

Jongen Werkzeugtechnik



538

Face Milling

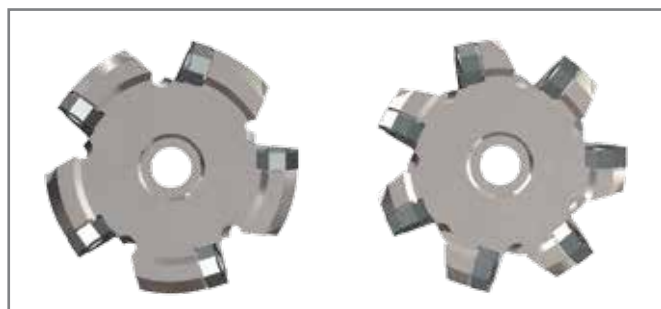


THE TOOL

- ☞ Especially efficient face milling cutter for the roughing and finishing machining
- ☞ Axial depth of cut max. 3,0 mm, with 16 effective cutting edges
- ☞ Tools are made of tempered and solid tool steel in order to resist highest charges
- ☞ Thanks to the nickel-coated surfaces of the tools, a higher resistance can be obtained against reweldings and corrosion

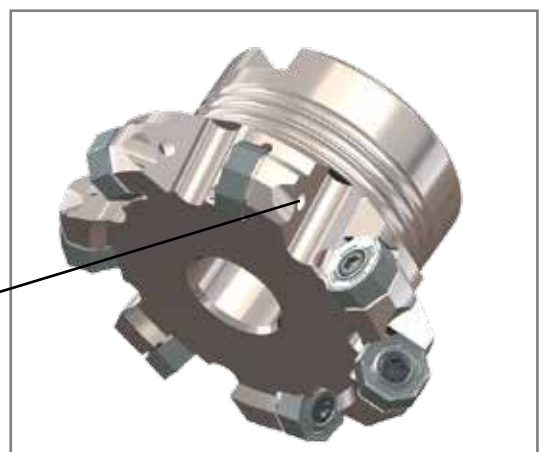
CHARACTERISTICS

- ☞ Face milling, roughing and finishing tool for processing steel, stainless steel and cast iron.
- ☞ Special features of this new face milling generation are the high number of teeth and the soft cutting manner, thanks to the effectively positive rake angle.
- ☞ Highest productivity on small and middle size machines.
- ☞ Different versions of number of teeth allow an optimal choice for the required machining process.



- ☞ All face mills include internal coolant passages

internal coolant passage



THE INSERT

☞ Precision sintered, with 16 effective cutting edges, highly positive chip breaker, axial depth of cut max. 3,0 mm



FP 538

FP 838

☞ Application areas: All kind of steels, high-grade steels and cast iron materials

Following carbide qualities are offered:

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 steels and cast iron qualities such as: Structural steel, tool steel, heat-treatable steel, as well as unalloyed steel, low alloyed steel, high alloyed steel and also grey cast iron, globular raphite cast iron etc.

HT32



Code 33 - ISO-Classification M20 - M30

Hard wearing and tough finest grain carbide with a AlTiN- Nanocomposit-coating for middle – high cutting speeds and middle feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing high grade materials, tool steel and stainless steel.

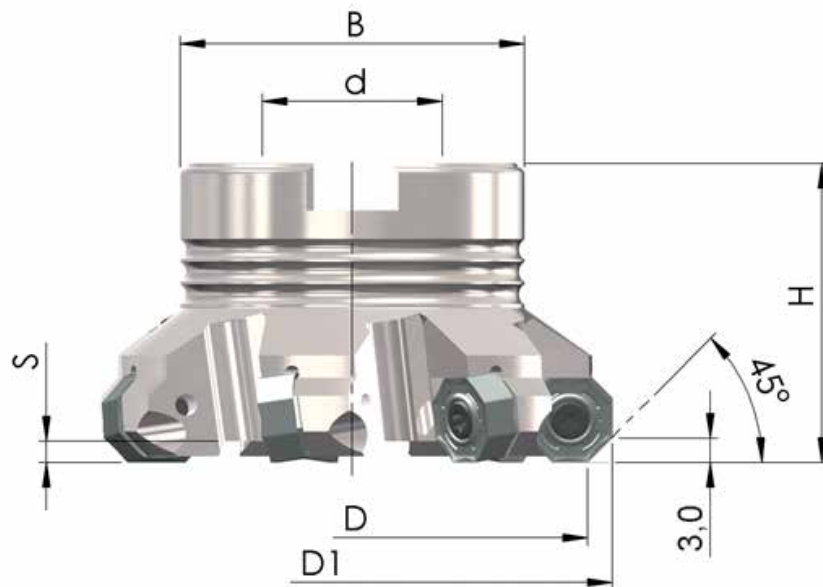
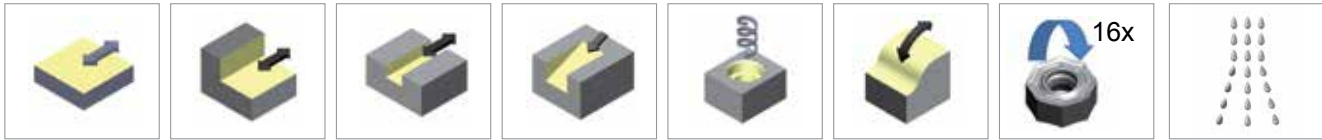
HT20



Code 32 - ISO-Classification K15 - K20

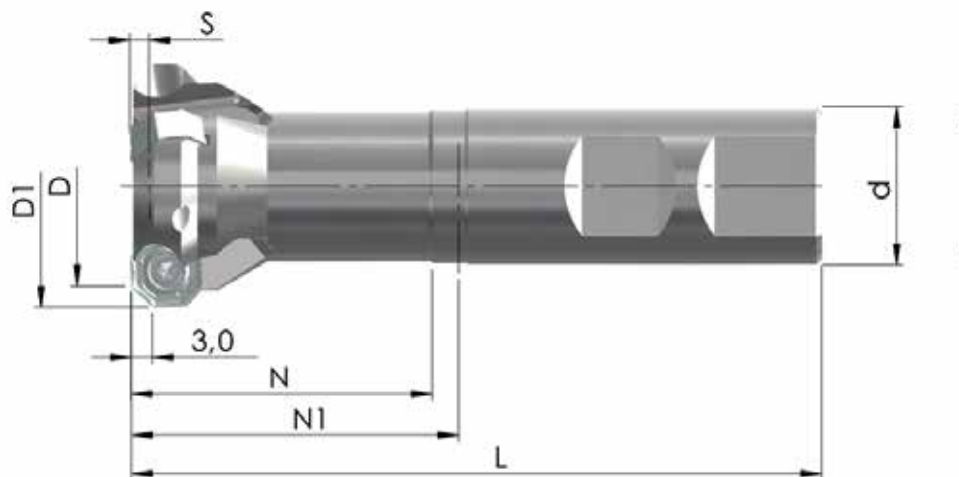
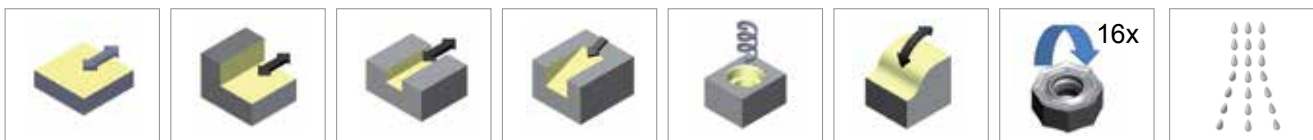
Very hard wearing fine grain carbide with a AlTiN- Nanocomposit-coating for middle – high cutting speeds with high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing of cast iron materials, e.g. grey-, tempered-, vermicular-, graphite- and globular graphite cast iron.

TECHNICAL DATA

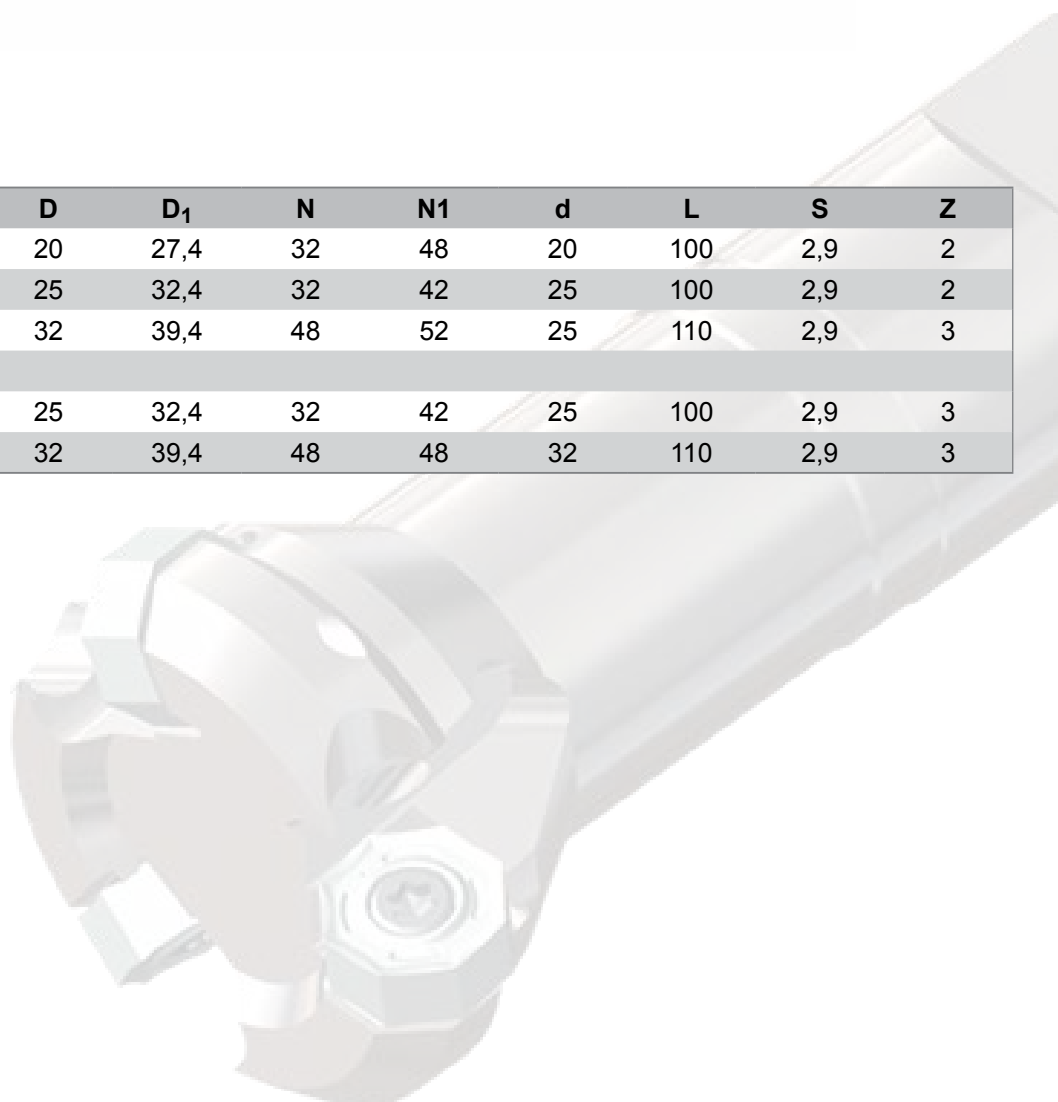


Order-Nr.	D	D ₁	H	d	B	S	Z	MS
45PP-040-538-4	40	47,4	40	22	38	2,9	4	MS-10x25-912
45PP-050-538-5	50	57,4	40	22	46	2,9	5	MS-10x25-912
45PP-063-538-5	63	70,4	40	22	46	2,9	5	MS-10x25-912
45PP-080-538-6	80	87,4	50	27	58	2,9	6	MS-12x30-912
45PP-100-538-9	100	107,4	50	32	78	2,9	9	MS-16x30-912
45PP-125-538-10	125	132,4	63	40	90	2,9	10	MS-20x45-7991
<u>Close teeth pitch</u>								
45PP-040-538-5	40	47,4	40	22	38	2,9	5	MS-10x25-912
45PP-050-538-6	50	57,4	40	22	46	2,9	6	MS-10x25-912
45PP-063-538-7	63	70,4	40	22	46	2,9	7	MS-10x25-912
45PP-080-538-9	80	87,4	50	27	58	2,9	9	MS-12x30-912
45PP-100-538-11	100	107,4	50	32	78	2,9	11	MS-16x30-912
45PP-125-538-13	125	132,4	63	40	90	2,9	13	MS-20x45-7991












TECHNICAL DATA



Order-Nr.	D	D ₁	N	N ₁	d	L	S	Z
45PP-20-20-538-2	20	27,4	32	48	20	100	2,9	2
45PP-25-25-538-2	25	32,4	32	42	25	100	2,9	2
45PP-32-25-538-3	32	39,4	48	52	25	110	2,9	3
Close teeth pitch								
45PP-25-25-538-3	25	32,4	32	42	25	100	2,9	3
45PP-32-32-538-3	32	39,4	48	48	32	110	2,9	3



Inserts

		HT45 (code 31)	HT32 (code 33)	HT20 (code 32)				
 FP 538 (A16) IK 11,4x5,2								
	f_z [mm]	0,15 (0,10-0,30)	0,15 (0,10-0,30)	0,20 (0,15-0,50)				
 FP 838 (A16) IK 11,4x5,2								
	f_z [mm]	0,15 (0,10-0,30)	0,15 (0,10-0,30)	0,20 (0,15-0,50)				
	VPE	20	20	20				

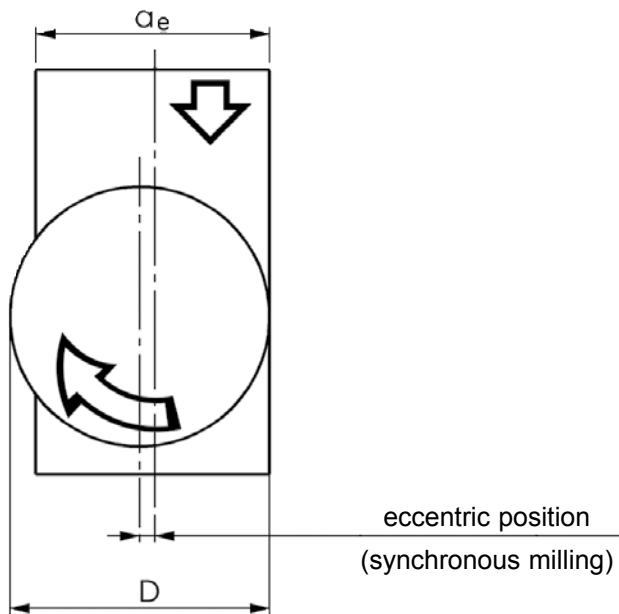
V_c [m/min]	steel	stainless	cast iron	non-ferrous metals	highly heat- resistant	tempered
HT45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT32	250 (200 - 350)	240 (140 - 300)			60 (40 - 200)	
HT20			260 (180 - 350)			80 (40 - 120)

Spare Parts

 SS 3,5-2 (M = 2,3-2,5 Nm)	 T 15	 100g
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ELECTION OF THE OPTIMAL TOOL

Optimal choice of tool diameter:



Calculation example:

$$a_e = 50 \text{ mm}$$

$$D = 50 \times 1,2 = 60$$

→ Here the correct tool diam. would be 63 mm.

a_e = radial depth of cut

D = tool diameter

Optimal choice of a tool type:

Regular pitch:

universal milling and application

Close pitch:

maximal number of teeth for high capacity under steady conditions

FURTHER TECHNICAL INFORMATION

Calculation of rotation number of main spindle:

$$n = \frac{1000 \cdot v_c}{D \cdot \pi} \text{ [min}^{-1}\text{]}$$

n = Rotation number (min^{-1})

v_c = Cutting speed (m/min)

D = Diameter of a tool (mm)

Calculation of feed velocity:

$$v_f = f_z \cdot Z \cdot n \text{ [mm/min]}$$

V_f = Total feed (mm/min)

f_z = Feed rate per tooth (mm)

Z = Number of teeth

n = Rotation number (min^{-1})

