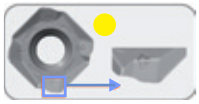
IC 12 IC 16

4 effective cutting edges

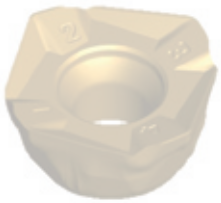
Which chipbreaker to use?



M5P
Strong cutting edge for general steel applications and hard conditions milling.

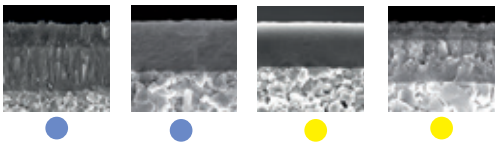


M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.



Grades

MP30DD MP35E MM40EA MSM35D



Available range SDMX11

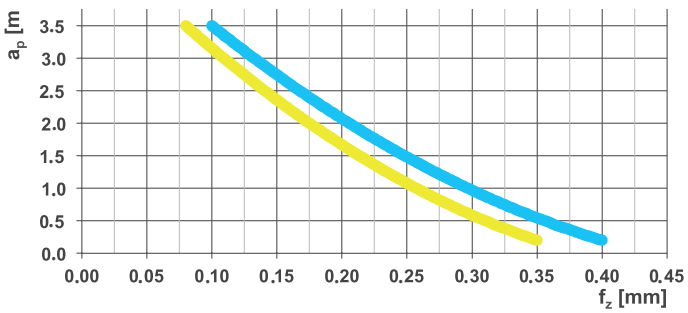
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	SDMX 1105AEER-M5P	...-M5P	•	•		
	SDMX 1105AEER-M5M	...-M5M			•	•

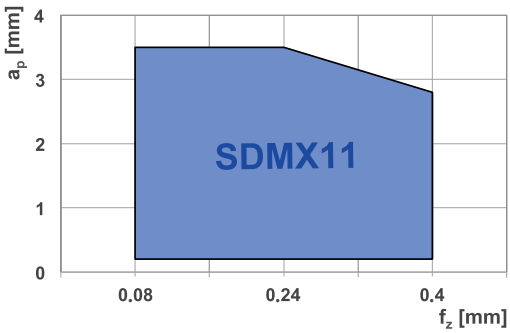
Body	Designation	ø Milling cutter [mm]	z	Available
	SSR12-R025-C25-30-L86-Z02	25	2	•
	SSR12-R025-C25-60-L116-Z02	25	2	•
	SSR12-R032-C32-40-100-Z03	32	3	•
	SSR12-R032-C32-70-L130-Z03	32	3	•
	TSR12-R025-Z02	25	2	•
	TSR12-R035-Z03	35	3	•
	BSR12-R040-Z04	40	4	•
	BSR12-R044-Z04	42	4	•
	BSR12-R050-Z05	50	5	•
	BSR12-R052-Z05	52	5	•
	BSR12-R063-Z06	63	6	•
	BSR12-R066-Z06	66	6	•
	BSR12-R080-Z08	80	8	•
	BSR12-R100-Z10	100	10	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.0 x 11 – T15+ (tylko dla B-)	5	02345431	•
	Screw M4.0 x 8.5 – T15 (tylko dla S-)	5	48473011	•
	Power screw M8.0 x 30.0 (76281870) for BSR12-R040-Z04	15	08863011	•

Cutting data SDMX11

Starting parameters:





Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.1 – 0.4	3.5 – 0.2
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.08 – 0.35	3.5 – 0.2

Available range SDMX15

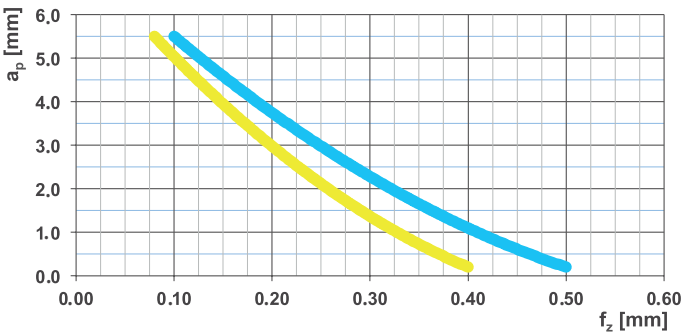
Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D
	SDMX 1506AEER-M5P	...-M5P	•	•		
	SDMX 1506AEER-M5M	...-M5M			•	•

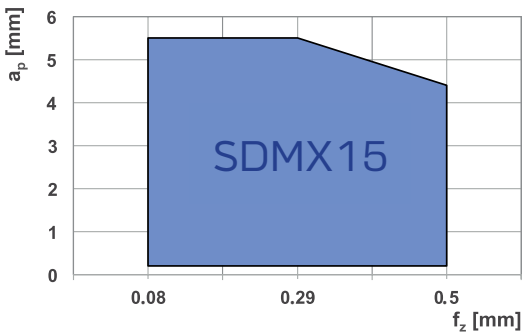
Body	Designation	ø Milling cutter [mm]	z	Available
	BSR16-R050-Z03	50	3	•
	BSR16-R052-Z04	52	4	•
	BSR16-R063-Z05	63	5	•
	BSR16-R066-Z05	66	5	•
	BSR16-R080-Z06	80	6	•
	BSR16-R100-Z07	100	7	•
	BSR16-R125-Z08	125	8	•

Spare parts	Designation	Torque moment [Nm]	Material number	Available
	Screw M4.5 x 13 – T20+	5	01345431	•
	Power screw M10.0 x 31.0 (86281870) for BSR16-R050-Z03	20	89204011	•

Cutting data SDMX15

Starting parameters:





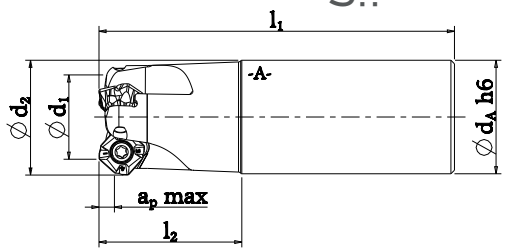
Grades and materials:

Material group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.1 – 0.5	5.5 – 0.2
M	Stainless steel	M5M	MM40EA MSM35D	200 – 60	0.08 – 0.4	5.5 – 0.2

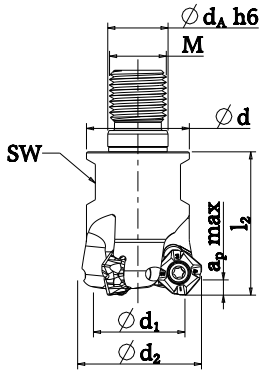
Multiple applications

- *Face milling*
- *Angled milling*
- *Slot milling*
- *Chamfering*
- *Profile milling*

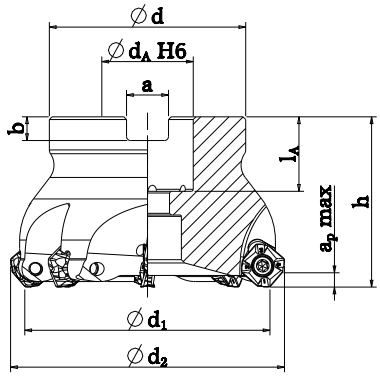
S..



T..



B..



Milling body (SDMX11)

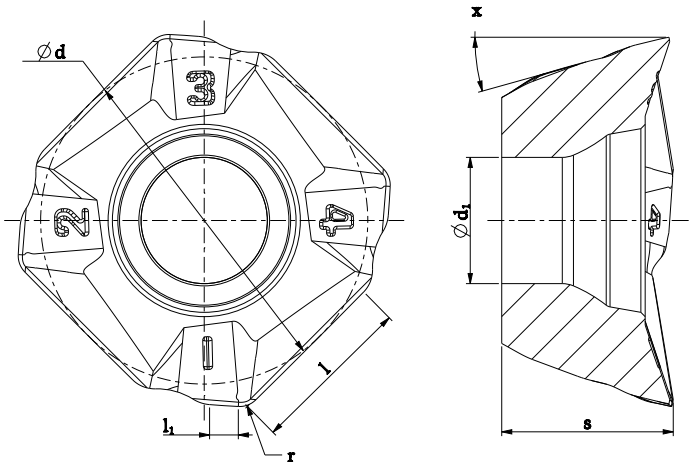
Description	Ø d_1 [mm]	Ø d_2 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	SW	M	l_A [mm]	a [mm]	b [mm]
SSR12-R025-C25-30-L86-Z02	17.5	25	86.3	30.3	-	25	6	25000	2	-	-	-	-	-	-
SSR12-R025-C25-60-L116-Z02	17.5	25	116.3	60.3	-	25	6	18000	2	-	-	-	-	-	-
SSR12-R032-C32-40-100-Z03	24.5	32	100.3	40.3	-	32	6	19000	3	-	-	-	-	-	-
SSR12-R032-C32-70-L130-Z03	24.5	32	130.3	70.3	-	32	6	17000	3	-	-	-	-	-	-
TSR12-R025-Z02	17.5	25	-	35.3	-	12.5	6	25000	2	21	SW17	M12	-	-	-
TSR12-R035-Z03	27.5	35	-	40.3	-	17	6	15900	3	29	SW24	M16	-	-	-
BSR12-R040-Z04	32.5	40	-	-	40.3	16	6	15900	4	38	-	-	20	8.4	5.6
BSR12-R044-Z04	34.5	42	-	-	40.3	16	6	15900	4	38	-	-	20	8.4	5.6
BSR12-R050-Z05	42.5	50	-	-	40.3	22	6	12700	5	43	-	-	21	10.4	6.3
BSR12-R052-Z05	44.5	52	-	-	40.3	22	6	12700	5	43	-	-	21	10.4	6.3
BSR12-R063-Z06	55.5	63	-	-	40.3	22	6	10100	6	48	-	-	21	10.4	6.3
BSR12-R066-Z06	58.5	66	-	-	40.3	27	6	10100	6	58	-	-	23	12.4	7
BSR12-R080-Z08	72.5	80	-	-	50.3	27	6	7950	8	58	-	-	22	12.4	7
BSR12-R100-Z10	92.5	100	-	-	50.3	32	6	6350	10	78	-	-	26	14.4	8

Milling body (SDMX15)

Description	Ø d_1 [mm]	Ø d_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min^{-1}]	z	Ø d [mm]	l_A [mm]	a [mm]	b [mm]
BSR16-R050-Z03	39.8	50	40.5	22	8	12700	3	48	22	10.4	6.3
BSR16-R052-Z04	41.8	52	40.5	22	8	12700	4	48	21	10.4	6.3
BSR16-R063-Z05	52.8	63	40.5	22	8	10100	5	48	21	10.4	6.3
BSR16-R066-Z05	55.8	66	40.5	22	8	10100	5	48	21	10.4	6.3
BSR16-R080-Z06	69.8	80	50.5	27	8	7950	6	58	23	12.4	7
BSR16-R100-Z07	89.8	100	50.5	32	8	6350	7	78	26	14.4	8
BSR16-R125-Z08	114.8	125	63.5	40	8	5050	8	88	28	16.4	9

Multiple applications

Insert (SDMX)



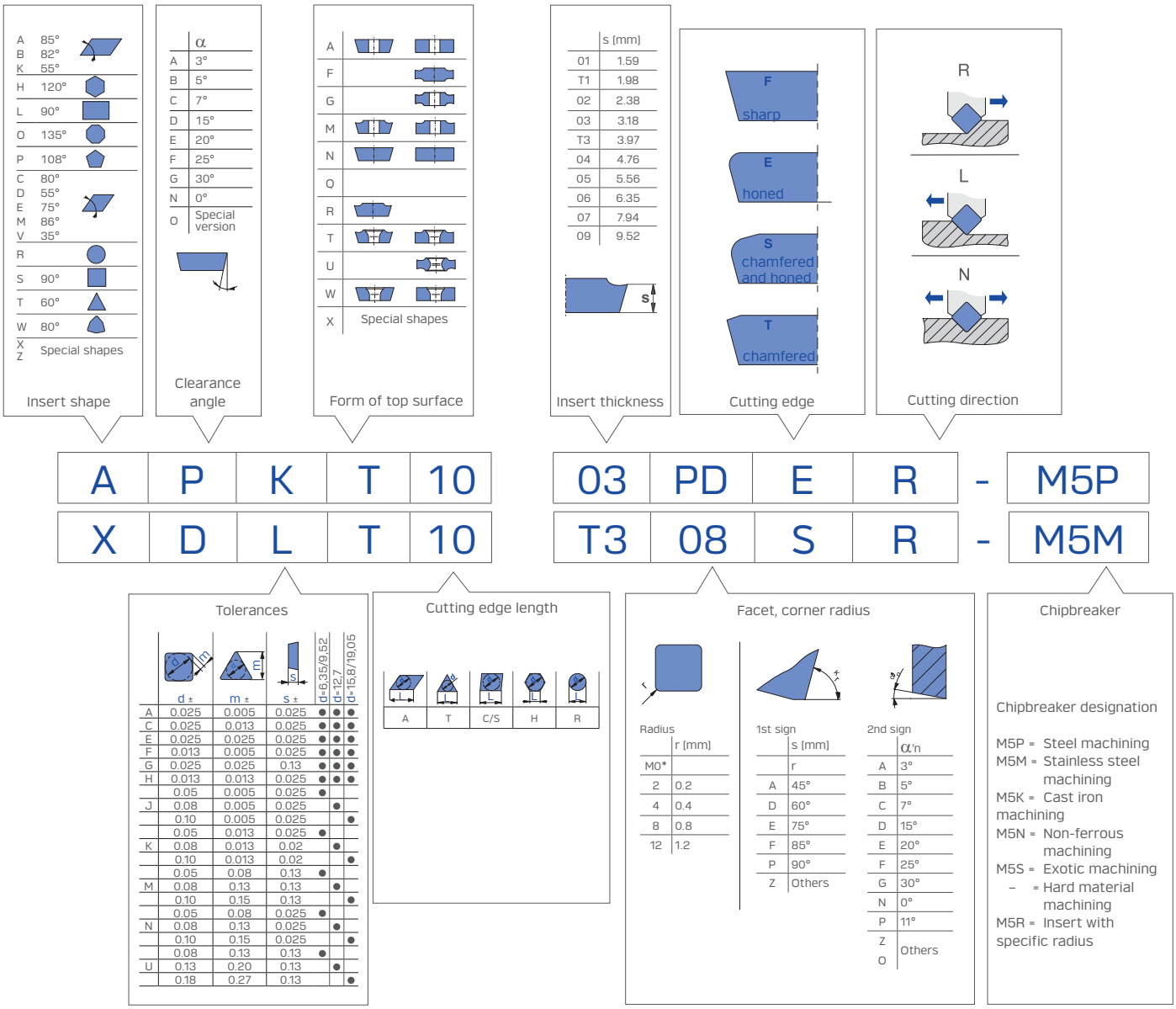
-M5P

-M5M

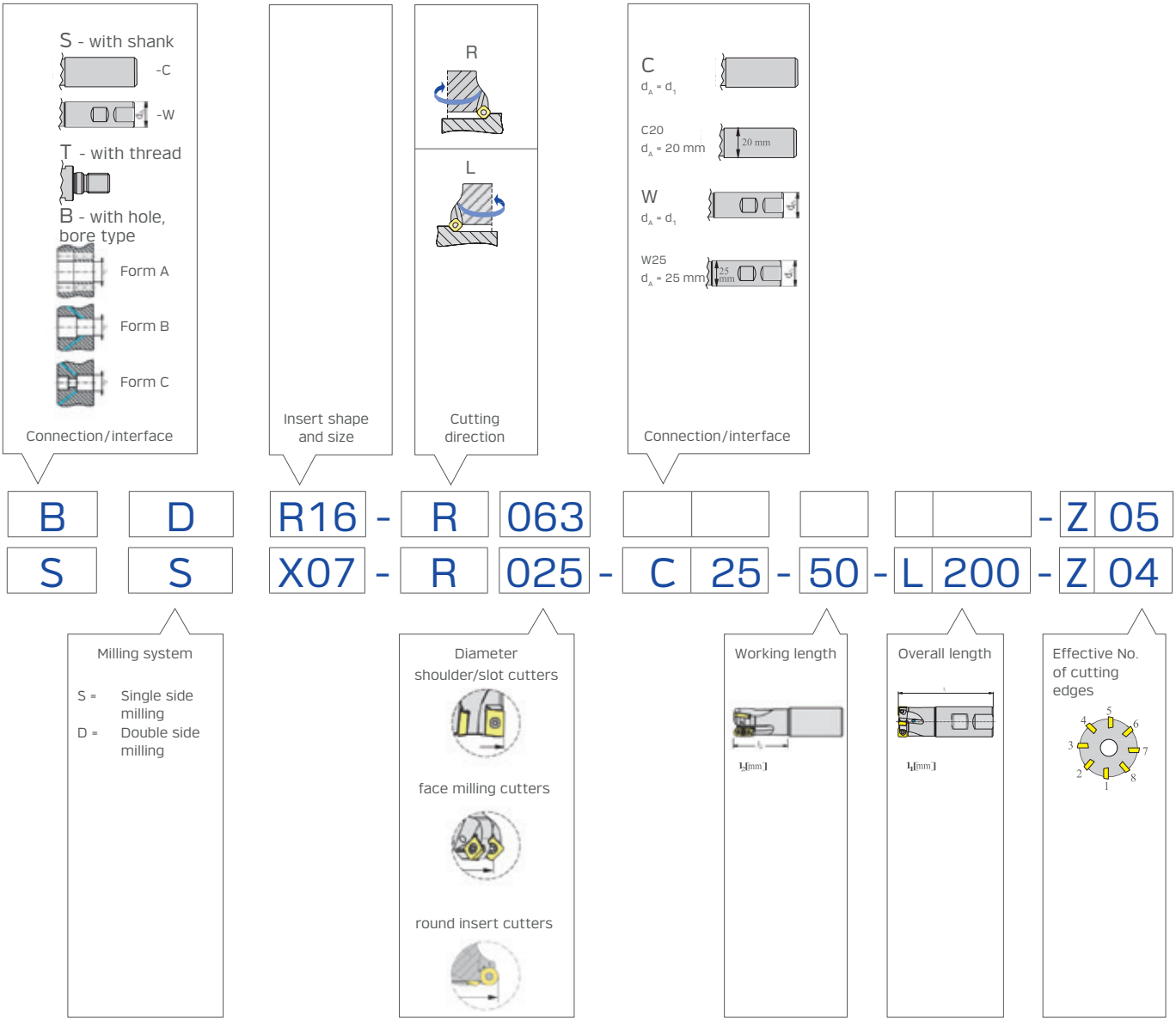
Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	d_1 [mm]	r [mm]	x [°]
SDMX 1105AEER-M5P	11.4	5.8	5.9	1	4.4	0.8	15
SDMX 1105AEER-M5M	11.4	5.8	5.9	1	4.4	0.8	15
SDMX 1506AEER-M5P	15	8	6.5	1.5	5.5	0.8	15
SDMX 1506AEER-M5M	15	8	6.5	1.5	5.5	0.8	15

Technical information

Blauing designation system
Insert designation



BLAUING designation system Body designation



Application

P	Steel	M	Stainless steel	K	Cast iron
N	Non-ferrous metals and non-metals	S	Heat-resistant alloys, titanium	H	Hard materials

Machining application types

M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

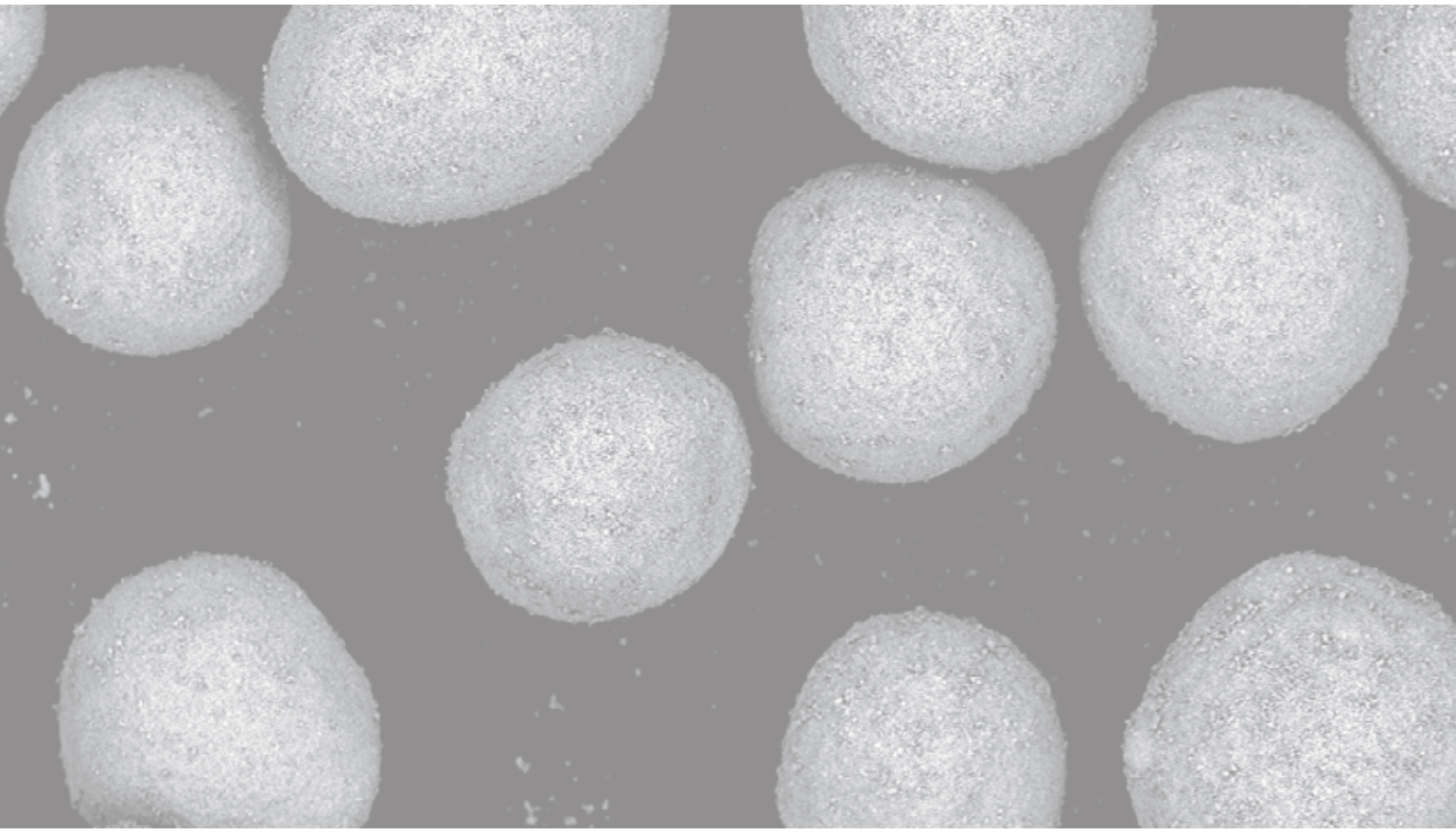
M5N
Sharp cutting edge for aluminium and non-ferrous metals.

M5S
Stable cutting edge for dedicated exotic materials and titanium.

M5K
Strong cutting edge for cast iron applications.

M5H
Strong reinforced cutting edge for hard material.

Grades



Blauing designation system

Main application (machining method)

T	Turning
M	Milling
G	Parting and grooving
D	Drilling
W	Threading
O	Others
U	Universal grade for a variety of applications

Main application (material) ISO letter

P	Steel
M	Stainless steel
K	Cast iron
N	Light and non-ferrous metals. non metals
S	Heat resistant alloys. titanium
H	Hard materials
X	Universal grade for a variety of applications

Main application (material) ISO letter

P	Steel
M	Stainless steel
K	Cast iron
N	Light and non-ferrous metals. non metals
S	Heat resistant alloys. titanium
H	Hard materials
X	Universal grade for a variety of applications

Cutting material

A	Uncoated cermet
B	Coated cermet
C	Uncoated carbide
D	CVD coated carbide
E	PVD coated carbide
F	PCD
G	CBN
H	CBN coated

Additional feature *Optional

A	austenitic steels
D	DryCut

T	P	K	15	D	
1	2	3	4	5	*6

ISO 513 Application range

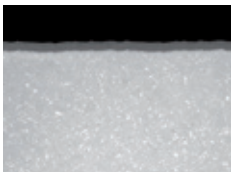
For example:
05 ISO P05
10 ISO P10
15 ISO P15
25 ISO P25
35 ISO P35
...

Grade overview

		ISO	ANSI	01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless Steel	K Cast Iron	N Non-ferrous metals	S Heat-resistance metals	H Hard Materials
MP35ED		HC-P35	C5	E	●					
		HC-M30	–	E		●				
MP30DD		HC-P30	C6	D	●					
		HC-K25	C2	D			●			
		HC-M25	–	D		●				
MP35D		HC-P35	C5	D	●					
		HC-M30	–	D		●				
MP35E		HC-P35	C5	E	●					
		HC-M30	–	E		●				
MM35EA1		HC-M35	–	E		●				
MM40E		HC-M35	–	E		●				
		HC-P40	C5	E	●					
MM40EA		HC-M40	–	E		●				
		HC-P40	C5	E	●					
MM35EA		HC-M35	–	E		●				
		HC-P35	C5	E	●					
MK14D		HC-K15	C3	D			●			
MK15D		HC-K15	C3	D			●			
MK20E		HC-K20	C2	E			●			
UN15C		HW-N15	C3	C				●		
		HW-K15	C3	C			●			
MSM35D		HC-S35	–	D					●	
		HC-M35	–	D		●				
MS35D		HC-S35	–	D					●	
MH15E		HC-H15	–	E						●
		HC-K15	–	E			●			

● Main application
○ Extended application

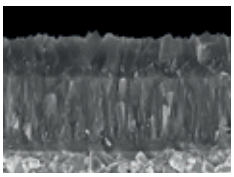
MP35ED | HC-P35 | HC-M30 | ● | ○



Specification:
Composition: Co 9.0 %; mixed carbides 4.0 %; WC balance | Grain size: 1-1.5 µm | Hardness: HV 1510 | Coating specification: PVD (TiA)N + TiN; 4 µm

Recommended application:
First choice for dry machining of steels.

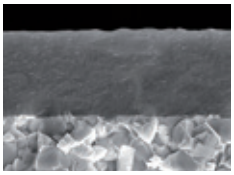
MP30DD | HC-P30 | HC-K25 | HC-M25 | ● | ○ | ○



Specification:
Composition: Co 10.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1400 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
First choice for dry machining of steels at high cutting speeds.

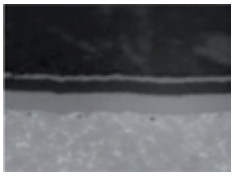
MP35E | HC-P35 | HC-M30 | ● | ○



Specification:
Composition: Co 10.5 %; mixed carbide 2.0 %; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1400 | Coating specification: PVD TiAlTaN

Recommended application:
Particularly suitable for the wet machining of steels.

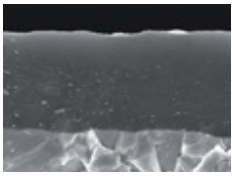
MP35D | HC-P35 | HC-M30 | ● | ○



Specification:
Composition: Co 12.5%; mixed carbides 2.0%; WC balance | Grain size: fine
Hardness: HV_{30} 1380 | Coating specification: CVD TiCN-Al_2O_3 + TiN; 7 µm

Recommended application:
Milling Grade designed for Alloyed Steel cutting.

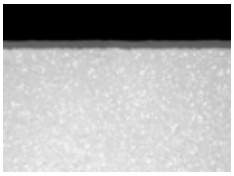
MM35EA1 | HC-M35 | HC-P35 | ● | ○



Specification:
Composition: Co 11 %; other 0.75 %; WC balance | Grain size: 0.5-0.8 µm | Hardness: HV_{30} 1500 | Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of authentic steels.

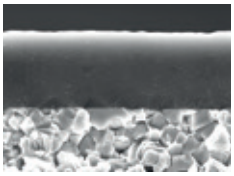
MM40E | HC-M40 | HC-P40 | ● | ○



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.

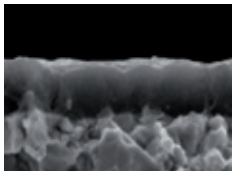
MM40EA | HC-M40 | HC-P40 | ● | ○



Specification:
Composition: Co 12.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1380 | Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of austenitic steels.

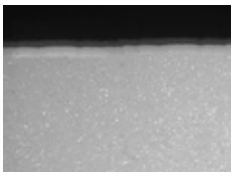
MM35EA | HC-M35 | HC-P35 | ● | ○



Specification:
Composition: Co 10.0 %; other 1.5 %; rest TC | Grain size: coarse |
Hardness: HV_{30} 1330 | Layer system: PVD TiAlTaN

Recommended application:
Particularly suitable for the machining of high-alloy steels (austenitic).

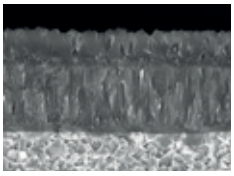
MK14D HC-K15 ●



Specification:
Composition: Co 6.0 %; mixed carbide 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV 1630 |
Coating specification: CVD Ti(C,N) + Al_2O_3; 5 µm

Recommended application:
First choice for the machining of cast iron.

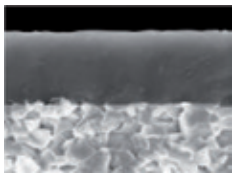
MK15D HC-K15 ●



Specification:
Composition: Co 6.0 %; mixed carbides 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1600 |
Coating specification: CVD TiN, MT-TiCN; Al_2O_3

Recommended application:
The first choice for the machining of cast iron at high cutting spreeds.

MK20E HC-K20 ●



Specification:
Composition: Co 6.0 %; mixed carbides 2.0%, WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630 |
Coating specification: PVD TiAlTaN

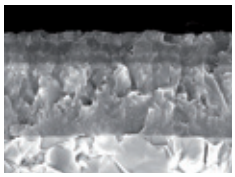
Recommended application:
Optimal for the machining of high-tensile cast icon materials when toughness is required.

UN15C HW-N15 | HW-K15 ● ○

Specification:
Composition: Co 6.0 %; WC balance, Other 0,20 % | Grain size: 1 µm | Hardness: HV_{30} 1650

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.

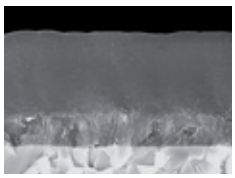
MSM35D HC-S35 | HC-M35 ● ●



Specification:
Composition: 10.0 % binder; WC balance | Grain size: 2 µm | Hardness: HV_{30} 1330 |
Coating specification: CVD TiCN-Al_2O_3 multi-layer

Recommended application:
Particularly suitable for the machining of heat-resistant steels and iron-based alloys.

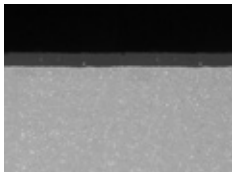
MS35D HC-S35 ●



Specification:
Composition: Co 10.0 %; WC balance | Grain size: 2 µm | Hardness: HV 1330 |
Coating specification: CVD TiN +TiB2; 4 µm

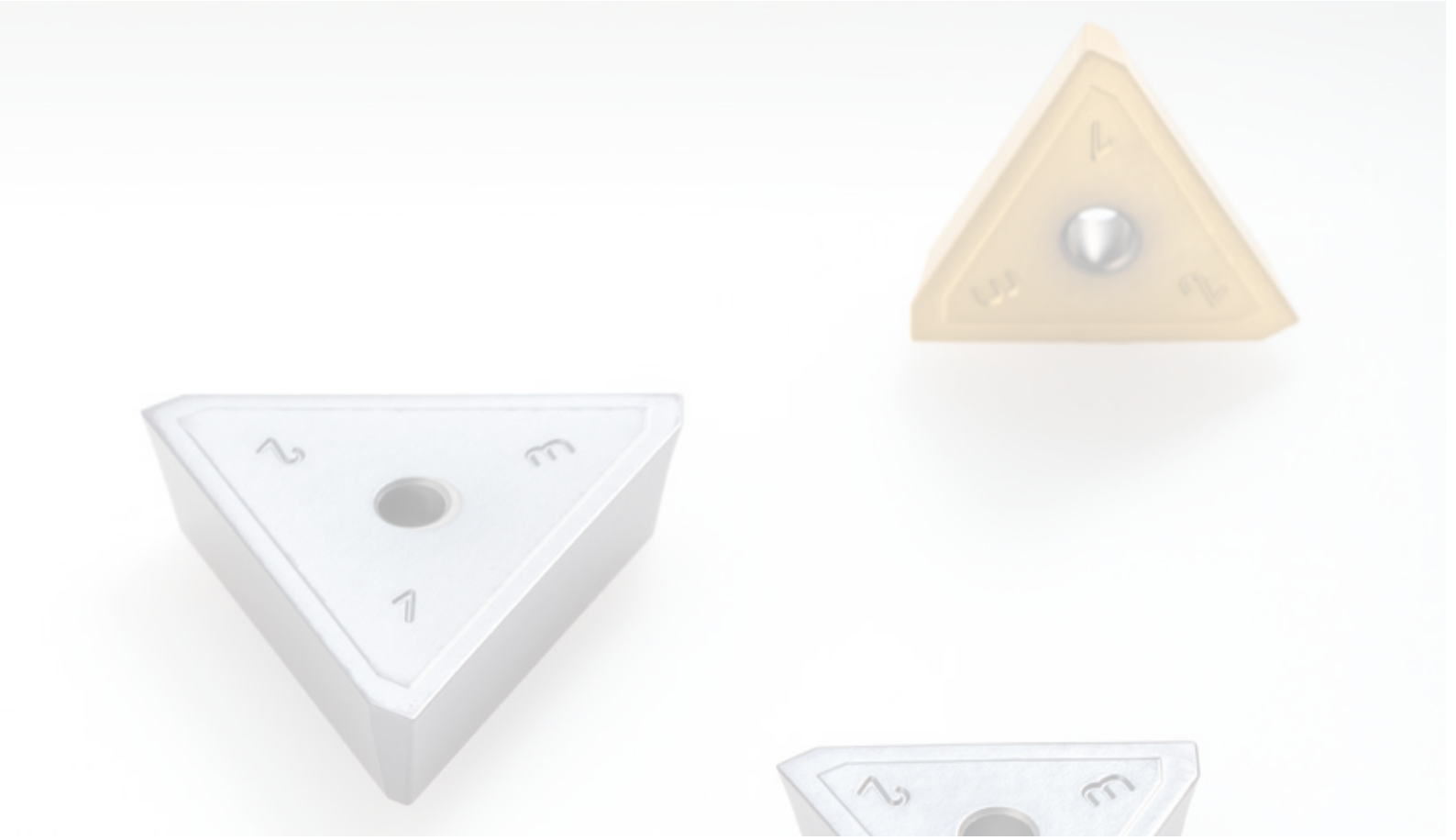
Recommended application:
Recommended for the machining of titanium materials.

MH15E HC-H15 | HC-K15 ● ○

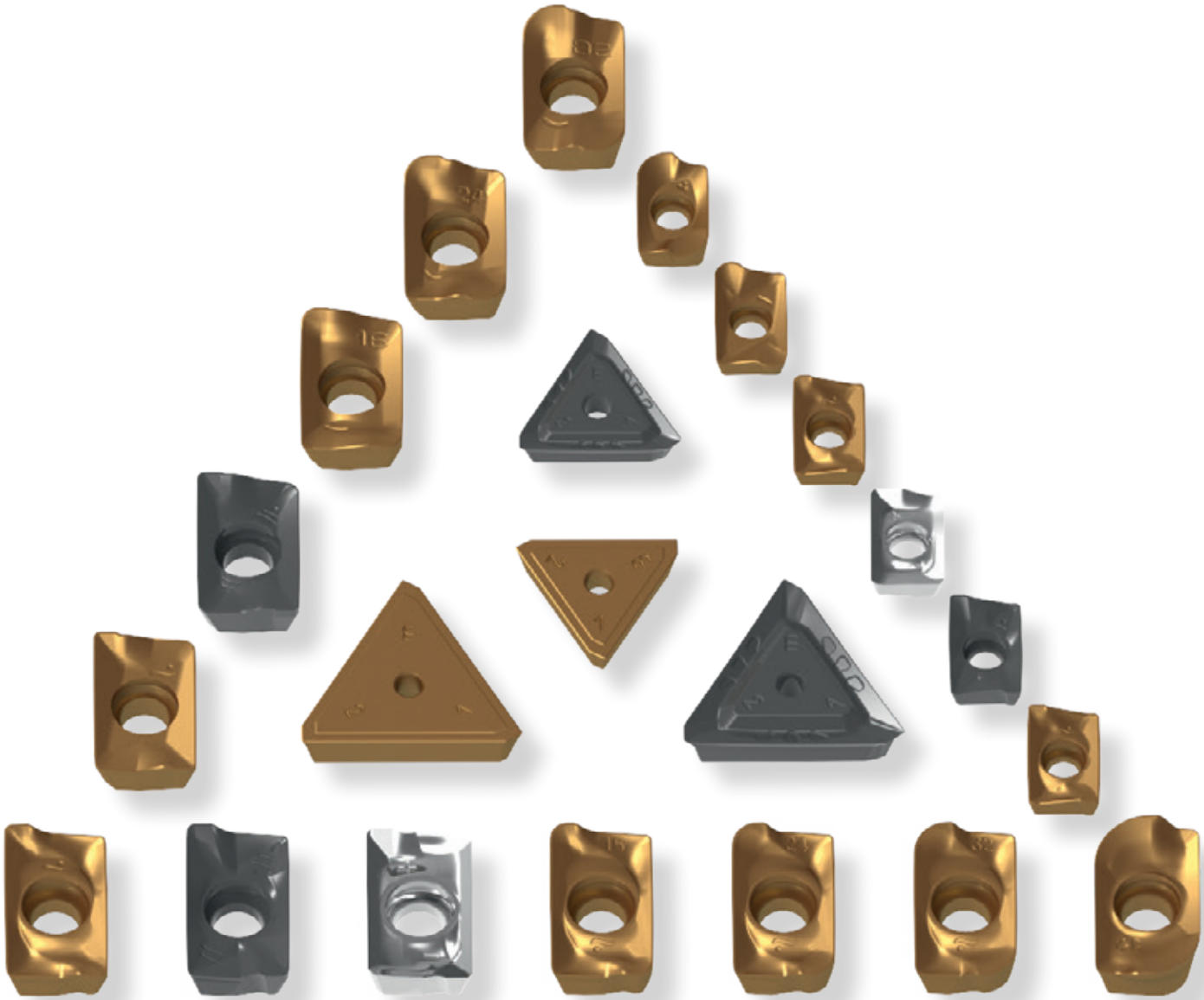


Specification:
Composition: Co 12.0 %; WC balance | Grain size: 4 µm | Hardness: HV 1730 |
Coating specification: PVD (TiA)N; 4 µm

Recommended application:
Particularly suitable for the machining of hardened steels.



Milling Utility




3
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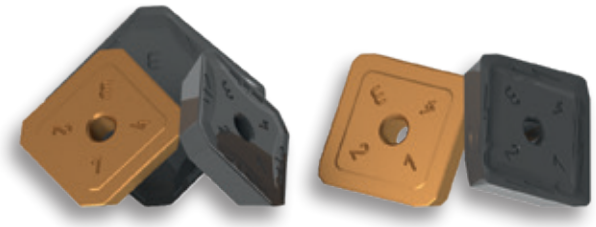
	Milling System	Page
Shouldering	ADKT 15	149
	APKT 10	153
	APKT 16	156
	TPKN 16	161
	TPKN 22	162
	TPKR 16	161
	TPKR 22	162

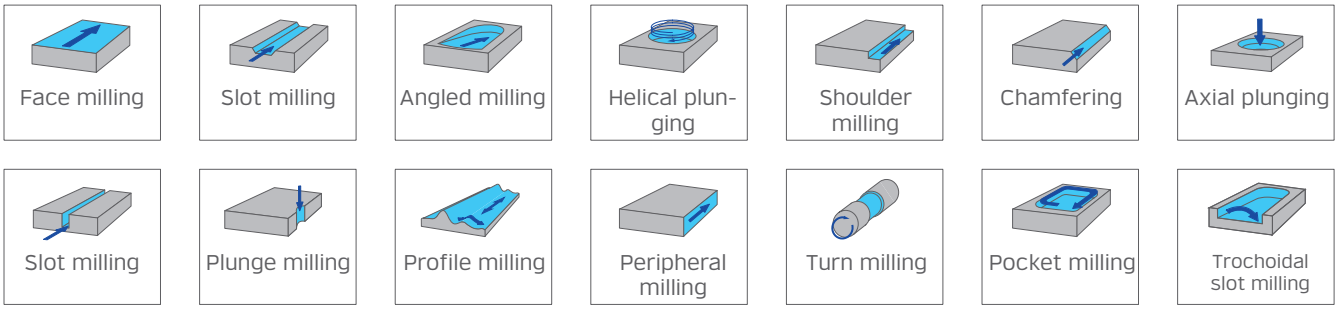
	Milling System	Page
Face milling	SEKN 12	164
	SEKR 12	164
	SEKR 15	164
	SPKN 12	165
	SPKR 12	165

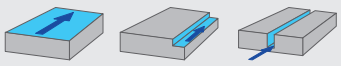
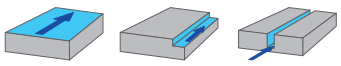
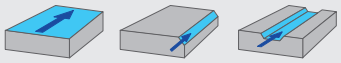
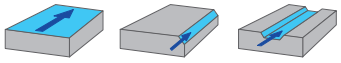
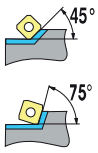


Legend for tables

●: available from stock
○: available upon request

Possible applications

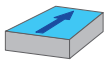


Application		Machining operations	Range	Page
Shouldering 2 x 90° ADKT			SUA	149
Shouldering 2 x 90° APKT			SUA	152
Shouldering 3 x 90° TPKN/TPKR			SUT	160
Face milling 4 x 45/75° SEK*/SPK*		 	SUS	163

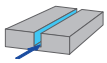
Overview ADKT... ADHT...

Application

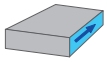
1) Face milling



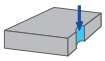
2) Slot milling



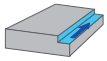
3) Peripheral milling



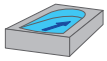
4) Plung milling



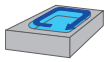
5) Shoulder milling



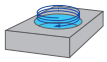
6) Angled Milling



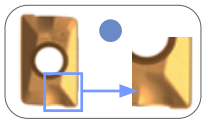
7) Pocket milling



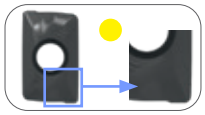
8) Helical plunging



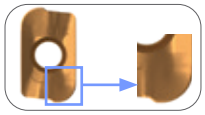
Which chipbreaker to use?



M5P
Strong cutting edge for general steel applications and hard conditions milling.

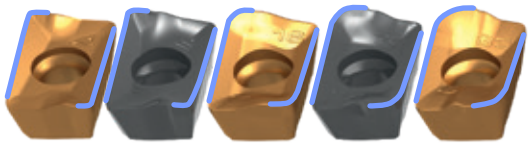


M5M
Sharp cutting edge for general Stainless steel applications and for finishing in steels.



M5R
Specific radius.

2 effective cutting edges



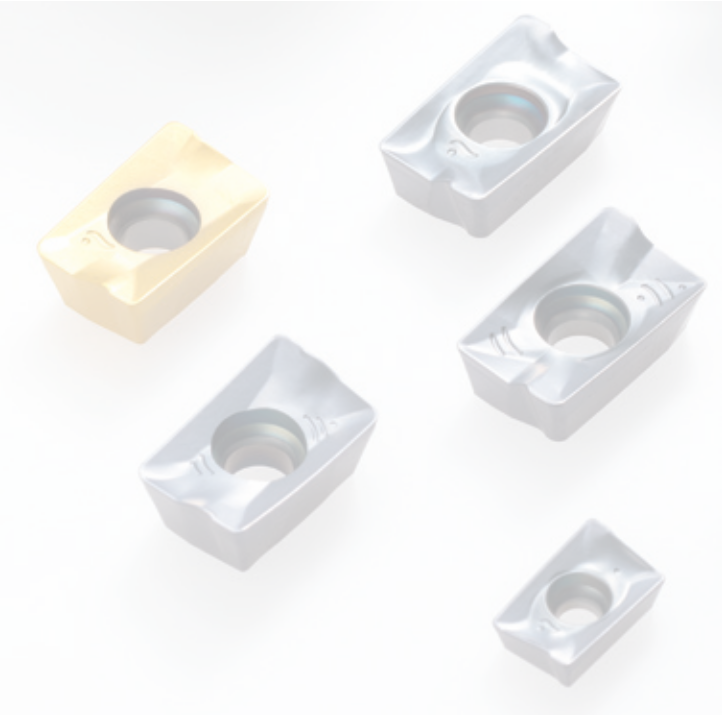
Chipbreaker

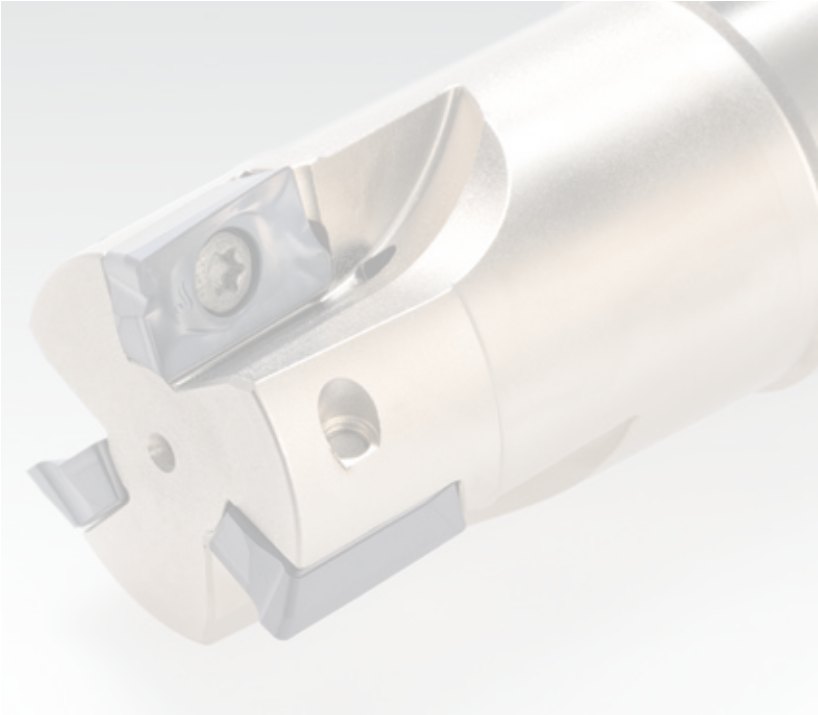
***M5P**: Steel*
***M5M**: Stainless steel*
***M5K**: Cast iron*
***M5N**: Aluminium*
***M5S**: Exotic – Titanium*
***M5R**: Specific radius*

Grade

Standard grades

MP35ED	MM40E	MK14D	UN15C	MSM35D	MS35D
					





Available range ADKT15

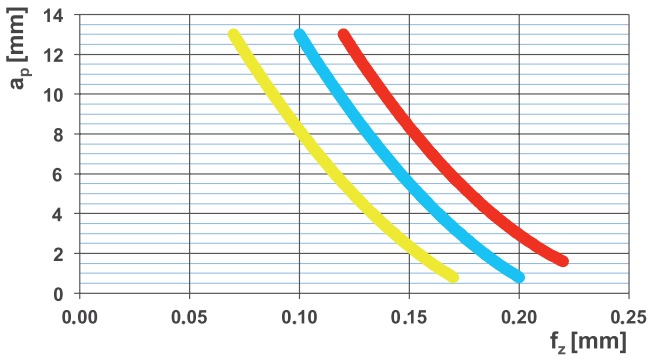
Insert	Designation	Chipbreaker	MP35ED	MK14D	MM40E	MSM35D	MS35D	UN15C
	ADKT 1505PDER-M5P	...-M5P	○	○				
	ADKT 1505PDER-M5M	...-M5M			○	○		
	ADKT 1505PDER-M5K	...-M5K		○				
	ADHT 1505PDFR-M5N	...-M5N						○
	ADHT 1505PDER-M5S	...-M5S				○	○	

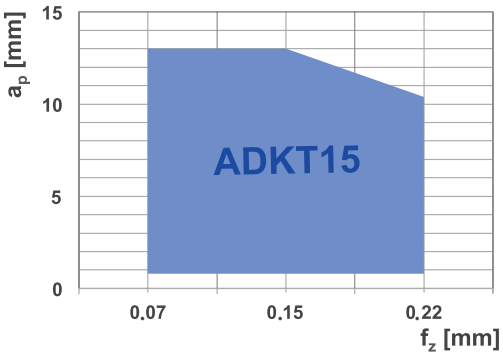
Available range ADKT15-M5R

Insert	Designation	Chipbreaker	MP35ED	MK14D	MM40E	MSM35D
	ADKT 150516-M5R	...-M5R	○	○	○	○
	ADKT 150524-M5R	...-M5R	○	○	○	○
	ADKT 150532-M5R	...-M5R	○	○	○	○

Cutting data ADKT15

Starting parameters:



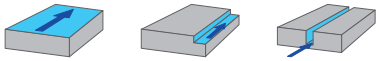


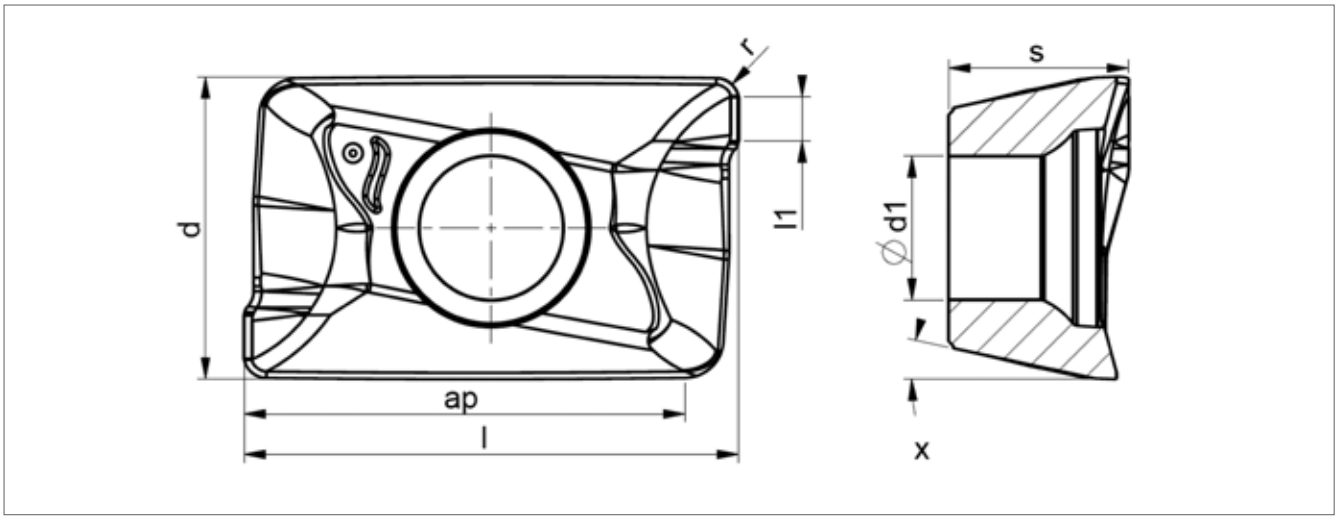
Grades and materials:

Material Group		Chipbreaker	Grade	v_c [m/min]	Cutting data f_z [mm]	Cutting data a_p [mm]
P	Steel	M5P	MP35ED	220 – 60	0.1 – 0.2	13 – 0.8
		M5R			0.12 – 0.22	13 – 1.6
M	Stainless steel	M5M	MM40E	200 – 60	0.07 – 0.17	13 – 0.8
		M5R	MSM35D		0.12 – 0.22	13 – 1.6
K	Cast iron	M5R	MK14D	320 – 100	0.12 – 0.22	13 – 1.6

SUA / Shouldering 2 x 90°

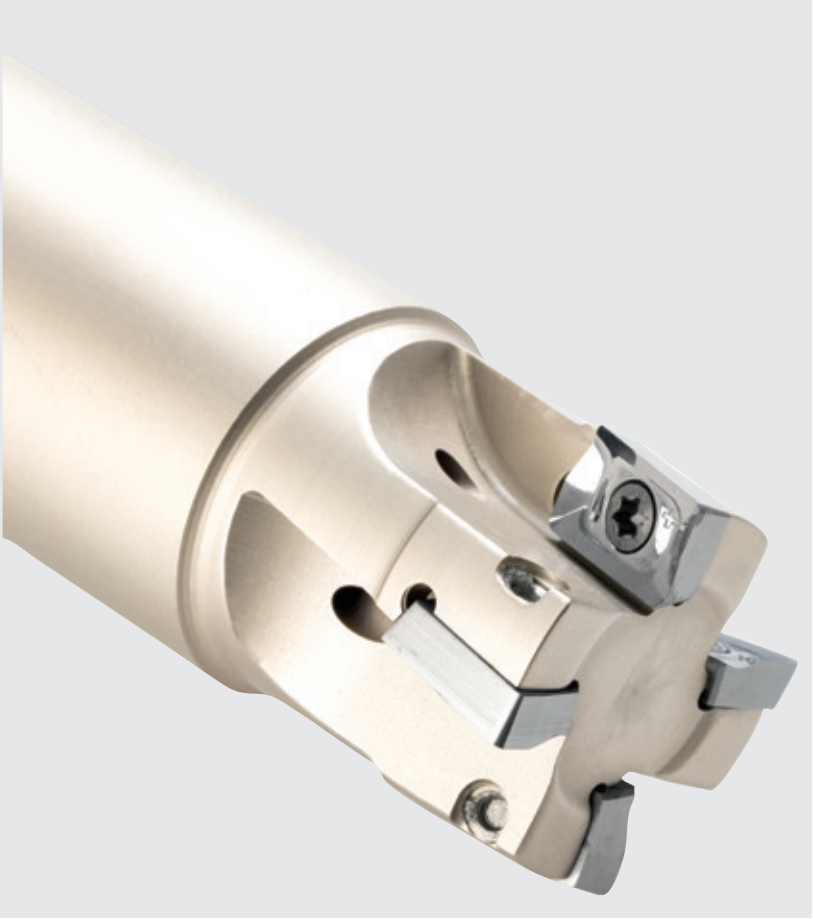
Insert (ADKT / ADHT 15)





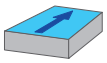
Description	l [mm]	s [mm]	d [mm]	a_p [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
ADKT 1505PDER-M5P	15.5	5.65	9.45	13.8	1.4	0.75	4.5	12
ADKT 1505PDER-M5M	15.5	5.95	9.45	13.8	1.5	0.75	4.5	12
ADKT 150516-M5R	15.6	6.1	9.45	13.8	0.6	1.6	4.5	12
ADKT 150524-M5R	16.2	6.1	9.45	14.1	0.7	2.4	4.5	12
ADKT 150532-M5R	16.3	6.1	9.45	14.2	0.4	3.2	4.5	12

Overview APKT... APHT...

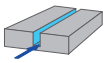


Application

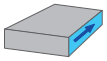
1) Face milling



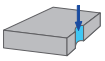
2) Slot milling



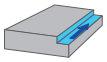
3) Peripheral milling



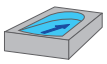
4) Plung milling



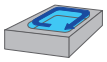
5) Shoulder milling



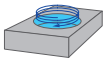
6) Angled Milling



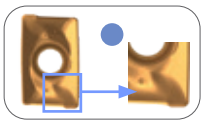
7) Pocket milling



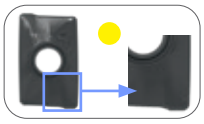
8) Helical plunging



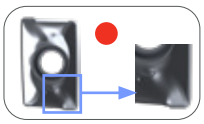
Which chipbreaker to use?



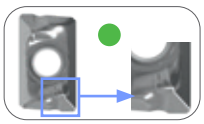
M5P
Strong cutting edge for general steel applications and hard conditions milling.



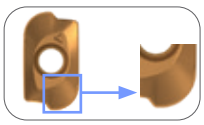
M5M
Sharp cutting edge for general Stainless steel applications and for finishing in steels.



M5K
Strong cutting edge for Cast Iron

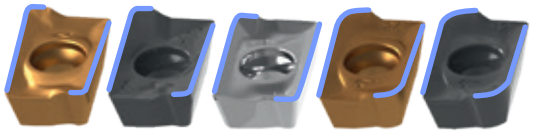


M5N
Extremely sharp cutting edge for aluminium and non-ferrous metals.



M5R
Specific radius.

