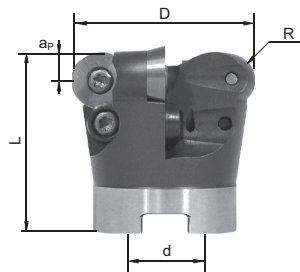
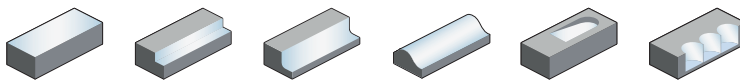


Face milling

FMR04



Article	*	Stock	Dimensions [mm]					Teeth	Inserts
			R	ØD	ød	L	a _p max		
FMR04-042-A16-RD1003-06		○	5	42	16	44	5	6	RDKW1003
FMR04-042-A16-RD1003-06C	*	●	5	42	16	44	5	6	
FMR04-052-A22-RD1003-07		○	5	52	22	50	5	7	
FMR04-052-A22-RD1003-07C	*	●	5	52	22	50	5	7	RDKW12T3
FMR04-042-A16-RD12T3-05		○	6	42	16	42	6	5	
FMR04-042-A16-RD12T3-05C	*	●	6	42	16	42	6	5	
FMR04-052-A22-RD12T3-05		○	6	52	22	50	6	5	RDKW12T3
FMR04-052-A22-RD12T3-05C	*	●	6	52	22	50	6	5	
FMR04-066-A27-RD12T3-06		○	6	66	27	50	6	6	
FMR04-066-A27-RD12T3-06C	*	●	6	66	27	50	6	6	RDKW1604
FMR04-080-A27-RD12T3-07		○	6	80	27	50	6	7	
FMR04-080-A27-RD12T3-07C	*	●	6	80	27	50	6	7	
FMR04-052-A22-RD1604-04		○	8	52	22	50	8	4	RDKW1604
FMR04-052-A22-RD1604-04C	*	●	8	52	22	50	8	4	
FMR04-066-A27-RD1604-05		○	8	66	27	50	8	5	
FMR04-066-A27-RD1604-05C	*	●	8	66	27	50	8	5	
FMR04-080-A27-RD1604-06		○	8	80	27	52	8	6	
FMR04-080-A27-RD1604-06C	*	●	8	80	27	52	8	6	
FMR04-100-B32-RD1604-07		○	8	100	32	52	8	7	
FMR04-100-B32-RD1604-07C	*	●	8	100	32	52	8	7	
FMR04-125-B40-RD1604-08		○	8	125	40	52	8	8	
FMR04-160-B40-RD1604-09		○	8	160	40	52	8	9	
FMR04-160-B40-RD1604-09C	*	●	8	160	40	52	8	9	

● Ex stock ○ On demand

* With internal cooling

System code > B26

Grade selection > B24

Technical info > B527

Cutting data > B230

Spare parts						
Insert	RDKW1003	RDKW12T3	RDKW12T3	RDKW1604	RDKW1604	
ØD	42-52	42	52-80	52	66-160	
	Clamp					WX16N
	Clamp			LOM3.5x7.1		
	Screw (clamp)					I60M4.5x10 (5.0 Nm)
	Screw (insert)	I60M3.5x6.5TT (2.7 Nm)				
	Screw (insert)		I60M3.5x7.7 (2.7 Nm)	I60M3.5x7.7 (2.7 Nm)	I60M4.5x10 (5.0 Nm)	I60M4.5x10 (5.0 Nm)
	Wrench (clamp)			WT15P		
	Wrench (clamp)					WT20T
	Wrench (insert)	WT10IP				
	Wrench (insert)		WT15P	WT15P		
	Wrench (insert)				WT20T	WT20T

RDKW	I.C	S	d
10 03	10	3.18	3.9
12 T3	12	3.97	3.9
16 04	16	4.76	5.2

- Ideal machining conditions
- Normal machining conditions
- Unfavourable machining conditions

Milling inserts

RD** milling insert	HC ¹ (CVD)						HC ¹ (PVD)					HT	HC ²	HW									
	P	M	K	N	S	H																	
ISO	YBC302	YBC301	YBC401	YBM253	YBM251	YBM351	YBD152	YBD252	YBG101	YBG102	YBG202	YBG212	YBS203	YBG205	YB9320	YBG302	YBS303	YBG252	YNG151	YNG151C	YD101	YD201	
	RDKW1003MO-1				○	●					○			●	●								
	RDKW1003MO-2								●														
	RDKW1003MO-3			●										●									
	RDKW12T3MO-1				○	●					○			●	●								
	RDKW12T3MO-2								●					○									
	RDKW12T3MO-3			●										●									
	RDKW1604MO-1					●					○			●	●	●							
	RDKW1604MO-2										○												
	RDKW1604MO-3	○		●				●		○				●		●							

● Ex stock ○ On demand

Important information on the cutting edge design can be found on page B102.

