



**Step Milling System**

# Type B32

**ap max. 6 mm**  
**eff. 6 cutting edges**



Products from



Willich



North-Rhine  
Westphalia



Germany



Europe

for



Europe

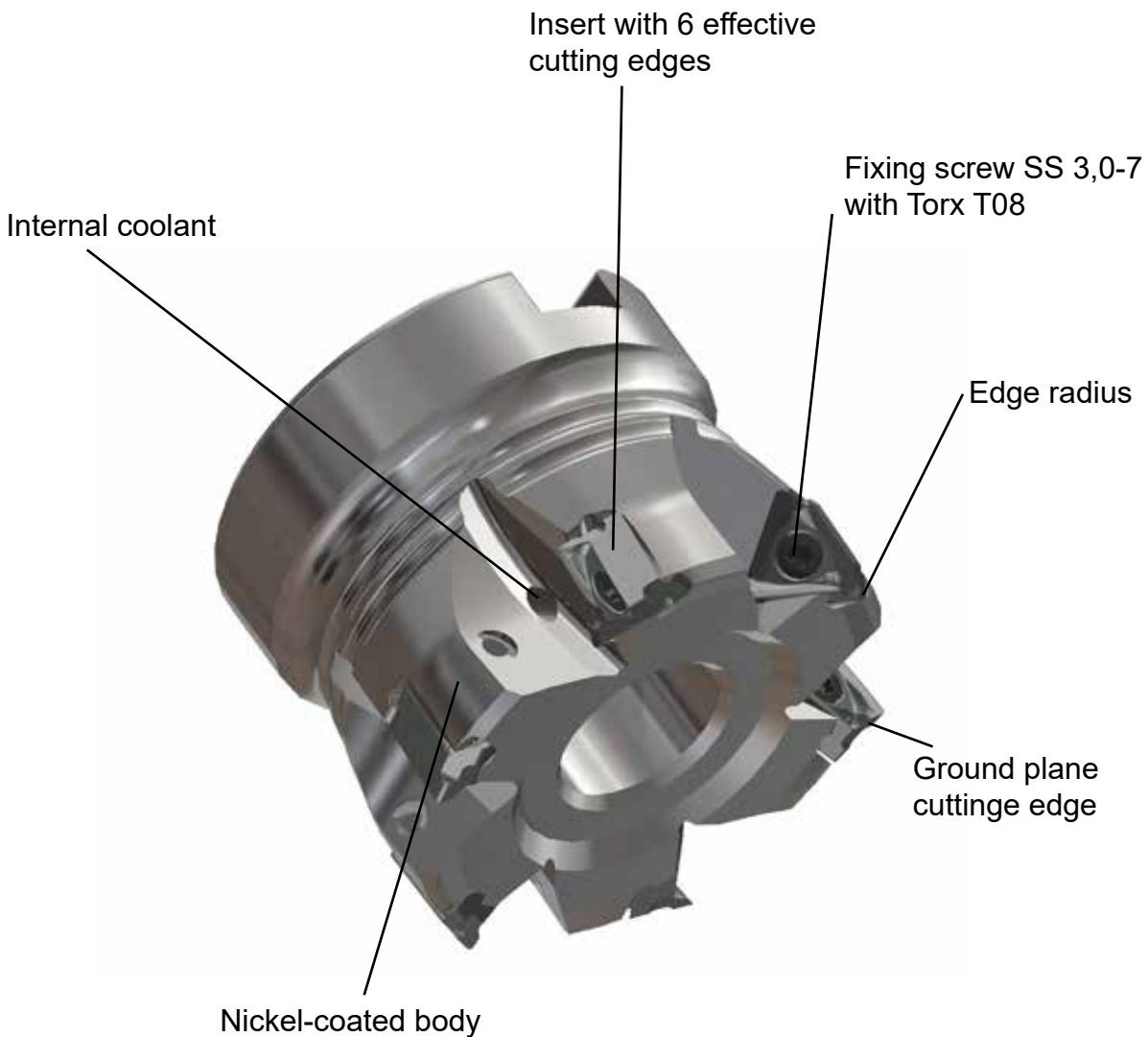
and the



## THE TOOL

The milling tool type B32 has been developed especially for the machining of step-, slot- and face milling operations, in terms of roughing and finishing steels, high grade steels, cast iron, difficult to mill materials, as well as non-ferrous metals and aluminum.