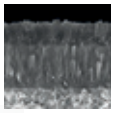
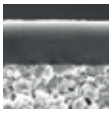
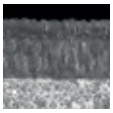
2 effective cutting edges

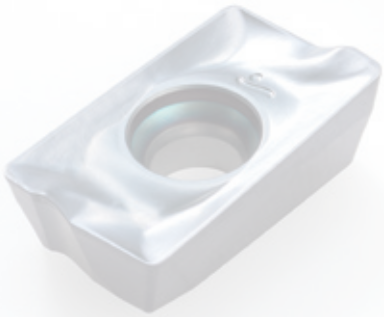


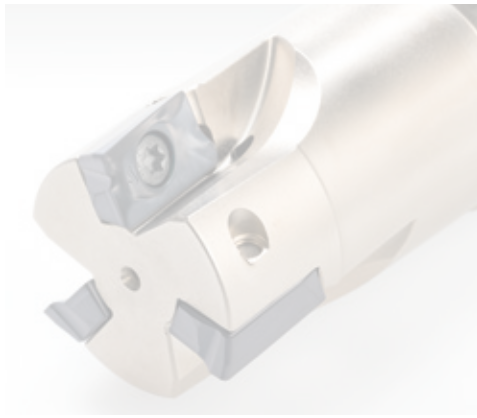
Chipbreaker

***M5P**: Steel*
***M5M**: Stainless steel*
***M5K**: Cast iron*
***M5N**: Aluminium*
***M5S**: Exotic – Titanium*
***M5R**: Specific radius*

Grades

MP30DD	MP35E	MM40EA	MK15D	UN15C	MSM35D
					
●	●	●	●	●	●





Available range APKT10

Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MK15D	UN15C
	APKT 1003PDER-M5P	...-M5P	●	●				
	APKT 1003PDER-M5M	...-M5M			●	●		
	APKT 1003PDER-M5K	...-M5K					●	
	APHT 100302FR-M5N	...-M5N						●
	APHT 100304FR-M5N	...-M5N						●
	APHT 100308FR-M5N	...-M5N						●
	APKT 100308ER-M5R	...-M5R		●	●		○	
	APKT 100312ER-M5R	...-M5R		●	●		○	
	APKT 100316ER-M5R	...-M5R		●	●		○	
	APKT 100330ER-M5R	...-M5R		●	●		○	

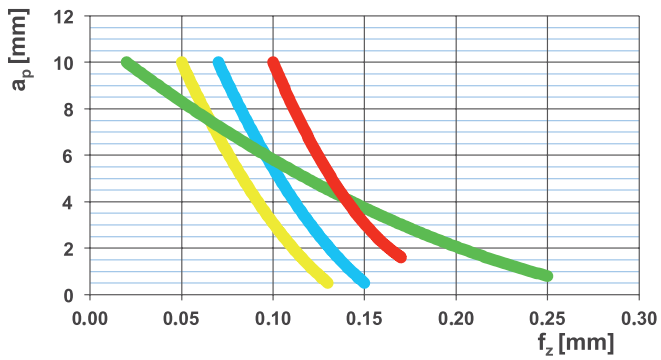
Note:
- For 16-M5R and 30-M5R, the body must be retouched. See page 154 for more information.
- For 16-M5R and 30-M5R, the length is increased by 0.4mm. It is necessary to redo an offset.

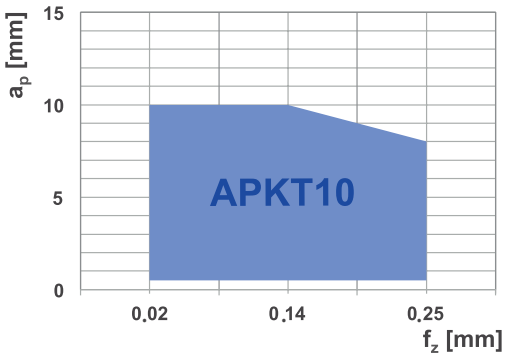
Body	Designation	Ø Milling cutter [mm]	z	Available
	SSUA10-R012-W16-24-L79-Z02	12	1	●
	SSUA10-R016-W16-25-L80-Z02	16	2	●
	SSUA10-R020-W20-25-L85-Z03	20	3	●
	SSUA10-R025-W25-32-L95-Z04	25	4	●
	SSUA10-R032-W32-40-L105-Z05	32	5	●
	TSUA10-R016-Z02	16	8	●
	TSUA10-R020-Z03	20	3	●
	TSUA10-R025-Z04	25	4	●
	TSUA10-R032-Z05	32	5	●
	BSUA10-R040-Z04	40	4	●
	BSUA10-R040-Z06	40	6	●
	BSUA10-R050-Z05	50	5	●
	BSUA10-R050-Z08	50	8	●
	BSUA10-R063-Z06	63	6	●
	BSUA10-R063-Z09	63	9	●
	BSUA10-R080-Z07	80	7	●
	BSUA10-R080-Z10	80	10	●
	BSUA10-R100-Z12	100	12	●

Spare parts	Designation	Material number	Moment [Nm]	Available
	M2.5X5.6–T08 - shank and with thread	83241111	1.6	●
	M2.5x7.3 - T08 - bore type	24241111	1.6	●

Cutting data APKT10

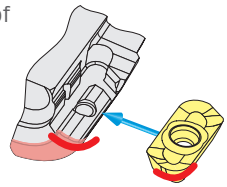
Starting parameters:

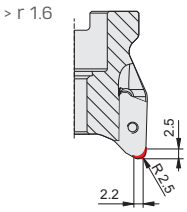


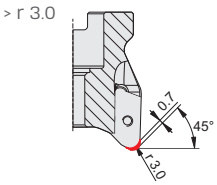


Material Group		Chipbreaker	Grade	v_c [m/min]	Cutting data f_z [mm]	Cutting data a_p [mm]
P	Steel	M5P	MP35DD	220 – 60	0.07 – 0.15	10 – 0.5
		M5R	MP35E		0.1 – 0.17	10 – 1.6
M	Stainless steel	M5M	MM40EA	200 – 60	0.05 – 0.13	10 – 0.5
		M5R	MSM35D		0.1 – 0.17	10 – 1.6
K	Cast iron	M5K	MK15D	320 – 100	0.1 – 0.17	10 – 0.5
		M5R				
N	Non-ferrous	M5N	UN15C	< 2000	0.02 – 0.14	10 – 0.2

Modification of cutter bodies

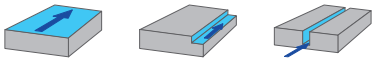




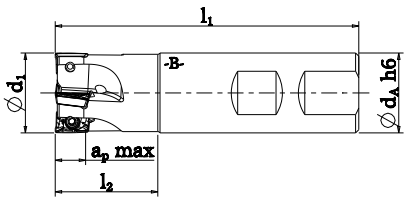


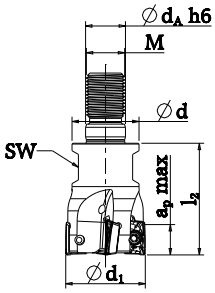
SUA/ Shouldering 2 x 90°

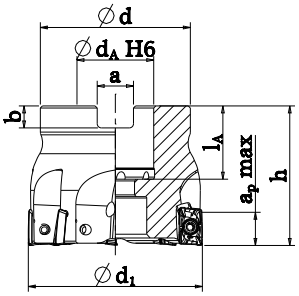
Milling body (APKT10)



S.. T.. B..

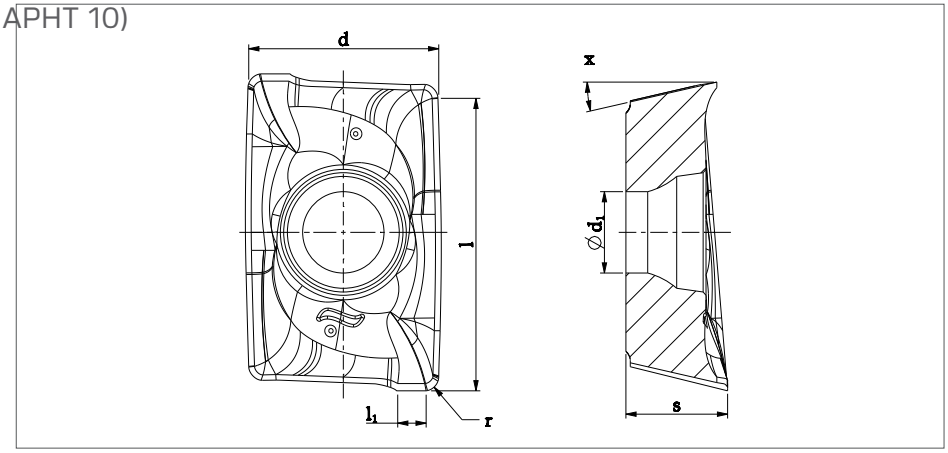






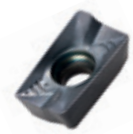
Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min-1]	z	Ø d [mm]	SW	M	l_A [mm]	a [mm]	b [mm]
SSUA10-R012-W16-24-L79-Z02	12	79	24	-	16	10	55000	1	-	-	-	-	-	-
SSUA10-R016-W16-25-L80-Z02	16	80	25	-	16	10	42000	2	-	-	-	-	-	-
SSUA10-R020-W20-25-L85-Z03	20	85	25	-	20	10	36900	3	-	-	-	-	-	-
SSUA10-R025-W25-32-L95-Z04	25	95	32	-	25	10	33200	4	-	-	-	-	-	-
SSUA10-R032-W32-40-L105-Z05	32	105	40	-	32	10	30200	5	-	-	-	-	-	-
TSUA10-R016-Z02	16	-	25	-	8.5	10	42000	2	13	SW10	M8	-	-	-
TSUA10-R020-Z03	20	-	30	-	10.5	10	36900	3	18	SW15	M10	-	-	-
TSUA10-R025-Z04	25	-	35	-	12.5	10	33200	4	21	SW17	M12	-	-	-
TSUA10-R032-Z05	32	-	40	-	17	10	30200	5	29	SW24	M16	-	-	-
BSUA10-R040-Z04	40	-	-	40	16	10	27700	4	38	-	-	19	8.4	5.6
BSUA10-R040-Z06	40	-	-	40	16	10	27700	6	38	-	-	19	8.4	5.6
BSUA10-R050-Z05	50	-	-	40	22	10	25400	5	43	-	-	21	10.4	6.3
BSUA10-R050-Z08	50	-	-	40	22	10	25400	8	43	-	-	21	10.4	6.3
BSUA10-R063-Z06	63	-	-	40	22	10	23300	6	48	-	-	21	10.4	6.3
BSUA10-R063-Z09	63	-	-	40	22	10	23300	9	48	-	-	21	10.4	6.3
BSUA10-R080-Z07	80	-	-	50	27	10	21300	7	58	-	-	23	12.4	7
BSUA10-R080-Z10	80	-	-	50	27	10	21300	10	58	-	-	23	12.4	7
BSUA10-R100-Z12	100	-	-	50	32	10	19600	12	78	-	-	26	14.4	8

Insert (APKT / APHT 10)



Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
APKT 1003PDER-M5P	6.75	10	3.5	1	0.5	2.8	11
APKT 1003PDER-M5M	6.75	10	3.5	1	0.5	2.8	11
APKT 1003PDER-M5K	6.75	10	3.5	1	0.5	2.8	11
APHT 100302FR-M5N	6.75	10	3	2.2	0.2	2.8	11
APHT 100304FR-M5N	6.75	10	3	2.2	0.4	2.8	11
APHT 100308FR-M5N	6.75	10	3	2.2	0.8	2.8	11
APKT 100308ER-M5R	6.7	10	3.5	0.64	0.85	2.8	11
APKT 100312ER-M5R	6.7	10	3.5	0.5	1.2	2.8	11
APKT 100316ER-M5R	6.7	11.5	3.4	0	1.6	2.8	11
APKT 100330ER-M5R	6.7	11.5	3.4	0.2	3	2.8	11

Available range APKT16

Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA	MSM35D	MK15D	UN15C
	APKT 1604PDER-M5P	...-M5P	●	●				
	APKT 1604PDER-M5M	...-M5M			●	●		
	APKT 1604PDER-M5K	...-M5K					●	
	APHT 1604PDFR-M5N	...-M5N						●
	APKT 160416-M5R	...-M5R		●	●		●	
	APKT 160424-M5R	...-M5R		●	●		○	
	APKT 160432-M5R	...-M5R		●	●		○	
	APKT 160440-M5R	...-M5R		○	●		○	
	APKT 160448-M5R	...-M5R		●	●		○	

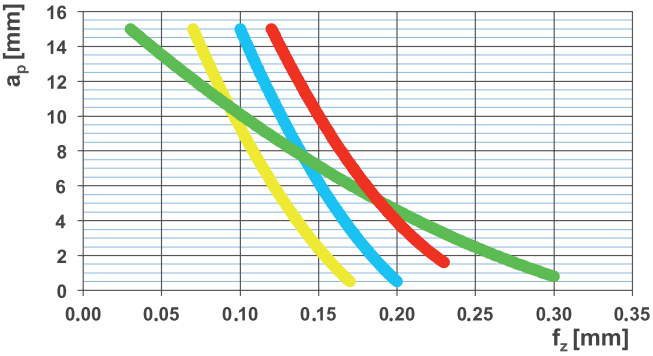
Note:
- For M5R inserts, the body must be retouched.
- For the 48-M5R insert, the length is increased by 0.4 mm. It is necessary to redo an offset.

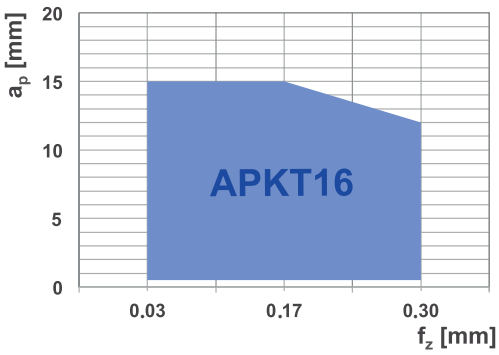
Body	Designation	Ø Milling cutter [mm]	z	Available
	SSUA16-R025-W25-40-L95-Z02	25	2	●
	SSUA16-R032-W32-40-L105-Z03	32	3	●
	SSUA16-R040-W40-50-L125-Z04	40	4	●
	TSUA16-R025-Z02	25	2	●
	TSUA16-R032-Z03	32	3	●
	TSUA16-R040-Z04	40	4	●
	BSUA16-R040-Z04	40	4	●
	BSUA16-R050-Z05	50	5	●
	BSUA16-R063-Z06	63	6	●
	BSUA16-R080-Z07	80	7	●
	BSUA16-R080-Z08	80	8	●
	BSUA16-R100-Z09	100	9	●
	BSUA16-R125-Z09	125	9	●

Spare parts	Designation	Material number	Moment [Nm]	Available
	M4.0X8.5–T15 - trzpieniowe i wkręcane Fi25 + Fi32	48473011	5	●
	M4.0X11–T15	02345431	5	●
	Power Srew M8.0x30.0 - tylko	08863011	15	●

Cutting data APKT16

Starting parameters:

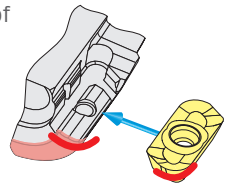




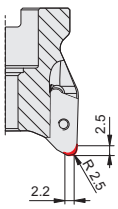
Grades and materials:

Material Group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP35DD	220 – 60	0.1 – 0.2	15 – 0.5
		M5R	MP35E		0.12 – 0.23	15 – 0.5
M	Stainless steel	M5M	MM40EA	200 – 60	0.07 – 0.17	15 – 0.5
		M5R	MSM35D		0.12 – 0.23	15 – 0.5
K	Cast iron	M5K	MK15D	320 – 100	0.12 – 0.23	15 – 0.5
	Non-ferrous	M5R				
N	Non-ferrous	M5N	UN15C	< 2000	0.02 – 0.14	15 – 0.8

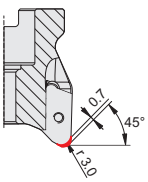
Modification of cutter bodies



> r 1.6

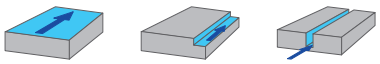


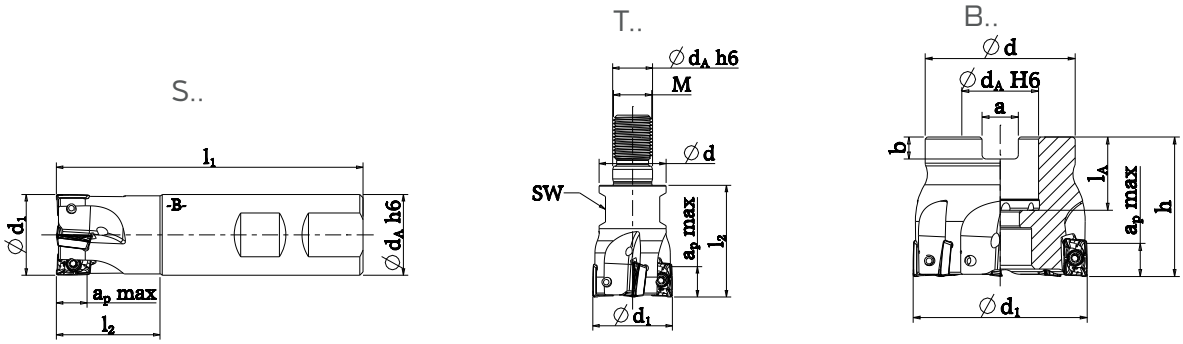
> r 3.0



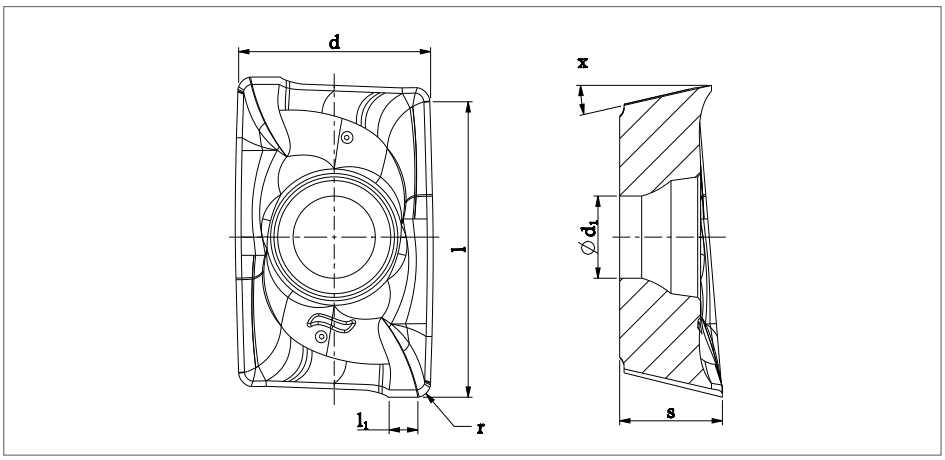
SUA / Shouldering 2 x 90°

Milling body (APKT16)





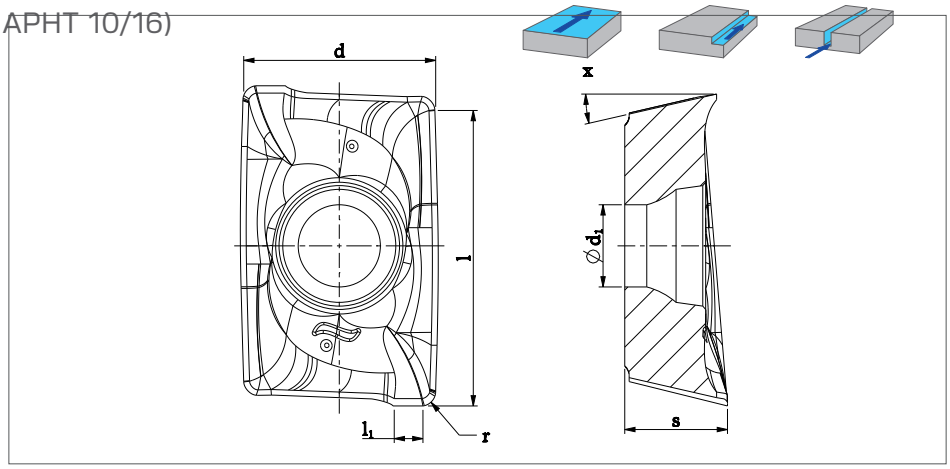
Description	Ø d_1 [mm]	l_1 [mm]	l_2 [mm]	h [mm]	Ø d_A H6/h6 [mm]	a_p max [mm]	n_{max} [min-1]	z	Ø d [mm]	SW	M	l_A [mm]	a [mm]	b [mm]
SSUA16-R025-W25-40-L95-Z02	25	95	40	-	25	15.3	26560	2	-	-	-	-	-	-
SSUA16-R032-W32-40-L105-Z03	32	105	40	-	32	15.3	24160	3	-	-	-	-	-	-
SSUA16-R040-W40-50-L125-Z04	40	125	50	-	40	15.3	22160	4	-	-	-	-	-	-
TSUA16-R025-Z02	25	-	35	-	12.5	15.3	26560	2	21	SW17	M12	-	-	-
TSUA16-R032-Z03	32	-	40	-	17	15.3	20500	3	29	SW24	M15	-	-	-
TSUA16-R040-Z04	40	-	40	-	17	15.3	16400	4	29	SW24	M16	-	-	-
BSUA16-R040-Z04	40	-	-	40	16	15.3	22160	4	38	-	-	20	8.4	5.6
BSUA16-R050-Z05	50	-	-	40	22	15.3	20320	5	43	-	-	21	10.4	6.3
BSUA16-R063-Z06	63	-	-	40	22	15.3	18640	6	48	-	-	21	10.4	6.3
BSUA16-R080-Z07	80	-	-	50	27	15.3	17040	7	0	-	-	23	12.4	7
BSUA16-R080-Z08	80	-	-	50	27	15.3	17040	8	58	-	-	23	12.4	7
BSUA16-R100-Z09	100	-	-	50	32	15.3	15680	9	78	-	-	26	14.4	8
BSUA16-R125-Z09	125	-	-	63	40	15.3	12600	9	0	-	-	28	16.4	9



Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
APKT 1604PDER-M5P	9.5	15.3	5.25	1.4	0.85	4.4	11.5
APKT 1604PDER-M5M	9.5	15.3	5.25	1.4	0.85	4.4	11.5
APKT 1604PDER-M5K	9.5	15.3	5.25	1.4	0.85	4.4	11.5
APHT 1604PDFR-M5N	9.5	15.3	4.65	2	0.85	4.4	11.5
APKT 160416ER-M5R	9.5	15.3	5.25	0.65	1.6	4.4	11.5
APKT 160424ER-M5R	9.5	15.3	5.25	0.6	2.4	4.4	11.5
APKT 160432ER-M5R	9.5	15.3	5.25	0.3	3.2	4.4	11.5
APKT 160440ER-M5R	9.5	15.3	5.25	0.3	4.0	4.4	11.5
APKT 160448ER-M5R	9.5	15.3	5.8	0.3	4.8	4.4	11.5

SUA / Shouldering 2 x 90°

Insert (APKT / APHT 10/16)



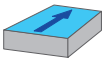
Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
APKT 1003PDER-M5P	6.75	10	3.5	1	0.5	2.8	11
APKT 1003PDER-M5M	6.75	10	3.5	1	0.5	2.8	11
APKT 1003PDER-M5K	6.75	10	3.5	1	0.5	2.8	11
APHT 100302FR-M5N	6.75	10	3	2.2	0.2	2.8	11
APHT 100304FR-M5N	6.75	10	3	2.2	0.4	2.8	11
APHT 100308FR-M5N	6.75	10	3	2.2	0.8	2.8	11
APKT 100308ER-M5R	6.7	10	3.5	0.64	0.85	2.8	11
APKT 100312ER-M5R	6.7	10	3.5	0.5	1.2	2.8	11
APKT 100316ER-M5R	6.7	11.5	3.4	0	1.6	2.8	11
APKT 100330ER-M5R	6.7	11.5	3.4	0.2	3	2.8	11

Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
APKT 1604PDER-M5P	9.5	15.3	5.25	1.4	0.85	4.4	11.5
APKT 1604PDER-M5M	9.5	15.3	5.25	1.4	0.85	4.4	11.5
APKT 1604PDER-M5K	9.5	15.3	5.25	1.4	0.85	4.4	11.5
APHT 1604PDFR-M5N	9.5	15.3	4.65	2	0.85	4.4	11.5
APKT 160416ER-M5R	9.5	15.3	5.25	0.65	1.6	4.4	11.5
APKT 160424ER-M5R	9.5	15.3	5.25	0.6	2.4	4.4	11.5
APKT 160432ER-M5R	9.5	15.3	5.25	0.3	3.2	4.4	11.5
APKT 160440ER-M5R	9.5	15.3	5.25	0.3	4.0	4.4	11.5
APKT 160448ER-M5R	9.5	15.3	5.8	0.3	4.8	4.4	11.5

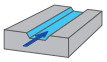
Overview TPKN... TPKR...

Application

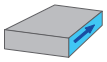
1) Face milling



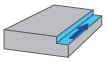
2) Slot milling



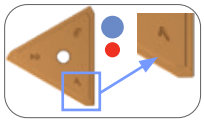
3) Peripheral milling



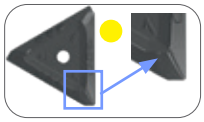
4) Shoulder milling



Which chipbreaker to use?



M5P
Strong cutting edge for general steel applications and hard conditions milling.



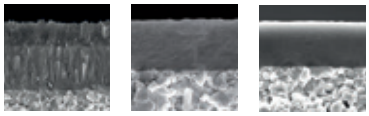
M5M
Sharp cutting edge for general Stainless steel applications and for finishing in steels.

Chipbreaker

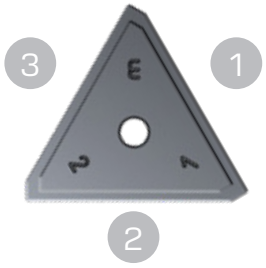
M5P: Steel – Cast iron*
M5M: Stainless steel

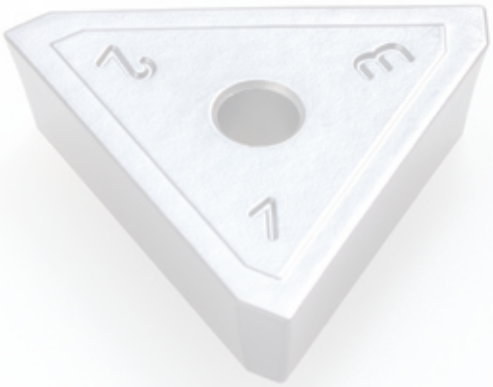
Standard grades

MP30DD	MP35E	MM40EA



3 effective cutting edges



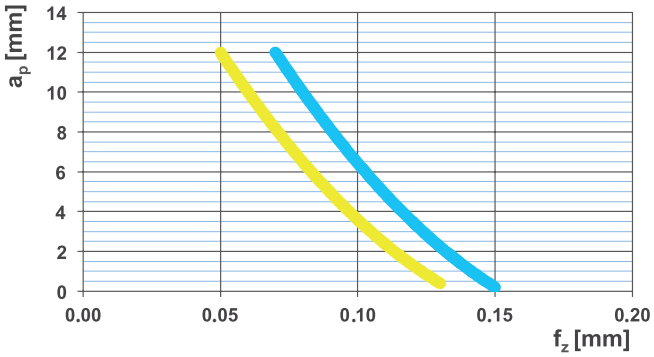


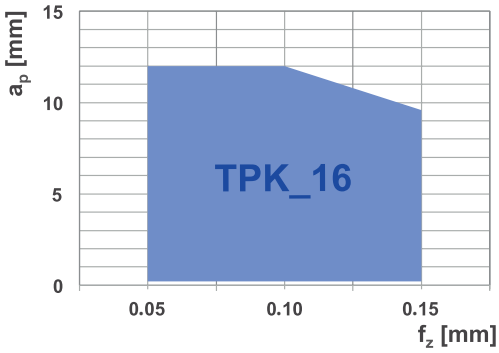
Available range TPKN / TPKR 16

Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA
	TPKN 1603PDR-M5P	...-M5P	○	○	
	TPKR 1603PDR-M5M	...-M5M			○

Cutting data TPKN / TPKR 16

Starting parameters:





Grades and materials:

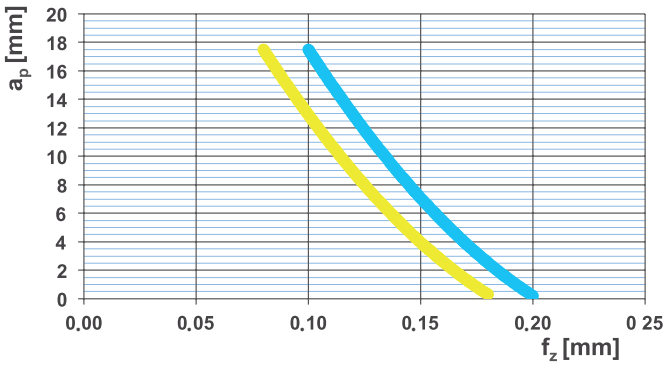
Material Group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	HCM	MP30DD MP35E	220 – 60	0.7 – 0.15	12 – 0.2
M	Stainless steel	SCM	MM40EA	200 – 60	0.05 – 0.13	12 – 0.2

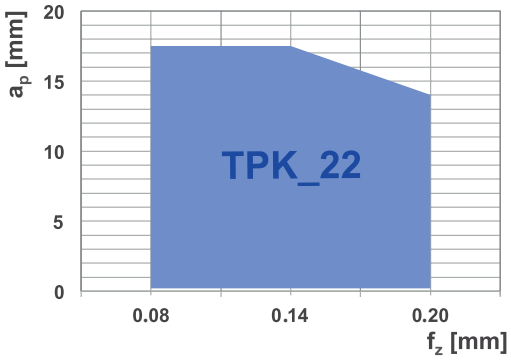
Available range TPKN / TPKR 22

Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA
	TPKN 2204PDR-M5P	...-M5P	○	○	
	TPKR 2204PDR-M5M	...-M5M			○

Cutting data TPKN / TPKR 22

Starting parameters:



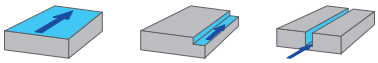


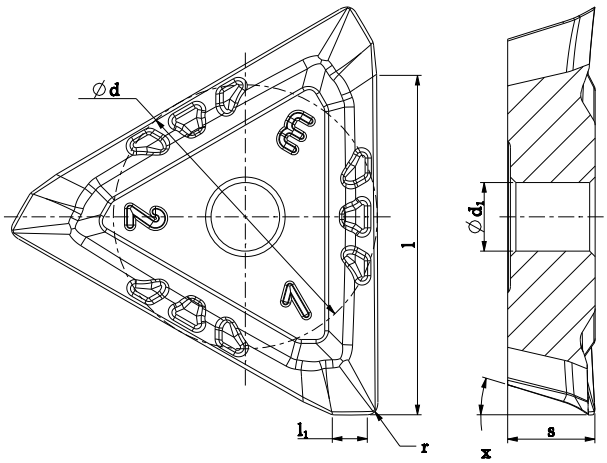
Grades and materials:

Material Group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	HCM	MP30DD MP35E	220 – 60	0.1 – 0.2	17.5 – 0.2
M	Stainless steel	SCM	MM40EA	200 – 60	0.08 – 0.18	17.5 – 0.2

SUT / Shouldering 3 x 90°

Insert (TPKN / TPKR)



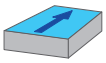


Description	l [mm]	s [mm]	d [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
TPKN 1603PDR-M5P	13	3.18	9.525	1.4	0.2	2.5	11
TPKR 1603PDR-M5M	13	3.18	9.525	1.2	0.4	2.5	11
TPKN 2204PDR-M5P	18.5	4.76	12.7	1.5	0.2	2.5	11
TPKR 2204PDR-M5M	18.5	4.76	12.7	1.6	0.3	2.5	11

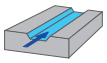
Overview SEK... SPK...

Application

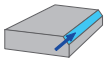
1) Face milling



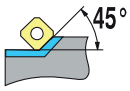
2) Slot milling



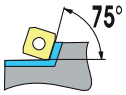
3) Chamfering (only SEK...)



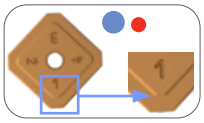
4) Slot 45° (only SEK...)



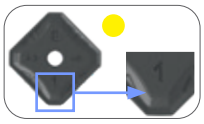
5) Slot 75° (only SPK...)



Which chipbreaker to use?



M5P
Strong cutting edge for general steel applications and hard conditions milling.



M5M
Sharp cutting edge for general Stainless steel applications and for finishing in steels.

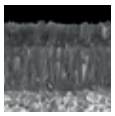
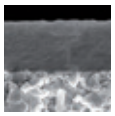
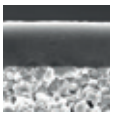
Chipbreaker

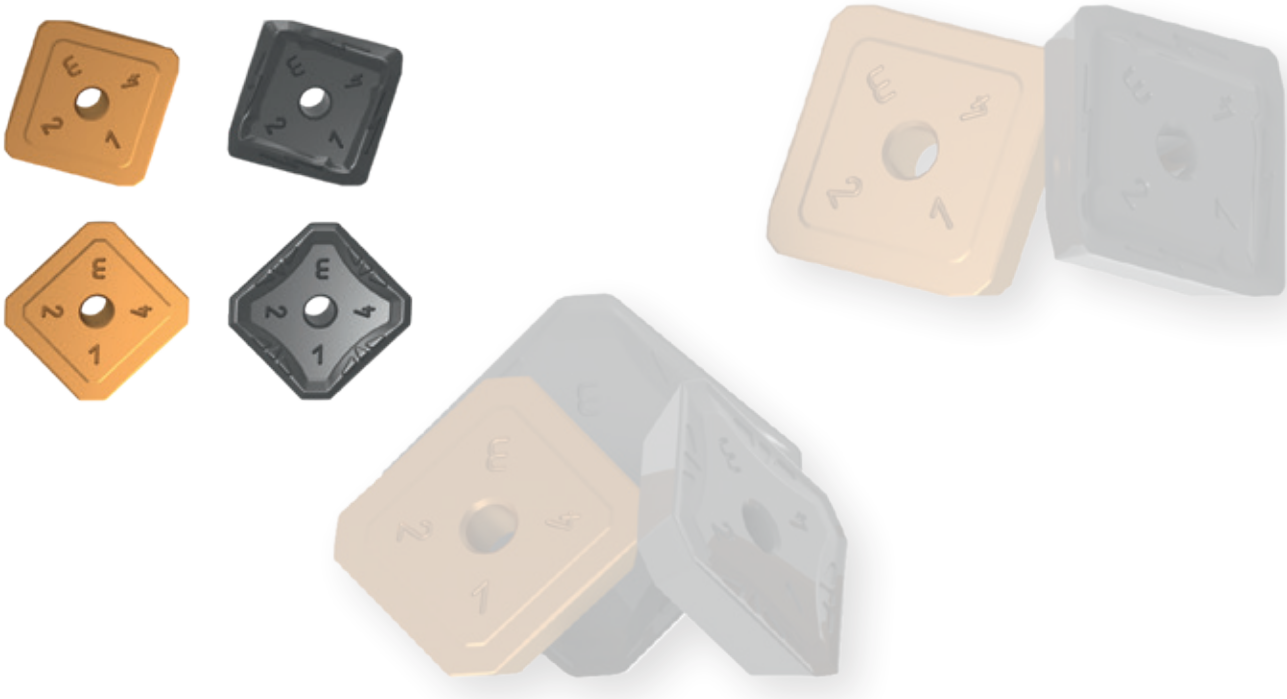
***M5P**: Steel – Cast iron**
***M5M**: Stainless steel*

* secondary application

4 effective cutting edges

Grades

MP30DD	MP35E	MM40EA
		

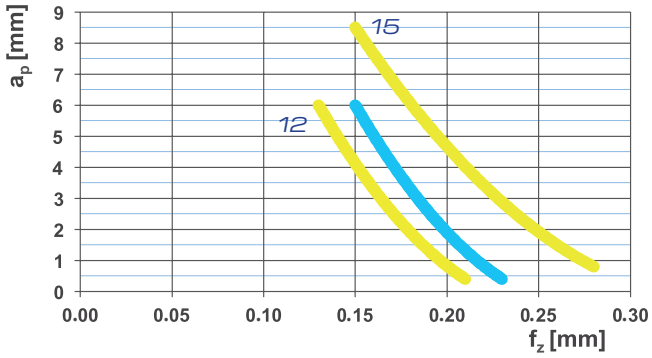


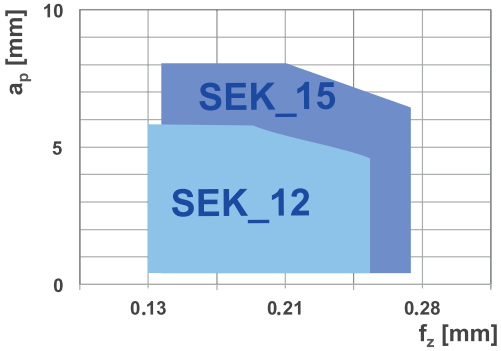
Available range SEK_12 / 15

Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA
	SEKN 1203AFSN-M5P	...-M5P	○	○	
	SEKR 1203AFSN-M5M	...-M5M			○
	SEKR 1504AFSN-M5M	...-M5M			○

Cutting data SEK_12 / 15

Starting parameters:



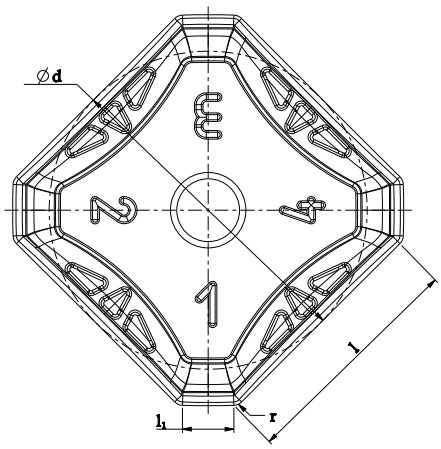


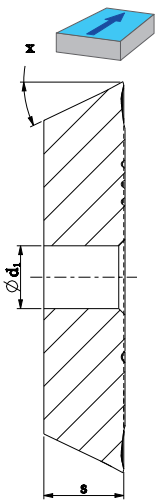
Grades and materials:

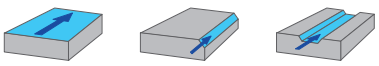
Material Group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	HCM (12)	MP30DD	220 – 60	0.15 – 0.23	6 – 0.4
		HCM (15)	MP35E		0.15 – 0.28	8.5 – 0.8
M	Stainless steel	SCM (12)	MM40EA	200 – 60	0.13 – 0.21	6 – 0.4
		SCM (15)			0.15 – 0.23	8.5 – 0.8

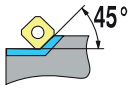
SUS / Face milling 4 x 45°

Insert (SEKN / SEKR)









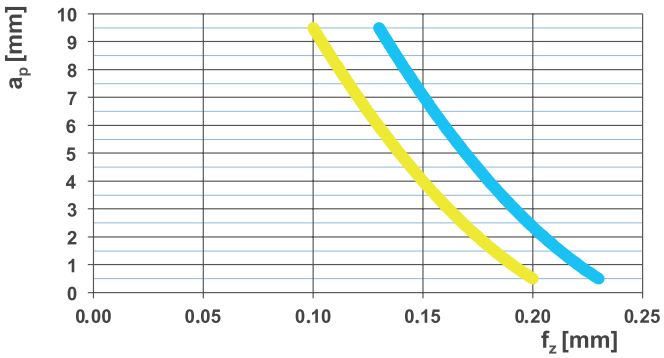
Description	d [mm]	l [mm]	s [mm]	l_1 [mm]	r [mm]	d_1 [mm]	x [°]
SEKN 1203AFSN-M5P	12.7	9	3.18	2	0.45	2.5	20
SEKR 1203AFSN-M5M	12.7	9	3.18	2	0.45	2.5	20
SEKR 1504AFSN-M5M	15.875	12	4.76	1.7	1	2.5	20

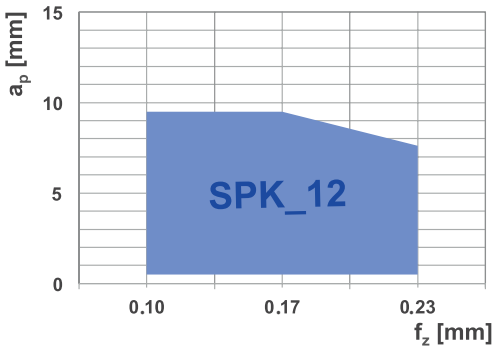
Available range SPK_12

Insert	Designation	Chipbreaker	MP30DD	MP35E	MM40EA
	SPKN 1203EDTR-M5P	...-M5P	○	○	
	SPKR 1203EDER-M5M	...-M5M			○

Cutting data SPK_12

Starting parameters:



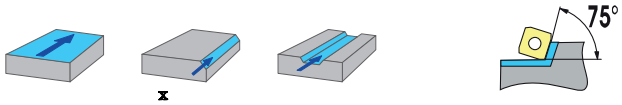


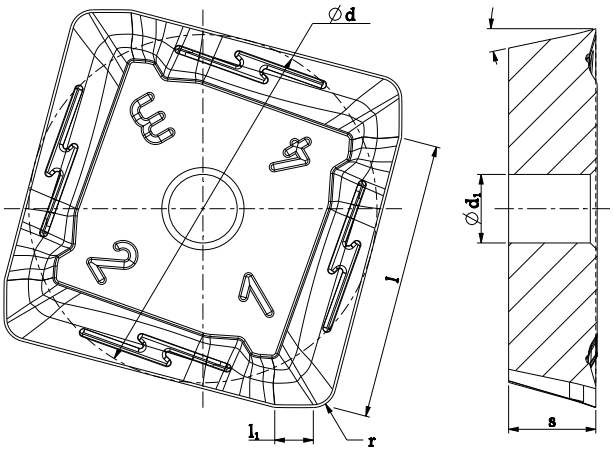
Grades and materials:

Material Group		Chipbreaker	Grade	Cutting data v_c [m/min]	f_z [mm]	a_p [mm]
P	Steel	M5P	MP30DD MP35E	220 – 60	0.15 – 0.23	9.5 – 0.5
M	Stainless steel	M5M	MM40EA	200 – 60	0.1 – 0.2	9.5 – 0.5

SUS / Face milling 4 x 75°

Insert (SPKN / SPKR)





Description	d [mm]	l [mm]	s [mm]	l1 [mm]	r [mm]	d_1 [mm]	x [°]
SPKN 1203EDTR-M5P	12.7	10	3.18	1.2	0.5	2.5	11.25
SPKN 1203EDTR-M5P	12.7	10	3.18	1.2	0.5	2.5	11.25
SPKR 1203EDER-M5M	12.7	10	3.18	1.4	0.9	2.5	11.25

Technical information

Blauing designation system
Insert designation

Insert shape

A	85°
B	82°
K	55°
H	120°
L	90°
O	135°
P	108°
C	80°
D	55°
E	75°
M	86°
V	35°
R	
S	90°
T	60°
W	80°
X Z	Special shapes

Clearance angle

	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
O	Special version

Form of top surface

A	
F	
G	
M	
N	
O	
R	
T	
U	
W	
X	Special shapes

Insert thickness

	s [mm]
01	1.59
T1	1.98
02	2.38
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52

Cutting edge

F sharp
E honed
S chamfered and honed
T chamfered

Cutting direction

R
L
N

A	P	K	T	10	03	PD	E	R	-	M5P
X	D	L	T	10	T3	08	S	R	-	M5M

Tolerances

	d ±	m ±	s ±	d=6,35/9,52	d=12,7	d=15,8/19,05
A	0.025	0.005	0.025	●	●	●
C	0.025	0.013	0.025	●	●	●
E	0.025	0.025	0.025	●	●	●
F	0.013	0.005	0.025	●	●	●
G	0.025	0.025	0.13	●	●	●
H	0.013	0.013	0.025	●	●	●
	0.05	0.005	0.025	●		
J	0.08	0.005	0.025		●	
	0.10	0.005	0.025			●
	0.05	0.013	0.025	●		
K	0.08	0.013	0.02		●	
	0.10	0.013	0.02			●
	0.05	0.08	0.13	●		
M	0.08	0.13	0.13		●	
	0.10	0.15	0.13			●
	0.05	0.08	0.025	●		
N	0.08	0.13	0.025		●	
	0.10	0.15	0.025			●
	0.08	0.13	0.13	●		
U	0.13	0.20	0.13		●	
	0.18	0.27	0.13			●

Cutting edge length

A	T	C/S	H	R

Facet, corner radius

Radius

	r [mm]
M0*	
2	0.2
4	0.4
8	0.8
12	1.2

1st sign

	s [mm]
	r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Others

2nd sign

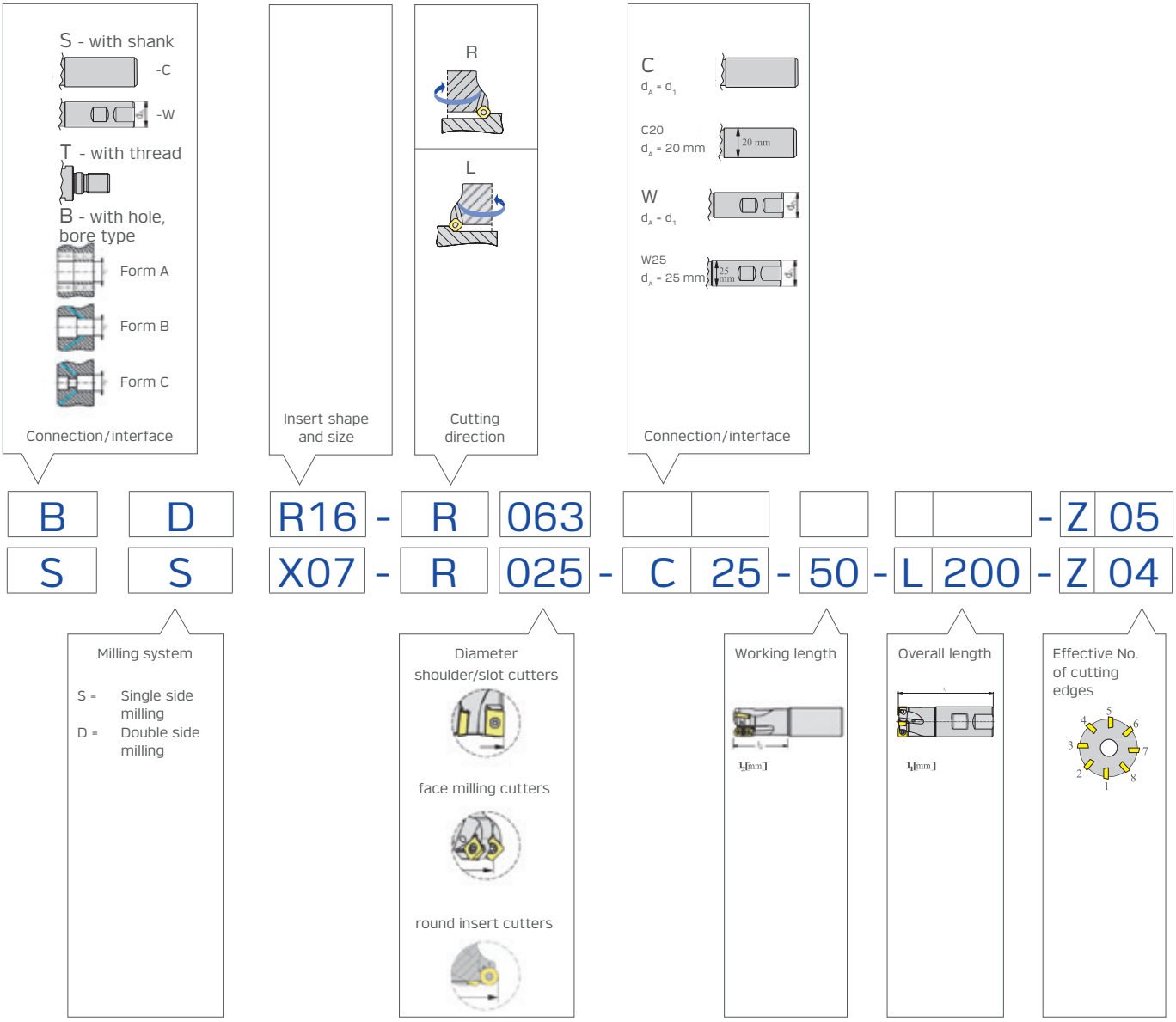
	α'n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z O	Others

Chipbreaker

Chipbreaker designation

M5P = Steel machining
M5M = Stainless steel machining
M5K = Cast iron machining
M5N = Non-ferrous machining
M5S = Exotic machining
– = Hard material machining
M5R = Insert with specific radius

BLAUING designation system Body designation



Application

P	Steel	M	Stainless steel	K	Cast iron
N	Non-ferrous metals and non-metals	S	Heat-resistant alloys, titanium	H	Hard materials

Machining application types

M5P
Strong cutting edge for general steel applications and hard conditions milling.

M5M
Sharp cutting edge for general stainless steel applications and for finishing in steels.

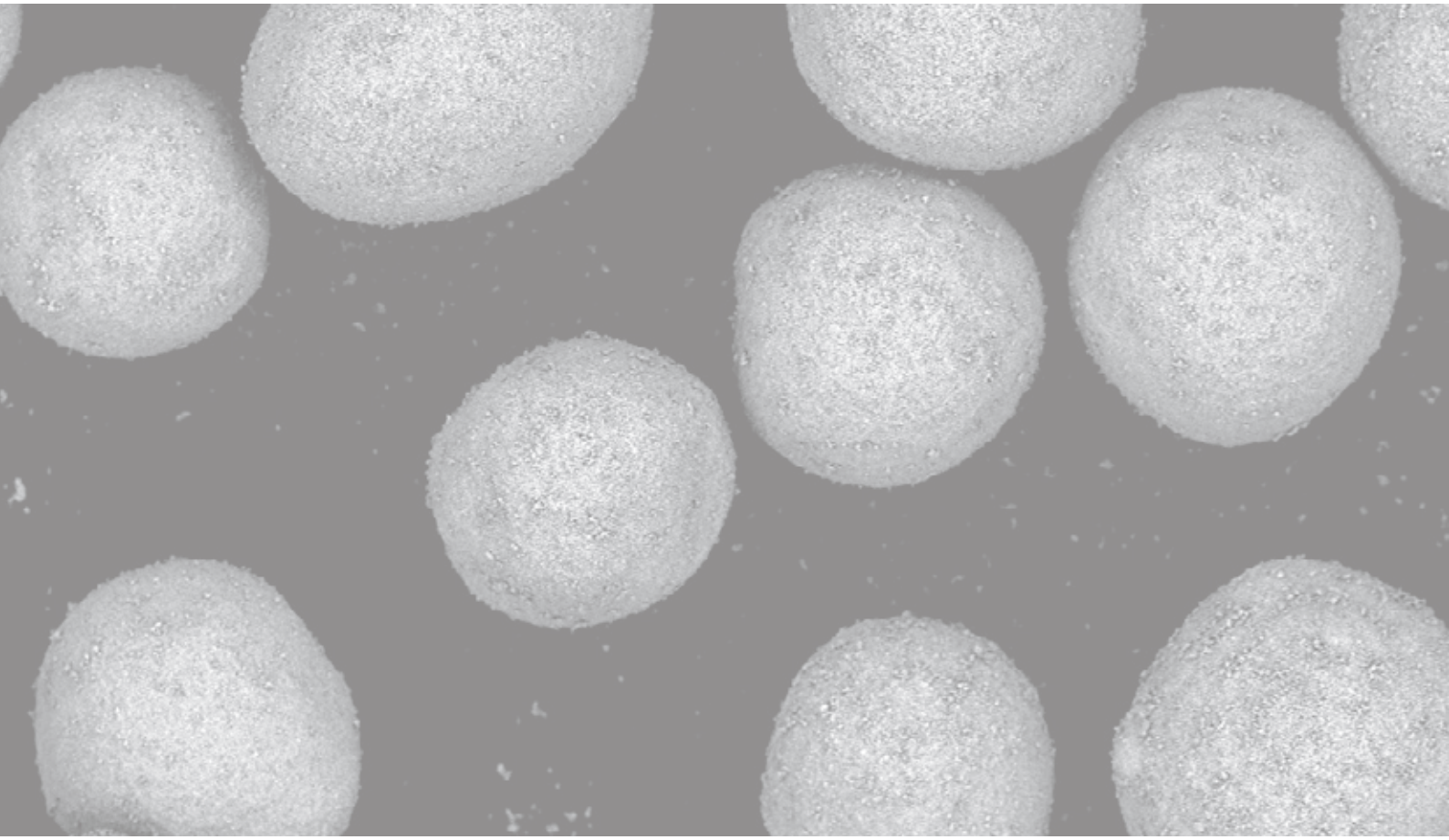
M5N
Sharp cutting edge for aluminium and non-ferrous metals.

M5S
Stable cutting edge for dedicated exotic materials and titanium.

M5K
Strong cutting edge for cast iron applications.

M5H
Strong reinforced cutting edge for hard material.

Grades



Blauing designation system

Main application (machining method)

T	Turning
M	Milling
G	Parting and grooving
D	Drilling
W	Threading
O	Others
U	Universal grade for a variety of applications

Main application (material) ISO letter

P	Steel
M	Stainless steel
K	Cast iron
N	Light and non-ferrous metals. non metals
S	Heat resistant alloys. titanium
H	Hard materials
X	Universal grade for a variety of applications

Main application (material) ISO letter

P	Steel
M	Stainless steel
K	Cast iron
N	Light and non-ferrous metals. non metals
S	Heat resistant alloys. titanium
H	Hard materials
X	Universal grade for a variety of applications

Cutting material

A	Uncoated cermet
B	Coated cermet
C	Uncoated carbide
D	CVD coated carbide
E	PVD coated carbide
F	PCD
G	CBN
H	CBN coated

Additional feature *Optional

A	austenitic steels
D	DryCut

T	P	K	15	D	
1	2	3	4	5	*6

ISO 513 Application range

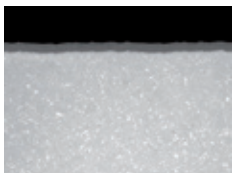
For example:
05 ISO P05
10 ISO P10
15 ISO P15
25 ISO P25
35 ISO P35
...

Grade overview

Grade designation	Standard designation ISO	Standard designation ANSI	*Type of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Hard materials
MP35ED	HC-P35	C5	E		●					
	HC-M30	–	E			○				
MM40E	HC-M35	–	E			●				
	HC-P40	C5	E		○					
MK14D	HC-K15	C3	D				●			
UN15C	HW-N15	C3	C					●		
	HW-K15	C3	C				○			
MSM35D	HC-S35	–	D						●	
	HC-M35	–	D			●				
MS35D	HC-S35	–	D						●	

● Main application
○ Extended application

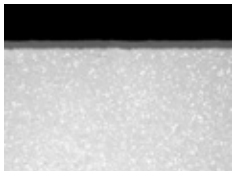
MP35ED HC-P35 | HC-M30 ● ○



Specification:
Composition: Co 9.0 %; mixed carbides 4.0 %; WC balance | Grain size: 1-1.5 µm | Hardness: HV 1510 | Coating specification: PVD (TiA)N + TiN; 4 µm

Recommended application:
First choice for dry machining of steels.

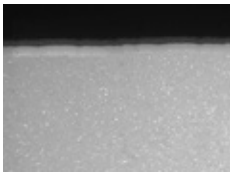
MM40E HC-M40 | HC-P40 ● ○



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.

MK14D 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) + Al_2O_3; 5 µm

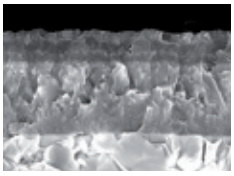
Recommended application:
First choice for the machining of cast iron.

UN15C HW-N15 | HW-K15 ● ○

Specification:
Composition: Co 6.0 %; WC balance, Other 0,20 % | Grain size: 1 µm | Hardness: HV_{30} 1650

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.

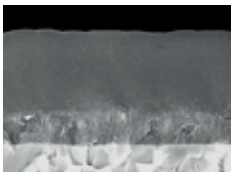
MSM35D HC-S35 | HC-M35 ● ●



Specification:
Composition: 10.0 % binder; WC balance | Grain size: 2 µm | Hardness: HV_{30} 1330 | Coating specification: CVD TiCN-Al_2O_3 multi-layer

Recommended application:
Particularly suitable for the machining of heat-resistant steels and iron-based alloys.

MS35D HC-S35 ●



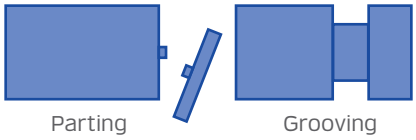
Specification:
Composition: Co 10.0 %; WC balance | Grain size: 2 µm | Hardness: HV 1330 | Coating specification: CVD TiN +TiB2; 4 µm

Recommended application:
Recommended for the machining of titanium materials.

