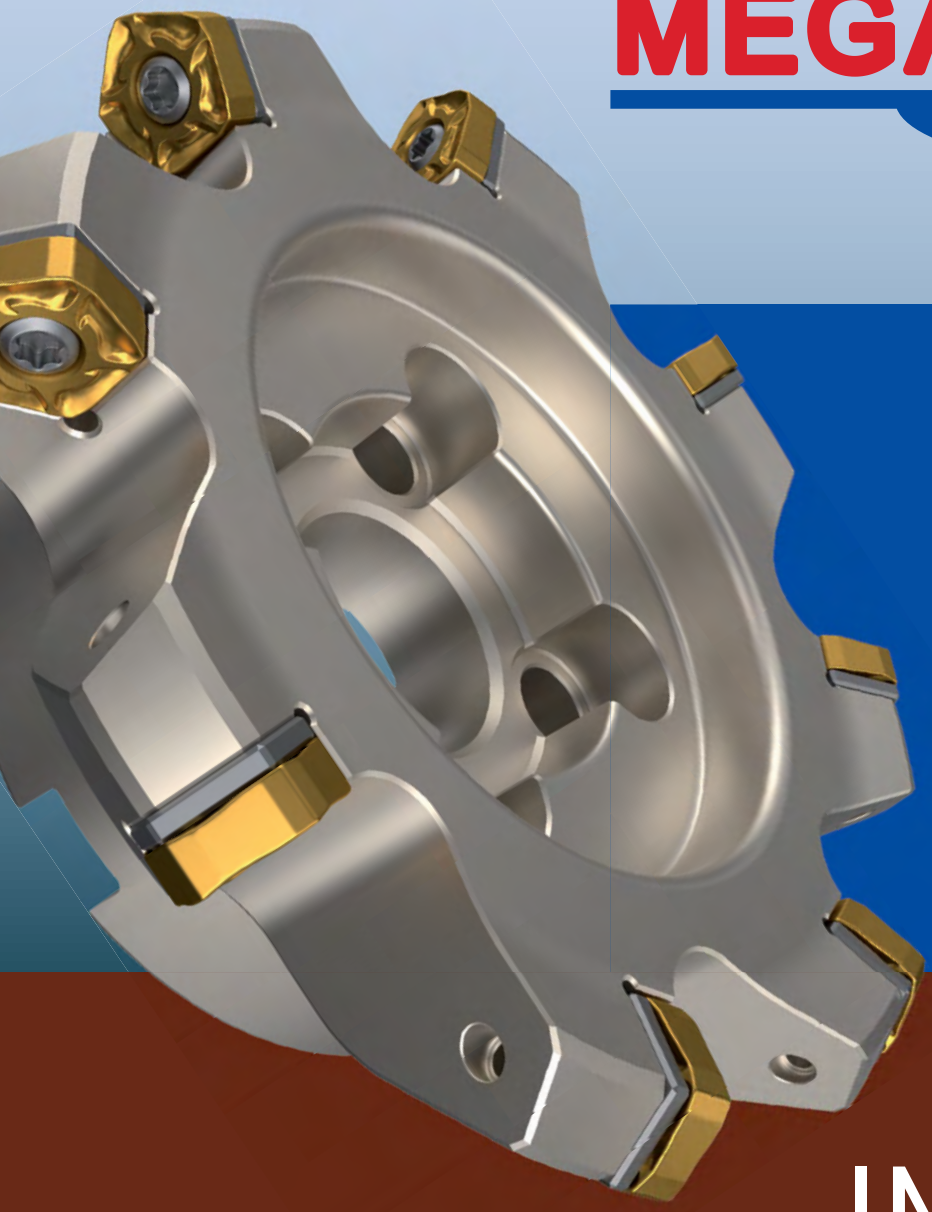
MEGA TEC



INDEXABLE MILLING CUTTERS

MEGATOOLS
METALCUTTING TOOLS

MEGATEC Milling Grades for steel

CP130 (ISO P30, K25)	Wear-resistant Grade for steel and cast iron machining, including light interrupted cutting. Dry high speed cutting is possible thanks to multilayer CVD coating (with Al_2O_3 upper layer).
B130 (ISO P30, K30)	Universal milling Grade for steel machining. A dry high speed cutting is possible thanks to innovative CVD coating. The Grade is also suitable for cast iron.
LM (ISO P35, M25)	Universal milling Grade with PVD nano coating for steel and easy-to-machine stainless steel machining at medium cutting Speed, including unfavorable conditions machining.
B135 (ISO P35, M35, K35)	Universal milling PVD coated Grade is a first choice for Heavy Duty milling of steel and easy-to-machine stainless steel. The Grade is also suitable for dry milling at low to medium cutting speed.
CU135 (ISO P35, M30)	Universal milling grade with multilayer PVD coating for steel roughing at low to medium cutting Speed, including unfavorable conditions machining.
B140 (ISO P40, M45)	PVD coated milling grade for steel, ferritic and martensitic stainless steel machining.

MEGATEC Milling Grades for stainless steel

CU135 (ISO M35, P35)	Universal fain grain Grade for stainless steel and high alloy steel machining, including light interrupted cutting. A multilayer PVD coating allows to machine at high cutting speed. A dry machining is also possible.
B235 (ISO M35, S35)	Milling Grade with wear-resistant PVD coating designed for stainless steel machining. Ni- and Fe-based Super Alloy machining is also possible.
TC35 (ISO M40, P40)	Universal milling Grade with PVD coating for stainless steel roughing at low to medium cutting Speed, including unfavorable conditions machining. The Grade is also suitable for steel roughing.
CM140 (ISO M40, P40)	A micro grain multilayer PVD coated Grade for stainless steel roughing under unfavorable conditions.
B240 (ISO M40, P40, S40)	A micro grain Grade for roughing. First choice for austenitic and duplex stainless steel milling at low to medium cutting Speed. Super Alloy and steel machining under unfavorable conditions is also possible.

MEGATEC Milling Grades for aluminum

C015 (ISO N15)	Uncoated Grade for aluminum and other easy-to-cut material (e.g. cupper) machining.
MNB010 (ISO N10)	Uncoated Grade for aluminum and other easy-to-cut material (especially if sharp Geometry required) machining.

MEGATEC Milling Grades for titanium and super alloy

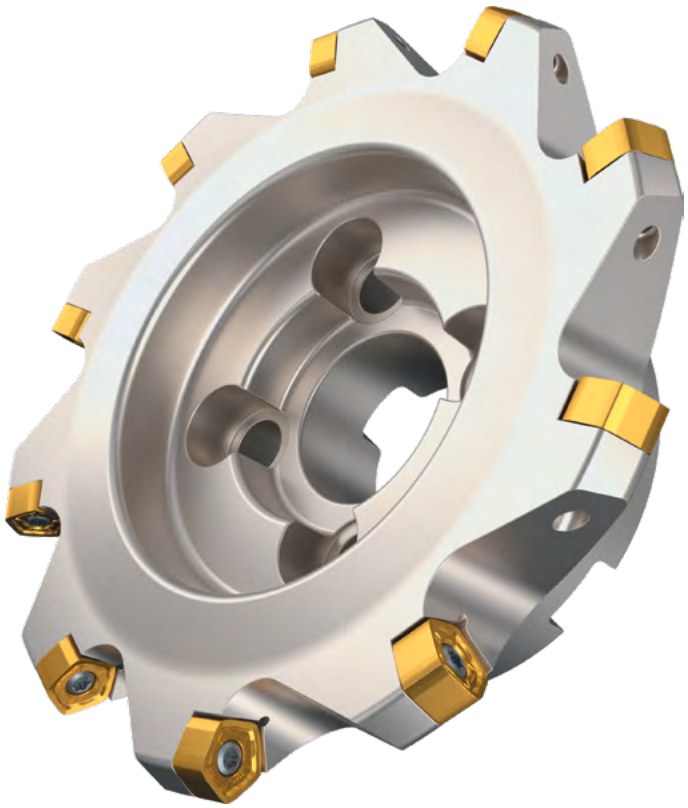
C535 (ISO S35, M35, P40)	A grade with innovative CVD (TiBN) coating for heat resistant steel and Fe-based super alloy machining. It has very good temperature and plastic deformation resistance. The Grade is also suitable for steel and stainless steel machining, especially under unfavorable conditions.
C550 (ISO S40)	Special milling Grade with innovative multilayer CVD coating for titanium, Ni- and Co-based super alloy machining. The Grade has very good temperature and wear resistance.

Indexable Milling Cutters list

MEGA5 5509:

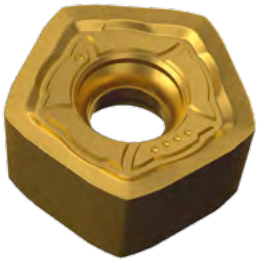
60° FACE MILL WITH NEGATIVE PENTAGONAL INSERT PNMU09

- High efficiency due to 10 cutting edges Insert
- High performance cutting – cutting depth up to 6 mm
- The Insert designed as negative with positive rake angle that leads to low cutting force and high machining stability
- Innovative cutting grades with different coatings suitable for various materials machining
- The Mill is also suitable for semi-finishing machining
- Left hand Mill in program



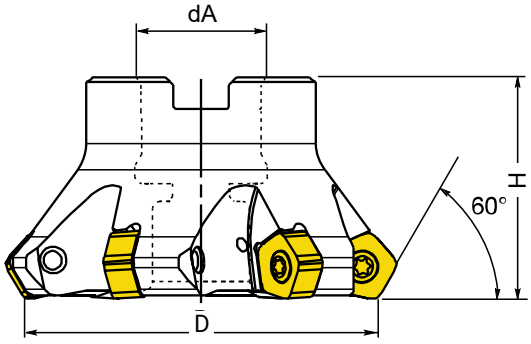
INSERT GEOMETRY

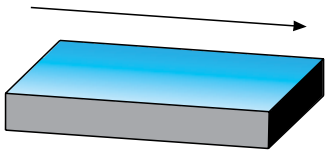
- **HM** – first choice for steel. Reliable cutting edge geometry suitable for steel and cast iron machining
- **SM** – sharp geometry. First choice for stainless steel machining. SM is also suitable for steel machining in case of low system rigidity
- **MP** – reliable cutting edge geometry suitable for steel and cast iron machining, including heavy machining
- **MM** – special designed geometry for stainless steel and super alloy machining. Reduced cutting forces due to high positive rake angle. Strongly recommended for machining in poor rigidity conditions



MEGA5 5509

60° Face Mill with negative pentagonal Insert PNMU09

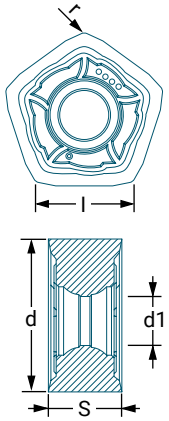




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Arbor Mill								
5509-050-4	•	50	22			40	4	PNMU09
5509-063-5	•	63	22			40	5	
5509-080-6	•	80	27			50	6	
5509-100-7	•	100	32			50	7	
5509-125-8	•	125	40			63	8	
5509-130-8	°	130	40			63	8	
5509-160-10	•	160	40			63	10	
5509-170-10	°	170	40			63	10	
5509-200-12	•	200	60			63	12	
Arbor Mill (Left hand)								
5509LH-080-6	°	80	27			50	6	
5509LH-100-7	°	100	32			50	7	
5509LH-125-8	°	125	40			63	8	

° - On request. All bodies with through coolant supply

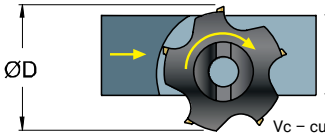
Insert code	Workpiece Pmaterial						Coating					Insert Dimensions					
							CVD	PVD									
	P	M	K	N	S	H	CP130	CU135	B135	CM140	B240	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
PNMU 0906EN-HM*	■		■				●					12,5	9	6,7	0,8	4,5	-
	■	□						●									
PNMU 0906EN-MP	■	□	□						●								
PNMU 0906EN-SM*	□	■								●							
PNMU 0906EN-MM	□	■			□						●						



Order example: PNMU 0906EN-HM CP130

*** NEW.** *Please ask for delivery time*

Spare parts			
Insert type	Diameter D, mm	Special clamping screw	Screwdriver
			
PN..0906EN	50-200	M4×10,8 №4011	Torx 15IP



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

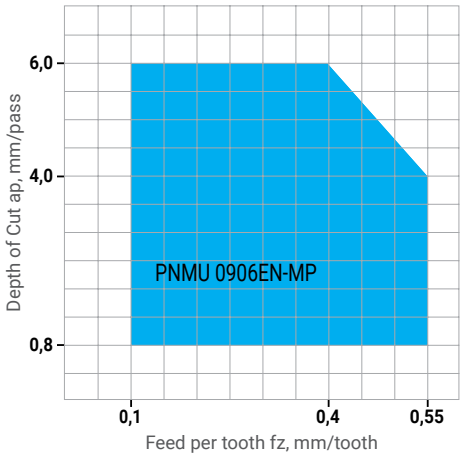
$fn = fz_2 \cdot Z$, mm

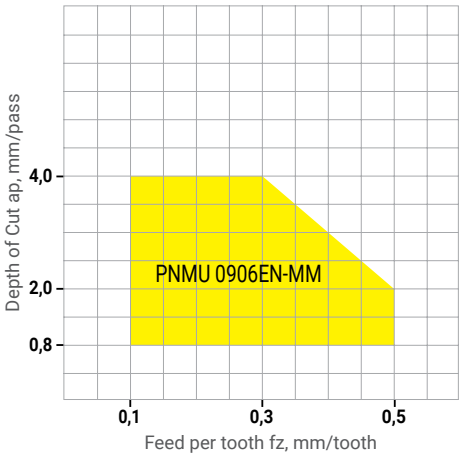
$Vf = fn \cdot Z$, mm/min

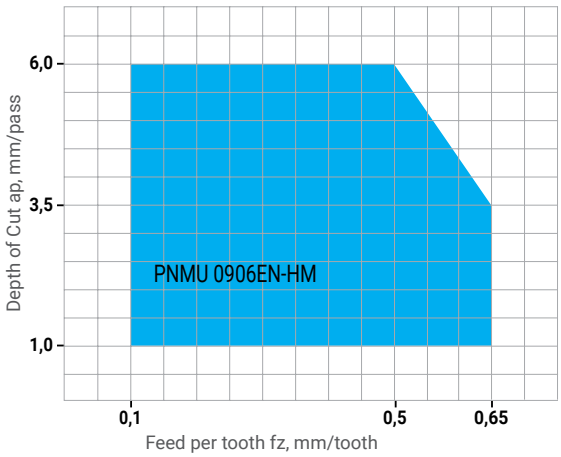
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

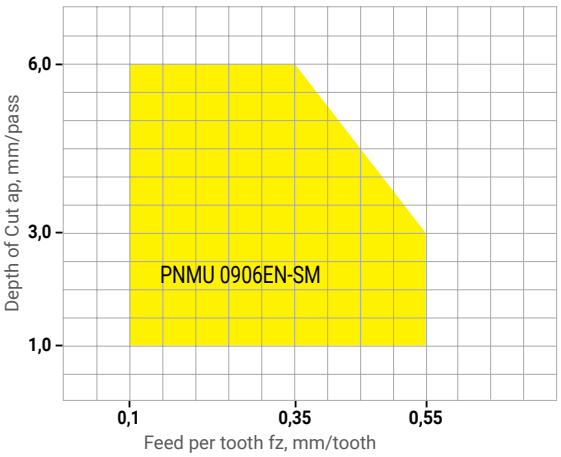
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

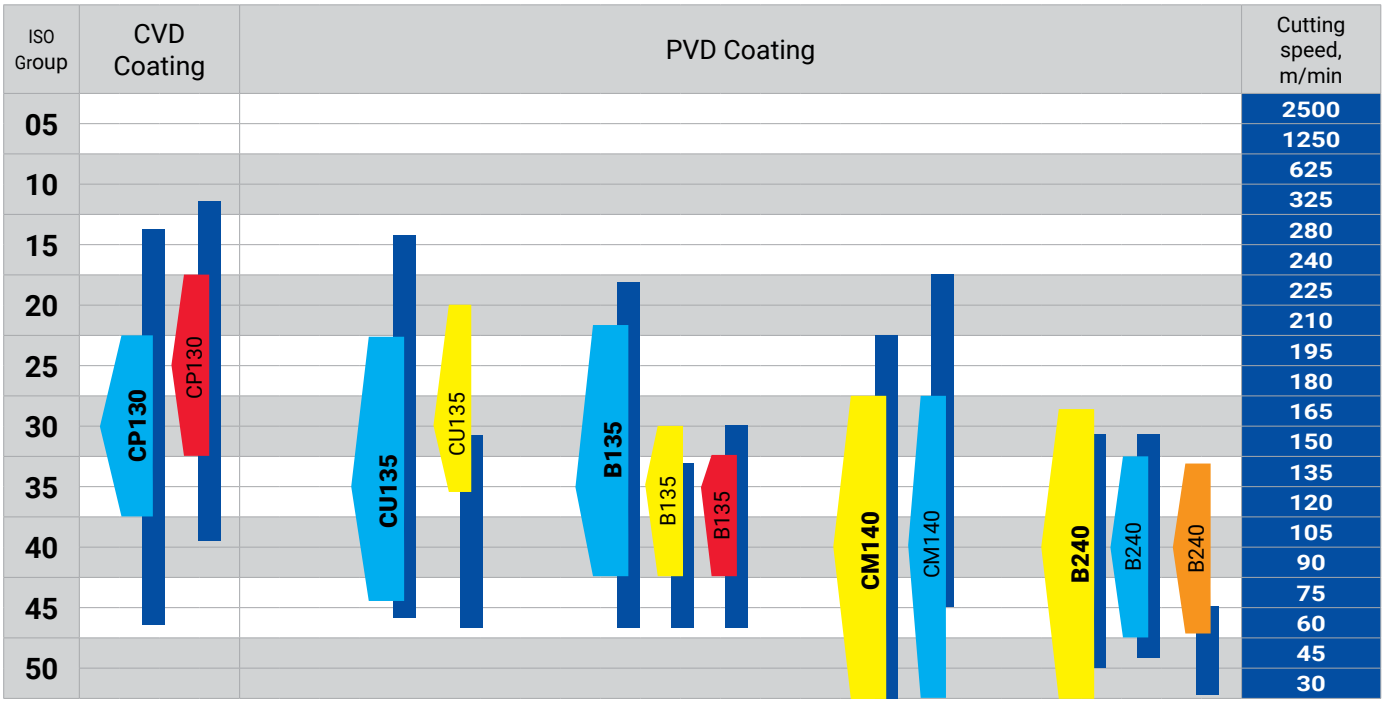
Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			


Depth of Cut ap, mm/pass
6,0
4,0
0,8
PNMU 0906EN-MP
0,1
0,4
0,55
Feed per tooth fz, mm/tooth


Depth of Cut ap, mm/pass
4,0
2,0
0,8
PNMU 0906EN-MM
0,1
0,3
0,5
Feed per tooth fz, mm/tooth


Depth of Cut ap, mm/pass
6,0
3,5
1,0
PNMU 0906EN-HM
0,1
0,5
0,65
Feed per tooth fz, mm/tooth

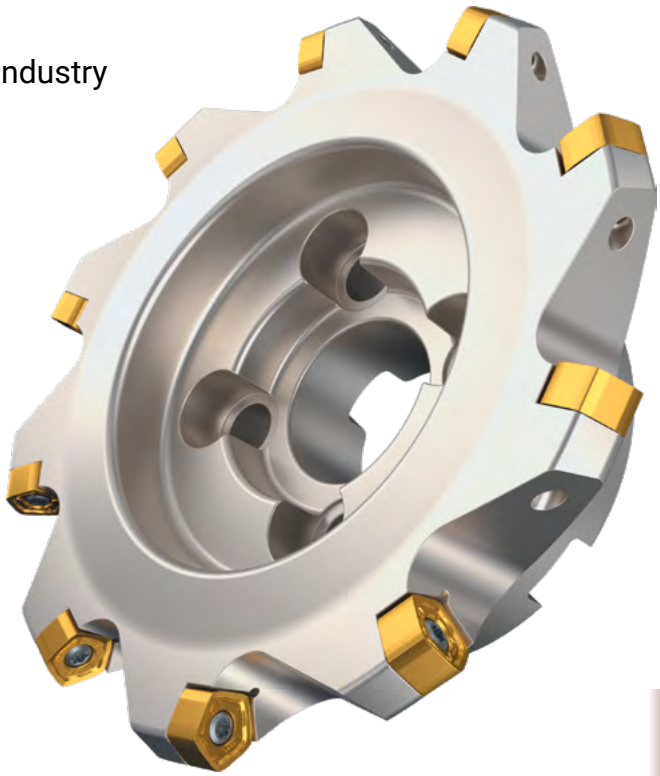

Depth of Cut ap, mm/pass
6,0
3,0
1,0
PNMU 0906EN-SM
0,1
0,35
0,55
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30
CP130
CP130
CU135
CU135
B135
B135
B135
CM140
CM140
B240
B240
B240

MEGA5 5309:

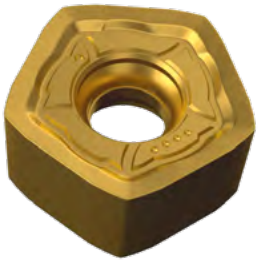
45° FACE MILL WITH NEGATIVE PENTAGONAL INSERT PNMU09

- ✓ High efficiency due to 10 cutting edges Insert
- ✓ High performance cutting – cutting depth up to 4 mm
- ✓ Balanced cutting force due to 45° lead angle
- ✓ The Insert designed as negative with positive rake angle that leads to low cutting force and high machining stability
- ✓ Innovative cutting grades with different coatings suitable for various materials machining
- ✓ The Milling cutter specially designed for valve industry
- ✓ Suitable as chamfer cutter



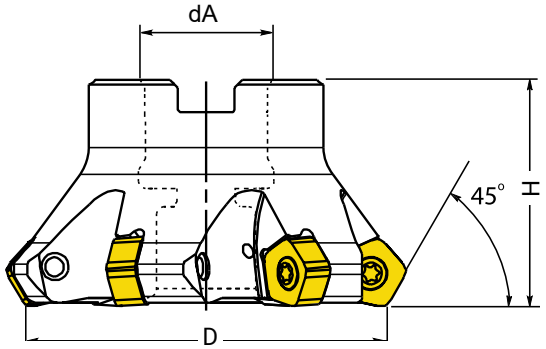
INSERT GEOMETRY

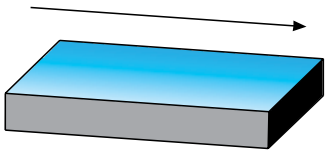
- ✓ **HM** – first choice for steel. Reliable cutting edge geometry suitable for steel and cast iron machining
- ✓ **SM** – sharp geometry. First choice for stainless steel machining. SM is also suitable for steel machining in case of low system rigidity
- ✓ **MP** – reliable cutting edge geometry suitable for steel and cast iron machining, including heavy machining
- ✓ **MM** – special designed geometry for stainless steel and super alloy machining. Reduced cutting forces due to high positive rake angle. Strongly recommended for machining in poor rigidity conditions



MEGA5 5309

45° Face Mill with negative pentagonal Insert PNMU09

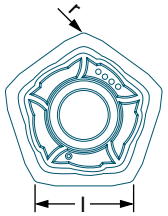


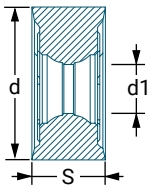


Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
5309-063-5	○	63	22			40	5	PNMU09
5309-080-6	○	80	27			50	6	
5309-100-7	•	100	32			50	7	
5309-125-8	•	125	40			63	8	

○ - On request. All bodies with through coolant supply

Insert code	Workpiece Pmaterial						Coating					Insert Dimensions					
							CVD	PVD									
	P	M	K	N	S	H	CP130	CU135	B135	CM140	B240	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
PNMU 0906EN-HM*	■		■				●					12,5	9	6,7	0,8	4,5	-
	■	□						●									
PNMU 0906EN-MP	■	□	□						●								
PNMU 0906EN-SM*	□	■								●							
PNMU 0906EN-MM	□	■			□						●						

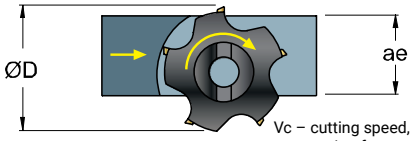




Order example: PNMU 0906EN-HM CP130

* **NEW.** *Please ask for delivery time*

Spare parts			
Insert type	Diameter D, mm	Special clamping screw	Screwdriver
			
PN..0906EN	63-125	M4×10,8 №4011	Torx 15IP



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

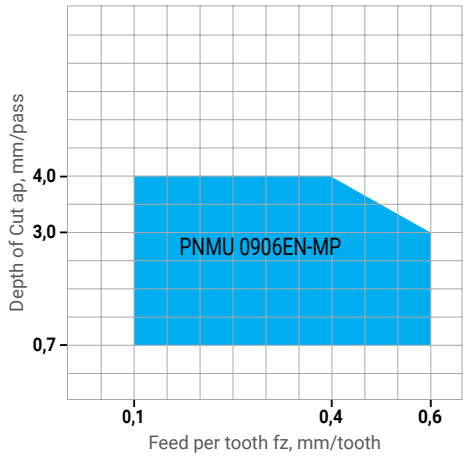
$fn = fz_2 \cdot Z$, mm

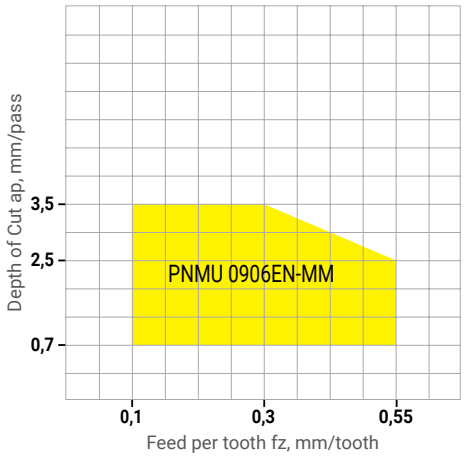
$Vf = fn \cdot Z$, mm/min

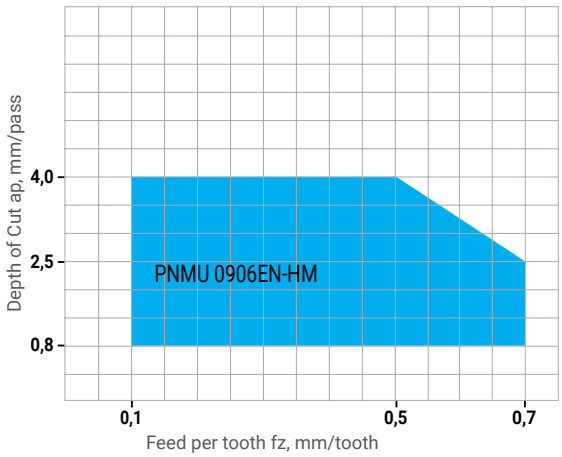
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

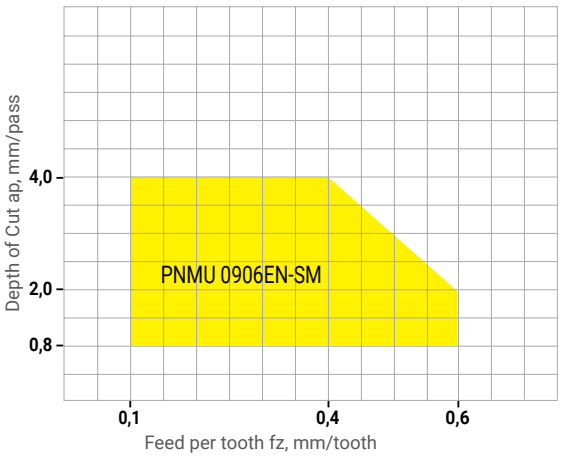
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