These tools are available as shell type mills, with diameter range from 32 to 80 mm, in standard and closed tooth pitch, as shank type mills, with diameter range 25+32 mm, in standard and close pitch and as screw-in cutters, with diameter 25+32mm in standard and close pitch.



## PERFORMANCE CRITERIA

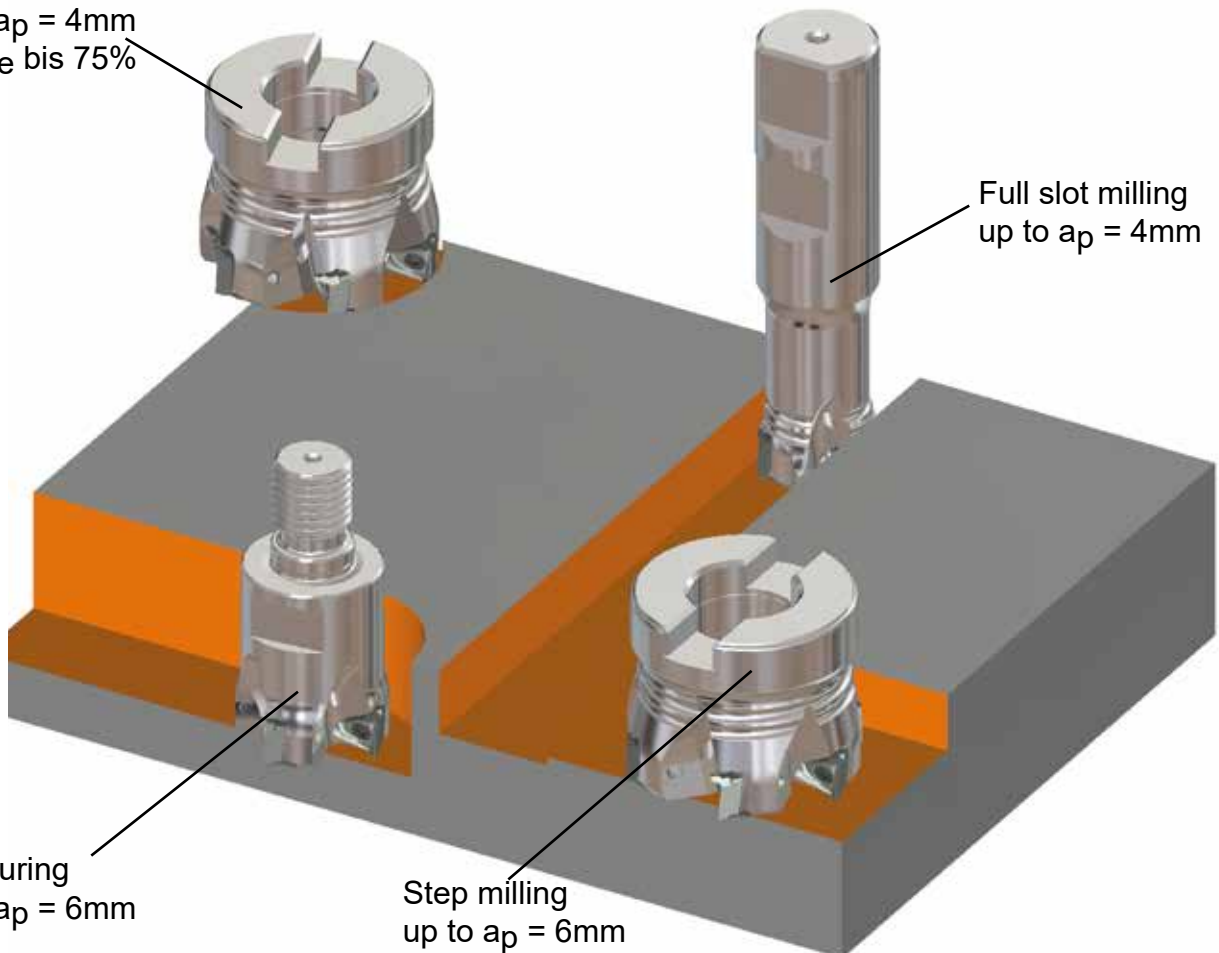
- High productivity thanks to 6 effective cutting edges
- High chip removal rate by an axial depth of cut of up to 6mm
- A high surface quality and precision is given by the ground plane chamfer of the sintered types JMB32-713HR05 and JMB32-713SR05, respectively by the completely ground insert type JMB32-713AR05
- Axial depth of cut of up to 6 mm ensure almost step-free side walls
- The optimal coordinated cutting edge with cutting materials grant high tool lives
- The tools are made of solid and additionally tempered tool steel and can therefore withstand highest charges
- Nickel-coated surfaces of the tool cause high resistance against reweldings and corrossions
- Shell type mills to DIN 8030-A,  $\varnothing 32-80\text{mm}$   
Shank type mills to DIN 1835-B,  $\varnothing 25+32\text{mm}$   
Screw-in cutters,  $\varnothing 25+32\text{mm}$
- All tools include internal coolant passages
- All tools are available in standard and closed tooth pitch, offering a great choice for all usual machining processes