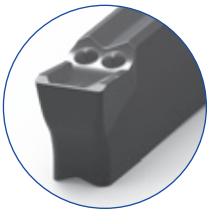
Grooving / cutting

Grooving

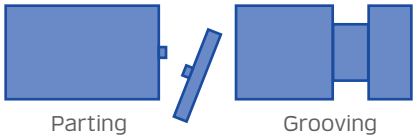
GPK – Medium cutting chipbreaker



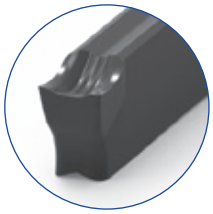
- *Insert with narrow negative chamfer*
- *Suitable for all steel materials with high strength*
- *Suitable for all applications*
- *For steel and grey cast iron*



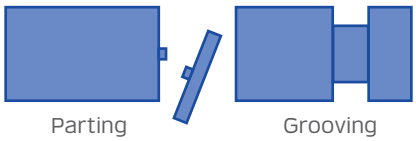
GPM – Very soft cutting chipbreaker



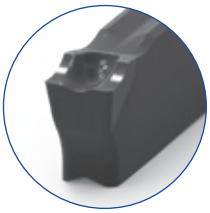
- *Excellent cutting chipbreaker with low cutting forces*
- *For low or medium strength materials*
- *Particularly suitable for parting off tubes and thin-walled work pieces*
- *High cutting edge stability*
- *Excellent chip control also with low feed*
- *Low built up edge*



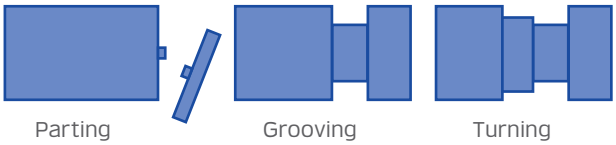
GMS – Soft cutting chipbreaker



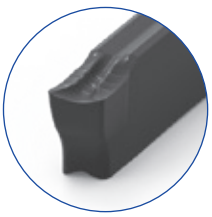
- *Especially for stainless steel*
- *Problem solver for steel machining*



GPMT – Grooving and Turning

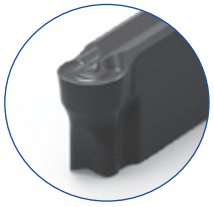


- *For grooving and turning*
- *Suitable for all steel and stainless steel materials*
- *Very good chip control*



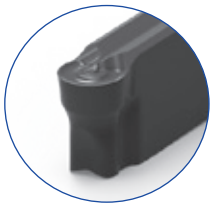
GPKR – Radius grooves

- *Insert for radius grooves*
- *For copy turning*
- *Suitable for all steel and cast iron materials*



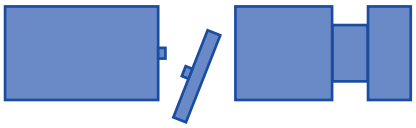
GPKR – Radius grooves

- *Insert for radius grooves*
- *For copy turning*
- *Suitable for stainless steel and gummy materials*

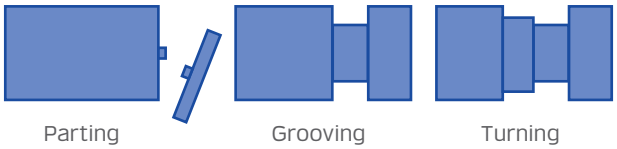


GN – First choice in case of aluminum and non ferrous metals

- *Insert with highly positive cutting chipbreaker and sharp cutting edge*
- *Extra-smooth rake face through "microfinish"*
- *Reduced built-up edge*



GPKT – First choice for all steel and cast iron materials



- *For grooving and turning*
- *Suitable for all steel and cast iron materials*
- *Very good chip control*

Application

P Steel

M Stainless steel

K Cast iron

N Non-ferrous metals and non-metals

S Heat-resistant alloys, titanium

H Hard materials

DG / SG / ADG

Material Group		Choice chipbreaker First choice	Choice chipbreaker Higher wear resistance	Grades First choice	Grades Higher toughness
P	Steel	GPK – GPM	GPK35D	GPMKS30E	GPM45E
		GPMT – GPKR		GPMKS30E	
M	Stainless steel	GMS – GPM – GPMT		GPMKS30E	GPM45E
		GPKR - GMR			
K	Cast iron	GPK	GPK35D	GPMKS30E	GPM45E
		GPKR		GPMKS30E	
S	Exotic	GMS		GPM45E	
N	Non-ferrous metals	GN		GN15C	

G

Material Group		Choice chipbreaker First choice	Choice chipbreaker Higher wear resistance	Grades First choice	Grades Higher toughness
P	Steel	GPK – GPKT	GPK35D	GPMKS30E	GPM45E
M	Stainless steel	GMS		GPMKS30E	GPM45E
K	Cast iron	GPK – GPKT		GPMKS30E	GPM45E
N	Non-ferrous metals	GN		GN15C	

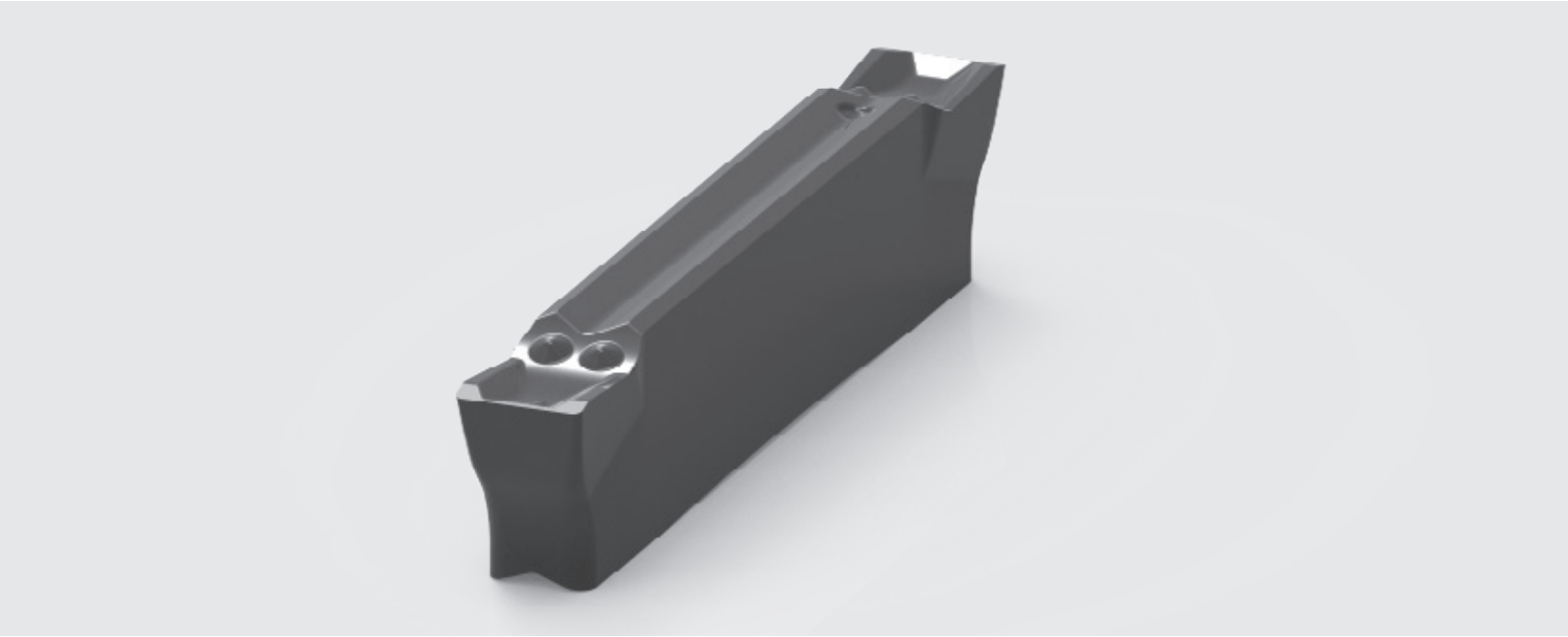
Products

DG

24mm long size insert – double-sided

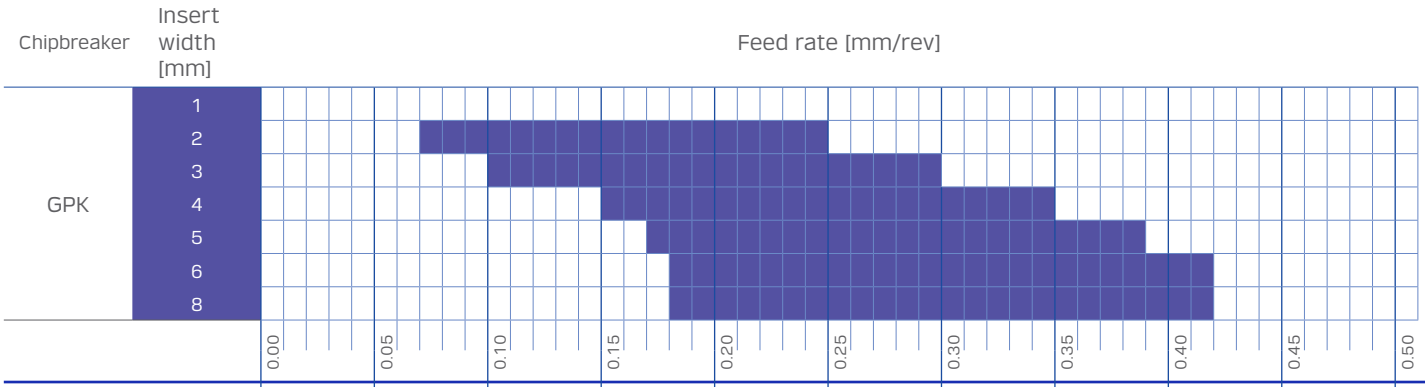
DG - GPK - 24 mm long size insert – double-sided 1,5 mm to 8 mm

P K



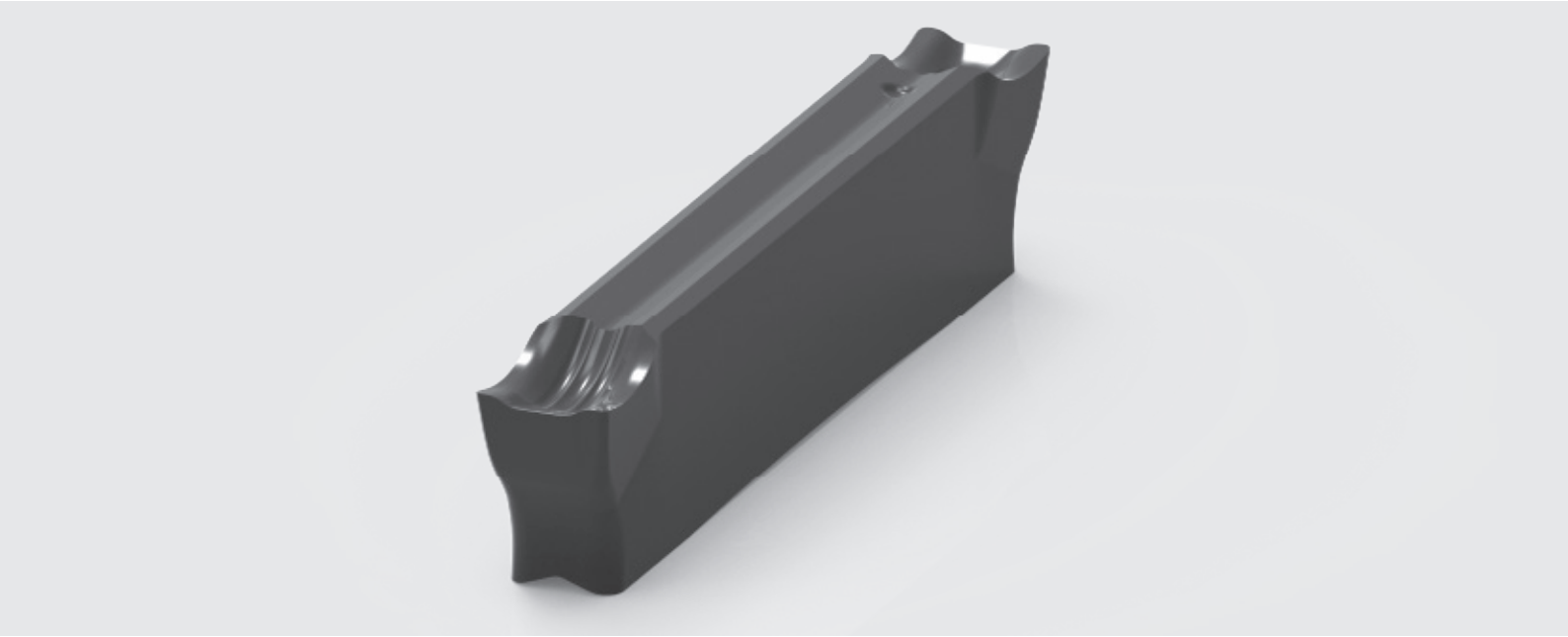
Range DG – GPK

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	DG20.015-06L-GPK	2	0,15	6	left	24	•	•	•
	DG30.02-06L-GPK	3	0,2	6	left	24	•	•	•
	DG40.03-04L-GPK	4	0,3	4	left	24	•	•	•
	DG50.04-04L-GPK	5	0,4	4	left	24		on request	
	DG15.015-00-GPK	1.5	0,15	0	neutral	24	•	•	•
	DG20.02-00-GPK	2	0,2	0	neutral	24	•	•	•
	DG30.02-00-GPK	3	0,2	0	neutral	24	•	•	•
	DG40.03-00-GPK	4	0,3	0	neutral	24	•	•	•
	DG50.04-00-GPK	5	0,4	0	neutral	24	•	•	•
	DG60.04-00-GPK	6	0,4	0	neutral	24	•	•	•
	DG80.08-00-GPK	6	0,8	0	neutral	24		•	
	DG20.015-06R-GPK	2	0,15	6	right	24	•	•	•
	DG30.02-06R-GPK	3	0,2	6	right	24	•	•	•
	DG40.03-04R-GPK	4	0,3	4	right	24	•	•	•
	DG50.04-04R-GPK	5	0,4	4	right	24		on request	



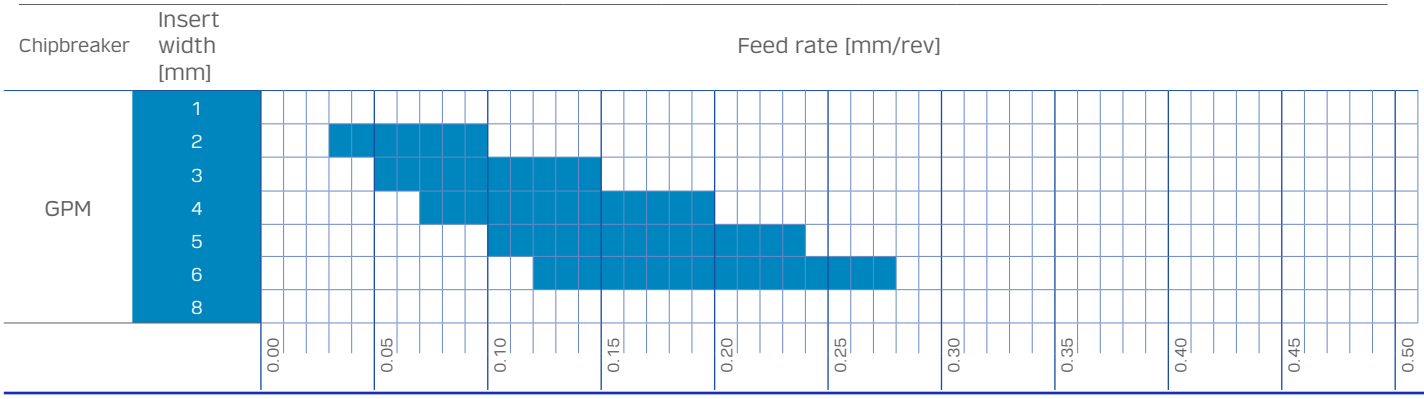
DG – GPM 24 mm long size insert – double-sided 2 mm to 6 mm

P M



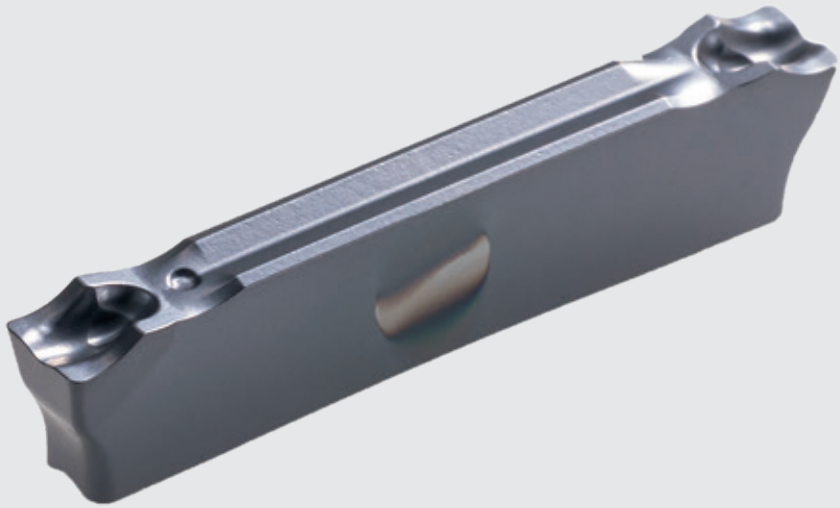
Range DG – GPM

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	DG20.015-06L-GPM	2	0,15	6	left	24	•	•	•
	DG30.02-06L-GPM	3	0,2	6	left	24	•	•	•
	DG40.03-04L-GPM	4	0,3	4	left	24	•	•	•
	DG40.03-05L-GPM	4	0,3	5	left	24	•	•	•
	DG40.03-06L-GPM	4	0,3	6	left	24	•	•	•
	DG50.04-04L-GPM	5	0,4	4	left	24		on request	
	DG20.02-00-GPM	2	0,2	0	neutral	24	•	•	•
	DG30.02-00-GPM	3	0,2	0	neutral	24	•	•	•
	DG40.03-00-GPM	4	0,3	0	neutral	24	•	•	•
	DG50.04-00-GPM	5	0,4	0	neutral	24	•	•	•
	DG60.04-00-GPM	6	0,4	0	neutral	24		on request	
	DG20.015-06R-GPM	2	0,15	6	right	24	•	•	•
	DG30.02-06R-GPM	3	0,2	6	right	24	•	•	•
	DG40.03-04R-GPM	4	0,3	4	right	24	•	•	•
	DG40.03-05R-GPM	4	0,3	5	right	24	•	•	•
	DG40.03-06R-GPM	4	0,3	6	right	24	•	•	•
	DG50.04-04R-GPM	5	0,4	4	right	24		on request	



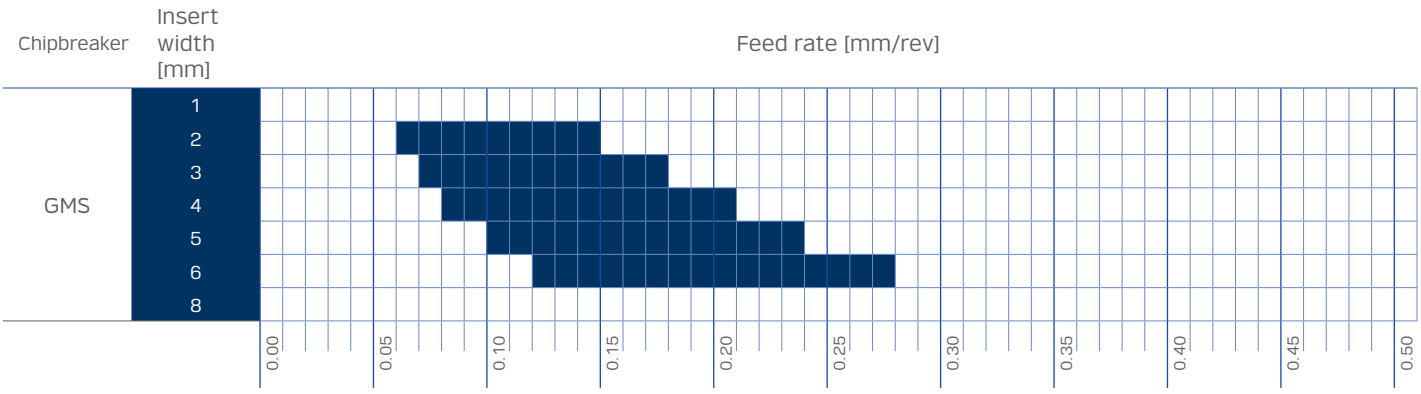
DG – GMS - 24 mm long size insert – double-sided 1,5 mm to 6 mm

M S



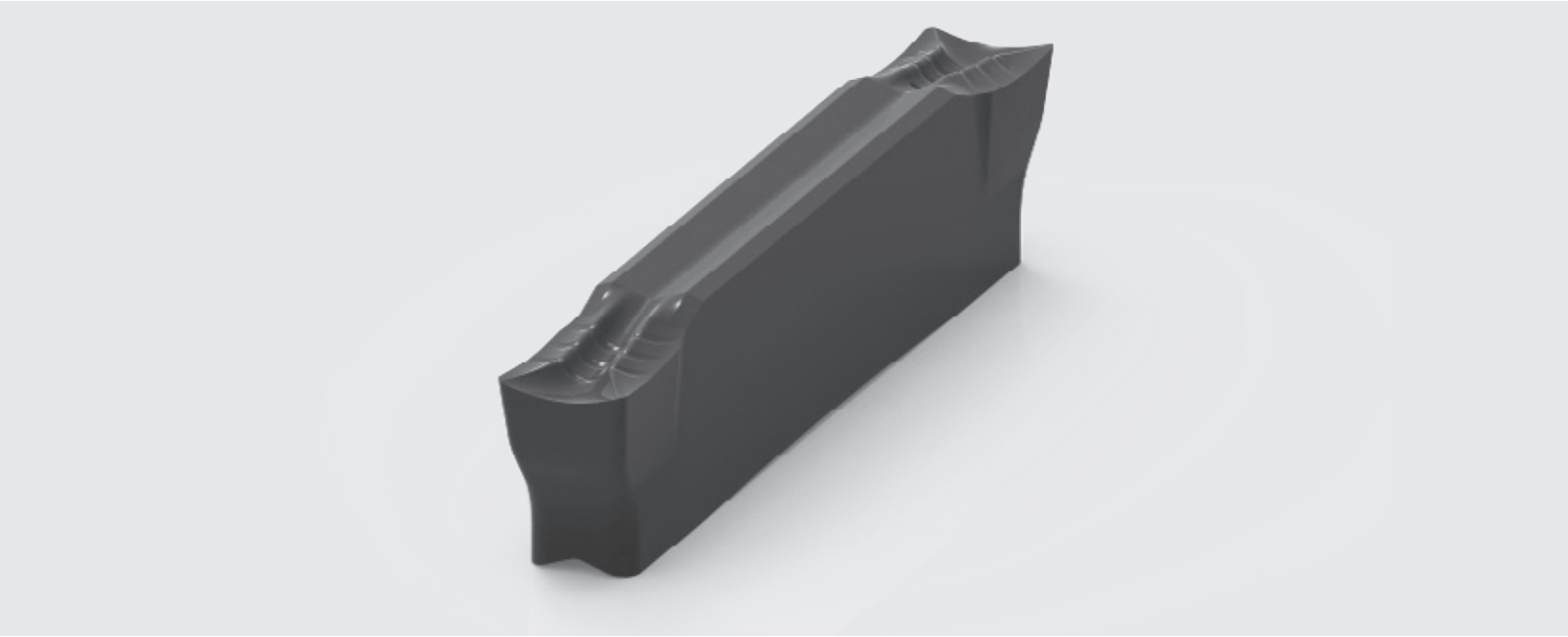
Range DG – GMS

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	DG20.015-06L-GMS	2	0,15	6	left	24	•	•	•
	DG30.02-06L-GMS	3	0,2	6	left	24	•	•	•
	DG40.03-06L-GMS	4	0,3	6	left	24	•	•	•
	DG40.03-06L-GMS	4	0,3	6	left	24	•	•	•
	DG15.015-00-GMS	1,5	0,15	0	neutral	24	•	•	•
	DG20.02-00-GMS	2	0,2	0	neutral	24	•	•	•
	DG30.02-00-GMS	3	0,2	0	neutral	24	•	•	•
	DG40.04-00-GMS	4	0,4	0	neutral	24	•	•	•
	DG50.04-00-GMS	5	0,4	0	neutral	24	•	•	•
	DG60.04-00-GMS	6	0,4	0	neutral	24	•	•	•
	DG20.015-06R-GMS	2	0,15	6	right	24	•	•	•
	DG30.02-06R-GMS	3	0,2	6	right	24	•	•	•
	DG40.03-06R-GMS	4	0,3	6	right	24	•	•	•
	DG40.03-06R-GMS	4	0,3	6	right	24	•	•	•



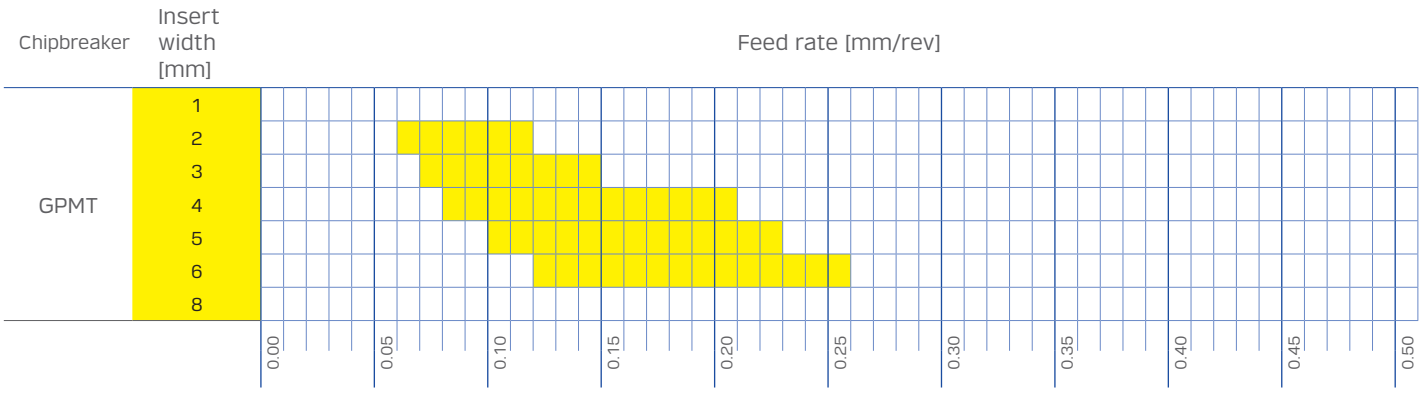
DG – GPMT 24 mm long size insert – double-sided 2 mm to 6 mm

P M



Range DG – GPMT

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	DG20.02-06L-GPMT	2	0,2	6	left	24	•	•	•
	DG30.02-06L-GPMT	3	0,2	6	left	24	•	•	•
	DG20.02-00-GPMT	2	0,2	0	neutral	24	•	•	•
	DG30.03-00-GPMT	3	0,3	0	neutral	24	•	•	•
	DG40.04-00-GPMT	4	0,4	0	neutral	24	•	•	•
	DG50.04-00-GPMT	5	0,4	0	neutral	24	•	•	•
	DG60.04-00-GPMT	6	0,4	0	neutral	24	•	•	•
	DG20.02-06R-GPMT	2	0,2	6	right	24	•	•	•
	DG30.02-06R-GPMT	3	0,2	6	right	24	•	•	•

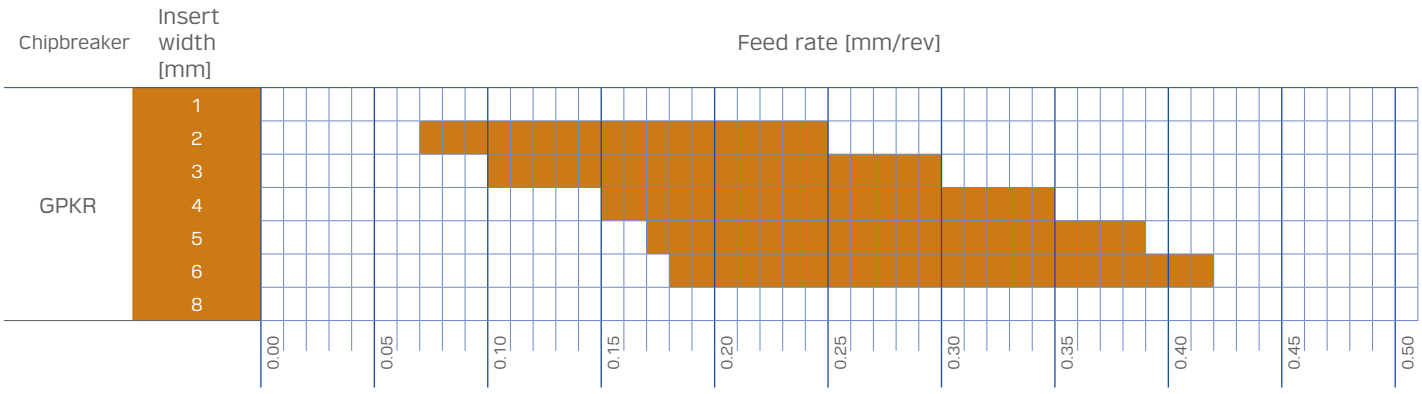


DG – GPKR 24 mm long size insert – double-sided 2 mm to 6 mm

P K

Range DG – GPKR

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	DG20.10-00-GPKR	2	1,0	0	neutral	24	•	•	•
	DG30.15-00-GPKR	3	1,5	0	neutral	24	•	•	•
	DG40.20-00-GPKR	4	2,0	0	neutral	24	•	•	•
	DG50.25-00-GPKR	5	2,5	0	neutral	24	•	•	•
	DG60.30-00-GPKR	6	3,0	0	neutral	24	•	•	•

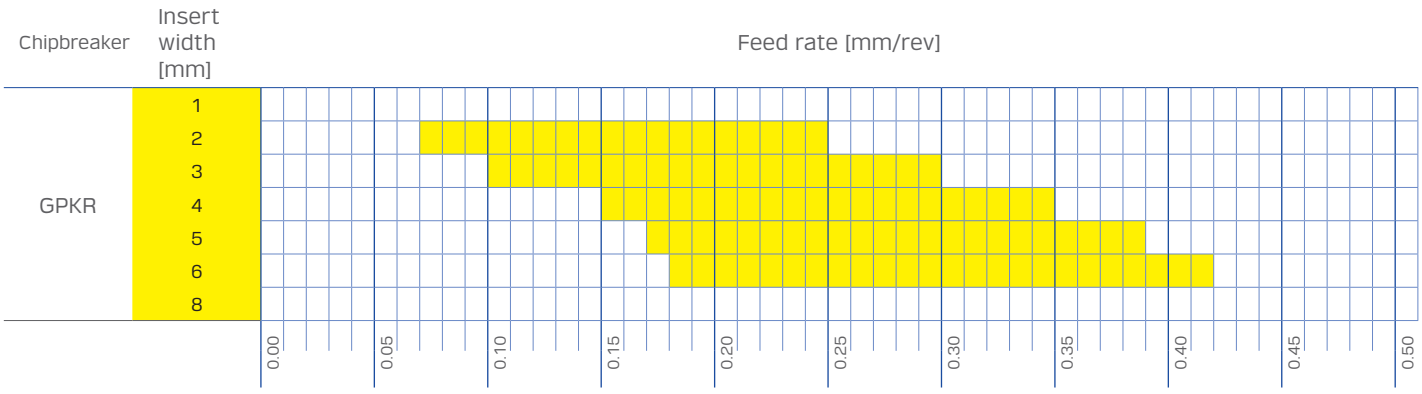


DG – GMR 24 mm long size insert – double-sided 2 mm to 6 mm

M

Range DG – GPKR

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	DG20.10-00-GMR	2	1,0	0	neutral	24	•	•	•
	DG30.15-00-GMR	3	1,5	0	neutral	24	•	•	•
	DG40.20-00-GMR	4	2,0	0	neutral	24	•	•	•
	DG50.25-00-GMR	5	2,5	0	neutral	24	•	•	•
	DG60.30-00-GMR	6	3,0	0	neutral	24	•	•	•

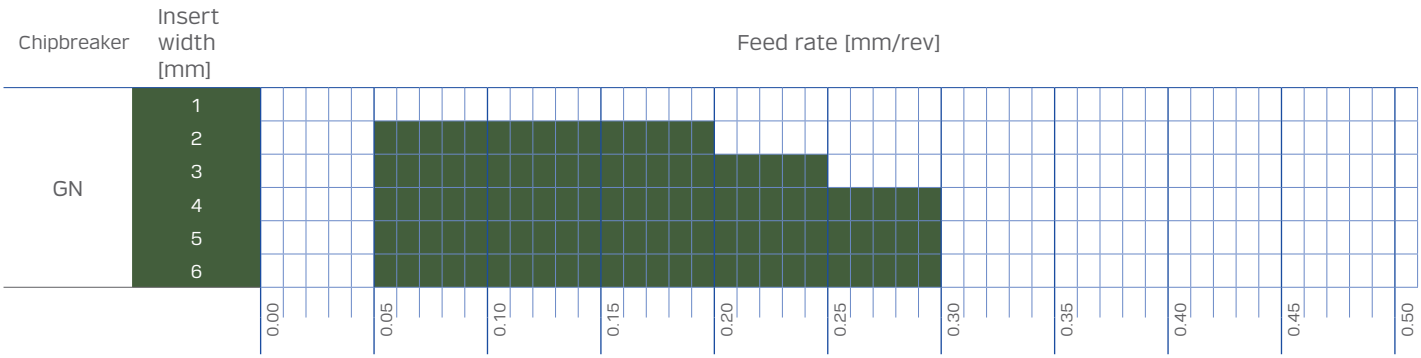


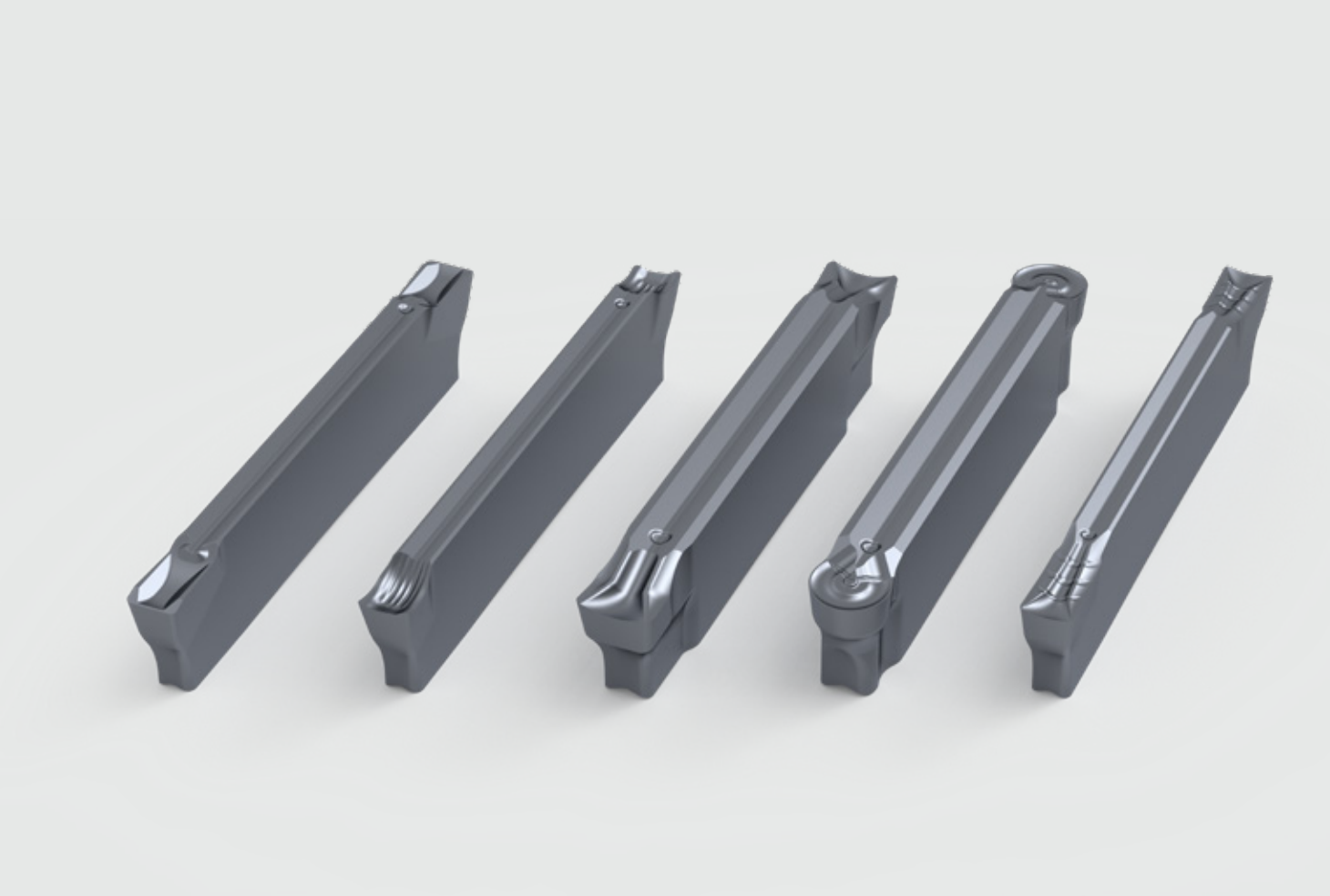
DG – GN 24 mm long size insert – double-sided 2 mm to 6 mm

N

Range DG – GN

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GN15C
	DG20.02-00-GN	2	0,2	0	neutral	24	•
	DG30.03-00-GN	3	0,3	0	neutral	24	•
	DG40.04-00-GN	4	0,4	0	neutral	24	•
	DG50.04-00-GN	5	0,4	0	neutral	24	•
	DG60.05-00-GN	6	0,5	0	neutral	24	•





SG

24mm long size insert – single-sided

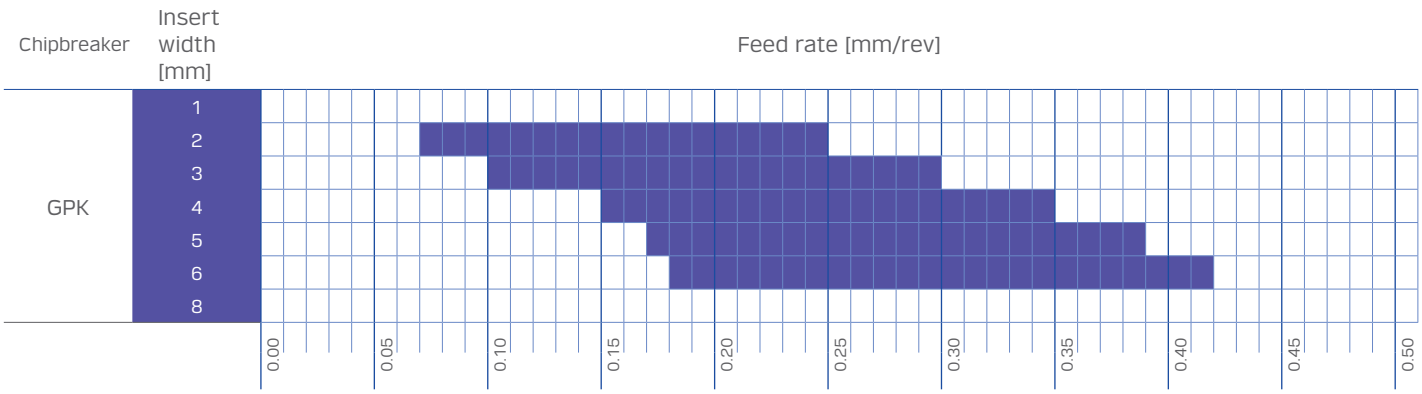
Deep grooving with excellent surface finish

SG – GPK 24mm long size insert – single-sided 2 mm to 4 mm

P K

Range SG – GPK

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	SG20.015-06L-GPK	2	0,15	6	left	24	•	•	•
	SG30.02-06L-GPK	3	0,2	6	left	24	•	•	•
	SG20.02-00-GPK	2	0,2	0	neutral	24	•	•	•
	SG30.02-00-GPK	3	0,2	0	neutral	24	•	•	•
	SG40.03-00-GPK	4	0,3	0	neutral	24	•	•	•
	SG20.015-06R-GPK	2	0,15	6	right	24	•	•	•
	SG30.02-06R-GPK	3	0,2	6	right	24	•	•	•

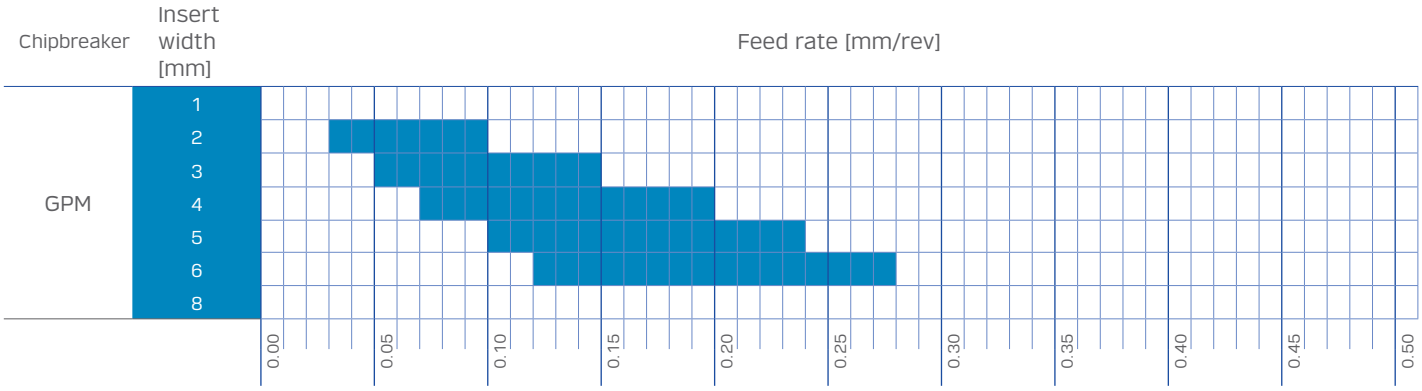


SG – GPM 24mm long size insert – single-sided
2 mm to 4 mm

P M

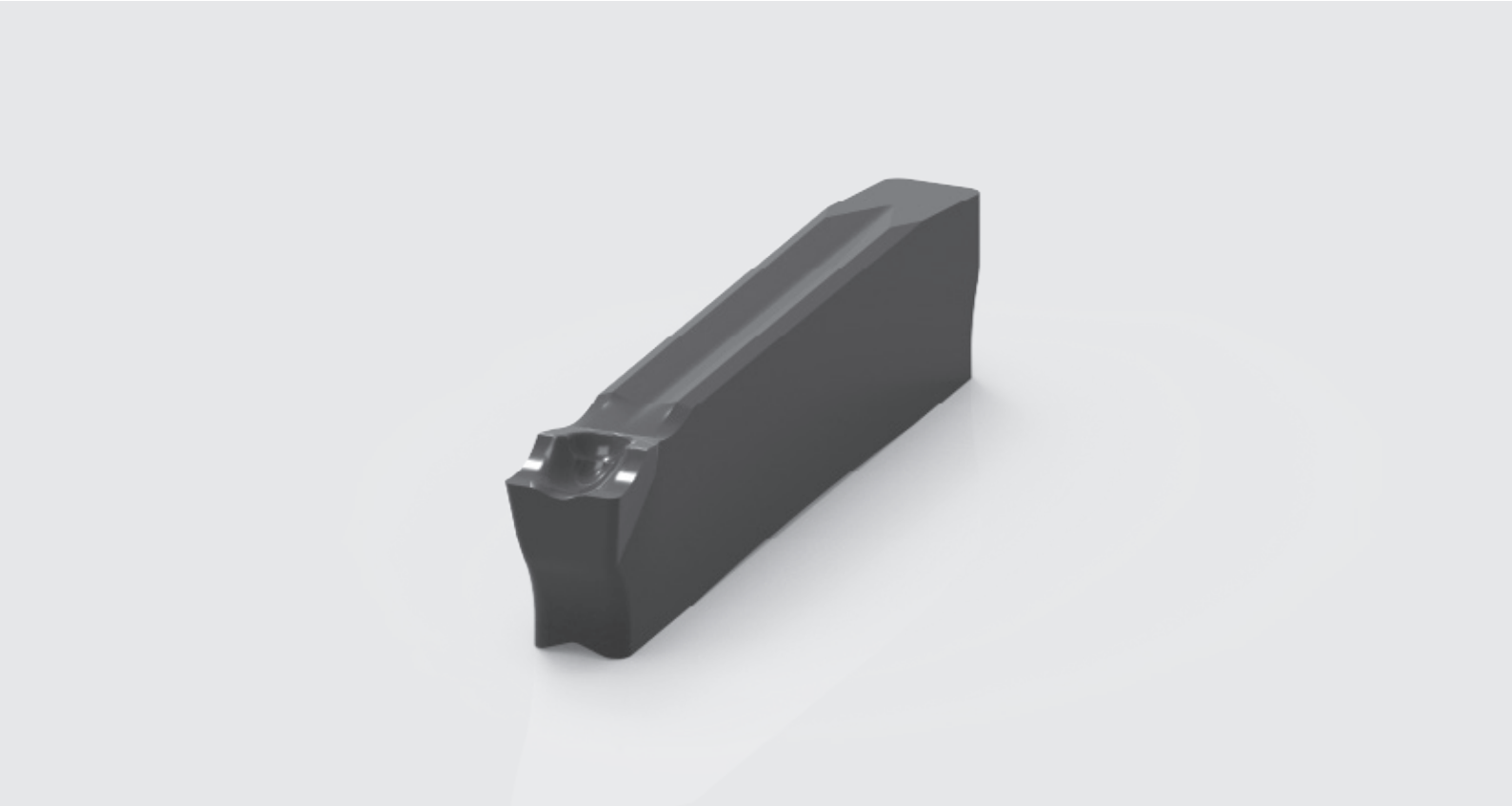
Range SG – GPM

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	SG20.015-06L-GPM	2	0,15	6	left	24	•	•	•
	SG30.02-06L-GPM	3	0,2	6	left	24	•	•	•
	SG20.02-00-GPM	2	0,2	0	neutral	24	•	•	•
	SG30.02-00-GPM	3	0,2	0	neutral	24	•	•	•
	SG40.03-00-GPM	4	0,3	0	neutral	24	•	•	•
	SG20.015-06R-GPM	2	0,2	6	right	24	•	•	•
	SG30.02-06R-GPM	3	0,2	6	right	24	•	•	•



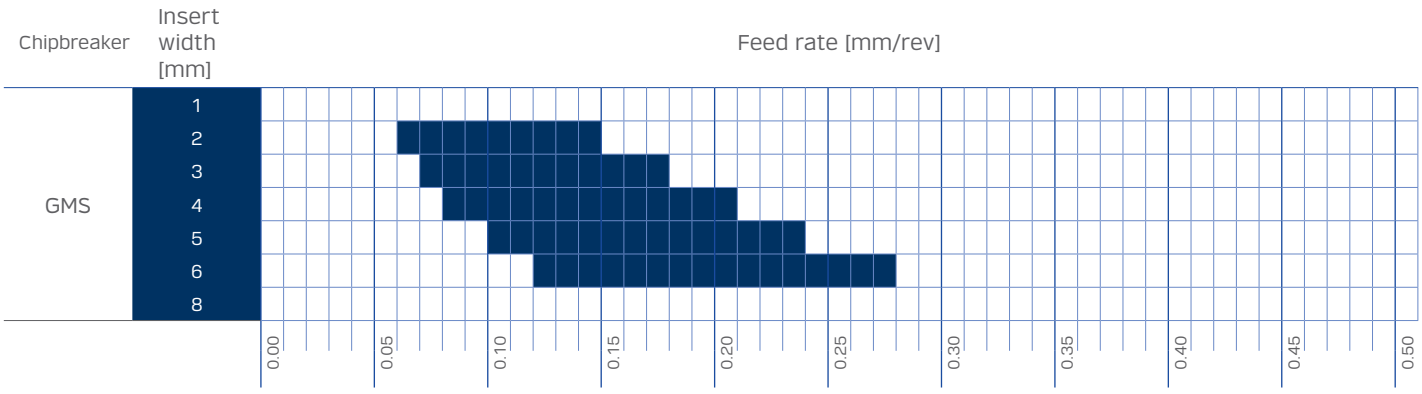
SG – GMS 24mm long size insert – single-sided 2 mm to 4 mm

M S



Range SG – GMS

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	SG20.02-00-GMS	2	0,2	0	neutral	24	•	•	•
	SG30.03-00-GMS	3	0,3	0	neutral	24	•	•	•
	SG40.04-00-GMS	4	0,4	0	neutral	24	•	•	•

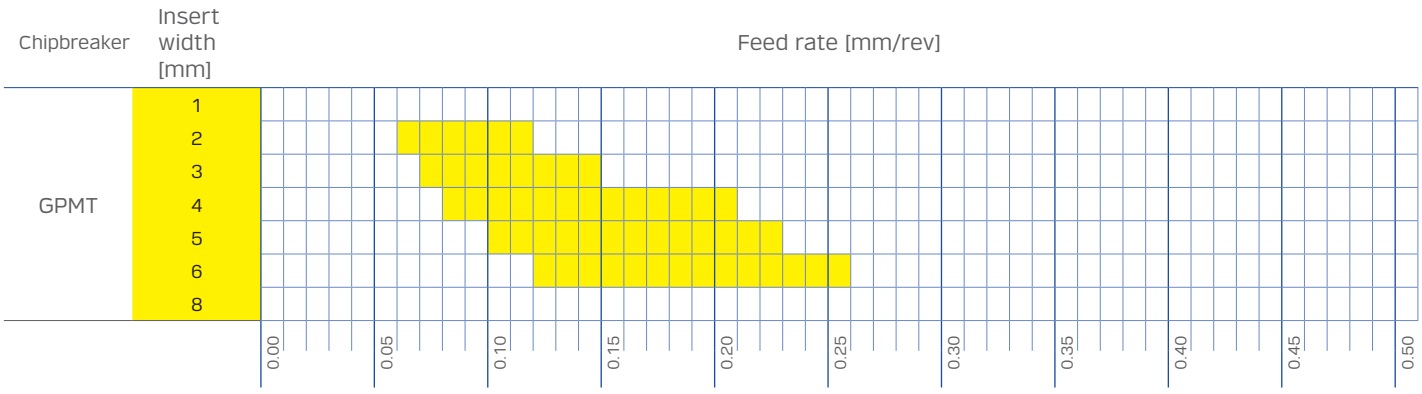


SG – GPMT 24mm long size insert – single-sided 2 mm to 4 mm

P M

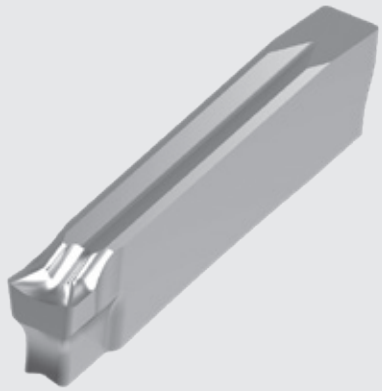
Range SG – GPMT

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	SG20.02-00-GPMT	2	0,2	0	neutral	24	•	•	•
	SG30.03-00-GPMT	3	0,3	0	neutral	24	•	•	•
	SG40.04-00-GPMT	4	0,4	0	neutral	24	•	•	•



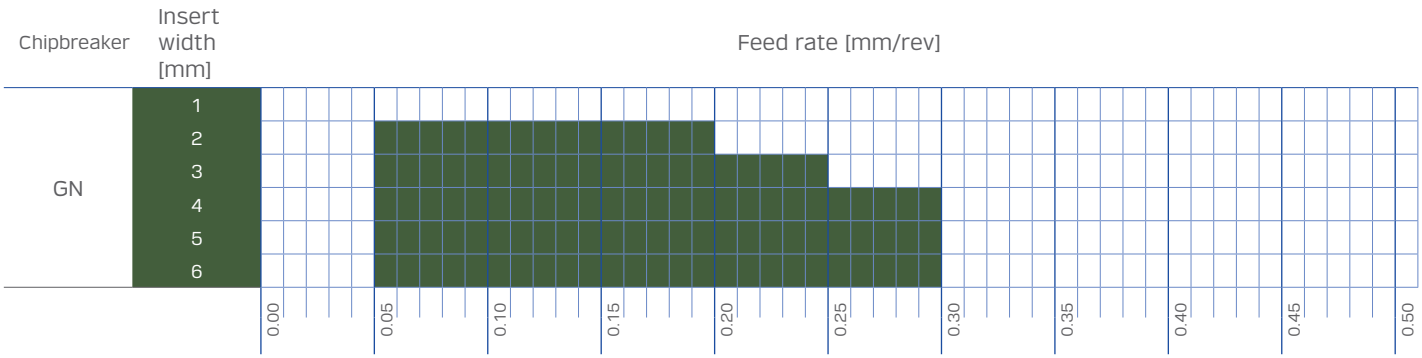
SG – GN 24mm long size insert – single-sided 2 mm to 6 mm

N



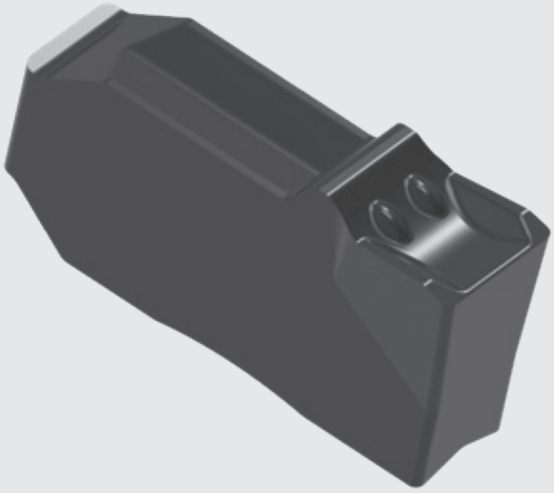
Range SG – GN

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GN15C
	SG20.02-00-GN	2	0,2	0	neutral	24	•
	SG30.03-00-GN	3	0,3	0	neutral	24	•
	SG40.04-00-GN	4	0,4	0	neutral	24	•
	SG50.04-00-GN	5	0,4	0	neutral	24	•
	SG60.05-00-GN	6	0,5	0	neutral	24	•



G

Small size insert – single-sided

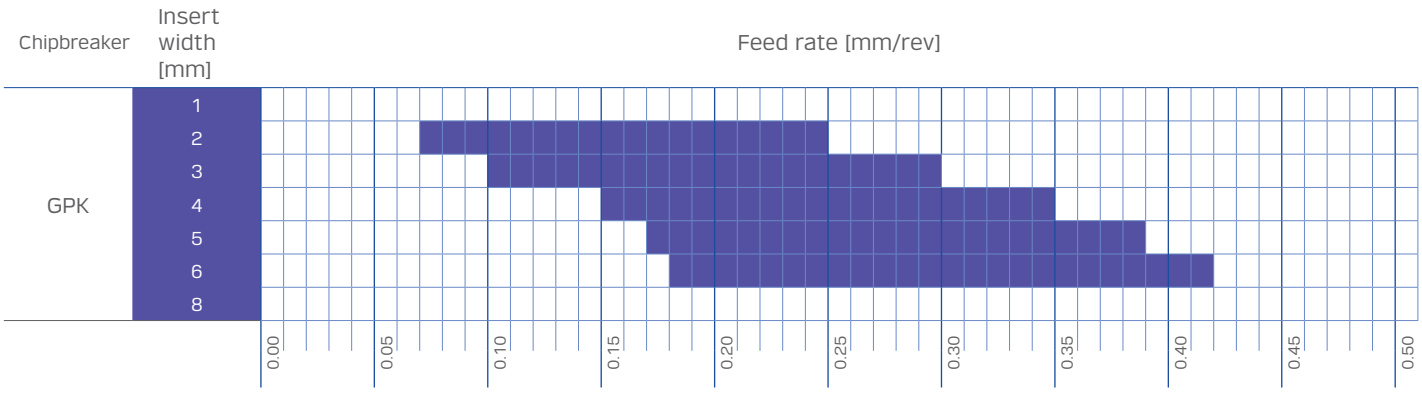


G – GPK Small size insert – single-sided 2 mm to 6 mm

P K

Range G – GPK

Insert	Designation	Width	Radius	Angle	Hand	GPK35D	GPMKS30E	GPM45E
	G20.02-00-GPK	2	0,2	0	neutral	•	•	•
	G30.02-00-GPK	3	0,2	0	neutral	•	•	•
	G40.03-00-GPK	4	0,3	0	neutral	•	•	•
	G50.03-00-GPK	5	0,3	0	neutral	•	•	•
	G60.04-00-GPK	6	0,4	0	neutral	•	•	•