HC¹ Coated carbide
 HT Uncoated cermet
 HC² Coated cermet
 HW Uncoated carbide



A
Turning

B
Milling

C
Drilling

D
Technical Information

E
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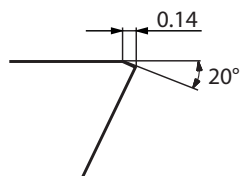
IMPORTANT INFORMATION

Cutting edge design RDKW

RDKW*MO-1



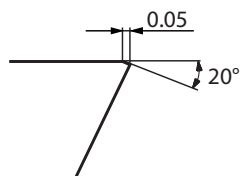
General machining



RDKW*MO-2



Soft cutting geometry
(Finishing)



RDKW*MO-3



Roughing

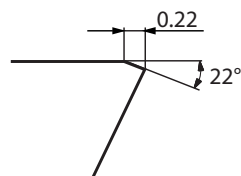


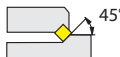
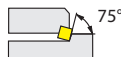
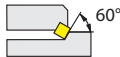
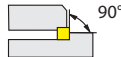

Fig.: FMR04-052-B22-RD12T3-05C

FM A 12 050 – A22 O – N 06 – 04 (L) (C)

1 2 3 4 5 6 7 8 9 10 11

Type	
Code	Description
BM	Profile milling
CM	Chamfer milling
EM	Square shoulder milling
FM	Face milling
HM	Helical milling
SM	Slot milling
TM	T-slot milling
XM	Special

1

Entering angle			
A		E	
D		P	
R			

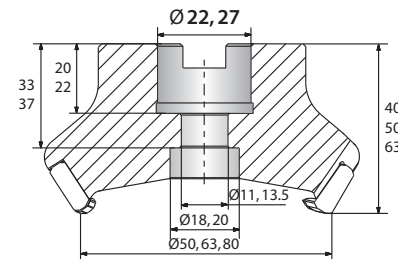
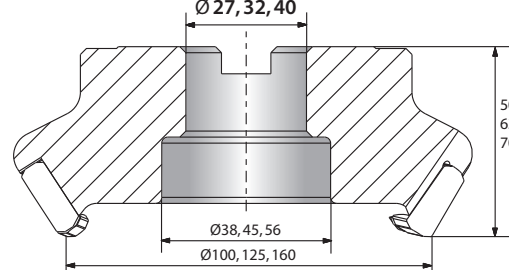
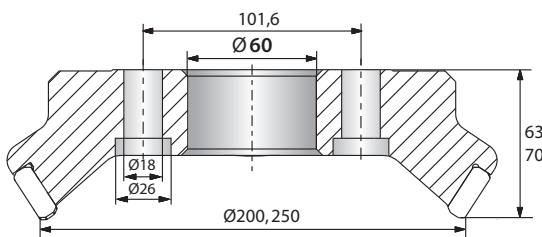
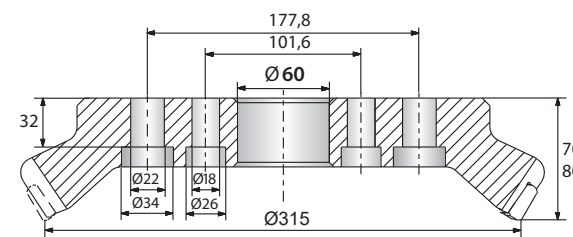
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Serial number

3












Nominal diameter [mm]	
Code	Description
025	25
050	50
160	160
315	315
...	

4








Type and size of tool holders			
Code	Type	Code	Type
A	<p>Nominal diameter Ø50 – 80 mm</p> 	B	<p>Nominal diameter Ø100 – 160 mm</p> 
C	<p>Nominal diameter Ø200 – 250 mm</p> 	D	<p>Nominal diameter Ø315 mm</p> 
G	Straight shank	XP	Weldon shank
K	Bore with keyway		

5









With respect to mounting please adhere to the information provided by the tool holder manufacturer.

Insert shape	
A 	C 
H 	L 
M 	O 
P 	R 
S 	T 
W 	X Special
Z Special	

6

Clearance angle	
B 	C 
D 	E 
F 	N 
P 	

7

Cutting edge length l [mm]	
Insert shape	
	
A	C, M
	
H, O, P	L
	
R	S
	
T	W

8

Number of teeth

9

Cutting direction	
Code	Description
L	Left

10

With inner cooling

11



Tools with B coupling and inner coolant supply require the following spare parts:





Coolant clamp screw



Coolant shower plate



Spare parts (B coupling with inner coolant supply)

		B27	B32	B40	B40
	Ø	80	100	125	160
	Coolant clamp screw	LDB27C	LDB32C	LDB40C	LDB40C
	Coolant shower plate	B27-002-CP	B32-002-CP	B40-002-CP	B40-003-CP

When purchasing tools with inner coolant supply and B coupling these spare parts are included in delivery.

A

Turning

B

Milling

C

Drilling

D

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S P K N 12 04 ED T21K R – DM

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7

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10

A

Turning

B

Milling

C












Drilling








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



Technical Information

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Insert shape	
A 	C 
H 	L 
M 	O 
P 	R 
S 	T 
W 	X Special
Z Special	















Clearance angle	
B 	C 
D 	E 
F 	N 
P 	









Tolerance class			
			
Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05-0,13	±0,005	±0,025
K	±0,05-0,13	±0,013	±0,025
L	±0,05-0,13	±0,025	±0,025
M	±0,05-0,13	±0,08-0,18	±0,130
N	±0,05-0,13	±0,08-0,18	±0,025
U	±0,08-0,25	±0,13-0,38	±0,130

1

2

3

Fastening features (metric)	
Insert shape	
A 	B 
C 	F 
G 	H 
J 	M 
N 	Q 
R 	T 
U 	W 
X Special	