Face milling  
up to  $a_p = 4\text{mm}$   
with  $a_e$  bis 75%

Full slot milling  
up to  $a_p = 4\text{mm}$

Contouring  
up to  $a_p = 6\text{mm}$

Step milling  
up to  $a_p = 6\text{mm}$



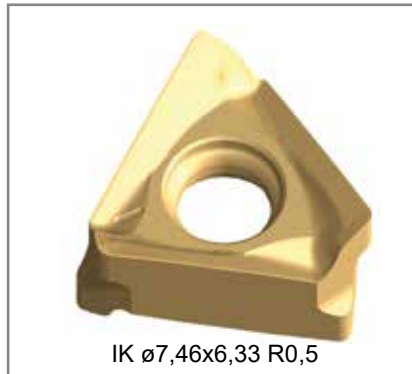
## THE INSERTS

- JMB32-713HR05:** Precision ground insert with ground plane chamfer. The cutting edge is provided with a negative chamfer and the edges are rounded. Depending on the carbide type this inserts is applicable on steel, high grade steel or cast iron.
- JMB32-713SR05:** Precision sintered insert with ground plane chamfer. The cutting edge is provided with a negative chamfer and the edges are rounded. This insert is applicable on high-grade steel, titanium and super alloys.
- JMB31-713AR05:** Precision ground insert with polished rake face. The insert is sharp edged and applicable for aluminium, as wells as non-ferrous metals

### JMB32-713HR05



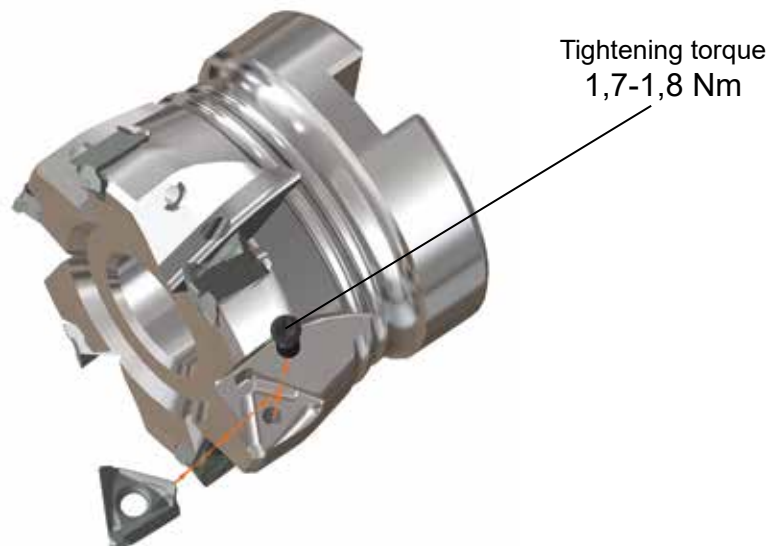
### JMB32-713SR05



### JMB32-713AR05



## Inserts' fitting





## Following carbide qualities are offered:

**HC45**



**Code 41, Classification DIN-ISO 513: 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.

**HC30**



**Code 52, Classification DIN-ISO 513: 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, Classification DIN-ISO 513: 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.