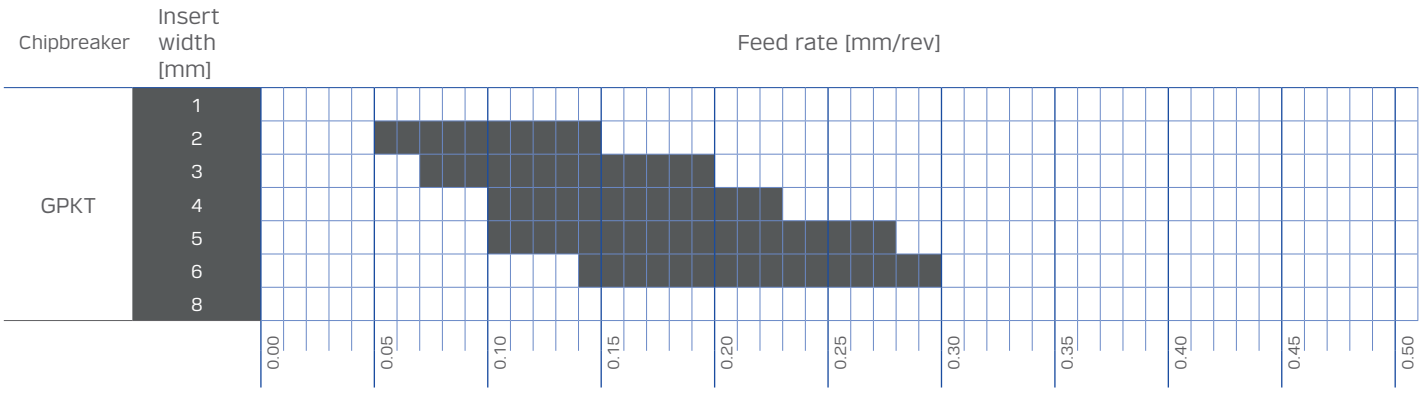


G – GPKT Small size insert – single-sided 2 mm to 6 mm

P K

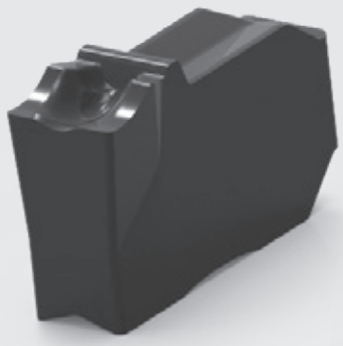
Range G – GPKT

Insert	Designation	Width	Radius	Angle	Hand	GPK35D	GPMKS30E	GPM45E
	G20.02-00-GPKT	2	0,2	0	neutral	•	•	•
	G30.03-00-GPKT	3	0,3	0	neutral	•	•	•
	G40.04-00-GPKT	4	0,4	0	neutral	•	•	•
	G50.04-00-GPKT	5	0,4	0	neutral	•	•	•
	G60.05-00-GPKT	6	0,5	0	neutral	•	•	•



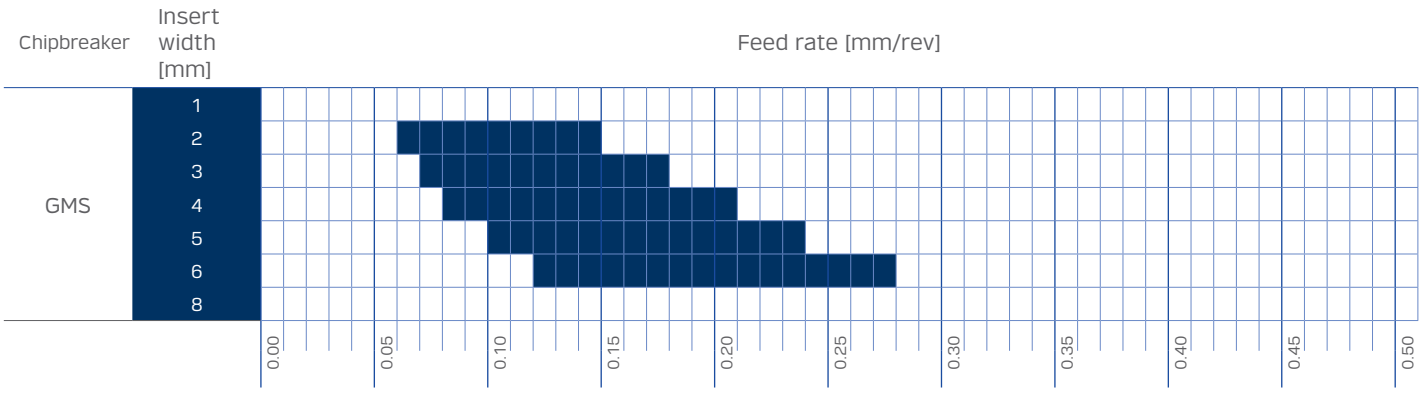
G – GMS Small size insert – single-sided 2 mm to 6 mm

M S



Range G – GMS

Insert	Designation	Width	Radius	Angle	Hand	GPK35D	GPMKS30E	GPM45E
	G20.02-00-GMS	2	0,2	0	neutral	•	•	•
	G30.02-00-GMS	3	0,2	0	neutral	•	•	•
	G40.04-00-GMS	4	0,4	0	neutral	•	•	•
	G50.04-00-GMS	5	0,4	0	neutral	•	•	•
	G60.04-00-GMS	6	0,4	0	neutral	•	•	•

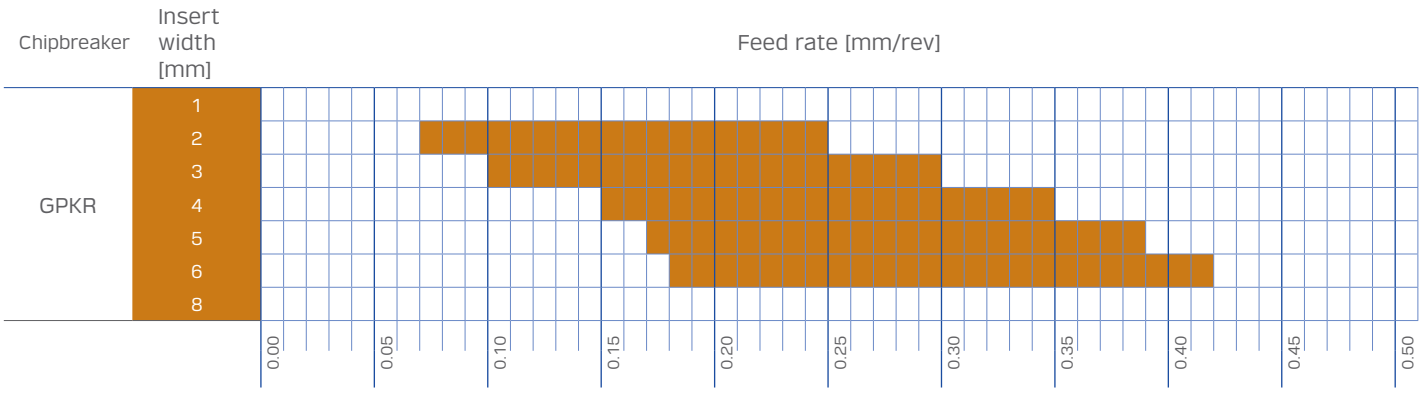


G – GPKR Small size insert – single-sided 2 mm to 6 mm

P K

Range G – GPKR

Insert	Designation	Width	Radius	Angle	Hand	GPK35D	GPMKS30E	GPM45E
	G20.10-00-GPKR	2	1,0	0	neutral		•	
	G30.15-00-GPKR	3	1,5	0	neutral		•	
	G40.20-00-GPKR	4	2,0	0	neutral		•	
	G50.25-00-GPKR	5	2,5	0	neutral		•	
	G60.30-00-GPKR	6	3,0	0	neutral		•	

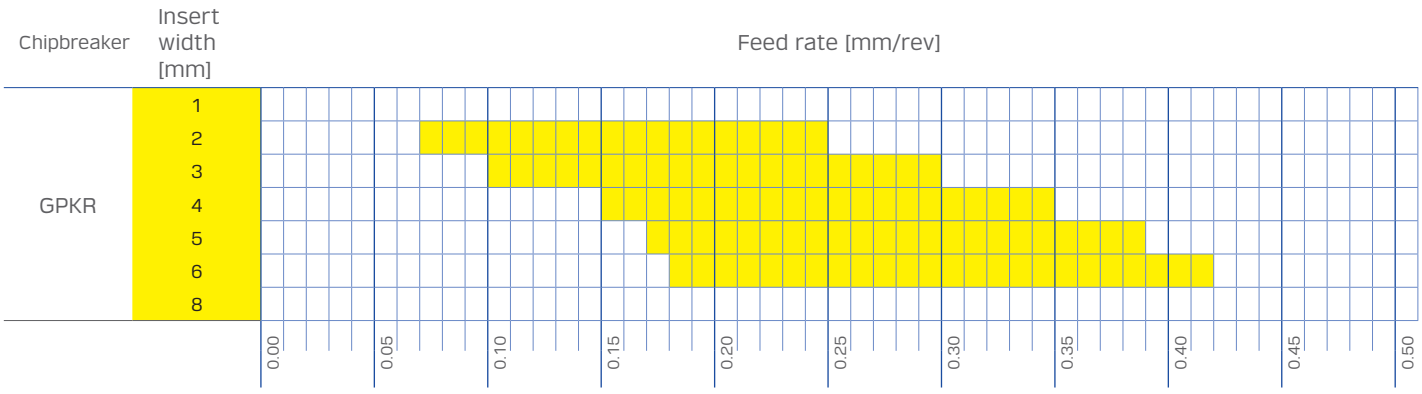


G – GMR Small size insert – single-sided 2 mm to 6 mm

M

Range G – GMR

Insert	Designation	Width	Radius	Angle	Hand	GPK35D	GPMKS30E	GPM45E
	G20.10-00-GMR	2	1,0	0	neutral		•	
	G30.15-00-GMR	3	1,5	0	neutral		•	
	G40.20-00-GMR	4	2,0	0	neutral		•	
	G50.25-00-GMR	5	2,5	0	neutral		•	
	G60.30-00-GMR	6	3,0	0	neutral		•	

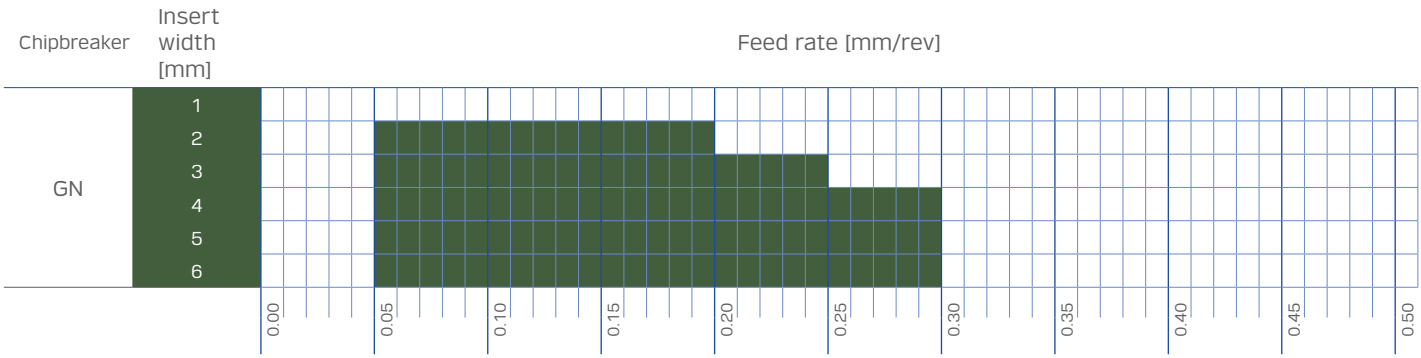


G – GN Small size insert – single-sidedided 2 mm to 6 mm

N

Range G – GN

Insert	Designation	Width	Radius	Angle	Hand	GN15C
	G20.02-00-GN	2	0,2	0	neutral	•
	G30.02-00-GN	3	0,2	0	neutral	•
	G40.04-00-GN	4	0,4	0	neutral	•
	G50.04-00-GN	5	0,4	0	neutral	•
	G60.04-00-GN	6	0,4	0	neutral	•

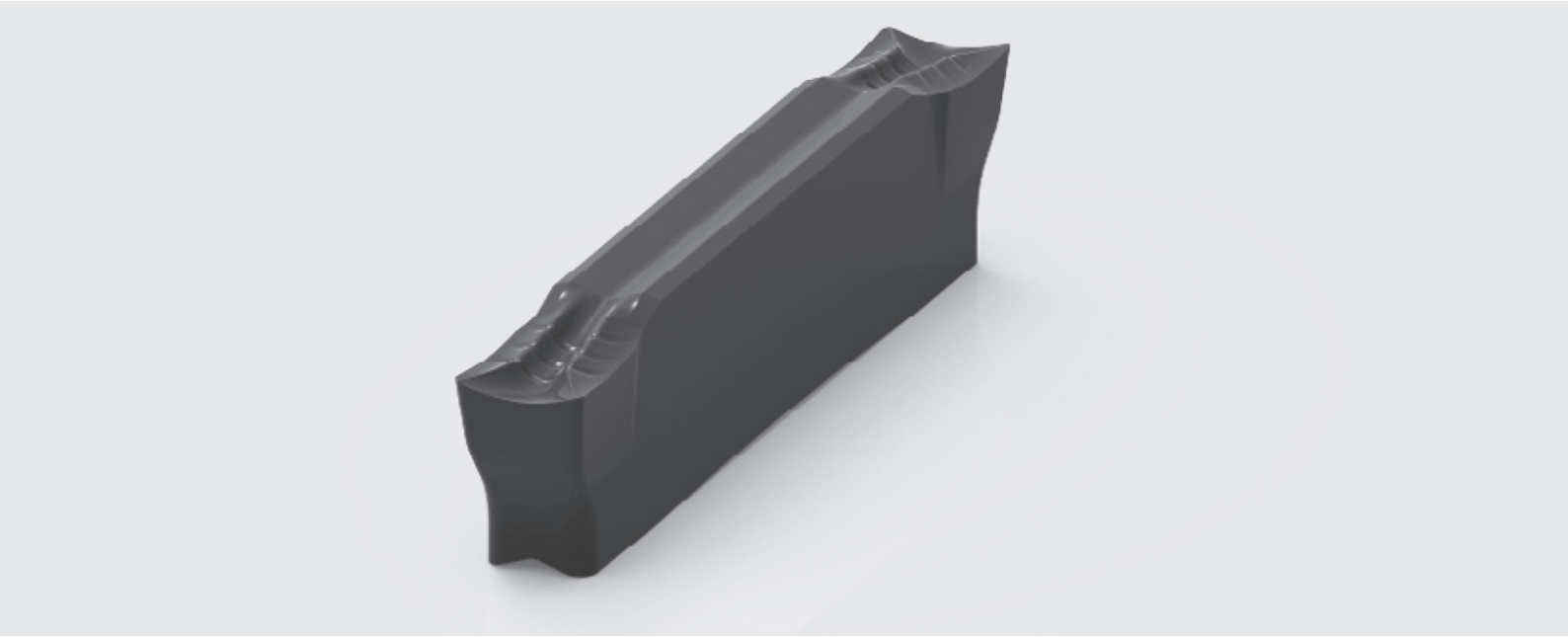


ADG

Inserts - Axial grooving

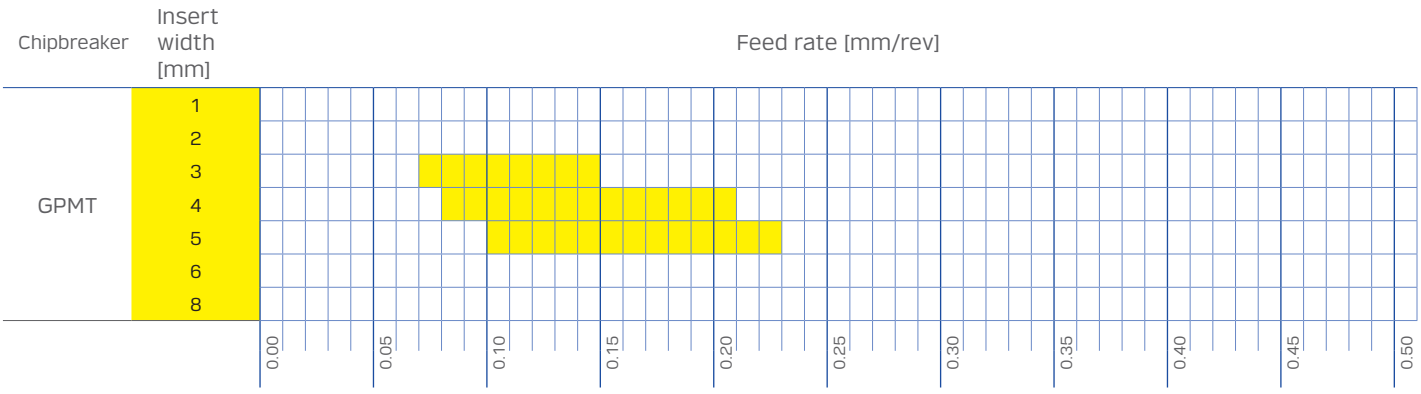
ADG – GPMT 24 mm long size insert – double-sided - Axial grooving 3 mm to 5 mm

P M



Range ADG – GPMT

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	ADG30.03-00-GPMT	3	0,3	0	neutral	24	•	•	•
	ADG40.04-00-GPMT	4	0,4	0	neutral	24	•	•	•
	ADG50.04-00-GPMT	5	0,4	0	neutral	24	•	•	•

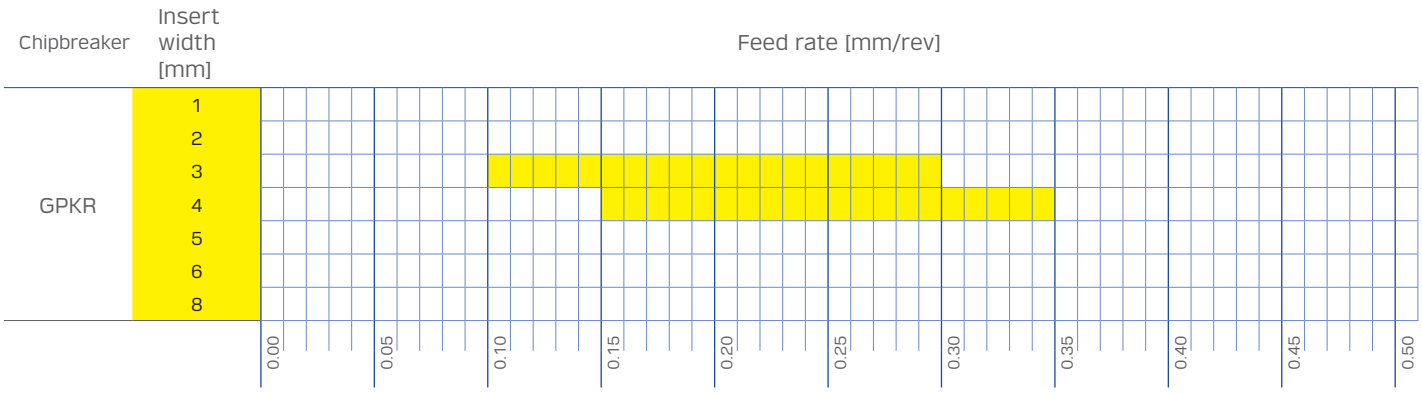


ADG – GPKR 24 mm long size insert – double-sided - Axial grooving 3 mm to 4 mm

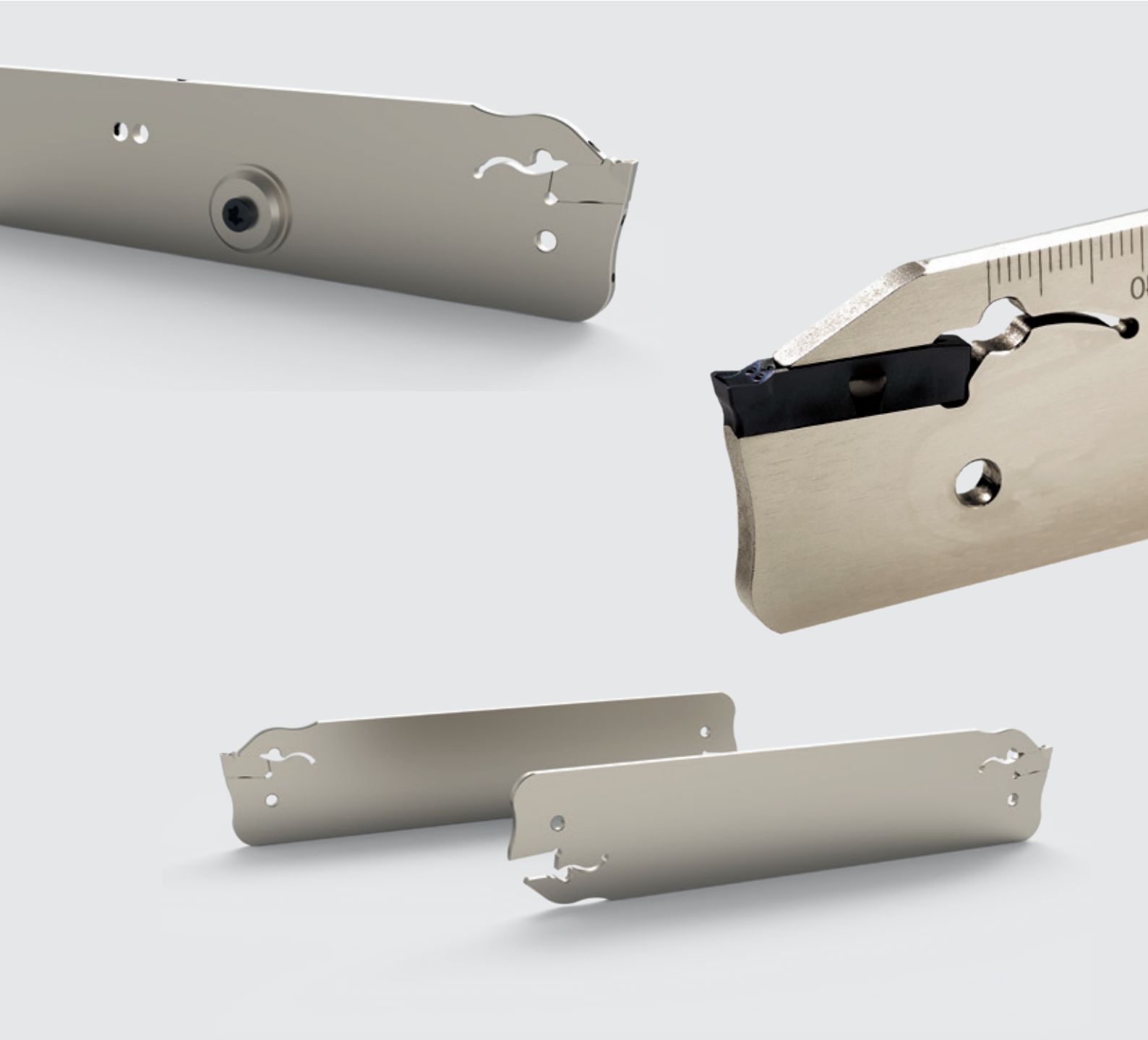
P K M

Range ADG – GPKR

Insert	Designation	Width	Radius	Angle	Hand	Lenght	GPK35D	GPMKS30E	GPM45E
	ADG30.15-00-GPKR	3	1,5	0	neutral	24	•	•	•
	ADG40.20-00-GPKR	4	2,0	0	neutral	24	•	•	•



Blades



Blades *SG / DG*

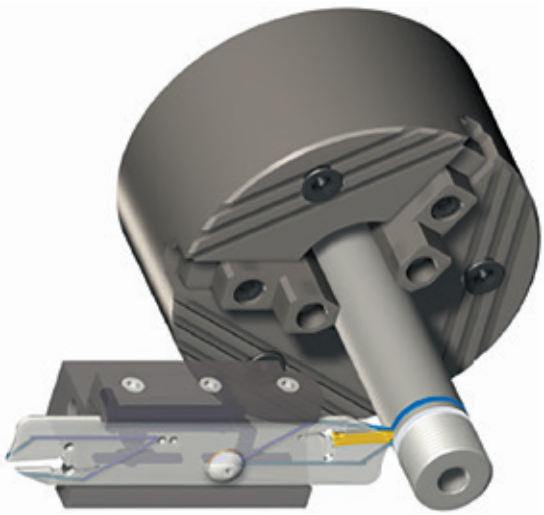
Range 2 / 3 / 4 / 5 / 6 mm

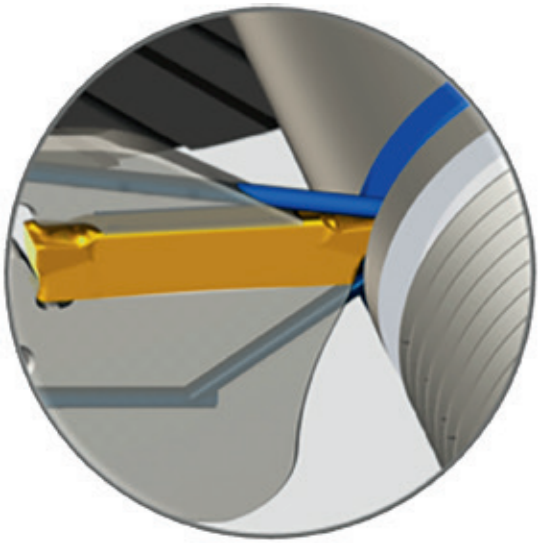
Blades	Designation	T_{max} [mm]	Insert Width	Tool size	Available
	BDL-26-02	25	2	26	•
	BDL-32-02	25	2	32	•
	BDR-26-02	25	2	26	•
	BDR-32-02	25	2	32	•
	BDN-26-02	25	2	26	•
	BDN-32-02	25	2	32	•
	BDN-26-03	35	3	26	•
	BDN-32-03	50	3	32	•
	BDN-26-04	35	4	26	•
	BDN-32-04	50	4	32	•
	BDN-32-05	60	5	32	•
	BDN-32-06	60	6	32	•

Spare parts *	Designation	Material number
	BK-2-3 (dla listew od 2 to 3 mm szerokości)	13245121
	BK-4-6 (dla listew od 4 to 6 mm szerokości)	33245121

For information on how to use the system go to page 241

Blades *SG / DG* with internal cooling





Blade and block should be always closest to spindel to improve stability. The above example is the inverse for the purpose of showing cooling holes only

Range 2 / 3 / 4 / 5 / 6 mm

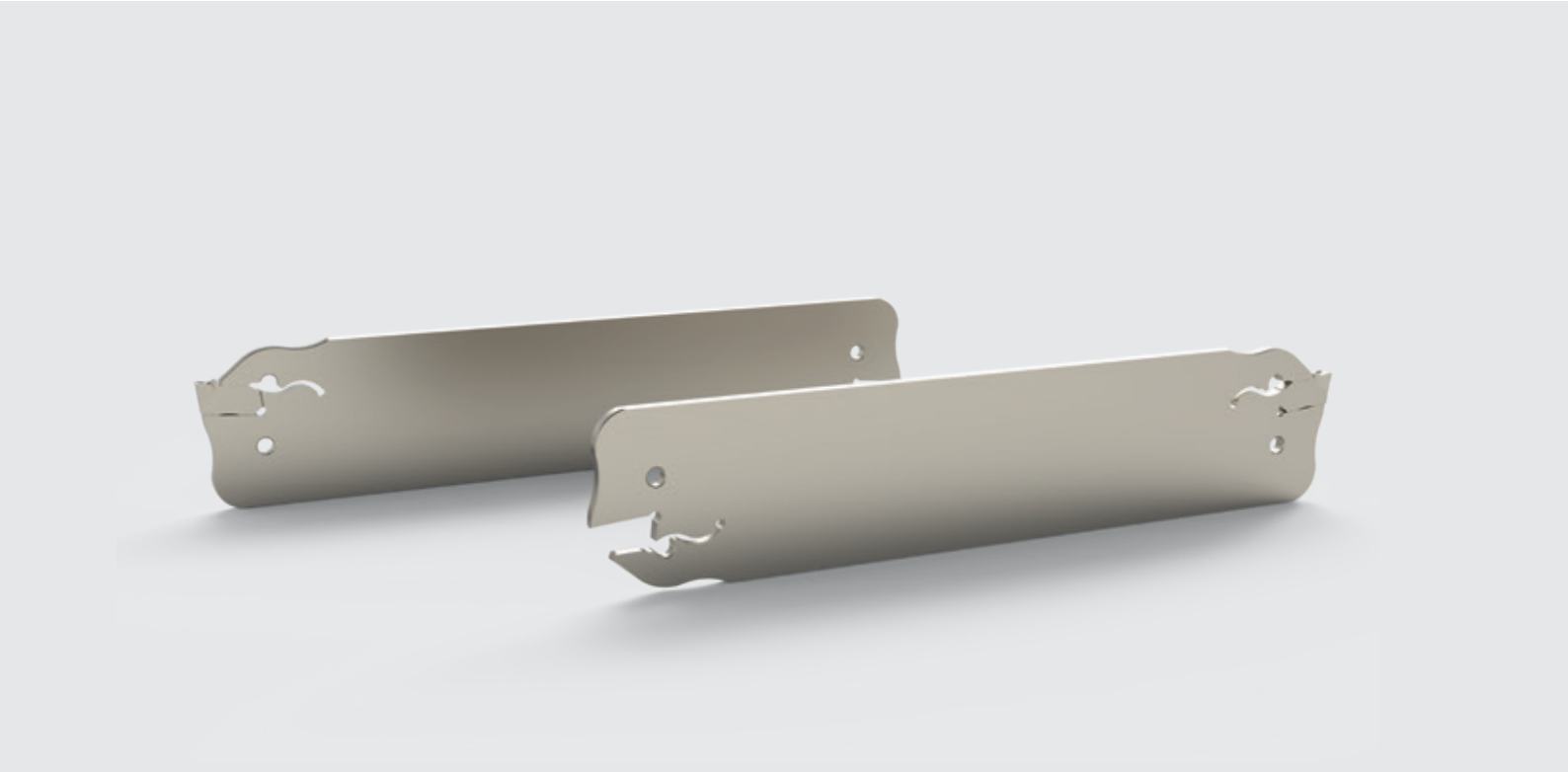
Blades	Designation	T_{max} [mm]	Insert Width	Tool size	Available
	BDL-26-02-C	25	2	26	•
	BDL-32-02-C	25	2	32	•
	BDR-26-02-C	25	2	26	•
	BDR-32-02-C	25	2	32	•
	BDN-26-02-C	25	2	26	•
	BDN-32-02-C	25	2	32	•
	BDN-26-03-C	35	3	26	•
	BDN-32-03-C	50	3	32	•
	BDN-26-04-C	35	4	26	•
	BDN-32-04-C	50	4	32	•
	BDN-32-05-C	60	5	32	•
	BDN-32-06-C	60	6	32	•

Spare parts	Designation	Material number	Available
	Key T15 58MM	0066805907	•
	Wkręcany korek chłodziwa M4X3	81689911	•

Spare parts *	Designation	Material number
	BK-2-3 (dla listew od 2 to 3 mm szerokości)	13245121
	BK-4-6 (dla listew od 4 to 6 mm szerokości)	33245121

For information on how to use the system go to page 241

Blades *G* - Single sited inserts



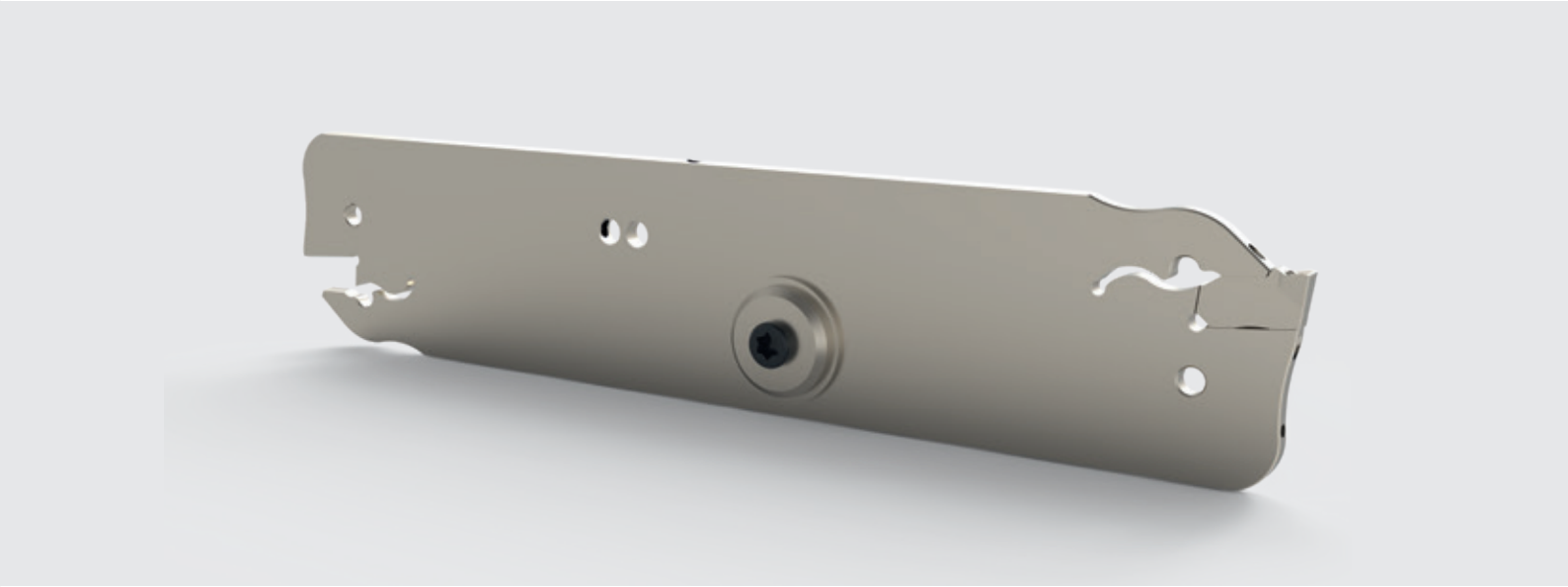
Range 2 / 3 / 4 / 5 / 6 mm

Blades	Designation	T_{max} [mm]	Insert Width	Tool size	Available
	BGL-26-02	25	2	26	•
	BGL-32-02	25	2	32	•
	BGR-26-02	25	2	26	•
	BGR-32-02	25	2	32	•
	BGN-26-03	35	3	26	•
	BGN-32-03	50	3	32	•
	BGN-26-04	40	4	26	•
	BGN-32-04	50	4	32	•
	BGN-32-05	55	5	32	•
	BGN-32-06	60	6	32	•

Spare parts *	Designation	Material number
	BK-2-3 (dla listew od 2 to 3 mm szerokości)	13245121
	BK-4-6 (dla listew od 4 to 6 mm szerokości)	33245121

For information on how to use the system go to page 241

Blades *G* with internal cooling



Range 2 / 3 / 4 mm

Blades	Designation	T_{max} [mm]	Insert Width	Tool size	Available
	BGL-26-02-C	25	2	26	•
	BGL-32-02-C	25	2	32	•
	BGR-26-02-C	25	2	26	•
	BGR-32-02-C	25	2	32	•
	BGN-26-03-C	35	3	26	•
	BGN-32-03-C	50	3	32	•
	BGN-26-04-C	40	4	26	•
	BGN-32-04-C	50	4	32	•

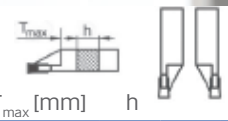
Spare parts *	Designation	Material number
	BK-2-3 (dla listew od 2 to 3 mm szerokości)	13245121
	BK-4-6 (dla listew od 4 to 6 mm szerokości)	33245121

For information on how to use the system go to page 241

Monoblocks

Monoblocks DG / SG

Range 1,5 - 3 mm



Tool	Designation	T_{max} [mm]	h		Insert Width	Tool length	Available
	HD1.5L-1212-T23-125	23	12	L	1,5	125	•
	HD1.5R-1212-T23-125			R	1,5	125	•
	HD1.5L-1616-T23-125		16	L	1,5	125	•
	HD1.5R-1616-T23-125			R	1,5	125	•
	HD2L-1212-T13-125	13	12	L	2	125	•
	HD2R-1212-T13-125			R	2	125	•
	HD2L-1616-T13-125		16	L	2	125	•
	HD2R-1616-T13-125			R	2	125	•
	HD2L-2020-T13-125		20	L	2	125	•
	HD2R-2020-T13-125			R	2	125	•
	HD3L-1212-T13-125	13	12	L	3	125	•
	HD3R-1212-T13-125			R	3	125	•
	HD3L-1616-T13-125		16	L	3	125	•
	HD3R-1616-T13-125			R	3	125	•
	HD3L-2020-T13-125		20	L	3	125	•
	HD3R-2020-T13-125			R	3	125	•
	HD3L-2525-T13-125		25	L	3	125	•
	HD3R-2525-T13-125			R	3	125	•
	HD3L-1616-T25-125	25	16	L	3	125	•
	HD3R-1616-T25-125			R	3	125	•
	HD3L-2020-T25-125		20	L	3	125	•
	HD3R-2020-T25-125			R	3	125	•
	HD3L-2525-T25-125		25	L	3	125	•
	HD3R-2525-T25-125			R	3	125	•

spare parts

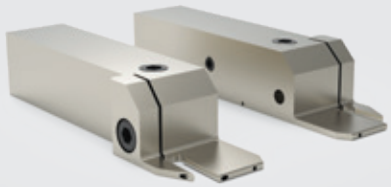
Spare parts	Designation	Material number	Available
	Key T15	65561021	•
	Key T20	85561021	•
	M3.5X14.0/T15 (dla h=12)	09118011	•
	M4.0X16/T20 (dla h=16)	13030021	•
	M4.0X18/T20 (dla h=20/25)	60070011	•
	M5.0X20	00002944	•

Range 3 /4 / 5 / 6 / 8 mm

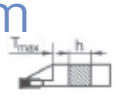
Tool	Designation	T_{max} [mm]	h		Insert Width	Tool length	Available
	HD3L-3232-T25-170	25	32	L	3	170	•
	HD3R-3232-T25-170			R	3	170	•
	HD3L-4040-T25-250		40	L	3	250	•
	HD3R-4040-T25-250			R	3	250	•
	HD4L-1616-T25-125		16	L	4	125	•
	HD4R-1616-T25-125			R	4	125	•
	HD4L-2020-T25-125		20	L	4	125	•
	HD4R-2020-T25-125			R	4	125	•
	HD4L-2525-T25-125		25	L	4	125	•
	HD4R-2525-T25-125			R	4	125	•
	HD5L-2020-T25-150		20	L	5	150	•
	HD5R-2020-T25-150			R	5	150	•
	HD5L-2525-T25-150		25	L	5	150	•
	HD5R-2525-T25-150			R	5	150	•
	HD6L-2020-T25-150		20	L	6	150	•
	HD6R-2020-T25-150			R	6	150	•
	HD6L-2525-T25-150		25	L	6	150	•
	HD6R-2525-T25-150			R	6	150	•
	HD6L-3232-T25-170		32	L	6	170	•
	HD6R-3232-T25-170			R	6	170	•
	HD6L-4040-T25-250		40	L	6	250	•
	HD6R-4040-T25-250			R	6	250	•
	HD8L-2525-T32-170	32	25	L	8	170	•
	HD8R-2525-T32-170			R	8	170	•
	HD8L-3232-T32-170		32	L	8	170	•
	HD8R-3232-T32-170			R	8	170	•

Spare parts	Designation	Material number	Available
	Key T20	85561021	•
	M4.0X16 T20 (dla h=16)	13030021	•
	M4.0X18/T20 (dla h=20/25)	60070011	•
	Key SW5	00006944	•
	M6.0X20	00003944	•

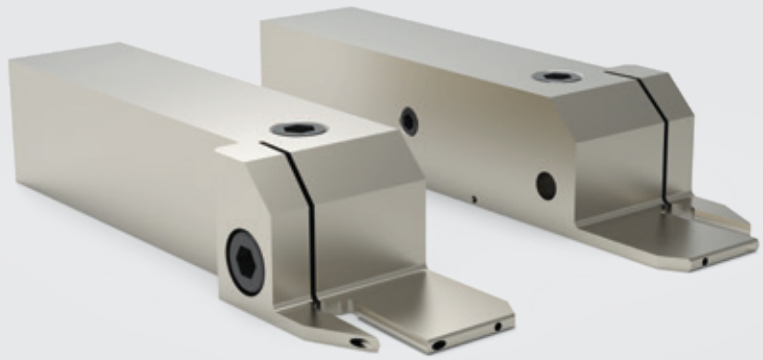
Monoblocks
DG / SG with internal cooling



Range 2 / 3 / 4 / 5 / 6 / 8 mm



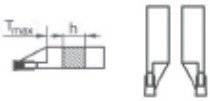
Tool	Designation	T_{max} [mm]	h		Insert Width	Tool length	Available
	HD2L-1616-T13-125-C	13	16	L	2	125	•
	HD2R-1616-T13-125-C			R	2	125	•
	HD2L-2020-T13-125-C		25	L	2	125	•
	HD2R-2020-T13-125-C			R	2	125	•
	HD3L-1616-T25-125-C	25	16	L	3	125	•
	HD3R-1616-T25-125-C			R	3	125	•
	HD3L-2020-T25-125-C		20	L	3	125	•
	HD3R-2020-T25-125-C			R	3	125	•
	HD3L-2525-T25-125-C		25	L	3	125	•
	HD3R-2525-T25-125-C			R	3	125	•
	HD3L-3232-T25-170-C		32	L	3	170	•
	HD3R-3232-T25-170-C			R	3	170	•
	HD3L-4040-T25-250-C		40	L	3	250	•
	HD3R-4040-T25-250-C			R	3	250	•
	HD4L-1616-T25-125-C	25	16	L	4	125	•
	HD4R-1616-T25-125-C			R	4	125	•
	HD4L-2020-T25-125-C		20	L	4	125	•
	HD4R-2020-T25-125-C			R	4	125	•
	HD4L-2525-T25-125-C		25	L	4	125	•
	HD4R-2525-T25-125-C			R	4	125	•
	HD4L-3232-T25-170-C		32	L	4	170	•
	HD4R-3232-T25-170-C			R	4	170	•
	HD4L-4040-T25-250-C		40	L	4	250	•
	HD4R-4040-T25-250-C			R	4	250	•
	HD5L-2020-T25-150-C	25	20	L	5	150	•
	HD5R-2020-T25-150-C			R	5	150	•
	HD5L-2525-T25-150-C		25	L	5	150	•
	HD5R-2525-T25-150-C			R	5	150	•
	HD6L-2020-T25-150-C	25	20	L	6	150	•
	HD6R-2020-T25-150-C			R	6	150	•
	HD6L-2525-T25-150-C		25	L	6	150	•
	HD6R-2525-T25-150-C			R	6	150	•
	HD8L-4040-T32-250-C	32	40	L	8	250	•
	HD8R-4040-T32-250-C			R	8	250	•



Spare parts	Designation	Material number	Available
	Key SW5	00006944	•
	M6.0x20	00003944	•
	M6x6 DIN 913	34804011	•
	G1/8 DIN 913	20898021	•

Monoblocks
DG / SG – reinforced

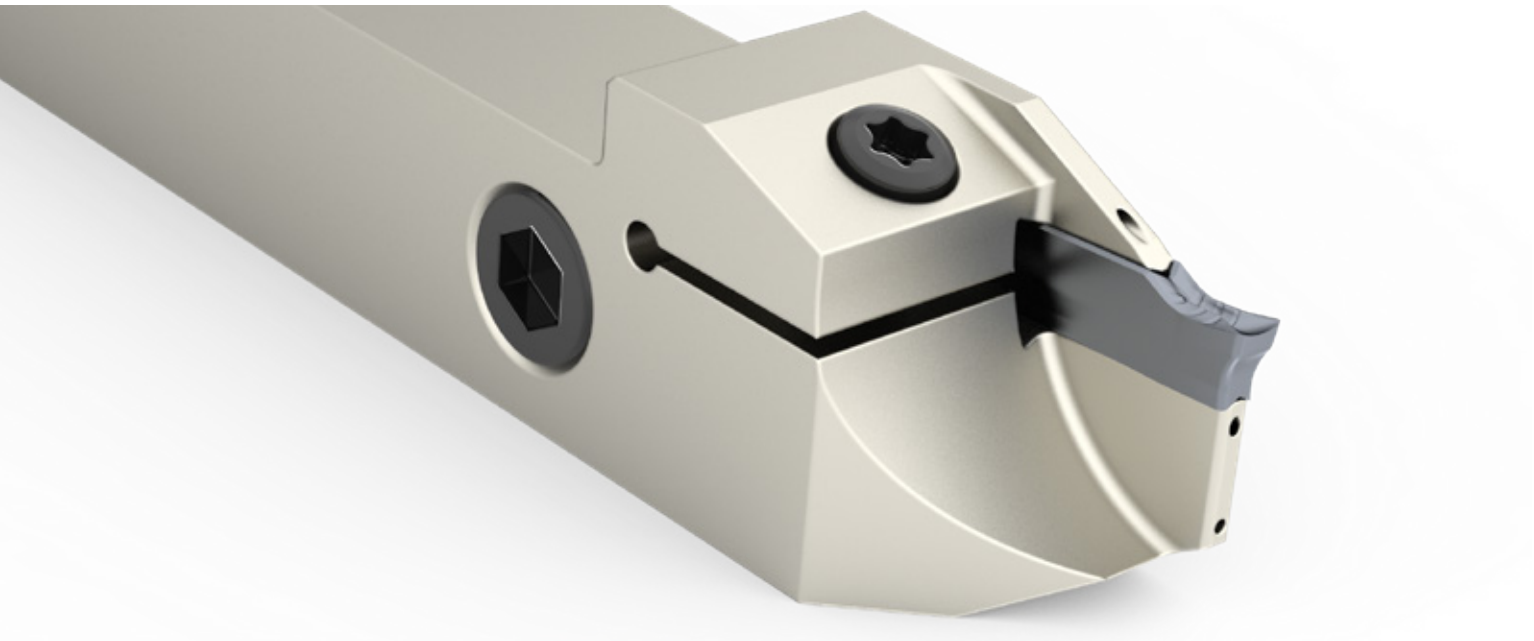
Range 2 mm i 3 mm



Tool	Designation	T_{max} [mm]	h		Insert Width	Tool length	Available
	HD2L-1212-T13-125-R	13	12	L	2	125	•
	HD2R-1212-T13-125-R			R	2	125	•
	HD2L-1616-T13-125-R		16	L	2	125	•
	HD2R-1616-T13-125-R			R	2	125	•
	HD2L-1212-T21-125-R	21	12	L	2	125	•
	HD2R-1212-T21-125-R			R	2	125	•
	HD2L-1616-T21-125-R		16	L	2	125	•
	HD2R-1616-T21-125-R			R	2	125	•
	HD3L-1212-T13-125-R	13	12	L	3	125	•
	HD3R-1212-T13-125-R			R	3	125	•
	HD3L-1616-T13-125-R		16	L	3	125	•
	HD3R-1616-T13-125-R			R	3	125	•
	HD3L-1212-T21-125-R	21	12	L	3	125	•
	HD3R-1212-T21-125-R			R	3	125	•
	HD3L-1616-T21-125-R		16	L	3	125	•
	HD3R-1616-T21-125-R			R	3	125	•

Spare parts	Designation	Material number	Available
	Key T15	19708321	•
	M4.0X14/T15	00860591	•

Monoblocks
DG / SG – reinforced with internal cooling



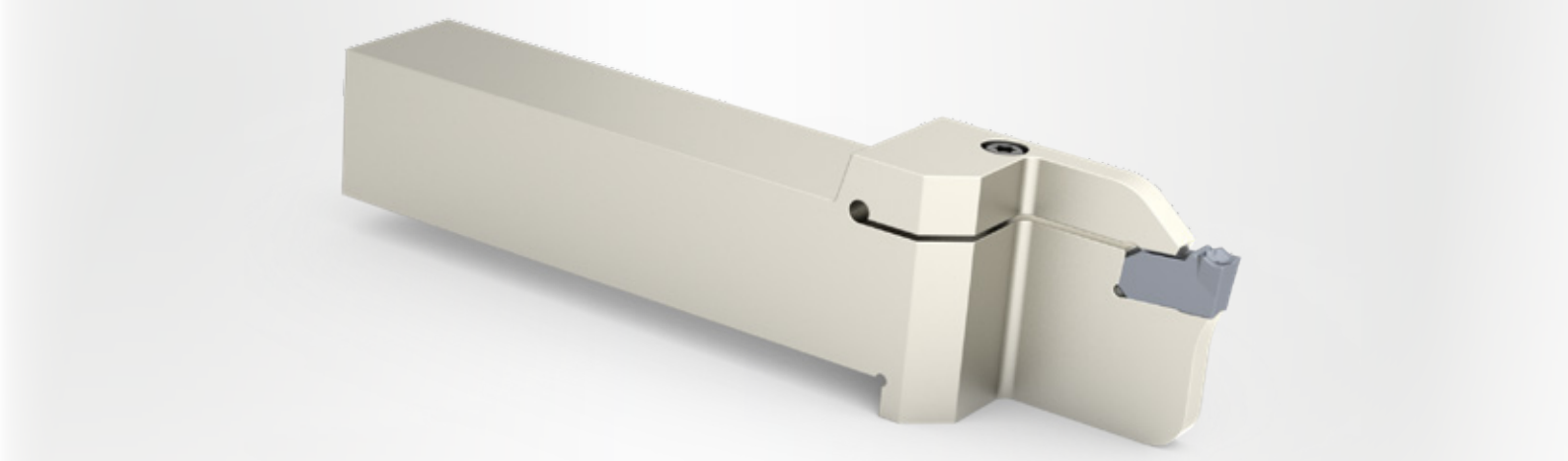
Range 2 mm i 3 mm

Tool	Designation	T_{max} [mm]	h		Insert Width	Tool length	Available
	HD2L-1212-T13-125-C-R	13	12	L	2	125	•
	HD2L-1212-T13-125-C-R			R	2	125	•
	HD2L-1616-T13-125-C-R		16	L	2	125	•
	HD2R-1616-T13-125-C-R			R	2	125	•
	HD2L-1616-T21-125-C-R	21	16	L	2	125	•
	HD2R-1616-T21-125-C-R			R	2	125	•
	HD3L-1212-T13-125-C-R	13	12	L	3	125	•
	HD3R-1212-T13-125-C-R			R	3	125	•
	HD3L-1616-T13-125-C-R		16	L	3	125	•
	HD3R-1616-T13-125-C-R			R	3	125	•
	HD3L-1616-T21-125-C-R	21	16	L	3	125	•
	HD3R-1616-T21-125-C-R			R	3	125	•

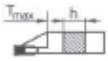
Spare parts	Designation	Material number	Available
	Key T15	65561021	•
	M4.0X14/T15	00860591	•
	M4.0X18/T20 (for h=20)	60070011	•
	M6.0X6.0 DIN 913	34804011	•
	G1/8 DIN 913	20898021	•

Monoblocks

G



Range 2 / 3 / 4 / 5 / 6 mm

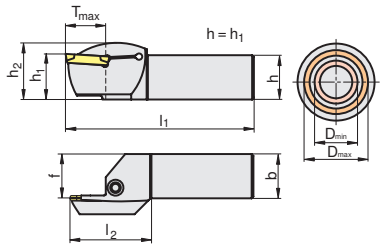


Tool	Designation	T max [mm]	h		Insert Width	Tool length	Available
	HG2L-1616-T20-125	20	16	L	2	125	•
	HG2R-1616-T20-125			R	2	125	•
	HG2L-2020-T20-125	20	20	L	2	125	•
	HG2R-2020-T20-125			R	2	125	•
	HG3L-1616-T20-125	20	16	L	3	125	•
	HG3R-1616-T20-125			R	3	125	•
	HG3L-2020-T20-125	20	20	L	3	125	•
	HG3R-2020-T20-125			R	3	125	•
	HG3L-2525-T20-150	20	25	L	3	150	•
	HG3R-2525-T20-150			R	3	150	•
	HG4L-2020-T25-125	25	20	L	4	125	•
	HG4R-2020-T25-125			R	4	125	•
	HG4L-2525-T25-150	25	25	L	4	150	•
	HG4R-2525-T25-150			R	4	150	•
	HG5L-2020-T25-125	25	20	L	5	125	•
	HG5R-2020-T25-125			R	5	125	•
	HG5L-2525-T25-150	25	25	L	5	150	•
	HG5R-2525-T25-150			R	5	150	•
	HG6L-2020-T25-125	25	20	L	6	125	•
	HG6R-2020-T25-125			R	6	125	•
	HG6L-2525-T32-150	32	25	L	6	150	•
	HG6R-2525-T32-150			R	6	150	•

Spare parts	Designation	Material number	Available
	Key T20	85561021	•
	M4.0X18/T20 (for h=20)	60070011	•