Cutting edge length l [mm]	
Insert shape	
	
A	C, M
	
H, O, P	L
	
R	S
	
T	W

4

5

Insert thickness S [mm]			
Code	S	Code	S
00	0,79	05	5,56
T0	0,99	T5	5,95
01	1,59	06	6,35
T1	1,98	T6	6,75
02	2,38	07	7,94
T2	2,58	09	9,52
03	3,18	T9	9,72
T3	3,97	11	11,11
04	4,76	12	12,70
T4	4,96		

6

Angle			
Code	Kr	Code	an
A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	Special	F	25°
		G	30°
		N	0°
		P	11°
		Z	Special

7

Chamfer							
Code	Type	Code	Angle	Code	Width [mm]	Code	Position
F		0	5°	0	0,10	K	
E		1	10°	1	0,15	P	
T		2	15°	2	0,20	W	
S		3	20°	3	0,25	-	
		4	25°	4	0,30		
		5	30°	5	0,35		
				6	0,40		
				7	0,45		

8

Cutting direction	
Code	Description
R	Right
L	Left
N	Right and left

9

Chip breaker overview
(on page B20)

10

A

Turning

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Milling

C

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Guide for recommended cutting data – indexable milling

Indexable milling – group 1 (FMA07/11/12, FMD02, EMP09/13)

Material group	Composition / structure / heat treatment	Brinell hardness HB	Machining group	Starting values for cutting speed v_c (m/min)								
				HC (CVD)								
				YBC302		YBC401		YBD152		YBD252		
				a_p / D		a_p / D		a_p / D		a_p / D		
1/1 3/4		1/5		1/1 3/4		1/5		1/1 3/4		1/5		
P Unalloyed steel	ca. 0,15 % C	annealed	125	1	260	300	225	260				
	ca. 0,45 % C	annealed	190	2	225	255	195	225				
	ca. 0,45 % C	tempered	250	3	210	240	180	210				
	ca. 0,75 % C	annealed	270	4	185	210	160	185				
	ca. 0,75 % C	tempered	300	5	170	195	150	170				
P Low-alloyed steel		annealed	180	6	225	255	195	225				
		tempered	275	7	185	210	160	185				
		tempered	300	8	170	195	150	170				
		tempered	350	9	145	165	125	145				
P High-alloyed steel and high-alloyed tool steel		annealed	200	10	130	150	115	130				
		hardened and tempered	325	11	95	105	80	95				
M Stainless steel	ferritic/martensitic	annealed	200	12								
	martensitic	tempered	240	13								
	austenitic	quench hardened	180	14								
	austenitic-ferritic		230	15								
K Grey cast iron	perlitic/ferritic		180	16				370	430	320	370	
	perlitic (martensitic)		260	17				220	255	190	220	
K Cast iron with spheroidal graphite	ferritic		160	18				255	295	220	255	
	perlitic		250	19				170	200	145	170	
K Malleable cast iron	ferritic		130	20				305	355	265	305	
	perlitic		230	21				205	240	175	205	
N Aluminium wrought alloys	cannot be hardened		60	22								
	hardenable	hardened	100	23								
	$\leq 12\% \text{ Si}$, cannot be hardened		75	24								
	$\leq 12\% \text{ Si}$, hardenable	hardened	90	25								
N Cast aluminium alloys	$> 12\% \text{ Si}$, cannot be hardened		130	26								
	machining steel, PB > 1%		110	27								
	CuZn, CuSnZn		90	28								
S Copper and copper alloys (bronze/brass)	CuSn, Pb-free copper, electrolytic copper		100	29								
	Heat-resistant alloys	Fe-based alloys	annealed	200	30							
		hardened	280	31								
	Ni or Co base	annealed	250	32								
hardened		350	33									
Titanium alloys	cast	320	34									
	pure titanium		R_m 400	35								
H Hardened steel	α and β alloys	hardened	R_m 1050	36								
	hardened and tempered		55 HRC	37								
H Hard cast iron	hardened and tempered		60 HRC	38								
	cast		400	39								
H Hardened cast iron	hardened and tempered		55 HRC	40								
	Thermoplasts			41								
X Non-metallic materials	Thermosetting plastics			42								
	Plastic, glass-fibre reinforced GFRP			43								
	Plastic, carbon fibre reinforced CFRP			44								
	Graphite			45								
	Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. Feed rate recommendations on page B248. For examples of material for cutting tool groups view page D22.

Recommend feed rate

Indexable milling – group1 (FMA07/11/12, FMD02, EMP09/13)

5	Material group	Feed rate per cutting edge [mm]																	
		EMP09			EMP13			EMP13			FMA07			FMA07			FMA11		
		LNKT12			ANGX11			ANGX15			ONHU06			ONHU08			SNEG12		
		Application																	
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
P	Unalloyed steel		0,25	0,50		0,23			0,25		0,19	0,23		0,19	0,23			0,20	0,23
	Low-alloyed steel		0,23	0,47		0,22			0,23		0,17	0,22		0,17	0,22			0,19	0,21
	High-alloyed steel and high-alloyed tool steel		0,22	0,44		0,20			0,22		0,16	0,20		0,16	0,20			0,18	0,20
M	Stainless steel		0,18	0,35														0,14	0,16
K	Grey cast iron		0,28	0,55		0,26			0,28		0,20	0,26		0,20	0,26			0,22	0,25
	Cast iron with spheroidal graphite		0,25	0,50		0,23			0,25		0,19	0,23		0,19	0,23			0,20	0,23
	Malleable cast iron		0,25	0,50		0,23			0,25		0,19	0,23		0,19	0,23			0,20	0,23
N	Aluminium wrought alloys					0,20			0,21										
	Aluminium-Gusslegierungen					0,20			0,21										
	Copper and copper alloys(bronze/brass)					0,18			0,19										
S	Heat-resistant alloys																		
	Titanium alloys																		
H	Hardened steel																		
	Hard cast iron																		
X	Hardened cast iron																		
	Non-metallic materials																		

1. Select the appropriate product family/cutting data group.
2. Select the used grade.
3. Determine the immersion.
4. Select the used material and read the cutting speed.
5. Please have a look at the detached feed rate recommendations.
6. Select the used tool, the machining mode and the used material.