**HC20**



**Code 53, Classification DIN-ISO 513: K15-K20, H15-H20**

Very hard wearing fine grain carbide with HIPIMS-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.

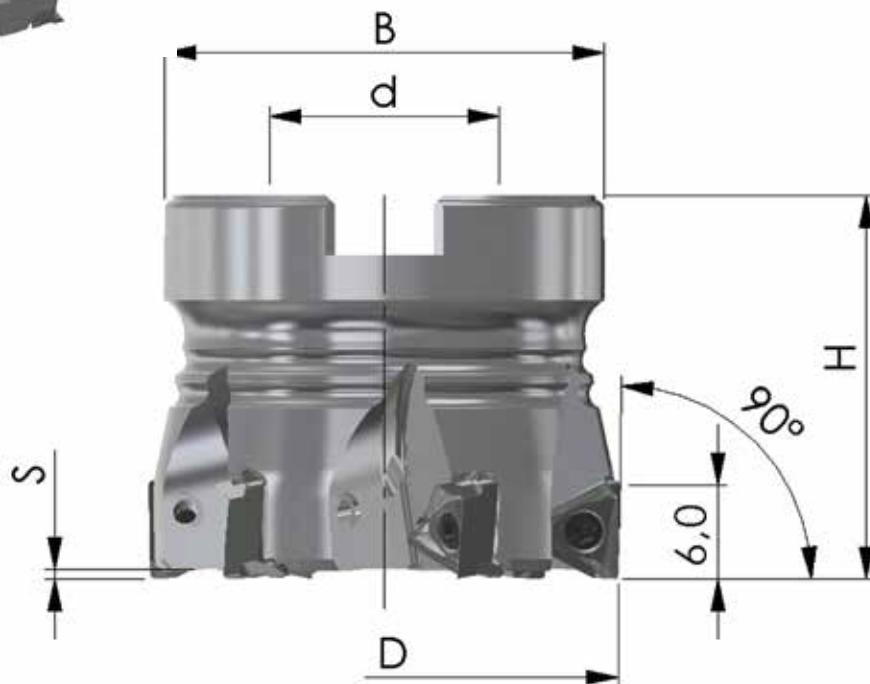
**K15M**



**Code 8, Classification DIN-ISO 513: N20-N25**

Very hard wearing fine grain carbide, for 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 nonferrous heavy materials and aluminium up to a Si-content of approx. 8%.