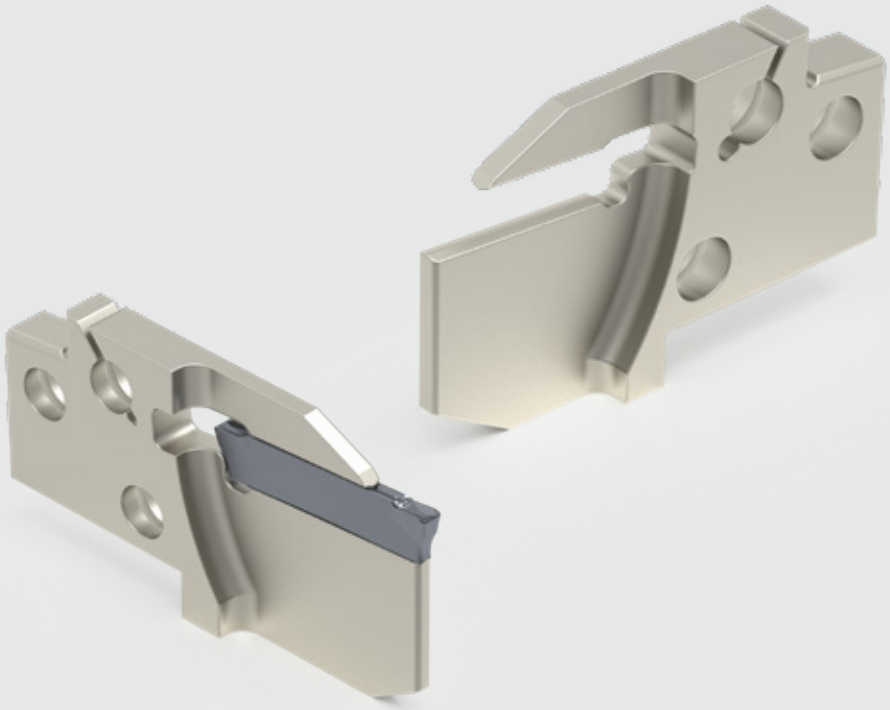
Monoblocks
ADG - Axial grooving

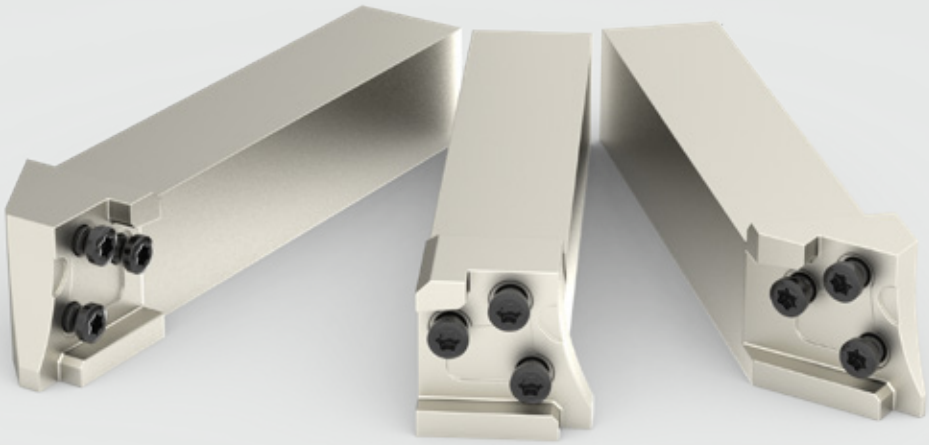
Range 3 / 4 / 5 mm



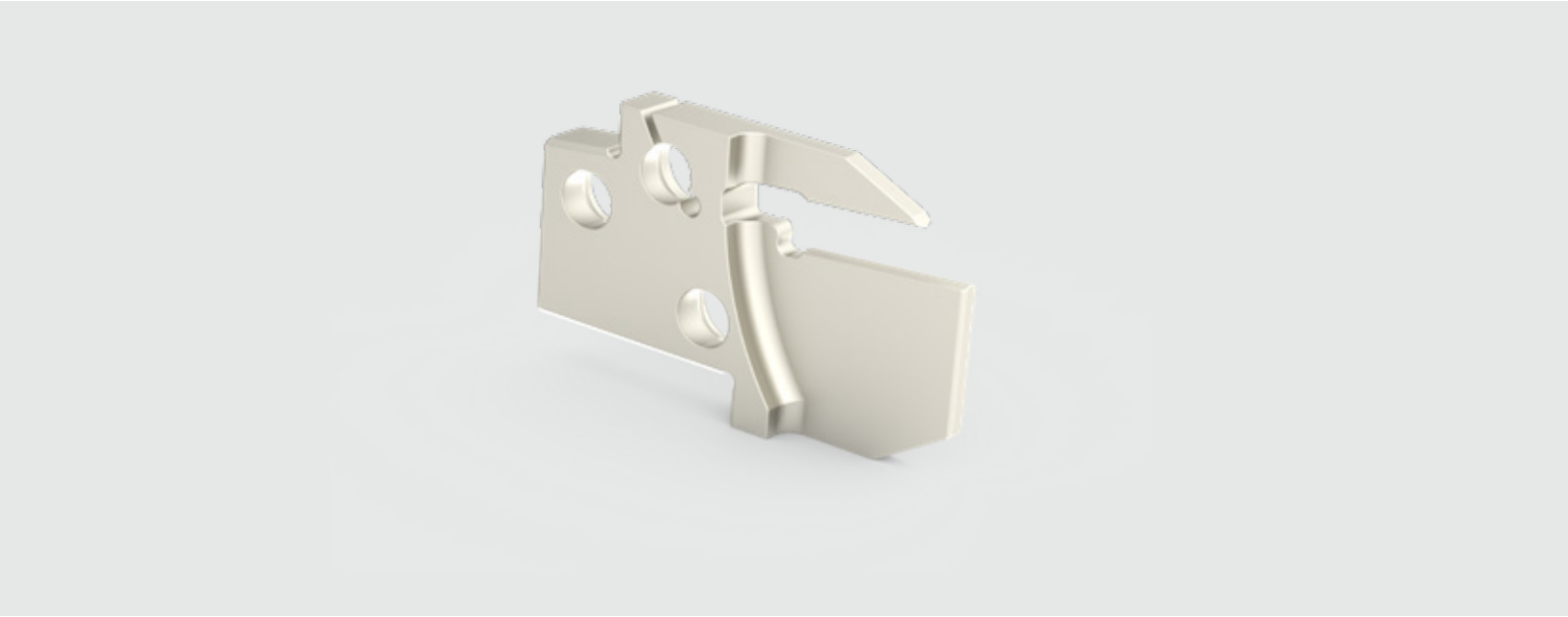
Designation	s [mm]	T_{max} [mm]	D_{min} [mm]	D_{max} [mm]	$h = h_1$ [mm]	h_2 [mm]	b [mm]	l_1 [mm]	l_2 [mm]	f [mm]	Available
HA3R-2525-T13-40-50	3	13	40	50	25	33	25	125	39.7	24.3	•
HA3R-2525-T13-50-60	3	13	50	60	25	33	25	125	39.7	24.3	•
HA3R-2525-T13-60-70	3	13	60	70	25	33	25	125	39.7	24.3	•
HA3R-2525-T13-75-100	3	13	75	100	25	33	25	125	39.7	24.3	•
HA3R-2525-T13-100-140	3	13	100	140	25	33	25	125	39.7	24.3	•
HA3R-2525-T13-140-200	3	13	140	200	25	33	25	125	39.7	24.3	•
HA3L-2525-T13-40-50	3	13	40	50	25	33	25	125	39.7	24.3	•
HA3L-2525-T13-50-60	3	13	50	60	25	33	25	125	39.7	24.3	•
HA3L-2525-T13-60-70	3	13	60	70	25	33	25	125	39.7	24.3	•
HA3L-2525-T13-75-100	3	13	75	100	25	33	25	125	39.7	24.3	•
HA3L-2525-T13-100-140	3	13	100	140	25	33	25	125	39.7	24.3	•
HA3L-2525-T13-140-200	3	13	140	200	25	33	25	125	39.7	24.3	•
HA4R-2525-T13-40-50	4	13	40	50	25	33	25	125	39.7	24.3	•
HA4R-2525-T13-50-60	4	13	50	60	25	33	25	125	39.7	24.3	•
HA4R-2525-T13-60-70	4	13	60	70	25	33	25	125	39.7	24.3	•
HA4R-2525-T13-75-100	4	13	75	100	25	33	25	125	39.7	24.3	•
HA4R-2525-T13-100-140	4	13	100	140	25	33	25	125	39.7	24.3	•
HA4R-2525-T13-140-200	4	13	140	200	25	33	25	125	39.7	24.3	•
HA4L-2525-T13-40-50	4	13	40	50	25	33	25	125	39.7	24.3	•
HA4L-2525-T13-50-60	4	13	50	60	25	33	25	125	39.7	24.3	•
HA4L-2525-T13-60-70	4	13	60	70	25	33	25	125	39.7	24.3	•
HA4L-2525-T13-75-100	4	13	75	100	25	33	25	125	39.7	24.3	•
HA4L-2525-T13-100-140	4	13	100	140	25	33	25	125	39.7	24.3	•
HA4L-2525-T13-140-200	4	13	140	200	25	33	25	125	39.7	24.3	•
HA5R-2525-T20-45-60	5	20	45	60	25	33	25	150	39	23.3	•
HA5R-2525-T20-60-75	5	20	60	75	25	33	25	150	39	23.3	•
HA5R-2525-T28-75-100	5	28	75	100	25	33	25	150	47	23.3	•
HA5R-2525-T28-100-180	5	28	100	180	25	33	25	150	47	23.3	•
HA5R-2525-T32-180-400	5	32	180	400	25	33	25	150	51	23.3	•
HA5L-2525-T20-45-60	5	20	45	60	25	33	25	150	39	23.3	•
HA5L-2525-T20-60-75	5	20	60	75	25	33	25	150	39	23.3	•
HA5L-2525-T28-75-100	5	28	75	100	25	33	25	150	47	23.3	•
HA5L-2525-T28-100-180	5	28	100	180	25	33	25	150	47	23.3	•
HA5L-2525-T32-180-400	5	32	180	400	25	33	25	150	51	23.3	•

Modules

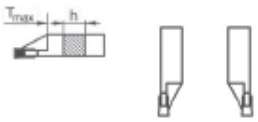




Module
DG / SG - Radial grooving



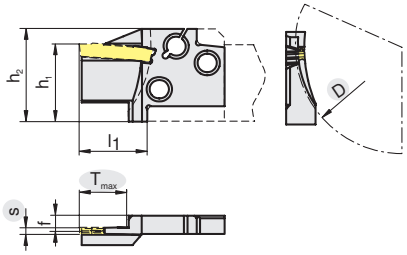
Range 2 / 3 / 4 / 5 / 6 mm



Tool	Designation	T_{max} [mm]	h		Insert Width	Available
	MDL-20-2-T25	25	20	L	2	•
	MDR-20-2-T25	25	20	R	2	•
	MDL-20-3-T25	25	20	L	3	•
	MDR-20-3-T25	25	20	R	3	•
	MDL-20-4-T25	25	20	L	4	•
	MDR-20-4-T25	25	20	R	4	•
	MDL-20-5-T25	25	20	L	5	•
	MDR-20-5-T25	25	20	R	5	•
	MDL-20-6-T25	25	20	L	6	•
	MDR-20-6-T25	25	20	R	6	•
	MDL-25-2-T25	25	25	L	2	•
	MDR-25-2-T25	25	25	R	2	•
	MDL-25-3-T25	25	25	L	3	•
	MDR-25-3-T25	25	25	R	3	•
	MDL-25-4-T25	25	25	L	4	•
	MDR-25-4-T25	25	25	R	4	•
	MDL-25-5-T25	25	25	L	5	•
	MDR-25-5-T25	25	25	R	5	•
	MDL-25-6-T25	25	25	L	6	•
	MDR-25-6-T25	25	25	R	6	•

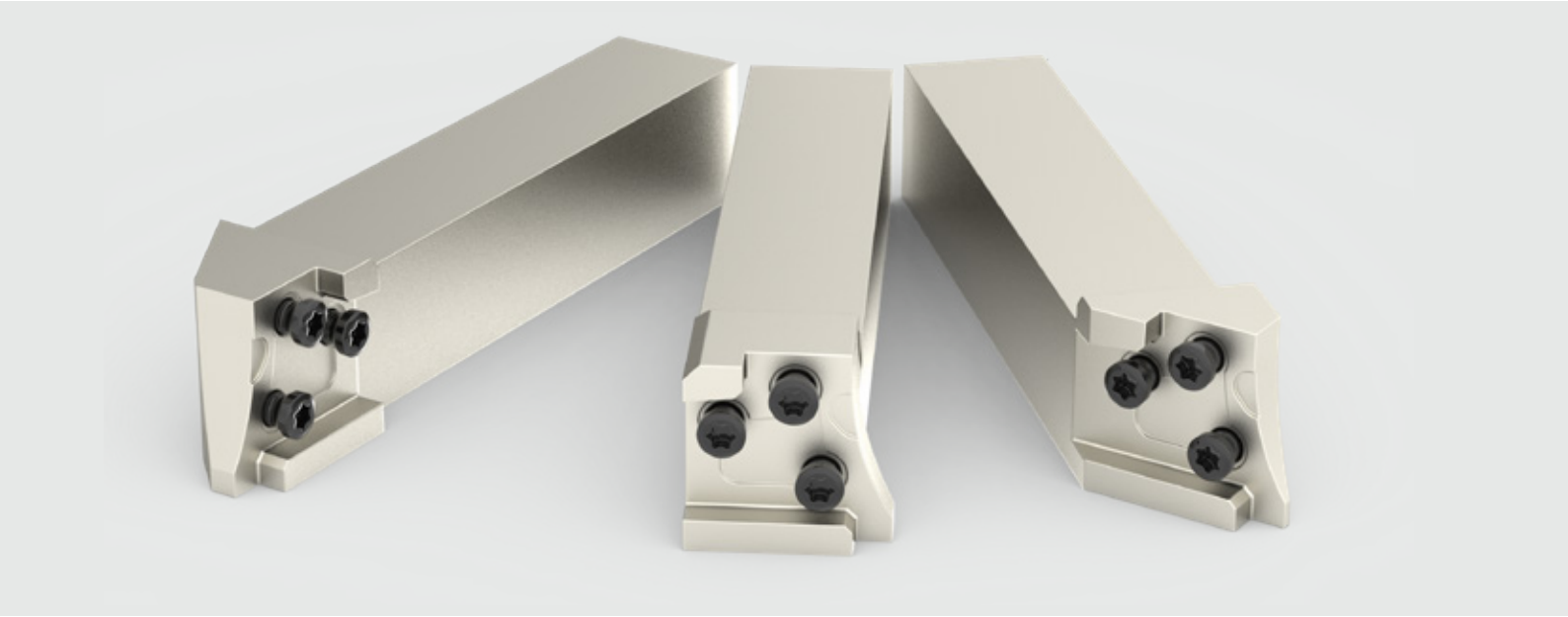
Module
DG / SG - Axial grooving

Range 3 / 4 mm



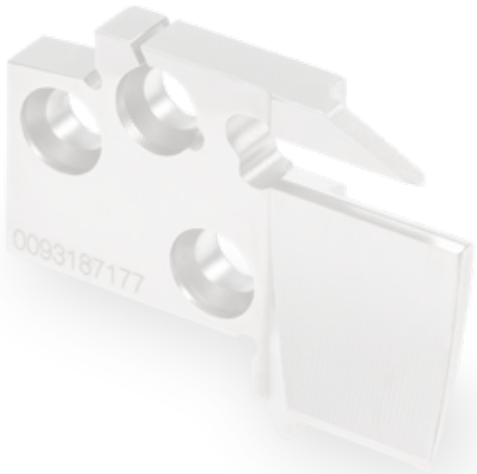
Designation	s [mm]	T_{max} [mm]	D_{min} [mm]	D_{max} [mm]	$h = h_1$ [mm]	h_2 [mm]	l_1 [mm]	f [mm]	Available
MAR-25-3-T15-40-50	3	15	40	50	25	30	22	4.9	•
MAR-25-3-T15-50-60	3	15	50	60	25	30	22	4.9	•
MAR-25-3-T15-60-70	3	15	60	70	25	30	22	4.9	•
MAR-25-3-T15-75-100	3	15	75	100	25	30	22	4.9	•
MAR-25-3-T15-100-140	3	15	100	140	25	30	22	4.9	•
MAR-25-3-T15-140-200	3	15	140	200	25	30	22	4.9	•
MAL-25-3-T15-40-50	3	15	40	50	25	30	22	4.9	•
MAL-25-3-T15-50-60	3	15	50	60	25	30	22	4.9	•
MAL-25-3-T15-60-70	3	15	60	70	25	30	22	4.9	•
MAL-25-3-T15-75-100	3	15	75	100	25	30	22	4.9	•
MAL-25-3-T15-100-140	3	15	100	140	25	30	22	4.9	•
MAL-25-3-T15-140-200	3	15	140	200	25	30	22	4.9	•
MAR-25-4-T15-40-50	4	15	40	50	25	30	22	4.4	•
MAR-25-4-T15-50-60	4	15	50	60	25	30	22	4.4	•
MAR-25-4-T15-60-70	4	15	60	70	25	30	22	4.4	•
MAR-25-4-T15-75-100	4	15	75	100	25	30	22	4.4	•
MAR-25-4-T15-100-140	4	15	100	140	25	30	22	4.4	•
MAR-25-4-T15-140-200	4	15	140	200	25	30	22	4.4	•
MAL-25-4-T15-40-50	4	15	40	50	25	30	22	4.4	•
MAL-25-4-T15-50-60	4	15	50	60	25	30	22	4.4	•
MAL-25-4-T15-60-70	4	15	60	70	25	30	22	4.4	•
MAL-25-4-T15-75-100	4	15	75	100	25	30	22	4.4	•
MAL-25-4-T15-100-140	4	15	100	140	25	30	22	4.4	•
MAL-25-4-T15-140-200	4	15	140	200	25	30	22	4.4	•

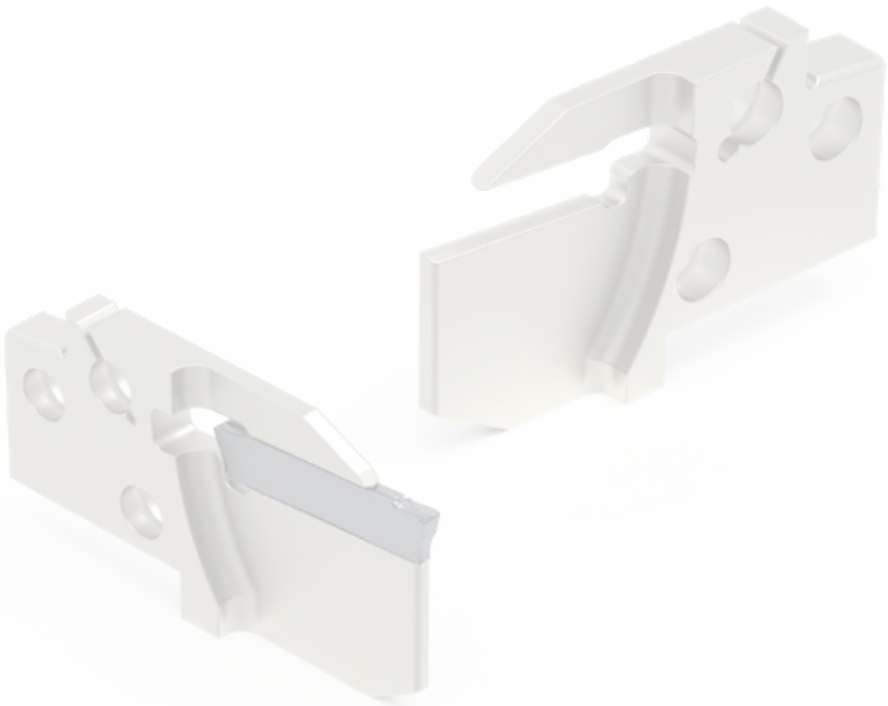
Module Holder
Radial / Axial



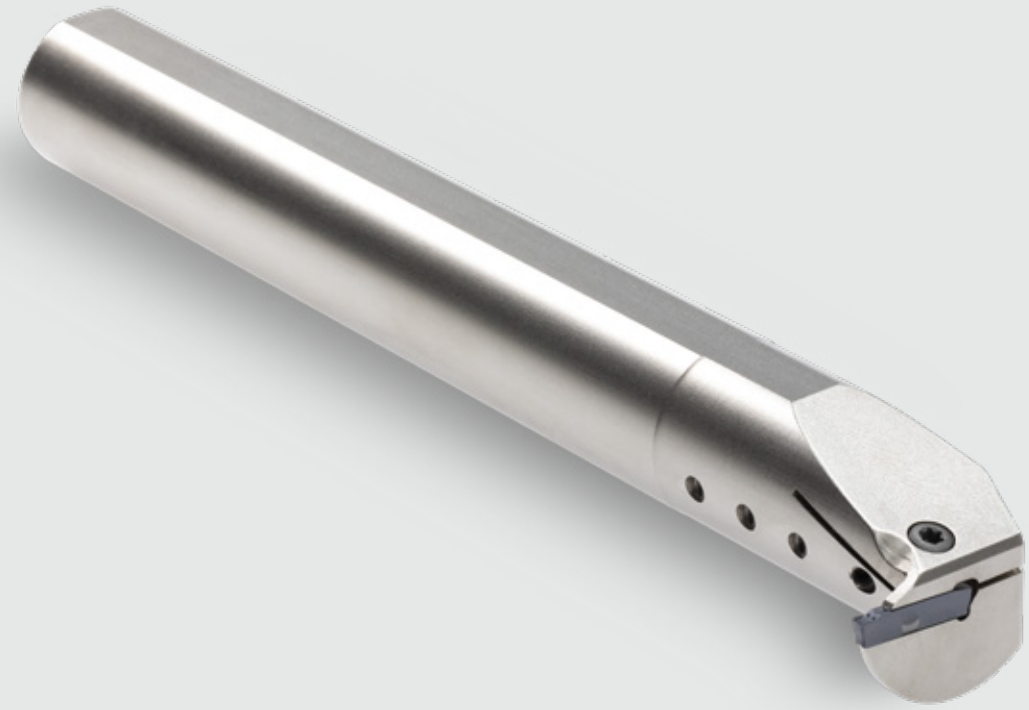
Tool	Designation	s	Module Radial	Module axial	Available
	MHL-20-00	0	MDL-20...		•
	MHR-20-00	0	MDR-20...		•
	MHL-20-45	45	MDR-20...		•
	MHR-20-45	45	MDL-20...		•
	MHL-20-90	90	MDR-20...		•
	MHR-20-90	90	MDL-20...		•
	MHL-25-00	0	MDL-25...	MAL-25...	•
	MHR-25-00	0	MDR-25...	MAR-25...	•
	MHL-25-45	45	MDR-25...	MAR-25...	•
	MHR-25-45	45	MDL-25...	MAL-25...	•
	MHL-25-90	90	MDR-25...	MAR-25...	•
	MHR-25-90	90	MDL-25...	MAL-25...	•

Spare parts	Designation	Material number
	Key T15	389022
	Key T20	589022
	M4.0X11/T15	189912
	M4.0X14/T15	860591
	M5.0X13.5/T20	289912
	M5.0X18/T20	960591


0093187177



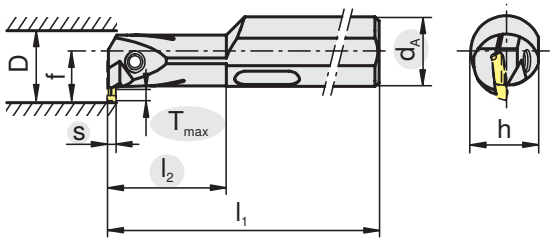
Boring Bars -grooving



DG / SG - Boring bars

Range 2 / 3 / 4 / 5 mm

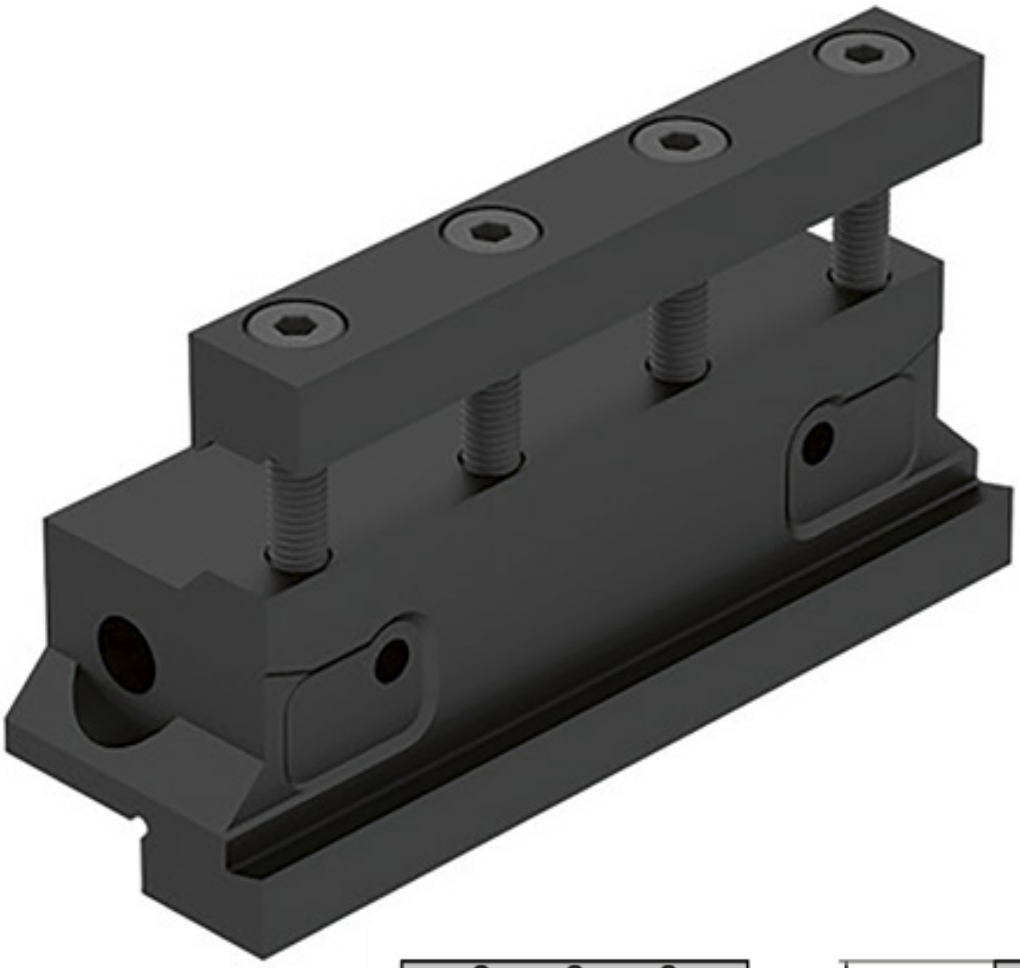
WYTACZAKI

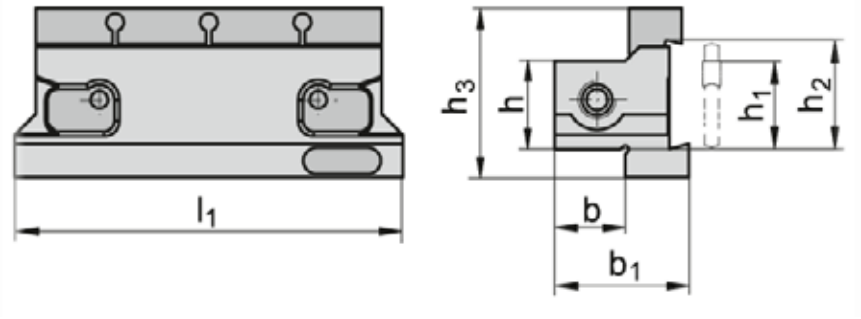


Designation	d_A [mm]	T_{max} [mm]	s [mm]	h [mm]	f [mm]	l_1 [mm]	l_2 [mm]	D_{min} [mm]	Available
HID2R-25-T08-C	25	8	2	24.4	21	200	52	32	•
HID3R-25-T09-C	25	9	3	24.5	22	200	52	32	•
HID3R-32-T11-C	32	11	3	31	27.5	250	64	42	•
HID4R-32-T11-C	32	11	4	31	27.5	250	64	42	•
HID4R-40-T12-C	40	12	4	38.5	32.5	300	80	53	•
HID5R-40-T12-C	40	12	5	38.5	32.5	300	80	53	•
HID2L-25-T08-C	25	8	2	24.4	21	200	52	32	•
HID3L-25-T09-C	25	9	3	24.5	22	200	52	32	•
HID3L-32-T11-C	32	11	3	31	27.5	250	64	42	•
HID4L-32-T11-C	32	11	4	31	27.5	250	64	42	•
HID4L-40-T12-C	40	12	4	38.5	32.5	300	80	53	•
HID5L-40-T12-C	40	12	5	38.5	32.5	300	80	53	•

Spare parts	Designation	Material number
	Key T20	00589022
	M5.0X18/T20	00960591
	M4.0X4.0 DIN 913	06038331

Clamping blocks





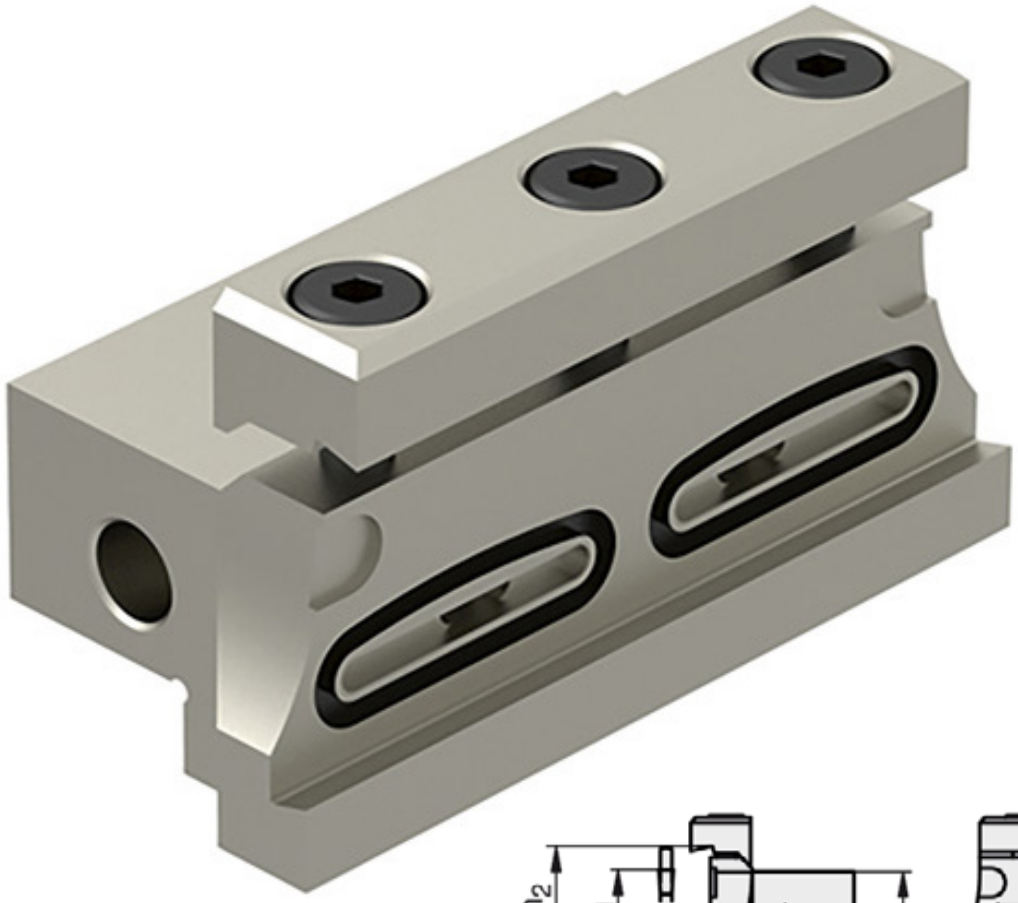
Range

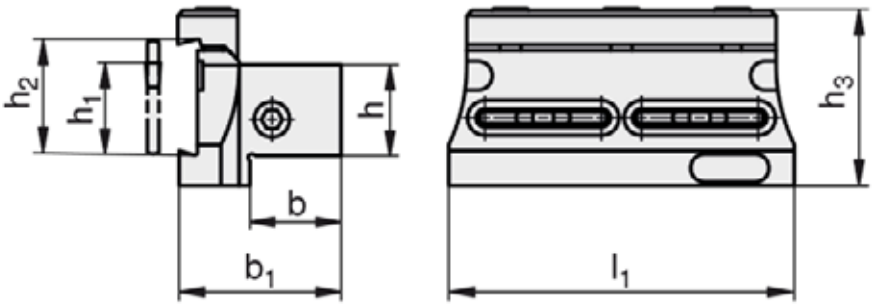
Designation	Material	Available	h_2 [mm]	h [mm]	h_1 [mm]	h_3 [mm]	l_1 [mm]	b [mm]	b_1 [mm]	For blade
BH-26-2020	12279141	•	26	20	20	43	90	20	37	BDN...26...
BH-32-2520	12279142	•	32	25	25	49	110	20	38	BDN...32...

Spare part for clamping block without cooling

Spare parts	Designation	Material number	Available
	Clamping screw M6.0x25	00058422	•

Clamping blocks with internal cooling





Range

Designation	Material	Available	h_2 [mm]	h [mm]	h_1 [mm]	h_3 [mm]	l_1 [mm]	b [mm]	b_1 [mm]	For blade
BH-26-2020-C	12279139	•	26	20	20	43	82	20	40	BDN...26...
BH-32-2525-C	12279137	•	32	25	25	49	95	25	44.5	BDN...32...

Spare part for clamping block with cooling

Spare parts	Designation	Material number	Available
	Grub screw M6.0x8	39906911	•
	Clamping screw M6.0x12	61867711	•

technical informations

Blauing designation system

Designation system for inserts

Insert system

DG	Double-sided
SG	One-sided
G	Single-sided
ADG	Axial

Insert width

15	1.5 mm
20	2 mm
30	3 mm
40	4 mm
50	5 mm
60	6 mm
80	8 mm
100	10 mm

Clearance angle

00	0°
04	4°
06	6°
15	15°

Hand

R	Right
L	Left

DG	30	.	03	-	06	R	-	GPK

Corner radius

0.00	00
0.20	02
0.30	03
0.40	04

Chipbreaker

DG/SG
GPK
GPM
GMS
GPMT
GN
GPKR

G
GPK
GPKT
GMS
GN

Designation system for Monoblocks tools

Tool Group
- H - Holder Monoblocks
- M - Monoblocks Module

Insert width

1.5	1.5 mm
2	2 mm
3	3 mm
4	4 mm
5	5 mm
6	6 mm
8	8 mm
10	10 mm

Holder angle

00	0°
45	45°
90	90°

Tool design

R	Right
L	Left
N	Neutral

Cutting depth T_{max}

T13	13 mm
T25	25 mm

Tool length

125	125 mm
150	150 mm
110	110 mm
140	140 mm

H	D	3	R	-	2525	-	T13	-	150	-	C	-	R

Insert type
- D - DG
- S - SG
- G - G
- A - ADG

Tool size

1212	12x12 mm
1616	16x16 mm
2020	20x20 mm
2525	25x25 mm
3232	32x32 mm

Coolant

C

Reinforced

R

Designation system for blades and modules

Tool Group
- B Blade
- MA Module Adapter

Tool design
- R Right
- L Left
- N Neutral

Tool width / Insert width
- 1.5 — 1.5 mm
- 2 — 2 mm
- 3 — 3 mm
- 4 — 4 mm
- 5 — 5 mm
- 6 — 6 mm
- 8 — 8 mm
- 10 — 10 mm

Cutting depth T_{max}
- T13 — 13 mm
- T25 — 25 mm

B	D	N	-	32	-	04	-	T13	-	C

Insert type
- D - DG / SG
- G
- A - ADG

Tool size

Blades
- 26 — 26 mm
- 32 — 32 mm

Modules
- 20 — 20 mm
- 25 — 25 mm

Coolant
- C

Designation system for Modules

Tool Group	Insert type	Tool design	Tool size	Insert width	Cutting depth T_{max}	Diameter range D_{min} – D_{max}
H - Holder Monoblocks M - Monoblocks Module	D DG / SG G G A ADG	R Right L Left N Neutral	12 12x12 mm 16 16x16 mm 20 20x20 mm 25 25x25 mm 32 32x32 mm	1.5 1.5 mm 2 2 mm 3 3 mm 4 4 mm 5 5 mm 6 6 mm 8 8 mm 10 10 mm Holder angle 00 0° 45 45° 90 90°	T13 13 mm T15 15 mm T25 25 mm	40–50 D_{min} = Ø 40 mm D_{max} = Ø 50 mm

M	A	R	-	25	-	3	-	T15	-	40-50

Designation system for modules holders

Tool Group	Tool design	Tool size	Holder angle
MH - Holder Modul	R Right L Left N Neutral	12 12x12 mm 16 16x16 mm 20 20x20 mm 25 25x25 mm 32 32x32 mm	Holder angle 00 0° 45 45° 90 90°

MH	R	-	25	-	45

Designation system for boring bars

Tool Group
HI - Holder wytaczak

Insert width

2	2 mm
3	3 mm
4	4 mm
5	5 mm

Tool design

R	Right
L	Left

Cutting depth T_{max}

T08	8 mm
T09	9 mm
T11	11 mm
T12	12 mm

Lenght

250	250 mm
170	170 mm
150	150 mm
140	140 mm
125	125 mm
110	110 mm

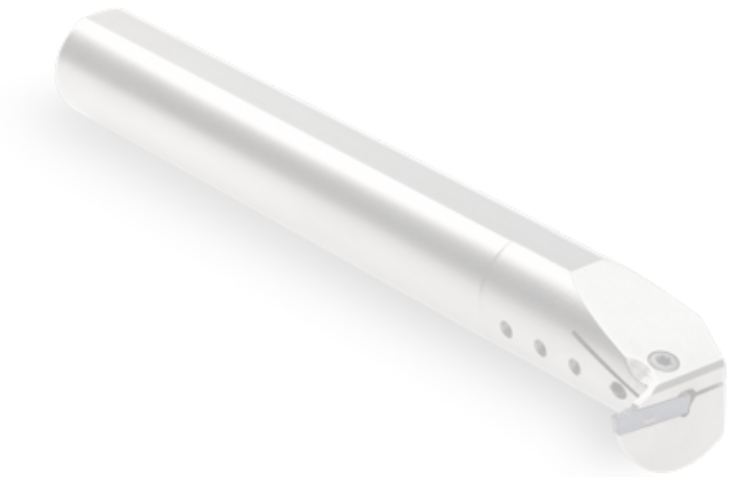
HI	D	3	R	-	25	-	T13	-	C

Insert type
D - DG / SG
G - G
A - ADG

Tool size

25	25 mm
32	32 mm
40	20 mm

Coolant
C



Designation system for clamping blocks

BH – Split clamping block for Blades

Tool Group / Application

26 26 mm
32 32 mm

Tool size / Blade size

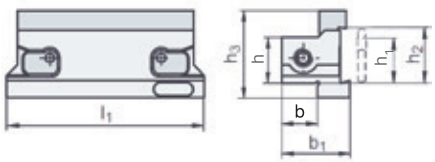
20 20 mm
25 25 mm

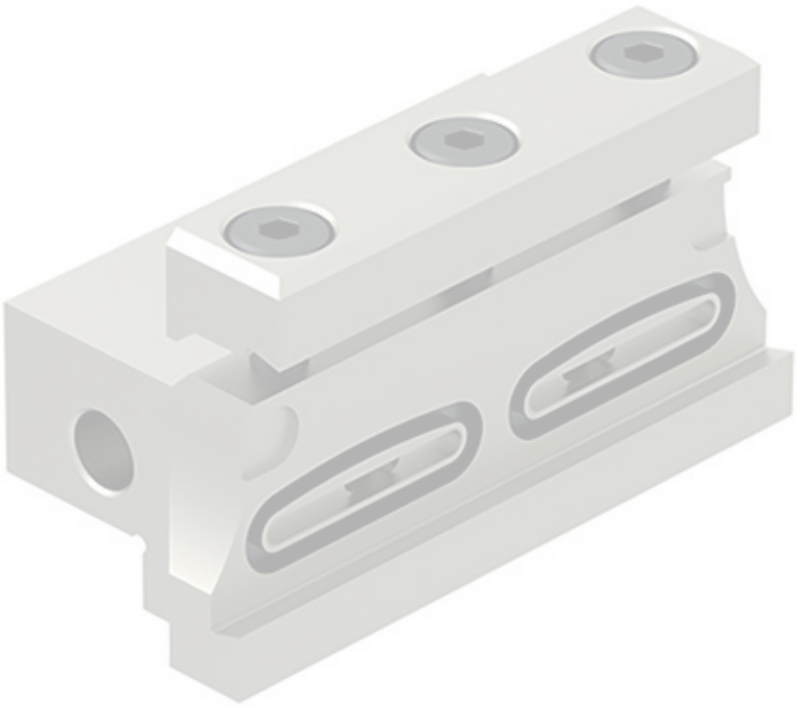
b

BH	-	32	-	20	20	-	C

h = h1
20 20 mm
25 25 mm
32 32 mm

Coolant
C





Grade overview

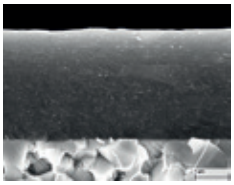
Grade designation	Standard designation ISO	Standard designation ANSI	*Type of cutting material	Application range 01	05	10	15	20	25	30	35	40	45	50	P Steel	M Stainless	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Hard materials
GPMKS30E	HC-P30	C6	E												•					
	HC-M25	–	E													•				
	HC-K30	C1	E														•			
	HC-S30	–	E																•	
GPK35D	HC-P35	C6	D												•					
	HC-K35	C1	D														•			
	HC-M30	–	D													○				
GPM45E	HC-P45	C5	E												•					
	HC-M40	–	E													•				
	HC-S40	–	E																○	
GN15C	HW-N15	C3	C															•		
	HW-K15	C3	C														•			

• Main application
○ Extended application

Grade description

GPMKS30E

HC-P30 | HC-M25 | HC-K30 | HC-S30



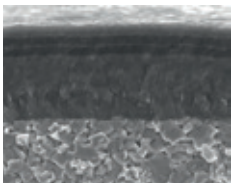
Specification:
Composition: Co 9.0 %; mixed carbides 2.0 %; WC balance | Grain size: 0.7-1 µm | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel, cast iron and heat-resistant alloys.

- *Excellent suitability for universal application*
- *High cutting edge stability*

GPK35D

HC-P35 | HC-K35 | HC-M30



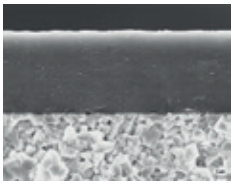
Specification:
Composition: Co 10.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1400 | Coating specification: CVD TiCN-Al2O3 multi-layer

Recommended application:
The reliable choice for the machining of steel and cast iron.

- *Excellent wear resistance*
- *Good resistance to oxidation*
- *High toughness*
- *Good heat resistance*

GPM45E

HC-P45 | HC-M40 | HC-S40



Specification:
Composition: Co 12.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1-1.5 µm | Hardness: HV_{30} 1380 | Coating specification: PVD TiAlTaN

Recommended application:
The reliable solution for steel and austenitic steels under unstable conditions.

- *Ideal for stainless steel*
- *Excellent toughness*
- *Good wear resistance*
- *High application security*

GN15C

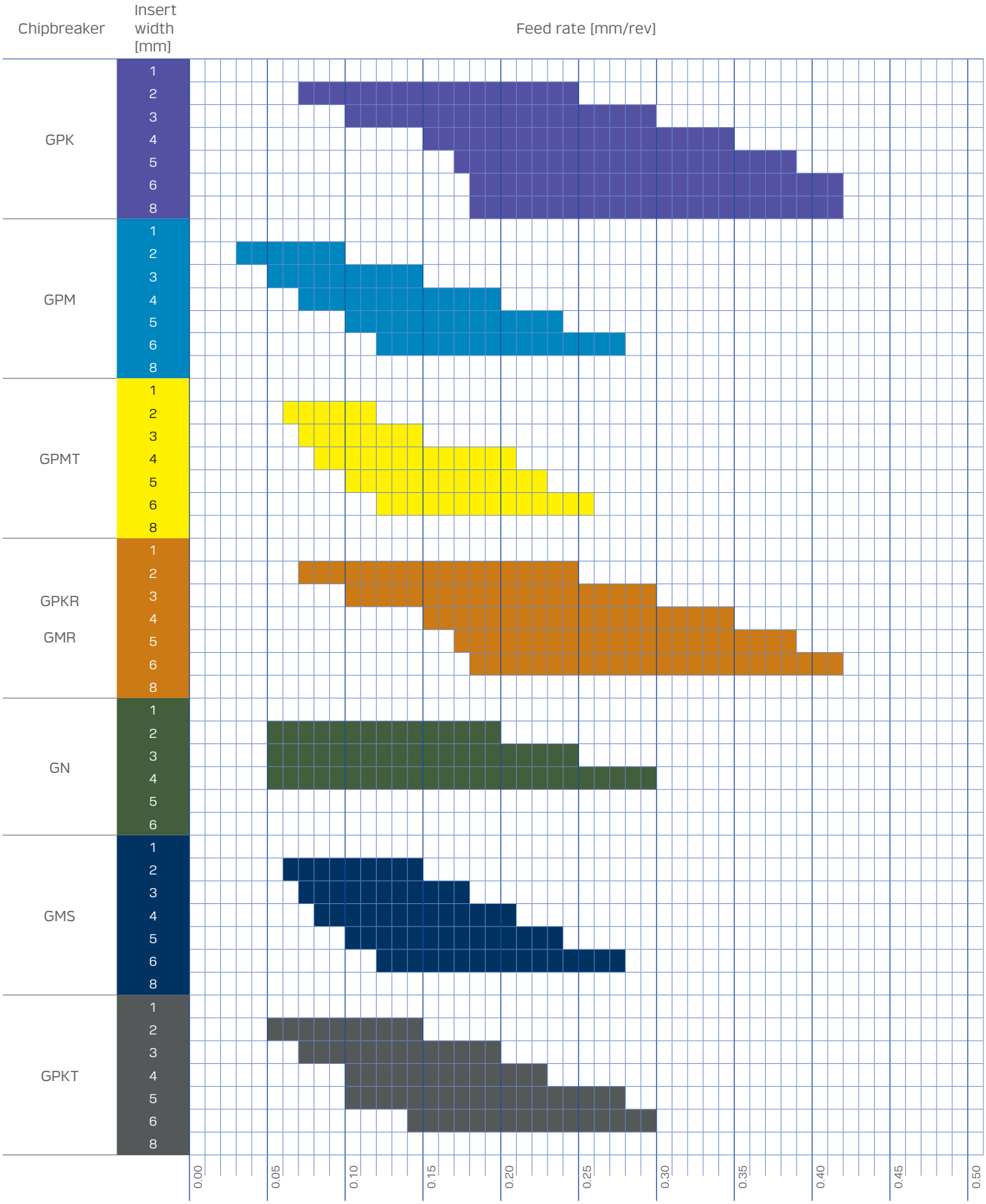
HW-K15

Specification:
Composition: Co 6.0% | WC balance; other: 0.20% | Grain size: 0.8-1.3 µm | Hardness: HV_{30} 1650

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

- *Optimal suitable for aluminium*
- *High wear resistance*
- *High heat resistance*
- *Low tendency to adhesion*

Feed rate recommendation



Cutting speed recommendation

GPK, GPM, GPMT, GPKR, GPKT

Work piece material		Type of treatment/alloy	Hardness HB	Coated carbide GPMKS30E v_c [m/min]	GPK35D v_c [m/min]	GPM45E v_c [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	–
		malleable pearlitic	130	80 – 160	80 – 150	–

GMS, GMR

Work piece material		Type of treatment/alloy	Hardness HB	Coated carbide GPMKS30E v_c [m/min]	GPK35D v_c [m/min]	GPM45E v_c [m/min]
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
S	Exotic	Fe base	200	–	–	20 – 45
		Nickel or cobalt base	250	–	–	15 – 25
		Titanium	Rm 440	–	–	50 – 120

GN

Work piece material		Type of treatment/alloy	Hardness HB	Uncoated carbide GN15C v_c [m/min]
N	Non-ferrous	Stopy aluminium to obróbki plastycznej	100	200 – 2000
		Odlewnicze stopy aluminium < 12% Si	90	400 – 1500
		Stopy miedzi (brąz)	90	200 – 600

Maximal torque for screws

Designation	max. torque/Nm	Material
7812115/M6X20 DIN 912	7	00003944
7802115/M6X25 DIN 912-12.9	7	00058422
7897218/M4.0X18/T20	4	60070011
M6X6 DIN 913	0	34804011
7897221/M3.5X14.0/T15	3.2	09118011
10010029/M6X12 DIN 912-12.9	7	61867711
M0102554/M4.0X16/T20 SCREW	4	13030021
7897203/M4.0X14/T15	4	00860591
7897209/M4.0X11/T15	4	00189912
7897205/M5.0X18/T20	5	00960591
7897210/M5.0X13.5/T20	5	00289912

Feed rate recommendation

GPMT

Geometry GPMT	0.5 a_p (mm)	1 a_p (mm)	1.5 a_p (mm)	2 a_p (mm)	2.5 a_p (mm)	3 a_p (mm)	3.5 a_p (mm)
Cutting width	avance f mm/tr						
2	0.10 – 0.15	0.05 – 0.15	0.05 – 0.12	0.05 – 0.10			
3	0.10 – 0.17	0.05 – 0.17	0.05 – 0.17	0.05 – 0.15	0.05 – 0.12		
4	0.10 – 0.20	0.07 – 0.20	0.07 – 0.20	0.07 – 0.20	0.07 – 0.17	0.07 – 0.15	
5	0.10 – 0.25	0.10 – 0.25	0.07 – 0.25	0.07 – 0.25	0.07 – 0.22	0.07 – 0.20	
6	0.15 – 0.30	0.15 – 0.30	0.15 – 0.30	0.15 – 0.30	0.15 – 0.30	0.15 – 0.25	0.15 – 0.22

GPKT

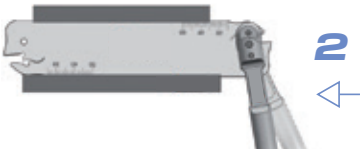
Geometry GPKT	0.5 a_p (mm)	1 a_p (mm)	1.5 a_p (mm)	2 a_p (mm)	2.5 a_p (mm)	3 a_p (mm)
Cutting width	avance f mm/tr					
2	0.05 – 0.17	0.05 – 0.13	0.05 – 0.10			
3	0.07 – 0.20	0.07 – 0.20	0.07 – 0.18	0.07 – 0.15		
4	0.10 – 0.25	0.10 – 0.25	0.10 – 0.25	0.10 – 0.22	0.10 – 0.18	
5	0.12 – 0.27	0.12 – 0.27	0.12 – 0.27	0.12 – 0.25	0.12 – 0.22	
6	0.15 – 0.30	0.15 – 0.30	0.15 – 0.30	0.15 – 0.30	0.15 – 0.25	0.15 – 0.20

GPKR, GMR

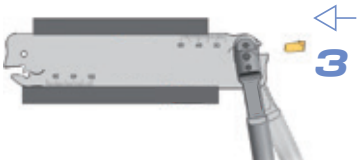
Geometry GPKRT, GMR	0.5 a_p (mm)	1 a_p (mm)	1.5 a_p (mm)	2 a_p (mm)	2.5 a_p (mm)	3 a_p (mm)
Cutting width	avance f mm/tr					
2	0.15 – 0.30	0.15 – 0.27				
3	0.15 – 0.35	0.15 – 0.35	0.15 – 0.30			
4	0.15 – 0.40	0.15 – 0.40	0.15 – 0.40	0.15 – 0.30		
5	0.15 – 0.50	0.15 – 0.50	0.15 – 0.50	0.15 – 0.40	0.15 – 0.35	
6	0.20 – 0.70	0.20 – 0.70	0.20 – 0.70	0.20 – 0.60	0.20 – 0.50	0.20 – 0.40

How to use the system?

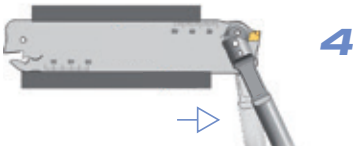
Insert mounting key with handle towards the front into the 2 tool location points



When moving the mounting key in the direction of the arrows the insert seat is opened



Position the insert pressing it against the location face



Moving the mounting key forward the insert seat locks and insert is clamped securely

Drilling

Drills and inserts

Inserts and tools for indexable drilling in 3xD, 4xD and 5xD

Presentation:

Ø14.0mm to Ø44.0mm

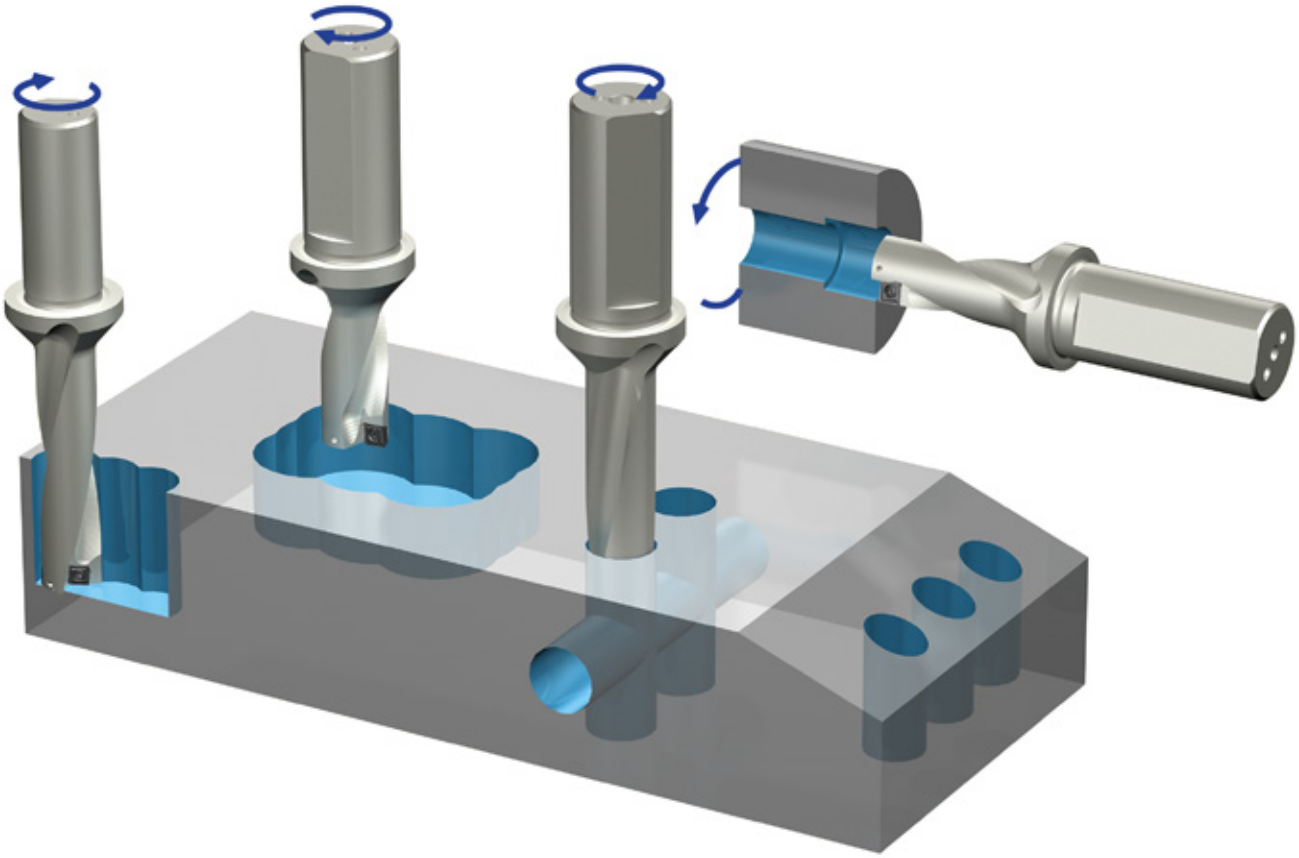
Your benefits:

Performance booster suitable for extreme machining:

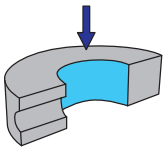
- drilling through stacks,
- drilling into edges,
- drilling into corner angles,
- drilling into weld seams or ridged surfaces

Costs savings:

- Achieves an increase in cutting data and feed rates of up to 20%
- Optimum dimensional accuracy in the most difficult drilling conditions
- A single tool combines key features such as real accuracy, top performance parameters and deep drilling depths.
- Cost reductions in stocking and ease of handling due to identical internal and external indexable inserts

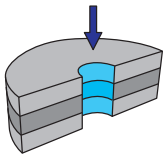


Applications



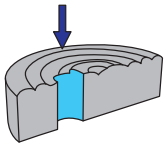
Producing a transverse through hole

Reduce the feed when the drill enters the transverse hole. With transverse bores you should drill from both sides if possible.
Reduce feed rate between 30 and 60% (depending on the proportion of hole to transverse hole).



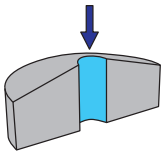
Stack drilling

When stack drilling ensure that there is either no gap or the maximum gap possible. Good work piece clamping is required.



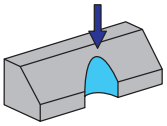
Drilling on an uneven surface

Depending on the surface quality, reduce the feed rate when drilling.



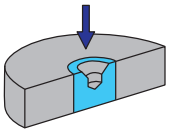
Drilling of a convex surface

When the drill enters the convex work piece surface, the central insert cuts first.



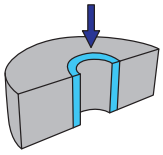
Drilling on inclined surfaces

When the drill enters or exits at an angle to the work piece surface, reduce the feed rate by 30 to 60%.



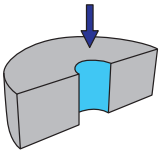
Spot drilling in a central hole

When spot drilling in a bead or central hole, reduce the feed rate by up to 50%.



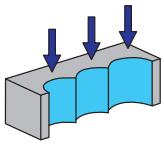
Reboring

Possible.



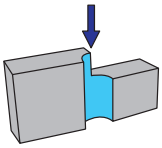
Drilling into solid material

Possible.



Chain drilling

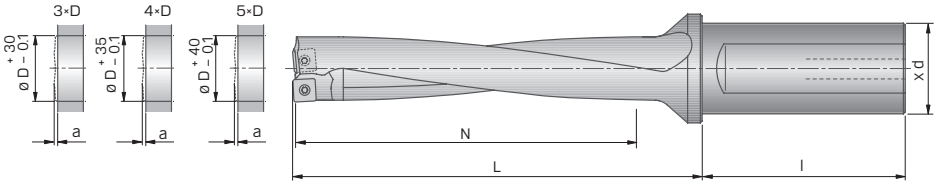
It is important to ensure a symmetrical distribution. Reduce the feed rate to 50% in case of cut interruption. Use tough insert types and a corner radius for optimal results.



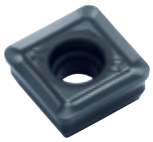
Drilling on a stepped surface

Due to the undefined drilling surface, pre-machining is required (face countersinking, face milling).

