PowerMill 542

Jongen Werkzeugtechnik

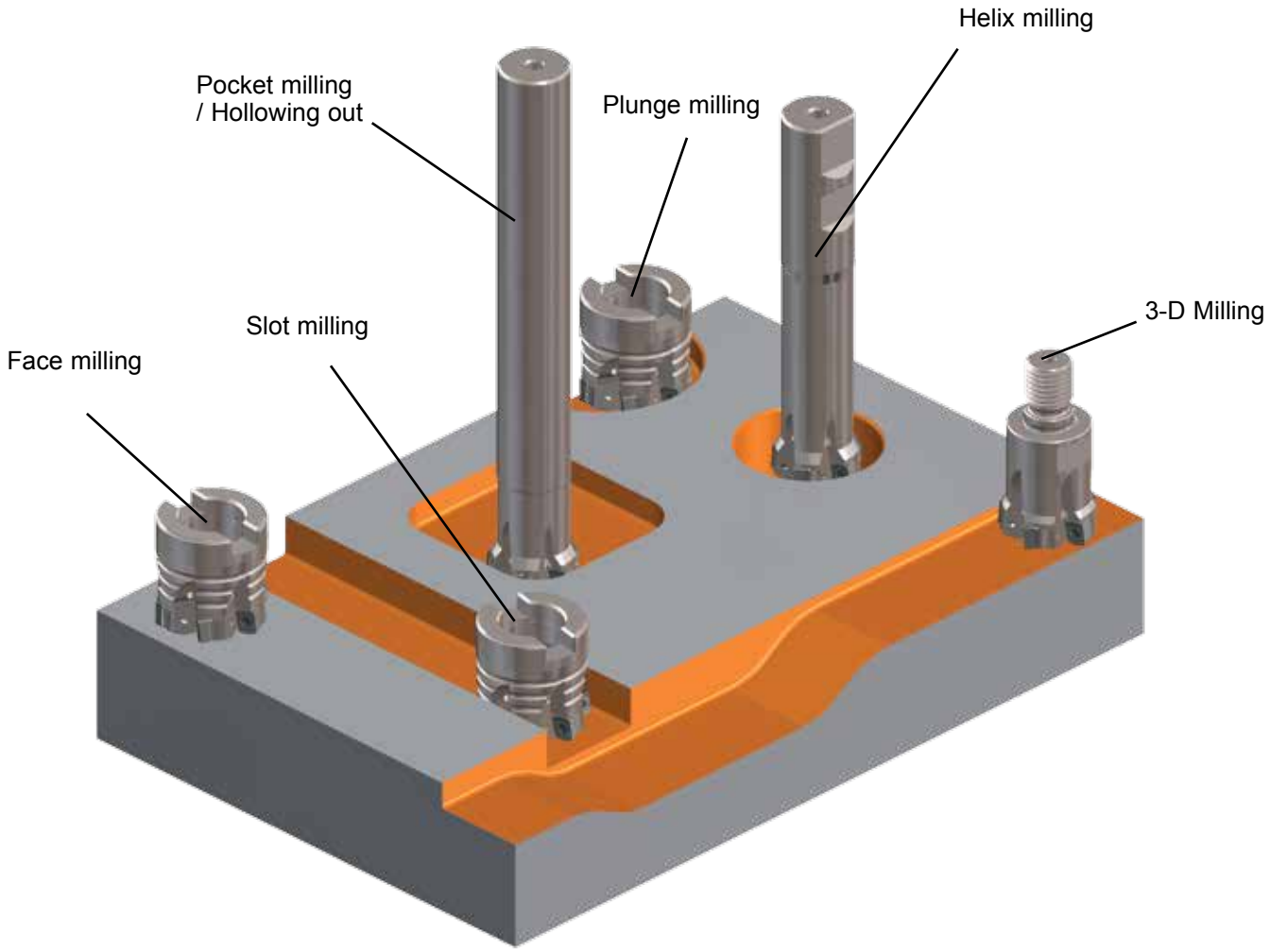
UNI MILL® JONGEN UNI MILL

FEATURES:

- Very high feed rates with axial depth of cut - a_p - of up to 1,0 mm
- Positive cutting geometry thanks to chip breaker on the insert
- 4 cutting edges per insert
- Almost no radial cutting forces

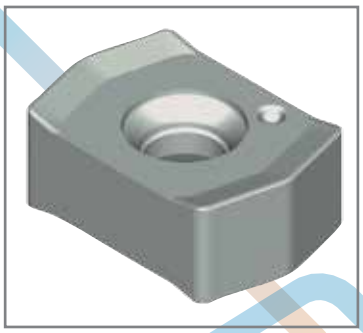
ADVANTAGES:

- High chip removal rates for lowest working time
- Suitable for almost all materials
- Applicable for great overhangs
- Close-contoured roughing possible
- Extreme stable inserts
- Very hard tools
- Different tool types (ø16 - ø52) allow flexible application areas: shell milling cutters, screw-in cutters, shank milling cutters with coupling made to DIN 1835-B and cylindrical shank milling cutters for big extension lengths.
- Shell milling cutters with coupling made to DIN 8030 with internal coolant passages
- Screw-in cutters with internal coolant passages
- Shank milling cutters with coupling made to DIN 1835-B, with internal coolant passages
  Cylindrical shank milling cutters similar to DIN 1835-A, without internal coolant passages



THE INSERT

☞ Precision sintered, with 4 effective cutting edges with highly positive chip breaker, axial depth of cut max. 1,0mm

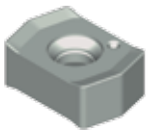


FP 542

☞ Application areas: all kind of steels and high-grade steels, hard-to-machine materials as well as cast iron materials.

Following carbide qualities are offered:

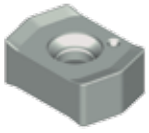
HT32



Code 33 - ISO-Classification M20 - M30

Hard wearing and tough finest grain carbide with a AlTiN- Nanocomposit-coating.
This quality is suitable for dry milling and can also be adopted with cooling.
This quality is especially designed for machining high grade steels, tool steels and high alloyed materials.

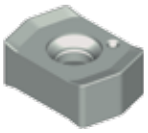
HT45



Code 31 - ISO-Classification P30 - P35

Very tough fine grain carbide with a AlTiN- Nanocomposit-coating for middle – high cutting speeds and high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing of almost all materials such as: structural steel, tool steel, heat-treatable steel, as well as unalloyed, low alloyed and high alloyed steels, stainless steels and also grey cast iron, globular graphite cast iron etc.

HT20

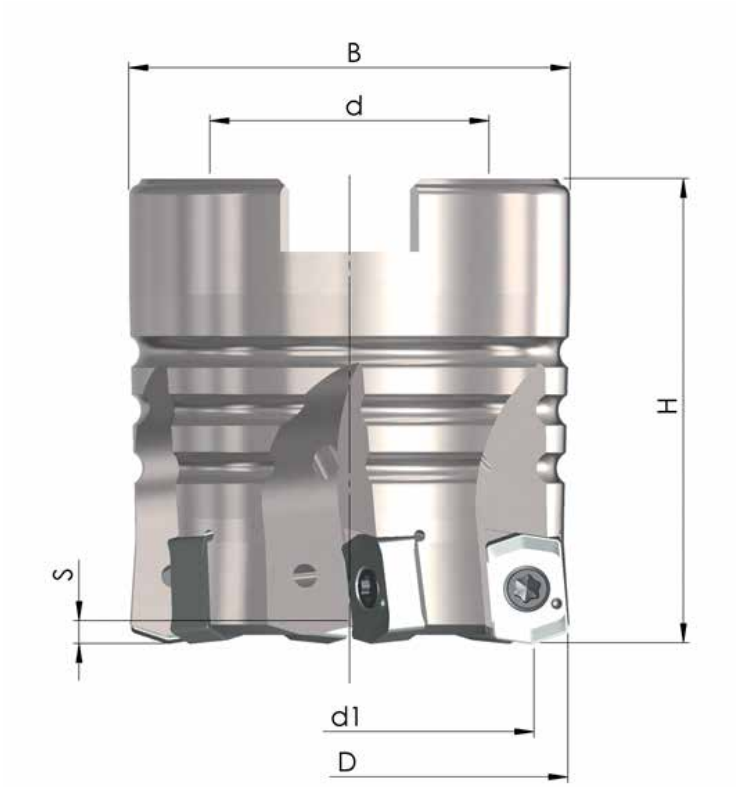


Code 32 - ISO-Classification K15 - K20

Very hard wearing fine grain carbide with a AlTiN- Nanocomposit-coating for middle – high cutting speeds with high feed rates for processing of cast iron materials, as grey-, tempered-, vermicular-, graphite- and globular graphite cast iron.

TECHNICAL DATA

SHELL TYPE MILL

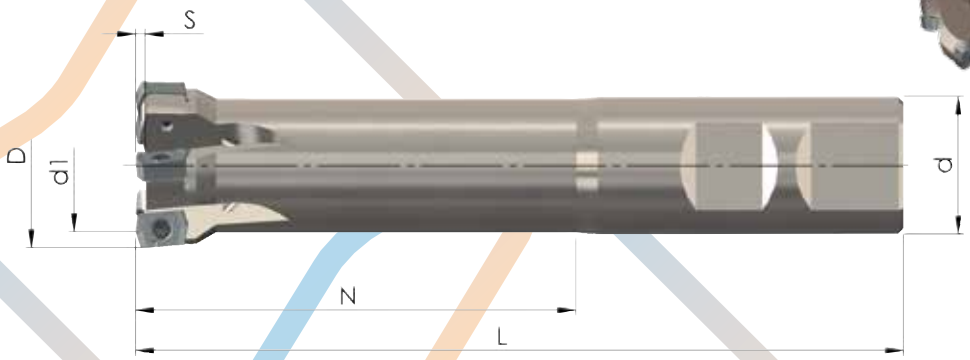


Order-Nr.	D	d_1	H	d	B	S	Z	MS
00PP-032-542-5	32	26,2	40	16	32	2,15	5	MS-8x25-912
00PP-035-542-5	35	29,2	40	16	32	2,15	5	MS-8x25-912
00PP-040-542-6	40	34,2	40	22	38	2,15	6	MS-8x25-912
00PP-042-542-6	42	36,2	40	22	38	2,15	6	MS-8x25-912
00PP-050-542-7	50	44,2	40	22	38	2,15	7	MS-10x25-912
00PP-052-542-7	52	46,2	40	22	38	2,15	7	MS-10x25-912

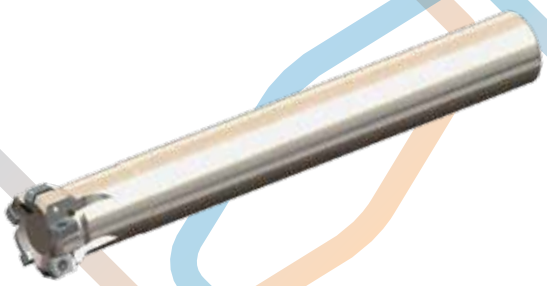
MS= Central screw

TECHNICAL DATA

SHANK TYPE MILL



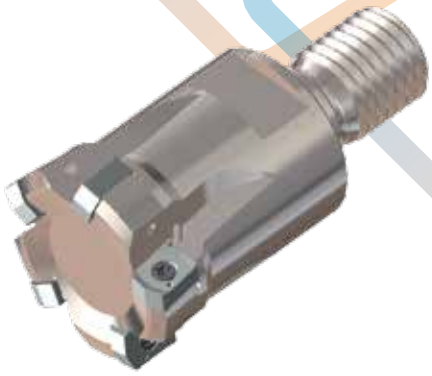
Order-Nr.	D	d_1	N	L	d	S	Z
00PP-16-542-2-60	16	10,2	60	110	16	2,2	2
00PP-20-542-3-80	20	14,2	80	130	20	2,2	3
00PP-25-542-4-80	25	19,2	84	140	25	2,2	4
00PP-32-542-5-80	32	26,2	80	140	25	2,2	5

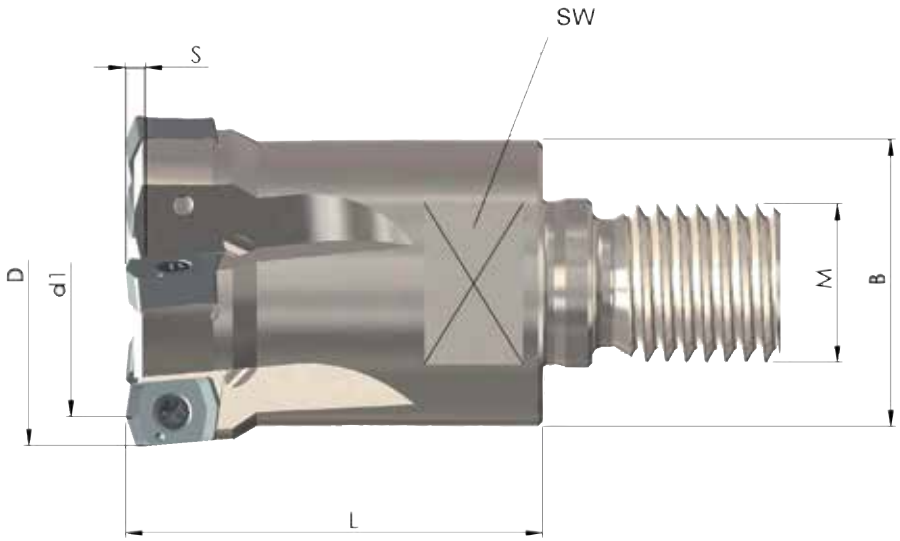


Order-Nr.	D	d_1	N	L	d	S	Z
00PP-16-14-542-2-160	16	10,2	35	160	14	2,2	2
00PP-20-18-542-3-200	20	14,2	40	200	18	2,2	3
00PP-22-20-542-3-200	22	16,2	40	200	20	2,2	3
00PP-25-20-542-4-200	25	19,2	40	200	20	2,2	4
00PP-32-25-542-5-200	32	26,2	40	200	25	2,2	5

TECHNICAL DATA

SCREW-IN CUTTERS





Order-Nr.	D	d_1	l	M	B	SW	S	Z
ESF-16-M8-542-2	16	10,2	23	M 8	13,8	12	2,2	2
ESF-18-M8-542-2	18	12,2	28	M 8	13,8	12	2,2	2
ESF-20-M10-542-3	20	14,2	28	M10	18	16	2,2	3
ESF-22-M10-542-3	22	16,2	28	M10	18	16	2,2	3
ESF-25-M12-542-4	25	19,2	32	M12	24	18	2,2	4
ESF-32-M16-542-5	32	26,2	42	M16	29	24	2,2	5
ESF-35-M16-542-5	35	29,2	42	M16	29	24	2,2	5
ESF-40-M16-542-6	40	34,2	42	M16	29	24	2,2	6
ESF-42-M16-542-6	42	36,2	42	M16	29	24	2,2	6

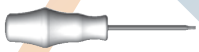
INSERTS

		HT45 (code 31)	HT32 (code 33)	HT20 (code 32)				
 **FP 542** (B24) 6,5x9,5x3,46	~	● ●	● ●	● ●				
	VPE	20	20	20				

SPARE PARTS

SS 2,5-8 ab ø 20
(M = 1,2-1,3 Nm)

SS 2,5-9 ø 16+18
(M = 1,2-1,3 Nm)



T 08

Fett
Grease, Graisse, Grasso

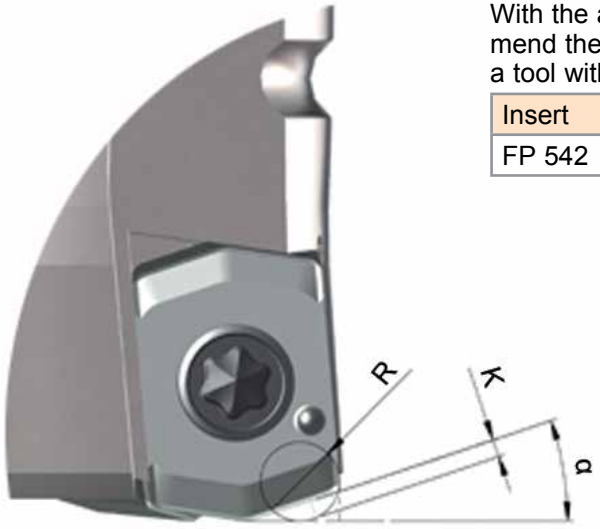
PARAMETERS

	Material	Hardness	Quality	Depth of cut a_e [mm]	Cutting speed V_c [m/min]
P	Structural steel, Unalloyed steel	<180 HB	HT45	-0,25D	250 (200-350)
				-0,5D	
				-0,75D	
				>0,75D-1D	
	Tool steel, Heat-treatable steel, Alloyed steel	180-350 HB	HT32 HT45	-0,25D	220 (160-280)
				-0,5D	
				-0,75D	
				>0,75D-1D	
M	Stainless-steel, High grade steel, High alloyed steel,	<270 HB	HT32 (HT45)	-0,25D	240 (140-300)
				-0,5D	
				-0,75D	
				>0,75D-1D	
S	Heat-resistant super alloys Titan alloys		HT32 (HT45)	-0,25D	60 (40-200)
				-0,5D	
				-0,75D	
				>0,75D-1D	
H	Tempered steel	40-55 HRC	HT20	-0,25D	80 (50-120)
				-0,5D	
				-0,75D	
				>0,75D-1D	
K	Grey cast iron	<800 N/mm²	HT20	-0,25D	250 (180-350)
				-0,5D	
				-0,75D	
				>0,75D-1D	
	Globular graphite cast iron	<350 N/mm²	HT20 (HT45)	-0,25D	200 (130-280)
				-0,5D	
				-0,75D	
				>0,75D-1D	

The above mentioned data are standard values.
Up and down corrections are admitted depending on the machine type, the working piece and the holding fixture.

ø 16-25 f_z [mm]	ø 32-40 f_z [mm]	ø 42-52 f_z [mm]
0,40 (0,20-0,80)	0,40 (0,20-0,80)	0,40 (0,20-0,80)
0,50 (0,30-0,90)	0,50 (0,30-0,90)	0,50 (0,30-0,90)
0,55 (0,35-0,95)	0,55 (0,35-0,95)	0,55 (0,35-0,95)
0,60 (0,40-1,00)	0,60 (0,40-1,00)	0,60 (0,40-1,00)
0,40 (0,20-0,80)	0,40 (0,20-0,80)	0,40 (0,20-0,80)
0,50 (0,30-0,90)	0,50 (0,30-0,90)	0,50 (0,30-0,90)
0,55 (0,35-0,95)	0,55 (0,35-0,95)	0,55 (0,35-0,95)
0,60 (0,40-1,00)	0,60 (0,40-1,00)	0,60 (0,40-1,00)
0,40 (0,30-0,90)	0,40 (0,30-0,90)	0,40 (0,30-0,90)
0,45 (0,35-0,95)	0,45 (0,35-0,95)	0,45 (0,35-0,95)
0,50 (0,40-1,00)	0,50 (0,40-1,00)	0,50 (0,40-1,00)
0,50 (0,40-1,00)	0,50 (0,40-1,00)	0,50 (0,40-1,00)
0,40 (0,30-0,90)	0,40 (0,30-0,90)	0,40 (0,30-0,90)
0,45 (0,35-0,95)	0,45 (0,35-0,95)	0,45 (0,35-0,95)
0,50 (0,40-1,00)	0,50 (0,40-1,00)	0,50 (0,40-1,00)
0,50 (0,40-1,00)	0,50 (0,40-1,00)	0,50 (0,40-1,00)
0,30 (0,10-0,90)	0,30 (0,10-0,90)	0,30 (0,10-0,90)
0,40 (0,20-1,00)	0,40 (0,20-1,00)	0,40 (0,20-1,00)
0,50 (0,30-1,10)	0,50 (0,30-1,10)	0,50 (0,30-1,10)
0,60 (0,40-1,20)	0,60 (0,40-1,20)	0,60 (0,40-1,20)
0,40 (0,10-0,90)	0,40 (0,10-0,90)	0,40 (0,10-0,90)
0,50 (0,20-1,00)	0,50 (0,20-1,00)	0,50 (0,20-1,00)
0,60 (0,30-1,10)	0,60 (0,30-1,10)	0,60 (0,30-1,10)
0,70 (0,40-1,20)	0,70 (0,40-1,20)	0,70 (0,40-1,20)
0,40 (0,10-0,90)	0,40 (0,10-0,90)	0,40 (0,10-0,90)
0,50 (0,20-1,00)	0,50 (0,20-1,00)	0,50 (0,20-1,00)
0,60 (0,30-1,10)	0,60 (0,30-1,10)	0,60 (0,30-1,10)
0,70 (0,40-1,20)	0,70 (0,40-1,20)	0,70 (0,40-1,20)

INDICATIONS OF APPLICATION:



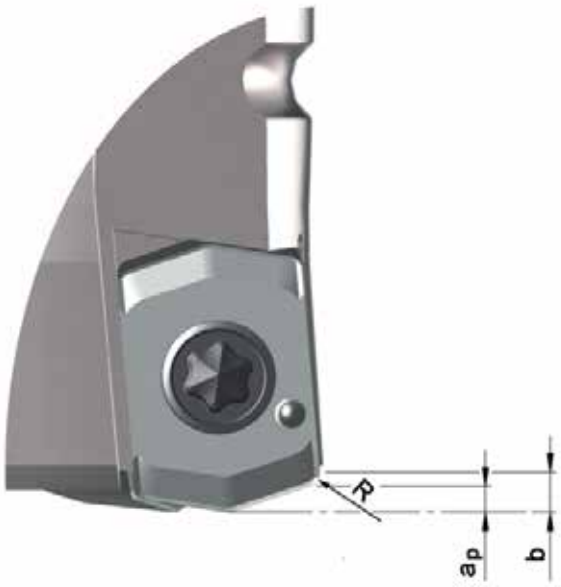
With the application of the PowerMill we recommend the programming in correspondence with a tool with radius.

Insert	R	K	α
FP 542	1,40	0,60	18,52°

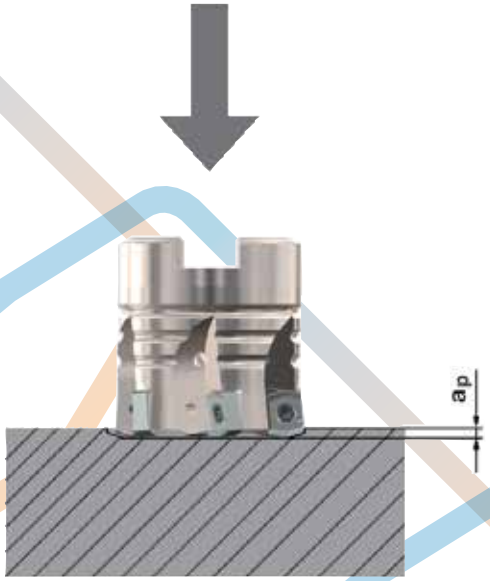
K= free milling area

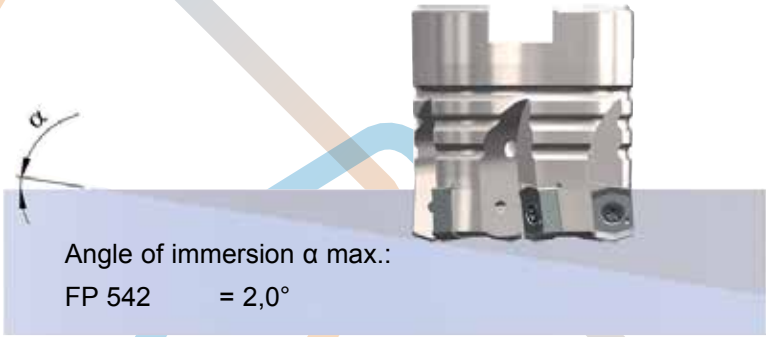
If the depth of cut is higher than measure “a_p”, the feed rate per tooth has to be reduced by 30%. Max. depth of cut see measure “b”.

Insert	a_p	b	R
FP 542	1,0	1,38	0,5



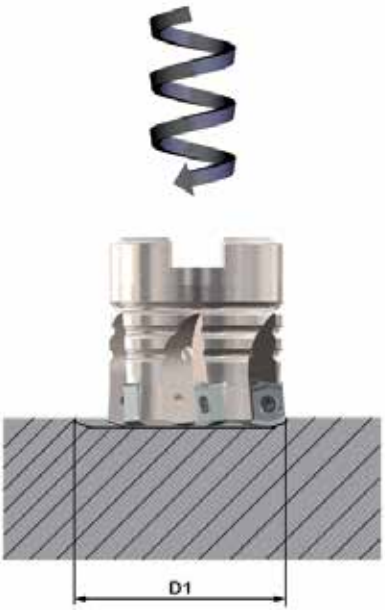
Slot milling by ramping:





Angle of immersion α max.:
FP 542 = 2,0°

Helix milling without pre-drilling:



D	ø D1 min.	ø D1 max.	a_p/turn	width insert
16	20	32	1	6
20	28	40	1	6
22	32	44	1	6
25	38	50	1	6
32	52	64	1	6
35	58	70	1	6
40	68	80	1	6
42	72	84	1	6
50	88	100	1	6
52	92	104	1	6

With the helix milling 50% of the normal feed rate per tooth is recommended.
The depth of immersion per turning should not exceed the measure „ap“ from picture „depth of cut“.

NOTES

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08/13