



Jongen Werkzeugtechnik



Face Milling **A16**

Products from



Willich



North Rhine-Westphalia



Germany



Europe

for



Europe

and the

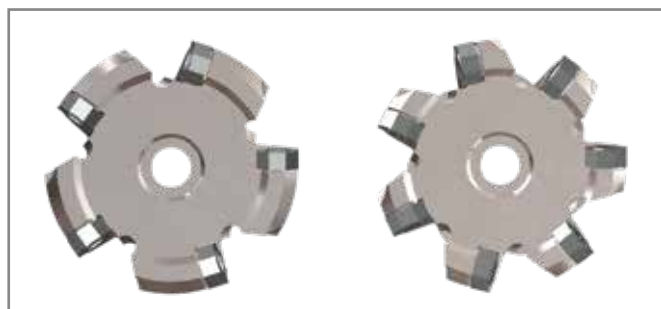


THE TOOL

- ☞ 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

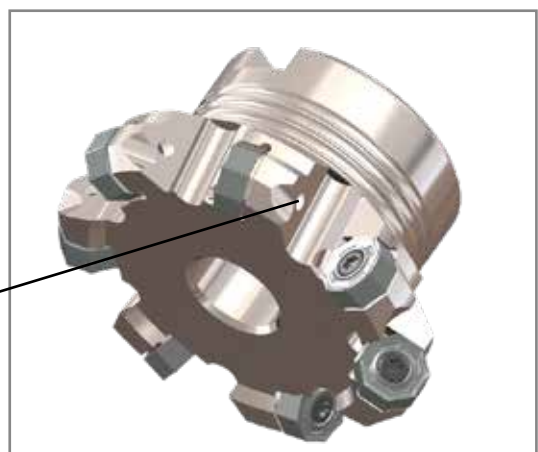
CHARACTERISTICS

- ☞ 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.



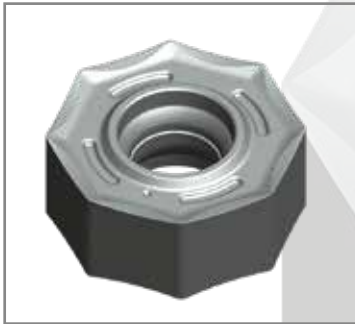
- ☞ All face mills include internal coolant passages

internal coolant passage

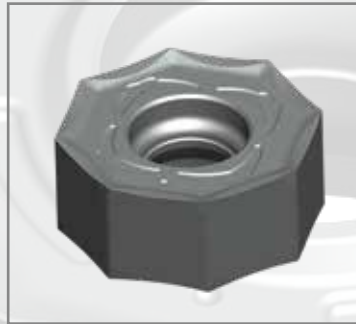


THE INSERT

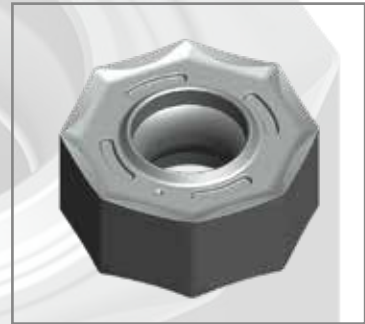
☞ 16 effective cutting edges, highly positive chip breaker,
axial depth of cut max. 3,0 mm



JMA16-538



JMA16-738



JMA16-838

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

Following carbide qualities are offered:

HT45



Code 31 - DIN-ISO 513 Classification P30-P35, M25-M30, K20-K30

Very tough fine grain carbide with an AlTiN- Nanocomposit-coating for middle to 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 almost all steels and cast iron qualities such as: structural steel, tool steel, heattreatable steel as well as unalloyed steel, low alloyed steel, high alloyed steel and also grey cast iron, globular graphite cast iron etc.

HC45



Code 41 - DIN-ISO 513 Classification P30-P35, M25-M30, K20-K30

Very tough fine grain quality with a thick HIPIMS-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 such as structural steel, tool steel, heat-treatable steel as well as unalloyed, low alloyed and high alloyed steel, and also cast-qualities such as grey cast iron, globular graphite cast iron etc.