Available range 3xD: ø14.0 – ø23.0

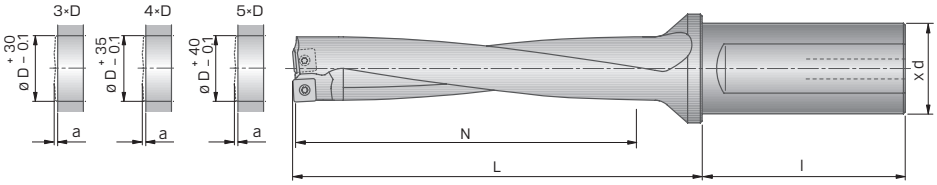


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	14.0	BID140F20.3D-05	20x50	42	55	05	•
	14.5	BID145F20.3D-05	20x50	45	59	05	○
	15.0	BID150F20.3D-05	20x50	45	59	05	•
	15.5	BID155F20.3D-05	20x50	48	64	05	○
	16.0	BID160F20.3D-05	20x50	48	64	05	•
	16.5	BID165F20.3D-05	20x50	51	68	05	•
	17.0	BID170F20.3D-06	20x50	51	68	06	•
	17.5	BID175F25.3D-06	25x56	51	71	06	•
	18.0	BID180F25.3D-06	25x56	54	71	06	•
	18.5	BID185F25.3D-06	25x56	55.5	75	06	•
	19.0	BID190F25.3D-06	25x56	57	75	06	•
	19.5	BID195F25.3D-06	25x56	60	78	06	•
	20.0	BID200F25.3D-07	25x56	60	78	07	•
	20.5	BID205F25.3D-07	25x56	61.5	82	07	○
	21.0	BID210F25.3D-07	25x56	66	85	07	•
	21.5	BID215F25.3D-07	25x56	66	85	07	○
	22.0	BID220F25.3D-07	25x56	66	85	07	•
	22.5	BID225F25.3D-07	25x56	69	89	07	•
	23.0	BID230F25.3D-07	25x56	69	89	07	•

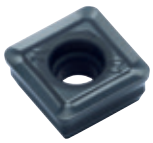


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 050204-D5PS DPM25E	...-D5PS	P	05	•
	SOLT 050204-D5K DK15E	...-D5K	K	05	•
	SOLT 050204-D5M DMP40E	...-D5M	M	05	•
	SOLT 050204-D5PS DMP40E	...-D5PS	S	05	•
	SOLT 06T206-D5PS DPM25E	...-D5PS	P	06	•
	SOLT 06T206-D5K DK15E	...-D5K	K	06	•
	SOLT 06T206-D5M DMP40E	...-D5M	M	06	•
	SOLT 06T206-D5PS DMP40E	...-D5PS	S	06	•
	SOLT 070308-D5PS DPM25E	...-D5PS	P	07	•
	SOLT 070308-D5K DK15E	...-D5K	K	07	•
	SOLT 070308-D5M DMP40E	...-D5M	M	07	•
	SOLT 070308-D5PS DMP40E	...-D5PS	S	07	•

Available range 3xD: ø23.5 – ø33.0

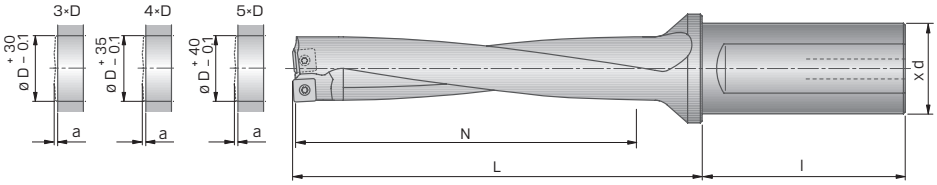


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	23.5	BID235F32.3D-08	32x60	72	92	08	○
	24.0	BID240F32.3D-08	32x60	72	92	08	●
	24.5	BID245F32.3D-08	32x60	75	96	08	○
	25.0	BID250F32.3D-08	32x60	78	96	08	●
	25.5	BID255F32.3D-08	32x60	78	99	08	○
	26.0	BID260F32.3D-08	32x60	81	99	08	●
	26.5	BID265F32.3D-08	32x60	81	103	08	○
	27.0	BID270F32.3D-08	32x60	81	103	08	○
	27.5	BID275F32.3D-08	32x60	84	106	08	●
	28.0	BID280F32.3D-08	32x60	84	106	08	●
	28.5	BID285F32.3D-10	32x60	87	110	10	○
	29.0	BID290F32.3D-10	32x60	87	110	10	○
	29.5	BID295F32.3D-10	32x60	90	113	10	○
	30.0	BID300F32.3D-10	32x60	90	113	10	●
	30.5	BID305F40.3D-10	40x68	93	117	10	○
	31.0	BID310F40.3D-10	40x68	93	117	10	○
	31.5	BID315F40.3D-10	40x68	96	120	10	○
	32.0	BID320F40.3D-10	40x68	96	120	10	○
	32.5	BID325F40.3D-10	40x68	99	124	10	○
	33.0	BID330F40.3D-10	40x68	99	124	10	○

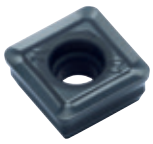


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 080308-D5PS DPM25E	...-D5PS	P	08	●
	SOLT 080308-D5K DK15E	...-D5K	K	08	●
	SOLT 080308-D5M DMP40E	...-D5M	M	08	●
	SOLT 080308-D5PS DMP40E	...-D5PS	S	08	●
	SOLT 10T308-D5PS DPM25E	...-D5PS	P	10	●
	SOLT 10T308-D5K DK15E	...-D5K	K	10	●
	SOLT 10T308-D5M DMP40E	...-D5M	M	10	●
	SOLT 10T308-D5PS DMP40E	...-D5PS	S	10	●

Available range 3xD: ø33,5 – ø44.0

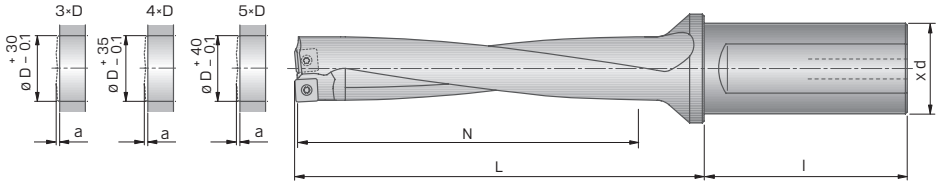


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	33.5	BID335F40.3D-11	40x68	102	127	11	○
	34.0	BID340F40.3D-11	40x68	102	127	11	○
	34.5	BID345F40.3D-11	40x68	102	131	11	○
	35.0	BID350F40.3D-11	40x68	105	131	11	○
	35.5	BID355F40.3D-11	40x68	105	134	11	○
	36.0	BID360F40.3D-11	40x68	108	134	11	○
	36.5	BID365F40.3D-11	40x68	108	138	11	○
	37.0	BID370F40.3D-11	40x68	111	138	11	○
	37.5	BID375F40.3D-11	40x68	111	141	11	○
	38.0	BID380F40.3D-11	40x68	114	141	11	○
	38.5	BID385F40.3D-13	40x68	117	145	13	○
	39.0	BID390F40.3D-13	40x68	117	145	13	○
	39.5	BID395F40.3D-13	40x68	120	148	13	○
	40.0	BID400F40.3D-13	40x68	120	148	13	○
	40.5	BID405F40.3D-13	40x68	123	152	13	○
	41.0	BID410F40.3D-13	40x68	123	152	13	○
	41.5	BID415F40.3D-13	40x68	126	155	13	○
	42.0	BID420F40.3D-13	40x68	126	155	13	○
	42.5	BID425F40.3D-13	40x68	129	159	13	○
	43.0	BID430F40.3D-13	40x68	129	159	13	○
	43.5	BID435F40.3D-13	40x68	132	162	13	○
	44.0	BID440F40.3D-13	40x68	132	162	13	○

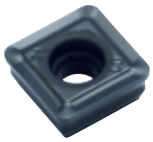


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 110408-D5PS DPM25E	...-D5PS	P	11	●
	SOLT 110408-D5K DK15E	...-D5K	K	11	●
	SOLT 110408-D5M DMP40E	...-D5M	M	11	●
	SOLT 110408-D5PS DMP40E	...-D5PS	S	11	●
	SOLT 130508-D5PS DPM25E	...-D5PS	P	13	●
	SOLT 130508-D5K DK15E	...-D5K	K	13	●
	SOLT 130508-D5M DMP40E	...-D5M	M	13	●
	SOLT 130508-D5PS DMP40E	...-D5PS	S	13	●

Available range 4xD: ø14.0 – ø23.0

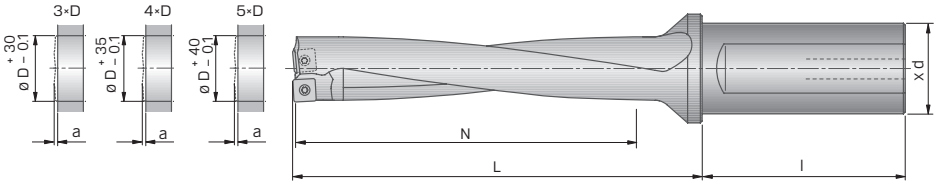


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	14.0	BID140F20.4D-05	20x50	56	69	05	●
	14.5	BID145F20.4D-05	20x50	60	74	05	○
	15.0	BID150F20.4D-05	20x50	60	74	05	○
	15.5	BID155F20.4D-05	20x50	64	80	05	○
	16.0	BID160F20.4D-05	20x50	64	80	05	○
	16.5	BID165F20.4D-05	20x50	68	85	05	●
	17.0	BID170F20.4D-06	20x50	68	85	06	●
	17.5	BID175F25.4D-06	25x56	72	89	06	○
	18.0	BID180F25.4D-06	25x56	72	89	06	○
	18.5	BID185F25.4D-06	25x56	76	94	06	○
	19.0	BID190F25.4D-06	25x56	76	94	06	○
	19.5	BID195F25.4D-06	25x56	80	98	06	●
	20.0	BID200F25.4D-07	25x56	80	98	07	●
	20.5	BID205F25.4D-07	25x56	84	103	07	○
	21.0	BID210F25.4D-07	25x56	84	103	07	○
	21.5	BID215F25.4D-07	25x56	88	107	07	○
	22.0	BID220F25.4D-07	25x56	88	107	07	○
	22.5	BID225F25.4D-07	25x56	92	112	07	○
	23.0	BID230F25.4D-07	25x56	92	112	07	●

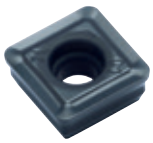


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 050204-D5PS DPM25E	...-D5PS	P	05	●
	SOLT 050204-D5K DK15E	...-D5K	K	05	●
	SOLT 050204-D5M DMP40E	...-D5M	M	05	●
	SOLT 050204-D5PS DMP40E	...-D5PS	S	05	●
	SOLT 06T206-D5PS DPM25E	...-D5PS	P	06	●
	SOLT 06T206-D5K DK15E	...-D5K	K	06	●
	SOLT 06T206-D5M DMP40E	...-D5M	M	06	●
	SOLT 06T206-D5PS DMP40E	...-D5PS	S	06	●
	SOLT 070308-D5PS DPM25E	...-D5PS	P	07	●
	SOLT 070308-D5K DK15E	...-D5K	K	07	●
	SOLT 070308-D5M DMP40E	...-D5M	M	07	●
	SOLT 070308-D5PS DMP40E	...-D5PS	S	07	●

Available range 4xD: ø23.5 – ø33.0

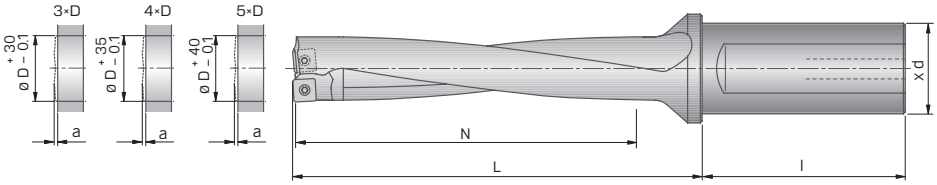


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	23.5	BID235F32.4D-08	32x60	96	116	08	●
	24.0	BID240F32.4D-08	32x60	96	116	08	●
	24.5	BID245F32.4D-08	32x60	100	121	08	○
	25.0	BID250F32.4D-08	32x60	100	121	08	○
	25.5	BID255F32.4D-08	32x60	104	125	08	○
	26.0	BID260F32.4D-08	32x60	104	125	08	○
	26.5	BID265F32.4D-08	32x60	108	130	08	○
	27.0	BID270F32.4D-08	32x60	108	130	08	○
	27.5	BID275F32.4D-08	32x60	112	134	08	○
	28.0	BID280F32.4D-08	32x60	112	134	08	●
	28.5	BID285F32.4D-10	32x60	116	139	10	●
	29.0	BID290F32.4D-10	32x60	116	139	10	○
	29.5	BID295F32.4D-10	32x60	120	143	10	○
	30.0	BID300F32.4D-10	32x60	120	143	10	○
	30.5	BID305F40.4D-10	40x68	124	148	10	○
	31.0	BID310F40.4D-10	40x68	124	148	10	○
	31.5	BID315F40.4D-10	40x68	128	152	10	○
	32.0	BID320F40.4D-10	40x68	128	152	10	○
	32.5	BID325F40.4D-10	40x68	132	157	10	○
	33.0	BID330F40.4D-10	40x68	132	157	10	●

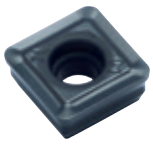


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 080308-D5PS DPM25E	...-D5PS	P	08	●
	SOLT 080308-D5K DK15E	...-D5K	K	08	●
	SOLT 080308-D5M DMP40E	...-D5M	M	08	●
	SOLT 080308-D5PS DMP40E	...-D5PS	S	08	●
	SOLT 10T308-D5PS DPM25E	...-D5PS	P	10	●
	SOLT 10T308-D5K DK15E	...-D5K	K	10	●
	SOLT 10T308-D5M DMP40E	...-D5M	M	10	●
	SOLT 10T308-D5PS DMP40E	...-D5PS	S	10	●

Available range 4xD: ø33,5 – ø44.0

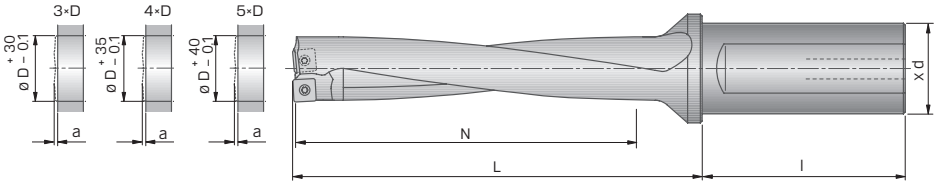


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	33.5	BID335F40.4D-11	40x68	136	161	11	●
	34.0	BID340F40.4D-11	40x68	136	161	11	○
	34.5	BID345F40.4D-11	40x68	140	166	11	○
	35.0	BID350F40.4D-11	40x68	140	166	11	○
	35.5	BID355F40.4D-11	40x68	144	170	11	○
	36.0	BID360F40.4D-11	40x68	144	170	11	○
	36.5	BID365F40.4D-11	40x68	148	175	11	○
	37.0	BID370F40.4D-11	40x68	148	175	11	○
	37.5	BID375F40.4D-11	40x68	152	179	11	○
	38.0	BID380F40.4D-11	40x68	152	179	11	●
	38.5	BID385F40.4D-13	40x68	156	184	13	●
	39.0	BID390F40.4D-13	40x68	156	184	13	○
	39.5	BID395F40.4D-13	40x68	160	188	13	○
	40.0	BID400F40.4D-13	40x68	160	188	13	○
	40.5	BID405F40.4D-13	40x68	164	193	13	○
	41.0	BID410F40.4D-13	40x68	164	193	13	○
	41.5	BID415F40.4D-13	40x68	168	197	13	○
	42.0	BID420F40.4D-13	40x68	168	197	13	○
	42.5	BID425F40.4D-13	40x68	172	202	13	○
	43.0	BID430F40.4D-13	40x68	172	202	13	○
	43.5	BID435F40.4D-13	40x68	176	206	13	○
	44.0	BID440F40.4D-13	40x68	176	206	13	●

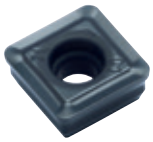


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 110408-D5PS DPM25E	...-D5PS	P	11	●
	SOLT 110408-D5K DK15E	...-D5K	K	11	●
	SOLT 110408-D5M DMP40E	...-D5M	M	11	●
	SOLT 110408-D5PS DMP40E	...-D5PS	S	11	●
	SOLT 130508-D5PS DPM25E	...-D5PS	P	13	●
	SOLT 130508-D5K DK15E	...-D5K	K	13	●
	SOLT 130508-D5M DMP40E	...-D5M	M	13	●
	SOLT 130508-D5PS DMP40E	...-D5PS	S	13	●

Available range 5xD: ø14.0 – ø23.0

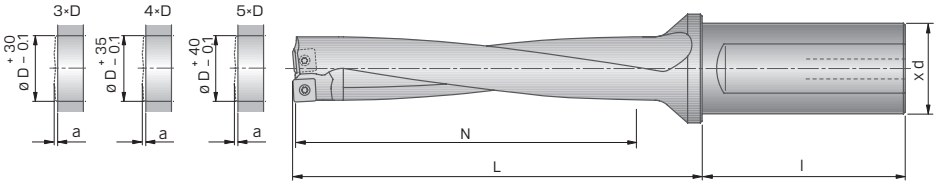


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	14.0	BID140F20.5D-05	20x50	70	83	05	○
	14.5	BID145F20.5D-05	20x50	75	89	05	○
	15.0	BID150F20.5D-05	20x50	75	89	05	○
	15.5	BID155F20.5D-05	20x50	80	96	05	○
	16.0	BID160F20.5D-05	20x50	80	96	05	○
	16.5	BID165F20.5D-05	20x50	85	102	05	○
	17.0	BID170F20.5D-06	20x50	85	102	06	○
	17.5	BID175F25.5D-06	25x56	90	107	06	○
	18.0	BID180F25.5D-06	25x56	90	107	06	○
	18.5	BID185F25.5D-06	25x56	95	113	06	○
	19.0	BID190F25.5D-06	25x56	95	113	06	○
	19.5	BID195F25.5D-06	25x56	100	118	06	○
	20.0	BID200F25.5D-07	25x56	100	118	07	○
	20.5	BID205F25.5D-07	25x56	105	124	07	○
	21.0	BID210F25.5D-07	25x56	105	124	07	○
	21.5	BID215F25.5D-07	25x56	110	129	07	○
	22.0	BID220F25.5D-07	25x56	110	129	07	○
	22.5	BID225F25.5D-07	25x56	115	135	07	○
	23.0	BID230F25.5D-07	25x56	115	135	07	○

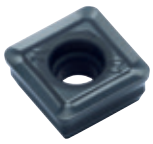


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 050204-D5PS DPM25E	...-D5PS	P	05	•
	SOLT 050204-D5K DK15E	...-D5K	K	05	•
	SOLT 050204-D5M DMP40E	...-D5M	M	05	•
	SOLT 050204-D5PS DMP40E	...-D5PS	S	05	•
	SOLT 06T206-D5PS DPM25E	...-D5PS	P	06	•
	SOLT 06T206-D5K DK15E	...-D5K	K	06	•
	SOLT 06T206-D5M DMP40E	...-D5M	M	06	•
	SOLT 06T206-D5PS DMP40E	...-D5PS	S	06	•
	SOLT 070308-D5PS DPM25E	...-D5PS	P	07	•
	SOLT 070308-D5K DK15E	...-D5K	K	07	•
	SOLT 070308-D5M DMP40E	...-D5M	M	07	•
	SOLT 070308-D5PS DMP40E	...-D5PS	S	07	•

Available range 5xD: ø23.5 – ø33.0

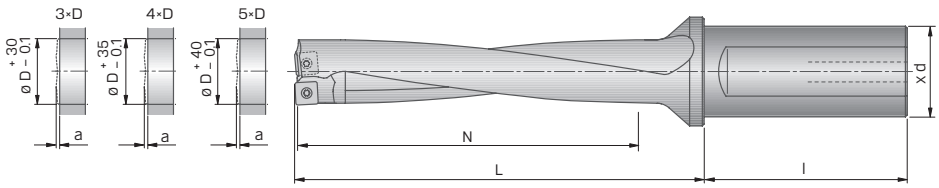


Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	23.5	BID235F32.5D-08	32x60	120	140	08	○
	24.0	BID240F32.5D-08	32x60	125	140	08	○
	24.5	BID245F32.5D-08	32x60	125	146	08	○
	25.0	BID250F32.5D-08	32x60	130	146	08	○
	25.5	BID255F32.5D-08	32x60	130	151	08	○
	26.0	BID260F32.5D-08	32x60	135	151	08	○
	26.5	BID265F32.5D-08	32x60	135	157	08	○
	27.0	BID270F32.5D-08	32x60	135	157	08	○
	27.5	BID275F32.5D-08	32x60	140	162	08	○
	28.0	BID280F32.5D-08	32x60	140	162	08	○
	28.5	BID285F32.5D-10	32x60	145	168	10	○
	29.0	BID290F32.5D-10	32x60	145	168	10	○
	29.5	BID295F32.5D-10	32x60	150	173	10	○
	30.0	BID300F32.5D-10	32x60	150	173	10	○
	30.5	BID305F40.5D-10	40x68	155	179	10	○
	31.0	BID310F40.5D-10	40x68	155	179	10	○
	31.5	BID315F40.5D-10	40x68	160	184	10	○
	32.0	BID320F40.5D-10	40x68	160	184	10	○
	32.5	BID325F40.5D-10	40x68	165	190	10	○
	33.0	BID330F40.5D-10	40x68	165	190	10	○

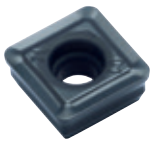


Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 080308-D5PS DPM25E	...-D5PS	P	08	●
	SOLT 080308-D5K DK15E	...-D5K	K	08	●
	SOLT 080308-D5M DMP40E	...-D5M	M	08	●
	SOLT 080308-D5PS DMP40E	...-D5PS	S	08	●
	SOLT 10T308-D5PS DPM25E	...-D5PS	P	10	●
	SOLT 10T308-D5K DK15E	...-D5K	K	10	●
	SOLT 10T308-D5M DMP40E	...-D5M	M	10	●
	SOLT 10T308-D5PS DMP40E	...-D5PS	S	10	●

Available range 5xD: ø33,5 – ø44.0



Tools	ø	Designation	ø d×l	N	L	Insert size	Available
	33.5	BID335F40.5D-11	40x68	170	195	11	○
	34.0	BID340F40.5D-11	40x68	170	195	11	○
	34.5	BID345F40.5D-11	40x68	175	201	11	○
	35.0	BID350F40.5D-11	40x68	175	206	11	○
	35.5	BID355F40.5D-11	40x68	180	206	11	○
	36.0	BID360F40.5D-11	40x68	180	212	11	○
	36.5	BID365F40.5D-11	40x68	185	212	11	○
	37.0	BID370F40.5D-11	40x68	185	212	11	○
	37.5	BID375F40.5D-11	40x68	190	217	11	○
	38.0	BID380F40.5D-11	40x68	190	217	11	○
	38.5	BID385F40.5D-13	40x68	195	223	13	○
	39.0	BID390F40.5D-13	40x68	195	223	13	○
	39.5	BID395F40.5D-13	40x68	200	228	13	○
	40.0	BID400F40.5D-13	40x68	200	228	13	○
	40.5	BID405F40.5D-13	40x68	205	234	13	○
	41.0	BID410F40.5D-13	40x68	205	234	13	○
	41.5	BID415F40.5D-13	40x68	210	239	13	○
	42.0	BID420F40.5D-13	40x68	210	239	13	○
	42.5	BID425F40.5D-13	40x68	215	245	13	○
	43.0	BID430F40.5D-13	40x68	215	245	13	○
	43.5	BID435F40.5D-13	40x68	220	250	13	○
	44.0	BID440F40.5D-13	40x68	220	250	13	○



Inserts	Designation	Chipbreaker	Material group	Insert size	Available
	SOLT 110408-D5PS DPM25E	...-D5PS	P	11	●
	SOLT 110408-D5K DK15E	...-D5K	K	11	●
	SOLT 110408-D5M DMP40E	...-D5M	M	11	●
	SOLT 110408-D5PS DMP40E	...-D5PS	S	11	●
	SOLT 130508-D5PS DPM25E	...-D5PS	P	13	●
	SOLT 130508-D5K DK15E	...-D5K	K	13	●
	SOLT 130508-D5M DMP40E	...-D5M	M	13	●
	SOLT 130508-D5PS DMP40E	...-D5PS	S	13	●

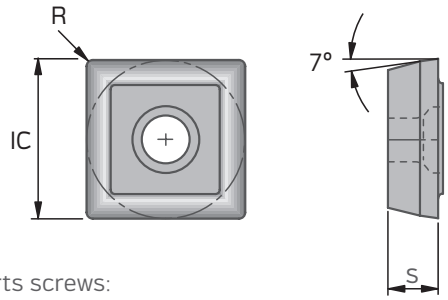
Technical information

Guideline values for solid drilling						Cutting speed V_c (m/min)									Feed f (mm/rev)						
Material group		Strength Rm (N/mm2)	Hardness HB	Material	Material example, material code/DIN	Geometry	DPM25E (M/Min)			DMP40E (M/Min)			DK15E (M/Min)			Ø 14 – Ø 16.5	Ø 17 – Ø 19.5	Ø 20 – Ø 23	Ø 23.5 – Ø 28	Ø 28.5 – Ø 33	Ø 33.5 – Ø 38	Ø 38.5 – Ø 44
							min	opt.	max	min	opt.	max	min	opt.	max	f (mm/rev)	f (mm/rev)	f (mm/rev)	f (mm/rev)	f (mm/rev)	f (mm/rev)	f (mm/rev)
P	1.0	≤ 500		non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	D5PS	200	260	320	–	–	–	–	–	–	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
P	2.0	500-900		non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	D5PS	250	270	300	–	–	–	–	–	–	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
P	2.1	< 500		lead alloys	1.0718 (11SMnPb30)	D5PS	200	260	320	–	–	–	–	–	–	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
P	3.0	> 900		low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	D5PS	140	180	220	–	–	–	–	–	–	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
P	4.0	> 900		high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	D5PS	120	160	200	–	–	–	–	–	–	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
P	4.1			HSS		D5PS	50	70	90	–	–	–	–	–	–	0.04 – 0.1	0.04 – 0.1	0.05 – 0.1	0.06 – 0.12	0.07 – 0.13	0.07 – 0.14	0.08 – 0.15
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	D5PS	–	–	–	20	40	60	–	–	–	0.04 – 0.08	0.04 – 0.08	0.05 – 0.9	0.06 – 0.10	0.07 – 0.11	0.07 – 0.11	0.08 – 0.12
S	5.1	400		titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	D5PS	–	–	–	40	60	60	–	–	–	0.04 – 0.1	0.04 – 0.1	0.05 – 0.1	0.06 – 0.12	0.07 – 0.13	0.07 – 0.14	0.08 – 0.15
M	6.0	≤ 600		stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	D5M	–	–	–	140	180	220	–	–	–	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
M	6.1	< 900		stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	D5M	–	–	–	120	160	200	–	–	–	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
M	7.0	> 900		stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	D5M	–	–	–	120	160	200	–	–	–	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
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	D5K	–	–	–	–	–	–	160	240	320	0.08 – 0.18	0.1 – 0.18	0.14 – 0.25	0.18 – 0.3	0.2 – 0.3	0.2 – 0.3	0.2 – 0.3
K	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	D5K	–	–	–	–	–	–	100	140	180	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
K	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	D5K	–	–	–	–	–	–	120	160	200	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
K	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	D5K	–	–	–	–	–	–	100	140	180	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
K	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	D5K	–	–	–	–	–	–	90	120	150	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
K	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	D5K	–	–	–	–	–	–	90	120	150	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
K	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	D5K	–	–	–	–	–	–	70	100	130	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

Cutting values shown are relating to the basic recommendations for cutting materials given.

SOLT inserts

Geometry:



Grades and materials:

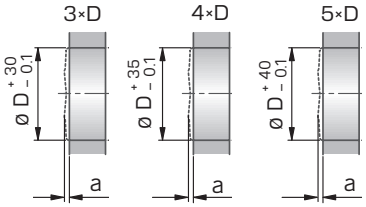
Material group		Grade
P	Steel	DPM25E
M	Stainless steel	DMP40E
K	Cast iron	DK15E
S	Super alloys	DMP40E

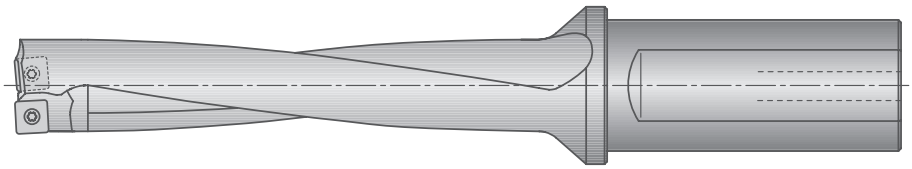
Spare parts screws:

Insert	Type description	Material	Key size
SOLT 05	S/M2x4,3-6IP	60733621	T06IP
SOLT 5.8	S/M2,2x5,5-6IP	51733621	T06IP
SOLT 6.9	S/M2,5x6,3-8IP	22733621	T08IP
SOLT 8.4	S3070-8IP	23733621	T08IP
SOLT 10.3	S3575-15IP	62733621	T15IP
SOLT 11.1	S3585-15IP	92733621	T15IP
SOLT 13.3	S45100-20IP	43733621	T20IP

IC	s	R
5.0	2.1	0.4
5.8	2.5	0.6
6.9	3.0	0.8
8.4	3.5	0.8
10.3	4.0	0.8
11.1	4.4	0.8
13.3	5.0	0.8

Geometry:



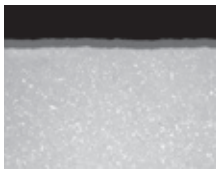


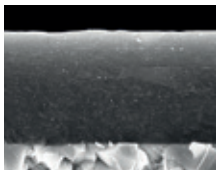
ø		Radius	a
14.0	IC5.0 Ø14.0-Ø16.50	R0.4	1.5
14.5			
15.0			
15.5			
16.0			
16.5			
17.0	IC5.8 Ø16.60-Ø19.50	R0.6	1.7
17.5			
18.0			
18.5			
19.0			
19.5			
20.0	IC6.9 Ø19.60-Ø23.00	R0.8	1.9
20.5			
21.0			
21.5			
22.0			
22.5			
23.0			

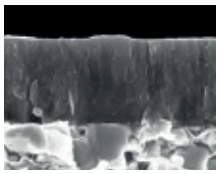
ø		Radius	a
23.5	IC8.4 Ø23.10-Ø28.00	R0.8	2.3
24.0			
24.5			
25.0			
25.5			
26.0	IC8.4 Ø23.10-Ø28.00	R0.8	2.3
26.5			
27.0			
27.5			
28.0			
28.5	IC10.3 Ø28.10-Ø33.00	R0.8	2.7
29.0			
29.5			
30.0			
30.5			
31.0			
31.5			
32.0			
32.5			
33.0			

ø		Radius	a
33.5	IC11.1 Ø33.10-Ø38.00	R0.8	2.9
34.0			
34.5			
35.0			
35.5			
36.0	IC11.1 Ø33.10-Ø38.00	R0.8	2.9
36.5			
37.0			
37.5			
38.0			
38.5	IC13.3 Ø38.10-Ø44.00	R0.8	3.1
39.0			
39.5			
40.0			
40.5			
41.0			
41.5			
42.0			
42.5			
43.0			
43.5			
44.0			

Grade overview

DPM25E	HC-P25 I HC-M25
	Specification: Composition: Co 9.0%; mixed carbides 4.0%; WC balance | Grain size: fine/medium | Hardness: HV_{30} 1510 | Coating specification: PVD TiAlN/TiN Recommended application: Particularly suitable for the machining of steels.

DMP40E	HC-M40 I HC-P40
	Specification: Composition: Co 9.0%; mixed carbides 0.7%; others 0.7%; WC balance | Grain size: submicron | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN Recommended application: The first choice for the machining of austenitic steels as well as heat-resistant alloys.

DK15E	HC-K15
	Specification: Composition: Co 6.0%; WC balance; mixed carbides 2.0% ; Grain size: fine | Hardness: HV_{30} 1630 Recommended application: Suitable for cast iron machining.

BLAUING designation system: Insert

Insert shape

A	85°
B	82°
K	55°
H	120°
L	90°
O	135°
P	108°
C	80°
D	55°
E	75°
M	86°
V	35°
R	
S	90°
T	60°
W	80°
X Z	Special shapes

Clearance angle

	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

Tolerances

	d [± mm]	m [± mm]	s [± mm]	d=6.35/9.52	d=12.7	d=15.8/19.05
A	0.025	0.005	0.025	●	●	●
C	0.025	0.013	0.025	●	●	●
E	0.025	0.025	0.025	●	●	●
F	0.013	0.005	0.025	●	●	●
G	0.025	0.025	0.13	●	●	●
H	0.013	0.013	0.025	●	●	●
	0.05	0.005	0.025	●		
J	0.08	0.005	0.025		●	
	0.10	0.005	0.025			●
	0.05	0.013	0.025	●		
K	0.08	0.013	0.02		●	
	0.10	0.013	0.02			●
	0.05	0.08	0.13	●		
M	0.08	0.13	0.13		●	
	0.10	0.15	0.13			●
	0.05	0.08	0.025	●		
N	0.08	0.13	0.025		●	
	0.10	0.15	0.025			●
	0.08	0.13	0.13	●		
U	0.13	0.20	0.13		●	
	0.18	0.27	0.13			●

Insert thickness

Index	s [mm]
02	2.1
T2	2.5
03	3.0
T3	3.5
04	4.0
05	5.0

S	O	L	T	-	05	02	08	-	D5PS

Form of top surface

A	
F	
G	
M	
N	
Q	
R	
T	
U	
W	
X	Special shapes

Insert size

Type	Index	[mm]
S	05	5.0
	06	5.8
	07	6.9
	08	8.4
	10	10.3
	11.1	11.6
	13	13.3

Corner radius

Index	r [mm]
05	0.4
06	0.6
07	0.8
08	0.8
10	0.8
12	0.8
13	0.8

Chipformer

D5PS	Steel machining
D5M	Stainless Steel machining
D5K	Cast iron machining

Grade

Main application (machining method)

T	Turning
M	Milling
G	Parting and grooving
D	Drilling
W	Threading
O	Others
U	Universal grade for a variety of applications

Main application (material) ISO letter

P	Steel
M	Stainless steel
K	Cast iron
N	Light and non-ferrous metals. non metals
S	Heat resistant alloys. titanium
H	Hard materials
X	Universal grade for a variety of applications

Main application (material) ISO letter

P	Steel
M	Stainless steel
K	Cast iron
N	Light and non-ferrous metals. non metals
S	Heat resistant alloys. titanium
H	Hard materials
X	Universal grade for a variety of applications

Cutting material

A	Uncoated cermet
B	Coated cermet
C	Uncoated carbide
D	CVD coated carbide
E	PVD coated carbide
F	PCD
G	CBN
H	CBN coated

Additional feature *Optional

A	austenitic steels
D	DryCut

D	M	P	40	E	

ISO 513 Application range

For example:
05 ISO P05
10 ISO P10
15 ISO P15
25 ISO P25
35 ISO P35
...

Blauing Designation system: Tool holder

Blauing Indexable drill

F = Cylindrical with Flat

Shank Style

3
4
5

L/D

BID	295	F	25	.	5D	-	10	-	R

Diameter

140 - 14.0 mm
-
440 - 44.0 mm

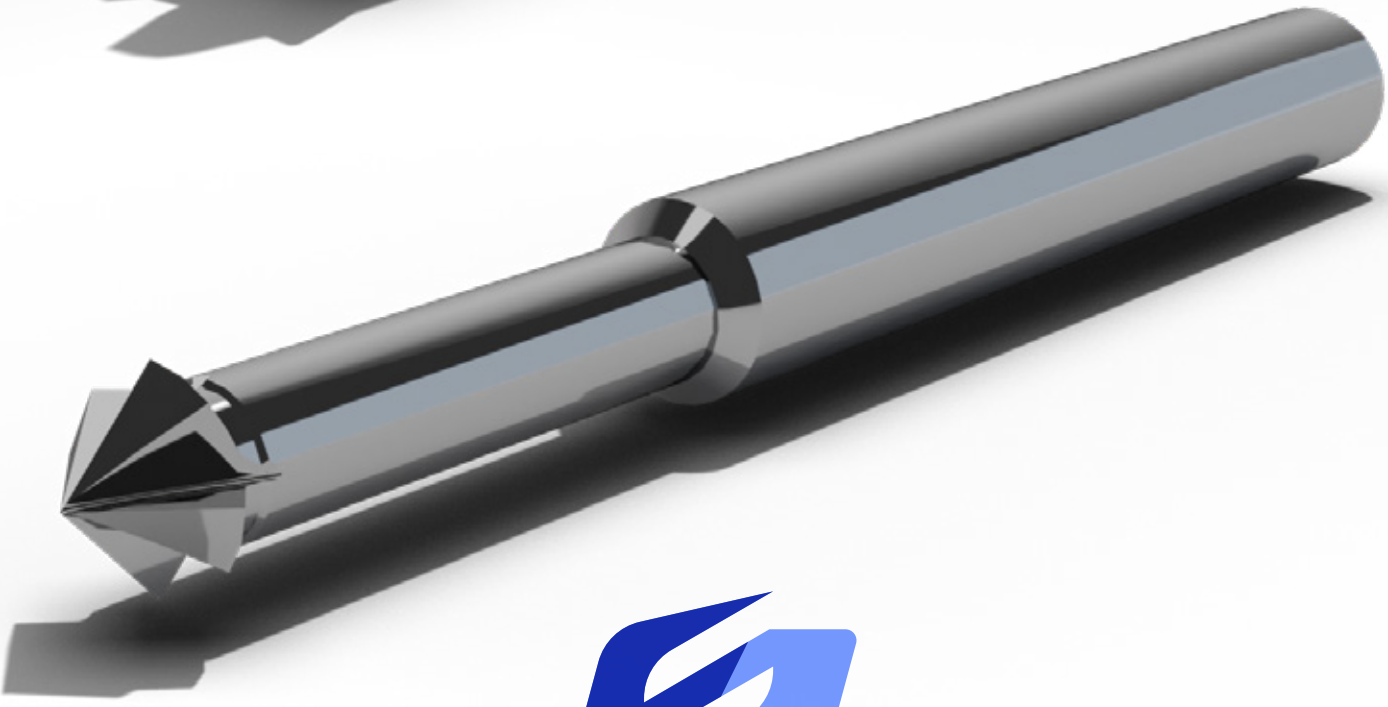
Shank diameter

Insert size

Cutting direction
*Optional

R = Right

Carbide End Mills



Designation system

- DIN HA — *cylindrical shank*
- Z4 — *cutting edges*
- 90° — *Sharp cutter*
- C — *chamfer on cutting edge*
- R — *radius on cutting edge*
- *ball end mill*
- *chamfering mill*

- *Cutting direction - side cutting*
- *Cutting direction - face cutting*
- *Cutting direction - axial cutting*
- *Tool length - short*
- *Tool length - long*
- *Dry running / air cooling*
- PVD — *PVD coating*

- *Slot milling*
- *Shoulder milling*
- *trochoidal slot milling*
- *Profile milling*

- *Angled milling*
- *Helical plunging*
- *Helical plunge milling*
- *Chamferning*

P	P	*Steel*
M	M	*Stainless Steel*
K	K	*Cast Iron*
N	N	*Non-ferrous metals and non-metals*
S	S	*Heat-resistant allloys*
H	H	*Hard materials*

P

Primary application

P

secondary application

Series	Type	Preview	P	M	K	N	S	H	z	Edge	Coating	Lenght	Page
M-P	Square End Mill		P	M	K	N	S		Z4	C	PVD		267
M-P	Square End Mill		P	M	K	N	S		Z4	C	PVD		268
M-P-...R	Radius End Mill		P	M	K	N	S		Z4	R	PVD		269
M-P-...R	Radius End Mill		P	M	K	N	S		Z4	R	PVD		270
M-P-...R	Ball Nose End Mill		P	M	K	N	S		Z2	U	PVD		271
M-P-...R	Ball Nose End Mill		P	M	K	N	S		Z2	U	PVD		272
M-P-...R	Ball Nose End Mill		P	M	K	N	S		Z4	U	PVD		273
M-P-...R	Ball Nose End Mill		P	M	K	N	S		Z4	U	PVD		274
M-PM	Square End Mill		P	M	K		S	H	Z3	C	PVD		276
M-PM	Square End Mill		P	M	K		S	H	Z4	C	PVD		277
M-PM	Square End Mill		P	M	K		S	H	Z4	C	PVD		278
M-PM	Square End Mill		P	M	K		S	H	Z5	C	PVD		279
M-PM	Square End Mill		P	M	K		S	H	Z5	C	PVD		280
M-M-...R	Radius End Mill		P	M	K		S		Z4	R	PVD		281
M-M-...R	Radius End Mill		P	M	K		S		Z4	R	PVD		282
M-PMS	Square End Mill		P	M	K		S		Z5	C	PVD		283
M-PMS	Square End Mill		P	M	K		S		Z5	C	PVD		284
M-N	Square End Mill					N			Z1	90°	-		287
M-N	Square End Mill					N			Z2	90°	-		289
M-N	Square End Mill					N			Z2	90°	-		290
M-N	Square End Mill					N			Z3	90°	-		291
M-N	Square End Mill					N			Z3	90°	-		292
M-N-...R	Ball Nose End Mill					N			Z2	U	-		293
M-N-...R	Ball Nose End Mill					N			Z2	U	-		294
M-H-...R	Radius End Mill		P					H	Z4	R	PVD		297
M-H-...R	Radius End Mill		P					H	Z4	R	PVD		298

Series	Type	Preview	P	M	K	N	S	H	z	Edge	Coating	Lenght	Page
M-HH-R	Radius End Mill		P					H	Z4	R	PVD		299
M-HH-R	Radius End Mill		P					H	Z4	R	PVD		300
M-N-C	Chamfer Cutter 60°		P	M	K	N	S	H	Z4	V	-		302
M-N-C	Chamfer Cutter 90°		P	M	K	N	S	H	Z4	V	-		302
M-N-C	Chamfer Cutter 120°		P	M	K	N	S	H	Z4	V	-		302
M-N-BC	Back Chamfer Cutter 90°		P	M	K	N	S	H	Z4	V			303

P M K N S H *Primary application*

P M K N S H *Secondary application*

End Mills designation system

Tool Group
- M - mill
- End Mill
- D - Drill
- Drills
- SM - special mill
- SD - special drill

Work Diameter

030	3	mm
...	...	mm
200	20	mm

Undercut Dia.

030	3	mm
...	...	mm
200	20	mm

(shown when difrent that work diameter)

Work Lenght

005	5	mm
...	...	mm
076	76	mm

Overall Lenght

050	50	mm
...	...	mm
125	125	mm

Radius / Chamfer

Radius

R002	0.2	mm
R...	....	mm
R100	10	mm

Chamfer

C001	0.1	mm
C...		...
C060	6.0	mm

M - HH - 040 . 035 . - 005 . 11 . 51 . R002 . Z04

Series
- P
- PM
- M
- PMS
- N
- H
- HH
- N-C...
- N-BC...

Shank Diameter

(shown when difrent that work diameter)

030	3	mm
...	...	mm
200	20	mm

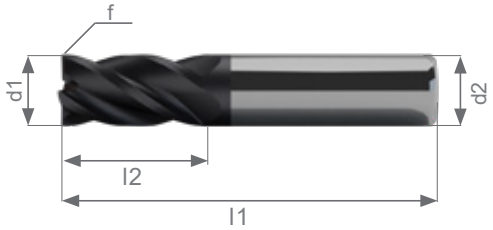
Undercut Lenght

011	11	mm
...	...	mm
050	50	mm

No of Flutes
- 1
- ...
- 5

M-P - SQUARE END MILL Z4

- *universal*
- *square end mill*
- *4 cutting edges*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



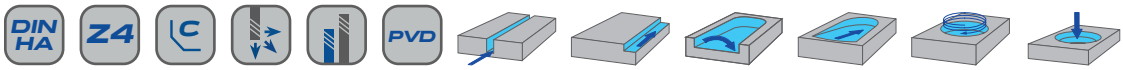
P

M

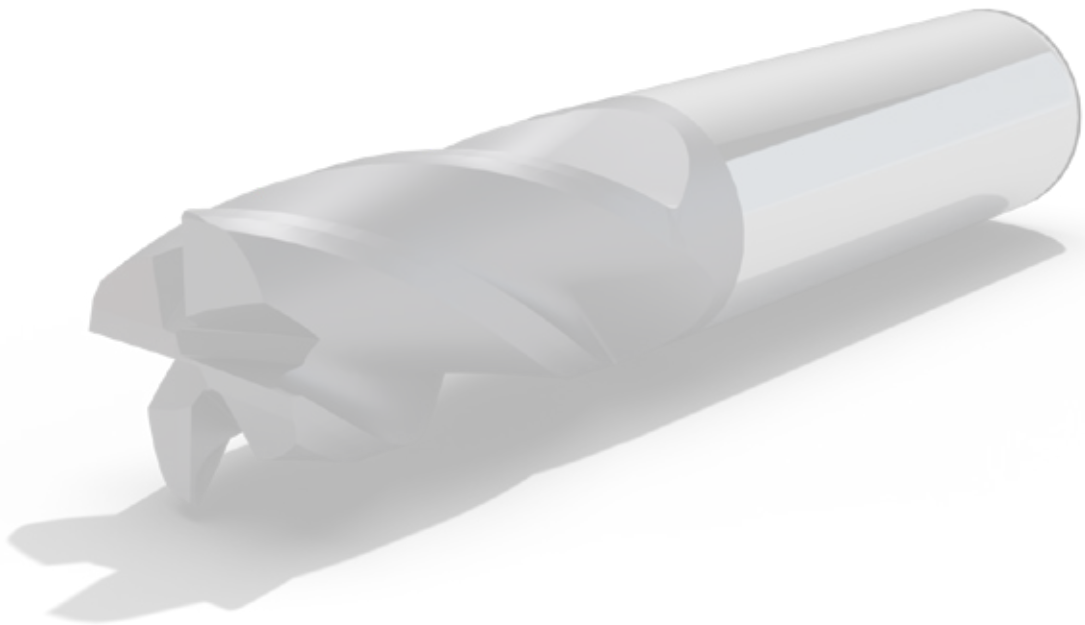
K

N

S

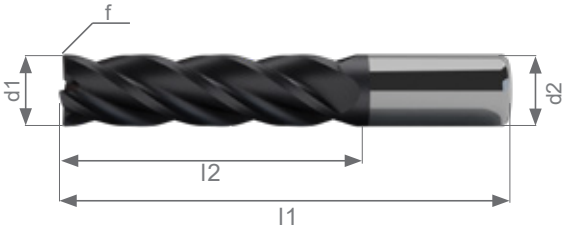


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-P-040-008.051-C010.Z04	4	4	51	8	4	0,1
M-P-060-016.055-C020.Z04	6	6	55	16	4	0,2
M-P-080-020.059-C020.Z04	8	8	59	20	4	0,2
M-P-100-022.073-C020.Z04	10	10	73	22	4	0,2
M-P-120-024.074-C020.Z04	12	12	74	24	4	0,2
M-P-140-026.076-C020.Z04	14	14	76	26	4	0,2
M-P-160-030.083-C030.Z04	16	16	83	30	4	0,3
M-P-180-034.093-C030.Z04	18	18	93	34	4	0,3
M-P-200-038.105-C030.Z04	20	20	105	38	4	0,3



M-P - SQUARE END MILL Z4 - LONG

- *universal*
- *square end mill*
- *4 cutting edges*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



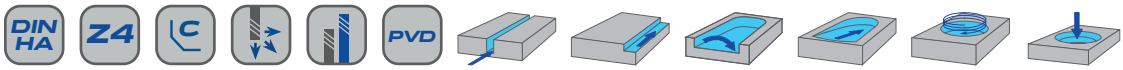
P

M

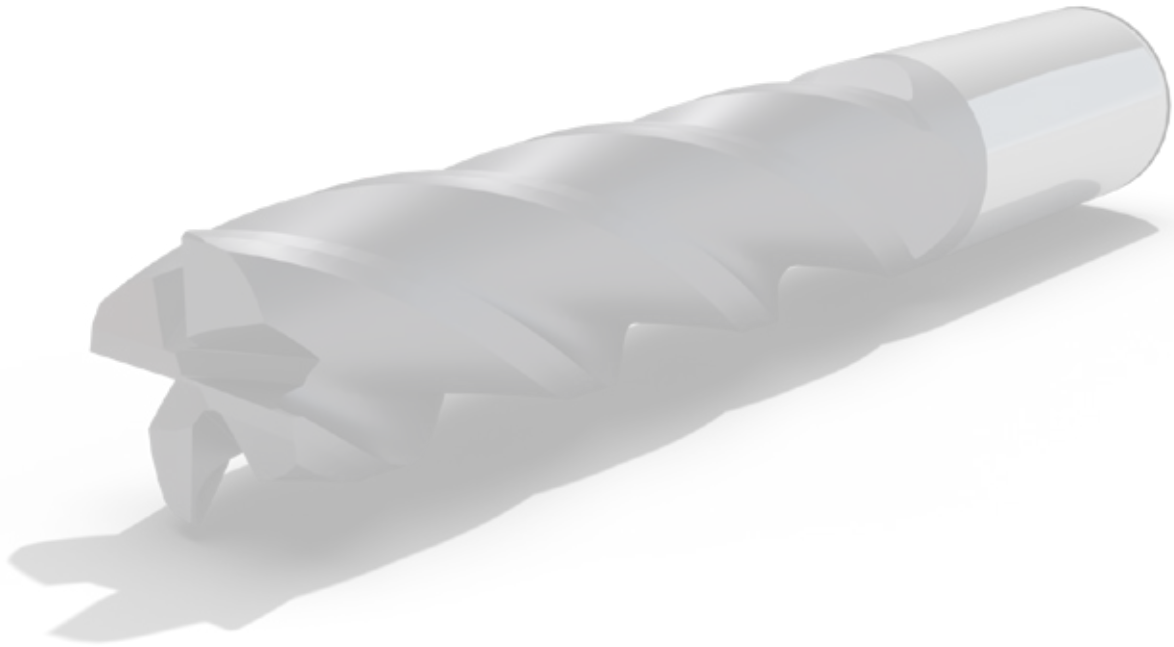
K

N

S

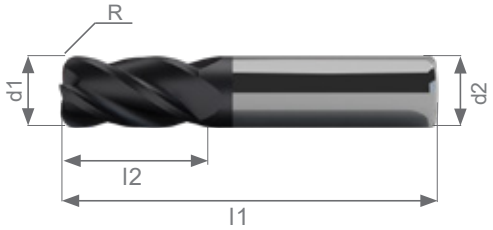


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-P-040-008.075-C010.Z04	4	4	75	8	4	0,1
M-P-040-016.075-C010.Z04	4	4	75	16	4	0,1
M-P-060-016.075-C020.Z04	6	6	75	16	4	0,2
M-P-060-032.075-C020.Z04	6	6	75	32	4	0,2
M-P-080-020.100-C020.Z04	8	8	100	20	4	0,2
M-P-080-040.100-C020.Z04	8	8	100	40	4	0,2
M-P-100-022.100-C020.Z04	10	10	100	22	4	0,2
M-P-100-044.100-C020.Z04	10	10	100	44	4	0,2
M-P-120-024.100-C020.Z04	12	12	100	24	4	0,2
M-P-120-048.100-C020.Z04	12	12	100	48	4	0,2
M-P-140-026.105-C020.Z04	14	14	105	26	4	0,2
M-P-160-030.110-C030.Z04	16	16	110	30	4	0,3
M-P-160-060.110-C030.Z04	16	16	110	60	4	0,3
M-P-180-034.110-C030.Z04	18	18	110	34	4	0,3
M-P-180-068.110-C030.Z04	18	18	110	68	4	0,3
M-P-200-038.125-C030.Z04	20	20	125	38	4	0,3
M-P-200-076.125-C030.Z04	20	20	125	76	4	0,3



M-P-...R... - RADIUS END MILL Z4

- universal
- radius end mill
- 4 cutting edges
- PVD coating
- cylindrical shank
- work with coolant
- no internal cooling



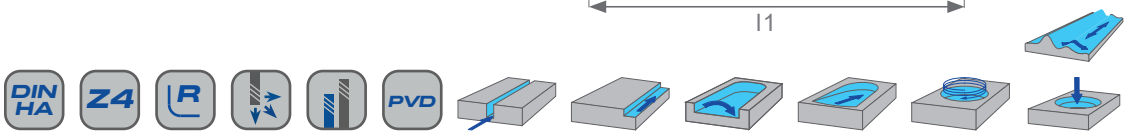
P

M

K

N

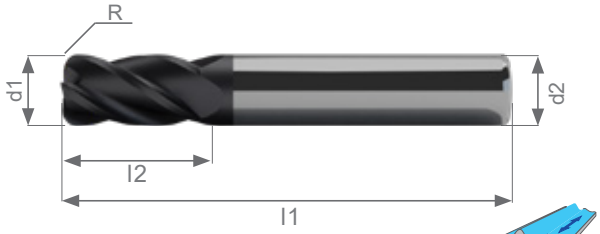
S

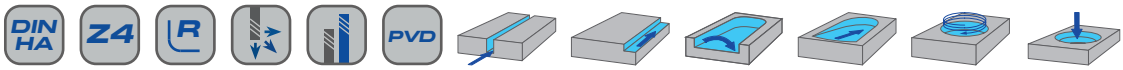


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-P-040-008.051-R002.Z04	4	4	51	8	4	0,2
M-P-040-008.051-R005.Z04	4	4	51	8	4	0,5
M-P-050-010.051-R005.Z04	5	5	51	10	4	0,5
M-P-060-016.055-R002.Z04	6	6	55	16	4	0,2
M-P-060-016.055-R005.Z04	6	6	55	16	4	0,5
M-P-060-016.055-R010.Z04	6	6	55	16	4	1,0
M-P-080-020.059-R005.Z04	8	8	59	20	4	0,5
M-P-080-020.059-R010.Z04	8	8	59	20	4	1,0
M-P-080-020.059-R015.Z04	8	8	59	20	4	1,5
M-P-100-022.073-R005.Z04	10	10	73	22	4	0,5
M-P-100-022.073-R010.Z04	10	10	73	22	4	1,0
M-P-100-022.073-R015.Z04	10	10	73	22	4	1,5
M-P-100-022.073-R020.Z04	10	10	73	22	4	2,0
M-P-120-024.074-R005.Z04	12	12	74	24	4	0,5
M-P-120-024.074-R010.Z04	12	12	74	24	4	1,0
M-P-120-024.074-R015.Z04	12	12	74	24	4	1,5
M-P-120-024.074-R020.Z04	12	12	74	24	4	2,0
M-P-120-024.074-R030.Z04	12	12	74	24	4	3,0
M-P-140-026.076-R005.Z04	14	14	76	26	4	0,5
M-P-140-026.076-R010.Z04	14	14	76	26	4	1,0
M-P-140-026.076-R015.Z04	14	14	76	26	4	1,5
M-P-140-026.076-R020.Z04	14	14	76	26	4	2,0
M-P-140-026.076-R030.Z04	14	14	76	26	4	3,0
M-P-160-026.083-R005.Z04	16	16	83	26	4	0,5
M-P-160-026.083-R010.Z04	16	16	83	26	4	1,0
M-P-160-026.083-R015.Z04	16	16	83	26	4	1,5
M-P-160-026.083-R020.Z04	16	16	83	26	4	2,0
M-P-160-026.083-R030.Z04	16	16	83	26	4	3,0
M-P-160-026.083-R040.Z04	16	16	83	26	4	4,0
M-P-180-032.093-R005.Z04	18	18	93	32	4	0,5
M-P-180-032.093-R010.Z04	18	18	93	32	4	1,0
M-P-180-032.093-R015.Z04	18	18	93	32	4	1,5
M-P-180-032.093-R020.Z04	18	18	93	32	4	2,0
M-P-180-032.093-R030.Z04	18	18	93	32	4	3,0
M-P-180-032.093-R040.Z04	18	18	93	32	4	4,0
M-P-200-038.105-R005.Z04	20	20	105	38	4	0,5
M-P-200-038.105-R010.Z04	20	20	105	38	4	1,0
M-P-200-038.105-R015.Z04	20	20	105	38	4	1,5
M-P-200-038.105-R020.Z04	20	20	105	38	4	2,0
M-P-200-038.105-R030.Z04	20	20	105	38	4	3,0
M-P-200-038.105-R040.Z04	20	20	105	38	4	4,0

M-P-...R... - RADIUS END MILL Z4 - LONG

- universal
- radius end mill long
- 4 cutting edges
- PVD coating
- cylindrical shank
- work with coolant
- no internal cooling





P

M

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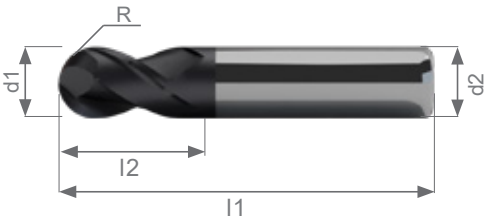
N

