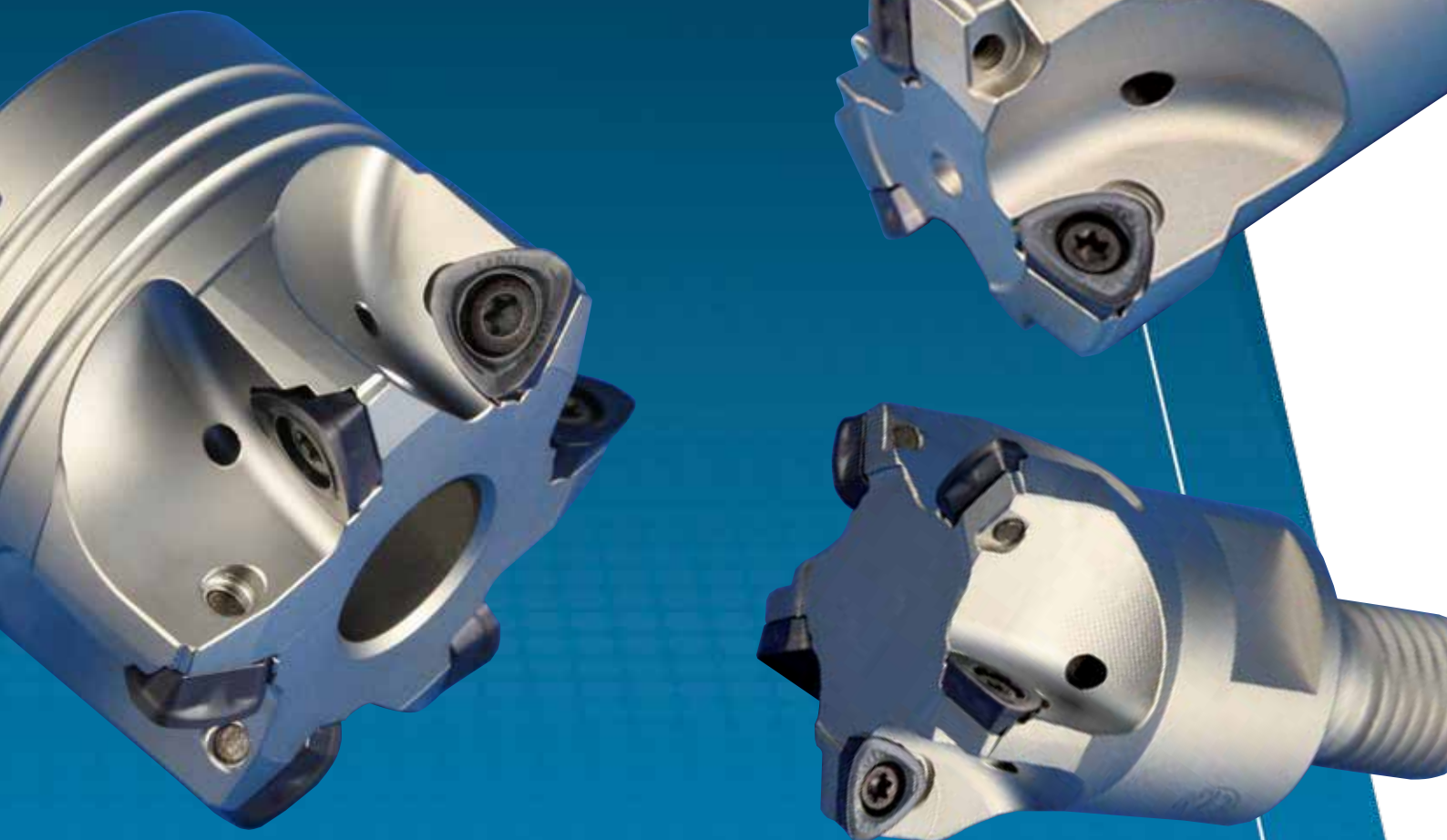


# POWERMILL

by Jongen



Jongen Werkzeugtechnik GmbH

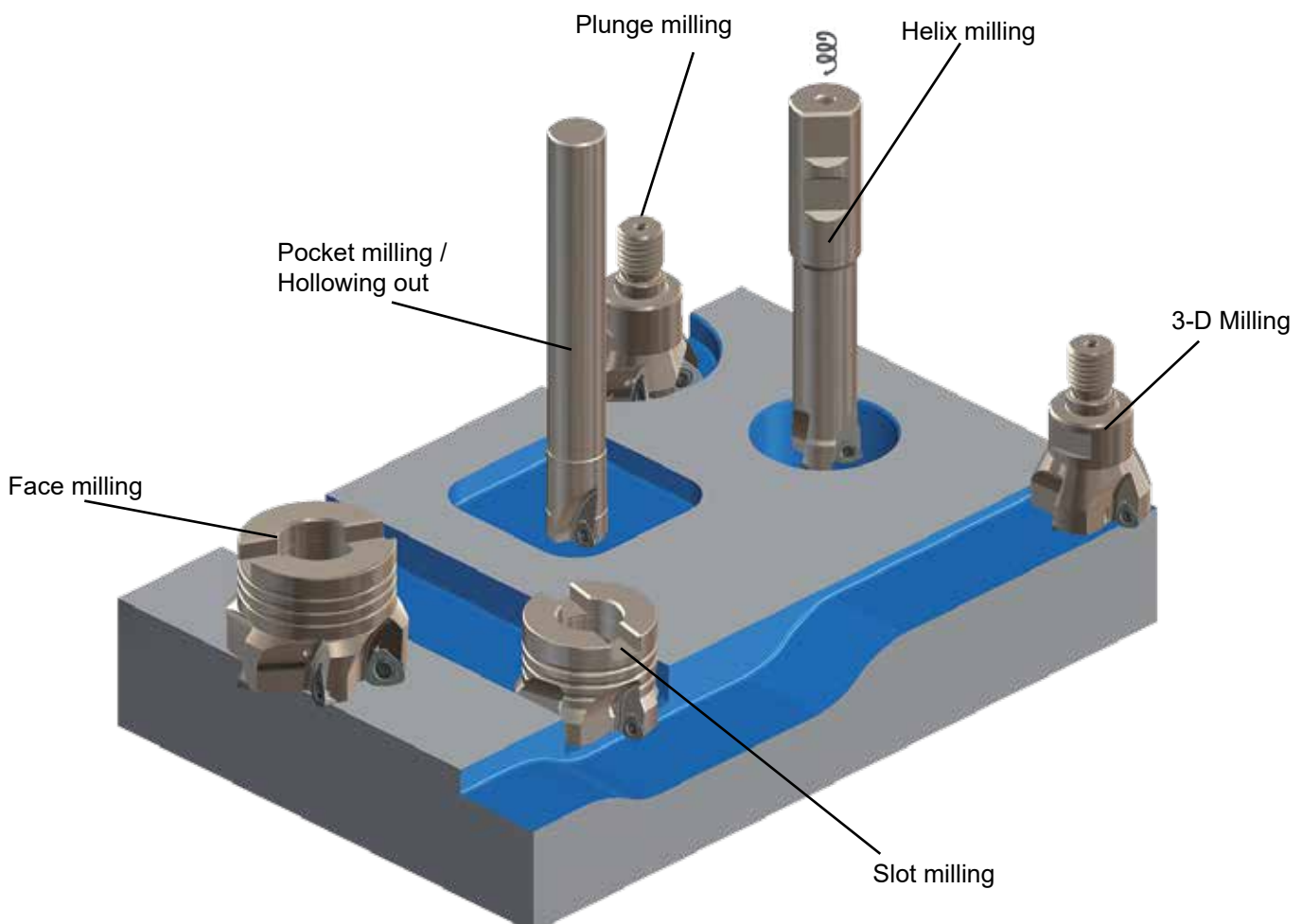


## Features:

- ☞ Highest feed rates with axial feed increment up to 2,5/3,5 mm
- ☞ Positive cutting geometry for axial feed increment
- ☞ Almost no radial cutting power

## Advantages:

- ☞ High chip volume per minute for low working time
- ☞ Suitable for almost all materials
- ☞ Applicable for great reaches
- ☞ Contour roughing possible
- ☞ Extreme stable inserts
- ☞ Very hard tools
- ☞ Different tool types allow flexible applications areas: Shell milling cutters, screw-in cutters, shank milling cutters with coupling made to DIN 1835-B, shank milling cutters without Weldon for big clamped lengths.
- ☞ Shell milling cutters with coupling made to DIN 8030 with internal coolant feed
- ☞ Screw-in cutters with internal coolant feed
- ☞ Shank milling cutters with coupling made to DIN 1835-B, with internal coolant feed
- ☞ Shank milling cutter without Weldon similar to DIN 1835-A, without internal coolant feed



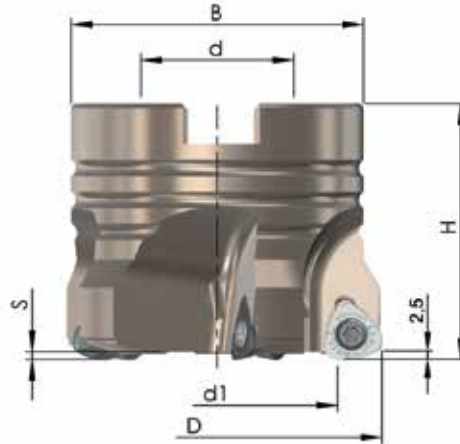
## Product group 540:



HFC



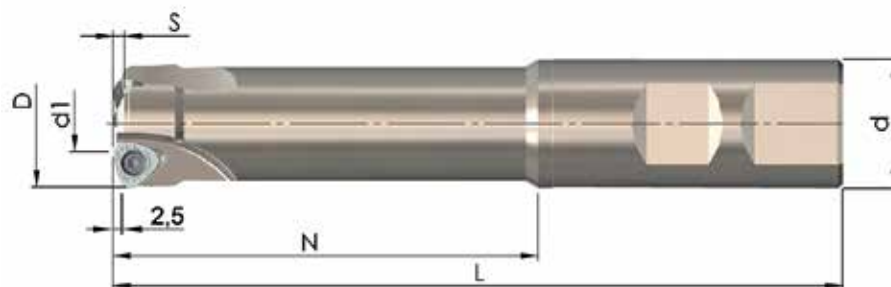
## Shell type mills



Order-No.	D	d <sub>1</sub>	H	d	B	S	Z	MS
00PP-040-540-4	40	26,4	40	16	32	1,0	4	MS-8x25-912
00PP-042-540-4	42	28,4	40	16	32	1,0	4	MS-8x25-912
00PP-050-540-4	50	36,4	40	22	46	1,0	4	MS-10x25-912
00PP-052-540-4	52	38,4	40	22	46	1,0	4	MS-10x25-912
00PP-063-540-5	63	49,3	50	27	54	1,0	5	MS-12x35-912
00PP-066-540-5	66	52,3	50	27	54	1,0	5	MS-12x35-912
<b>Close pitch</b>								
00PP-050-540-5	50	36,4	40	22	46	1,0	5	MS-10x25-912
00PP-052-540-5	52	38,4	40	22	46	1,0	5	MS-10x25-912
00PP-063-540-7	63	49,3	50	27	54	1,0	7	MS-12x35-912
00PP-066-540-7	66	52,3	50	27	54	1,0	7	MS-12x35-912

MS = Central Screw

## Shank Milling Cutter DIN 1835-B (Weldon):



The tool coupling is made to DIN 1835-B (Weldon)

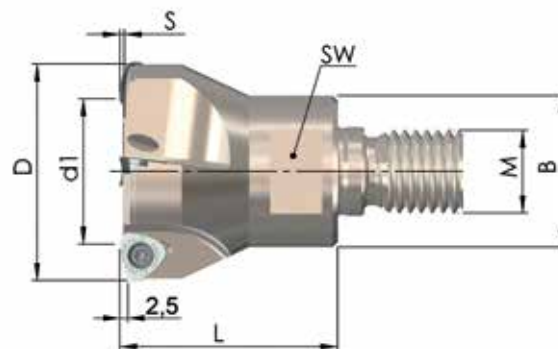
Order-No.	D	d <sub>1</sub>	L	d	N	S	Z
00PP-20-540-2-80	20	8,3	135,5	20	80	1,0	2
00PP-22-540-2-80	22	10,2	135,5	20	80	1,0	2
00PP-25-540-3-80	25	12,6	141,5	25	80	1,0	3
00PP-25-540-3-125	25	12,6	186,5	25	125	1,0	3
00PP-32-540-3-80	32	19,0	141,5	25	80	1,0	3
00PP-32-540-3-125	32	19,0	186,5	25	125	1,0	3
00PP-40-540-4-80	40	26,4	145,5	32	80	1,0	4
00PP-40-540-4-125	40	26,4	190,5	32	125	1,0	4

## Shank Milling Cutter DIN 1835-A (without Weldon)



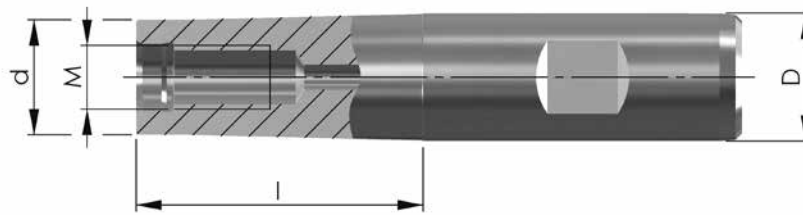
Order-No.	D	d <sub>1</sub>	L	d	N	S	Z
00PP-20-540-2-160	20	8,3	160	20	35	1,0	2
00PP-22-540-2-160	22	10,2	160	20	40	1,0	2
00PP-25-540-3-170	25	12,6	170	25	35	1,0	3
00PP-32-540-3-195	32	19,0	195	25	40	1,0	3
00PP-40-540-4-195	40	26,4	195	32	40	1,0	4

## Srew-In cutters



Order-No.	D	d <sub>1</sub>	L	M	B	SW	S	Z
ESF-20-M10-540-2	20	8,3	28	M10	18,5	SW16	1,0	2
ESF-22-M10-540-2	22	10,2	28	M10	21,0	SW16	1,0	2
ESF-25-M12-540-3	25	12,6	32	M12	24,0	SW18	1,0	3
ESF-32-M16-540-3	32	19,0	42	M16	29,0	SW24	1,0	3
ESF-35-M16-540-3	35	21,4	42	M16	29,0	SW24	1,0	3
ESF-40-M16-540-4	40	26,4	42	M16	29,0	SW24	1,0	4
ESF-42-M16-540-4	42	28,4	42	M16	29,0	SW24	1,0	4
<b>Close pitch</b>								
ESF-32-M16-540-4	32	19,0	42	M16	29,0	SW24	1,0	4
ESF-35-M16-540-4	35	21,4	42	M16	29,0	SW24	1,0	4
ESF-40-M16-540-5	40	26,4	42	M16	29,0	SW24	1,0	5
ESF-42-M16-540-5	42	28,4	42	M16	29,0	SW24	1,0	5















## Holders for threaded type cutter:



Order-No.	D	M	d	l
FS20W-M10-25	20	M10	18	25
FS20W-M10-45	20	M10	18	45
FS25W-M12-30	25	M12	21	30
FS25W-M12-50	25	M12	21	50
FS32W-M16-30	32	M16	29	30
FS32W-M16-50	32	M16	29	50

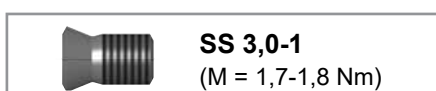
For further holders > see the separate catalogue "Holders for Threaded Type Cutters"

## Inserts:

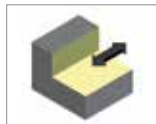
		HT45 (code 31)	HT50 (code 22)	HT32 (code 33)	HT30 (code 29)	KT28 (code 23)	XC35 (code 46)	
	<b>FP 540</b> (A11) IK 7,85x3,0							
	$f_z$ [mm]		0,70 (0,50-1,50)			0,70 (0,50-1,50)	0,70 (0,50-1,50)	
	<b>FP 541</b> (A11) IK 7,85x3,0							
	$f_z$ [mm]	0,70 (0,50-1,50)		0,70 (0,50-1,50)				
	<b>FP 640</b> (A11) IK 7,85x3,0							
	$f_z$ [mm]	0,70 (0,50-1,50)	0,70 (0,50-1,50)	0,70 (0,50-1,50)	0,70 (0,50-1,50)		0,70 (0,50-1,50)	
	VPE	20	20	20	20	20	20	

$V_c$ [m/min]	Steel	Stainless	Cast iron	Non-ferrous metals	Highly heat-resistant	Tempered
HT45	250 (200 - 350)	220 (140 - 300)	240 (130 - 280)			
HT50	220 (160 - 300)	200 (100 - 300)	260 (200 - 300)			
HT32	250 (200 - 350)	240 (140 - 300)			60 (40 - 200)	
HT30		240 (140 - 300)			60 (40 - 200)	
KT28			260 (180 - 350)			80 (40 - 120)
XC35	120 (60 - 160)	100 (60 - 180)			80 (60 - 120)	

## Spare parts:



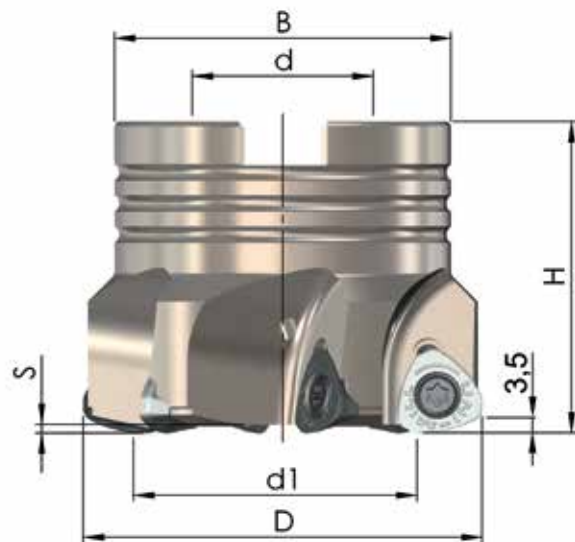
## Product group 545:



HFC



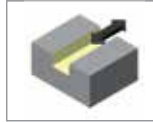
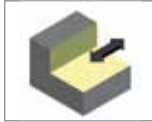
## Shell type mills



Order-No	D	d <sub>1</sub>	H	d	B	S	Z	MS
00PP-050-545-4	50	29,6	40	22	46	1,35	4	MS-10x25-912
00PP-052-545-4	52	31,6	40	22	46	1,35	4	MS-10x25-912
00PP-063-545-5	63	42,5	50	27	54	1,35	5	MS-10x30-912
00PP-066-545-5	66	45,5	50	27	54	1,35	5	MS-10x30-912
00PP-080-545-5	80	59,5	50	32	64	1,35	5	MS-16x30-912
00PP-100-545-6	100	79,5	50	32	64	1,35	6	MS-16x30-912
00PP-125-545-7	125	104,5	50	40	90	1,35	7	MS-20x45-7991
00PP-160-545-8	160	140,0	50	40	90	1,35	8	MS-20x45-7991
<b>close pitch:</b>								
00PP-052-545-5	52	31,6	40	22	46	1,35	5	MS-10x25-912
00PP-063-545-6	63	42,5	50	27	54	1,35	6	MS-10x30-912
00PP-066-545-6	66	45,5	50	27	54	1,35	6	MS-10x30-912
00PP-080-545-6	80	59,5	50	32	64	1,35	6	MS-16x30-912

MS = Central Screw

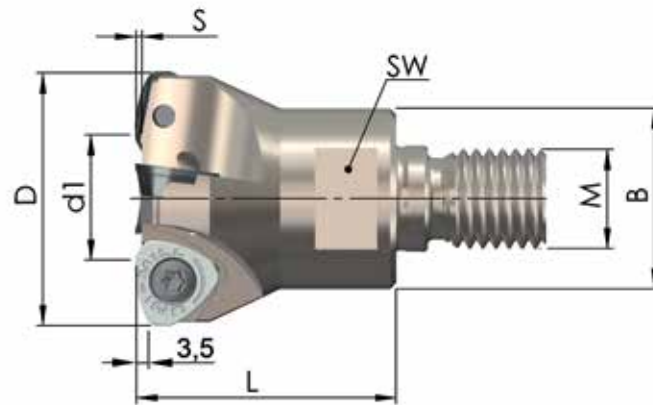
## Product group 545:



HSC

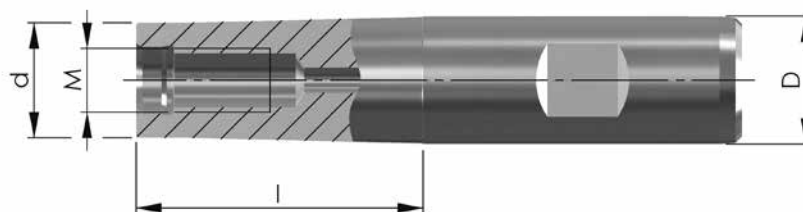


## Screw-In cutters



Order-No	D	d1	L	M	B	SW	S	Z
ESF-32-M16-545-3	32	15,0	40	M16	29	SW24	1,8	3
ESF-35-M16-545-3	35	16,0	40	M16	29	SW24	1,8	3
ESF-40-M16-545-4	40	20,8	42	M16	29	SW24	1,3	4
ESF-42-M16-545-4	42	22,5	42	M16	29	SW24	1,3	4















## Holders for threaded type cutter:



Order-No	D	M	d	l
FS32W-M16-30	32	M16	29	30
FS32W-M16-50	32	M16	29	50


For further holders > see the separate catalogue "Holders for Threaded Type Cutter"

Inserts:

		HT45 (code 31)	HT50 (code 22)	HT30 (code 29)	HT32 (code 33)	XC35 (code 46)	KT28 (code 23)	
	<b>FP 545</b> (A12) IK 12,0x5,0							
	$f_z$ [mm]		1,0 (0,50-2,50)			1,0 (0,50-2,50)	1,0 (0,50-2,50)	
	<b>FP 546</b> (A12) IK 12,0x5,0							
	$f_z$ [mm]	1,0 (0,50-2,50)			1,0 (0,50-2,50)			
	<b>FP 645</b> (A12) IK 12,0x5,0							
	$f_z$ [mm]	1,0 (0,50-2,50)	1,0 (0,50-2,50)	1,0 (0,50-2,50)	1,0 (0,50-2,50)	1,0 (0,50-2,50)		
	VPE	20	20	20	20	20		