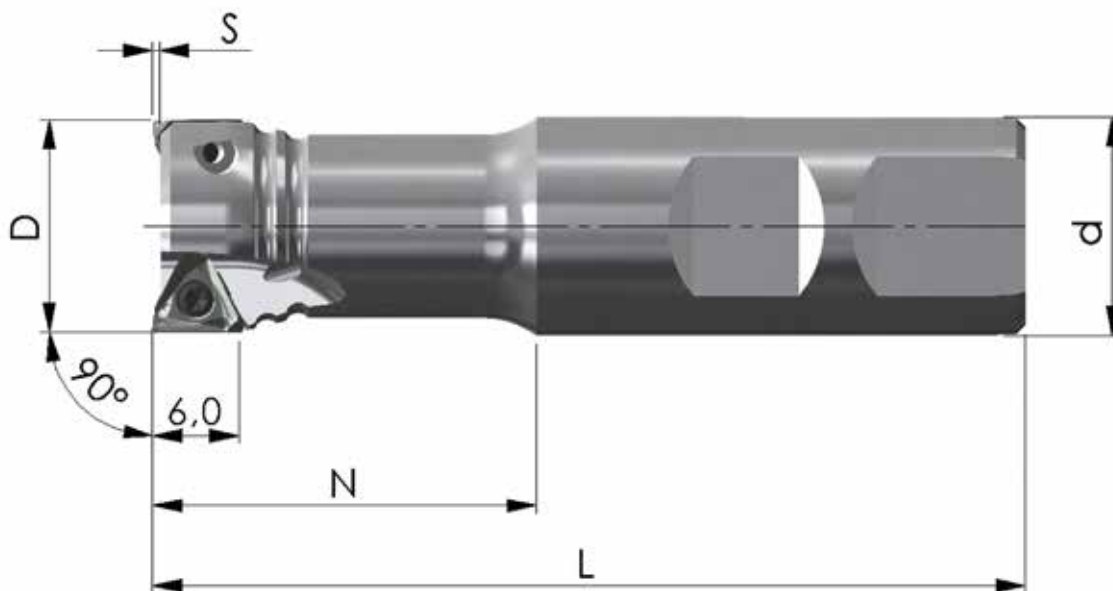
## TECHNICAL DATA



Order No.	D	H	d H6	B	S	Z	MS
90PP-032-B32-3	32	40	16	29	1,0	3	DS12
90PP-040-B32-3	40	40	16	38	1,0	3	MS-8x25-912
90PP-050-B32-5	50	40	22	46	1,0	5	MS-10x25-912
90PP-063-B32-5	63	40	22	46	1,0	5	MS-10x25-912
90PP-080-B32-7	80	50	27	58	1,0	7	MS-12x35-912
<b>Close tooth pitch:</b>							
90PP-032-B32-4	32	40	16	29	1,0	4	DS12
90PP-040-B32-4	40	40	16	38	1,0	4	MS-8x25-912
90PP-050-B32-6	50	40	22	46	1,0	6	MS-10x25-912
90PP-063-B32-7	63	40	22	46	1,0	7	MS-10x25-912
90PP-080-B32-9	80	50	27	58	1,0	9	MS-12x35-912

MS= Central screw

## TECHNICAL DATA

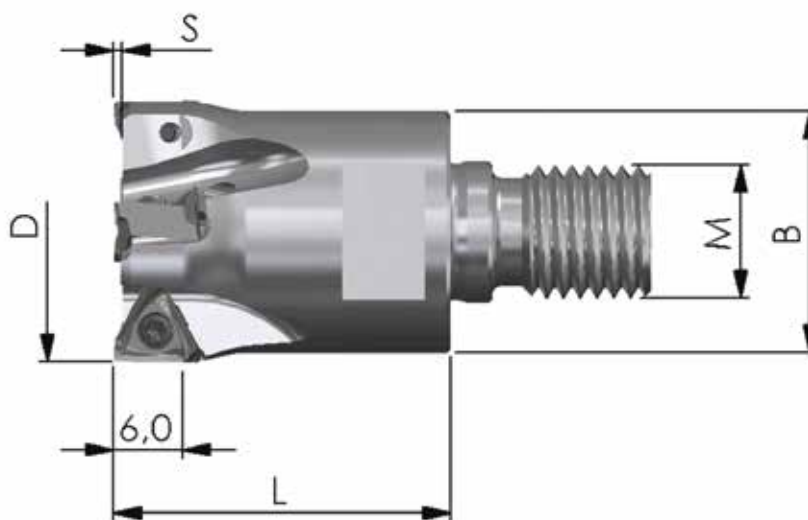


Order No.	D	L	d	N	S	Z
90PP-25-25-B32-2	25	100	25	43	1,0	2
90PP-32-25-B32-3	32	100	25	43	1,0	3
<b>Close tooth pitch:</b>						
90PP-25-25-B32-3	25	100	25	43	1,0	3
90PP-32-25-B32-4	32	100	25	43	1,0	4

## TECHNICAL DATA















**NEW!**



Order No.	D	L	M	B	SW	S	Z
<b>ESF-25-M12-B32-2</b>	25	36	M12	21	18	1,0	2
<b>ESF-32-M16-B32-3</b>	32	40	M16	29	24	1,0	3
<b><u>Close tooth pitch:</u></b>							
<b>ESF-25-M12-B32-3</b>	25	36	M12	21	18	1,0	3
<b>ESF-32-M16-B32-4</b>	32	40	M16	29	24	1,0	4