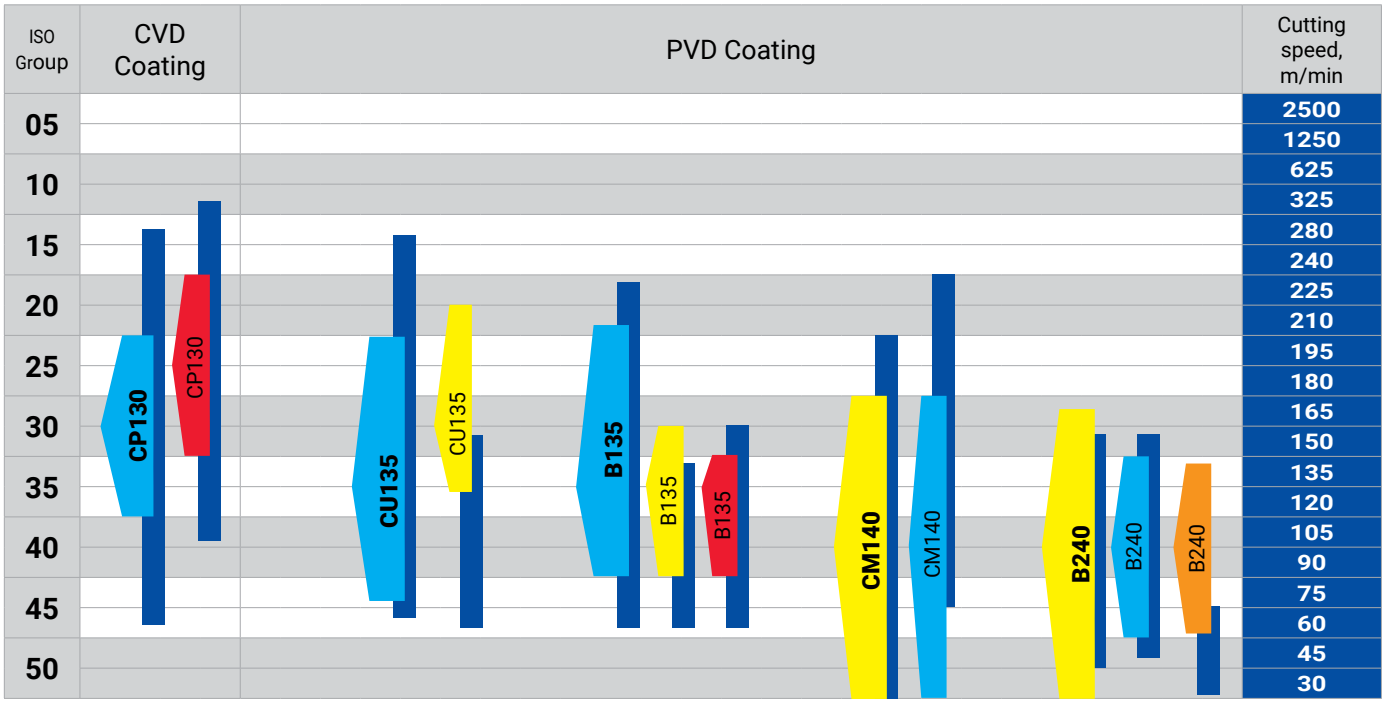
Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			


Depth of Cut ap, mm/pass
4,0
3,0
0,7
PNMU 0906EN-MP
0,1
0,4
0,6
Feed per tooth fz, mm/tooth


Depth of Cut ap, mm/pass
3,5
2,5
0,7
PNMU 0906EN-MM
0,1
0,3
0,55
Feed per tooth fz, mm/tooth


Depth of Cut ap, mm/pass
4,0
2,5
0,8
PNMU 0906EN-HM
0,1
0,5
0,7
Feed per tooth fz, mm/tooth


Depth of Cut ap, mm/pass
4,0
2,0
0,8
PNMU 0906EN-SM
0,1
0,4
0,6
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30
CP130
CP130
CU135
CU135
B135
B135
B135
CM140
CM140
B240
B240
B240

MEGA5 5109:

20° HIGH FEED FACE MILL WITH NEGATIVE PENTAGONAL INSERT PNMU09

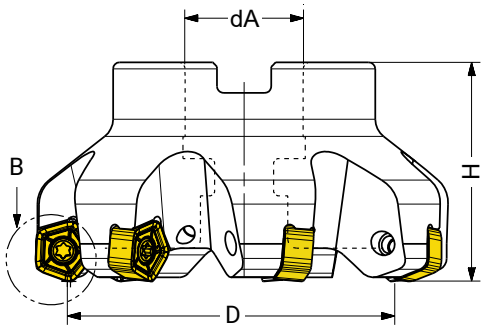
- ✓ High feed face milling – up to 1,85 mm per tooth
- ✓ Machine time reduction up to 60% in comparison to classical milling
- ✓ Recommended for low power machine
- ✓ Balanced cutting force due to 45° lead angle
- ✓ The Insert designed as negative with positive rake angle that leads to low cutting force and high machining stability
- ✓ Innovative cutting grades with different coatings suitable for various materials machining
- ✓ The Milling cutter specially designed for valve industry
- ✓ Suitable as chamfer cutter
- ✓ High efficiency due to 10 cutting edges Insert

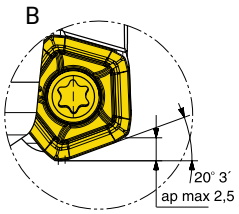
INSERT GEOMETRY

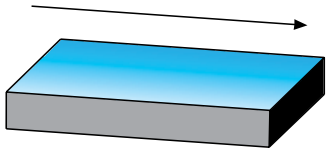
- ✓ **HM** – first choice for steel. Reliable cutting edge geometry suitable for steel and cast iron machini
- ✓ **SM** – sharp geometry. First choice for stainless steel machining. SM is also suitable for steel machining in case of low system rigidity
- ✓ **MP** – reliable cutting edge geometry suitable for steel and cast iron machining, including heavy machining
- ✓ **MM** – special designed geometry for stainless steel and super alloy machining. Reduced cutting forces due to high positive rake angle. Strongly recommended for machining in poor rigidity conditions

MEGA5 5109

20° High feed face Mill with negative pentagonal Insert PNMU09

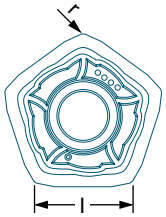


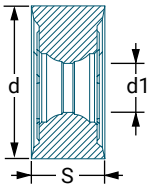




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Arbor Mill 60°								
5109-050-5	•	50	22			40	5	PNMU09
5109-063-6	•	63	22			40	6	
5109-080-7	•	80	27			50	7	
5109-100-8	•	100	32			50	8	
5109-125-10	•	125	40			63	10	
All bodies with through coolant supply								

Insert code	Workpiece material						Coating					Insert Dimensions					
							CVD	PVD									
	P	M	K	N	S	H	CP130	CU135	B135	CM140	B240	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
PNMU 0906EN-HM*	■		■				●					12,5	9	6,7	0,8	4,5	-
	■	□						●									
PNMU 0906EN-MP	■	□	□						●								
PNMU 0906EN-SM*	□	■								●							
PNMU 0906EN-MM	□	■			□						●						

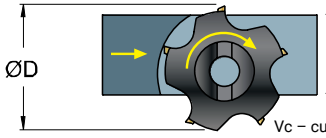




Order example: PNMU 0906EN-HM CP130

** NEW. Please ask for delivery time*

Spare parts			
Insert type	Diameter D, mm	Special clamping screw	Screwdriver
			
PN..0906EN	50-125	M4×10,8 №4011	Torx 15IP



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

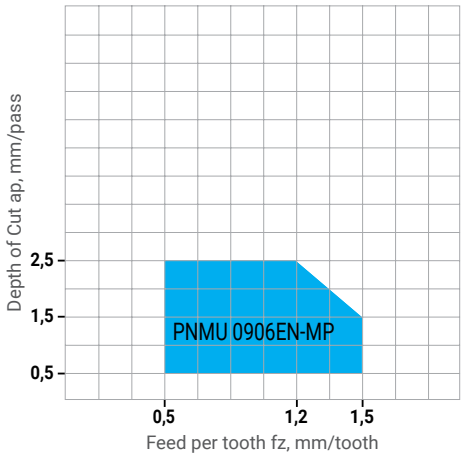
$fn = fz_2 \cdot Z$, mm

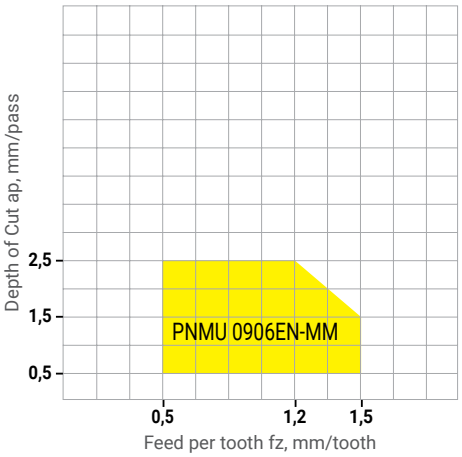
$Vf = fn \cdot Z$, mm/min

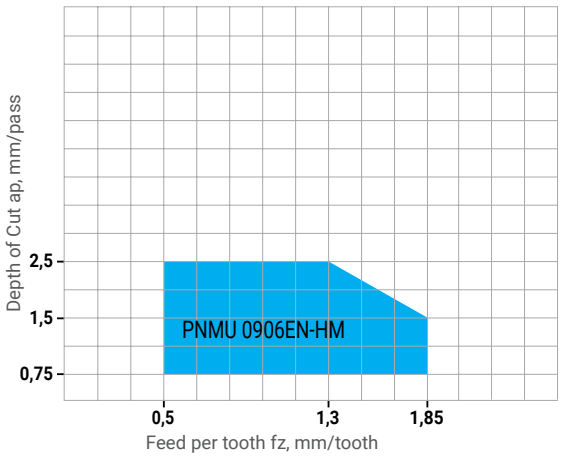
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

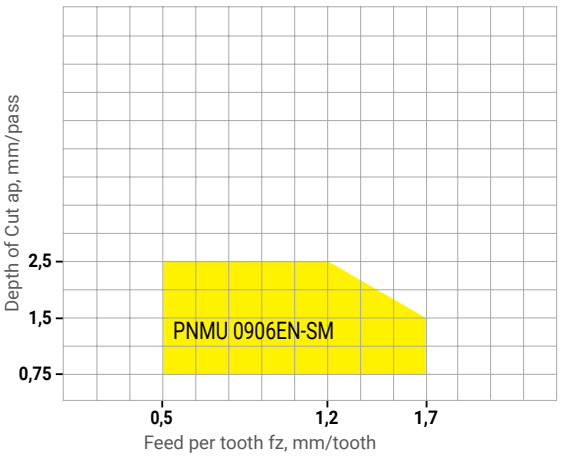
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

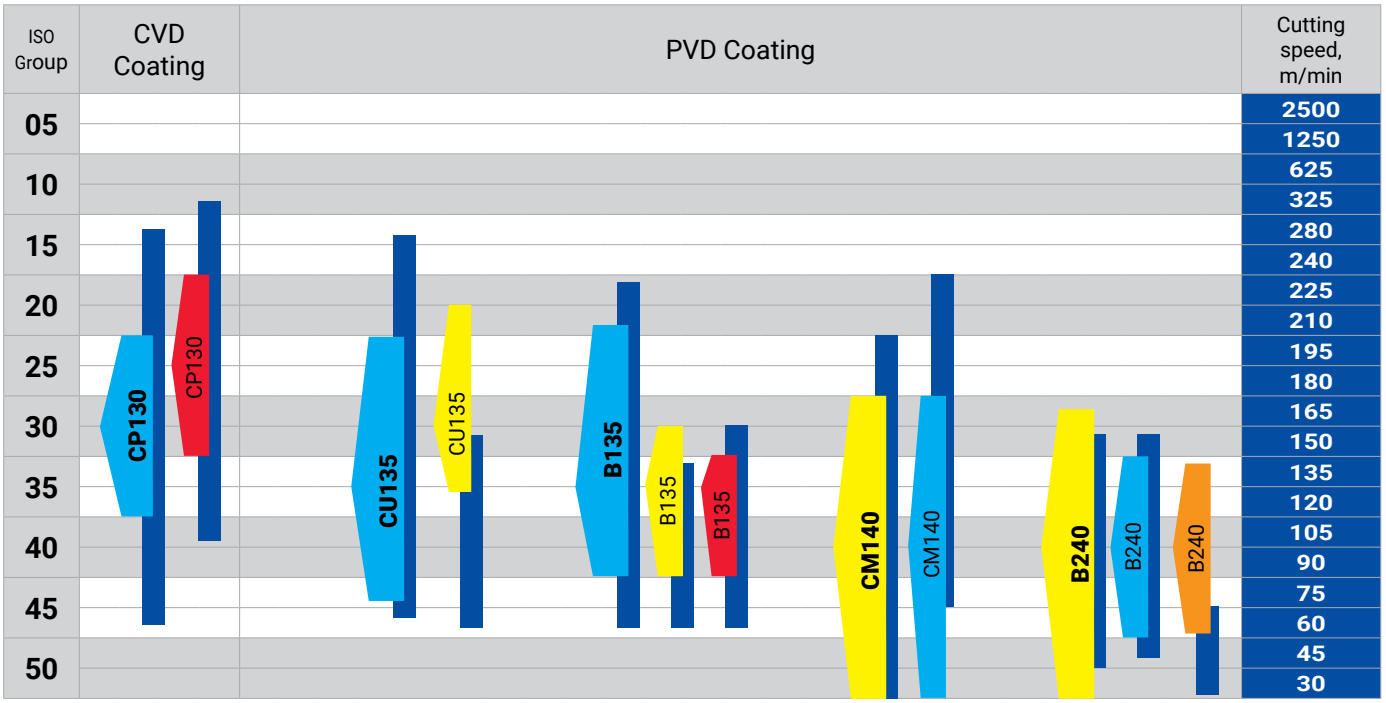
Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			


Depth of Cut ap, mm/pass
2,5
1,5
0,5
PNMU 0906EN-MP
0,5
1,2
1,5
Feed per tooth fz, mm/tooth


Depth of Cut ap, mm/pass
2,5
1,5
0,5
PNMU 0906EN-MM
0,5
1,2
1,5
Feed per tooth fz, mm/tooth

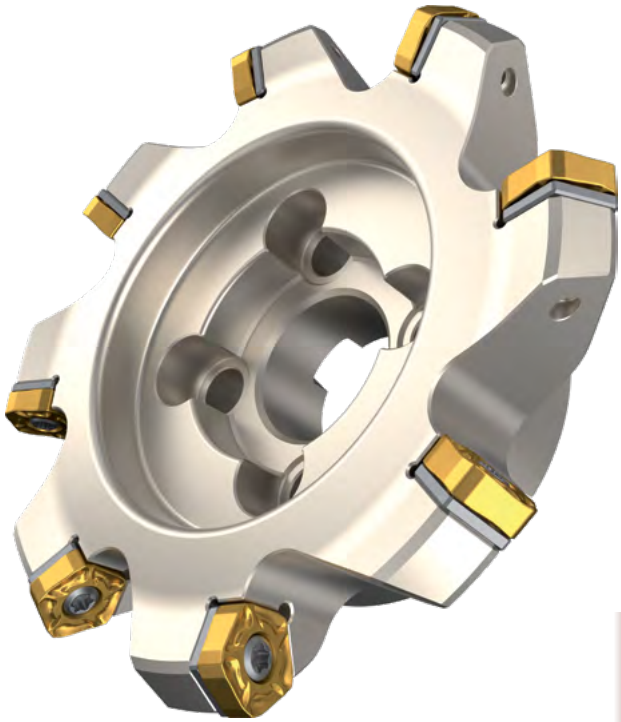

Depth of Cut ap, mm/pass
2,5
1,5
0,75
PNMU 0906EN-HM
0,5
1,3
1,85
Feed per tooth fz, mm/tooth


Depth of Cut ap, mm/pass
2,5
1,5
0,75
PNMU 0906EN-SM
0,5
1,2
1,7
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30
CP130
CP130
CU135
CU135
B135
B135
B135
CM140
CM140
B240
B240
B240

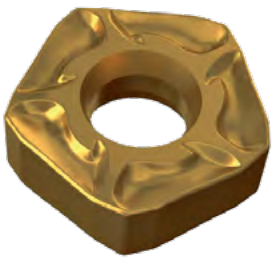
MEGATEC 5513:
60° FACE MILL WITH NEGATIVE PENTAGONAL INSERT PNMU13

- ✓ High efficiency due to 10 cutting edges Insert
- ✓ High performance cutting – cutting depth up to 10 mm
- ✓ The Insert designed as negative with positive rake angle that leads to low cutting force and high machining stability
- ✓ Innovative cutting grades with different coatings suitable for various materials machining
- ✓ The Mill is also suitable for semi-finishing machining
- ✓ Less time for Insert indexation and easier Insert change due to special clamping screw. See page 273.



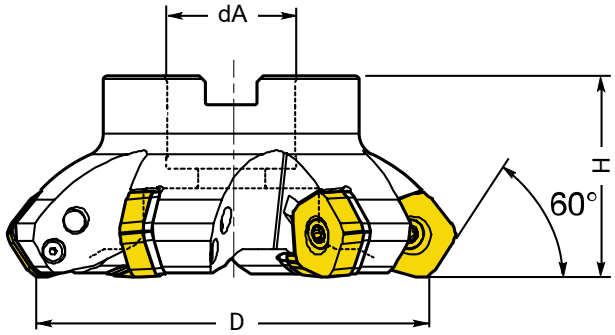
INSERT GEOMETRY

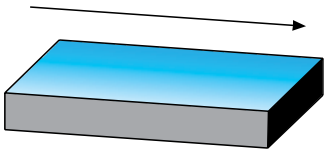
- ✓ **MP** – reliable cutting edge geometry suitable for steel and cast iron machining, including heavy machining
- ✓ **MM** – special designed geometry for stainless steel and super alloy machining. Reduced cutting forces due to high positive rake angle. Strongly recommended for machining in poor rigidity conditions



MEGATEC 5513

60° Face Mill with negative pentagonal Insert PNMU13

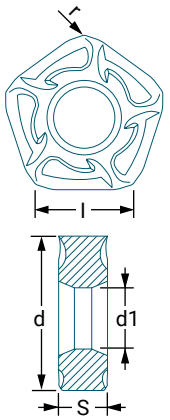




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Arbor Mill 60°								
5513-125-6*	•	125	40			63	6	PNMU13
5513-160-8	•	160	40			63	8	
5513-200-10	•	200	60			63	10	
5513-250-12	•	250	60			63	12	
5513-315-14	•	315	60			80	14	

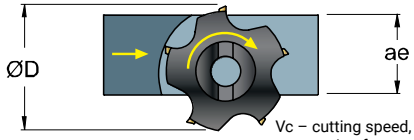
* - the body with through coolant supply. Other bodies without through coolant

Insert code	Workpiece Pmaterial						Coating					Insert Dimensions					
							CVD	PVD									
	P	M	K	N	S	H	B130	B135	B140	B235	B240	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
PNMU 1307DNSN-MP	■		■				●					23,4	13	7,9	1	10,3	-
	■	□	□					●									
	■	□							●								
		■			□					●							
	□	■			□						●						
PNMU 1307DNSN-MM	□	■			□						●						



Order example: PNMU1307DNSN-MP B135

Spare parts						
Insert type	Diameter D, mm	Insert screw	Screwdriver	Shim	Shim screw	Key
						
PN..1307DNSN	125-315	M8×26 №8026	Torx 30IP	№13095	M4×8,6 №134	Torx 15IP



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

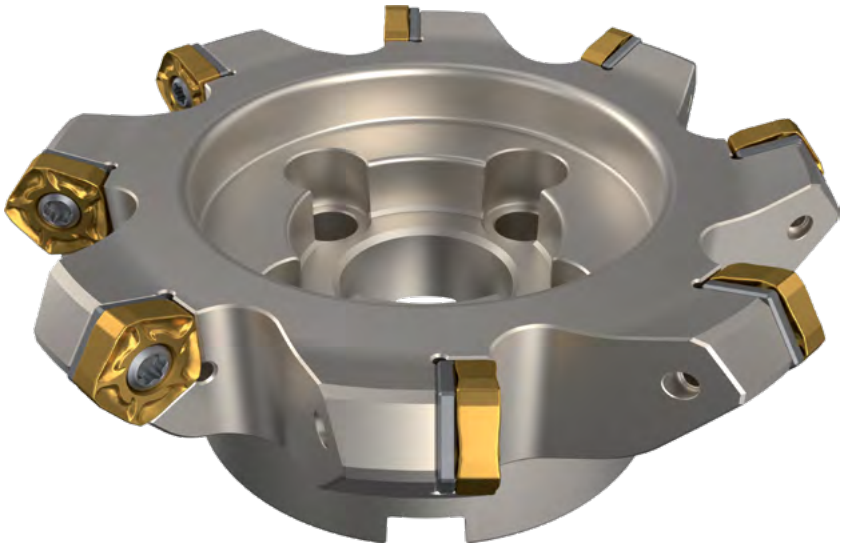
$Vf = fn \cdot Z$, mm/min

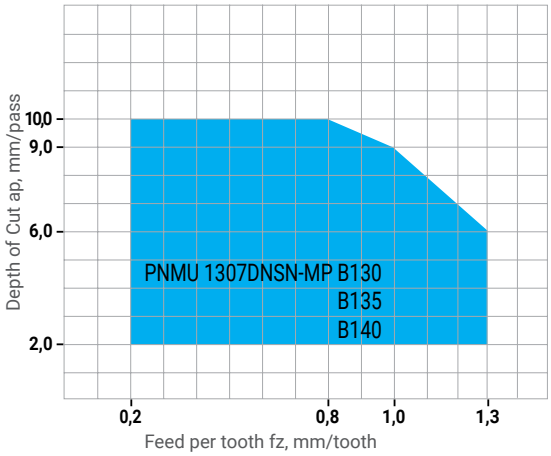
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

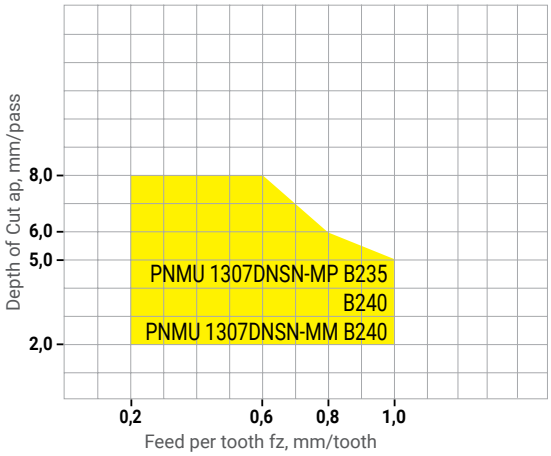
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

PLEASE NOTE! Special Insert clamping screw. See page 273.



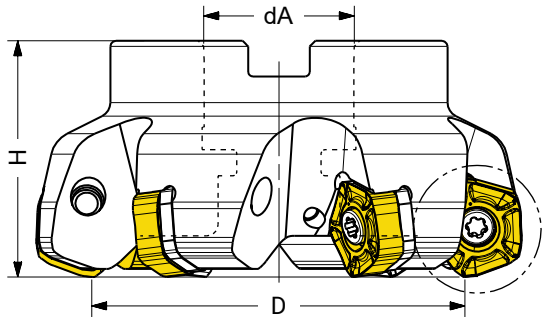


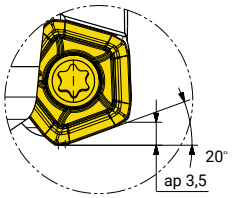


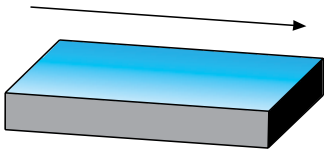
ISO Group	CVD Coating	PVD Coating	Cutting speed, m/min
05			2500
			1250
10			625
			325
15	B130 B130		280
			240
20		B135	225
			210
25		B135 B135	195
			180
30			165
			150
35		B140	135
			120
40		B140	105
			90
45		B235 B235	75
			60
50		B240 B240 B240	45
			30

MEGATEC 5113

20° High feed face Mill with negative pentagonal Insert PNMU13

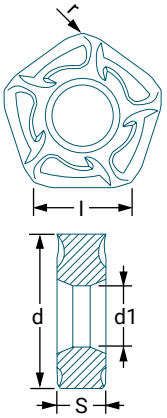






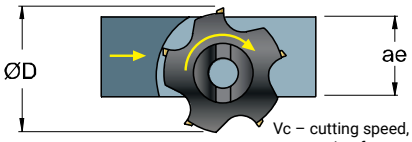
Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
All bodies with through coolant supply								
5113-063-4	•	63	27			63	4	PNMU13
5113-080-5	•	80	32			63	5	
5113-100-6	•	100	40			63	6	
All bodies with through coolant supply								

Insert code	Workpiece Pmaterial						Coating					Insert Dimensions					
							CVD	PVD									
	P	M	K	N	S	H	B130	B135	B140	B235	B240	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
PNMU 1307DNSN-MP	■		■				●					23,4	13	7,9	1	10,3	-
	■	□	□					●									
	■	□							●								
		■			□					●							
	□	■			□						●						
PNMU 1307DNSN-MM	□	■			□						●						



Order example: PNMU1307DNSN-MP B135

Spare parts						
Insert type	Diameter D, mm	Insert screw	Screwdriver	Shim	Shim screw	Key
PN..1307DNSN	125-315	M8×26 №8026	Torx 30IP	№13095	M4×8,6 №134	Torx 15IP



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

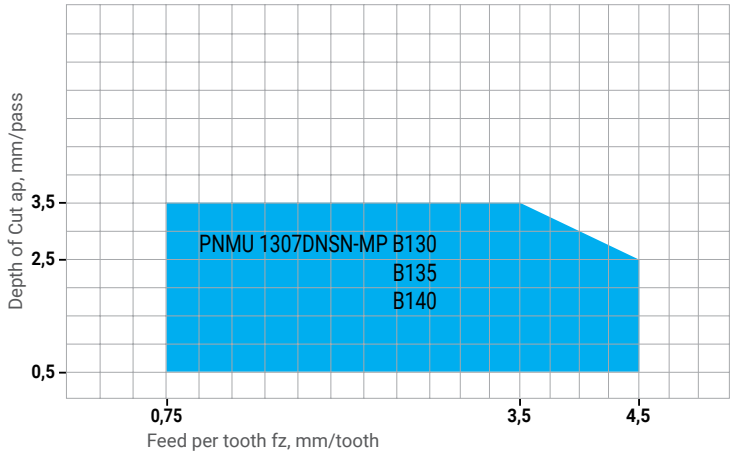
$Vf = fn \cdot Z$, mm/min

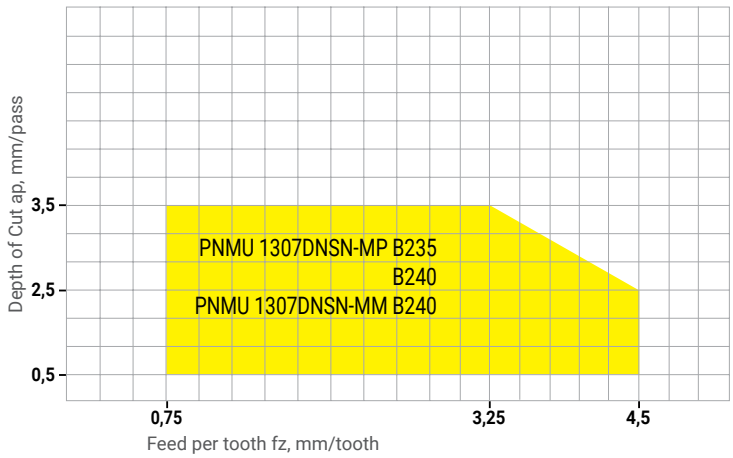
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

PLEASE NOTE! Special Insert clamping screw. See page 273.





ISO Group	CVD Coating	PVD Coating	Cutting speed, m/min
05			2500
			1250
10			625
			325
15	B130		280
	B130		240
20		B135	225
		B135	210
25		B135	195
		B135	180
30			165
			150
35		B140	135
		B140	120
40		B235	105
		B235	90
45		B240	75
		B240	60
50		B240	45
			30

MEGATEC 780:
THE MILL WITH NEGATIVE ROUND SQUARE INSERT RNKX / ROHX

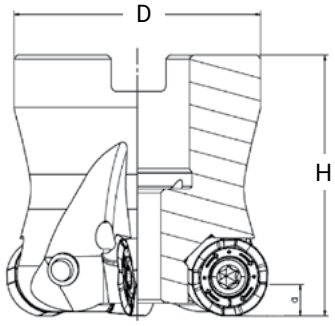
- The Insert designed as negative with positive rake angle that leads to low cutting force and high machining stability
- A special Insert geometry allows to machine with a traditional milling or with a high feed milling.
- Three different chipbreakers provide the best choice of Insert for various machining conditions, including heavy duty milling and unstable system machining.
- Innovative cutting grades with different coatings suitable for various materials machining
- High efficiency due to 8 cutting edges Insert
- Recommended cutting depth up to 6 mm per pass

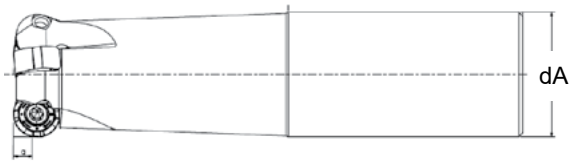
INSERT GEOMETRY

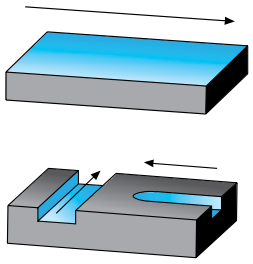
- **HM** – first choice for steel. Reliable cutting edge geometry suitable for steel and cast iron machining
- **SM** – sharp geometry. First choice for stainless steel machining. SM is also suitable for steel machining in case of low system rigidity
- **XM** – special geometry that combines sharpness and cutting edge strength, mainly for machining titanium and heat-resistant alloys.