$V_c$ [m/min]	Stahl Steel Acier Acciaio	Rostfrei Stainless Acier inoxydable Inossidabile	Guss Cast iron Fonte Ghisa	NE-Metalle Non-ferrous metals Non ferreux Metalli non ferritici	Hochwarmfest Highly heat-resistant Superalliages Resistente al calore	Gehärtet Tempered Aciers traités Temprato
HT45	250 (200 - 350)	220 (140 - 300)	240 (130 - 280)			
HT50	220 (160 - 300)	200 (100 - 300)	260 (200 - 300)			
HT30		240 (140 - 300)			60 (40 - 200)	
HT32	250 (200 - 350)	240 (140 - 300)			60 (40 - 200)	
XC35	120 (60 - 160)	100 (60 - 180)			80 (60 - 120)	
KT28			260 (180 - 350)			80 (40 - 120)

Spare parts:

 **SS 4,5-1**  
(M = 4,6-4,8 Nm)

 **T 20**

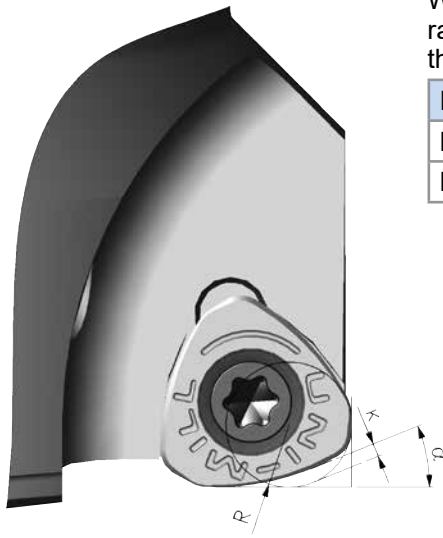
 **Fett**  
Grease, Graisse, Grasso



## Indications of application:

With the application of the PowerMill the insert radius has to be considered by programming the milling operation . –see table –

Insert	R	K	$\alpha$
FP 540/640	3	0,63	22,0°
FP 545/645	4	1,08	24,3°



K= free milling area

### Feed:

If the feed increment is bigger than "a", the feed rate per tooth must be reduced to 30%.

Max. feed increment see "b".

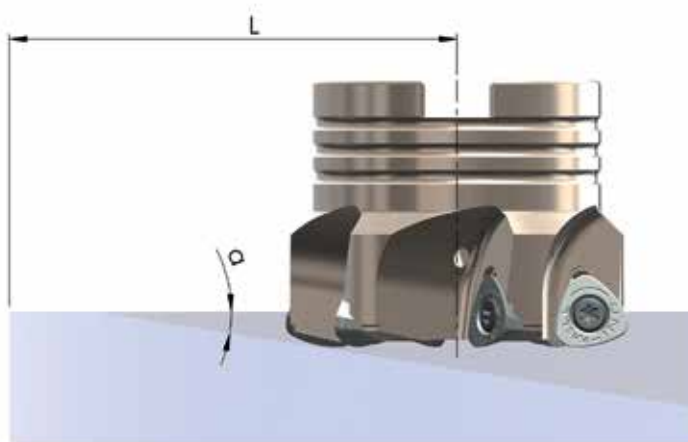
Insert	a	b	R
FP 540/640	1,50	2,5	1,3
FP 545/645	2,15	3,5	2,0



## Slot milling by ramping:

Angle of immersion  $\alpha$  max.:

Insert JMA11-... = 1,5°  
 Insert JMA12-... = 2,0°



D	Ramping angle max. $\alpha$ (°)	Processing path min. L (mm)	$a_p$ max	Insert width	Insert
20	4,3	20	1,50	7,85	JMA11-...
22	3,8	23	1,50	7,85	JMA11-...
25	3,1	27	1,50	7,85	JMA11-...
32	2,3	38	1,50	7,85	JMA11-...
35	2,0	42	1,50	7,85	JMA11-...
40	1,7	50	1,50	7,85	JMA11-...
42	1,6	53	1,50	7,85	JMA11-...
50	1,3	65	1,50	7,85	JMA11-...
52	1,3	68	1,50	7,85	JMA11-...
63	1,0	84	1,50	7,85	JMA11-...
66	1,0	89	1,50	7,85	JMA11-...
32	4,6	20	2,15	12,00	JMA12-...
35	4,0	23	2,15	12,00	JMA12-...
40	2,2	28	2,15	12,00	JMA12-...
42	2,1	30	2,15	12,00	JMA12-...
50	1,1	57	2,15	12,00	JMA12-...
52	1,6	40	2,15	12,00	JMA12-...
63	1,2	51	2,15	12,00	JMA12-...
66	1,2	54	2,15	12,00	JMA12-...
80	0,9	68	2,15	12,00	JMA12-...
100	0,7	88	2,15	12,00	JMA12-...
125	0,6	113	2,15	12,00	JMA12-...
160	0,4	148	2,15	12,00	JMA12-...

## Helix milling without pre-drilling:



With the helix milling 50% of the normal feed rate per tooth is recommended  
The depth of immersion per turning should not exceed “a” see page 9.

## Type A11

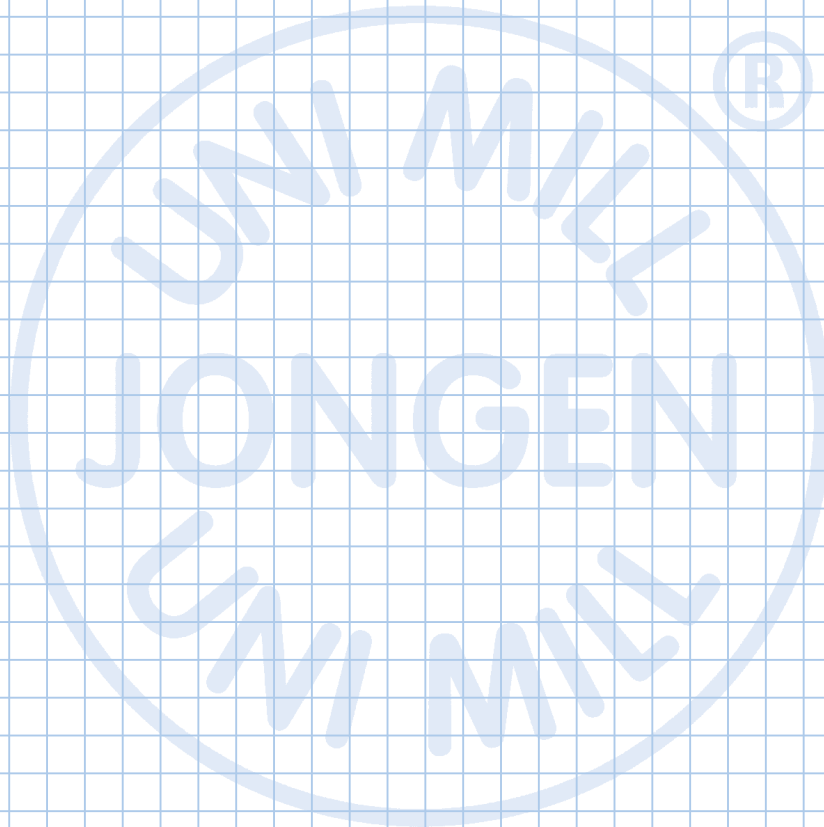
Type A11 ø Tool	ø D1 min	ø D1 max. (node formation)
20	27	40
22	27	44
25	32	50
32	46	64
35	52	70
40	62	80
42	66	84
50	82	100
52	86	104
63	108	126
66	114	132

## Type A12

Type A12 ø Tool	ø D1 min	ø D1 max. (node formation)
32	-	-
35	-	-
40	-	-
42	-	-
50	82	100
52	86	104
63	108	126
66	114	132
80	142	160
100	182	200
125	232	250
160	302	320

Notes:

Milling tools ...



... made by JONGEN

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