## INSERTS AND GENERAL CUTTING PARAMETERS

			<b>HC45</b> (code 41) 	<b>HC30</b> (code 52) 	<b>XC35</b> (code 46) 	<b>HC20</b> (code 53) 	<b>K15M</b> (code 8) 	
 <b>JMB32-713HR05-</b> IK 7,46x6,33 R0,5 	Order-No.	<b>B32A-MS41</b>	<b>B32A-DY52</b>			<b>B32A-AZ53</b>		
	$f_z$ [mm]	0,10 (0,05-0,25)	0,10 (0,05-0,30)			0,15 (0,10-0,30)		
 <b>JMB32-713SR05-</b> IK 7,46x6,33 R0,5 	Order-No.			<b>B32A-TP46</b>				
	$f_z$ [mm]			0,10 (0,05-0,30)				
 <b>JMB32-713AR05-</b> IK 7,46x6,33 R0,5 	Order-No.						<b>B32D-YG08</b>	
	$f_z$ [mm]						0,15 (0,05-0,30)	
			10	10	10	10	10	

Key to symbols see catalogue page XV-39

$V_c$ [m/min]	steel	stainless	cast iron	non-ferrous metals	highly heat-resistant	tempered
<b>HC45</b>	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
<b>HC30</b>	160 (120 - 220)	200 (100 - 300)			60 (40 - 200)	
<b>XC35</b>	120 (60 - 160)	120 (60 - 180)			80 (60 - 120)	
<b>HC20</b>			260 (180 - 350)			80 (40 - 120)
<b>K15M</b>				400 (300-600)		

## SPARE PARTS

	<b>SS 3,0-7</b>	Anzugsmoment <b>1,7-1,8 Nm</b>	<b>Fixing screw</b>
	<b>T 08</b>	<b>Screw driver</b>	
	<b>100 g</b>	<b>Heavy duty grease</b>	

## DETAILED CUTTING PARAMETERS FOR STEP MILLING OPERATIONS

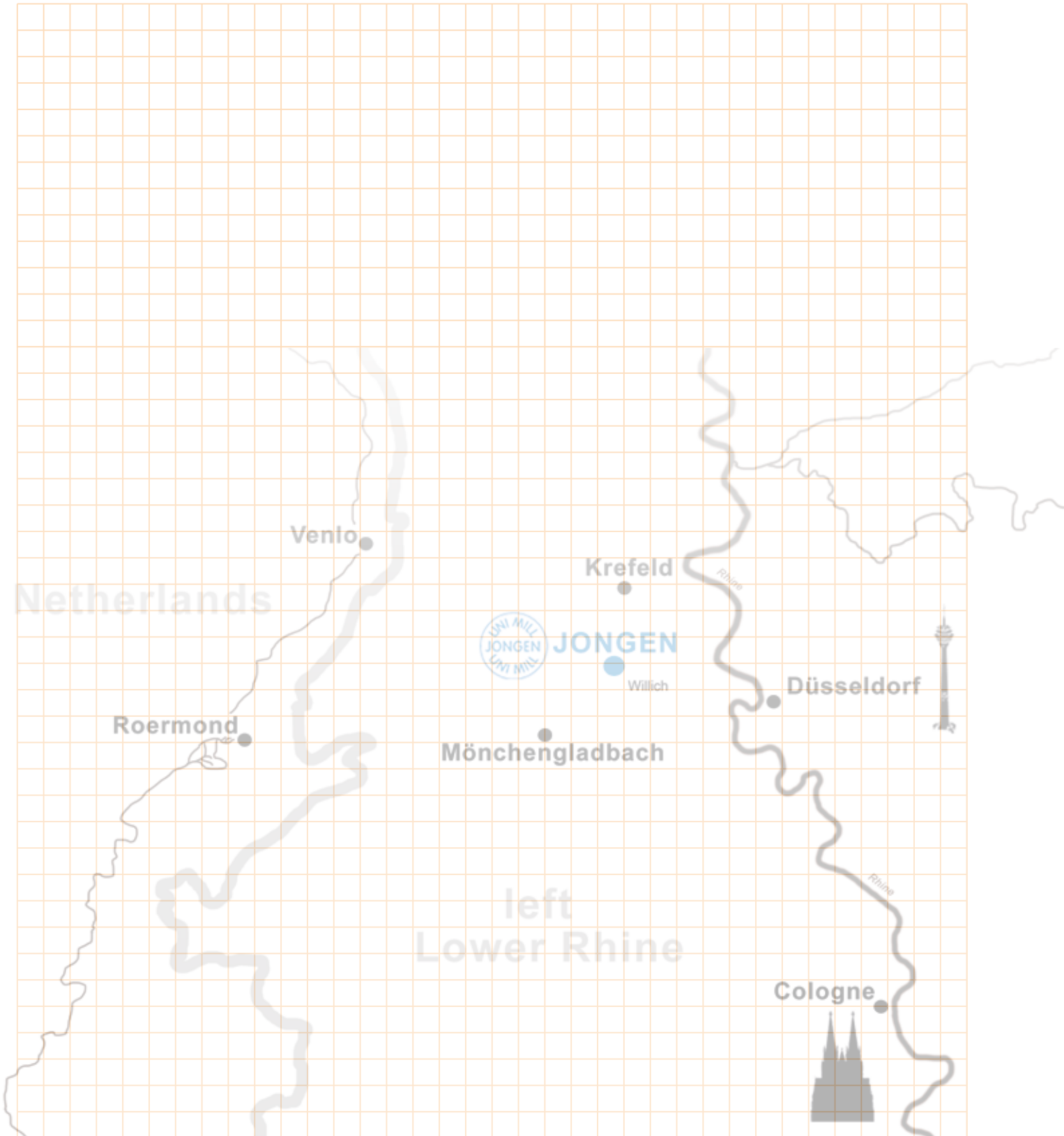
Material		Hardness	Quality	Depth of cut [mm]		V <sub>c</sub> [m/min.]		
				a <sub>e</sub> max.	a <sub>p</sub> max.			
P	Structural steel Unalloyed steel	<180 HB	HC45 (HC30)	0,25 D	6,0	250 (200-350)		
				0,50 D	6,0			
				0,75 D	4,0			
				>0,75 D - 1 D	4,0			
	Tool steel, Heat-treatable steel Alloyed steel	180-350 HB	HC45 (HC30)	0,25 D	6,0	220 (160-280)		
							0,50 D	6,0
				0,75 D	4,0			
				>0,75 D - 1 D	4,0			
M	Ferritic stainless steels	<270 HB	HC30	0,25 D	6,0	240 (140-300)		
					0,50 D		6,0	
					0,75 D		4,0	
				>0,75 D - 1 D	4,0			
	Ferritic stainless steels	<270 HB	XC35	0,25 D	6,0	120 (60-200)		
							0,50 D	6,0
							0,75 D	4,0
				>0,75 D - 1 D	4,0			
	Austenitic, martensitic stainless steels		XC35	0,25 D	6,0	80 (60-140)		
					0,50 D		6,0	
					0,75 D		4,0	
				>0,75 D - 1 D	4,0			
S	Heat-resistant super alloys Titan alloys		XC35	0,25 D	6,0	60 (40-200)		
					0,50 D		6,0	
					0,75 D		4,0	
				>0,75 D - 1 D	4,0			
K	Grey cast iron	<800 N/mm <sup>2</sup>	HT20	0,25 D	6,0	250 (180-350)		
							0,50 D	6,0
				0,75 D	4,0			
				>0,75 D - 1 D	4,0			
	Globular graphite cast iron	<350 N/mm <sup>2</sup>	HT20 (HC45)	0,25 D	6,0	200 (130-280)		
							0,50 D	6,0
							0,75 D	4,0
				>0,75 D - 1 D	4,0			
	Aluminium Non-ferrous metals	up to 12% Si	K15M	0,25 D	6,0	500 (500-1000)		
							0,50 D	6,0
							0,75 D	4,0
				>0,75 D-1 D	4,0			

The above mentioned data are standard values.

Up and down corrections are admitted depending on the machine type, tool and holding fixture.



## NOTES



*Errors and omissions excepted.*

01/21



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