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Indexable milling – group 3 (FMR01/02/03/04)

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						HC (CVD)							
						YBC302			YBC401				
						a_e / D			a_e / D				
1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20								
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	260	300	390	225	260	340		
		approx. 0,45 % C	annealed	190	2	225	255	335	195	225	295		
		approx. 0,45 % C	tempered	250	3	210	240	315	180	210	275		
		approx. 0,75 % C	annealed	270	4	185	210	275	160	185	245		
		approx. 0,75 % C	tempered	300	5	170	195	255	150	170	225		
	Low-alloyed steel		annealed	180	6	225	255	335	195	225	295		
			tempered	275	7	185	210	275	160	185	245		
			tempered	300	8	170	195	255	150	170	225		
			tempered	350	9	145	165	215	125	145	190		
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	130	150	195	115	130	170		
		hardened and tempered	325	11	95	105	140	80	95	125			
M	Stainless steel	ferritic/martensitic	annealed	200	12								
			martensitic	tempered	240	13							
			austenitic	quench hardened	180	14							
			austenitic-ferritic		230	15							
K	Grey cast iron	perlitic/ferritic		180	16								
			perlitic (martensitic)		260	17							
	Cast iron with spheroidal graphite	ferritic		160	18								
			perlitic		250	19							
Malleable cast iron	ferritic		130	20									
		perlitic		230	21								
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	$\leq 12\% \text{ Si}$, cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$, hardenable	hardened	90	25								
		$> 12\% \text{ Si}$, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27								
CuZn, CuSnZn		90	28										
CuSn, Pb-free copper, electrolytic copper		100	29										
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co base	annealed	250	32								
			hardened	350	33								
		cast	320	34									
Titanium alloys	pure titanium		R_m 400	35									
	α and β alloys	hardened		R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
	Wood		46										

Note: The given cutting values are guide values, which were determined under ideal conditions.
 The values have to be adapted in individual cases.
 Feed rate recommendations on page B254.
 For examples of material for cutting tool groups view page D11.

Indexable milling – group 3 (FMR01/02/03/04)

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						HC (PVD)							
						YBG212			YBG252				
						a_e / D			a_e / D				
1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20								
A Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1	240	280	365	230	265	345		
		approx. 0,45 % C	annealed	190	2	205	240	315	200	230	300		
		approx. 0,45 % C	tempered	250	3	195	225	295	185	215	280		
		approx. 0,75 % C	annealed	270	4	170	200	260	165	190	250		
		approx. 0,75 % C	tempered	300	5	160	185	245	150	175	230		
	B Milling	P Low-alloyed steel		annealed	180	6	205	240	315	200	230	300	
				tempered	275	7	170	200	260	165	190	250	
				tempered	300	8	160	185	245	150	175	230	
				tempered	350	9	135	155	205	130	150	195	
		P High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	140	185	115	135	180	
		hardened and tempered	325	11	85	100	130	85	95	125			
C Drilling	M Stainless steel	ferritic/martensitic	annealed	200	12	120	140	185	115	135	175		
			martensitic	tempered	240	13	105	120	155	100	115	145	
			austenitic	quench hardened	180	14	130	150	195	125	145	185	
			austenitic-ferritic		230	15	105	120	155	100	115	145	
D Technical Information	K Grey cast iron	perlitic/ferritic		180	16	265	305	400	255	295	385		
		perlitic (martensitic)		260	17	160	185	245	150	175	230		
	K Cast iron with spheroidal graphite	ferritic		160	18	180	210	275	175	200	260		
		perlitic		250	19	120	140	185	115	135	180		
	K Malleable cast iron	ferritic		130	20	220	255	335	210	240	315		
		perlitic		230	21	145	170	225	140	160	210		
E Index	N Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	N Cast aluminium alloys	$\leq 12\% \text{ Si}$, cannot be hardened		75	24								
		$\leq 12\% \text{ Si}$, hardenable	hardened	90	25								
		$> 12\% \text{ Si}$, cannot be hardened		130	26								
	N Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27								
		CuZn, CuSnZn		90	28								
CuSn, Pb-free copper, electrolytic copper		100	29										
S Heat-resistant alloys	S Fe-based alloys	annealed		200	30								
		hardened		280	31								
		annealed		250	32								
		hardened		350	33								
	S Ni or Co base	hardened		320	34								
cast													
S Titanium alloys	pure titanium		R_m 400	35									
	α and β alloys		hardened	R_m 1050	36								
H Hardened steel			hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
			cast	400	39								
H Hard cast iron			hardened and tempered	55 HRC	40								
X Non-metallic materials			Thermoplasts		41								
			Thermosetting plastics		42								
			Plastic, glass-fibre reinforced GFRP		43								
			Plastic, carbon fibre reinforced CFRP		44								
			Graphite		45								
			Wood		46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
 The values have to be adapted in individual cases.
 Feed rate recommendations on page B254.
 For examples of material for cutting tool groups view page D11.