HT32



Code 33 - DIN-ISO 513 Classification P20-P30, M25-M30, S20-S30

Hard wearing and tough finest grain carbide with an AlTiN- Nanocomposit-coating for medium to high cutting speeds and middle feed rates. This quality is equally applicable for dry as well as wet milling. It is especially suited for processing stainless steel, tool steel as well as high alloyed steel.

HC30



Code 52 - DIN-ISO 513 Classification P20-P30, M25-M30, S20-S30

Hard wearing and tough finest grain carbide with HIPIMS-coating for middle 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 steel as well as high alloyed materials.

XC35



Code 46 - DIN-ISO 513 Classification P20-P30, M20-M30, S15-S25

Wear resistant and tough finest grain hard metal quality with HIPIMS-coating. On the basis of the experience gained wet machining is preferably to be adopted with this quality; however the dry processing is also possible. XC35 has been especially developed for processing stainless steel, duplex steel and high-alloyed materials, but also for titanium etc.

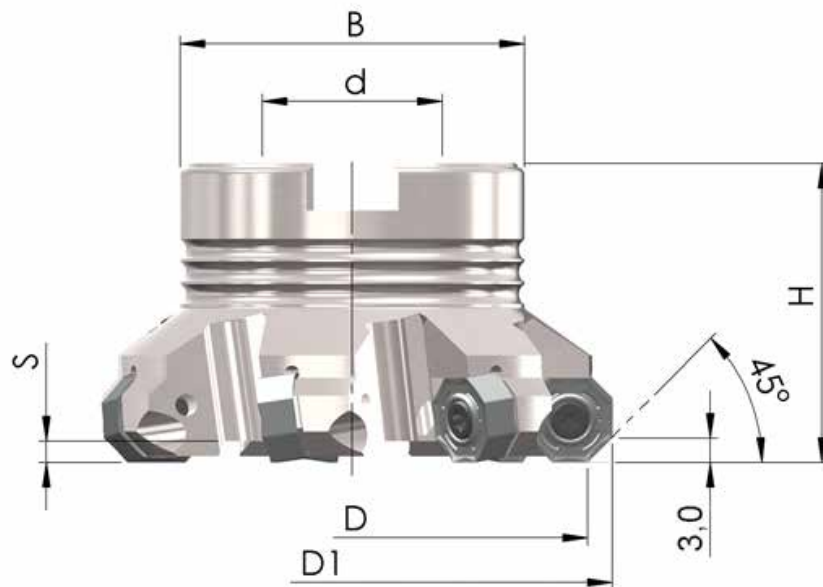
HT20



Code 32 - DIN-ISO 513 Classification K15-K20, H15-H20

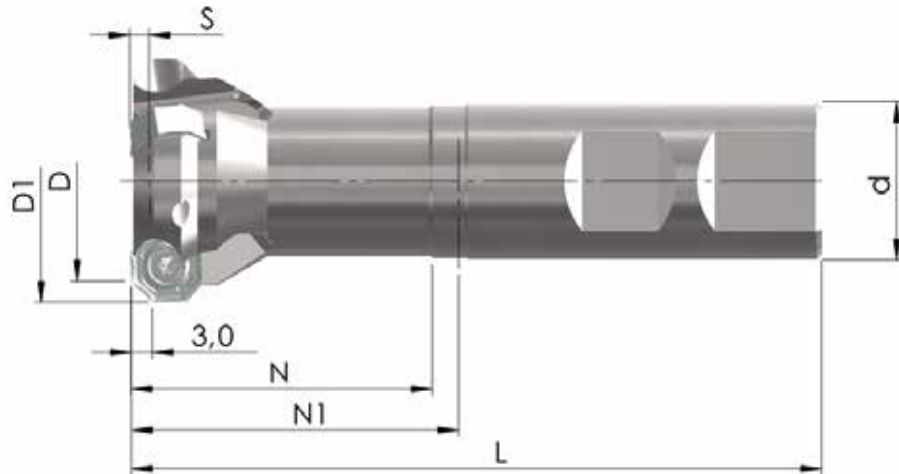
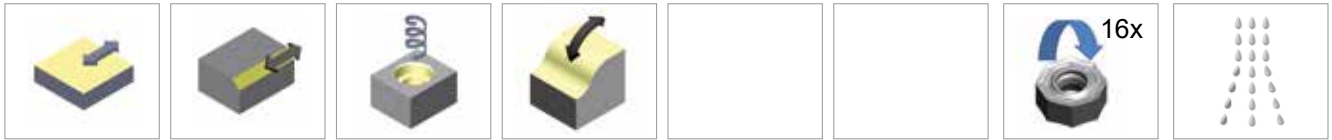
Very hard wearing fine grain carbide with an AlTiN- Nanocomposit-coating for middle – high cutting speeds with high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing of cast iron materials, e.g. grey-, tempered-, vermicular-,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

TECHNICAL DATA

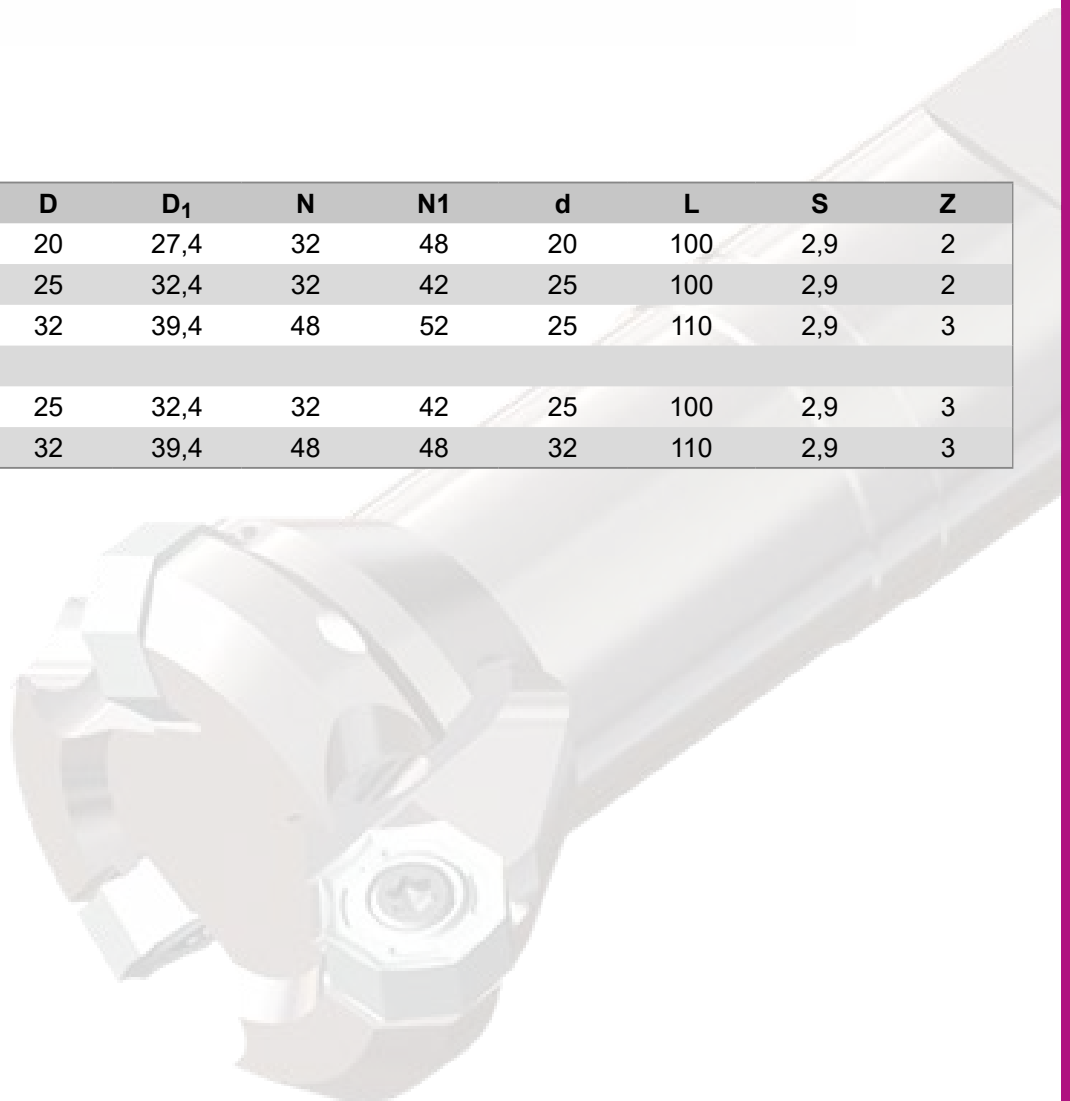


Order-Nr.	D	D ₁	H	d	B	S	Z	MS
45PP-040-538-4	40	47,4	40	22	38	2,9	4	MS-10x25-912
45PP-050-538-5	50	57,4	40	22	46	2,9	5	MS-10x25-912
45PP-063-538-5	63	70,4	40	22	46	2,9	5	MS-10x25-912
45PP-080-538-6	80	87,4	50	27	58	2,9	6	MS-12x30-912
45PP-100-538-9	100	107,4	50	32	78	2,9	9	MS-16x30-912
45PP-125-538-10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



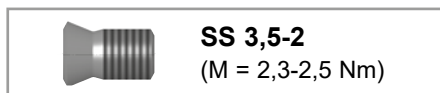
Inserts

			HC45 (code 41)	HT45 (code 31)	HT32 (code 33)	HC30 (code 52)	XC35 (code 46)	HT20 (code 32)	
	JMA16-538- IK 11,4x5,2 	Order-No.		A16A-DN31	A16A-CL33			A16A-BD32	
	f_z [mm]			0,15 (0,10-0,30)	0,15 (0,10-0,30)			0,20 (0,15-0,50)	
	JMA16-738- IK 11,4x5,2 	Order-No.	A16B-DR41			A16B-CP52	A16B-ES46		
	f_z [mm]		0,15 (0,10-0,30)			0,15 (0,10-0,30)	0,15 (0,10-0,30)		
	JMA16-838- IK 11,4x5,2 	Order-No.		A16B-HW31	A16B-GU33			A16B-FT32	
	f_z [mm]			0,15 (0,10-0,30)	0,15 (0,10-0,30)			0,20 (0,15-0,50)	
			20	20	20	20	20	20	

Key to symbols see catalogue page XV-39

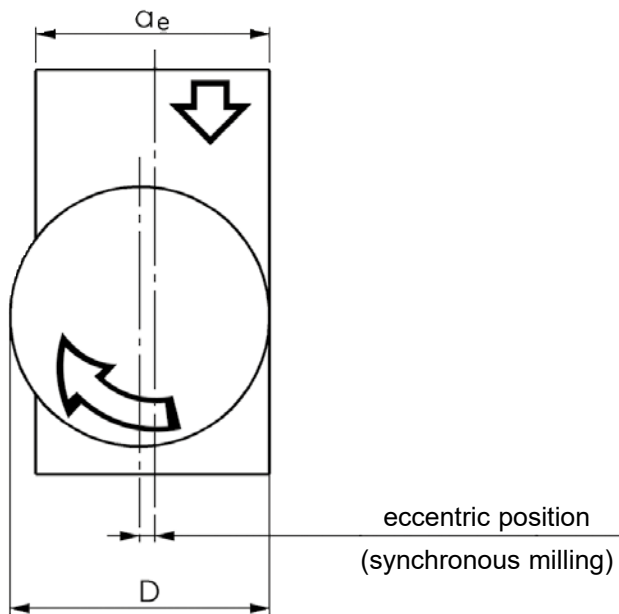
V_c [m/min]	steel	stainless	cast iron	non-ferrous metals	highly heat-resistant	tempered
HC45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT32	250 (200 - 350)	240 (140 - 300)			60 (40 - 200)	
HC30	160 (120 - 220)	200 (100 - 300)			60 (40 - 200)	
XC35	120 (60 - 120)	100 (60 - 180)			80 (40 - 200)	
HT20			260 (180 - 350)			80 (40 - 120)

Spare Parts



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:

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

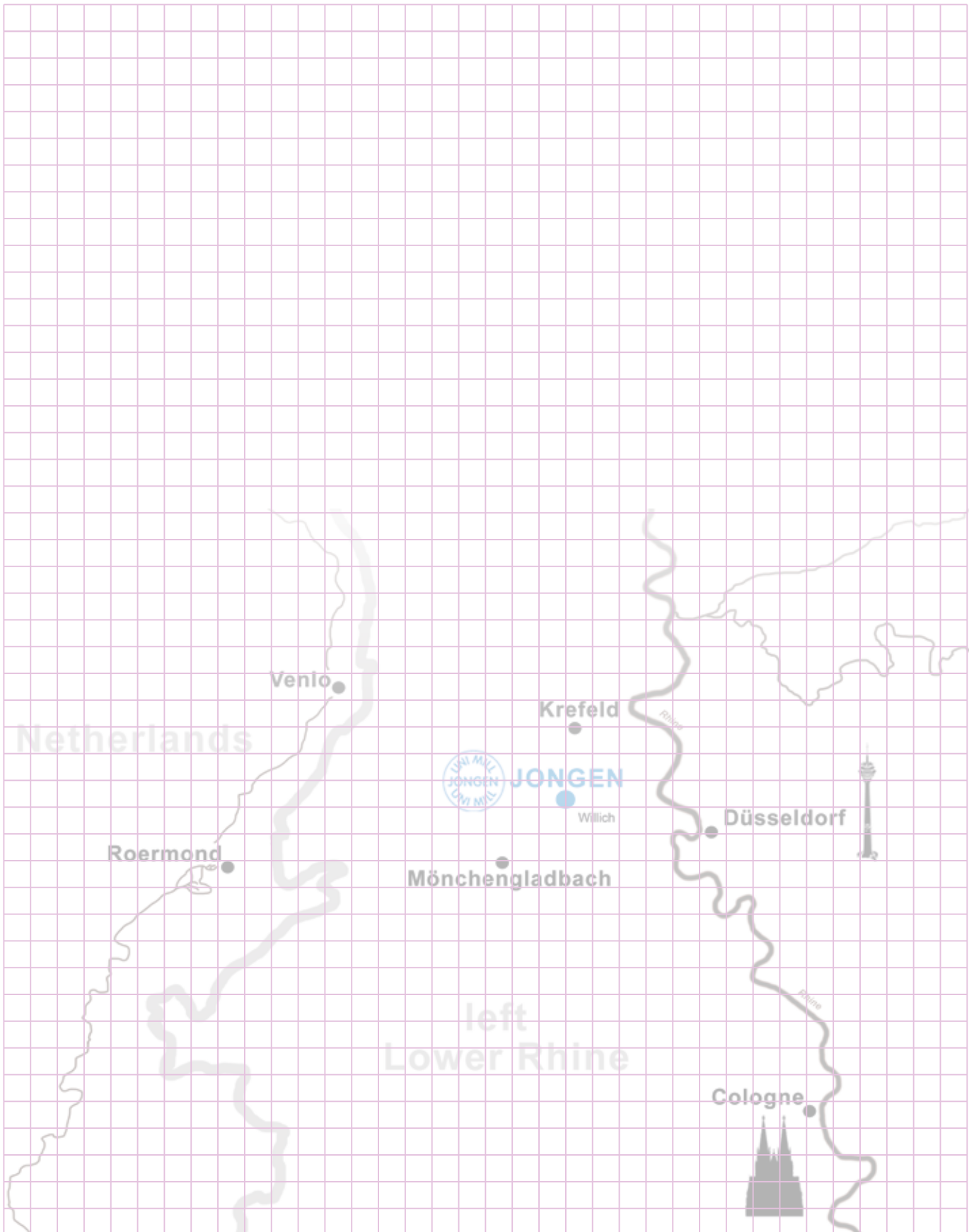
V_f = Total feed (mm/min)

f_z = Feed rate per tooth (mm)

Z = Number of teeth

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

NOTES



E & OE



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