MEGATEC 78012

The Mill with negative round square Insert RNKX12 / ROHX12

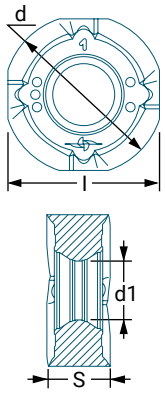






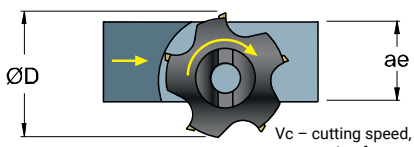
Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill								
78012-032-3-165	•	32	32	165	70		3	RN/ RO..12
78012-032-3	•	32	32	131	70		3	
Arbor Mill								
78012-040-4	•	40	16			40	4	RN/ RO..12
78012-050-5	•	50	22			40	5	
78012-063-6	•	63	22			40	6	
78012-080-8	•	80	27			50	8	
78012-100-10	•	100	32			50	10	
All bodies with through coolant supply								

Insert	Workpiece Pmaterial						Coating							Insert Dimensions					
							CVD			PVD									
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM135	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
RNKX1204MO-HM	■	□								●				12	11,8	5,9	-	4,5	0
	■		■				●												
	■	□									●								
ROHX1204MO-SM	□	■										●							3
	□	■											●						
ROHX1204MO-XM	□	■			■			●											3
					■				●										



Order example: ROHX1204MO-XM C550

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
RN/RO..1204	32	M4,0×11,0	Torx 15IP	-
	40			M8,0×30
	50-100			-



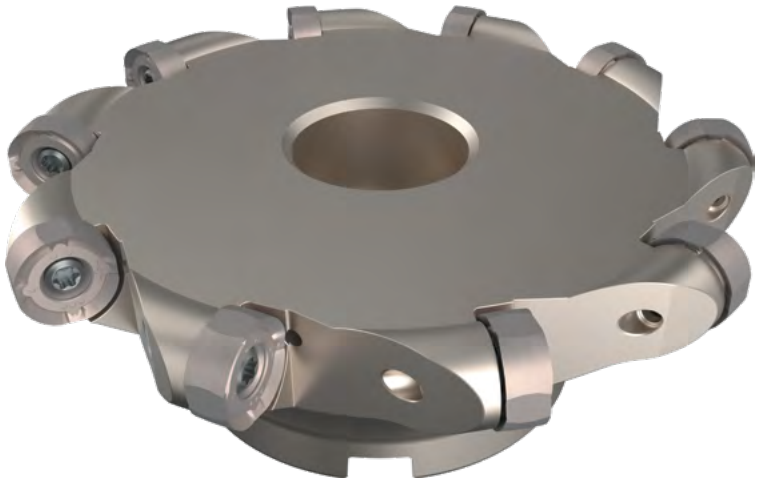
$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

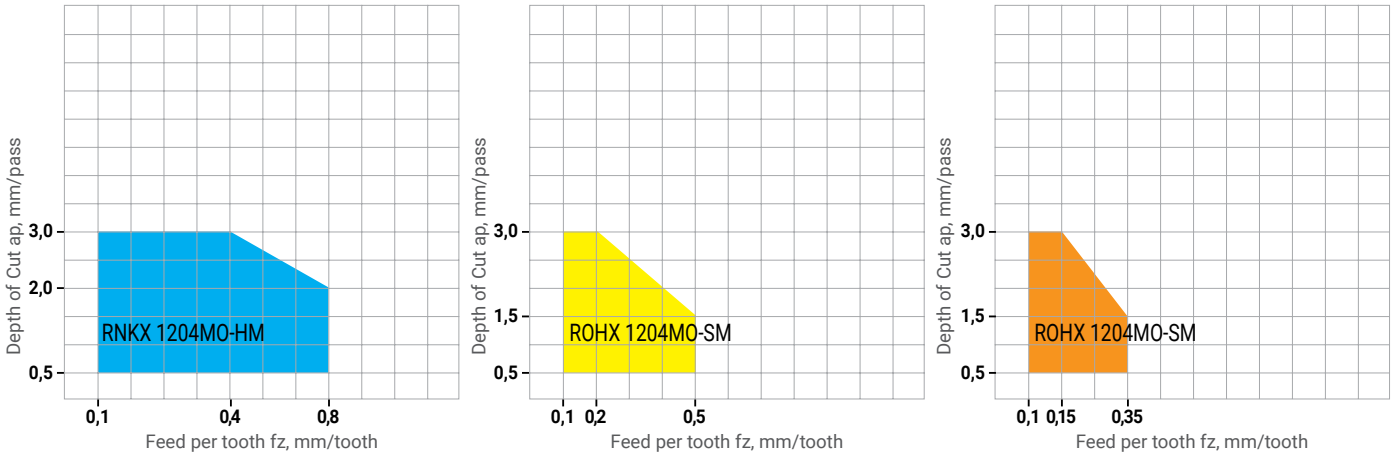
$fz_2 = fz \cdot Kae$, mm
$fn = fz_2 \cdot Z$, mm
$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			



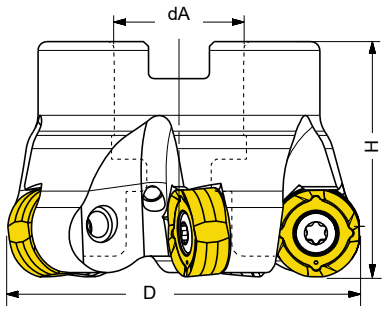


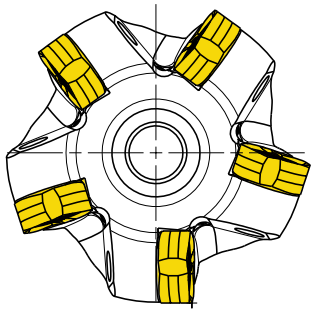
ISO Group	CVD Coating	PVD Coating	Cutting speed, m/min
05			2500
			1250
10			625
			325
15			280
			240
20			225
			210
25			195
			180
30			165
			150
35			135
			120
40			105
			90
45			75
			60
50			45
			30

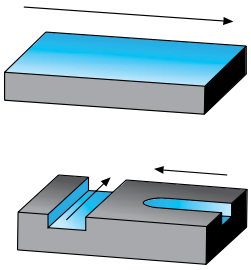
CP130 CP130 C535 C535 C535 C550 LM LM CU135 CU135 TC35 TC35 CM135 CM135

MEGATEC 78015

The Mill with negative round square Insert RNKX15 / ROHX15



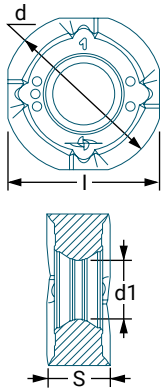




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
78015-063-5 *	•	63	22			40	5	RN/ RO..15
78015-080-6 *	•	80	27			50	6	
78015-100-7 *	•	100	32			50	7	
78015-125-8 *	•	125	40			63	8	
78015-160-10	•	160	40			63	10	
78015-200-12	•	200	60			63	12	
78015-250-14	•	250	60			63	14	

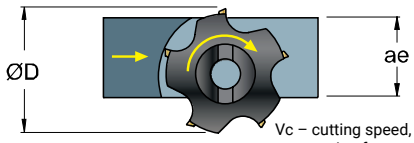
* All bodies with through coolant supply

Insert	Workpiece Pmaterial						Coating					Insert Dimensions					
							CVD			PVD							
	P	M	K	N	S	H	CP130	C535	C550	CU135	CM135	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
RNKX1505MO-HM	■		■				●					15	14,75	6,27	-	5,77	0
	■	□								●							
ROHX1505MO-SM	□	■									●						3
ROHX1505MO-XM	□	■			■			●									3
					■				●								



Order example: RNKX1505MO-HM CU135

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
				
RN/RO..1505	63-250	VBTL45IP	Torx 20IP	-



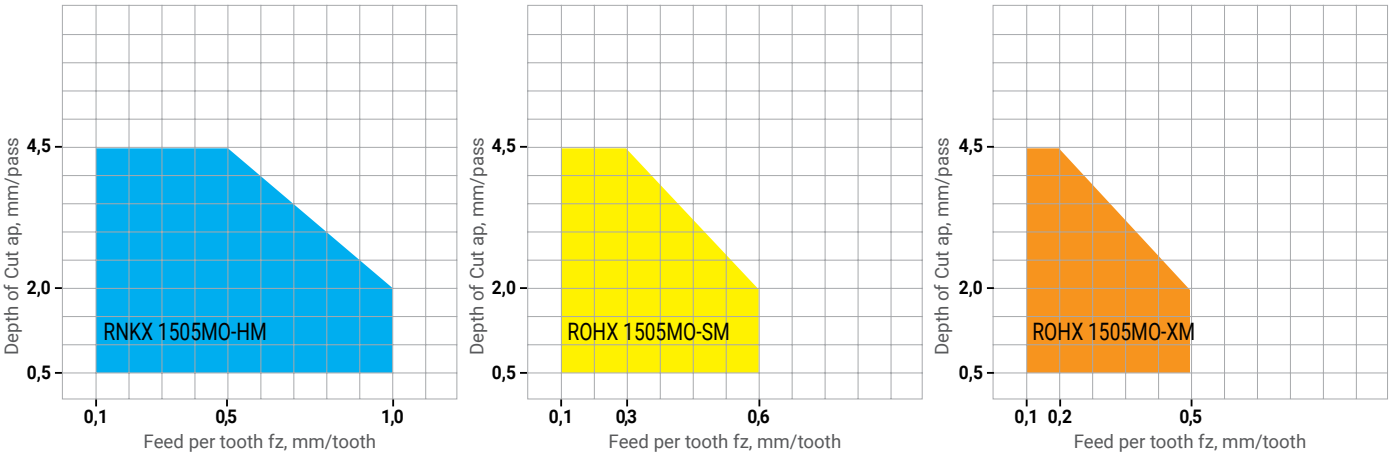
$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

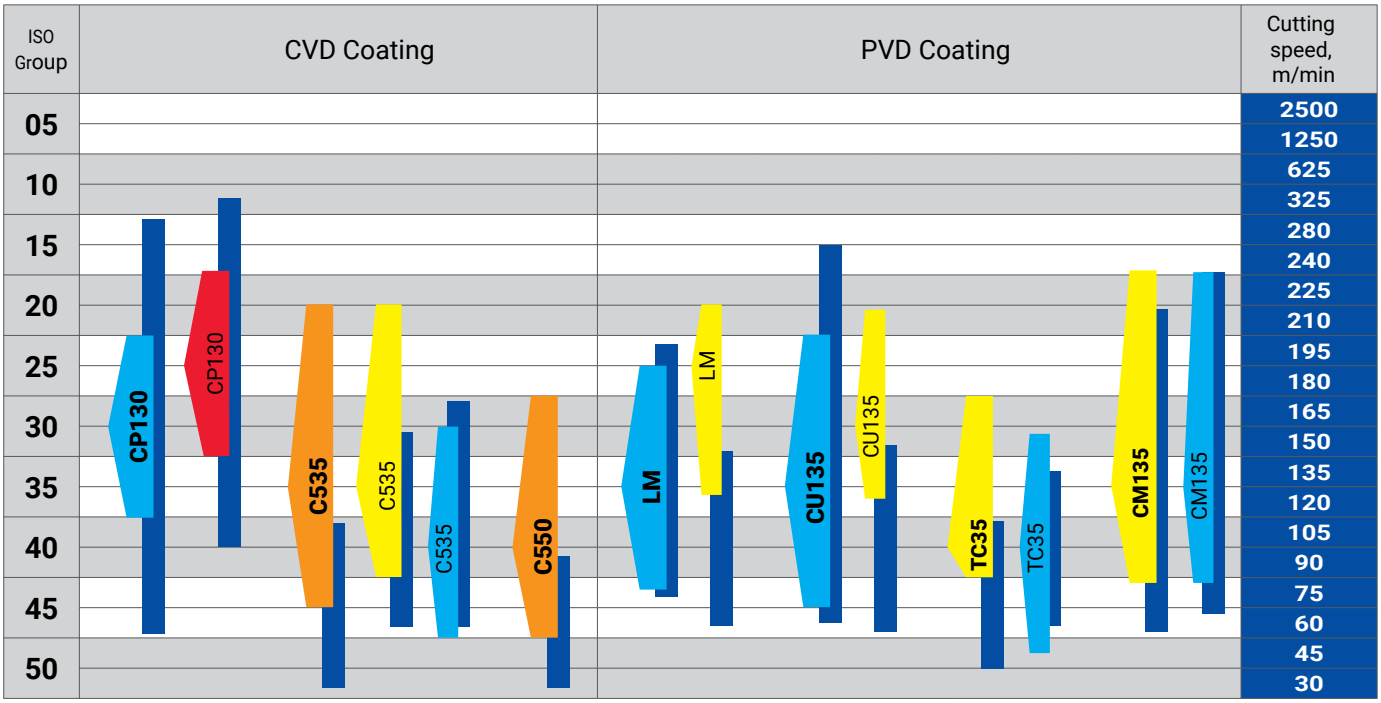
$fz_2 = fz \cdot Kae$, mm
$fn = fz_2 \cdot Z$, mm
$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

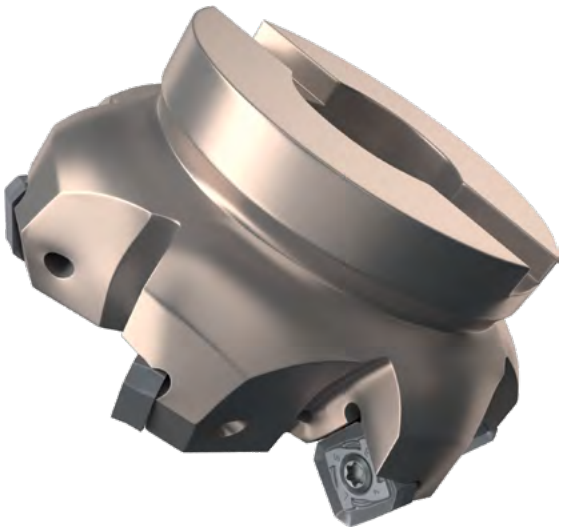
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

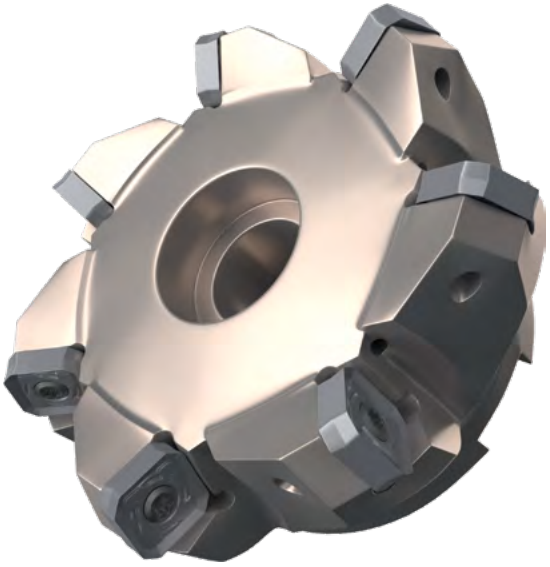

Depth of Cut ap, mm/pass
4,5
2,0
0,5
RNKX 1505MO-HM
0,1
0,5
1,0
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
4,5
2,0
0,5
ROHX 1505MO-SM
0,1
0,3
0,6
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
4,5
2,0
0,5
ROHX 1505MO-XM
0,1
0,2
0,5
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
CP130
CP130
C535
C535
C535
C550
LM
LM
CU135
CU135
TC35
TC35
CM135
CM135
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30

MEGATEC 480:
45° FACE MILL WITH NEGATIVE SQUARE INSERT SNKX

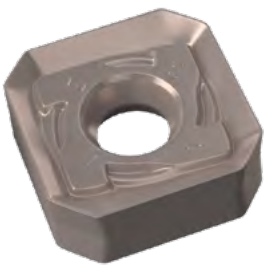


- ✓ High efficiency due to 8 cutting edges Insert
- ✓ Smooth cutting due to 45° lead angle
- ✓ Good chip flow due to wave shaped cutting edge and sharp geometry
- ✓ Innovative negative Insert with high positive rake angle
- ✓ Suitable as chamfer cutter
- ✓ Good surface finish thanks to the wiper edge



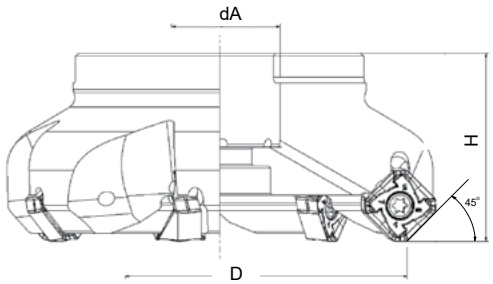
INSERT GEOMETRY

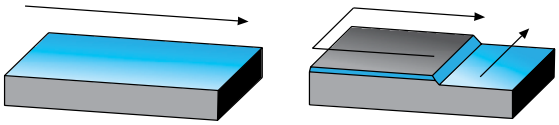
- ✓ **SM** – sharp geometry, first choice for stainless steel machining. Good choice for steel machining as well, especially in case of low system rigidity



MEGATEC 48012

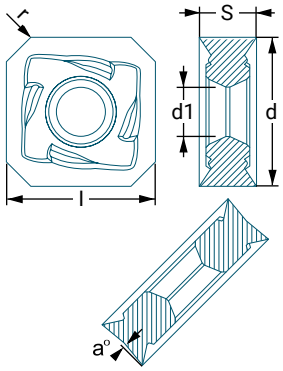
45° Face Mill with negative square Insert SNKX12





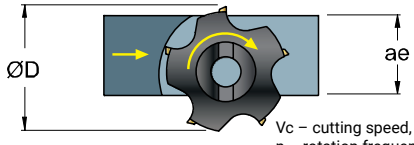
Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Arbor Mill								
48012-040-4	•	40	16			45	4	SN..12
48012-050-5	•	50	22			45	5	
48012-063-6	•	63	22			45	6	
48012-080-8	•	80	27			50	8	
48012-100-10	•	100	32			50	10	
48012-125-12	•	125	40			63	12	
All bodies with through coolant supply								

Insert	Workpiece Pmaterial						Coating							Insert Dimensions					
							CVD		PVD										
	P	M	K	N	S	H	CP130	C535	LM	CU135	TC35	CM135	CM140	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
SNKX1205AFER-SM	■	□							●					13	13	5,00	0,8	4,55	6
	■		■				●												
	■	□								●									
	□	■									●								
	□	■										●							
	□	■											●						
	□	■			■			●											



Order example: SNKX1205AFER-SM LM

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Ø40 Mill fixing screw
SN..1205AF	40-125	M4×11	Torx 15	M8,0×30



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

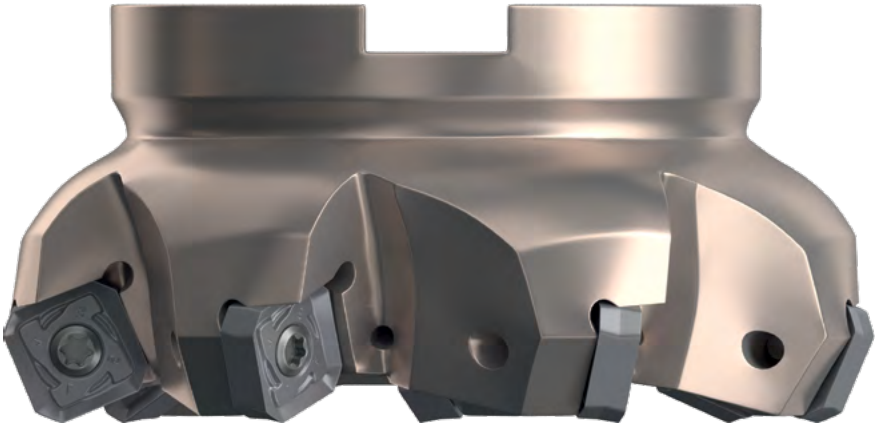
$fn = fz_2 \cdot Z$, mm

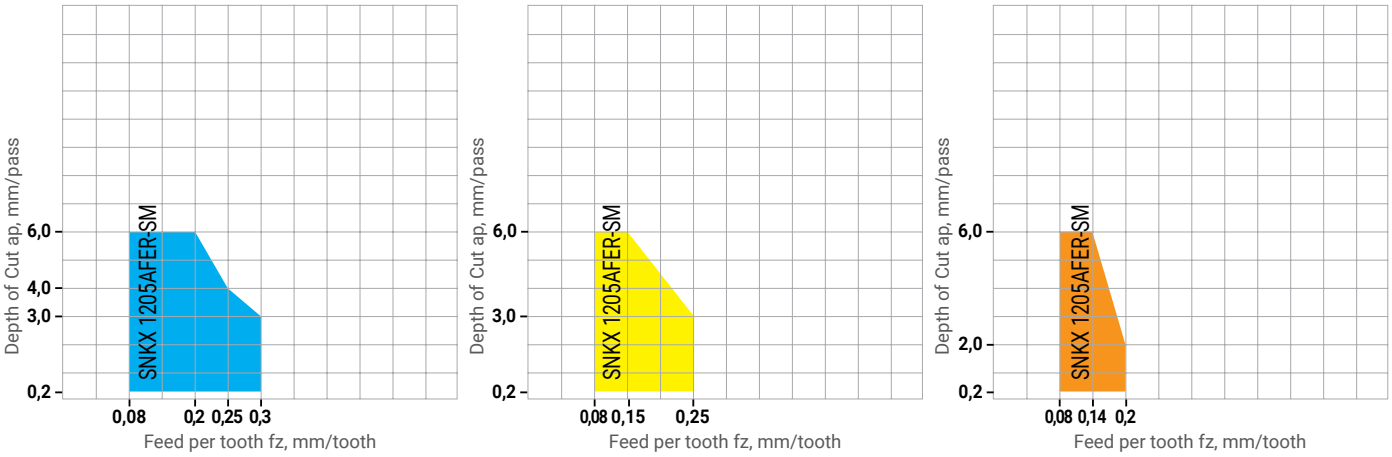
$Vf = fn \cdot Z$, mm/min

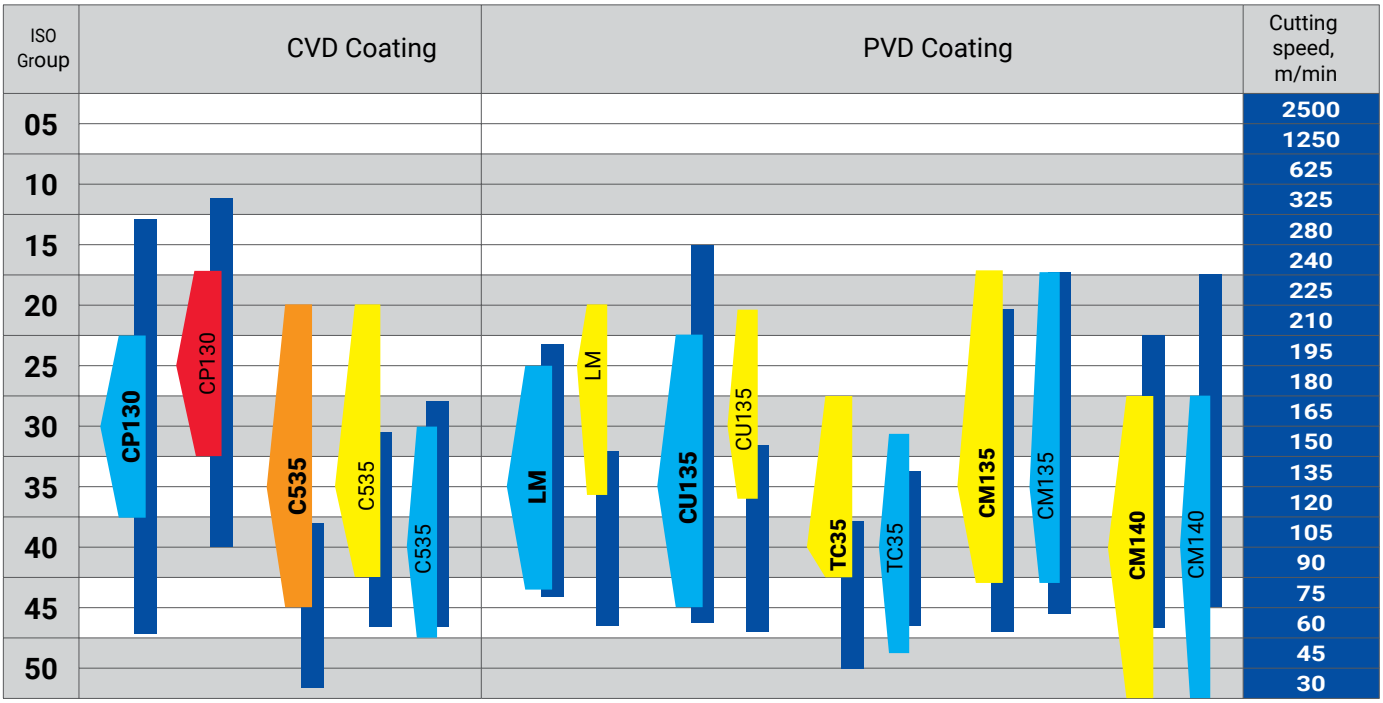
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

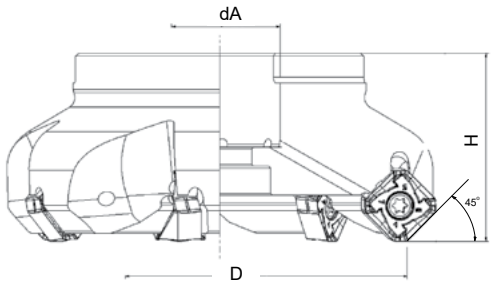


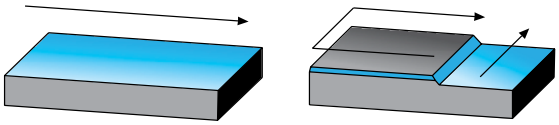

Depth of Cut ap, mm/pass
6,0
4,0
3,0
0,2
SNKX 1205AFER-SM
0,08
0,2
0,25
0,3
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
6,0
3,0
0,2
SNKX 1205AFER-SM
0,08
0,15
0,25
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
6,0
2,0
0,2
SNKX 1205AFER-SM
0,08
0,14
0,2
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30
CP130
CP130
C535
C535
C535
LM
LM
CU135
CU135
TC35
TC35
CM135
CM135
CM140
CM140

MEGATEC 48015

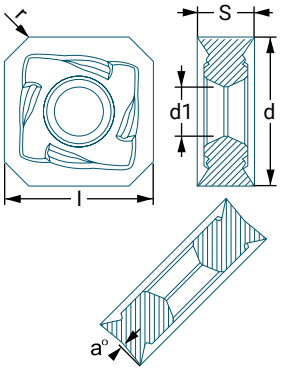
45° Face Mill with negative square Insert SNKX15





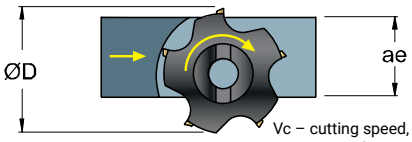
Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Arbor Mill 45°								
48015-040-4	•	40	16			45	4	SN..15
48015-050-4	•	50	22			45	4	
48015-063-5	•	63	22			45	5	
48015-080-6	•	80	27			50	6	
48015-100-7	•	100	32			50	7	
48015-125-8	•	125	40			63	8	
48015-160-10		160	40			63	10	
48015-200-12		200	60			63	12	
All bodies with through coolant supply								

Insert	Workpiece Pmaterial						Coating								Insert Dimensions					
							CVD			PVD										
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM135	CM140	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
SNKX1505AFER-SM	■	□								●					15,875	15,875	6,03	1	5,7	6
	■	□	■				●													
	■	□									●									
	□	■										●								
	□	■											●							
	□	■												●						
	□	■			■			●												
					■				●											



Order example: SNKX1505AFER-SM LM

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Ø40 Mill fixing screw
SN..1505AF	40-200	M4.5×13	Torx 20IP	M8,0×30