S

Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-P-040-008.075-R002.Z04	4	4	75	8	4	0,2
M-P-040-008.075-R005.Z04	4	4	75	8	4	0,5
M-P-050-010.075-R005.Z04	5	5	75	10	4	0,5
M-P-060-016.075-R002.Z04	6	6	75	16	4	0,2
M-P-060-016.075-R005.Z04	6	6	75	16	4	0,5
M-P-060-016.075-R010.Z04	6	6	75	16	4	1,0
M-P-080-020.100-R005.Z04	8	8	100	20	4	0,5
M-P-080-020.100-R010.Z04	8	8	100	20	4	1,0
M-P-080-020.100-R015.Z04	8	8	100	20	4	1,5
M-P-100-022.100-R005.Z04	10	10	100	22	4	0,5
M-P-100-022.100-R010.Z04	10	10	100	22	4	1,0
M-P-100-022.100-R015.Z04	10	10	100	22	4	1,5
M-P-100-022.100-R020.Z04	10	10	100	22	4	2,0
M-P-120-024.100-R005.Z04	12	12	100	24	4	0,5
M-P-120-024.100-R010.Z04	12	12	100	24	4	1,0
M-P-120-024.100-R015.Z04	12	12	100	24	4	1,5
M-P-120-024.100-R020.Z04	12	12	100	24	4	2,0
M-P-120-024.100-R030.Z04	12	12	100	24	4	3,0
M-P-140-026.105-R005.Z04	14	14	105	26	4	0,5
M-P-140-026.105-R010.Z04	14	14	105	26	4	1,0
M-P-140-026.105-R015.Z04	14	14	105	26	4	1,5
M-P-140-026.105-R020.Z04	14	14	105	26	4	2,0
M-P-140-026.105-R030.Z04	14	14	105	26	4	3,0
M-P-160-026.110-R005.Z04	16	16	110	26	4	0,5
M-P-160-026.110-R010.Z04	16	16	110	26	4	1,0
M-P-160-026.110-R015.Z04	16	16	110	26	4	1,5
M-P-160-026.110-R020.Z04	16	16	110	26	4	2,0
M-P-160-026.110-R030.Z04	16	16	110	26	4	3,0
M-P-160-026.110-R040.Z04	16	16	110	26	4	4,0
M-P-180-032.110-R005.Z04	18	18	110	32	4	0,5
M-P-180-032.110-R010.Z04	18	18	110	32	4	1,0
M-P-180-032.110-R015.Z04	18	18	110	32	4	1,5
M-P-180-032.110-R020.Z04	18	18	110	32	4	2,0
M-P-180-032.110-R030.Z04	18	18	110	32	4	3,0
M-P-180-032.110-R040.Z04	18	18	110	32	4	4,0
M-P-200-038.125-R005.Z04	20	20	125	38	4	0,5
M-P-200-038.125-R010.Z04	20	20	125	38	4	1,0
M-P-200-038.125-R015.Z04	20	20	125	38	4	1,5
M-P-200-038.125-R020.Z04	20	20	125	38	4	2,0
M-P-200-038.125-R030.Z04	20	20	125	38	4	3,0
M-P-200-038.125-R040.Z04	20	20	125	38	4	4,0

M-P-...R... - BALL NOSE END MILL Z2

- *universal*
- *ball nose end mill*
- *2 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



P

M

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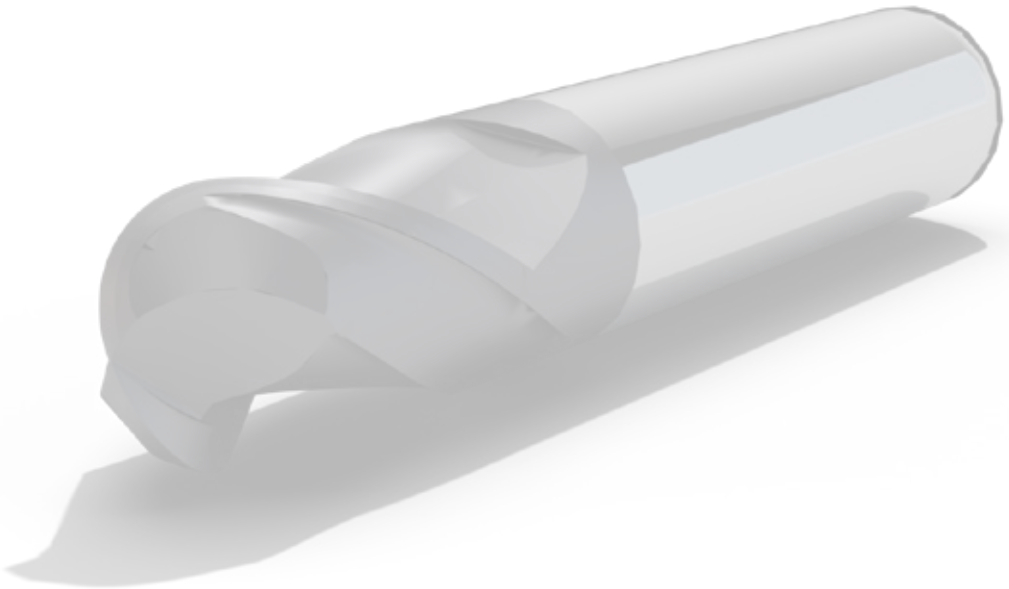
N

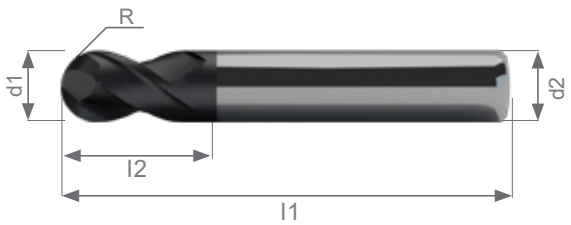
S

Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-P-040-006.051-R020.Z02	4	4	51	6	2	2,0
M-P-050-008.051-R025.Z02	5	5	51	8	2	2,5
M-P-060-009.055-R030.Z02	6	6	55	9	2	3,0
M-P-080-012.059-R040.Z02	8	8	59	12	2	4,0
M-P-100-015.073-R050.Z02	10	10	73	15	2	5,0
M-P-120-018.074-R060.Z02	12	12	74	18	2	6,0
M-P-140-021.076-R070.Z02	14	14	76	21	2	7,0
M-P-160-024.083-R080.Z02	16	16	83	24	2	8,0
M-P-180-027.093-R090.Z02	18	18	93	27	2	9,0
M-P-200-030.093-R100.Z02	20	20	93	30	2	10,0



M-P-...R... - BALL NOSE END MILL Z2 - LONG

- *universal*
- *ball nose end mill long*
- *2 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



P

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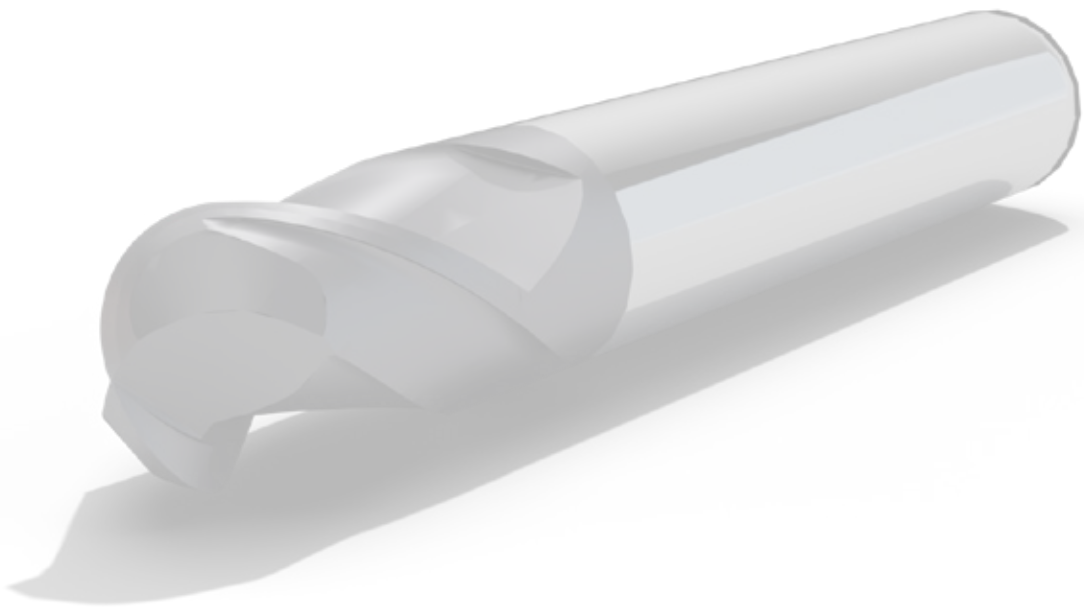
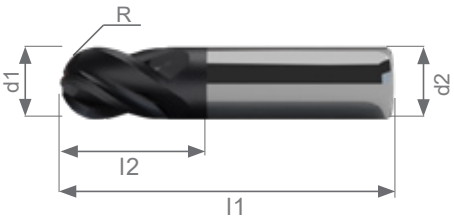
S

Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-P-040-006.075-R020.Z02	4	4	75	6	2	2,0
M-P-050-008.075-R025.Z02	5	5	75	8	2	2,5
M-P-060-009.075-R030.Z02	6	6	75	9	2	3,0
M-P-080-012.100-R040.Z02	8	8	100	12	2	4,0
M-P-100-015.100-R050.Z02	10	10	100	15	2	5,0
M-P-120-018.100-R060.Z02	12	12	100	18	2	6,0
M-P-140-021.105-R070.Z02	14	14	105	21	2	7,0
M-P-160-024.110-R080.Z02	16	16	110	24	2	8,0
M-P-180-027.110-R090.Z02	18	18	110	27	2	9,0
M-P-200-030.125-R100.Z02	20	20	125	30	2	10,0



M-P-...R... - BALL NOSE END MILL Z4

- *universal*
- *ball nose end mill*
- *4 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



P

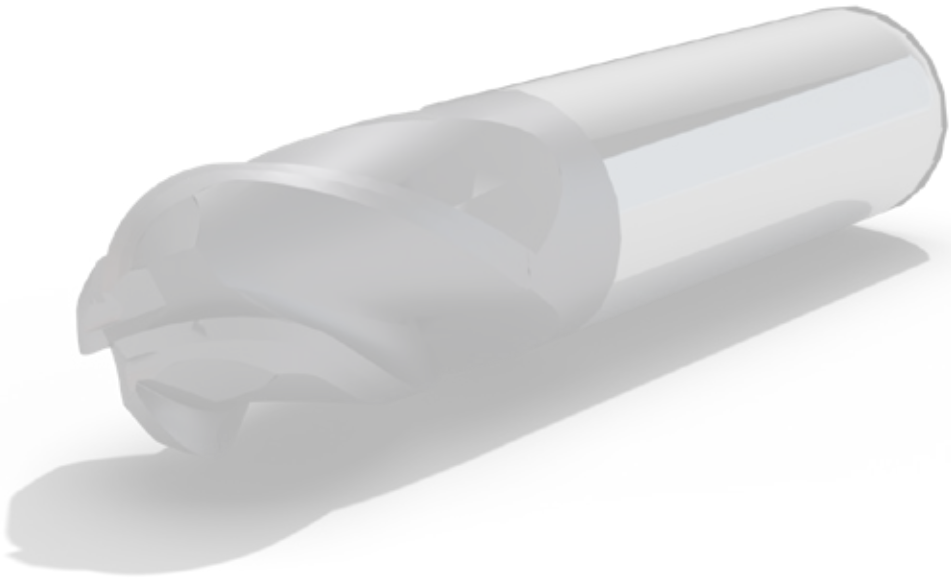
M

K

N

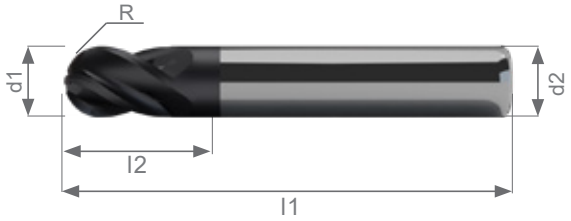
S

Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-P-040-006.051-R020.Z04	4	4	51	6	4	2,0
M-P-050-008.051-R025.Z04	5	5	51	8	4	2,5
M-P-060-009.055-R030.Z04	6	6	55	9	4	3,0
M-P-080-012.059-R040.Z04	8	8	59	12	4	4,0
M-P-100-015.073-R050.Z04	10	10	73	15	4	5,0
M-P-120-018.074-R060.Z04	12	12	74	18	4	6,0
M-P-140-021.076-R070.Z04	14	14	76	21	4	7,0
M-P-160-024.083-R080.Z04	16	16	83	24	4	8,0
M-P-180-027.093-R090.Z04	18	18	93	27	4	9,0
M-P-200-030.093-R100.Z04	20	20	93	30	4	10,0



M-P-...R... - BALL NOSE END MILL Z4 - LONG

- *universal*
- *ball nose end mill long*
- *4 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



P

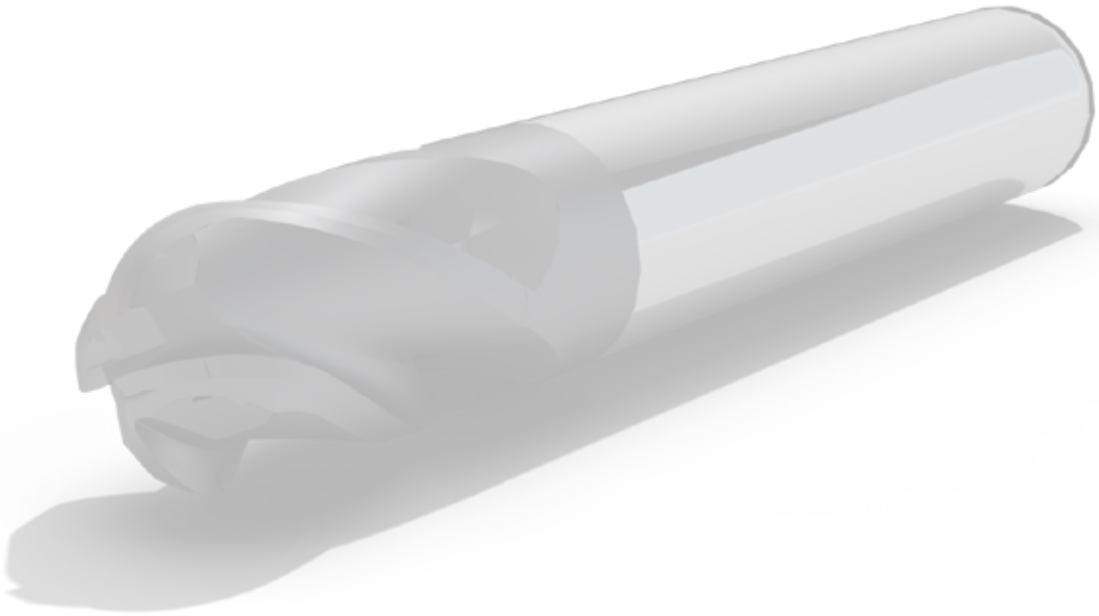
M

K

N

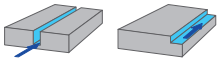
S

Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-P-040-006.075-R020.Z04	4	4	75	6	4	2,0
M-P-050-008.075-R025.Z04	5	5	75	8	4	2,5
M-P-060-009.075-R030.Z04	6	6	75	9	4	3,0
M-P-080-012.100-R040.Z04	8	8	100	12	4	4,0
M-P-100-015.100-R050.Z04	10	10	100	15	4	5,0
M-P-120-018.100-R060.Z04	12	12	100	18	4	6,0
M-P-140-021.105-R070.Z04	14	14	105	21	4	7,0
M-P-160-024.110-R080.Z04	16	16	110	24	4	8,0
M-P-180-027.110-R090.Z04	18	18	110	27	4	9,0
M-P-200-030.125-R100.Z04	20	20	125	30	4	10,0



SQUARE END MILL Z2 - Z4

	Material	Coolant Vc – m/min
P	Steel	110-150
K	Cast Iron	160-220
M	Stainless steel	50-120
S	Exotic	25-30
N	Non-ferrous metals	110-340

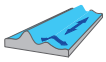


d = 4 mm		d = 6 mm		d = 8 mm		d = 10 mm		d = 12 mm	
ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd
fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
0,04	0,01	0,06	0,02	0,09	0,03	0,12	0,04	0,15	0,05

d = 14 mm		d = 16 mm		d = 18 mm		d = 20 mm	
ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,1xd	ap 0,5xd ae 1,0xd
fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
0,18	0,05	0,2	0,06	0,22	0,07	0,25	0,08

BALL NOSE END MILL Z2 i Z4

	Material	Coolant Vc – m/min
P	Steel	110-150
K	Cast Iron	160-220
M	Stainless steel	50-120
S	Exotic	25-30
N	Non-ferrous metals	110-340

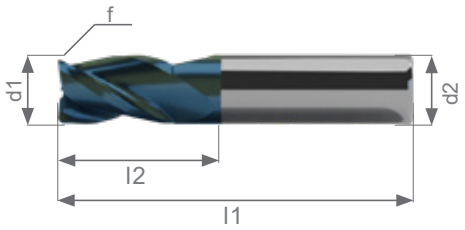


d = 4 mm		d = 6 mm		d = 8 mm		d = 10 mm		d = 12 mm	
ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd	ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd	ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd	ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd	ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd
fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
0,012	0,014	0,02	0,022	0,024	0,026	0,027	0,029	0,029	0,031

d = 14 mm		d = 16 mm		d = 18 mm		d = 20 mm	
ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd	ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd	ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd	ap 0,1xd ae 0,1xd	ap 0,01xd ae 0,01xd
fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
0,03	0,032	0,032	0,034	0,034	0,036	0,037	0,039

M-PM - SQUARE END MILL Z3

- *high efficient*
- *square end mill*
- *3 cutting edges*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



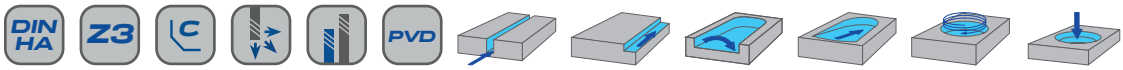
P

M

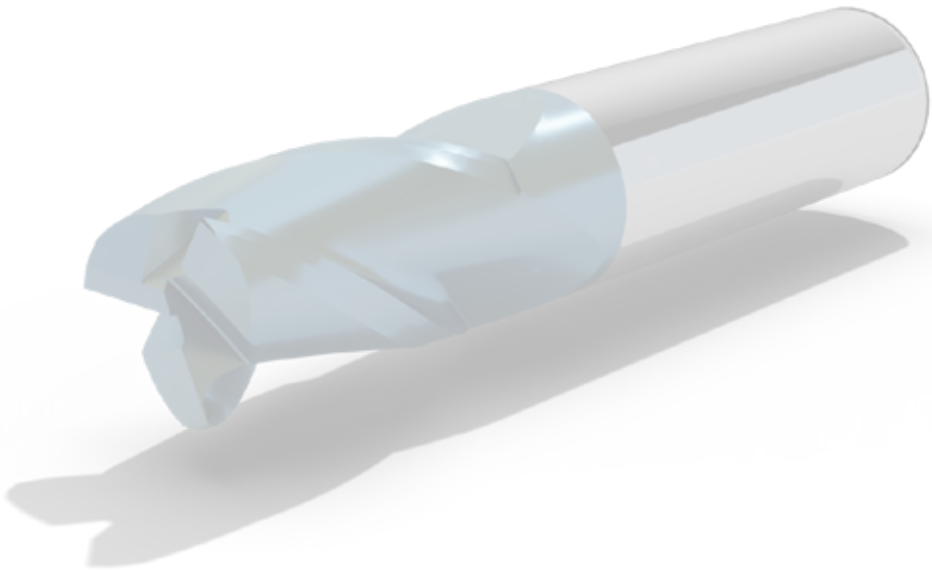
K

S

H

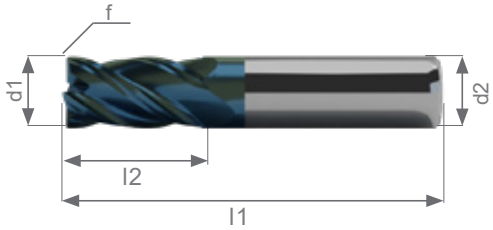


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-PM-030.040-007.060-C010.Z03	3	4	60	7	3	0,1
M-PM-040-008.060-C010.Z03	4	4	60	8	3	0,1
M-PM-050.060-009.055-C020.Z03	5	6	55	9	3	0,2
M-PM-060-010.055-C020.Z03	6	6	55	10	3	0,2
M-PM-070.080-013.059-C020.Z03	7	8	59	13	3	0,2
M-PM-080-016.059-C020.Z03	8	8	59	16	3	0,2
M-PM-090.100-018.073-C020.Z03	9	10	73	18	3	0,2
M-PM-100-019.073-C020.Z03	10	10	73	19	3	0,2
M-PM-120-022.074-C020.Z03	12	12	74	22	3	0,2
M-PM-160-026.083-C030.Z03	16	16	83	26	3	0,3



M-PM - SQUARE END MILL Z4

- *high efficient*
- *square end mill*
- *4 cutting edges*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



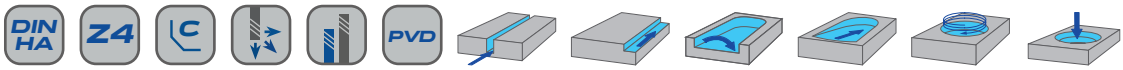
P

M

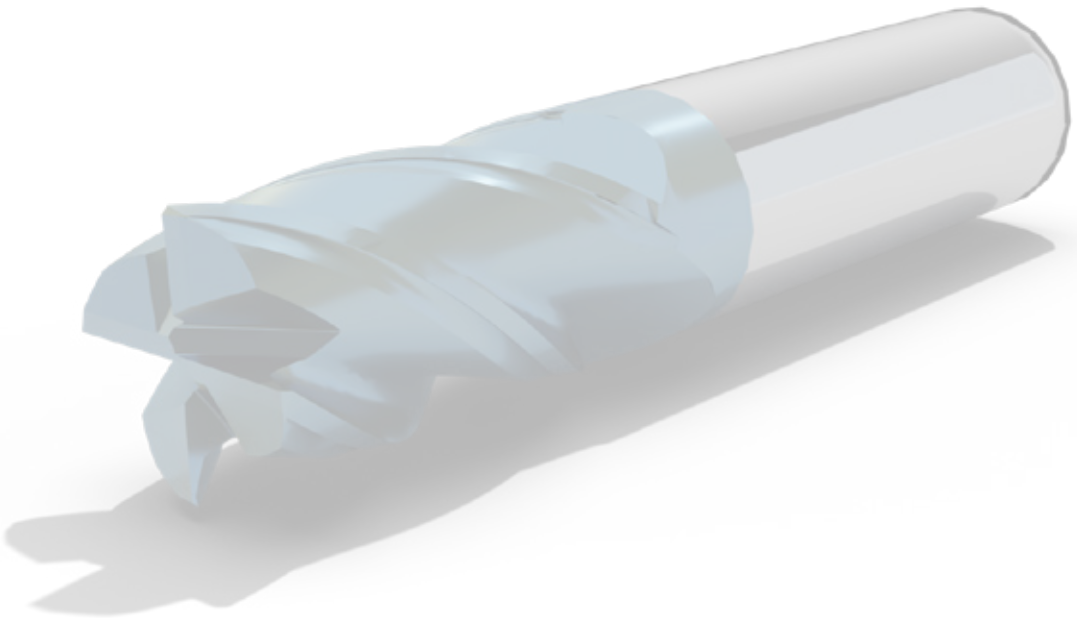
K

S

H

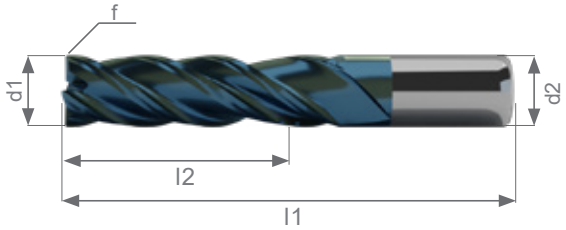


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-PM-040-008.051-C015.Z04	4	4	51	8	4	0,15
M-PM-060-016.055-C015.Z04	6	6	55	16	4	0,15
M-PM-080-020.059-C015.Z04	8	8	59	20	4	0,15
M-PM-100-022.073-C020.Z04	10	10	73	22	4	0,20
M-PM-120-024.074-C020.Z04	12	12	74	24	4	0,20
M-PM-140-026.076-C020.Z04	14	14	76	26	4	0,20
M-PM-160-030.083-C025.Z04	16	16	83	30	4	0,25
M-PM-180-034.093-C030.Z04	18	18	93	34	4	0,30
M-PM-200-038.105-C030.Z04	20	20	105	38	4	0,30



M-PM - SQUARE END MILL Z4 - LONG

- *high efficient*
- *square end mill long*
- *4 cutting edges*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



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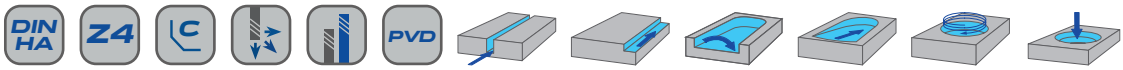
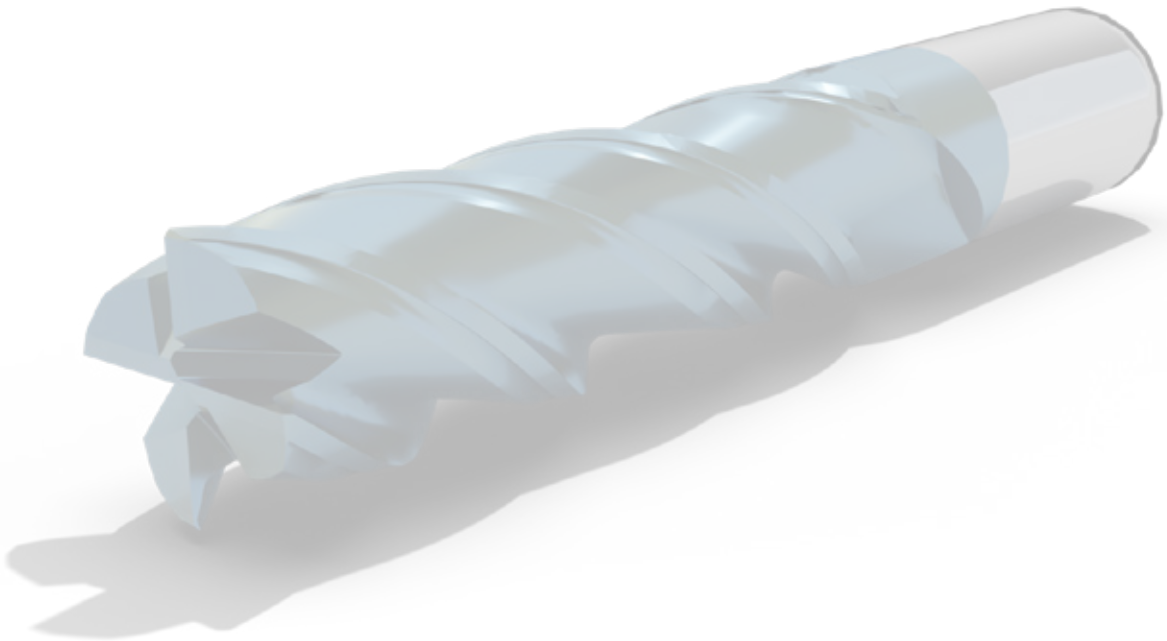
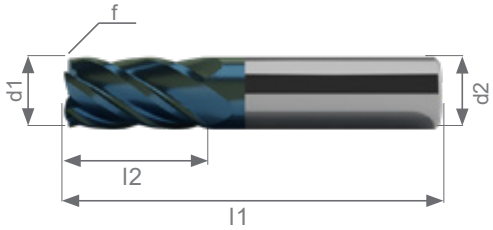


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-PM-040-008.075-C015.Z04	4	4	75	8	4	0,15
M-PM-060-016.075-C015.Z04	6	6	75	16	4	0,15
M-PM-080-020.100-C015.Z04	8	8	100	20	4	0,15
M-PM-080-032.100-C015.Z04	8	8	100	32	4	0,15
M-PM-100-022.100-C020.Z04	10	10	100	22	4	0,20
M-PM-100-038.100-C020.Z04	10	10	100	38	4	0,20
M-PM-120-024.100-C020.Z04	12	12	100	24	4	0,20
M-PM-120-044.100-C020.Z04	12	12	100	44	4	0,20
M-PM-140-026.105-C020.Z04	14	14	105	26	4	0,20
M-PM-160-030.110-C025.Z04	16	16	110	30	4	0,25
M-PM-160-056.110-C025.Z04	16	16	110	56	4	0,25
M-PM-180-034.110-C030.Z04	18	18	110	34	4	0,30
M-PM-180-064.110-C030.Z04	18	18	110	64	4	0,30
M-PM-200-038.125-C030.Z04	20	20	125	38	4	0,30
M-PM-200-070.125-C030.Z04	20	20	125	70	4	0,30



M-PM - SQUARE END MILL Z5

- *high efficient*
- *square end mill*
- *5 flutes*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



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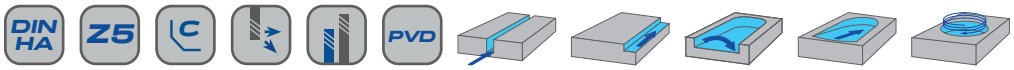
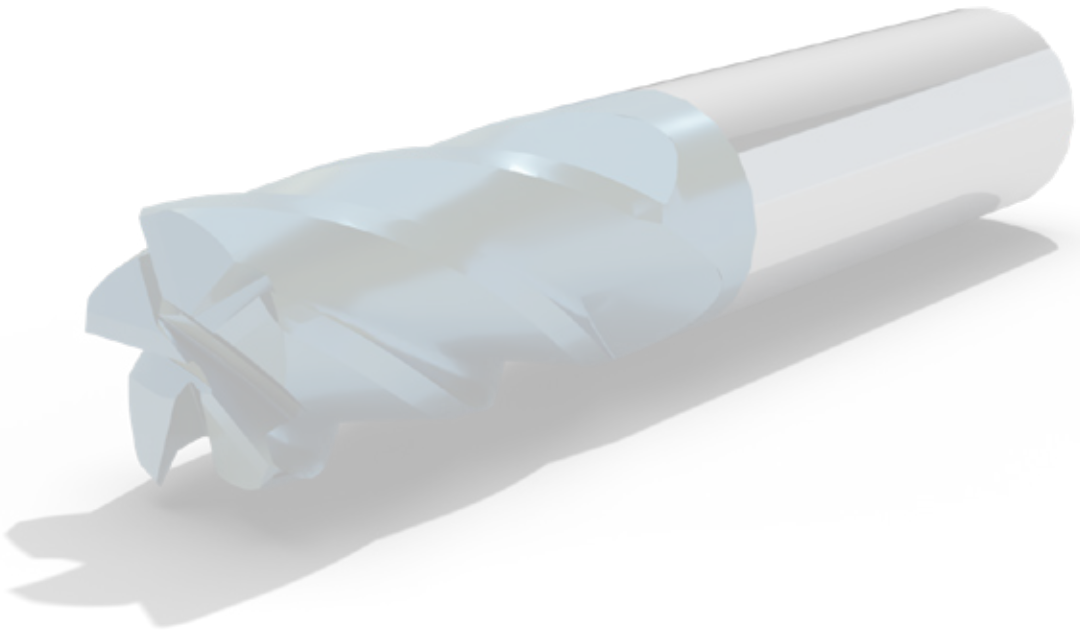
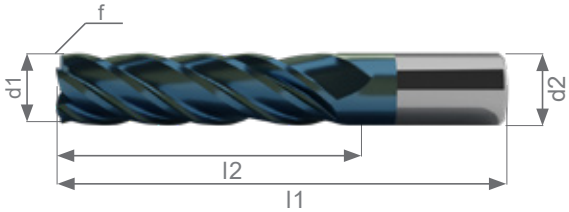


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-PM-040-008.051-C015.Z05	4	4	51	8	5	0,15
M-PM-060-016.055-C015.Z05	6	6	55	16	5	0,15
M-PM-080-020.059-C015.Z05	8	8	59	20	5	0,15
M-PM-100-022.073-C020.Z05	10	10	73	22	5	0,20
M-PM-120-024.074-C020.Z05	12	12	74	24	5	0,20
M-PM-140-026.076-C020.Z05	14	14	76	26	5	0,20
M-PM-160-030.083-C025.Z05	16	16	83	30	5	0,25
M-PM-180-034.093-C030.Z05	18	18	93	34	5	0,30
M-PM-200-038.105-C030.Z05	20	20	105	38	5	0,30



M-PM - SQUARE END MILL Z5 - LONG

- *high efficient*
- *square end mill long*
- *5 flutes*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



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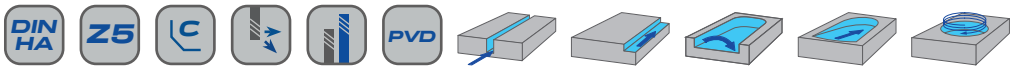
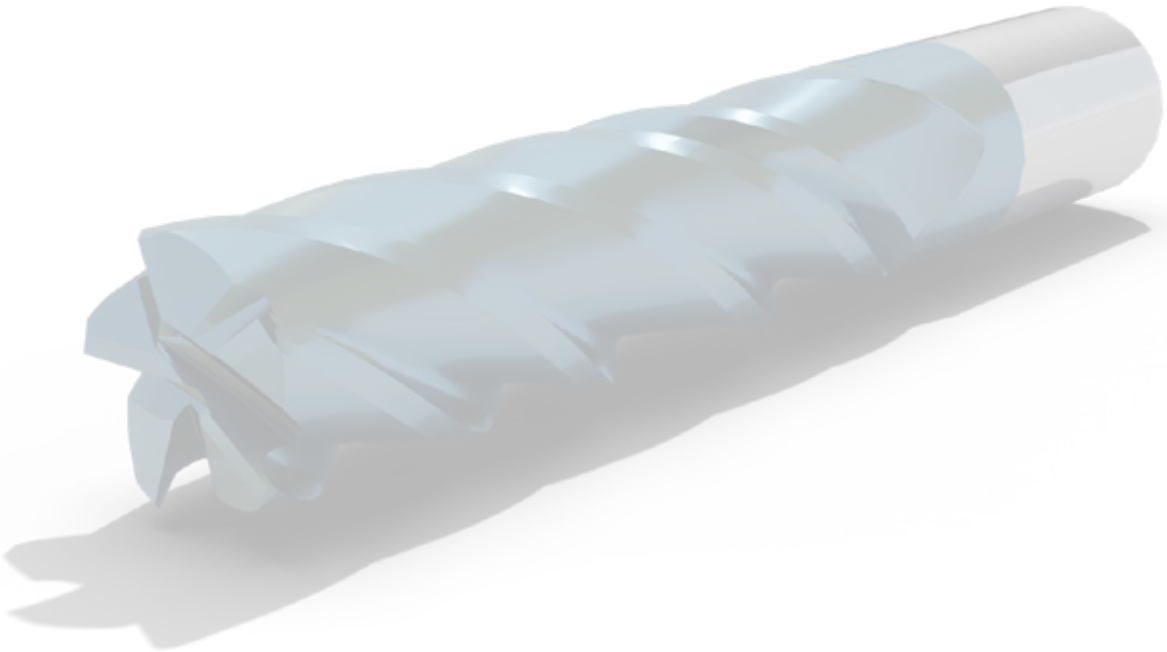
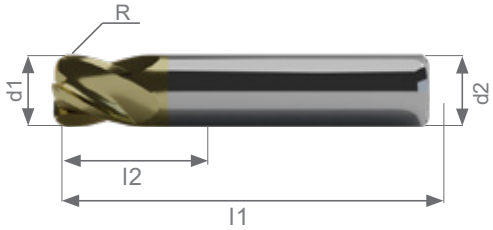


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-PM-040-008.075-C015.Z05	4	4	75	8	5	0,15
M-PM-060-016.075-C020.Z05	6	6	75	16	5	0,20
M-PM-080-020.100-C020.Z05	8	8	100	20	5	0,20
M-PM-080-032.100-C020.Z05	8	8	100	32	5	0,20
M-PM-100-022.100-C020.Z05	10	10	100	22	5	0,20
M-PM-100-038.100-C020.Z05	10	10	100	38	5	0,20
M-PM-120-024.100-C020.Z05	12	12	100	24	5	0,20
M-PM-120-044.100-C020.Z05	12	12	100	44	5	0,20
M-PM-140-026.105-C020.Z05	14	14	105	26	5	0,20
M-PM-160-030.110-C025.Z05	16	16	110	30	5	0,25
M-PM-160-056.110-C025.Z05	16	16	110	56	5	0,25
M-PM-180-034.110-C030.Z05	18	18	110	34	5	0,30
M-PM-180-064.110-C030.Z05	18	18	110	64	5	0,30
M-PM-200-038.125-C030.Z05	20	20	125	38	5	0,30
M-PM-200-070.125-C030.Z05	20	20	125	70	5	0,30



M-M-...R... - RADIUS END MILL Z4

- high efficient
- radius end mill
- 4 cutting edges
- PVD coating
- cylindrical shank
- work with coolant
- no internal cooling



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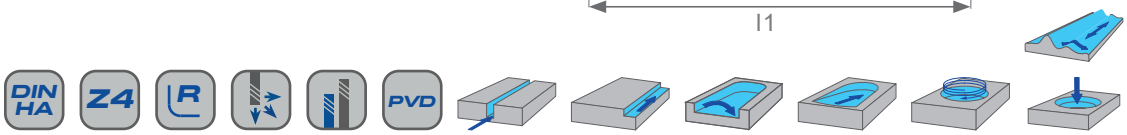
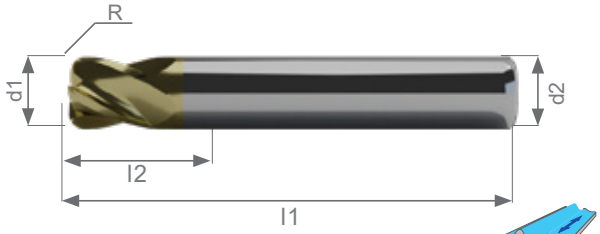


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-M-040-008.051-R002.Z04	4	4	51	8	4	0,2
M-M-040-008.051-R005.Z04	4	4	51	8	4	0,5
M-M-050-010.051-R005.Z04	5	5	51	10	4	0,5
M-M-060-016.055-R002.Z04	6	6	55	16	4	0,2
M-M-060-016.055-R005.Z04	6	6	55	16	4	0,5
M-M-060-016.055-R010.Z04	6	6	55	16	4	1,0
M-M-080-020.059-R005.Z04	8	8	59	20	4	0,5
M-M-080-020.059-R010.Z04	8	8	59	20	4	1,0
M-M-080-020.059-R015.Z04	8	8	59	20	4	1,5
M-M-100-022.073-R005.Z04	10	10	73	22	4	0,5
M-M-100-022.073-R010.Z04	10	10	73	22	4	1,0
M-M-100-022.073-R015.Z04	10	10	73	22	4	1,5
M-M-100-022.073-R020.Z04	10	10	73	22	4	2,0
M-M-120-024.074-R005.Z04	12	12	74	24	4	0,5
M-M-120-024.074-R010.Z04	12	12	74	24	4	1,0
M-M-120-024.074-R015.Z04	12	12	74	24	4	1,5
M-M-120-024.074-R020.Z04	12	12	74	24	4	2,0
M-M-120-024.074-R030.Z04	12	12	74	24	4	3,0
M-M-140-026.076-R005.Z04	14	14	76	26	4	0,5
M-M-140-026.076-R010.Z04	14	14	76	26	4	1,0
M-M-140-026.076-R015.Z04	14	14	76	26	4	1,5
M-M-140-026.076-R020.Z04	14	14	76	26	4	2,0
M-M-140-026.076-R030.Z04	14	14	76	26	4	3,0
M-M-160-026.083-R005.Z04	16	16	83	26	4	0,5
M-M-160-026.083-R010.Z04	16	16	83	26	4	1,0
M-M-160-026.083-R015.Z04	16	16	83	26	4	1,5
M-M-160-026.083-R020.Z04	16	16	83	26	4	2,0
M-M-160-026.083-R030.Z04	16	16	83	26	4	3,0
M-M-160-026.083-R040.Z04	16	16	83	26	4	4,0
M-M-180-032.093-R005.Z04	18	18	93	32	4	0,5
M-M-180-032.093-R010.Z04	18	18	93	32	4	1,0
M-M-180-032.093-R015.Z04	18	18	93	32	4	1,5
M-M-180-032.093-R020.Z04	18	18	93	32	4	2,0
M-M-180-032.093-R030.Z04	18	18	93	32	4	3,0
M-M-180-032.093-R040.Z04	18	18	93	32	4	4,0
M-M-200-038.105-R005.Z04	20	20	105	38	4	0,5
M-M-200-038.105-R010.Z04	20	20	105	38	4	1,0
M-M-200-038.105-R015.Z04	20	20	105	38	4	1,5
M-M-200-038.105-R020.Z04	20	20	105	38	4	2,0
M-M-200-038.105-R030.Z04	20	20	105	38	4	3,0
M-M-200-038.105-R040.Z04	20	20	105	38	4	4,0

M-M-...R... - RADIUS END MILL Z4 - LONG

- *high efficient*
- *radius end mill long*
- *4 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



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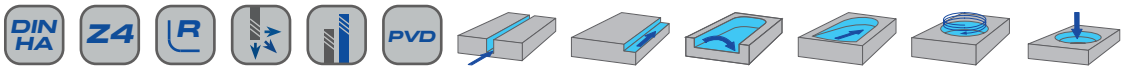
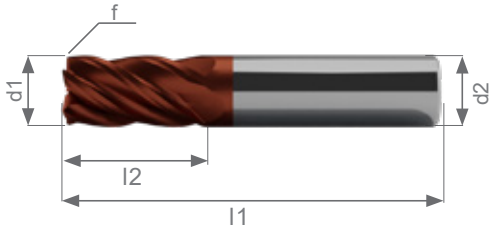


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-M-040-008.075-R002.Z04	4	4	75	8	4	0,2
M-M-040-008.075-R005.Z04	4	4	75	8	4	0,5
M-M-050-010.075-R005.Z04	5	5	75	10	4	0,5
M-M-060-016.075-R002.Z04	6	6	75	16	4	0,2
M-M-060-016.075-R005.Z04	6	6	75	16	4	0,5
M-M-060-016.075-R010.Z04	6	6	75	16	4	1,0
M-M-080-020.100-R005.Z04	8	8	100	20	4	0,5
M-M-080-020.100-R010.Z04	8	8	100	20	4	1,0
M-M-080-020.100-R015.Z04	8	8	100	20	4	1,5
M-M-100-022.100-R005.Z04	10	10	100	22	4	0,5
M-M-100-022.100-R010.Z04	10	10	100	22	4	1,0
M-M-100-022.100-R015.Z04	10	10	100	22	4	1,5
M-M-100-022.100-R020.Z04	10	10	100	22	4	2,0
M-M-120-024.100-R005.Z04	12	12	100	24	4	0,5
M-M-120-024.100-R010.Z04	12	12	100	24	4	1,0
M-M-120-024.100-R015.Z04	12	12	100	24	4	1,5
M-M-120-024.100-R020.Z04	12	12	100	24	4	2,0
M-M-120-024.100-R030.Z04	12	12	100	24	4	3,0
M-M-140-026.105-R005.Z04	14	14	105	26	4	0,5
M-M-140-026.105-R010.Z04	14	14	105	26	4	1,0
M-M-140-026.105-R015.Z04	14	14	105	26	4	1,5
M-M-140-026.105-R020.Z04	14	14	105	26	4	2,0
M-M-140-026.105-R030.Z04	14	14	105	26	4	3,0
M-M-160-026.110-R005.Z04	16	16	110	26	4	0,5
M-M-160-026.110-R010.Z04	16	16	110	26	4	1,0
M-M-160-026.110-R015.Z04	16	16	110	26	4	1,5
M-M-160-026.110-R020.Z04	16	16	110	26	4	2,0
M-M-160-026.110-R030.Z04	16	16	110	26	4	3,0
M-M-160-026.110-R040.Z04	16	16	110	26	4	4,0
M-M-180-032.110-R005.Z04	18	18	110	32	4	0,5
M-M-180-032.110-R010.Z04	18	18	110	32	4	1,0
M-M-180-032.110-R015.Z04	18	18	110	32	4	1,5
M-M-180-032.110-R020.Z04	18	18	110	32	4	2,0
M-M-180-032.110-R030.Z04	18	18	110	32	4	3,0
M-M-180-032.110-R040.Z04	18	18	110	32	4	4,0
M-M-200-038.125-R005.Z04	20	20	125	38	4	0,5
M-M-200-038.125-R010.Z04	20	20	125	38	4	1,0
M-M-200-038.125-R015.Z04	20	20	125	38	4	1,5
M-M-200-038.125-R020.Z04	20	20	125	38	4	2,0
M-M-200-038.125-R030.Z04	20	20	125	38	4	3,0
M-M-200-038.125-R040.Z04	20	20	125	38	4	4,0

M-PMS - SQUARE END MILL Z5

- *high efficient*
- *square end mill*
- *5 flutes*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



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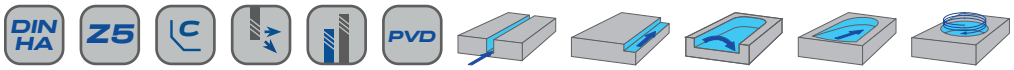
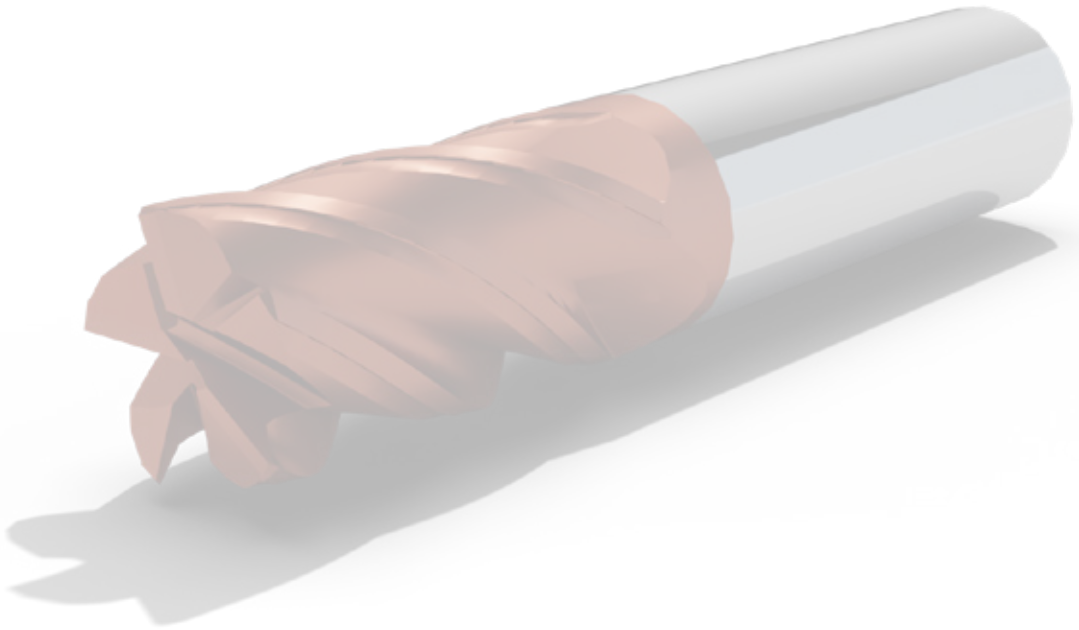
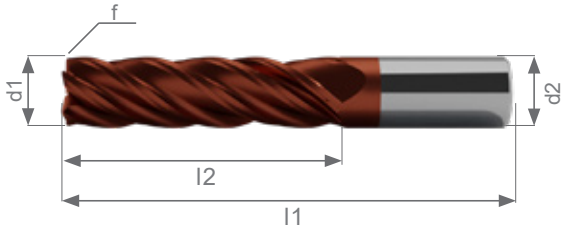


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-PMS-040-008.051-C015.Z05	4	4	51	8	5	0,15
M-PMS-060-016.055-C015.Z05	6	6	55	16	5	0,15
M-PMS-080-020.059-C015.Z05	8	8	59	20	5	0,15
M-PMS-100-022.073-C020.Z05	10	10	73	22	5	0,20
M-PMS-120-024.074-C020.Z05	12	12	74	24	5	0,20
M-PMS-140-026.076-C020.Z05	14	14	76	26	5	0,20
M-PMS-160-030.083-C025.Z05	16	16	83	30	5	0,25
M-PMS-180-034.093-C030.Z05	18	18	93	34	5	0,30
M-PMS-200-038.105-C030.Z05	20	20	105	38	5	0,30



M-PMS - SQUARE END MILL Z5 - LONG

- *high efficient*
- *square end mill*
- *5 flutes*
- *chamfer 45°*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*
- *no internal cooling*



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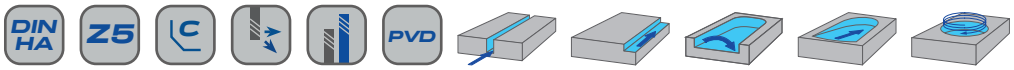
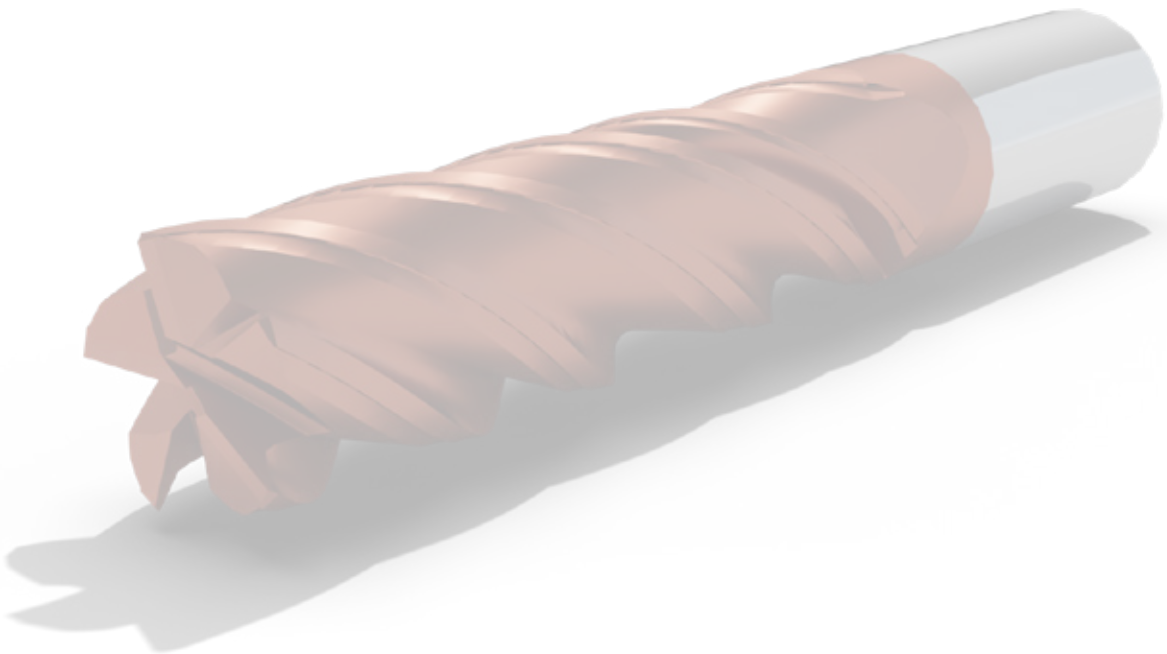
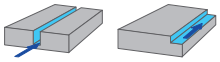


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-PMS-040-008.075-C015.Z05	4	4	75	8	5	0,15
M-PMS-060-016.075-C020.Z05	6	6	75	16	5	0,20
M-PMS-080-020.100-C020.Z05	8	8	100	20	5	0,20
M-PMS-080-040.100-C020.Z05	8	8	100	40	5	0,20
M-PMS-100-022.100-C020.Z05	10	10	100	22	5	0,20
M-PMS-100-044.100-C020.Z05	10	10	100	44	5	0,20
M-PMS-120-024.100-C020.Z05	12	12	100	24	5	0,20
M-PMS-120-048.100-C020.Z05	12	12	100	48	5	0,20
M-PMS-140-026.105-C020.Z05	14	14	105	26	5	0,20
M-PMS-160-030.110-C025.Z05	16	16	110	30	5	0,25
M-PMS-160-060.110-C025.Z05	16	16	110	60	5	0,25
M-PMS-180-034.110-C030.Z05	18	18	110	34	5	0,30
M-PMS-180-068.110-C030.Z05	18	18	110	68	5	0,30
M-PMS-200-038.125-C030.Z05	20	20	125	38	5	0,30
M-PMS-200-076.125-C030.Z05	20	20	125	76	5	0,30



SQUARE END MILL Z2 - Z4

	Material	Coolant Vc – m/min
P	Steel	110-150
K	Cast Iron	160-220
M	Stainless steel	80-120
S	Exotic	40-60



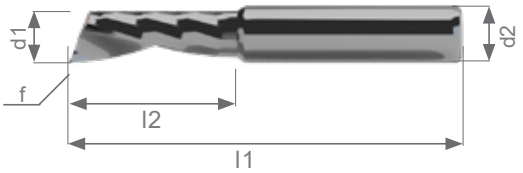
d = 4 mm		d = 6 mm		d = 8 mm		d = 10 mm		d = 12 mm	
ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd
fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
0,04	0,01	0,06	0,02	0,08	0,02	0,1	0,03	0,12	0,04

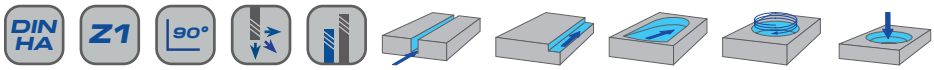
d = 14 mm		d = 16 mm		d = 18 mm		d = 20 mm	
ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd	ap 1,5xd ae 0,05xd	ap 0,5xd ae 1,0xd
fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
0,14	0,04	0,16	0,05	0,18	0,05	0,2	0,06

M-N - SQUARE END MILL Z1

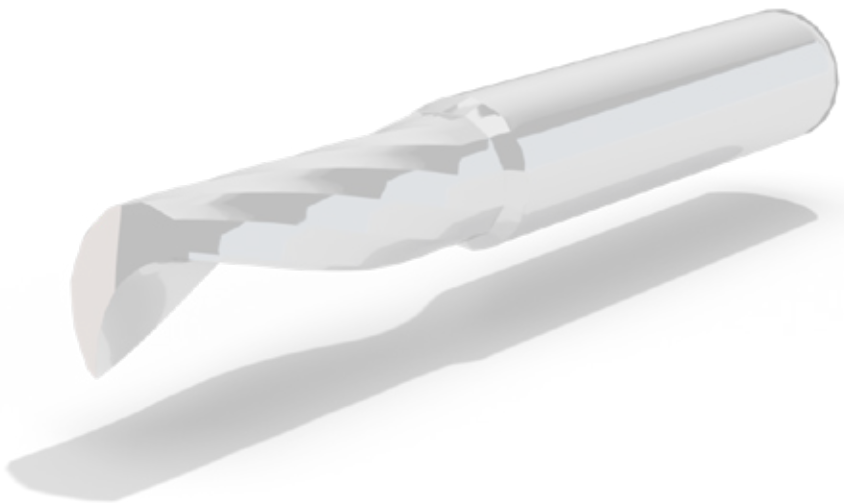
N

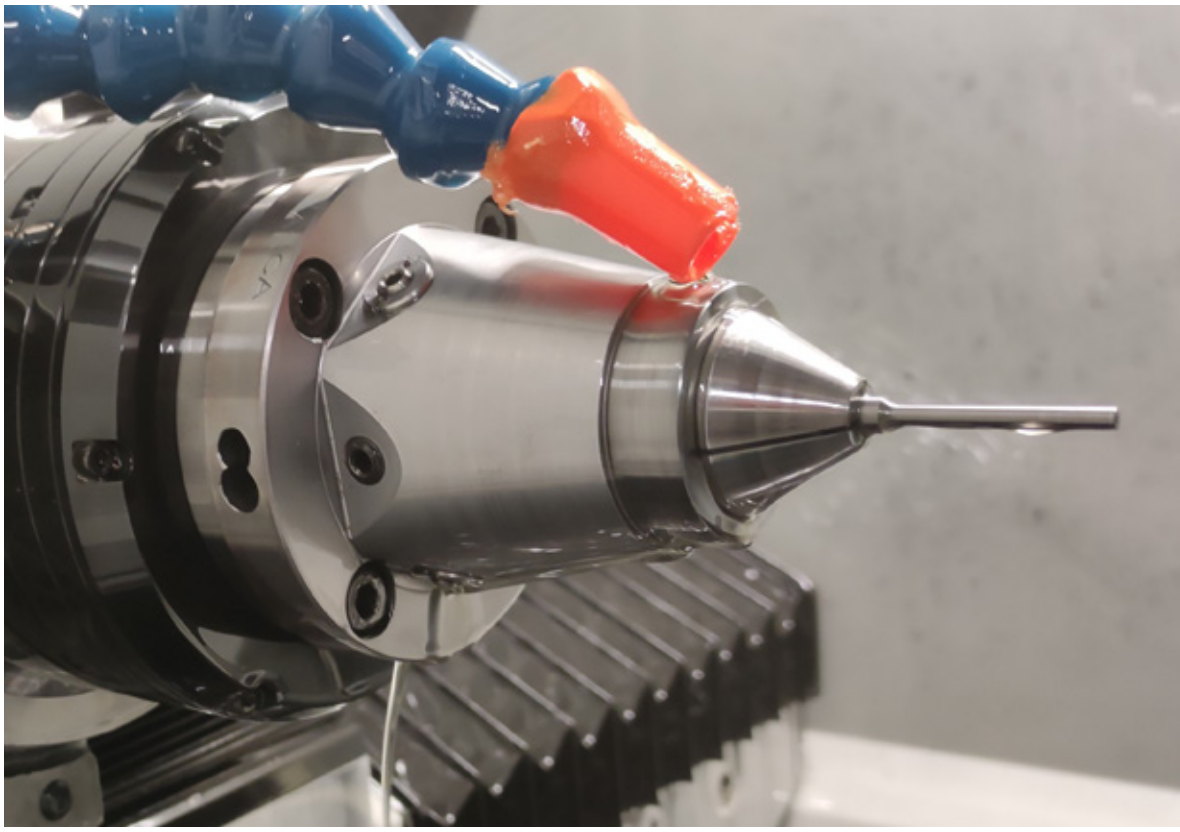
- *Endm Mill for Non-ferrous metals*
- *square end mill*
- *1 flute*
- *sharp 90°*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*