Starting values for cutting speed v_c [m/min]										
	HC (PVD)			HW						
	YBG302			YD101		YD201				
	a _e / D			a _e / D		a _e / D				
	1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/1 3/4	1/5			
	225	260	340							
	195	225	295							
	180	210	275							
	160	185	245							
	150	170	225							
	195	225	295							
	160	185	245							
	150	170	225							
	125	145	190							
	115	130	170							
	80	95	125							
	115	130	170							
	95	110	145							
	120	140	185							
	95	110	145							
	250	290	380							
	150	170	225							
	170	195	255							
	115	130	170							
	205	235	310							
	135	160	210							
				1505	1735	1450	1670			
				1225	1420	1180	1370			
				540	620	515	600			
				435	505	420	485			
				220	255	215	250			
				170	195	160	190			
				210	245	205	235			
				385	445	370	430			

HC Coated carbide
 HT Uncoated carbide, main component (TiC) o. (TiN), cermet
 HC₁ Coated cermet
 HW Uncoated carbide, main component (WC)

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Indexable milling – group 2 (FMA01/02/03/04, FME01/02, FMP01/02, EMP01/02/03/04)

Material group		Feed rate per cutting edge [mm]																	
		FMA01 FMA02			FMA03			FMA03			FMA04			FMA04			FMA04		
		SEET12			SEKN12			SEKN15			OFKT05			OFKR07			ODHT06		
		Application																	
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
P	Unalloyed steel	0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,25	
	Low-alloyed steel	0,14	0,19	0,23		0,17			0,19		0,19	0,23		0,19	0,23		0,19	0,23	
	High-alloyed steel and high-alloyed tool steel	0,13	0,18	0,22		0,16			0,18		0,18	0,22		0,18	0,22		0,18	0,22	
M	Stainless steel	0,11	0,14	0,18		0,13			0,14		0,14	0,18		0,14	0,18		0,14	0,18	
K	Grey cast iron	0,17	0,22	0,28		0,20			0,22		0,22	0,28		0,22	0,28		0,22	0,28	
	Cast iron with spheroidal graphite	0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,25	
	Malleable cast iron	0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,25	
N	Aluminium wrought alloys	0,13	0,17	0,21							0,17	0,21		0,17	0,21		0,17	0,21	
	Aluminum cast alloys	0,13	0,17	0,21							0,17	0,21		0,17	0,21		0,17	0,21	
	Copper and copper alloys (bronze/brass)	0,11	0,15	0,19							0,15	0,19		0,15	0,19		0,15	0,19	
S	Heat-resistant alloys	0,11	0,14	0,18							0,14	0,18		0,14	0,18		0,14	0,18	
	Titanium alloys	0,11	0,14	0,18							0,14	0,18		0,14	0,18		0,14	0,18	
H	Hardened steel																		
	Hard cast iron																		
	Hardened cast iron																		
X	Non-metallic materials																		

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Indexable milling – group 3 (FMR01/02/03/04) Face milling

Material group		Feed rate per cutting edge [mm]																	
		FMR01			FMR01			FMR02			FMR02			FMR02			FMR03		
		RCKT10			RC*12			RC*12			RCKT16			RCKT20			RDKW07		
		Application																	
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
P	Unalloyed steel		0,20	0,25		0,20	0,25		0,20	0,25		0,23	0,29		0,26	0,33		0,17	
	Low-alloyed steel		0,19	0,23		0,19	0,23		0,19	0,23		0,21	0,27		0,25	0,31		0,16	
	High-alloyed steel and high-alloyed tool steel		0,18	0,22		0,18	0,22		0,18	0,22		0,20	0,25		0,23	0,29		0,15	
M	Stainless steel		0,14	0,18		0,14	0,18		0,14	0,18		0,16	0,20		0,19	0,23		0,12	
K	Grey cast iron		0,22	0,28		0,22	0,28		0,22	0,28		0,25	0,32		0,29	0,36		0,19	
	Cast iron with spheroidal graphite		0,20	0,25		0,20	0,25		0,20	0,25		0,23	0,29		0,26	0,33		0,17	
	Malleable cast iron		0,20	0,25		0,20	0,25		0,20	0,25		0,23	0,29		0,26	0,33		0,17	
N	Aluminium wrought alloys					0,17	0,21		0,17	0,21									
	Aluminum cast alloys					0,17	0,21		0,17	0,21									
	Copper and copper alloys (bronze/brass)					0,15	0,19		0,15	0,19									
S	Heat-resistant alloys																		
	Titanium alloys																		
H	Hardened steel																		
	Hard cast iron																		
	Hardened cast iron																		
X	Non-metallic materials																		

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

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Feed rate per cutting edge [mm]																							
FME02			FME03			FME03			FMP01			FMP02			EMP01 EMP02			EMP01 EMP02			EMP03 EMP04		
SPK*12			SPK*12			SPK*15			TPKN22			SEET12			APKT11			APKT16			APKT11		
Application																							
F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
	0,20			0,19			0,20			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23	0,10	0,20	0,25
	0,19			0,17			0,19			0,19		0,14	0,19	0,23	0,09	0,14	0,19	0,11	0,16	0,21	0,09	0,19	0,23
	0,18			0,16			0,18			0,18		0,13	0,18	0,22	0,09	0,13	0,18	0,10	0,15	0,20	0,09	0,18	0,22
	0,14			0,13			0,14			0,14		0,11	0,14	0,18	0,07	0,11	0,14	0,08	0,12	0,16	0,07	0,14	0,18
	0,22			0,20			0,22			0,22		0,17	0,22	0,28	0,11	0,17	0,22	0,13	0,19	0,25	0,11	0,22	0,28
	0,20			0,19			0,20			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23	0,10	0,20	0,25
	0,20			0,19			0,20			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23	0,10	0,20	0,25
												0,13	0,17	0,21	0,09	0,13	0,17	0,10	0,15	0,20	0,09	0,17	0,21
												0,13	0,17	0,21	0,09	0,13	0,17	0,10	0,15	0,20	0,09	0,17	0,21
												0,11	0,15	0,19	0,08	0,11	0,15	0,09	0,13	0,18	0,08	0,15	0,19

F Finishing
M Medium machining
R Roughing

Feed rate per cutting edge [mm]																	
FMR03			FMR03			FMR04			FMR04			FMR04					
RDKW08			RD*10			RD*12			RDKW16			RDKW20					
Application																	
F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
	0,17			0,20		0,15	0,20	0,25	0,17	0,23	0,29	0,2	0,26	0,33			
	0,16			0,19		0,14	0,19	0,23	0,16	0,21	0,27	0,19	0,25	0,31			
	0,15			0,18		0,13	0,18	0,22	0,15	0,20	0,25	0,18	0,23	0,29			
	0,12			0,14		0,11	0,14	0,18	0,12	0,16	0,20	0,14	0,19	0,23			
	0,19			0,22		0,17	0,22	0,28	0,19	0,25	0,32	0,22	0,29	0,36			
	0,17			0,20		0,15	0,20	0,25	0,17	0,23	0,29	0,20	0,26	0,33			
	0,17			0,20		0,15	0,20	0,25	0,17	0,23	0,29	0,20	0,26	0,33			
				0,17		0,13	0,17	0,21									
				0,17		0,13	0,17	0,21									
				0,15		0,11	0,15	0,19									

F Finishing
M Medium machining
R Roughing



Recommended feed rate

Indexable milling – group 3 (FMR01/02/03/04) Circular milling

Material group		Feed rate per cutting edge [mm]								
		FMR01	FMR01	FMR02	FMR02	FMR02	FMR03			
		RCKT10	RC*12	RC*12	RCKT16	RCKT20	RDKW07			
		Tool diameter [mm]								
		25-32	40-50	50-100	63-125	160-200	80-125	160-250	15	
P	Unalloyed steel	0,12	0,16	0,18	0,24	0,32	0,26	0,35	0,07	
	Low-alloyed steel	0,11	0,14	0,16	0,21	0,28	0,23	0,31	0,06	
	High-alloyed steel and high-alloyed tool steel	0,10	0,13	0,14	0,19	0,26	0,21	0,28	0,06	
M	Stainless steel	0,07	0,09	0,10	0,14	0,18	0,15	0,20	0,04	
K	Grey cast iron	0,11	0,14	0,16	0,22	0,29	0,23	0,32	0,06	
	Cast iron with spheroidal graphite	0,10	0,13	0,14	0,19	0,26	0,21	0,28	0,06	
	Malleable cast iron	0,10	0,13	0,14	0,19	0,26	0,21	0,28	0,06	
N	Aluminium wrought alloys									
	Aluminum cast alloys									
	Copper and copper alloys (bronze/brass)									
S	Heat-resistant alloys									
	Titanium alloys									
H	Hardened steel									
	Hard cast iron									
	Hardened cast iron									
X	Non-metallic materials									

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Indexable milling – group 4 (BMR01/02/03/04, TMP01, CMZ01, CMA01, CMD01)

Material group		Feed rate per cutting edge [mm]									
		BMR01	BMR01	BMR01	BMR01	BMR02	BMR02	BMR02	BMR03	BMR03	
		ZD*08 / SP*06	ZD*11 / SP*06	ZD*13 / SP*09	ZP*22 / SP*12	ROHX12	ROHX16	ROHX20	-	-	
		Tool diameter [mm]									
		20	25	32	40-63	12	16	20	16	20	
P	Unalloyed steel	0,14	0,21	0,26	0,32	0,10	0,13	0,14	0,13	0,14	
	Low-alloyed steel	0,10	0,15	0,18	0,22	0,07	0,09	0,10	0,09	0,10	
	High-alloyed steel and high-alloyed tool steel	0,09	0,14	0,17	0,21	0,07	0,08	0,09	0,08	0,09	
M	Stainless steel	0,08	0,12	0,14	0,18	0,06	0,07	0,08	0,07	0,08	
K	Grey cast iron	0,18	0,27	0,34	0,42	0,13	0,17	0,18	0,17	0,18	
	Cast iron with spheroidal graphite	0,13	0,20	0,25	0,30	0,10	0,12	0,13	0,12	0,13	
	Malleable cast iron	0,14	0,21	0,26	0,32	0,10	0,13	0,14	0,13	0,14	
N	Aluminum wrought alloys										
	Aluminum cast alloys										
	Copper and copper alloys (bronze/brass)										
S	Heat-resistant alloys										
	Titanium alloys										
H	Hardened steel										
	Hard cast iron										
	Hardened cast iron										
X	Non-metallic materials										

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Feed rate per cutting edge [mm]						
FMR03	FMR03	FMR04	FMR04	FMR04		
RDKW08	RD*10	RD*12	RDKW16	RDKW20		
Tool diameter [mm]						
16-25	32	50-63	80-100	125-160		
0,07	0,12	0,17	0,24	0,30		
0,06	0,11	0,15	0,21	0,26		
0,06	0,10	0,14	0,19	0,24		
0,04	0,07	0,10	0,14	0,17		
0,06	0,11	0,15	0,22	0,27		
0,06	0,10	0,14	0,19	0,24		
0,06	0,10	0,14	0,19	0,24		
	0,10	0,11				
	0,10	0,11				
	0,10	0,11				

Feed rate per cutting edge [mm]												
BMR03	BMR03	BMR03	BMR04	BMR04	BMR04	BMR04	BMR04	BMR04	CMZ01	CMA01	CMD01	
-	-	-	ZOHX12	ZOHX16	ZOHX20	ZOHX25	ZOHX30		SPMT12	SPMT12	SPMT12	
Tool diameter [mm]												
25	30-32	40-50	12	16	20	25	30	12-32	12-32	12-36		
0,21	0,26	0,30	0,10	0,13	0,14	0,16	0,17	0,23	0,23	0,23		
0,15	0,18	0,21	0,07	0,09	0,10	0,11	0,12	0,16	0,16	0,16		
0,14	0,17	0,20	0,07	0,08	0,09	0,10	0,11	0,15	0,15	0,15		
0,12	0,14	0,17	0,06	0,07	0,08	0,09	0,09	0,13	0,13	0,13		
0,27	0,34	0,39	0,13	0,17	0,18	0,21	0,22	0,30	0,30	0,30		
0,20	0,25	0,29	0,10	0,12	0,13	0,15	0,16	0,22	0,22	0,22		
0,21	0,26	0,30	0,10	0,13	0,14	0,16	0,17	0,23	0,23	0,23		

A

Turning

B

Milling

C

Drilling

D











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Face milling

Series	Milling body	Inserts	Kr	Application						Features	Page
				P	M	K	N	S	H		
FMR02		 RCGX1204 RCKT1204 RCMW1204 RCKT1606 RCKT2006		✓	✓	✓	✓	✓		<ul style="list-style-type: none"> • Diameter range Ø50 – 250 mm • For steel, stainless steel, cast iron, non-ferrous metals and heatresistant alloys • Screw clamping 	B90
FMR03		 RD**0803 RD**10T3 RD**1204		✓	✓	✓			✓	<ul style="list-style-type: none"> • Diameter range Ø15 – 50 mm • For steel, stainless steel and cast iron • Screw clamping • Mould and die industry 	B94
FMR03		 RDKW0702 RDKW1003		✓	✓	✓			✓	<ul style="list-style-type: none"> • Diameter range Ø15 – 50 mm • For steel, stainless steel and cast iron • Screw clamping • Mould and die industry 	B96
FMR04		 RD**1204 RD**1605 RD**2006		✓	✓	✓			✓	<ul style="list-style-type: none"> • Diameter range Ø50 – 200 mm • For steel, stainless steel and cast iron • Screw clamping • Mould and die industry 	B98
FMR04		 RDKW1003 RDKW12T3 RDKW1604		✓	✓	✓			✓	<ul style="list-style-type: none"> • Diameter range Ø42 – 200 mm • For steel, stainless steel and cast iron • Screw clamping • Mould and die industry 	B100

✓ Very suitable ✓ Suitable

A

Turning

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Milling

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Drilling

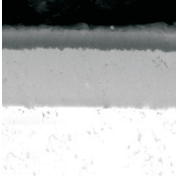
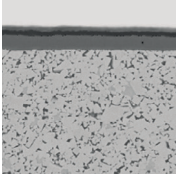
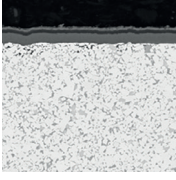
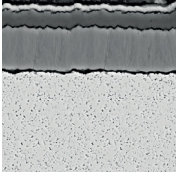
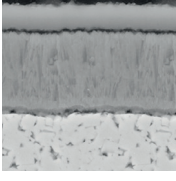
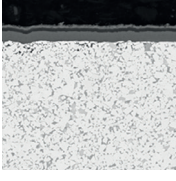
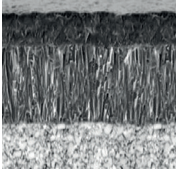

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Coated cemented carbide CVD

Grade	ISO	Micro structure	Grade description
YBC302	P20 - P35		CVD coated P20-P35 carbide grade for medium operation to roughing of steel at higher cutting speed. Optimal performance of wear resistance and toughness for a wide application field.
YBC301	P20 - P35		CVD coated P20-P35 carbide grade for medium operation to roughing of steel at lower cutting speed.
YBC401	P30 - P50 M30 - M40		CVD coated P30-P50/M30-M40 carbide grade for roughing operation of steel at lower cutting speed and unstable condition.
YBM251	P20 - P30 M15 - M35		CVD coated P20-P30/M15-M35 carbide grade for medium to roughing operation in stainless steel and steel with wide application field. Good wear resistance and capability against plastic deformation at normal cutting speed.
YBM253	M15 - M35		CVD coated M15-M35 carbide grade for medium to roughing operation in stainless steel with wide application field. High wear resistance and capability against plastic deformation at higher cutting speed.
YBM351	P25 - P40 M20 - M40		CVD coated P25-P40/M25-M40 carbide grade for roughing operation in stainless steel and steel. Good wear resistance and edge stability at normal cutting speed.
YBD152	K10 - K25		CVD coated K10-K25 carbide substrate. Optimized for medium to roughing operation of cast iron. Good wear resistance and toughness at higher cutting speed.
YBD252	K20 - K35		CVD coated K20-K35 carbide substrate. Optimized for medium to roughing operation of cast iron and Steel. Good wear resistance and toughness at higher cutting speed.

A

Turning

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Milling

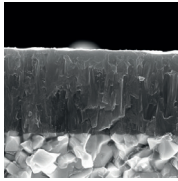
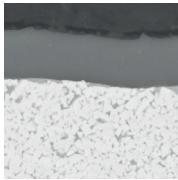
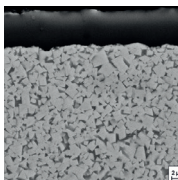
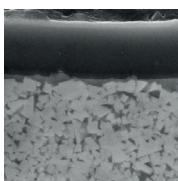
C

Drilling

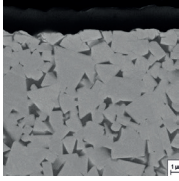
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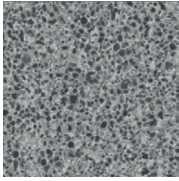
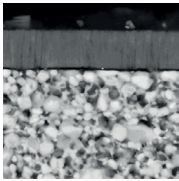
Coated cemented carbide PVD

Grade	ISO	Micro structure	Grade description
A Turning	YBG101	N05–N20	 <p>PVD coated N05–N20 carbide substrate for finishing to semi-finishing in aluminium materials. Coating only on the top face, in combination with the aluminium chip breakers, prevents built-up edges and gives a smooth cut.</p>
B Milling	YBG202	P10 - P30 M10-M25	 <p>PVD coated P10–P30/M10–M25 carbide substrate for finishing to medium application of stainless steel and steel (milling). Good wear resistance in a wide application field.</p>
D Technical Information	YBS203	S15 – S25	 <p>Turning and milling grades for processing heat-resistant materials. A special carbon substrate and the latest PVD coating technology enable a very good wear behaviour, high fracture toughness and high thermal stability.</p>
YBG302	P15 - P30 M25 - M40	 <p>PVD multilayer coated P10–P30/M10–M25 carbide substrate for finishing to medium machining of stainless steel, super alloys and steel (grooving/milling). Optimised coating stability for higher wear resistance and thermal stability in a wide range of applications.</p>	
			YBG302

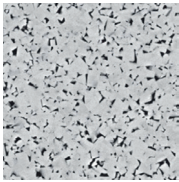
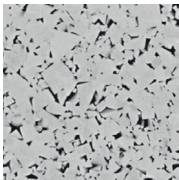
Coated cemented carbide PVD

Grade	ISO	Micro structure	Grade description
YBS303	S25 - S35		Milling grade for machining titanium alloys. A tough carbide substrate and the latest PVD coating technology with increased impact resistance and high thermal stability.

Cermet

Grade	ISO	Micro structure	Grade description
YNG151	P05 - P15		Uncoated P05-P15 cermet grade for fine finishing operation of steel and stainless steel. Good resistance against plastic deformation for good surface finishing.
YNG151C	P05 - P15		PVD coated P05-P15 cermet grade for fine finishing operation of steel and stainless steel. Good wear resistance and capability against plastic deformation for good surface roughness.

Uncoated cemented carbide

Grade	ISO	Micro structure	Grade description
YD101	N05 - N25 K05 - K20		Uncoated K05-K20/N05-N20 carbide substrate for fine to medium application in aluminum and other material.
YD201	K10 - K30 N10 - N30		Uncoated K10-K30/N10-N30 carbide substrate for medium application in aluminum and other material.

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Application fields of grades – indexable milling

	ISO	HC ¹ (CVD)	HC ¹ (PVD)	HT	HC ²	HW	PCBN/PCD	
A Turning	P	P01						
		P10		YBG102				
		P20	YBC301	YBG202	YNG151	YNG151C		
		P30	YBC302	YBG205				
		P40	YBC401	YBG302			YC305	
		YBM351	YB9320					
		YBM253						
B Milling	M	M01						
		M10		YBG102				
		M20	YBM251	YBG202	YNG151	YNG151C		
		M30	YBM253	YBG205				
		M40	YBM351	YBG302			YC305	
		YBC401	YB9320					
C Drilling	K	K01						
		K10		YBG102				
		K20	YBD152	YBG152				
		K30	YBD252	YBG202				
		K40					YD201	
D Technical Information	N	N01				YD051		
		N10		YBG101			YD101	
		N20		YBG202				YD201
		N30						
E Index	S	S01		YBG102				
		S10		YBG202				
		S20		YBG205				
		S30		YBS203				
				YBS303				
F	H	H01						
		H10		YBG102				
		H20						
		H30						

P	Steel
M	Stainless steel
K	Cast iron

N	Non-ferrous metals
S	Heat-resistant alloys
H	Hardened materials

HC ¹	Coated carbide
HT	Uncoated cermet
HC ²	Coated carbide
HW	Uncoated carbide