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

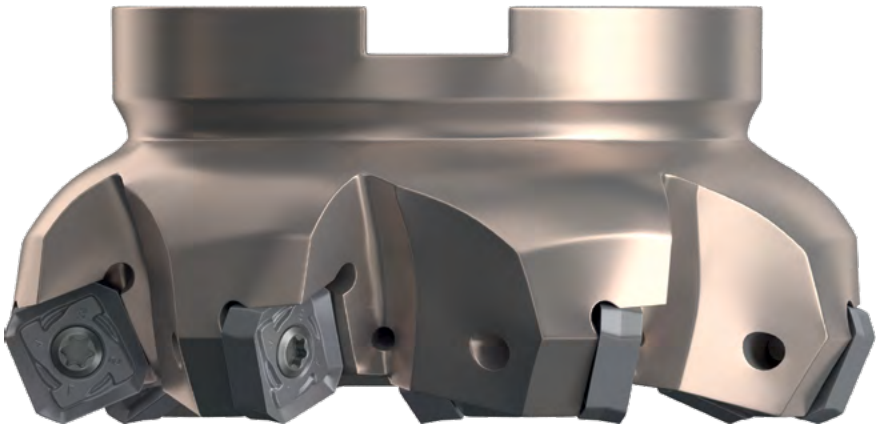
$fn = fz_2 \cdot Z$, mm

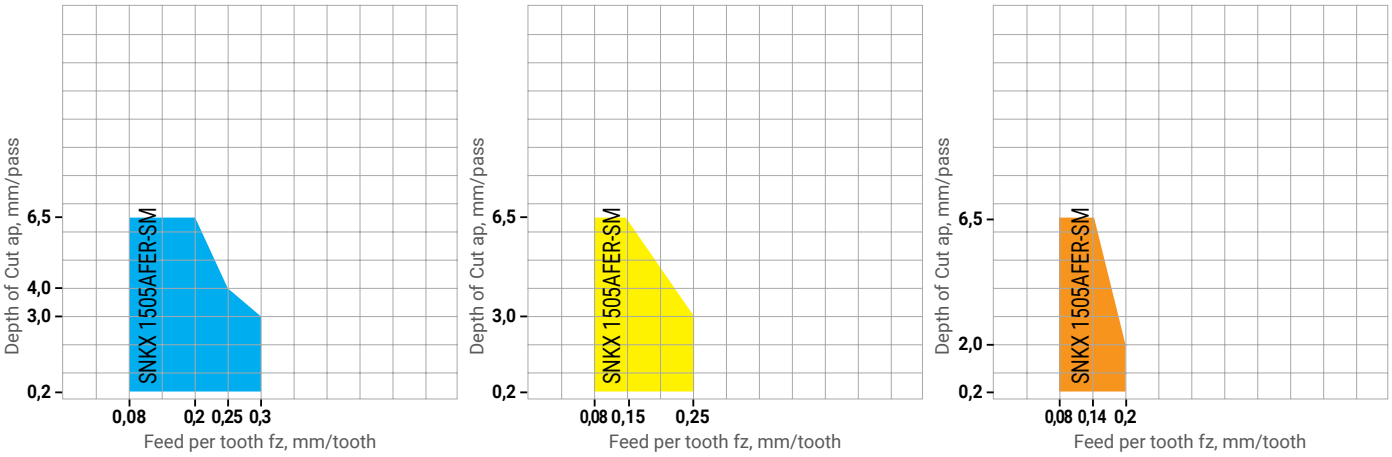
$Vf = fn \cdot Z$, mm/min

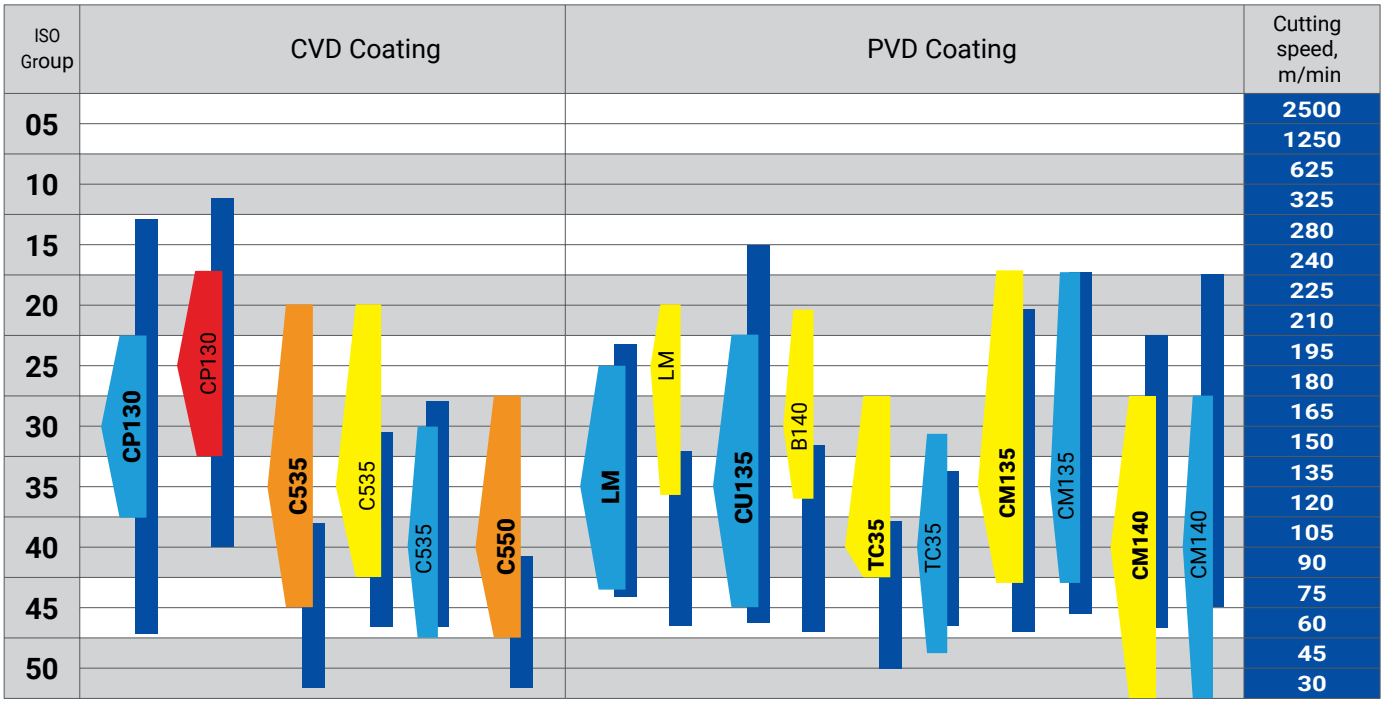
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	Vc (min.) ---- Vc (max)			

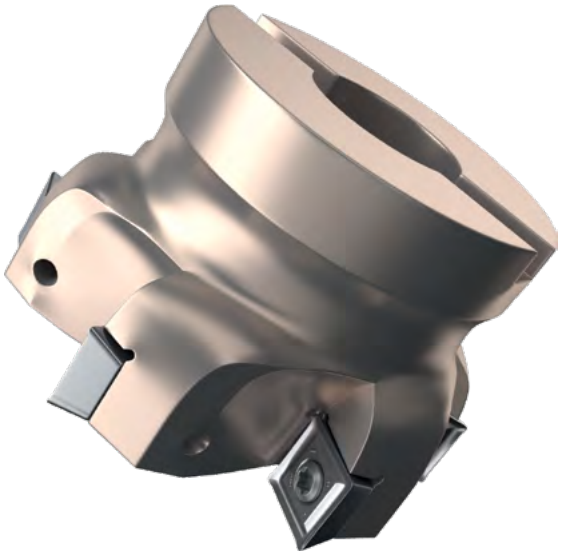


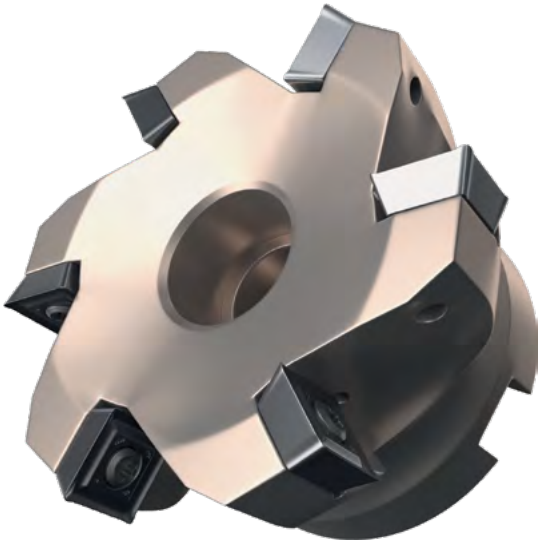

Depth of Cut ap, mm/pass
6,5
4,0
3,0
0,2
SNKX 1505AFER-SM
0,08
0,2
0,25
0,3
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
6,5
3,0
0,2
SNKX 1505AFER-SM
0,08
0,15
0,25
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
6,5
2,0
0,2
SNKX 1505AFER-SM
0,08
0,14
0,2
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
CP130
CP130
C535
C535
C535
C550
LM
LM
CU135
B140
TC35
TC35
CM135
CM135
CM140
CM140
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30

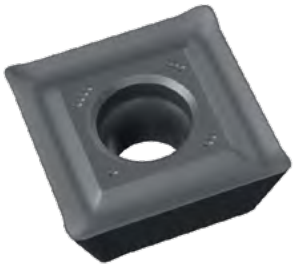
MEGATEC 350:
SHOULDER AND SLOT MILLING.
90° MILL WITH SQUARE INSERT SDKT / SDHT

- ✓ Efficient Insert with 4 cutting edges
- ✓ Wide cutting depths range – from 0,1 to 10 mm
- ✓ Innovative cutting grades with different coatings suitable for various materials machining





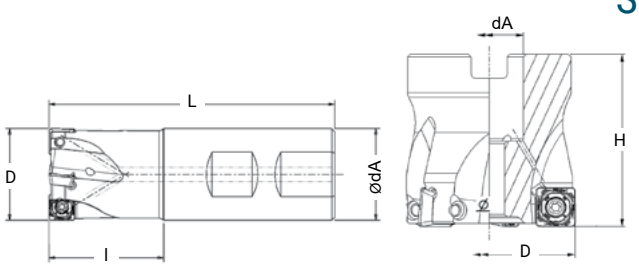
INSERT GEOMETRY

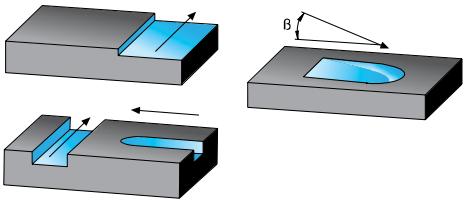


- ✓ **HM** – first choice for steel. Reliable cutting edge geometry suitable for steel and cast iron machining.
- ✓ **SM** – sharp geometry. First choice for stainless steel machining. SM is also suitable for steel machining in case of low system rigidity
- ✓ **AL** – sharp ground geometry for aluminum and other easy-to-machine materials machining

MEGATEC 35009

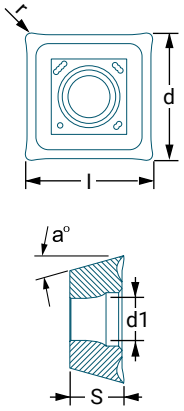
Shoulder and slot milling.
90° Mill with Positive Square Insert
SDKT09 / SDHT09





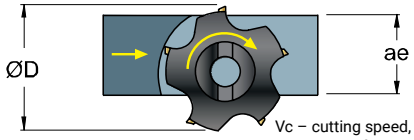
Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill								
35009-025-3	•	25	25	88	32	50	3	SD..09
35009-032-4	•	32	32	100	40	50	4	
Arbor Mill								
35009-040-5	•	40	16			40	5	SD..09
35009-050-6	•	50	22			40	6	
35009-063-7	•	63	22			40	7	
35009-080-9	•	80	27			50	8	
35009-100-10		100	32			50	10	
All bodies with through coolant supply								

Insert	Workpiece Pmaterial						Coating								Insert Dimensions					
							CVD			PVD				-						
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM140	C015	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
SDKT09T308-HM	■	□								●					9	9	3,97	0,8	3,4	15
	■		■				●													
	■	□									●									
SDKT09T308-SM	□	■										●								
	□	■											●							
	□	■			■			●												
					■				●											
SDHT09T308-AL				■										●						



Order example: SDKT09T308-HM LM

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
SD..09T3	25-32	M3,0×7,3	Torx 8	-
	40			M8,0×30
	50-100			-



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

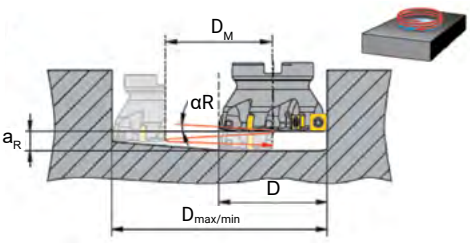
$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

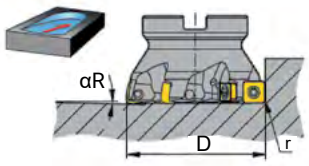
Helical interpolation



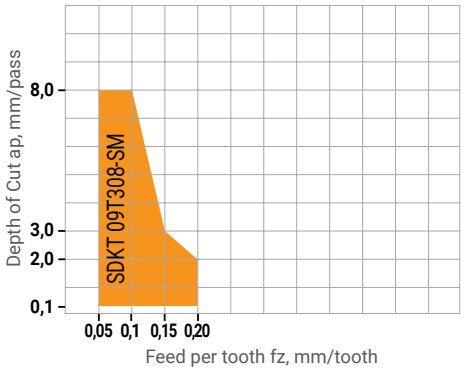
D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $Dm_{in} - D$

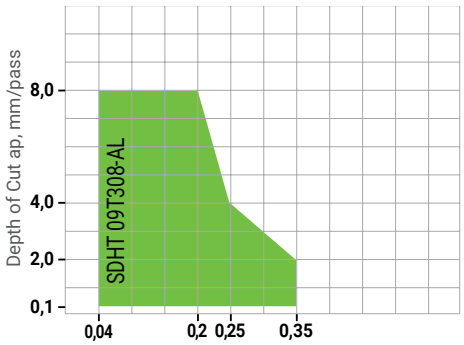
Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
35009-025-3	25	48	37	4,4
35009-032-4	32	62	47	2,2
35009-040-5	40	78	63	0,75
35009-050-6	50	98	83	0,5
35009-063-7	63	124	109	0,35
35009-080-9	80	158	143	0,25

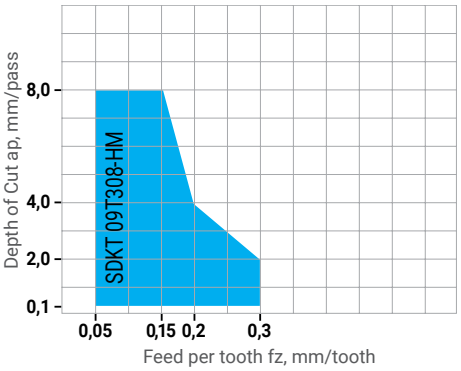
Ramping

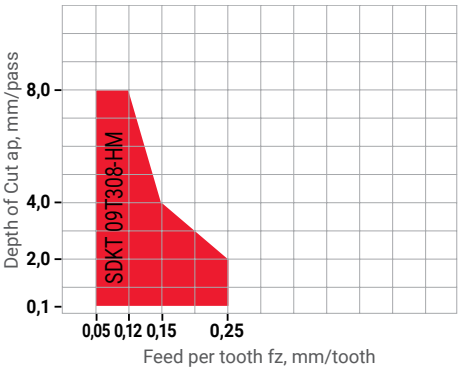


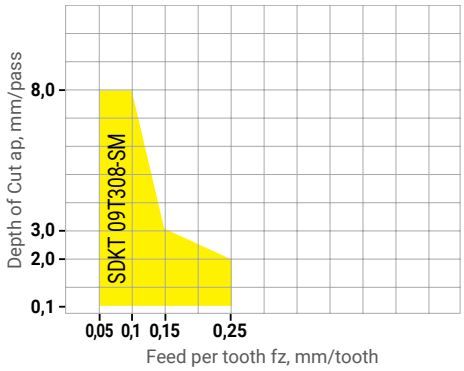
Ordering code	D [mm]	αRmax [°]
35009-025-3	25	4,4
35009-032-4	32	2,2
35009-040-5	40	0,75
35009-050-6	50	0,5
35009-063-7	63	0,35
35009-080-9	80	0,25

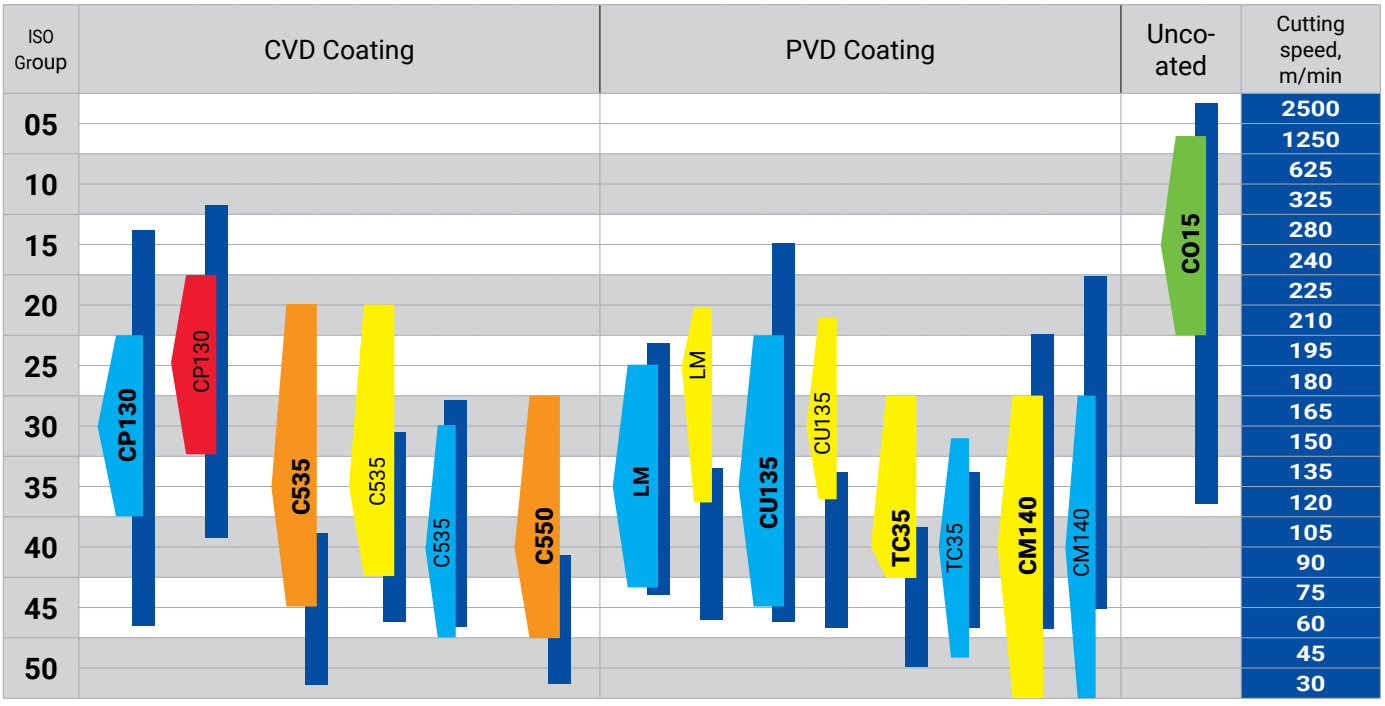






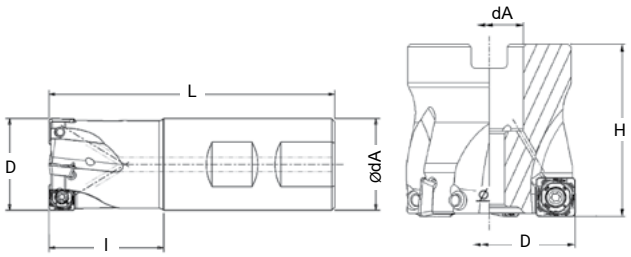


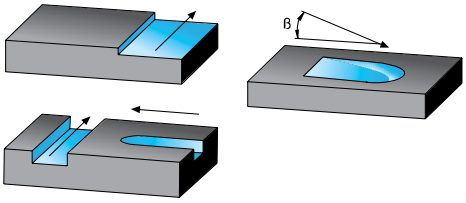




MEGATEC 35012

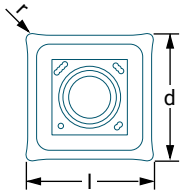
Shoulder and slot milling.
90° Mill with Positive Square Insert
SDKT12 / SDHT12

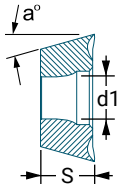




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill								
35012-032-3	•	32	32	100	40		3	SD..12
Arbor Mill								
35012-040-4	○	40	16			40	4	SD..12
35012-050-5	•	50	22			40	5	
35012-063-6	•	63	22			40	6	
35012-080-7	•	80	27			50	7	
35012-100-8	•	100	32			50	8	
35012-125-10	•	125	40			63	10	
All bodies with through coolant supply								

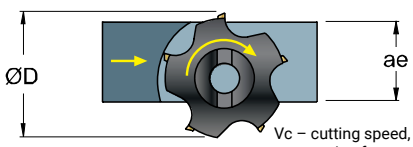
Insert	Workpiece Pmaterial						Coating						Insert Dimensions					
							CVD		PVD			-						
	P	M	K	N	S	H	C535	C550	CU135	CM135	CM140	C015	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
SDKT 120508-HM	■	□							●				12,7	12,7	5,6	0,8	5,5	15,0
SDKT 120508-SM	□	■								●								
	□	■									●							
	□	■			■		●											
					■			●										
SDHT 120508-AL				■								●						





Order example: SDKT 120508-SM C550

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
				
SD..1205	32	M4,0×8,5	Torx 15	-
	40	M4,0×11,0	Torx 15+	M8,0×30
	50-80			-



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

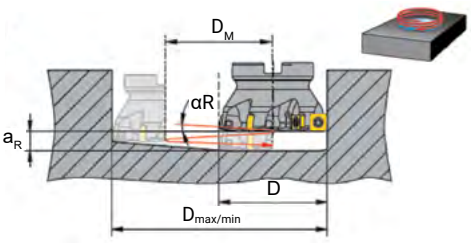
$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

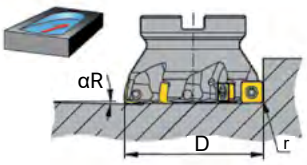
Helical interpolation



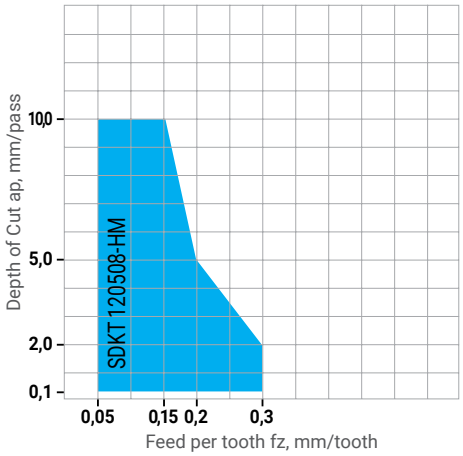
D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $Dm_{in} - D$

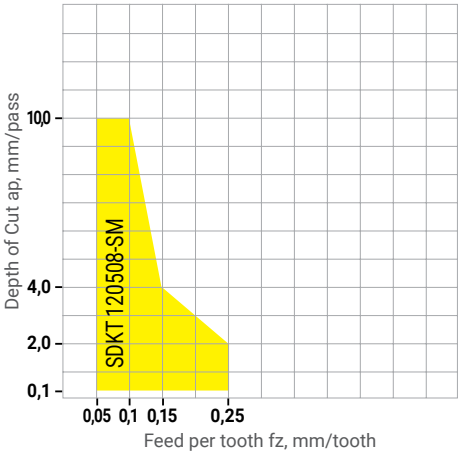
Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
35012-032-3	32	62	41	2,0
35012-040-4	40	78	57	2,0
35012-050-5	50	98	77	1,2
35012-063-6	63	124	103	0,7
35012-080-7	80	158	137	0,6

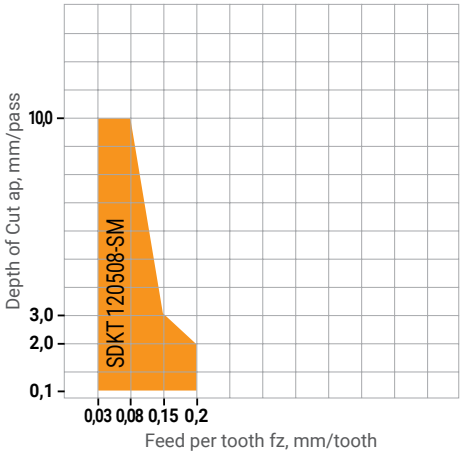
Ramping

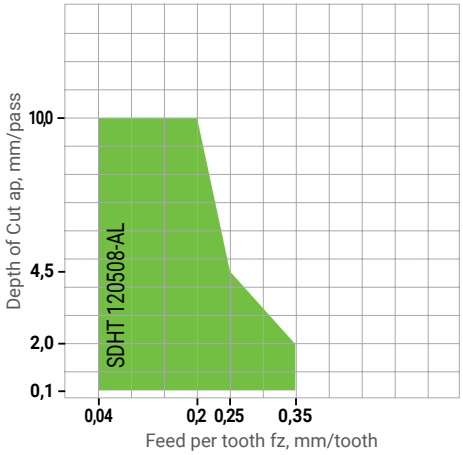


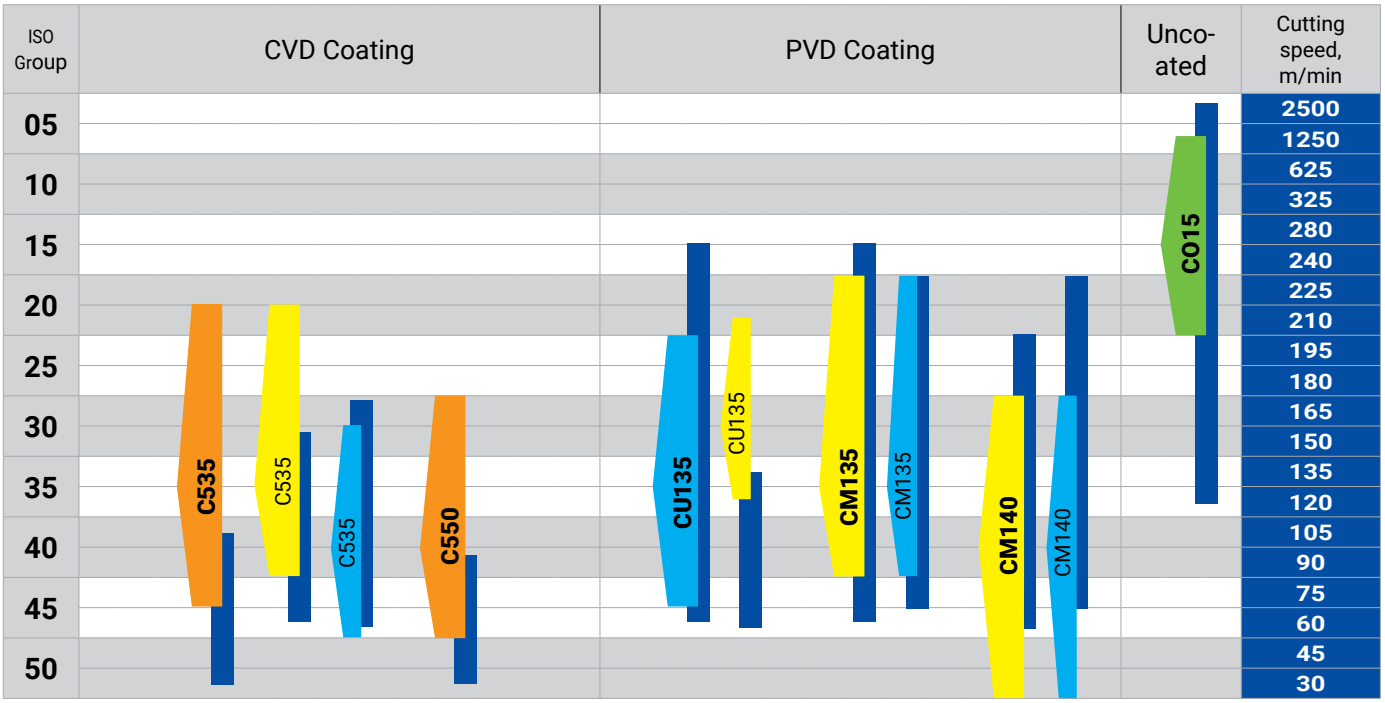
Ordering code	D [mm]	αRmax [°]
35012-032-3	32	2,0
35012-040-4	40	2,0
35012-050-5	50	1,2
35012-063-6	63	0,7
35012-080-7	80	0,6











MEGATEC 20:

SHOULDER AND SLOT MILLING IN ALUMINUM.
90° MILL WITH POSITIVE INSERT
VPGT / VCGT

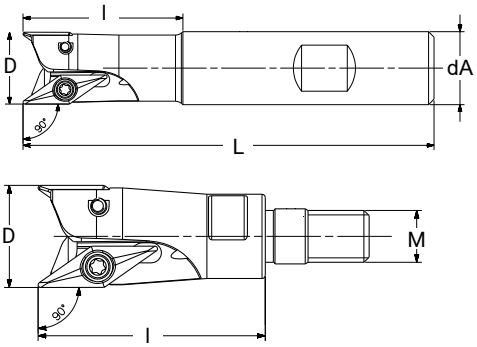
- ✓ Smooth cutting and good surface finish thanks to the high positive rake angle
- ✓ Good ability to ramping and helical interpolation cutting due to 35° V-shape Insert
- ✓ Very good chip flow due to ground Insert and large Insert pocket
- ✓ Cutting without burr
- ✓ Low power and torque requirements due to sharp uncoated Insert
- ✓ Insert with large nose radius for increased tool life

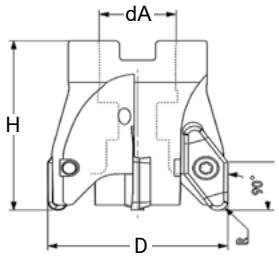
INSERT GEOMETRY

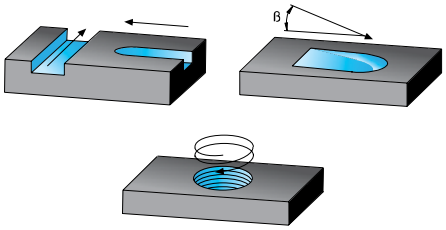
- ✓ **AL** – sharp ground geometry for aluminum and other easy-to-machine materials machining

MEGATEC 20

Shoulder and slot milling in Aluminum.
90° Mill with positive Insert
VPGT / VCGT

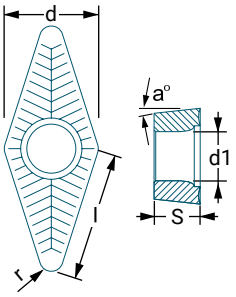






Ordering Code	In stock	D, mm	dA, mm	M	L, mm	l, mm	Through coolant	H, mm	Z	Insert type
Cylindrical shank Mill										
2011-016-2-90	•	16	16		90	35	+		2	
2011-020-2-175	•	20	16		175	30	+		2	VPGT11
2011-025-2-200	•	25	20		200	40	+		2	
2016-025-2-200	•	25	20		200	40	+		2	VPGT16
Mill with threaded connection										
2011-016-2-M8	•	16		M8			+	35	2	VPGT11
2011-020-2-M10	•	20		M10			+	35	2	
2016-025-2-M12	•	25		M12			+	40	2	VPGT16
Arbor Mill										
2022-042-3	•	42	16				+	55	3	
2022-052-4	•	52	22				+	55	4	
2022-066-4	•	66	27				+	55	4	VCGT22
2022-080-5	•	80	27				+	55	5	
2022-100-5	°	100	32				+	63	5	

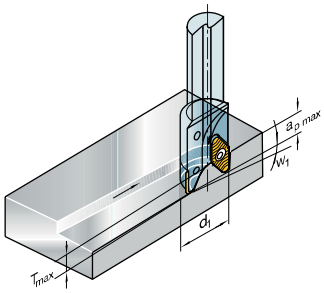
Insert	Workpiece Pmaterial	Coating	Insert Dimensions					
		Uncoated						
	N	MNB010	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
VPGT 110304-AL	■	●	6,35	11,61	3,18	0,4	2,8	15
VPGT160412-AL	■	●	9,52	16,60	4,76	1,2	4,4	15
VCGT 220530-AL	■	●	12,70	22,10	5,56	3,0	5,5	7



Order example: VPGT 110304-AL MNB010

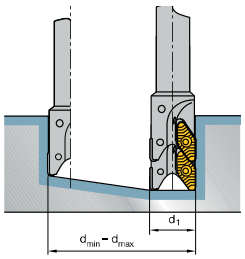
Spare parts			
Insert type	Diameter D, mm	Insert screw	Screwdriver
VPGT110304	16-25	VBT2563IP (M2,5x6,4)	Torx 7IP
VPGT160412	25	VBT0409IP (M4x9,5 TP15)	Torx 15
VCGT220530	42-100	VBTL45	Torx 20

Max ramping angle W1 max and Max cutting depth Tmax

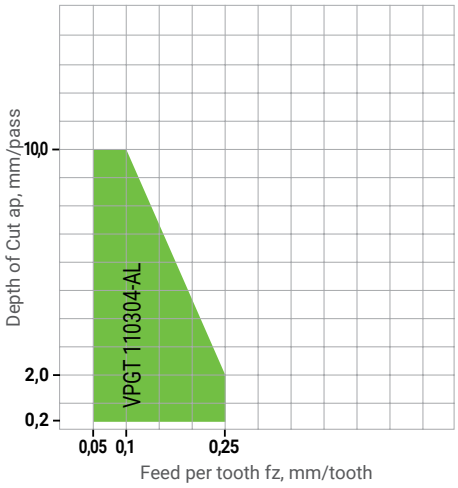


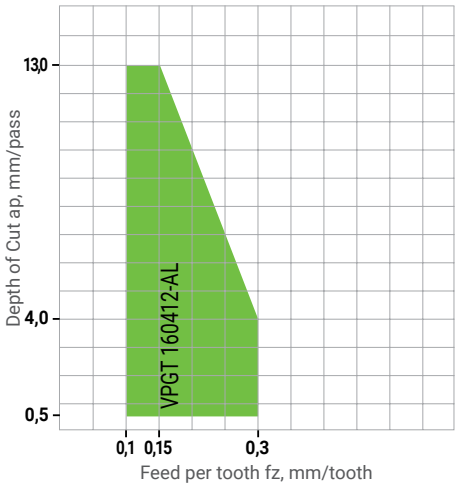
	VPGT 110304	VPGT 160412	VCGT 220530
ap max	10	13,5	15
T max	6	8	9
W1 max, degrees			
16	26		
20	25		
25	24	24	
32			22
42			15
52			12
66			9
80			7
100			5

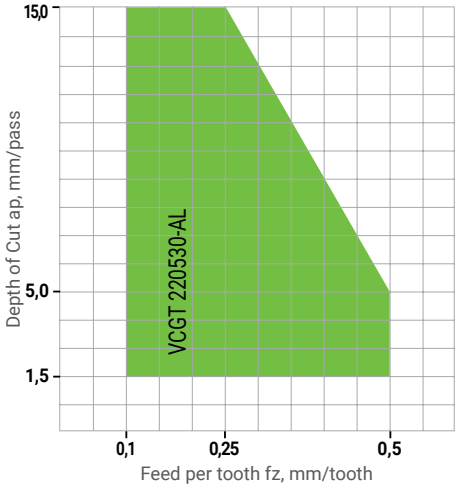
Helical interpolation



d1, mm	dmin, mm	dmax, mm
16	20	30,4
20	25	39,2
25	35	47,6
32	42	58
42	62	78
52	82	98
66	110	126
80	138	154
100	178	194





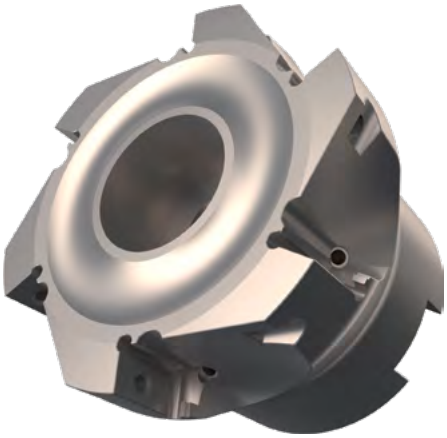


ISO Group	Unco-ated	Cutting speed, m/min
05	MNBO10	2500
		1250
10		625
		325
15		280
		240
20		225
		210
25		195
		180
30		165
		150
35		135
		120
40		105
		90
45		75
		60
50		45
		30

MEGATEC T-AP:

SHOULDER AND SLOT MILLING.
90° MILL WITH POSITIVE INSERT APKT / APHT

- ✓ Low cutting force compared to tangential Inserts
- ✓ Milling bodies Ø12–Ø160 are available in short and long versions
- ✓ The Inserts with radii in stock

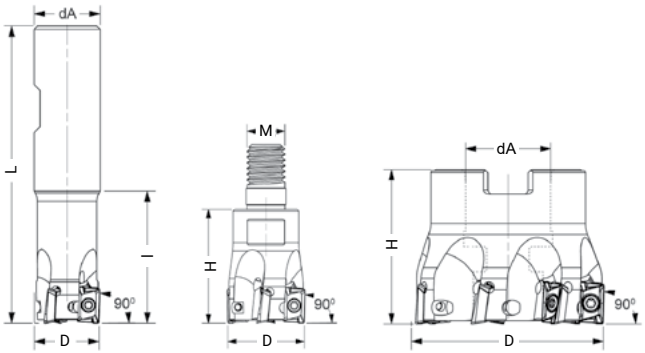


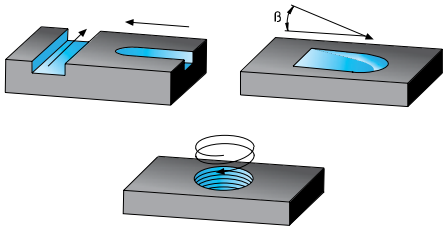
INSERT GEOMETRY

- ✓ **ST** – main geometry for steel and stainless steel machining
- ✓ **AL** – sharp ground geometry for aluminum and other easy-to-machine materials machining

MEGATEC T-AP 10

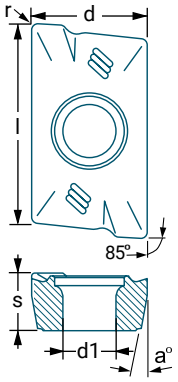
Shoulder and slot milling. 90° Mill with positive Insert APKT10 / APHT10





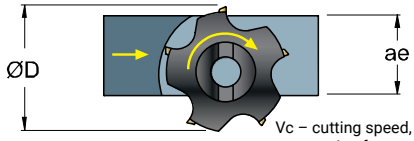
Ordering Code	In stock	D, mm	dA, mm	M	L, mm	l, mm	Through coolant	H, mm	Z	Insert type
Cylindrical shank Mill										
T-AP10012WC	•	12	16		80	32	+		1	APKT10
T-AP10016WC	•	16	16		85	37	+		2	
T-AP10016/130LC	•	16	16		130	35	+		2	
T-AP10020/3WC	•	20	20		90	40	+		3	
T-AP10020/150LC	•	20	20		150	50	+		2	
T-AP10025/4WC	•	25	25		105	49	+		4	
T-AP10025/170LC	•	25	20		170	50	+		3	
T-AP10032/5WC	•	32	25		110	54	+		5	
T-AP10032/195LC	•	32	25		195	50	+		4	
Mill with threaded connection										
T-AP10016HC/2M8	•	16		M8			+	23	2	APKT10
T-AP10020HC/3M10	•	20		M10			+	30	3	
T-AP10025HC/4M12	•	25		M12			+	35	4	
T-AP10032HC/5M16	•	32		M16			+	43	5	
Arbor Mill										
T-AP10040/4MC	•	40	16				+	40	4	APKT10
T-AP10040/6MC	•	40	16				+	40	6	
T-AP10050/6MC	•	50	22				+	40	6	
T-AP10050/7MC	•	50	22				+	40	7	
T-AP10063/8MC	•	63	22				+	40	8	
T-AP10063/9MC	•	63	22				+	40	9	
T-AP10080/10MC	•	80	27				+	50	10	

Insert	Workpiece Pmaterial						Coating					Insert Dimensions					
							CVD		PVD		-						
	P	M	K	N	S	H	C535	C550	LM	TC35	C015	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
APKT1003PDER-ST	■	□							●			6,7	10,5	3,18	0,5	2,8	11
	□	■								●							
APKT1003PDER	□	■			■		●										
		□			■			●									
APHT1003PDFR-AL				■							●						



Order example: APKT1003PDER-ST LM

Spare parts				
Insert type	Diameter D, mm	Body type	Insert screw	Screwdriver
				
AP..1003	12-80	T	VBTL25IP	Torx 8IP



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

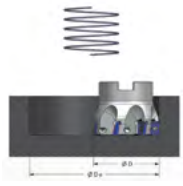
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

ae, mm	Feed correction factor for APKT							
	Tool diameter, mm							
	25	32	40	50	80	100	125	160
	Correction coefficient (k) depended of cutting width for fz							
0,8	3	3,35	3,66	4,22	5,16	5,95	6,64	7,28
1,5	2,11	2,34	2,56	2,94	3,58	4,13	4,61	5,05
2,5	1,73	1,92	2,09	2,39	2,91	3,34	3,73	4,08
3	1,52	1,68	1,82	2,08	2,52	2,9	3,23	3,53
5	1,28	1,4	1,52	1,72	2,07	2,38	2,64	2,89
6	1,16	1,25	1,35	1,52	1,82	2,07	2,3	2,51
10	1,03	1,09	1,16	1,28	1,52	1,72	1,9	2,07
12,5	1	1,02	1,06	1,16	1,34	1,51	1,67	1,81
16	0,95	1	1,01	1,08	1,23	1,38	1,51	1,64
20	0,8	0,95	1	1,03	1,16	1,28	1,4	1,51
25	0,5	0,8	0,95	1	1,06	1,16	1,25	1,34
32	-	0,5	0,8	0,95	1,01	1,08	1,16	1,23
40	-	-	0,5	0,8	1	1,03	1,09	1,16
45	-	-	-	0,7	0,9	1,01	1,05	1,1
50	-	-	-	0,5	0,86	1	1,02	1,06
60	-	-	-	-	0,77	0,98	1,01	1,03
65					0,72	0,95	1	1,01
70					0,65	0,88	1	1
80					0,5	0,75	0,95	1
100					-	0,5	0,75	0,95
125	-	-	-	-	-	-	0,5	0,75
160	-	-	-	-	-	-	-	0,5

Example:
Tool diameter = 50 mm, cutting width ae = 16 mm,
Recommended Feed fz = 0,11 mm
Feed correction fz: fz x k = 0,11 x 1,08 = 0,2 mm/tooth

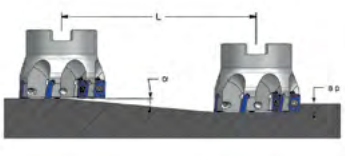
Helical interpolation



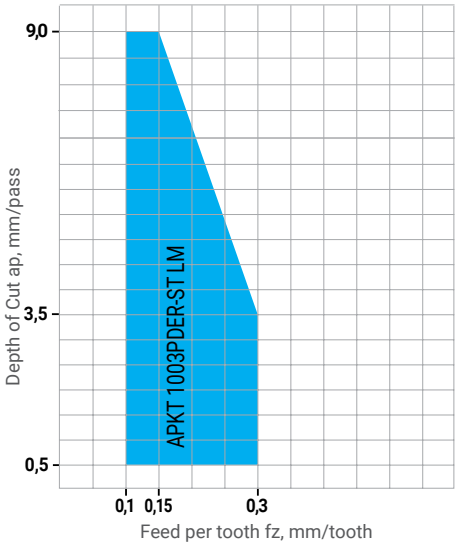
D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $D_{min} - D$

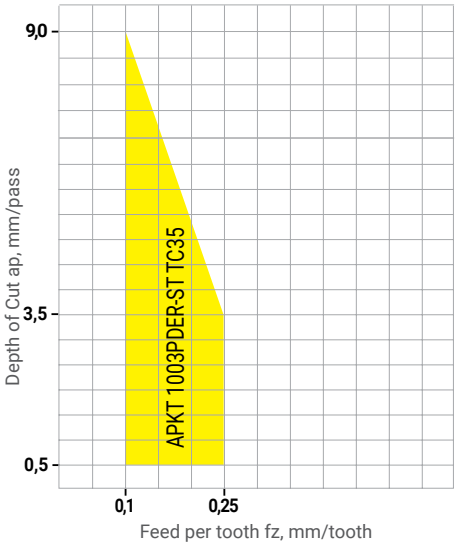
Tool diameter, mm	Dmax	Dmin
16	31	20,1
20	39	28
25	49	38
32	62,9	51,9
40	78,9	67,9
50	98,9	87,9
63	124,9	113,9
80	158,9	147,9

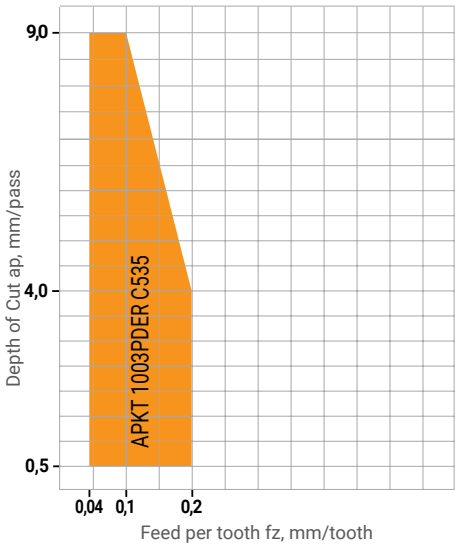
Ramping

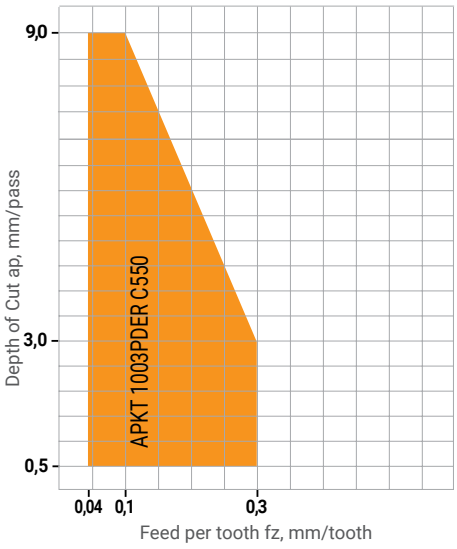


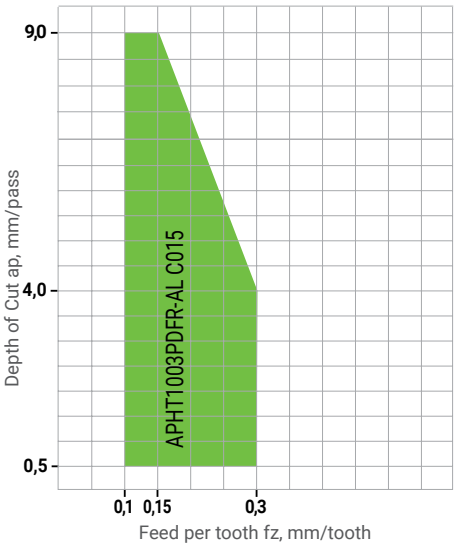
Tool diameter, mm	L [mm]	α [°]
16	61	4,5
20	72,4	3,8
25	108,4	2,5
32	160,3	1,7
40	215	1,3
50	305,6	0,9
63	406	0,7
80	595,5	0,5

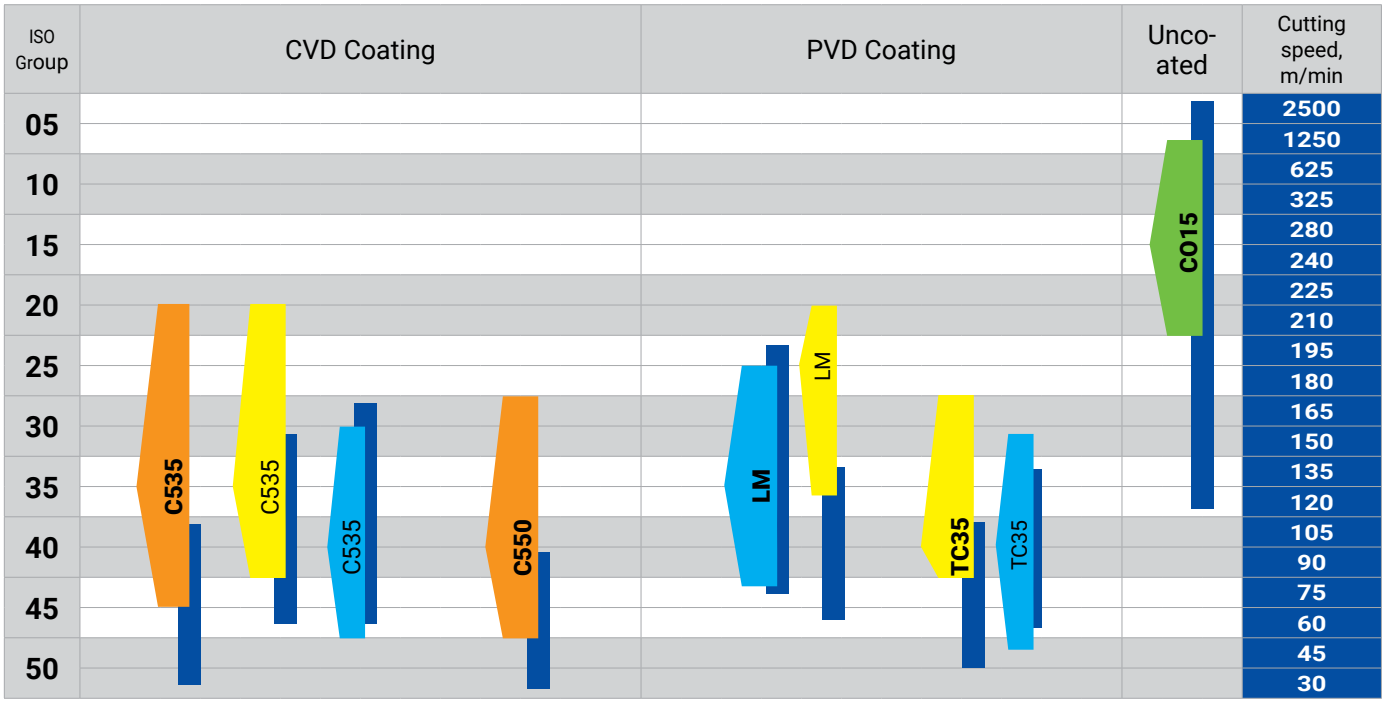

9,0
3,5
0,5
Depth of Cut ap, mm/pass
APKT 1003PDER-ST LM
0,1 0,15 0,3
Feed per tooth fz, mm/tooth


9,0
3,5
0,5
Depth of Cut ap, mm/pass
APKT 1003PDER-ST TC35
0,1 0,25
Feed per tooth fz, mm/tooth


9,0
4,0
0,5
Depth of Cut ap, mm/pass
APKT 1003PDER C535
0,04 0,1 0,2
Feed per tooth fz, mm/tooth

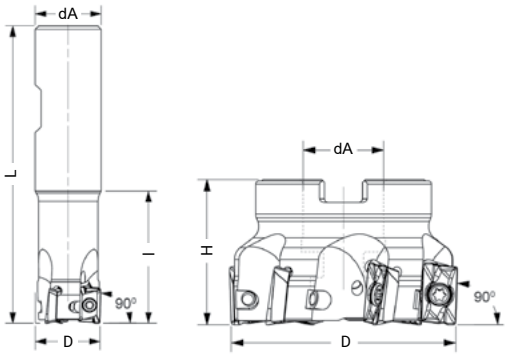

9,0
3,0
0,5
Depth of Cut ap, mm/pass
APKT 1003PDER C550
0,04 0,1 0,3
Feed per tooth fz, mm/tooth

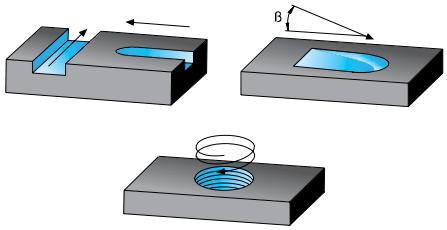

9,0
4,0
0,5
Depth of Cut ap, mm/pass
APHT1003PDFR-AL C015
0,1 0,15 0,3
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Unco-ated
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
C535
C535
C535
C550
LM
LM
TC35
TC35
C015
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30

MEGATEC T-AP 16

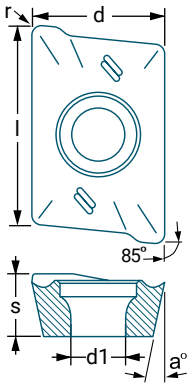
Shoulder and slot milling. 90° Mill with positive Insert APKT16 / APHT16





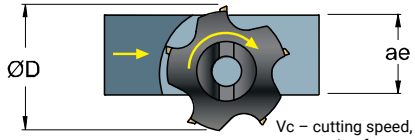
Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	Through coolant	H, mm	Z	Insert type
Cylindrical shank Mill									
T-AP16022WC	•	22	20	95	40	+		2	APKT 1604
T-AP16022/200LC	•	22	20	200	60	+		2	
T-AP16025WC	•	25	20	100	40	+		2	
T-AP16025/200LC	•	25	20	200	60	+		2	
T-AP16032WC	•	32	25	110	50	+		3	
T-AP16032/200LC	•	32	25	200	60	+		3	
T-AP16040WC	•	40	32	115	55	+		4	
T-AP16040/250LC	•	40	32	250	60	+		4	
Arbor Mill									
T-AP16040/3MC	•	40	16			+	40	3	APKT 1604
T-AP16040/4MC	•	40	16			+	40	4	
T-AP16050/4MC	•	50	22			+	40	4	
T-AP16050/5MC	•	50	22			+	40	5	
T-AP16063/5MC	•	63	22			+	40	5	
T-AP16063/6MC	•	63	22			+	40	6	
T-AP16080/6MC	•	80	27			+	50	6	
T-AP16080/7MC	•	80	27			+	50	7	
T-AP16100/7MC	•	100	32			+	50	7	
T-AP16100/8MC	•	100	32			+	50	8	
T-AP16125/8MC	•	125	40			+	63	8	
T-AP16125/9MC	•	125	40			+	63	9	
T-AP16160/10MC	•	160	40			+	63	10	

Insert	Workpiece Pmaterial						Coating					Insert Dimensions					
							CVD		PVD		-						
	P	M	K	N	S	H	C535	C550	LM	TC35	C015	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
APKT 1604PDER-ST	■	□							●			9,45	17	4,76	0,8	4,4	11
	□	■								●							
APKT 1604PDER	□	■			■		●										
		□			■			●									
APHT 1604PRFR-AL				■							●						



Order example: APKT 1604PDER-ST LM

Spare parts				
Insert type	Diameter D, mm	Body type	Insert screw	Screwdriver
AP..1604	22-160	T	VBT0409IP	Torx 15IP



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm
$fn = fz_2 \cdot Z$, mm
$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

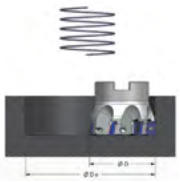
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

ae, mm	Feed correction factor for APKT							
	Tool diameter, mm							
	25	32	40	50	80	100	125	160
	Correction coefficient (k) depended of cutting width for fz							
0,8	3	3,35	3,66	4,22	5,16	5,95	6,64	7,28
1,5	2,11	2,34	2,56	2,94	3,58	4,13	4,61	5,05
2,5	1,73	1,92	2,09	2,39	2,91	3,34	3,73	4,08
3	1,52	1,68	1,82	2,08	2,52	2,9	3,23	3,53
5	1,28	1,4	1,52	1,72	2,07	2,38	2,64	2,89
6	1,16	1,25	1,35	1,52	1,82	2,07	2,3	2,51
10	1,03	1,09	1,16	1,28	1,52	1,72	1,9	2,07
12,5	1	1,02	1,06	1,16	1,34	1,51	1,67	1,81
16	0,95	1	1,01	1,08	1,23	1,38	1,51	1,64
20	0,8	0,95	1	1,03	1,16	1,28	1,4	1,51
25	0,5	0,8	0,95	1	1,06	1,16	1,25	1,34
32	-	0,5	0,8	0,95	1,01	1,08	1,16	1,23
40	-	-	0,5	0,8	1	1,03	1,09	1,16
45	-	-	-	0,7	0,9	1,01	1,05	1,1
50	-	-	-	0,5	0,86	1	1,02	1,06
60	-	-	-	-	0,77	0,98	1,01	1,03
65					0,72	0,95	1	1,01
70					0,65	0,88	1	1
80					0,5	0,75	0,95	1
100					-	0,5	0,75	0,95
125	-	-	-	-	-	-	0,5	0,75
160	-	-	-	-	-	-	-	0,5

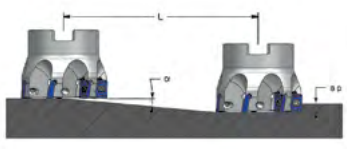
Example:
Tool diameter = 50 mm, cutting width ae = 16 mm,
Recommended Feed fz = 0,11 mm
Feed correction fz: fz x k = 0,11 x 1,08 = 0,2 mm/tooth

Helical interpolation



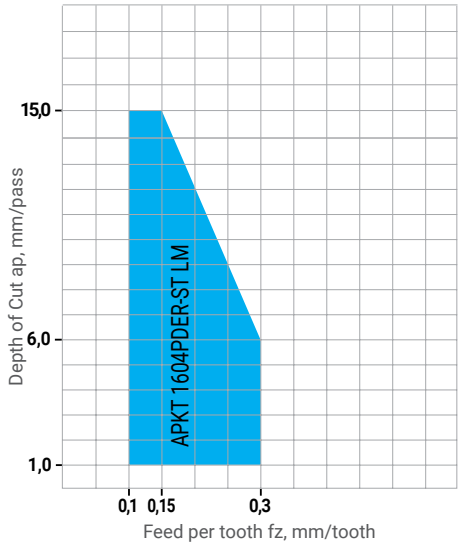
D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $D_{min} - D$

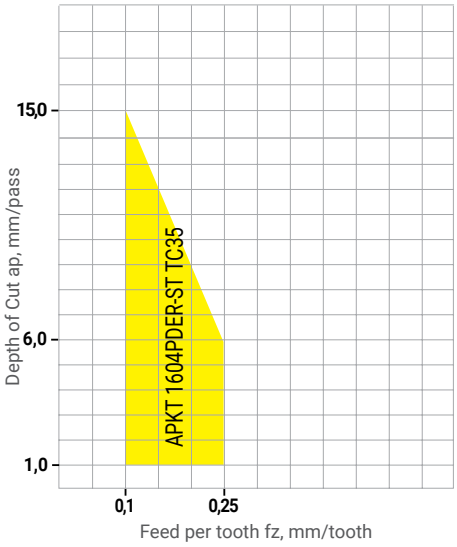
Ramping

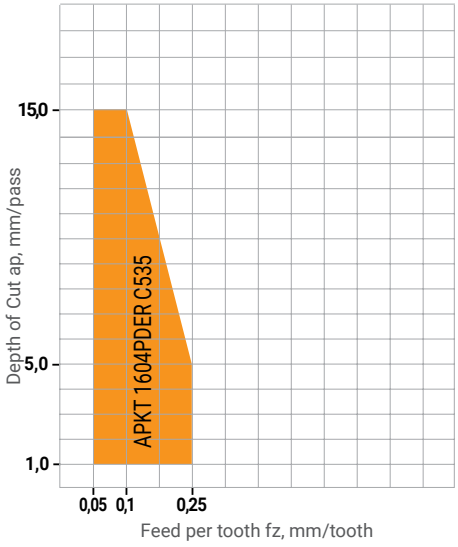


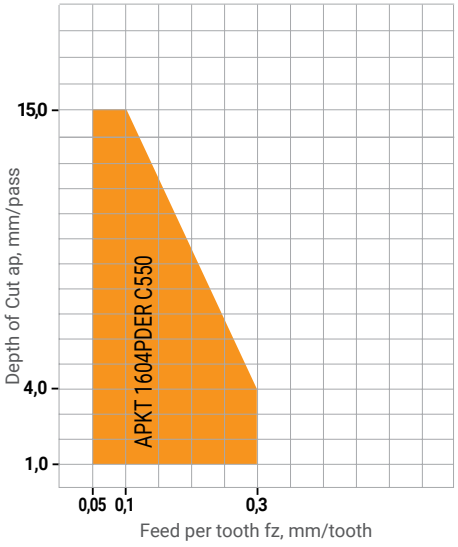
Tool diameter, mm	Dmax	Dmin
22	42,5	27,7
25	48,5	33,2
32	62,4	46,3
40	78,4	62,1
50	98,4	82
63	124,4	107,9
80	158,4	141,9
100	198,4	181,9
125	248,4	198,4
160	318,4	301,8

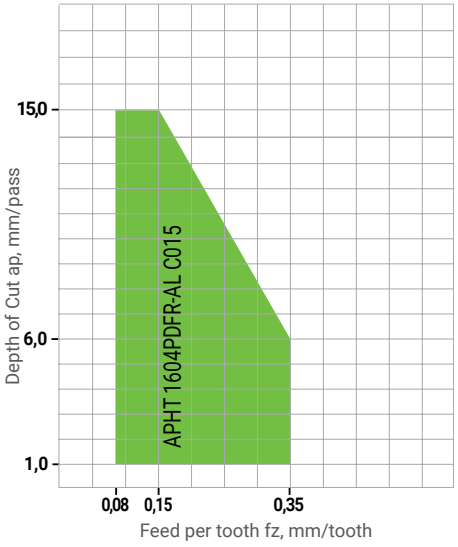
Tool diameter, mm	L [mm]	α [°]
22	63,4	6,3
25	76,9	5,2
32	117,8	3,4
40	160,3	2,5
50	222,7	1,8
63	308,5	1,3
80	401,0	1,0
100	572,9	0,7
125	668,4	0,6
160	1002,7	0,4

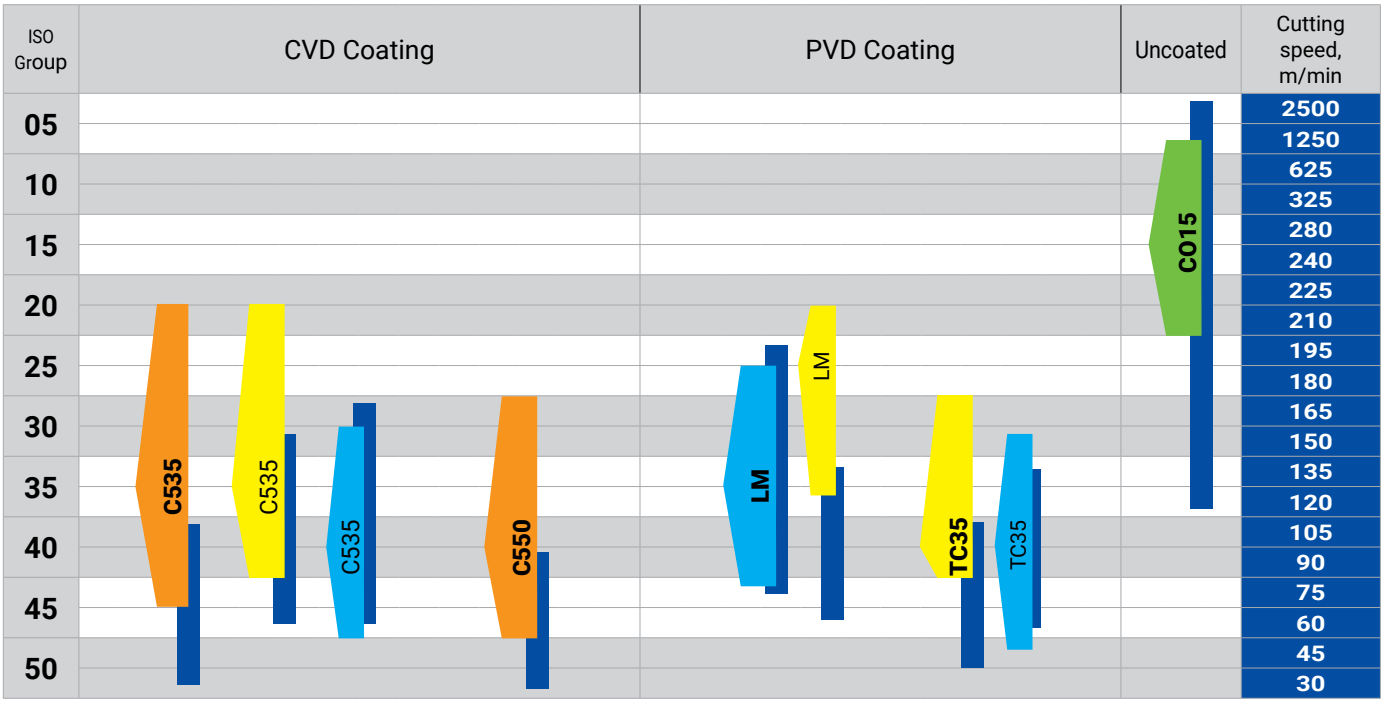

15,0
6,0
1,0
Depth of Cut ap, mm/pass
APKT 1604PDER-ST LM
0,1
0,15
0,3
Feed per tooth fz, mm/tooth


15,0
6,0
1,0
Depth of Cut ap, mm/pass
APKT 1604PDER-ST TC35
0,1
0,25
Feed per tooth fz, mm/tooth


15,0
5,0
1,0
Depth of Cut ap, mm/pass
APKT 1604PDER C535
0,05
0,1
0,25
Feed per tooth fz, mm/tooth

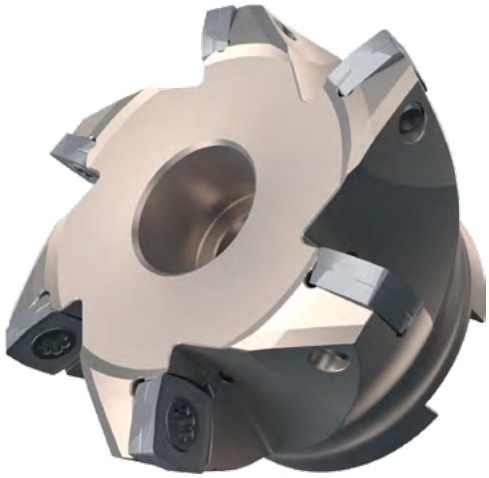

15,0
4,0
1,0
Depth of Cut ap, mm/pass
APKT 1604PDER C550
0,05
0,1
0,3
Feed per tooth fz, mm/tooth


15,0
6,0
1,0
Depth of Cut ap, mm/pass
APHT 1604PDFR-AL C015
0,08
0,15
0,35
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Uncoated
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
C535
C535
C535
C550
LM
LM
TC35
TC35
C015
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30

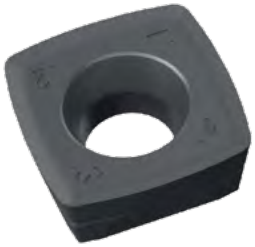
MEGATEC 540:
HIGH FEED MILLS WITH POSITIVE INSERT SOLX

- High Feed Mills with positive Insert SOLX
- High efficiency with High Feed machining
- Application versatility: processing of planes, pockets, incl. deep; profiling
- Machine time reduction compared to classic milling up to 60%
- Cutting depth up to 3 mm, Feed per tooth up to 3 mm
- Recommended for low power machines due to high positive rake angle
- The cutting force vector is very favorable for the machine spindle - mainly axial load that leads to less vibrations and an effective cutting with efficient overhang up to 5D
- Less vibration, an effective cutting with efficient overhang up to 5D and very favorable spindle load thanks to mainly vertical cutting force component
- Suitable for plunge milling



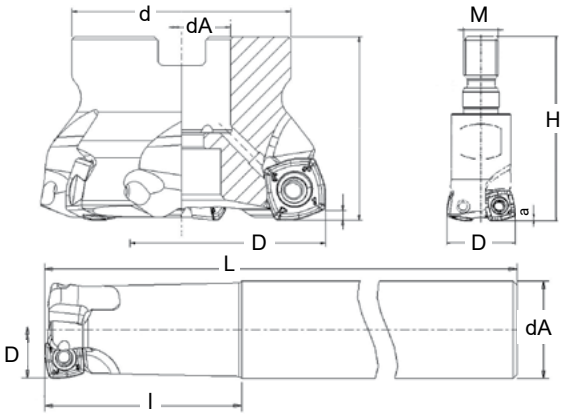
INSERT GEOMETRY

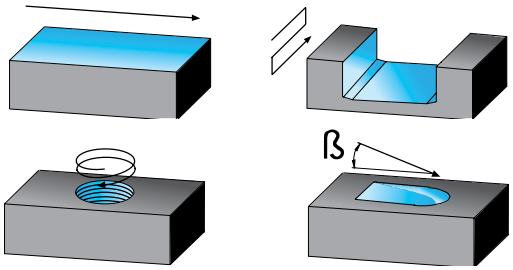
- **HM** – first choice for steel. Reliable cutting edge geometry suitable for steel and cast iron machining
- **SM** – sharp geometry. First choice for stainless steel machining. SM is also suitable for steel machining in case of low system rigidity
- **SR-HM** – SR-HM is HM geometry with wave cutting edge
- **SR-SM** – SR-SM is SM geometry with wave cutting edge



MEGATEC 54007

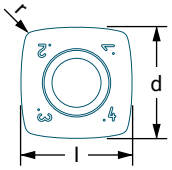
High Feed Mills with positive Insert SOLX07

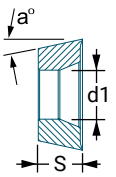




Ordering Code	In stock	D, mm	dA, mm	M	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill									
54007-016-2-200	•	16	16		200	50		2	
54007-020-3-200	•	20	20		200	50		3	SOLX07
54007-025-4-200	•	25	25		200	50		4	
Mill with threaded connection									
54007-016-2-M8	°	16		M8			28	2	
54007-020-3-M10	°	20		M10			34	3	SOLX07
54007-025-4-M12	°	25		M12			36	4	
All bodies with through coolant supply									

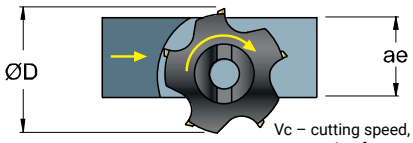
Insert	Workpiece Pmaterial						Coating							Insert Dimensions					
							CVD			PVD									
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM135	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
SOLX070305-HM	■	□								●				7	7	2,75	0,5	2,8	9
	■		■				o												
	■	□									o								
	□	■										●							
SOLX070305-SM	□	■											o						
	□	■			■			●											
					■				●										





Order example: SOLX070305-HM LM

Spare parts			
Insert type	Diameter D, mm	Insert screw	Screwdriver
			
SO..0703	16-25	M2,5×5,0	Torx 8



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm
$fn = fz_2 \cdot Z$, mm
$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

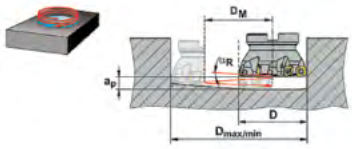
Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

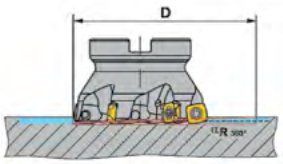
Insert	l, mm	R, mm	B, mm	r, mm	ap, max,mm
SOLX07	7	1,2	4,3	0,5	0,8

HM

SM

Helical interpolation

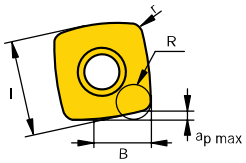


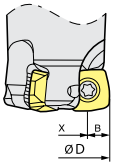


D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $Dm_{in} - D$

Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
54007-016-2-200	16	31	22	4,5
54007-020-3-200	20	39	30	2,3
54007-025-4-200	25	49	40	1,3

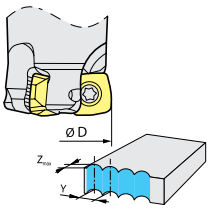
Cutting width for flat surface





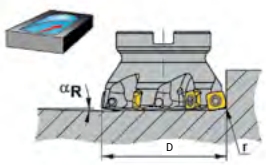
Insert type	D, mm	B, mm	X, mm
SOLX07	16-25	4,3	D-(2×B)

Plunge milling data



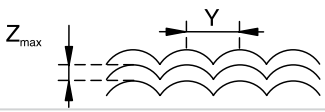
Insert type	Zmax, mm	fz min, mm	fz max, mm	Ymax, mm
SOLX07	5,3	0,08	0,15	< 0,7×D

Ramping

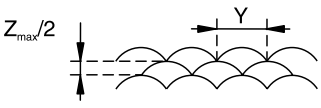


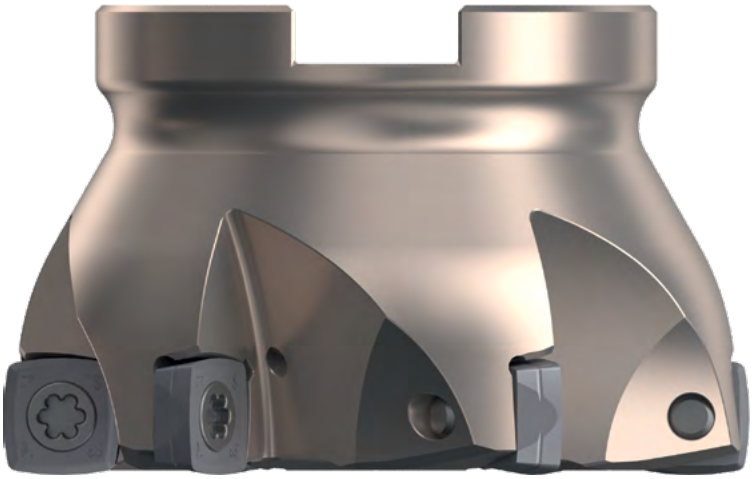
Ordering code	D [mm]	αRmax [°]
54007-016-2-200	16	5,9
54007-020-3-200	20	3,2
54007-025-4-200	25	2,0

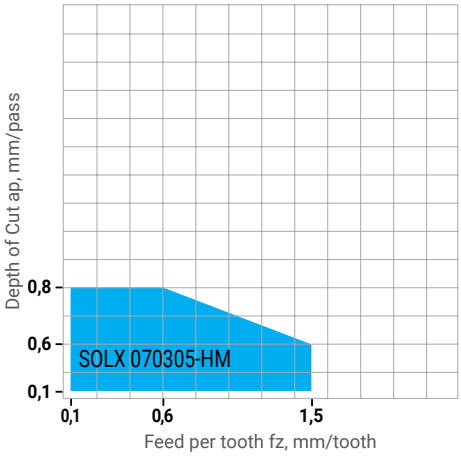
Optimal overlap for plunge milling

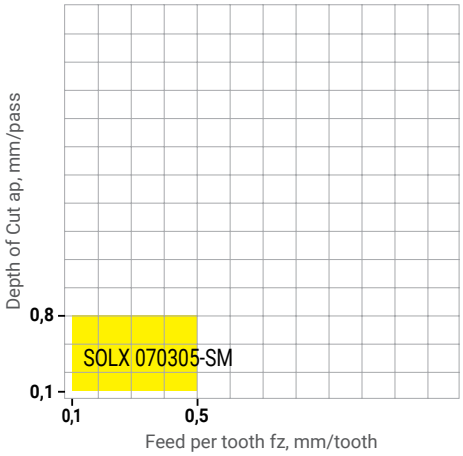


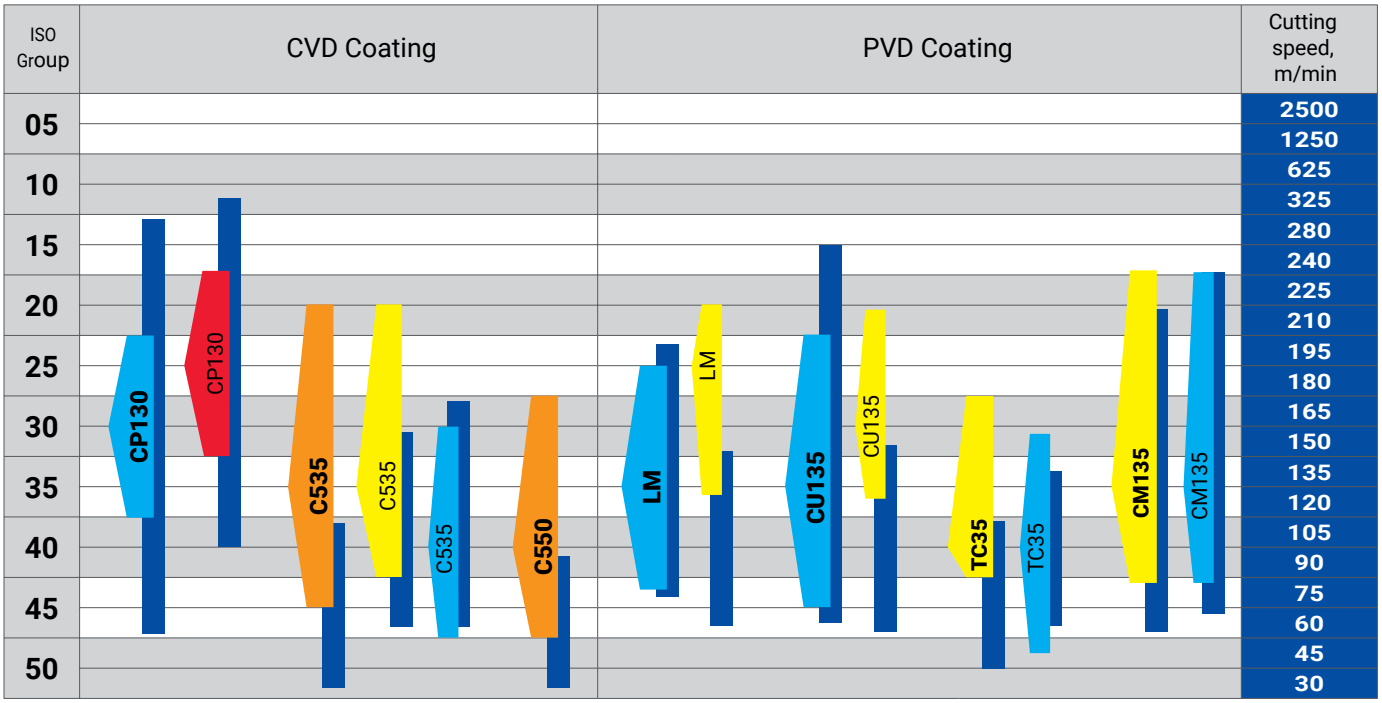
Overlap for plunge milling in unfavorable conditions





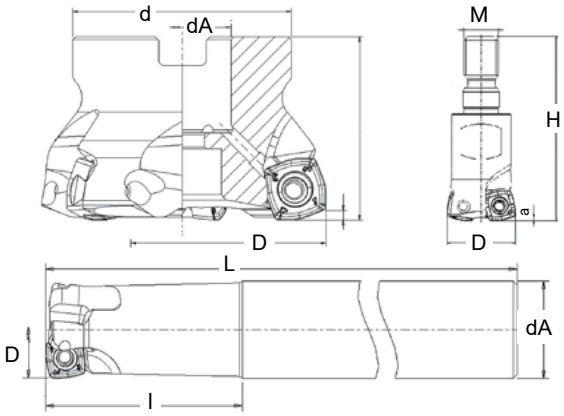

Depth of Cut ap, mm/pass
0,8
0,6
0,1
SOLX 070305-HM
0,1
0,6
1,5
Feed per tooth fz, mm/tooth

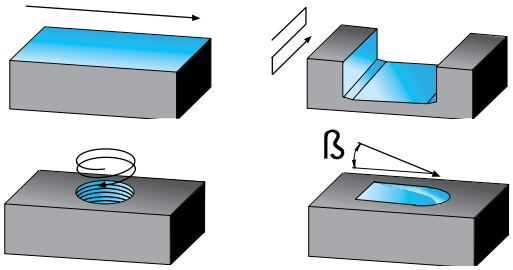

Depth of Cut ap, mm/pass
0,8
0,1
SOLX 070305-SM
0,1
0,5
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
CP130
CP130
C535
C535
C535
C550
LM
LM
CU135
CU135
TC35
TC35
CM135
CM135
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30

MEGATEC 54010

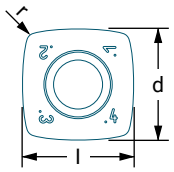
High Feed Mills with positive Insert SOLX10

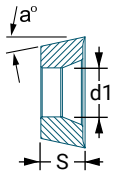




Ordering Code	In stock	D, mm	dA, mm	M	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill									
54010-025-3-225	•	25	25		225	50		3	SOLX10
Arbor Mill									
54010-040-4	•	40	16				40	4	
54010-050-5	•	50	22				40	5	SOLX10
54010-063-6	•	63	22				40	6	
All bodies with through coolant supply									

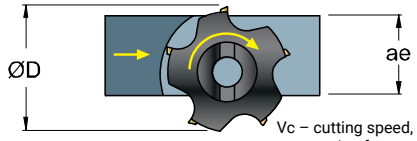
Insert code	Workpiece Pmaterial						Coating							Insert Dimensions					
							CVD			PVD									
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM135	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
SOLX 10T308-HM	■	□								●				10	10	3,97	0,8	4,4	9
	■		■				o												
	■	□									o								
	□	■										o							
SOLX 10T308-SM	■	□								o									
	□	■											●						
	□	■										●							
	□	■			■			●											
					■				●										
SOLX 10T308SR-HM	■										o								
	■	□					o												
SOLX 10T308SR-SM	□	■											o						
	□	■			■			o											





Order example: SOLX10T308-HM LM

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
				
SO..10T3	25	M3,5×7,2	Torx 15	-
SO..10T3	40	M3,5×8,6	Torx 15	M8.0×30
SO..10T3	50-63	M3,5×8,6	Torx 15	-



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

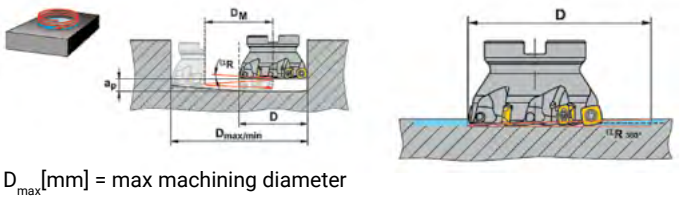
Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

Insert	l, mm	R, mm	B, mm	r, mm	ap, max,mm
SOLX10	10	2	5,9	0,8	1

HM

SM

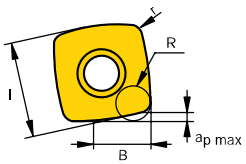
Helical interpolation

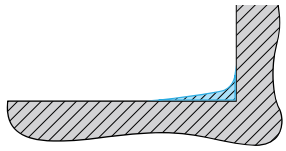


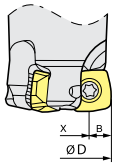
D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $Dm_{in} - D$

Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
54010-025-3	25	48	35	3,1
54010-040-4	40	78	65	1
54010-050-5	50	98	85	0,8
54010-063-6	63	124	111	0,7

Cutting width for flat surface

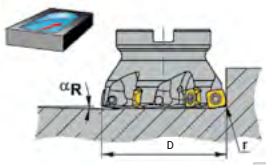






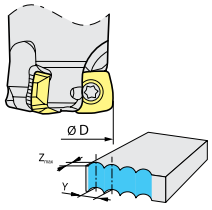
Insert type	D, mm	B, mm	X, mm
SOLX10	25-63	5,9	D-(2×B)

Ramping



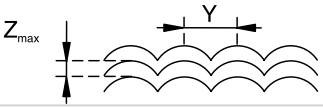
Ordering code	D [mm]	αRmax [°]
54010-025-3	25	3,6
54010-040-4	40	1,2
54010-050-5	50	0,9
54010-063-6	63	0,8

Plunge milling data

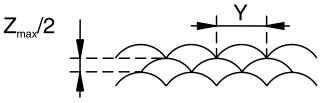


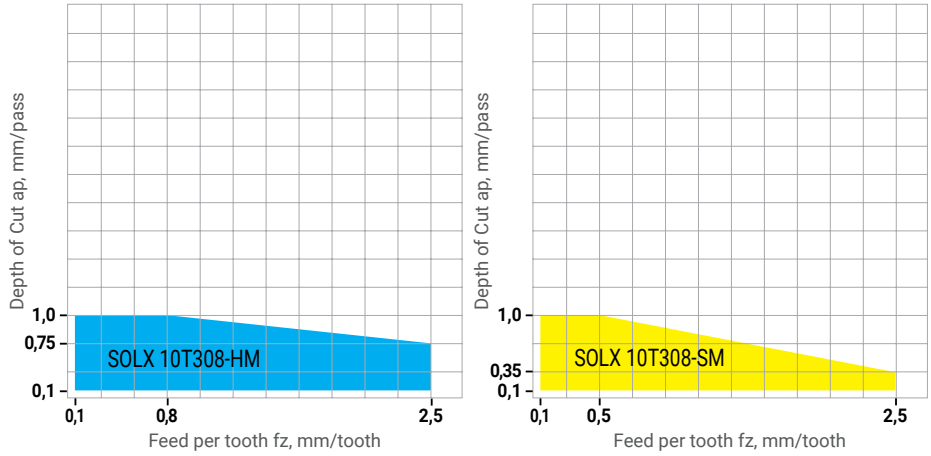
Insert type	Zmax, mm	fz min, mm	fz max, mm	Ymax, mm
SOLX10	7,5	0,08	0,15	< 0,7×D

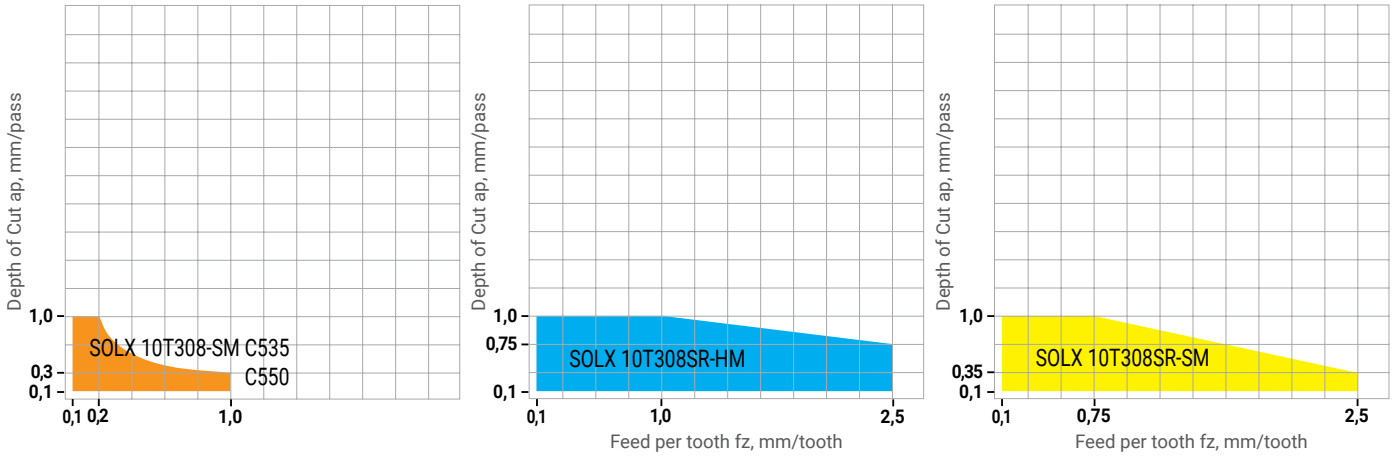
Optimal overlap for plunge milling

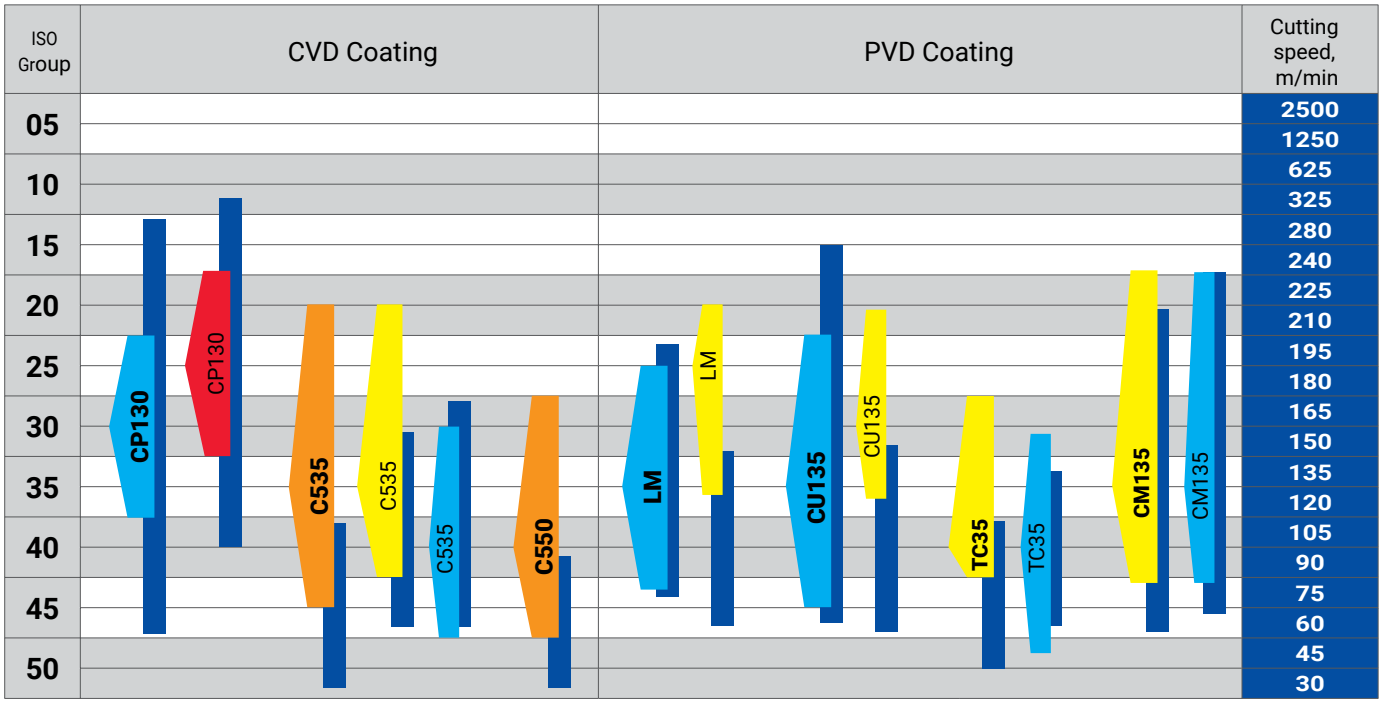


Overlap for plunge milling in unfavorable conditions



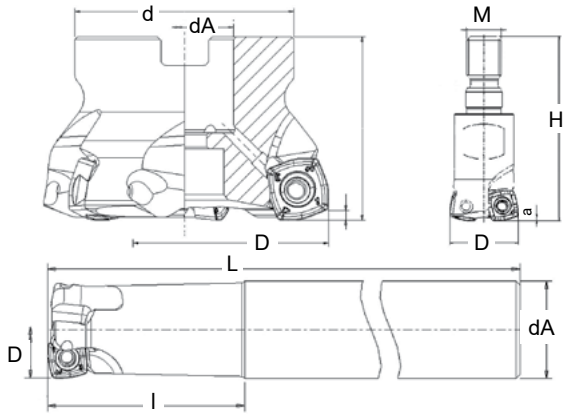

Depth of Cut ap, mm/pass
1,0
0,75
0,1
SOLX 10T308-HM
0,1
0,8
2,5
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
1,0
0,35
0,1
SOLX 10T308-SM
0,1
0,5
2,5
Feed per tooth fz, mm/tooth

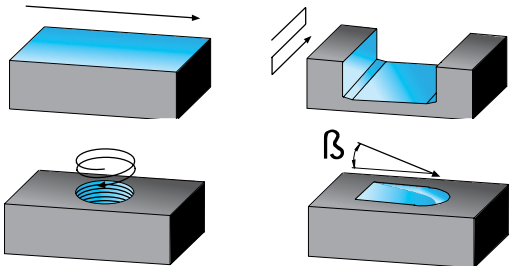

Depth of Cut ap, mm/pass
1,0
0,3
0,1
SOLX 10T308-SM C535
C550
0,1 0,2
1,0
Depth of Cut ap, mm/pass
1,0
0,75
0,1
SOLX 10T308SR-HM
0,1
1,0
2,5
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
1,0
0,35
0,1
SOLX 10T308SR-SM
0,1
0,75
2,5
Feed per tooth fz, mm/tooth


ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
CP130
CP130
C535
C535
C535
C550
LM
LM
CU135
CU135
TC35
TC35
CM135
CM135
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30

MEGATEC 54013

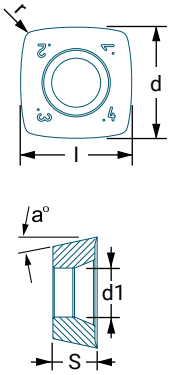
High Feed Mills with positive Insert SOLX13





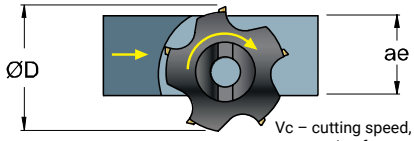
Ordering Code	In stock	D, mm	dA, mm	M	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill									
54013-035-3-250	•	35	32		250	63		3	SOLX13
Arbor Mill									
54013-050-4	•	50	22				40	4	SOLX13
54013-063-5	•	63	22				40	5	
54013-080-7	•	80	27				50	7	
54013-100-8		100	32				50	8	
All bodies with through coolant supply									

Insert	Workpiece Pmaterial						Coating							Insert Dimensions					
							CVD			PVD									
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM135	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
SOLX 130410-HM	■	□								●				13	13	4,76	1	5,5	9
	■		■				o												
	■	□									o								
	□	■										o							
SOLX 130410-SM	■	□								●									
	□	■											●						
	□	■										●							
	□	■			■			●											
					■				●										



Order example: SOLX13410-HM LM

Spare parts			
Insert type	Diameter D, mm	Insert screw	Screwdriver
			
SO..1304	35-80	M4,5×10,5	Torx 20



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm
$fn = fz_2 \cdot Z$, mm
$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

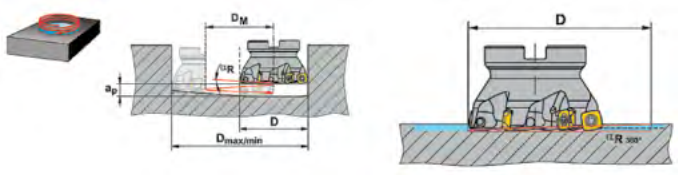
Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

HM

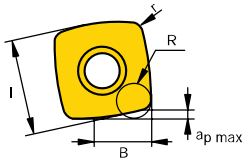
SM

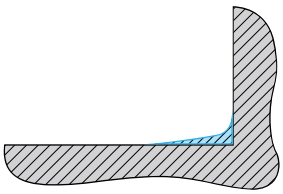
Helical interpolation



D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $Dm_{in} - D$

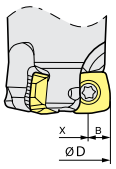
Insert	l, mm	R, mm	B, mm	r, mm	ap, max,mm
SOLX13	13	3	8,5	1	2





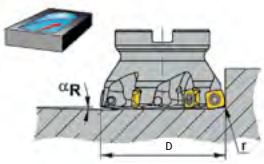
Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
54013-035-3	35	68	50	3,7
54013-050-4	50	98	80	1,3
54013-063-5	63	124	106	0,9
54013-080-7	80	158	140	1,1

Cutting width for flat surface



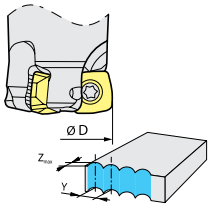
Insert type	D, mm	B, mm	X, mm
SOLX13	35-80	8,3	D-(2×B)

Ramping

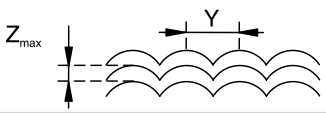
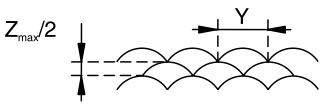


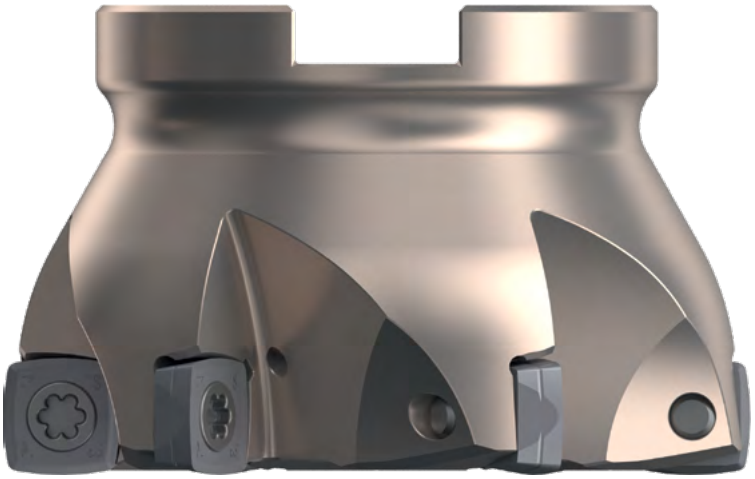
Ordering code	D [mm]	αRmax [°]
54013-035-3	35	4,4
54013-050-4	50	1,5
54013-063-5	63	1,1
54013-080-7	80	1,3

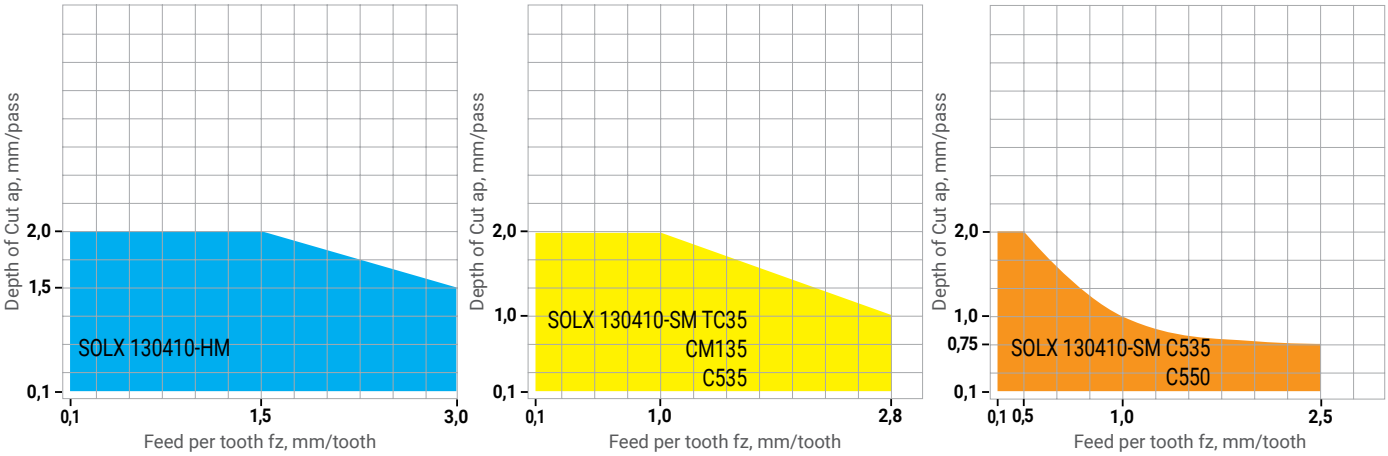
Plunge milling data

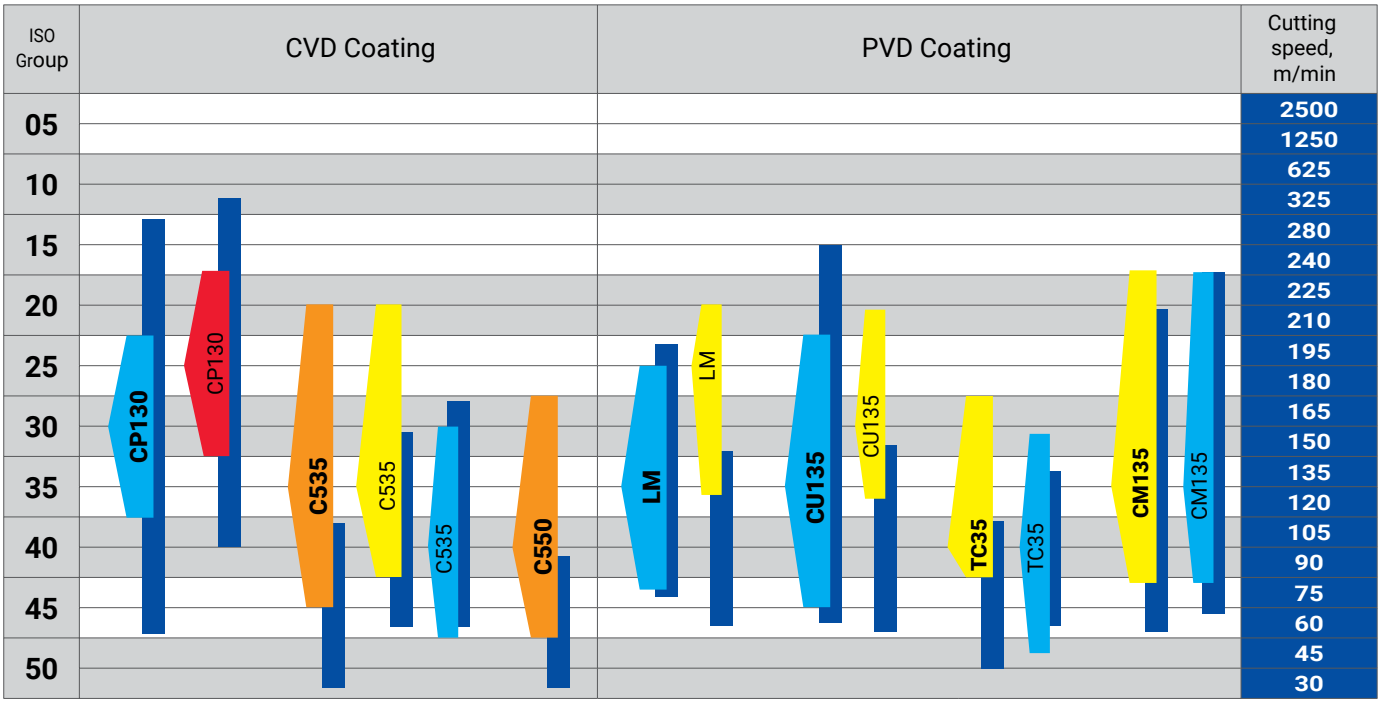


Insert type	Zmax, mm	fz min, mm	fz max, mm	Ymax, mm
SOLX13	10	0,1	0,2	< 0,7×D

Optimal overlap for plunge milling	Overlap for plunge milling in unfavorable conditions
	

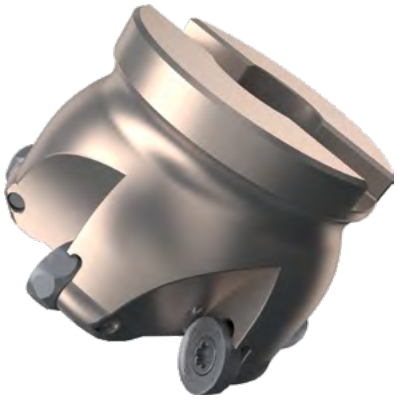



Depth of Cut ap, mm/pass
2,0
1,5
0,1
SOLX 130410-HM
0,1
1,5
3,0
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
2,0
1,0
0,1
SOLX 130410-SM TC35
CM135
C535
0,1
1,0
2,8
Feed per tooth fz, mm/tooth
Depth of Cut ap, mm/pass
2,0
1,0
0,75
0,1
SOLX 130410-SM C535
C550
0,1
0,5
1,0
2,5
Feed per tooth fz, mm/tooth

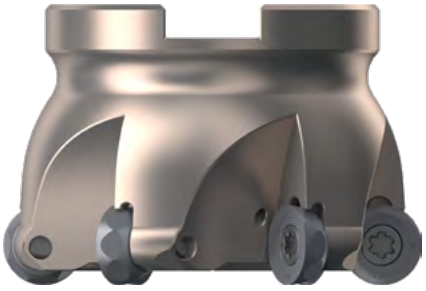

ISO Group
CVD Coating
PVD Coating
Cutting speed, m/min
05
10
15
20
25
30
35
40
45
50
CP130
CP130
C535
C535
C535
C550
LM
LM
CU135
CU135
TC35
TC35
CM135
CM135
2500
1250
625
325
280
240
225
210
195
180
165
150
135
120
105
90
75
60
45
30

MEGATEC 840 AND MEGATEC 880:

PROFILING. MULTIPURPOSE MILL WITH POSITIVE ROUND INSERT RPMT / RPHT / RDHT

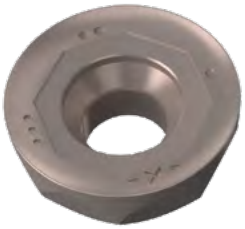


- ✓ Universal application: 3D profiling (e.g. turbine and compressor blades); roughing and semi-finishing, including grooves; surface finishing
- ✓ High performance cutting: cutting depth up to 6 mm, High Feed cutting is also possible
- ✓ Ramping and Helical Interpolation possibility
- ✓ Variety of applications thanks to wide amount chipbreaker and grade combinations
- ✓ Low Cutting Force due to Positive Insert Geometry
- ✓ Up to 8 cutting edge per Insert (in case of low cutting depth face milling)



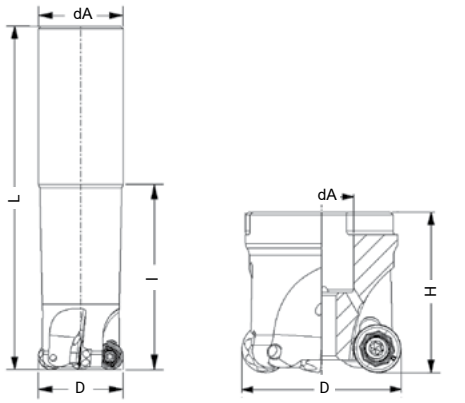
INSERT GEOMETRY

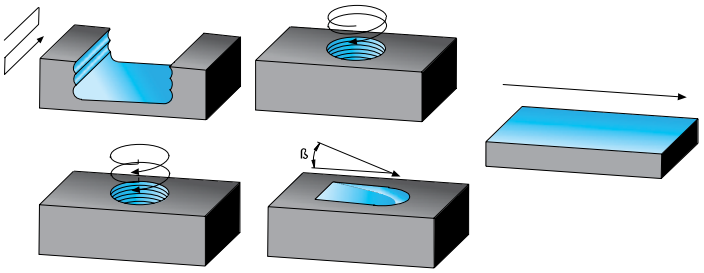
- ✓ **HM** – first choice for steel. Reliable cutting edge geometry suitable for steel and cast iron machining
- ✓ **SM** – sharp geometry, first choice for stainless steel machining. Good choice for steel machining as well, especially in case of low system rigidity
- ✓ **XM** – special geometry that combines sharpness and cutting edge strength, mainly for machining titanium and heat-resistant alloys
- ✓ **FM** – is a Geometry with reinforced cutting edge and Wiper technology
- ✓ **AL** – sharp ground geometry for aluminum and other easy-to-machine materials machining



MEGATEC 84010

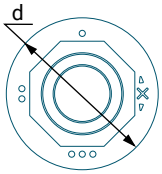
Profiling. Multipurpose Mill with positive round Insert RPMT10 / RPHT10 / RDHT10

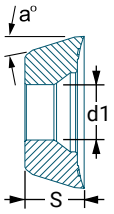




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill								
84010-020-2-102	•	20	20	102	50		2	RP/ RD..10
84010-020-2-165	•	20	20	165	50		2	
84010-025-3-116	•	25	25	116	60		3	
84010-025-3-165	•	25	25	165	60		3	
84010-032-4-130	•	32	32	130	70		4	
84010-032-4-165	•	32	32	165	70		4	
Arbor Mill								
84010-040-4	•	40	16			40	4	RP/ RD..10
84010-050-5	•	50	22			40	5	
84010-125-12		125	40			63	12	

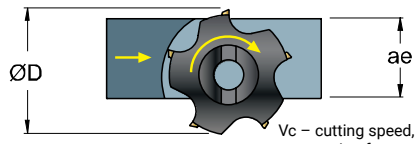
Insert	Workpiece Pmaterial						Coating									Insert Dimensions					
							CVD			PVD					-						
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM135	CM140	C015	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
RPMT10T3MO-HM	■	□								●						10	-	3,97	-	3,4	11
	■		■				●														
	■	□									●										
RPMT10T3MO-SM	□	■										●									
	□	■											●								
	□	■												●							
RPHT10T3MO-XM	□	■			■			●													
					■				●												
RDHT10T3MO-Al				■											●						15





Order example: RPMT10T3MO-SM CU130

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
				
RP/RD..10T3	20-32	M3,0×7,5	Torx 10IP	-
	40			M8,0×30
	50-125			-



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

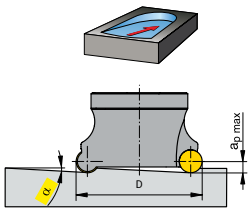
Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

PRMT

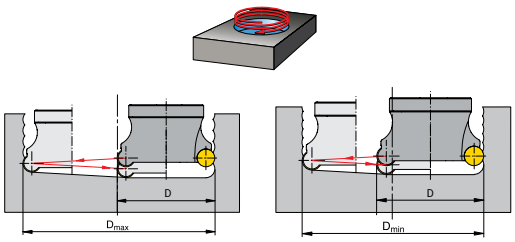
RPHT

RDHT

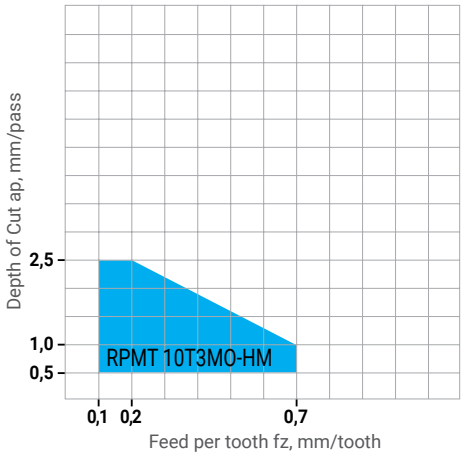
Ramping



Helical interpolation

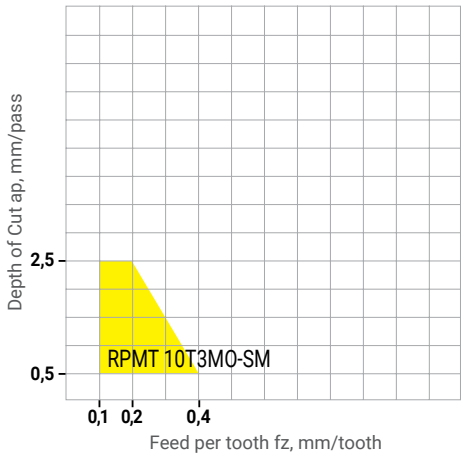


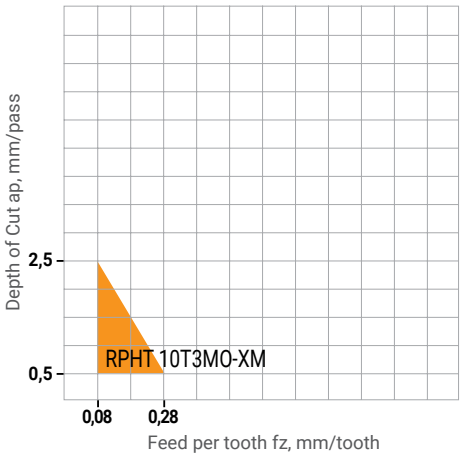
D_{max}[mm] = max machining diameter
D_{min} [mm] = min machining diameter
$D_M = D_{max} - D$ or $D_{min} - D$

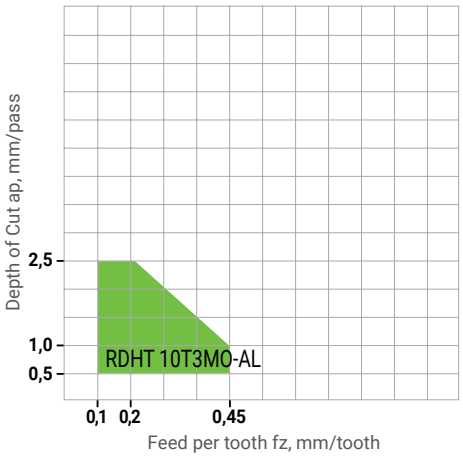


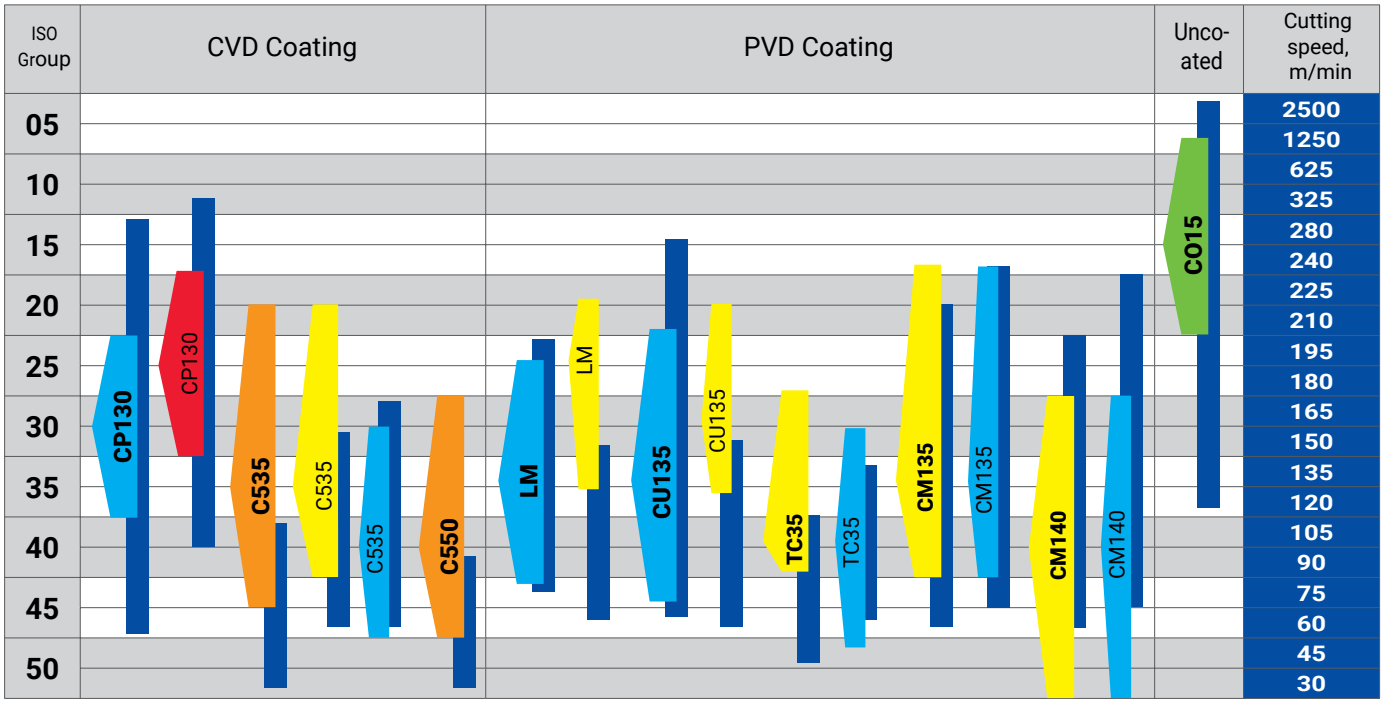
Ordering code	D [mm]	αRmax [°]
84010-020-2-102(165)	20	0,3
84010-025-3-116(165)	25	2,0
84010-032-4-130(165)	32	3,0
84010-040-4	40	3,3
84010-050-5	50	2,4

Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
84010-020-2-102(165)	20	30	26	0,3
84010-025-3-116(165)	25	40	37	1,8
84010-032-4-130(165)	32	54	50	1,5
84010-040-4	40	70	64	1,1
84010-050-5	50	74	68	1,1



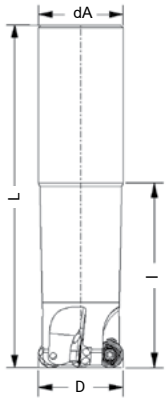


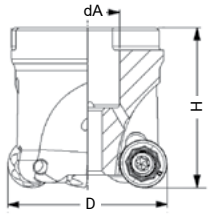


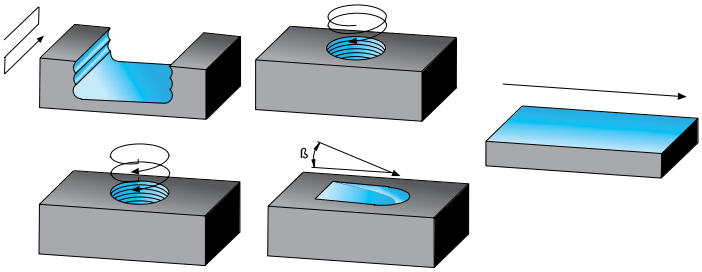


MEGATEC 84012

Profiling. Multipurpose Mill with positive round Insert RPMT12 / RPHT12 / RDHT12

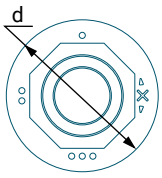


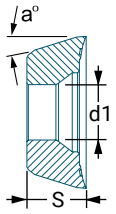




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Cylindrical shank Mill								
84012-025-2-86	•	25	25	86	30		2	RP/ RD..12
84012-025-2-116	•	25	25	116	60		2	
84012-032-3-100	•	32	32	100	40		3	
84012-032-3-130	•	32	32	130	70		3	
Arbor Mill								
84012-040-4	•	40	16			40	4	RP/ RD..12
84012-050-5	•	50	22			40	5	
84012-063-6	•	63	22			40	6	
84012-080-8	•	80	27			50	8	
84012-100-10	•	100	32			50	10	
84012-125-12	•	125	40		63	12	8	

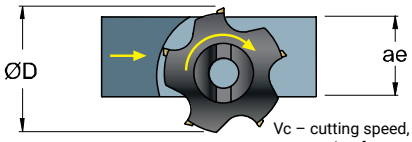
Insert	Workpiece Pmaterial						Coating									Insert Dimensions					
							CVD			PVD					-						
	P	M	K	N	S	H	CP130	C535	C550	LM	CU135	TC35	CM135	CM140	C015	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
RPMT1204MO-HM	■	□								●						12	-	4,76	-	4,4	11
	■	■					●														
	■	□									●										
RPMT1204MO-SM	□	■										●									
	□	■											●								
	□	■												●							
RPHT1204MO-XM	□	■			■			●													
					■				●												
RPMT1204MO-FM	■	□								●											
	■	■					●														
	■	□									●										
RPHT1204MO-FM	□	■			■			●													
					■				●												
RDHT1204MO-Al				■											●						15





Order example: RPMT1204MO-FM CP130

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
RP/RD..1204	25-32	M4,0×8,5	Torx 15	-
	40	M4,0×11,0	Torx 15IP	M8,0×30
	50-100			-



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

$Vf = fn \cdot Z$, mm/min

Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

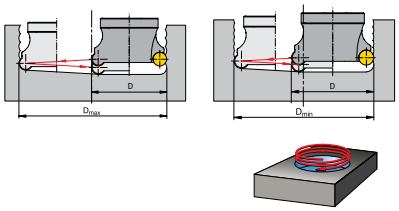
Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	Vc (min.) ---- Vc (max)			

PRMT

RPHT

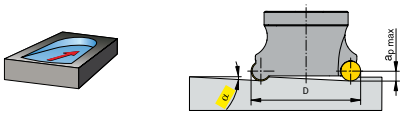
RDHT

Helical interpolation

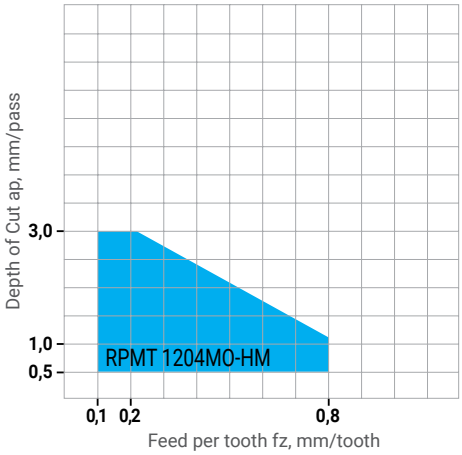


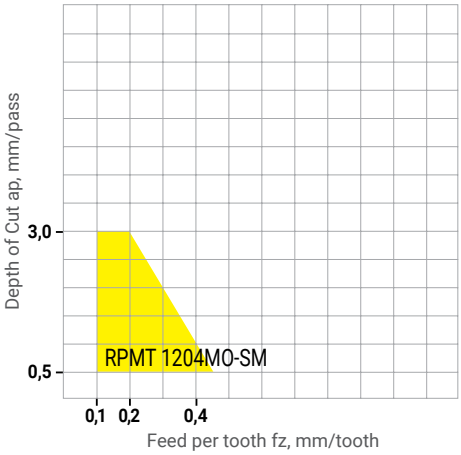
Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
84012-025-2-86 (116)	25	38	31	2,2
84012-032-3-100 (130)	32	52	46	1,7
84012-040-4	40	68	62	1,4
84012-050-5	50	88	81	1,1
84012-063-6	63	114	107	0,9
84012-080-8	80	148	142	0,7
84012-100-10	100	188	181	0,5

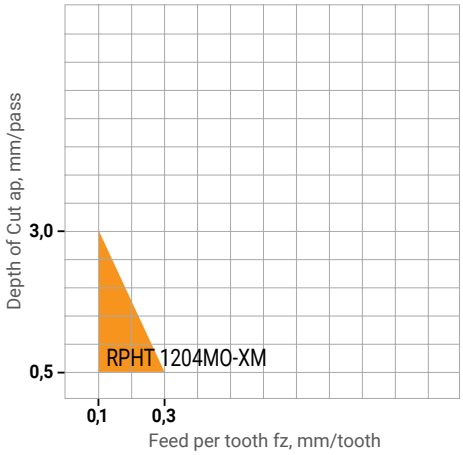
Ramping

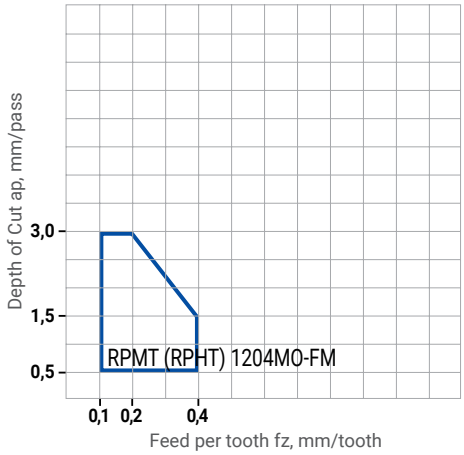


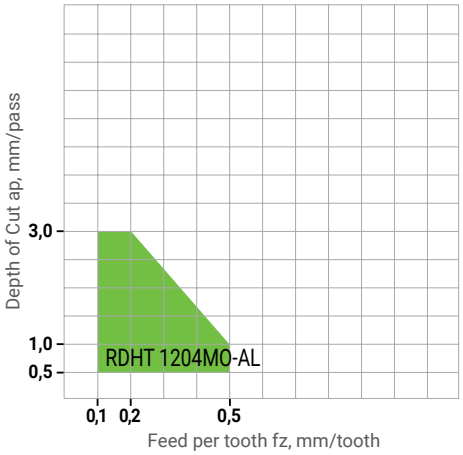
Ordering code	D [mm]	Dmax [mm]
84012-025-2-86 (116)	25	6,4
84012-032-3-100 (130)	32	4,0
84012-040-4	40	2,8
84012-050-5	50	2,6
84012-063-6	63	1,9
84012-080-8	80	1,3
84012-100-10	100	1,0

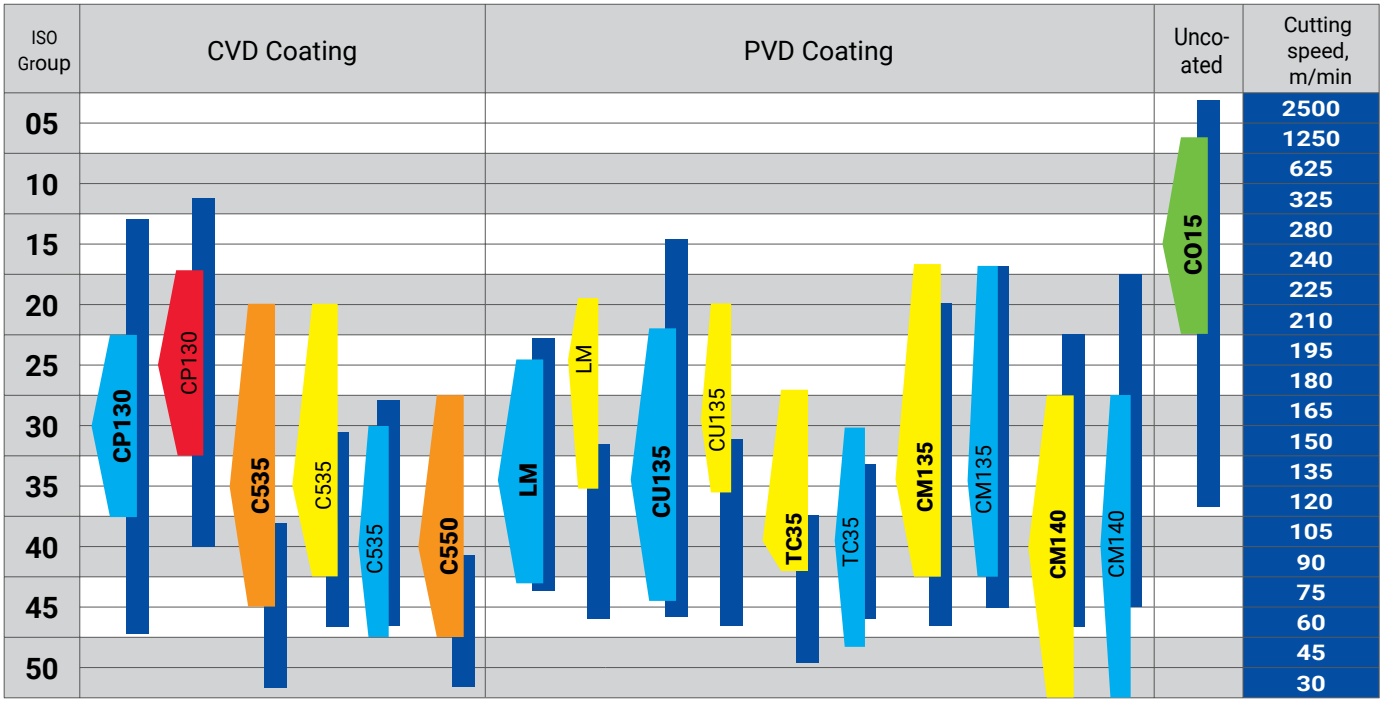






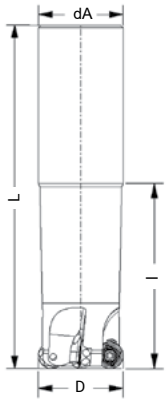


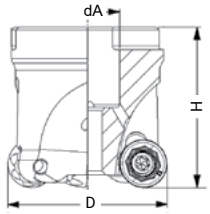


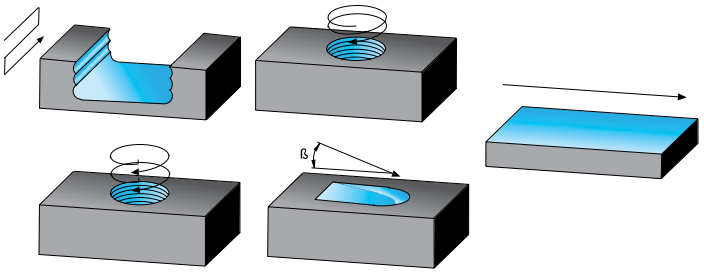


MEGATEC 88016

Profiling. Multipurpose Mill with positive round Insert RPMT16 / RPHT16 / RDHT16

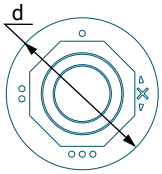


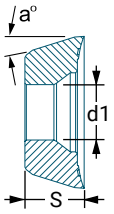




Ordering Code	In stock	D, mm	dA, mm	L, mm	l, mm	H, mm	Z	Insert type
Arbor Mill								
88016-050-3	•	50	22			40	3	RP..16
88016-063-5	•	63	22			40	5	
88016-080-6	•	80	27			50	6	
88016-100-7	•	100	32			50	7	
88016-125-8	•	125	40			63	8	
88016-160-10		160	40			63	10	

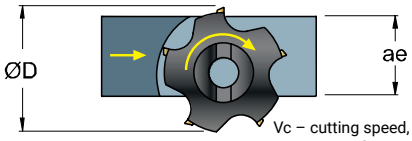
Insert code	Workpiece Pmaterial						Coating						Insert Dimensions					
							CVD			PVD								
	P	M	K	N	S	H	CP130	C535	C550	CU135	CM135	CM140	D, mm	L, mm	s, mm	r, mm	d1, mm	α°
RPMT1605MO-HM	■		■				●						16	-	5,56	-	5,5	11
	■	□								●								
RPMT1605MO-SM	□	■									●							
	□	■										●						
RPHT1605MO-XM	□	■			■			●										
					■				●									
RPMT1605MO-FM	■		■				●											
	■	□								●								
RPHT1605MO-FM	□	■			■			●										
					■				●									





Order example: RPMT1605MO-HM CP130

Spare parts				
Insert type	Diameter D, mm	Insert screw	Screwdriver	Special clamping screw
RP..16	50 63-125	M4,5×13,0	Torx 20IP	M10,0×31



$$n = \frac{Vc \cdot 1000}{\varnothing D \cdot 3{,}14}, \text{ rev./min}$$

$fz_2 = fz \cdot Kae$, mm

$fn = fz_2 \cdot Z$, mm

$Vf = fn \cdot Z$, mm/min

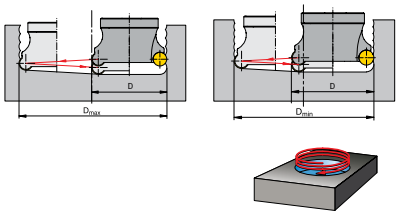
Vc – cutting speed, mm/min
n – rotation frequency, rev./min
fz – feed per tooth, mm/tooth
fn – feed per revolution, mm/rev.
Vf – feed per minute, mm/min
Kae – correction coefficient
fz2 – feed per tooth depending on coefficient Kae, mm

Correction coefficient depending on overlap percentage					
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%	0,05 2%
Kae	1	1,1	1,2	1,3	1,5

Cutting speed correction depending on overlap percentage				
ae/D	0,5-1 50-100%	0,2 20%	0,1 10%	0,05 5%
Vc	**Vc (min.) ---- Vc (max)**			

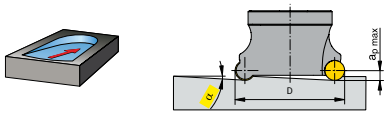
PRMT

Helical interpolation

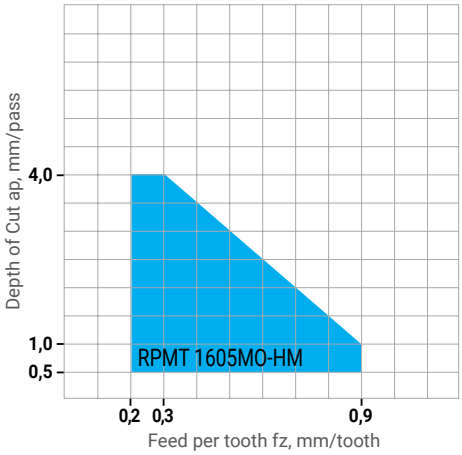


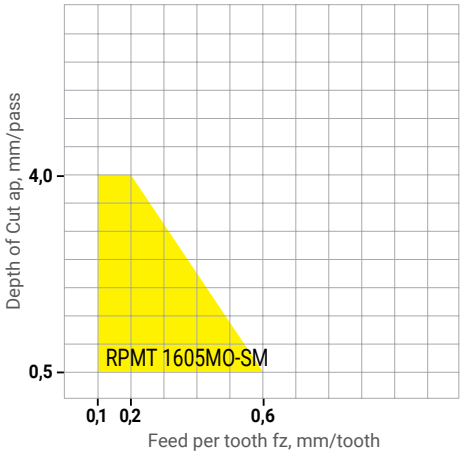
Ordering code	D [mm]	Dmax [mm]	Dmin [mm]	αRmax [°]
88016-050-3	50	84	75	1,5
88016-063-5	63	110	101	1,1
88016-080-6	80	144	135	0,9
88016-100-7	100	184	175	0,7
88016-125-8	125	234	225	0,5

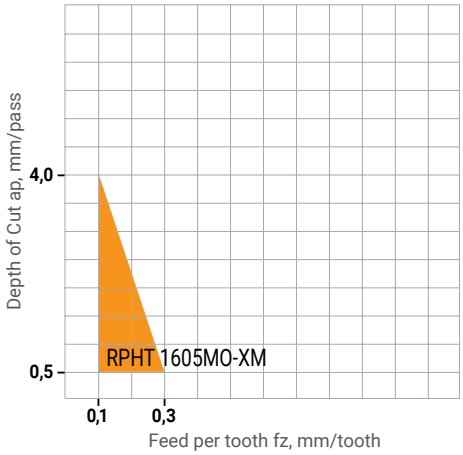
Ramping

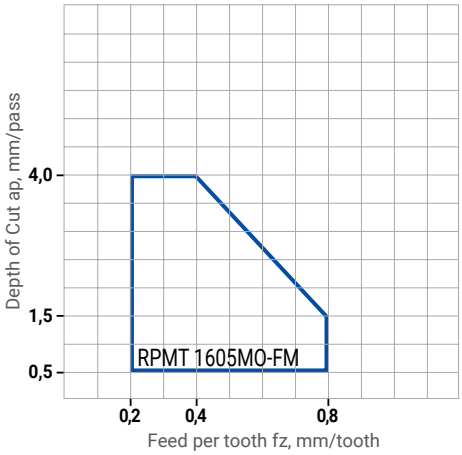


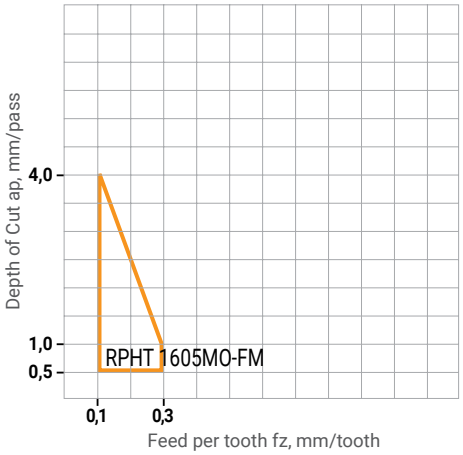
Ordering code	D [mm]	Dmax [mm]
88016-050-3	50	4,0
88016-063-5	63	2,8
88016-080-6	80	2,0
88016-100-7	100	1,5
88016-125-8	125	1,0

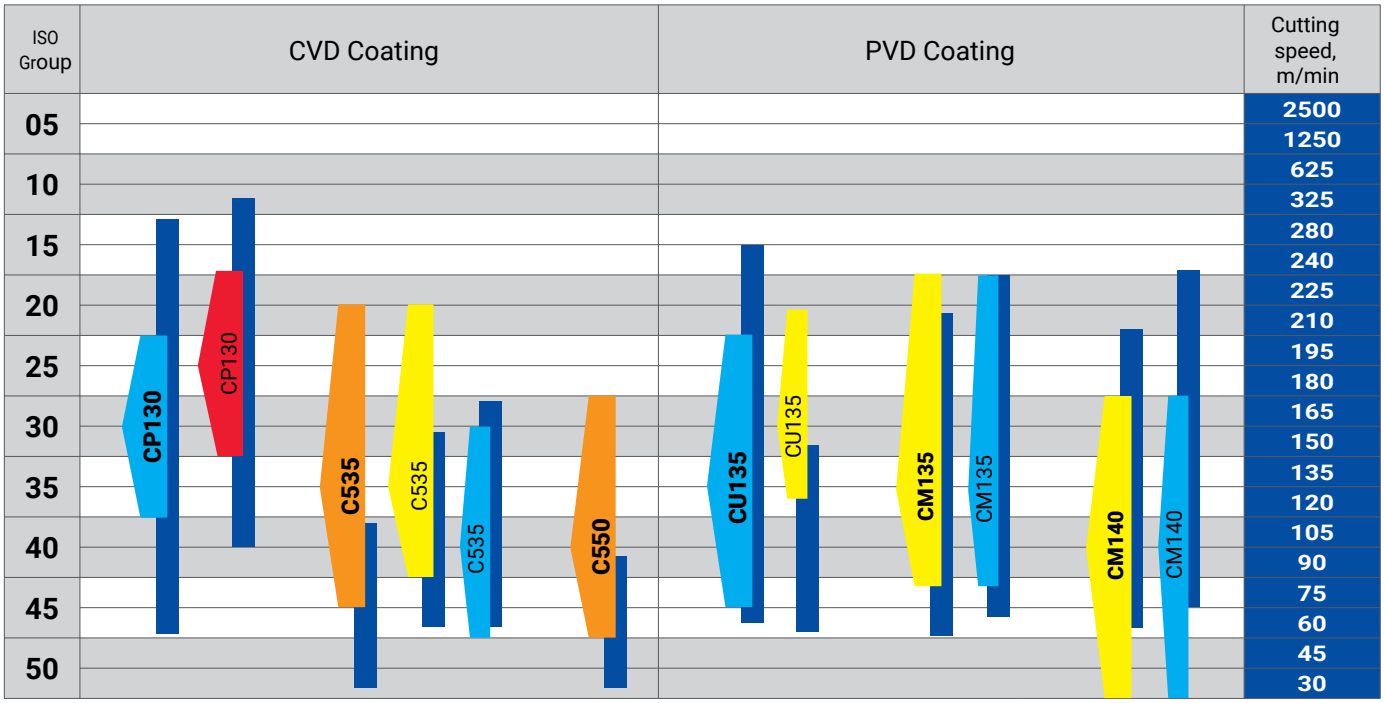








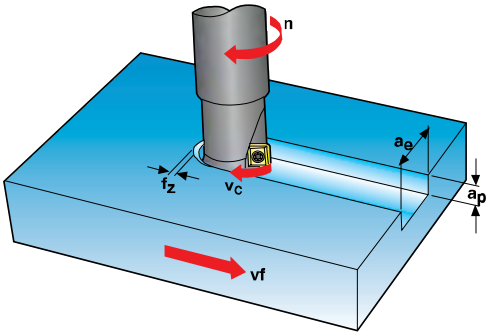




Technical Data

Speeds and Feeds calculation formulae

1) Rotation frequency: $n = \frac{V_c \times 1000}{3.14 \times D_c}$, rev./min
2) Cutting speed: $V_c = \frac{3.14 \times n \times D_c}{1000}$, m/min
3) Feed per revolution: $f = z \times f_z$, mm/rev.
4) Feed: $V_f = f \times n$, mm/min
5) Material removal rate: $Q = \frac{a_e \times a_p \times V_f}{1000}$, cm³/min

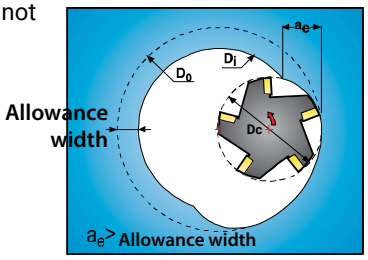


ae – Cutting width, mm
ap – Cutting depth, mm
Dc – Milling cutter (tool) diameter, mm
f – Feed per revolution, mm/rev.
fz – Feed per tooth, mm/tooth
n – Spindle speed, rev./min
Q – Material removal rate, cm3/min
rε – Corner radius, mm
Vc – Cutting Speed, m/min
Vf – Feed, mm/min

Internal Circular Interpolation

In cases of Internal Circular Interpolation milling or an Arc Engage the cutting width is not equal the allowance width. The cutting width calculated by the formula:

$$a_e = \frac{D_o^2 - D_i^2}{4 \times (D_o - D_c)}, \text{mm}$$



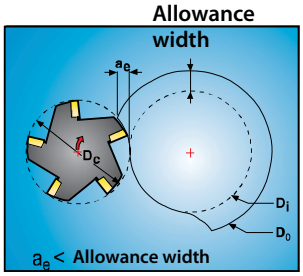
Feed rate calculation::

$$V_f = \left(1 - \frac{D_c}{D_o}\right) \times n \times f_z \times z, \text{ mm/min}$$

External Circular Interpolation

In cases of External Circular Interpolation milling or an Arc Engage the cutting width is not equal the allowance width. The cutting width calculated by the formula:

$$a_e = \frac{D_o^2 - D_i^2}{4 \times (D_i + D_c)}, \text{mm}$$



Feed rate calculation:

$$V_f = \left(1 + \frac{D_c}{D_i}\right) \times n \times f_z \times z, \text{ mm/min}$$

Cutting Edge Wear control

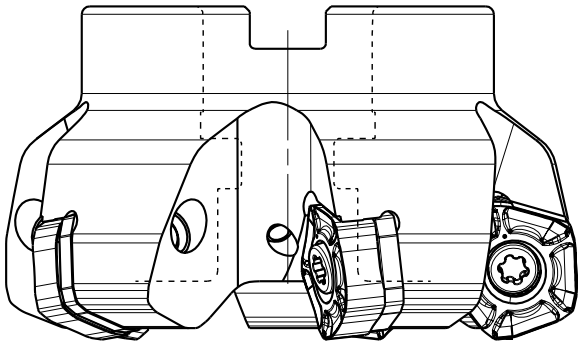
Most of MEGATEC Milling Inserts have cutting edge markings.

It is recommended to install the new Insert such way that all working edges have marks **1** or •. The next mark after indexation should be **2** or •• and so on. This way simplifies the control of worn cutting edges.

While the last Cutting Edge worn out, e.g. **4** (••••) edge on a four-edge Insert means that the Insert needs to be replaced with new one, and no need to check the status of the others three cutting edges.

PNMU1307 Insert installing feature

The MEGA 5 milling cutter bodies for PNMU13 Insert have a special clamping screw. The axis of the fixing Screw is not perpendicular to the Shim, and the Insert fixing hole has a larger diameter than the screw head. The Insert to clamp by the screw as a wedge.



To set or index an Insert:

1. Loosen the fixing screw a few revolutions. Do not unscrew the fixing screw completely.

2. Install the Insert in the seat, putting it on the fixing screw.

3. While holding the Insert, tighten the fixing screw.