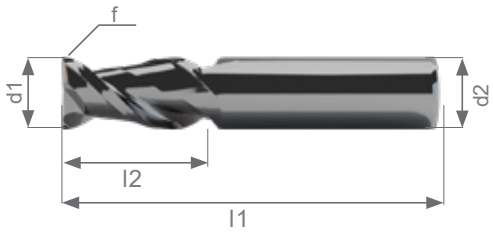
Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-N-030-012.051-Z01	3	3	51	12	1	0
M-N-040-015.060-Z01	4	4	60	15	1	0
M-N-050-017.060-Z01	5	5	60	17	1	0
M-N-060-020.065-Z01	6	6	65	20	1	0
M-N-080-022.064-Z01	8	8	64	22	1	0
M-N-100-030.080-Z01	10	10	80	30	1	0
M-N-120-035.084-Z01	12	12	84	35	1	0



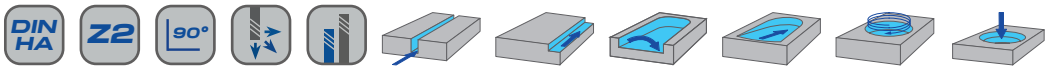


M-N - SQUARE END MILL Z2

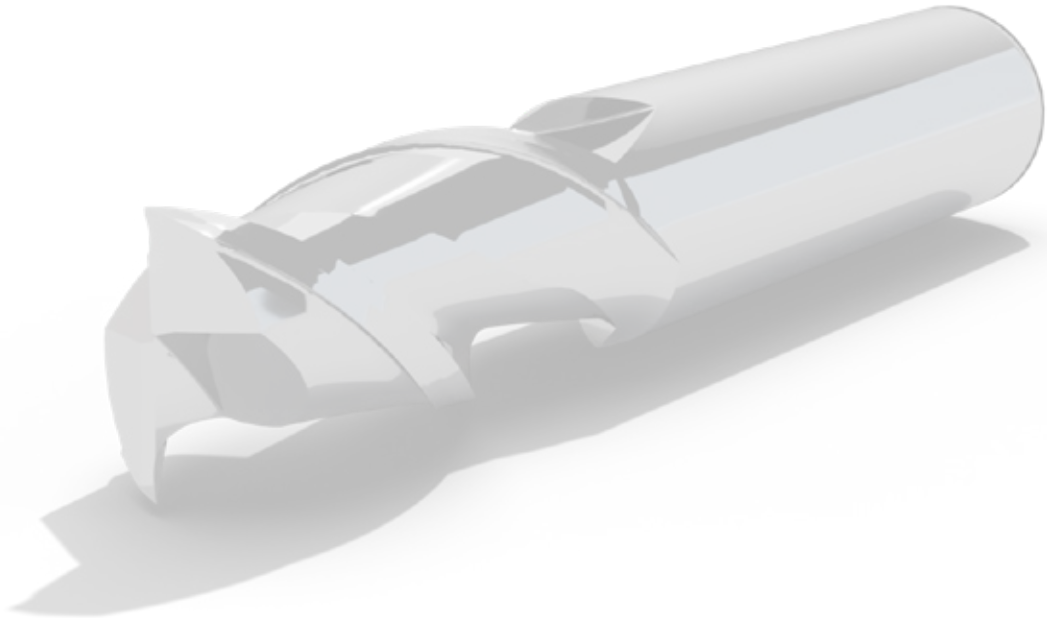
- *Endm Mill for Non-ferrous metals*
- *square end mill*
- *2 cutting edges*
- *sharp 90°*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*



N

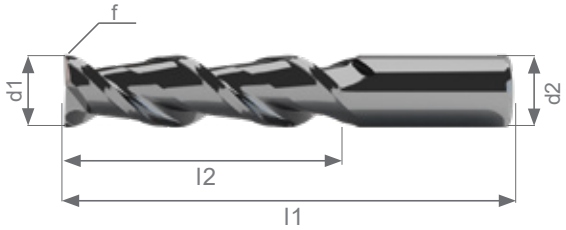


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-N-040-008.051-Z02	4	4	51	8	2	0
M-N-060-016.055-Z02	6	6	55	16	2	0
M-N-080-020.059-Z02	8	8	59	20	2	0
M-N-100-022.073-Z02	10	10	73	22	2	0
M-N-120-024.074-Z02	12	12	74	24	2	0
M-N-140-026.076-Z02	14	14	76	26	2	0
M-N-160-030.083-Z02	16	16	83	30	2	0
M-N-180-034.093-Z02	18	18	93	34	2	0
M-N-200-038.105-Z02	20	20	105	38	2	0

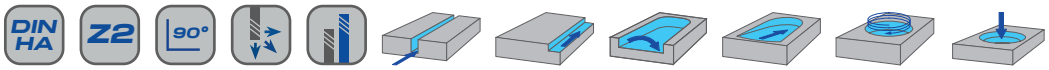


M-N - SQUARE END MILL Z2 - LONG

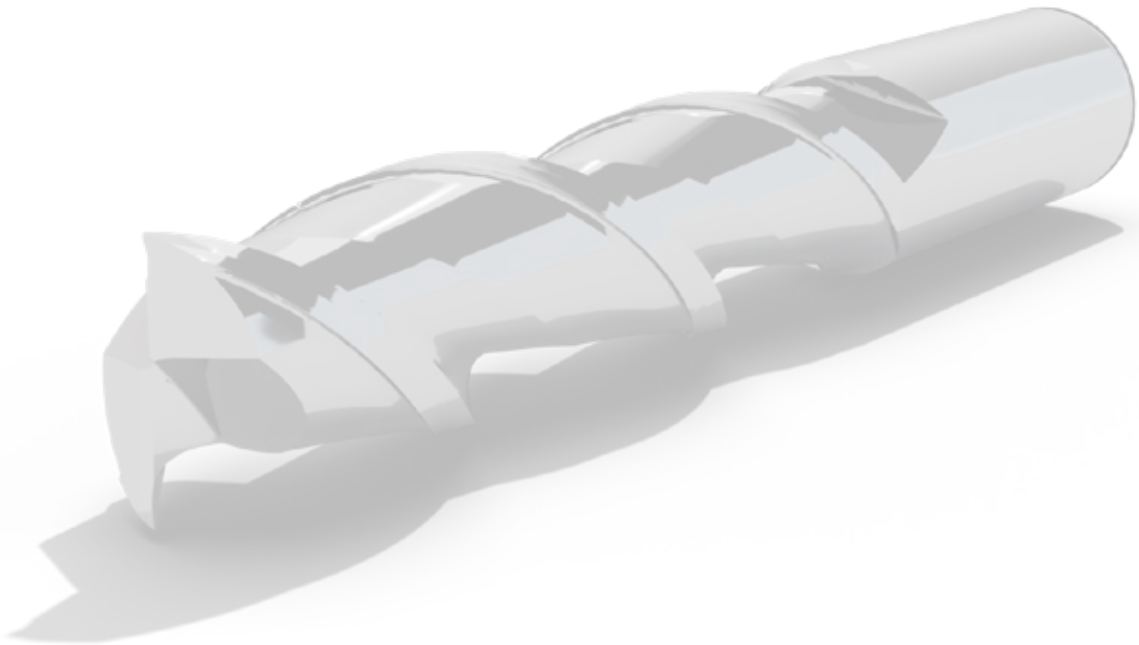
- *Endm Mill for Non-ferrous metals*
- *square end mill*
- *2 cutting edges*
- *sharp 90°*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*



N

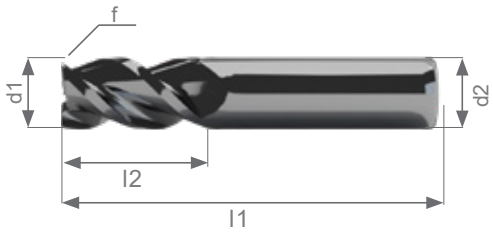


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-N-040-008.075-Z02	4	4	75	8	2	0
M-N-040-016.075-Z02	4	4	75	16	2	0
M-N-060-016.075-Z02	6	6	75	16	2	0
M-N-060-032.075-Z02	6	6	75	32	2	0
M-N-080-020.100-Z02	8	8	100	20	2	0
M-N-080-040.100-Z02	8	8	100	40	2	0
M-N-100-022.100-Z02	10	10	100	22	2	0
M-N-100-044.100-Z02	10	10	100	44	2	0
M-N-120-024.100-Z02	12	12	100	24	2	0
M-N-120-048.100-Z02	12	12	100	48	2	0
M-N-140-026.105-Z02	14	14	105	26	2	0
M-N-160-030.110-Z02	16	16	110	30	2	0
M-N-160-060.110-Z02	16	16	110	60	2	0
M-N-180-034.110-Z02	18	18	110	34	2	0
M-N-180-068.110-Z02	18	18	110	68	2	0
M-N-200-038.125-Z02	20	20	125	38	2	0
M-N-200-076.125-Z02	20	20	125	76	2	0

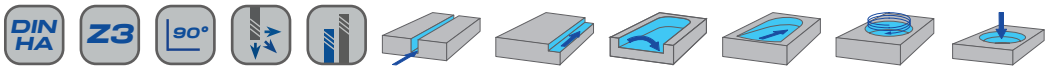


M-N - SQUARE END MILL Z3

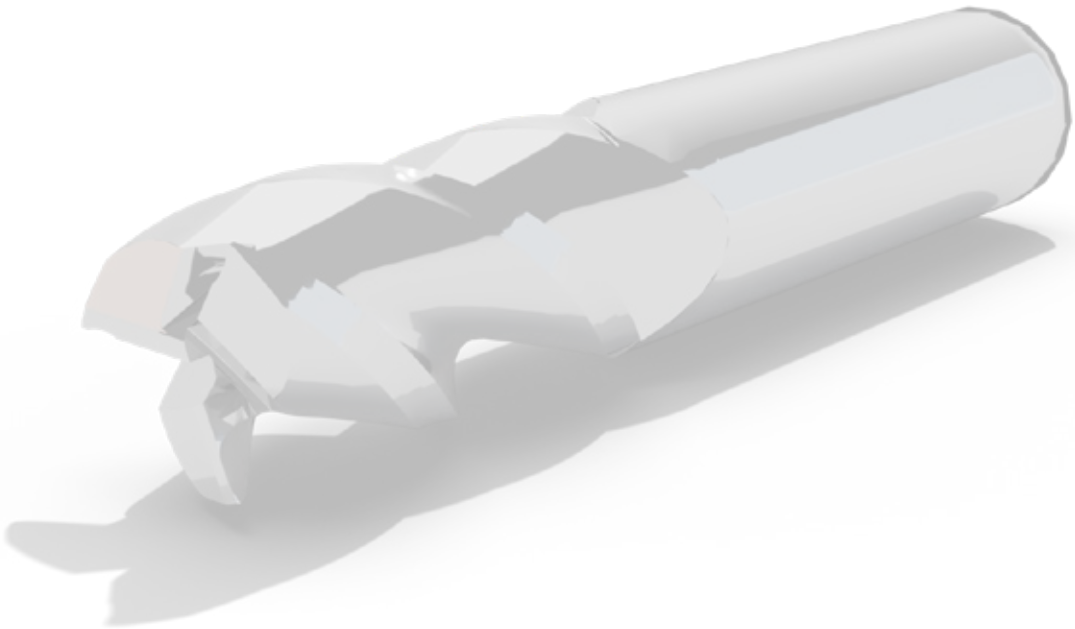
- *Endm Mill for Non-ferrous metals*
- *square end mill*
- *3 cutting edges*
- *sharp 90°*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*



N

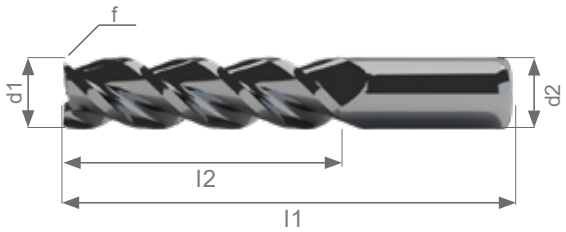


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-N-040-008.051-Z03	4	4	51	8	3	0
M-N-060-016.055-Z03	6	6	55	16	3	0
M-N-080-020.059-Z03	8	8	59	20	3	0
M-N-100-022.073-Z03	10	10	73	22	3	0
M-N-120-024.074-Z03	12	12	74	24	3	0
M-N-140-026.076-Z03	14	14	76	26	3	0
M-N-160-030.083-Z03	16	16	83	30	3	0
M-N-180-034.093-Z03	18	18	93	34	3	0
M-N-200-038.105-Z03	20	20	105	38	3	0

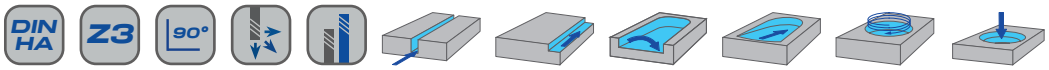


M-N - SQUARE END MILL Z3 - LONG

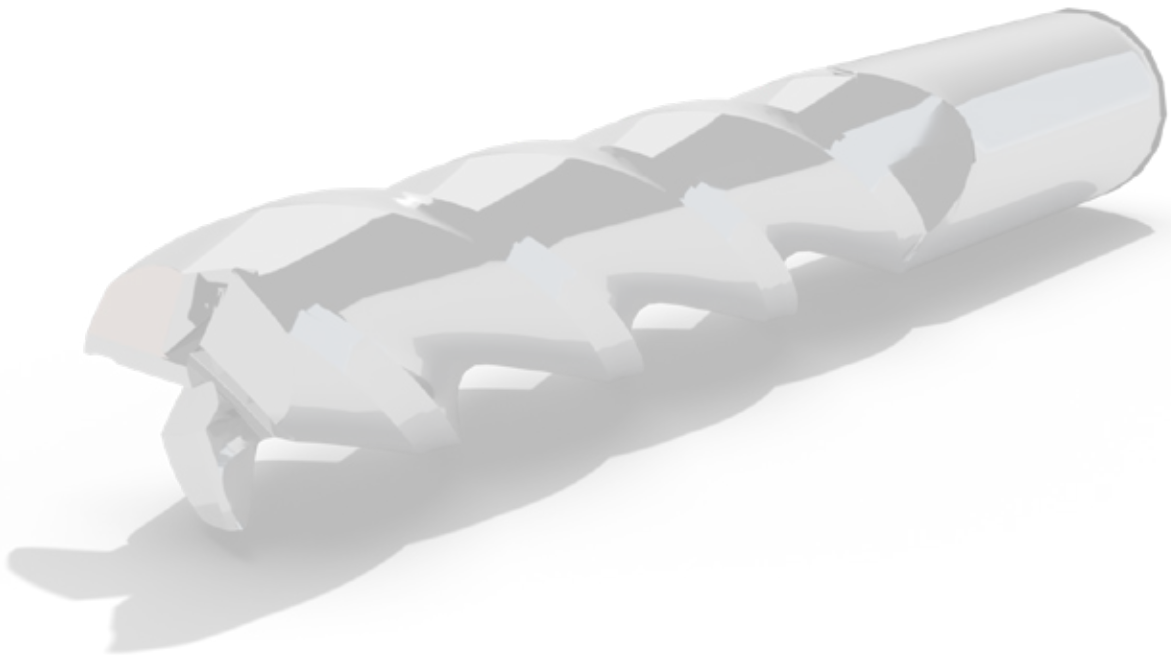
- *Endm Mill for Non-ferrous metals*
- *square end mill*
- *3 cutting edges*
- *sharp 90°*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*



N

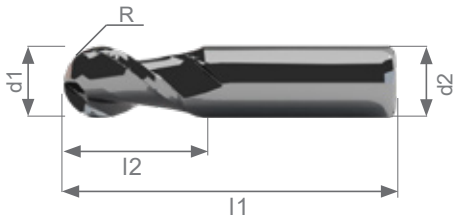


Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	f (mm)
M-N-040-008.075-Z03	4	4	75	8	3	0
M-N-040-016.075-Z03	4	4	75	16	3	0
M-N-060-016.075-Z03	6	6	75	16	3	0
M-N-060-032.075-Z03	6	6	75	32	3	0
M-N-080-020.100-Z03	8	8	100	20	3	0
M-N-080-040.100-Z03	8	8	100	40	3	0
M-N-100-022.100-Z03	10	10	100	22	3	0
M-N-100-044.100-Z03	10	10	100	44	3	0
M-N-120-024.100-Z03	12	12	100	24	3	0
M-N-120-048.100-Z03	12	12	100	48	3	0
M-N-140-026.105-Z03	14	14	105	26	3	0
M-N-160-030.110-Z03	16	16	110	30	3	0
M-N-160-060.110-Z03	16	16	110	60	3	0
M-N-180-034.110-Z03	18	18	110	34	3	0
M-N-180-068.110-Z03	18	18	110	68	3	0
M-N-200-038.125-Z03	20	20	125	38	3	0
M-N-200-076.125-Z03	20	20	125	76	3	0



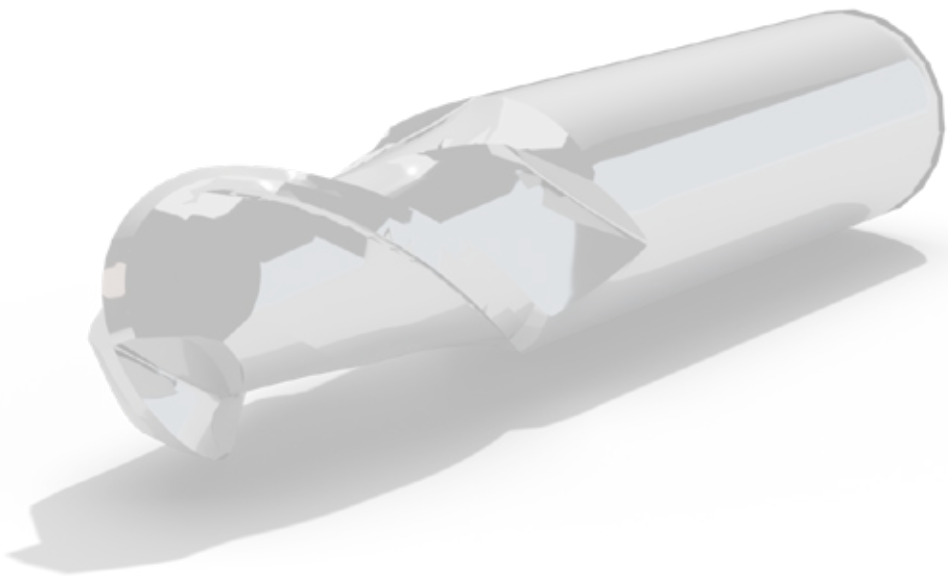
M-N-R - BALL NOSE END MILL Z2

- *Endm Mill for Non-ferrous metals*
- *ball nose end mill*
- *2 cutting edges*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*



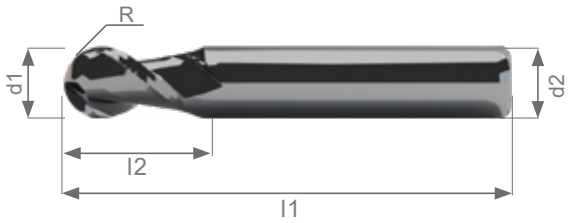
N

Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-N-040-006.051-R020.Z02	4	4	51	6	2	2,0
M-N-060-009.055-R030.Z02	6	6	55	9	2	3,0
M-N-080-012.059-R040.Z02	8	8	59	12	2	4,0
M-N-100-015.073-R050.Z02	10	10	73	15	2	5,0
M-N-120-018.074-R060.Z02	12	12	74	18	2	6,0
M-N-140-022.076-R070.Z02	14	14	76	22	2	7,0
M-N-160-024.083-R080.Z02	16	16	83	24	2	8,0
M-N-180-028.093-R090.Z02	18	18	93	28	2	9,0
M-N-200-030.105-R100.Z02	20	20	105	30	2	10,0



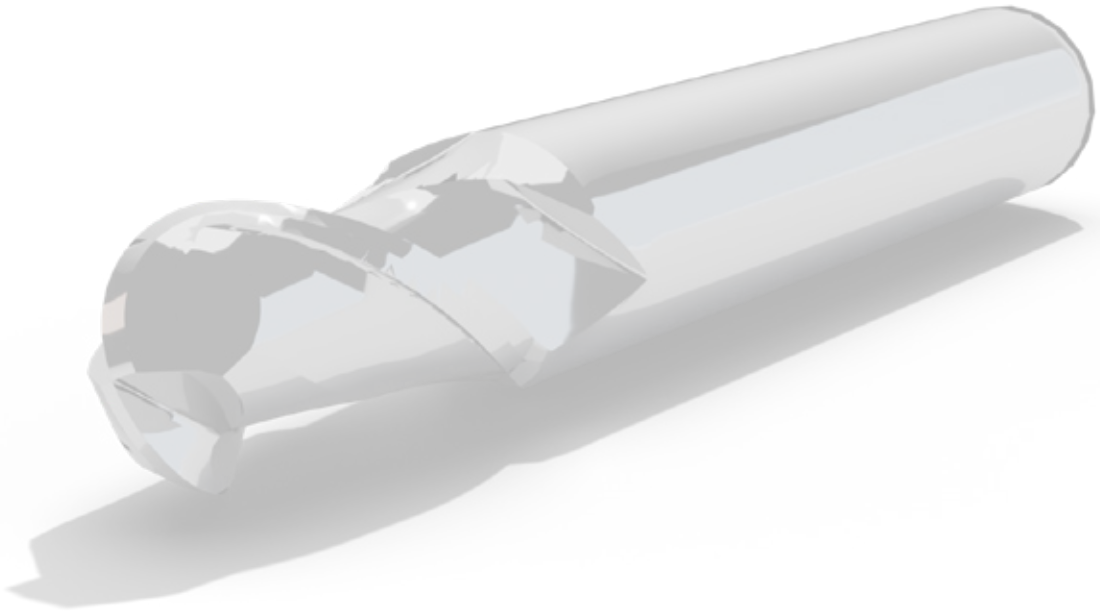
M-N-R - BALL NOSE END MILL Z2 - LONG

- *Endm Mill for Non-ferrous metals*
- *ball nose end mill*
- *2 cutting edges*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*



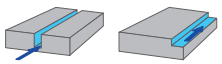
N

Designation	d1 (mm)	d2 (mm)	l1 (mm)	l2 (mm)	z	R (mm)
M-N-040-006.075-R020.Z02	4	4	75	6	2	2,0
M-N-060-009.075-R030.Z02	6	6	75	9	2	3,0
M-N-080-012.100-R040.Z02	8	8	100	12	2	4,0
M-N-100-015.100-R050.Z02	10	10	100	15	2	5,0
M-N-120-018.100-R060.Z02	12	12	100	18	2	6,0
M-N-140-022.105-R070.Z02	14	14	105	22	2	7,0
M-N-160-024.110-R080.Z02	16	16	110	24	2	8,0
M-N-180-028.110-R090.Z02	18	18	110	28	2	9,0
M-N-200-030.125-R100.Z02	20	20	125	30	2	10,0

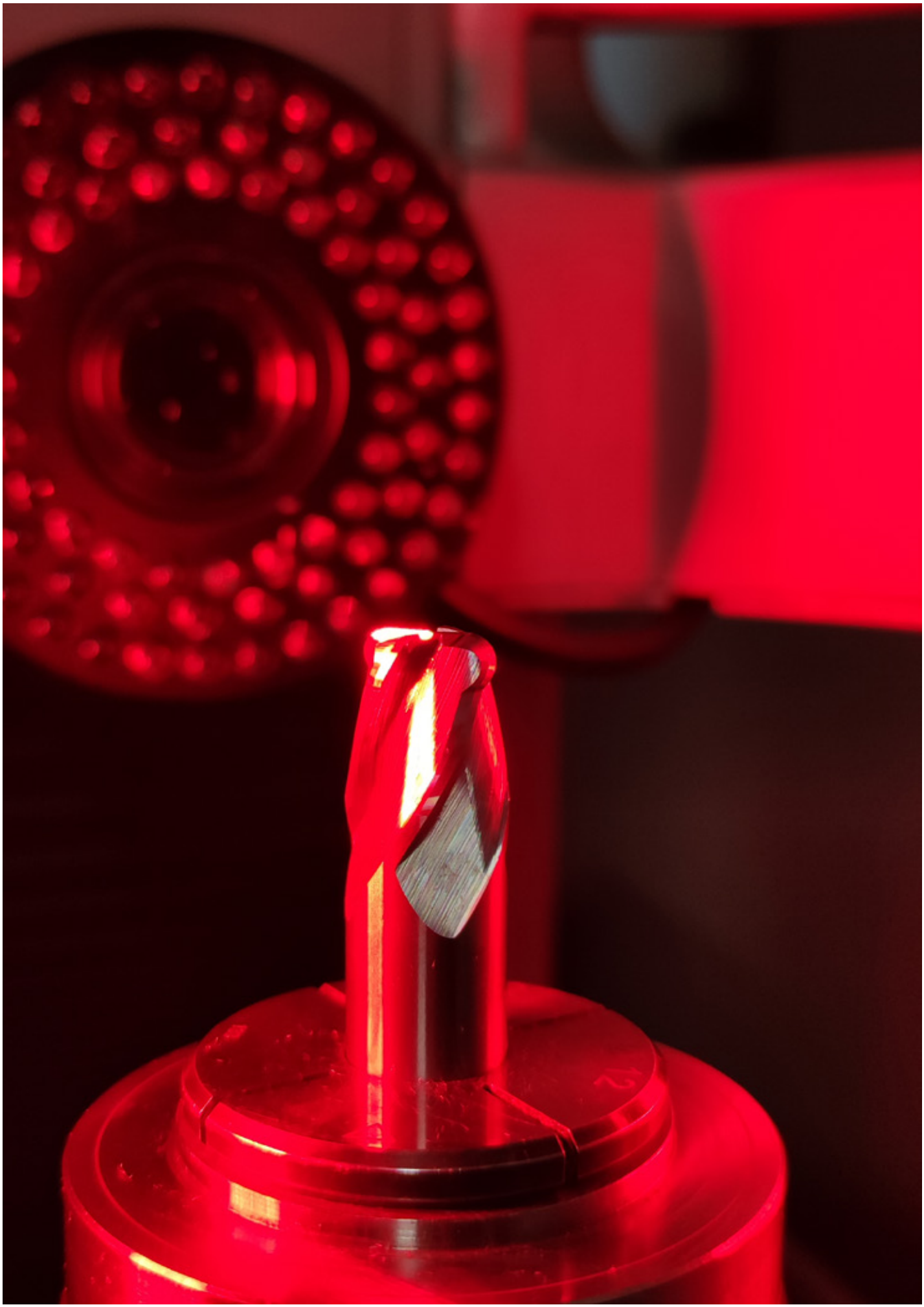


SQUARE END MILL FOR ALUMINIUM

Material		Coolant	d = 4 mm		d = 6 mm		d = 8 mm		d = 10 mm		d = 12 mm	
			ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd	ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd	ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd	ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd	ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd
		Vc – m/min	fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
N	Non-ferrous metals	200-300	0,06	0,02	0,09	0,03	0,12	0,04	0,15	0,05	0,18	0,05

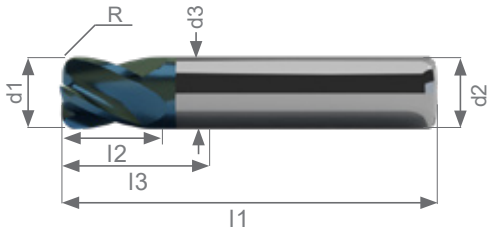


d = 14 mm		d = 16 mm		d = 18 mm		d = 20 mm	
ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd	ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd	ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd	ap 1,5xd ae 0,3xd	ap 1,0xd ae 1,0xd
fz – mm/rev		fz – mm/rev		fz – mm/rev		fz – mm/rev	
0,23	0,07	0,25	0,08	0,28	0,08	0,3	0,09



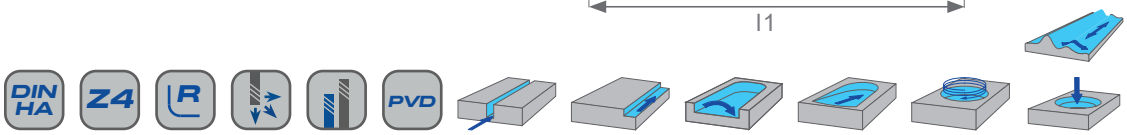
M-H-R... - RADIUS END MILL Z4

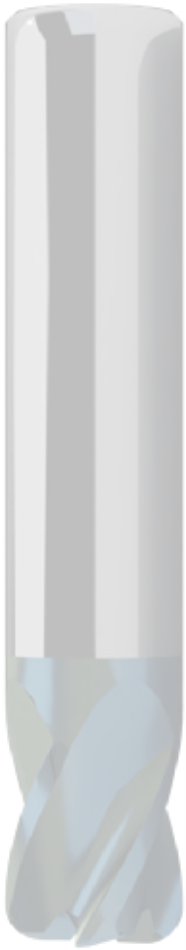
- *for hard materials <55 HRC*
- *radius end mill*
- *4 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*



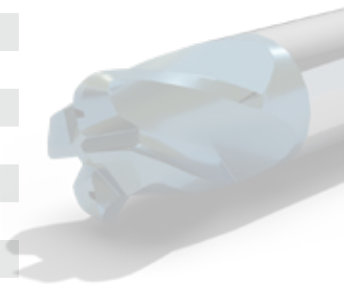
H

P



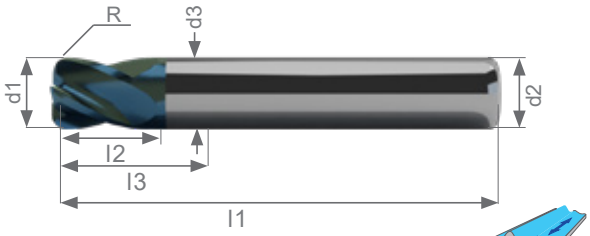


Designation	d1 (mm)	d2 (mm)	d3 (mm)	l1 (mm)	l2 (mm)	l3 (mm)	z	R (mm)
M-H-040.035-005.11.051-R002.Z04	4	4	3,5	51	5	11	4	0,2
M-H-040.035-005.11.051-R005.Z04	4	4	3,5	51	5	11	4	0,5
M-H-060.055-007.13.055-R002.Z04	6	6	5,5	55	7	13	4	0,2
M-H-060.055-007.13.055-R005.Z04	6	6	5,5	55	7	13	4	0,5
M-H-060.055-007.13.055-R010.Z04	6	6	5,5	55	7	13	4	1,0
M-H-060.055-007.13.055-R015.Z04	6	6	5,5	55	7	13	4	1,5
M-H-080.075-009.19.059-R005.Z04	8	8	7,5	59	9	19	4	0,5
M-H-080.075-009.19.059-R010.Z04	8	8	7,5	59	9	19	4	1,0
M-H-080.075-009.19.059-R015.Z04	8	8	7,5	59	9	19	4	1,5
M-H-100.095-011.21.073-R005.Z04	10	10	9,5	73	11	21	4	0,5
M-H-100.095-011.21.073-R010.Z04	10	10	9,5	73	11	21	4	1,0
M-H-100.095-011.21.073-R015.Z04	10	10	9,5	73	11	21	4	1,5
M-H-100.095-011.21.073-R020.Z04	10	10	9,5	73	11	21	4	2,0
M-H-120.115-013.23.074-R005.Z04	12	12	11,5	74	13	23	4	0,5
M-H-120.115-013.23.074-R010.Z04	12	12	11,5	74	13	23	4	1,0
M-H-120.115-013.23.074-R015.Z04	12	12	11,5	74	13	23	4	1,5
M-H-120.115-013.23.074-R020.Z04	12	12	11,5	74	13	23	4	2,0
M-H-120.115-013.23.074-R030.Z04	12	12	11,5	74	13	23	4	3,0
M-H-140.135-016.31.076-R005.Z04	14	14	13,5	76	16	31	4	0,5
M-H-140.135-016.31.076-R010.Z04	14	14	13,5	76	16	31	4	1,0
M-H-140.135-016.31.076-R015.Z04	14	14	13,5	76	16	31	4	1,5
M-H-140.135-016.31.076-R020.Z04	14	14	13,5	76	16	31	4	2,0
M-H-140.135-016.31.076-R030.Z04	14	14	13,5	76	16	31	4	3,0
M-H-160.155-018.33.083-R005.Z04	16	16	15,5	83	18	33	4	0,5
M-H-160.155-018.33.083-R010.Z04	16	16	15,5	83	18	33	4	1,0
M-H-160.155-018.33.083-R015.Z04	16	16	15,5	83	18	33	4	1,5
M-H-160.155-018.33.083-R020.Z04	16	16	15,5	83	18	33	4	2,0
M-H-160.155-018.33.083-R030.Z04	16	16	15,5	83	18	33	4	3,0
M-H-160.155-018.33.083-R040.Z04	16	16	15,5	83	18	33	4	4,0
M-H-180.175-020.40.093-R005.Z04	18	18	17,5	93	20	40	4	0,5
M-H-180.175-020.40.093-R010.Z04	18	18	17,5	93	20	40	4	1,0
M-H-180.175-020.40.093-R015.Z04	18	18	17,5	93	20	40	4	1,5
M-H-180.175-020.40.093-R020.Z04	18	18	17,5	93	20	40	4	2,0
M-H-180.175-020.40.093-R030.Z04	18	18	17,5	93	20	40	4	3,0
M-H-180.175-020.40.093-R040.Z04	18	18	17,5	93	20	40	4	4,0
M-H-200.195-022.42.105-R005.Z04	20	20	19,5	105	22	42	4	0,5
M-H-200.195-022.42.105-R010.Z04	20	20	19,5	105	22	42	4	1,0
M-H-200.195-022.42.105-R015.Z04	20	20	19,5	105	22	42	4	1,5
M-H-200.195-022.42.105-R020.Z04	20	20	19,5	105	22	42	4	2,0
M-H-200.195-022.42.105-R030.Z04	20	20	19,5	105	22	42	4	3,0
M-H-200.195-022.42.105-R040.Z04	20	20	19,5	105	22	42	4	4,0



M-H-R... - RADIUS END MILL Z4 - LONG

- *for hard materials <55 HRC*
- *radius end mill*
- *4 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *work with coolant*



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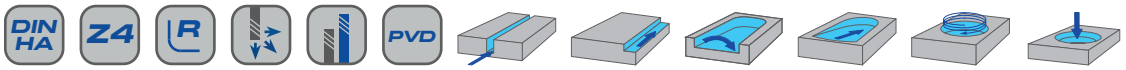
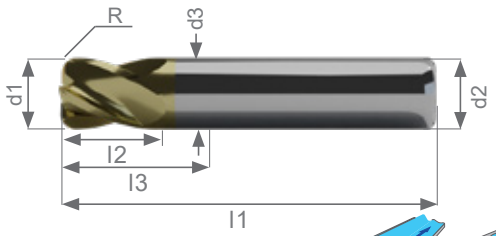


Designation	d1 (mm)	d2 (mm)	d3 (mm)	l1 (mm)	l2 (mm)	l3 (mm)	z	R (mm)
M-H-040.035-005.11.075-R002.Z04	4	4	3,5	75	5	11	4	0,2
M-H-040.035-005.11.075-R005.Z04	4	4	3,5	75	5	11	4	0,5
M-H-060.055-007.13.075-R002.Z04	6	6	5,5	75	7	13	4	0,2
M-H-060.055-007.13.075-R005.Z04	6	6	5,5	75	7	13	4	0,5
M-H-060.055-007.13.075-R010.Z04	6	6	5,5	75	7	13	4	1,0
M-H-060.055-007.13.075-R015.Z04	6	6	5,5	75	7	13	4	1,5
M-H-080.075-009.19.100-R005.Z04	8	8	7,5	100	9	19	4	0,5
M-H-080.075-009.19.100-R010.Z04	8	8	7,5	100	9	19	4	1,0
M-H-080.075-009.19.100-R015.Z04	8	8	7,5	100	9	19	4	1,5
M-H-100.095-011.21.100-R005.Z04	10	10	9,5	100	11	21	4	0,5
M-H-100.095-011.21.100-R010.Z04	10	10	9,5	100	11	21	4	1,0
M-H-100.095-011.21.100-R015.Z04	10	10	9,5	100	11	21	4	1,5
M-H-100.095-011.21.100-R020.Z04	10	10	9,5	100	11	21	4	2,0
M-H-120.115-013.23.100-R005.Z04	12	12	11,5	100	13	23	4	0,5
M-H-120.115-013.23.100-R010.Z04	12	12	11,5	100	13	23	4	1,0
M-H-120.115-013.23.100-R015.Z04	12	12	11,5	100	13	23	4	1,5
M-H-120.115-013.23.100-R020.Z04	12	12	11,5	100	13	23	4	2,0
M-H-120.115-013.23.100-R030.Z04	12	12	11,5	100	13	23	4	3,0
M-H-140.135-016.31.105-R005.Z04	14	14	13,5	105	16	31	4	0,5
M-H-140.135-016.31.105-R010.Z04	14	14	13,5	105	16	31	4	1,0
M-H-140.135-016.31.105-R015.Z04	14	14	13,5	105	16	31	4	1,5
M-H-140.135-016.31.105-R020.Z04	14	14	13,5	105	16	31	4	2,0
M-H-140.135-016.31.105-R030.Z04	14	14	13,5	105	16	31	4	3,0
M-H-160.155-018.33.110-R005.Z04	16	16	15,5	110	18	33	4	0,5
M-H-160.155-018.33.110-R010.Z04	16	16	15,5	110	18	33	4	1,0
M-H-160.155-018.33.110-R015.Z04	16	16	15,5	110	18	33	4	1,5
M-H-160.155-018.33.110-R020.Z04	16	16	15,5	110	18	33	4	2,0
M-H-160.155-018.33.110-R030.Z04	16	16	15,5	110	18	33	4	3,0
M-H-160.155-018.33.110-R040.Z04	16	16	15,5	110	18	33	4	4,0
M-H-180.175-020.40.110-R005.Z04	18	18	17,5	110	20	40	4	0,5
M-H-180.175-020.40.110-R010.Z04	18	18	17,5	110	20	40	4	1,0
M-H-180.175-020.40.110-R015.Z04	18	18	17,5	110	20	40	4	1,5
M-H-180.175-020.40.110-R020.Z04	18	18	17,5	110	20	40	4	2,0
M-H-180.175-020.40.110-R030.Z04	18	18	17,5	110	20	40	4	3,0
M-H-180.175-020.40.110-R040.Z04	18	18	17,5	110	20	40	4	4,0
M-H-200.195-022.42.125-R005.Z04	20	20	19,5	125	22	42	4	0,5
M-H-200.195-022.42.125-R010.Z04	20	20	19,5	125	22	42	4	1,0
M-H-200.195-022.42.125-R015.Z04	20	20	19,5	125	22	42	4	1,5
M-H-200.195-022.42.125-R020.Z04	20	20	19,5	125	22	42	4	2,0
M-H-200.195-022.42.125-R030.Z04	20	20	19,5	125	22	42	4	3,0
M-H-200.195-022.42.125-R040.Z04	20	20	19,5	125	22	42	4	4,0

M-HH-R... - RADIUS END MILL Z4

- *for hard materials >55 HRC*
- *radius end mill*
- *4 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *praca na sucho*
- *air cooling suggested*



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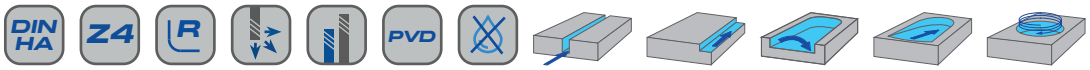
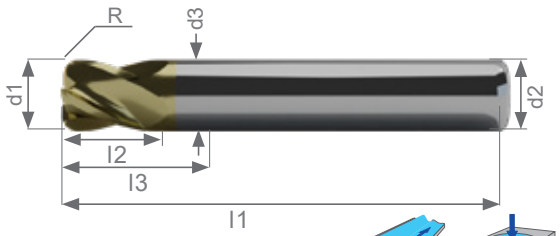


Designation	d1 (mm)	d2 (mm)	d3 (mm)	l1 (mm)	l2 (mm)	l3 (mm)	z	R (mm)
M-HH-040.035-005.11.051-R002.Z04	4	4	3,5	51	5	11	4	0,2
M-HH-040.035-005.11.051-R005.Z04	4	4	3,5	51	5	11	4	0,5
M-HH-060.055-007.13.055-R002.Z04	6	6	5,5	55	7	13	4	0,2
M-HH-060.055-007.13.055-R005.Z04	6	6	5,5	55	7	13	4	0,5
M-HH-060.055-007.13.055-R010.Z04	6	6	5,5	55	7	13	4	1,0
M-HH-060.055-007.13.055-R015.Z04	6	6	5,5	55	7	13	4	1,5
M-HH-080.075-009.19.059-R005.Z04	8	8	7,5	59	9	19	4	0,5
M-HH-080.075-009.19.059-R010.Z04	8	8	7,5	59	9	19	4	1,0
M-HH-080.075-009.19.059-R015.Z04	8	8	7,5	59	9	19	4	1,5
M-HH-100.095-011.21.073-R005.Z04	10	10	9,5	73	11	21	4	0,5
M-HH-100.095-011.21.073-R010.Z04	10	10	9,5	73	11	21	4	1,0
M-HH-100.095-011.21.073-R015.Z04	10	10	9,5	73	11	21	4	1,5
M-HH-100.095-011.21.073-R020.Z04	10	10	9,5	73	11	21	4	2,0
M-HH-120.115-013.23.074-R005.Z04	12	12	11,5	74	13	23	4	0,5
M-HH-120.115-013.23.074-R010.Z04	12	12	11,5	74	13	23	4	1,0
M-HH-120.115-013.23.074-R015.Z04	12	12	11,5	74	13	23	4	1,5
M-HH-120.115-013.23.074-R020.Z04	12	12	11,5	74	13	23	4	2,0
M-HH-120.115-013.23.074-R030.Z04	12	12	11,5	74	13	23	4	3,0
M-HH-140.135-016.31.076-R005.Z04	14	14	13,5	76	16	31	4	0,5
M-HH-140.135-016.31.076-R010.Z04	14	14	13,5	76	16	31	4	1,0
M-HH-140.135-016.31.076-R015.Z04	14	14	13,5	76	16	31	4	1,5
M-HH-140.135-016.31.076-R020.Z04	14	14	13,5	76	16	31	4	2,0
M-HH-140.135-016.31.076-R030.Z04	14	14	13,5	76	16	31	4	3,0
M-HH-160.155-018.33.083-R005.Z04	16	16	15,5	83	18	33	4	0,5
M-HH-160.155-018.33.083-R010.Z04	16	16	15,5	83	18	33	4	1,0
M-HH-160.155-018.33.083-R015.Z04	16	16	15,5	83	18	33	4	1,5
M-HH-160.155-018.33.083-R020.Z04	16	16	15,5	83	18	33	4	2,0
M-HH-160.155-018.33.083-R030.Z04	16	16	15,5	83	18	33	4	3,0
M-HH-160.155-018.33.083-R040.Z04	16	16	15,5	83	18	33	4	4,0
M-HH-180.175-020.40.093-R005.Z04	18	18	17,5	93	20	40	4	0,5
M-HH-180.175-020.40.093-R010.Z04	18	18	17,5	93	20	40	4	1,0
M-HH-180.175-020.40.093-R015.Z04	18	18	17,5	93	20	40	4	1,5
M-HH-180.175-020.40.093-R020.Z04	18	18	17,5	93	20	40	4	2,0
M-HH-180.175-020.40.093-R030.Z04	18	18	17,5	93	20	40	4	3,0
M-HH-180.175-020.40.093-R040.Z04	18	18	17,5	93	20	40	4	4,0
M-HH-200.195-022.42.105-R005.Z04	20	20	19,5	105	22	42	4	0,5
M-HH-200.195-022.42.105-R010.Z04	20	20	19,5	105	22	42	4	1,0
M-HH-200.195-022.42.105-R015.Z04	20	20	19,5	105	22	42	4	1,5
M-HH-200.195-022.42.105-R020.Z04	20	20	19,5	105	22	42	4	2,0
M-HH-200.195-022.42.105-R030.Z04	20	20	19,5	105	22	42	4	3,0
M-HH-200.195-022.42.105-R040.Z04	20	20	19,5	105	22	42	4	4,0

M-HH-R... - RADIUS END MILL Z4 - LONG

- *for hard materials >55 HRC*
- *radius end mill*
- *4 cutting edges*
- *PVD coating*
- *cylindrical shank*
- *praca na sucho*
- *air cooling suggested*



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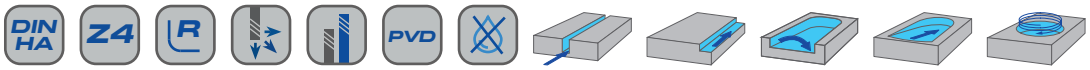
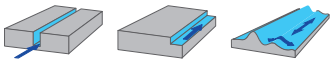


Designation	d1 (mm)	d2 (mm)	d3 (mm)	l1 (mm)	l2 (mm)	l3 (mm)	z	R (mm)
M-HH-040.035-005.11.075-R002.Z04	4	4	3,5	75	5	11	4	0,2
M-HH-040.035-005.11.075-R005.Z04	4	4	3,5	75	5	11	4	0,5
M-HH-060.055-007.13.075-R002.Z04	6	6	5,5	75	7	13	4	0,2
M-HH-060.055-007.13.075-R005.Z04	6	6	5,5	75	7	13	4	0,5
M-HH-060.055-007.13.075-R010.Z04	6	6	5,5	75	7	13	4	1,0
M-HH-060.055-007.13.075-R015.Z04	6	6	5,5	75	7	13	4	1,5
M-HH-080.075-009.19.100-R005.Z04	8	8	7,5	100	9	19	4	0,5
M-HH-080.075-009.19.100-R010.Z04	8	8	7,5	100	9	19	4	1,0
M-HH-080.075-009.19.100-R015.Z04	8	8	7,5	100	9	19	4	1,5
M-HH-100.095-011.21.100-R005.Z04	10	10	9,5	100	11	21	4	0,5
M-HH-100.095-011.21.100-R010.Z04	10	10	9,5	100	11	21	4	1,0
M-HH-100.095-011.21.100-R015.Z04	10	10	9,5	100	11	21	4	1,5
M-HH-100.095-011.21.100-R020.Z04	10	10	9,5	100	11	21	4	2,0
M-HH-120.115-013.23.100-R005.Z04	12	12	11,5	100	13	23	4	0,5
M-HH-120.115-013.23.100-R010.Z04	12	12	11,5	100	13	23	4	1,0
M-HH-120.115-013.23.100-R015.Z04	12	12	11,5	100	13	23	4	1,5
M-HH-120.115-013.23.100-R020.Z04	12	12	11,5	100	13	23	4	2,0
M-HH-120.115-013.23.100-R030.Z04	12	12	11,5	100	13	23	4	3,0
M-HH-140.135-016.31.105-R005.Z04	14	14	13,5	105	16	31	4	0,5
M-HH-140.135-016.31.105-R010.Z04	14	14	13,5	105	16	31	4	1,0
M-HH-140.135-016.31.105-R015.Z04	14	14	13,5	105	16	31	4	1,5
M-HH-140.135-016.31.105-R020.Z04	14	14	13,5	105	16	31	4	2,0
M-HH-140.135-016.31.105-R030.Z04	14	14	13,5	105	16	31	4	3,0
M-HH-160.155-018.33.110-R005.Z04	16	16	15,5	110	18	33	4	0,5
M-HH-160.155-018.33.110-R010.Z04	16	16	15,5	110	18	33	4	1,0
M-HH-160.155-018.33.110-R015.Z04	16	16	15,5	110	18	33	4	1,5
M-HH-160.155-018.33.110-R020.Z04	16	16	15,5	110	18	33	4	2,0
M-HH-160.155-018.33.110-R030.Z04	16	16	15,5	110	18	33	4	3,0
M-HH-160.155-018.33.110-R040.Z04	16	16	15,5	110	18	33	4	4,0
M-HH-180.175-020.40.110-R005.Z04	18	18	17,5	110	20	40	4	0,5
M-HH-180.175-020.40.110-R010.Z04	18	18	17,5	110	20	40	4	1,0
M-HH-180.175-020.40.110-R015.Z04	18	18	17,5	110	20	40	4	1,5
M-HH-180.175-020.40.110-R020.Z04	18	18	17,5	110	20	40	4	2,0
M-HH-180.175-020.40.110-R030.Z04	18	18	17,5	110	20	40	4	3,0
M-HH-180.175-020.40.110-R040.Z04	18	18	17,5	110	20	40	4	4,0
M-HH-200.195-022.42.125-R005.Z04	20	20	19,5	125	22	42	4	0,5
M-HH-200.195-022.42.125-R010.Z04	20	20	19,5	125	22	42	4	1,0
M-HH-200.195-022.42.125-R015.Z04	20	20	19,5	125	22	42	4	1,5
M-HH-200.195-022.42.125-R020.Z04	20	20	19,5	125	22	42	4	2,0
M-HH-200.195-022.42.125-R030.Z04	20	20	19,5	125	22	42	4	3,0
M-HH-200.195-022.42.125-R040.Z04	20	20	19,5	125	22	42	4	4,0

SQUARE END MILL H / HH

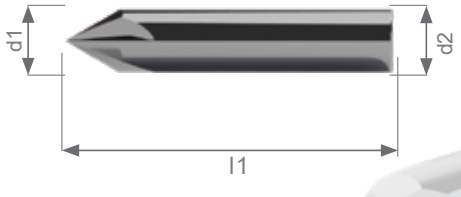
	Material	Coolant Vc – m/min	d = 4 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 4 mm ap 0,3xd ae 1,0xd fz – mm/rev	d = 6 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 6 mm ap 0,3xd ae 1,0xd fz – mm/rev	d = 8 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 8 mm ap 0,3xd ae 1,0xd fz – mm/rev	d = 10 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 10 mm ap 0,3xd ae 1,0xd fz – mm/rev	d = 12 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 12 mm ap 0,3xd ae 1,0xd fz – mm/rev
P	Hard materials <55HRC	80-200	0,015	0,01	0,02	0,02	0,022	0,03	0,025	0,04	0,037	0,05
K	Hard materials >55HRC	40-100										

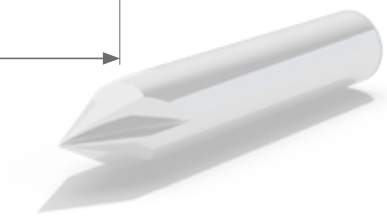


d = 14 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 14 mm ap 0,3xd ae 1,0xd fz – mm/rev	d = 16 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 16 mm ap 0,3xd ae 1,0xd fz – mm/rev	d = 18 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 18 mm ap 0,3xd ae 1,0xd fz – mm/rev	d = 20 mm ap 1,5xd ae 0,1xd fz – mm/rev	d = 20 mm ap 0,3xd ae 1,0xd fz – mm/rev
0,047	0,05	0,057	0,06	0,067	0,07	0,077	0,08

M-N-C060- CHAMFER CUTTER 60º

- *universal chamfering cutter*
- *60 degree*
- *4 cutting edges*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*





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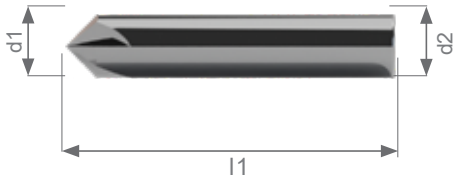
Designation	d1 (mm)	d2 (mm)	l1 (mm)	z	angle (º)
M-NC60-060-054-C300.Z04	6	6	54	4	60
M-NC60-080-058-C400.Z04	8	8	58	4	60
M-NC60-100-060-C500.Z04	10	10	60	4	60
M-NC60-120-070-C600.Z04	12	12	70	4	60

M-N-C090- CHAMFER CUTTER 90º

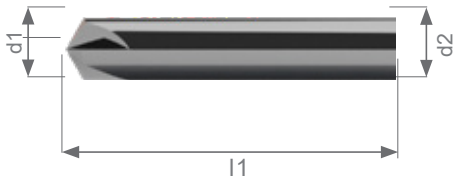
- *universal chamfering cutter*
- *90 degree*
- *4 cutting edges*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*

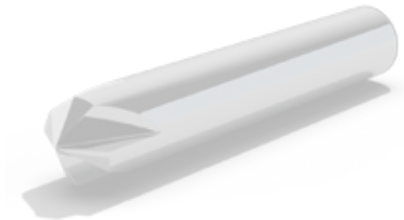


Designation	d1 (mm)	d2 (mm)	l1 (mm)	z	angle (º)
M-NC90-060-054-C300.Z04	6	6	55	4	90
M-NC90-080-058-C400.Z04	8	8	59	4	90
M-NC90-100-060-C500.Z04	10	10	60	4	90
M-NC90-120-070-C600.Z04	12	12	70	4	90

M-N-C120- CHAMFER CUTTER 120º

- *universal chamfering cutter*
- *120 degree*
- *4 cutting edges*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*

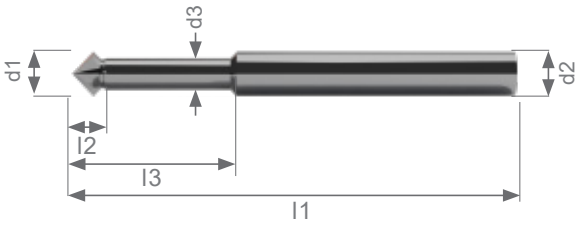




Designation	d1 (mm)	d2 (mm)	l1 (mm)	z	angle (º)
M-NC120-060-054-C300.Z04	6	6	55	4	120
M-NC120-080-058-C400.Z04	8	8	59	4	120
M-NC120-100-060-C500.Z04	10	10	60	4	120
M-NC120-120-070-C600.Z04	12	12	70	4	120

M-N-BC090- CHAMFER CUTTER WSTECZNY 90º

- *universal chamfering cutter*
- *back chamfering*
- *90 degree*
- *4 cutting edges*
- *uncoated*
- *cylindrical shank*
- *no internal cooling*



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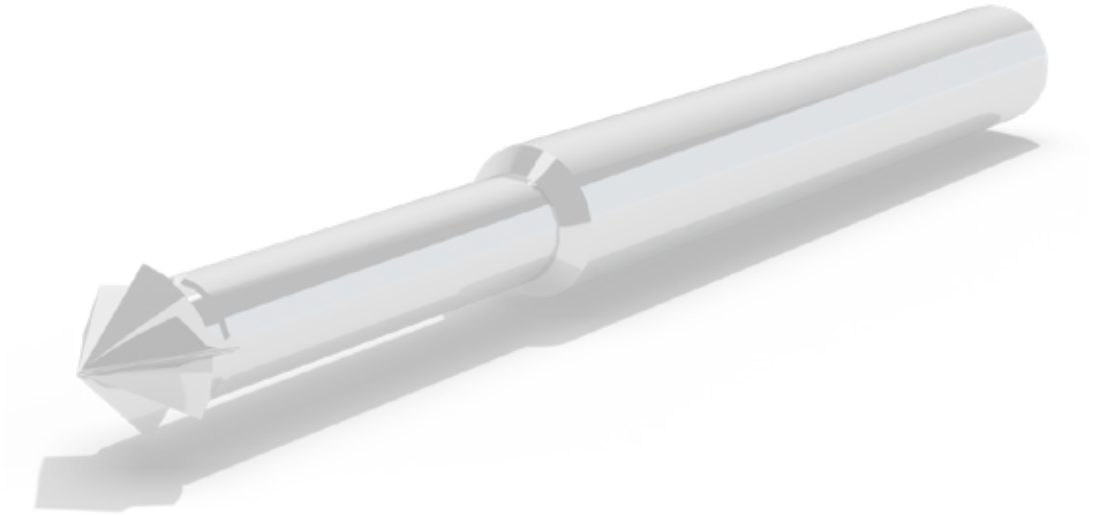
Designation	d1 (mm)	d2 (mm)	d3 (mm)	l1 (mm)	l2 (mm)	l3 (mm)	z	angle (º)
M-NRC90-040.027-18.075-C200.Z04	4	4	2,7	75	2.7	18	4	90
M-NRC90-050.039.060-18.075-C250.Z04	5	6	3,9	75	3	18	4	90
M-NRC90-060.039-19.058-C300.Z04	6	6	3,9	58	4	19	4	90



NOTES: